

SECTION 000115 - LIST OF DRAWINGS

All previously issued Bid Packages and Addendum are to be included by reference.

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
General				
G001	Cover Sheet – Volume 1	D	12/28/23	
G002	Drawing List	D	12/28/23	
G003	Code Review	D	12/28/23	
G004	Code Review Plan First Floor	D	12/28/23	1/12/24
G005	Code Review Plan Second Floor	D	12/28/23	
G007	School Safety Review – Overall Plans	D	12/28/23	
G008	Dema – Main Office Security Plan, Elevations, and Details	D	12/28/23	
G009	Keyplans	D	12/28/23	
G010	Exterior Wall Mockup	D	12/28/23	
Structural				
S001	Cover Sheet	D	12/28/23	
S002	General Notes	D	12/28/23	
S003	General Notes and Special Inspections	D	12/28/23	
S004	Project Schedules	D	12/28/23	
S101	Overall Foundation Plan	D	12/28/23	
S102	Overall Second Floor Framing Plan	D	12/28/23	
S103	Overall Roof Framing Plan	D	12/28/23	
S111	Keyplan 1 - Foundation Plan	D	12/28/23	
S112	Keyplan 2 - Foundation Plan	D	12/28/23	
S113	Keyplan 3 - Foundation Plan	D	12/28/23	
S114	Keyplan 4 - Foundation Plan	D	12/28/23	
S115	Keyplan 5 - Foundation Plan	D	12/28/23	
S116	Keyplan 6 - Foundation Plan	D	12/28/23	
S116A	Keyplan 6 - Alternate Foundation Plan	D	12/28/23	
S117	Keyplan 7 - Foundation Plan	D	12/28/23	
S118	Keyplan 8 - Foundation Plan	D	12/28/23	
S119	Keyplan 9 - Foundation Plan	D	12/28/23	
S120	Keyplan 10 - Foundation Plan	D	12/28/23	
S121	Keyplan 11 - Foundation Plan	D	12/28/23	
S131	Keyplan 1 - Second Floor Framing Plan	D	12/28/23	
S132	Keyplan 2 - Second Floor Low Roof Framing Plan	D	12/28/23	
S133	Keyplan 3 - Second Floor Framing Plan	D	12/28/23	
S134	Keyplan 4 - Second Floor Framing Plan	D	12/28/23	
S135	Keyplan 5 - Second Floor Framing Plan	D	12/28/23	
S136	Keyplan 6 - Second Floor Framing Plan	D	12/28/23	
S136A	Keyplan 6 - Alternate Second Floor Framing Plan	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
S137	Keyplan 7 - Second Floor Framing Plan	D	12/28/23	
S138	Keyplan 8 - Second Floor Framing Plan	D	12/28/23	
S139	Keyplan 9 - Second Floor Framing Plan	D	12/28/23	
S140	Keyplan 10 - Second Floor Framing Plan	D	12/28/23	
S141	Keyplan 11 - Second Floor Framing Plan	D	12/28/23	
S151	Keyplan 1 - Roof Framing Plan	D	12/28/23	
S152	Keyplan 2 - Roof Framing Plan	D	12/28/23	
S154	Keyplan 4 - Roof Framing Plan	D	12/28/23	
S155	Keyplan 5 - Roof Framing Plan	D	12/28/23	
S156	Keyplan 6 - Roof Framing Plan	D	12/28/23	
S156A	Keyplan 6 - Alternate Roof Framing Plan	D	12/28/23	
S157	Keyplan 7 - Roof Framing Plan	D	12/28/23	
S158	Keyplan 8 - Roof Framing Plan	D	12/28/23	
S159	Keyplan 9 - Roof Framing Plan	D	12/28/23	
S160	Keyplan 10 - Roof Framing Plan	D	12/28/23	
S161	Keyplan 11 - Roof Framing Plan	D	12/28/23	
S201	Exterior Elevations	D	12/28/23	
S401	Enlarged Plans	D	12/28/23	
S501	Typical Foundation Details	D	12/28/23	
S502	Typical Foundation Details	D	12/28/23	
S503	Typical Foundation Details	D	12/28/23	
S504	Foundation Sections and Details	D	12/28/23	
S505	Foundation Sections and Details	D	12/28/23	
S506	Foundation Sections and Details	D	12/28/23	
S511	Typical Framing Details	D	12/28/23	
S512	Typical Framing Details	D	12/28/23	
S513	Typical Framing Details	D	12/28/23	
S514	Framing Sections and Details	D	12/28/23	
S515	Framing Sections and Details	D	12/28/23	
S516	Framing Sections and Details	D	12/28/23	
S517	Framing Sections and Details	D	12/28/23	
S518	Framing Sections and Details	D	12/28/23	
S519	Framing Sections and Details	D	12/28/23	
S520	Framing Sections and Details	D	12/28/23	
S521	Framing Sections and Details	D	12/28/23	
S522	Framing Sections and Details	D	12/28/23	
S523	Framing Sections and Details	D	12/28/23	
S524	Framing Sections and Details	D	12/28/23	
S601	Live Load Diagrams	D	12/28/23	
S602	Live Load Diagrams	D	12/28/23	
S603	Live Load Diagrams	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
S720	CFMF Details	D	12/28/23	
Architectural				
G001	Cover Sheet - Volume 2	D	12/28/23	
G002	Drawing List	D	12/28/23	
A001	General Notes, Symbols and Abbreviations	D	12/28/23	
A002	Accessible Restroom Details	D	12/28/23	
A003	Exterior Wall Assemblies	D	12/28/23	1/19/24
A004	Partition Types	D	12/28/23	1/19/24
A100	Architectural Site Plan	D	12/28/23	
A101	Overall First Floor Plan - Base Bid	D	12/28/23	
A102	Overall Second Floor Plan - Base Bid	D	12/28/23	
A103	Floor Plan - Shops - Mezzanine Level	D	12/28/23	
A104	Overall First Floor Plan – Add Alternate #3	D	12/28/23	
A105	Overall Second Floor Plan – Add Alternate #3	D	12/28/23	
A106	Courtyard Plans	D	12/28/23	1/12/24
A111	First Floor Plan - Keyplan 1	D	12/28/23	1/19/24
A112	First Floor Plan - Keyplan 2	D	12/28/23	1/19/24
A113	First Floor Plan - Keyplan 3	D	12/28/23	1/19/24
A114	First Floor Plan - Keyplan 4	D	12/28/23	1/12/24
A115	First Floor Plan - Keyplan 5	D	12/28/23	1/12/24
A116	First Floor Plan - Keyplan 6	D	12/28/23	1/12/24
A116A	First Floor Plan - Keyplan 6 – Alternate #3	D	12/28/23	
A117	First Floor Plan - Keyplan 7	D	12/28/23	1/12/24
A118	First Floor Plan- Keyplan 8	D	12/28/23	1/12/24
A119	First Floor Plan - Keyplan 9	D	12/28/23	1/12/24
A120	First Floor Plan - Keyplan 10	D	12/28/23	1/19/24
A121	First Floor Plan - Keyplan 11	D	12/28/23	1/12/24
A131	Second Floor Plan - Keyplan 4	D	12/28/23	1/12/24
A132	Second Floor Plan- Keyplan 5	D	12/28/23	1/12/24
A133	Second Floor Plan - Keyplan 7	D	12/28/23	1/12/24
A134	Second Floor Plan - Keyplan 8	D	12/28/23	1/12/24
A135	Second Floor Plan - Keyplan 9	D	12/28/23	1/12/24
A136	Second Floor Plan - Keyplan 10	D	12/28/23	1/12/24
A137	Partial Plans – Mech Equipment Rooms	D	12/28/23	1/19/24
A138	Overall RCP – First Floor	D	12/28/23	
A139	Overall RCP – First Floor	D	12/28/23	
A140	Overall RCP – Second Floor	D	12/28/23	
A141	First Floor Reflected Ceiling Plan – Keyplan 1	D	12/28/23	1/19/24
A142	First Floor Reflected Ceiling Plan – Keyplan 2	D	12/28/23	1/12/24
A143	First Floor Reflected Ceiling Plan - Keyplan 3	D	12/28/23	1/12/24

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
A144	First Floor Reflected Ceiling Plan - Keyplan 4	D	12/28/23	1/12/24
A145	First Floor Reflected Ceiling Plan - Keyplan 5	D	12/28/23	1/12/24
A146	First Floor Reflected Ceiling - Keyplan 6	D	12/28/23	1/12/24
A146A	First Floor Reflected Ceiling Plan - Keyplan 6a (Add Alt. #3)	D	12/28/23	1/12/24
A147	First Floor Reflected Ceiling Plan - Keyplan 7	D	12/28/23	1/12/24
A148	First Floor Reflected Ceiling Plan - Keyplan 8	D	12/28/23	1/12/24
A149	First Floor Reflected Ceiling Plan - Keyplan 9	D	12/28/23	1/12/24
A150	First Floor Reflected Ceiling Plan - Keyplan 10	D	12/28/23	1/12/24
A151	First Floor Reflected Ceiling Floor - Keyplan 11	D	12/28/23	1/12/24
A152	Mezzanine Level RCP - Shops	D	12/28/23	1/12/24
A153	Second Floor RCP - Keyplan 4	D	12/28/23	1/12/24
A154	Second Floor RCP - Keyplan 5	D	12/28/23	
A155	Second Floor RCP - Keyplan 7	D	12/28/23	
A156	Second Floor RCP - Keyplan 8	D	12/28/23	
A157	Second Floor RCP - Keyplan 9	D	12/28/23	1/12/24
A158	Second Floor RCP - Keyplan 10	D	12/28/23	1/12/24
A161	Enlarged RCP - Auditorium & MP Rooms	D	12/28/23	1/19/24
A162	Enlarged RCP - Media Center	D	12/28/23	
A163	Enlarged RCP - Cafeteria	D	12/28/23	
A164	Enlarged RCP - Cafeteria	D	12/28/23	
A165	Enlarged RCP - Miscellaneous	D	12/28/23	1/12/24
A191	Roof Plan - Overall	D	12/28/23	1/19/24
A192	Roof Plan - Areas 1 & 2	D	12/28/23	1/19/24
A193	Roof Plan - Areas 3 & 6	D	12/28/23	1/19/24
A194	Roof Plan - Areas 6, 8, & 11	D	12/28/23	1/19/24
A195	Roof Plan - Areas 4, 5, 7, 8, 9, 10	D	12/28/23	1/19/24
A201	Exterior Building Elevations	D	12/28/23	1/19/24
A202	Exterior Building Elevations	D	12/28/23	1/19/24
A203	Exterior Building Elevations	D	12/28/23	
A204	Exterior Building Elevations	D	12/28/23	
A205	Exterior Building Elevations	D	12/28/23	
A206	Exterior Building Elevations	D	12/28/23	1/19/24
A207	Exterior Building Elevations	D	12/28/23	
A208	Exterior Building Elevations - Alternate #3	D	12/28/23	
A301	Building Sections	D	12/28/23	
A302	Building Sections	D	12/28/23	
A303	Building Sections	D	12/28/23	
A304	Building Sections	D	12/28/23	
A305	Building Sections	D	12/28/23	
A306	Building Sections	D	12/28/23	
A307	Building Sections	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
A308	Building Sections	D	12/28/23	
A311	Wall Sections – Area 1	D	12/28/23	
A312	Wall Sections – Area 1	D	12/28/23	1/19/24
A313	Wall Sections – Area 1	D	12/28/23	
A314	Wall Sections – Area 2	D	12/28/23	
A315	Wall Sections – Area 2	D	12/28/23	
A316	Wall Sections – Area 2 (Fire Walls)	D	12/28/23	
A317	Wall Sections – Area 2	D	12/28/23	
A318	Wall Sections – Area 3	D	12/28/23	
A319	Wall Sections – Area 3 & 4	D	12/28/23	
A320	Wall Sections– Area 4	D	12/28/23	
A321	Wall Sections – Area 4	D	12/28/23	
A322	Wall Sections – Area 4	D	12/28/23	
A323	Wall Sections – Area 4	D	12/28/23	
A324	Wall Sections – Area 5	D	12/28/23	
A325	Wall Sections – Area 6	D	12/28/23	1/19/24
A326	Wall Sections – Area 6	D	12/28/23	
A327	Wall Sections – Area 7	D	12/28/23	
A328	Wall Sections – Area 7 & 8	D	12/28/23	1/19/24
A329	Wall Sections – Area 8	D	12/28/23	
A330	Wall Sections – Area 8 & 9	D	12/28/23	1/19/24
A331	Wall Sections – Area 9	D	12/28/23	
A332	Wall Sections – Area 9	D	12/28/23	
A333	Wall Sections – Area 9	D	12/28/23	
A334	Wall Sections – Area 10	D	12/28/23	
A335	Wall Sections – Area 11	D	12/28/23	
A401	Enlarged Plans -Toilet Rooms	D	12/28/23	
A402	Enlarged Plans - Toilet Rooms	D	12/28/23	
A403	Restroom Elevations	D	12/28/23	
A404	Restroom Elevations and Locker Types	D	12/28/23	
A405	Enlarged Plan Auditorium	D	12/28/23	
A406	Gymnasium Detailed Plans	D	12/28/23	1/19/24
A407	Enlarged Plan – Kitchen & Servery	D	12/28/23	
A420	Enlarged Plan - PTMA	D	12/28/23	1/12/24
A421	Enlarged Plan - Nurse Tech	D	12/28/23	1/12/24
A422	Enlarged Plan - Technical Drafting	D	12/28/23	1/12/24
A423	Enlarged Plan - CNAP & Drivers Ed	D	12/28/23	1/12/24
A424	Enlarged Plan - Electrical Shop	D	12/28/23	1/12/24
A425	Enlarged Plan - Masonry Shop	D	12/28/23	1/12/24
A426	Enlarged Plan - Plumbing Shop	D	12/28/23	1/12/24
A427	Enlarged Plan - Carpentry Shop	D	12/28/23	1/12/24

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
A428	Enlarged Plan - Cosmetology	D	12/28/23	1/12/24
A429	Enlarged Plan - Dental Assisting	D	12/28/23	1/12/24
A430	Enlarged Plan - Industrial Millwright	D	12/28/23	1/12/24
A431	Enlarged Plan - Auto Body	D	12/28/23	1/12/24
A432	Enlarged Plan - Auto Tech	D	12/28/23	1/12/24
A433	Enlarged Plans - Typical Classrooms	D	12/28/23	1/12/24
A434	Enlarged Plans - Science Classrooms	D	12/28/23	1/12/24
A435	Enlarged Plans - Administration & Guidance Suites	D	12/28/23	1/12/24
A436	Enlarged Plans - Administration & Guidance Suites	D	12/28/23	1/12/24
A437	Enlarged Plans - Nurse & Special Education Suites	D	12/28/23	1/12/24
A438	Enlarged Plans - Media Center	D	12/28/23	1/12/24
A439	Enlarged Plans - Teaching Academy	D	12/28/23	1/12/24
A441	Int. Elevations - Auditorium	D	12/28/23	
A442	Int. Elevations - Auditorium & Details	D	12/28/23	1/12/24
A443	Int. Elevations - Multi-Purpose Rooms	D	12/28/23	
A444	Int. Elevations Cafeteria	D	12/28/23	
A445	Int. Elevations - Cafeteria	D	12/28/23	
A446	Int. Elevations - Gym	D	12/28/23	
A447	Int. Elevations - Gym	D	12/28/23	1/19/24
A448	Int. Elevations- Elevator and Shop Lobbies	D	12/28/23	1/12/24
A449	Int. Elevations - Lobby E101 and Misc	D	12/28/23	1/12/24
A450	Int. Elevations - Wrestling Room	D	12/28/23	
A451	Casework Elevations	D	12/28/23	1/12/24
A452	Casework Elevations	D	12/28/23	1/12/24
A453	Casework Elevations	D	12/28/23	
A454	Casework Elevations	D	12/28/23	
A456	Casework Elevations - Science Rooms	D	12/28/23	
A461	Casework Sections & Details	D	12/28/23	1/12/24
A470	Millwork Details	D	12/28/23	1/19/24
A500	Custom Masonry Shapes	D	12/28/23	
A501A	Exterior Plan Details - First Floor	D	12/28/23	
A502A	Exterior Plan Details - First Floor	D	12/28/23	
A503A	Exterior Plan Details - First Floor	D	12/28/23	1/19/24
A504	Exterior Plan Details - Upper Gymnasium	D	12/28/23	
A504A	Exterior Plan Details - First Floor	D	12/28/23	
A505A	Exterior Plan Details - First Floor	D	12/28/23	1/19/24
A505B	Exterior Plan Details - Upper Gymnasium	D	12/28/23	
A510A	Exterior Plan Details - First Floor	D	12/28/23	
A510B	Exterior Plan Details - Second Floor	D	12/28/23	
A511	Plan Details - Interior	D	12/28/23	
A512	Plan Details - Interior	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
A512A	Plan Details – Interior	D	12/28/23	
A513A	Exterior Plan Details - First Floor	D	12/28/23	
A513B	Exterior Plan Details – Second Floor	D	12/28/23	
A514A	Exterior Plan Details - First Floor	D	12/28/23	1/19/24
A514B	Exterior Plan Details – Second Floor	D	12/28/23	1/19/24
A515A	Exterior Plan Details - First Floor	D	12/28/23	
A515B	Exterior Plan Details – Second Floor	D	12/28/23	
A516A	Exterior Plan Details - First Floor	D	12/28/23	
A516B	Exterior Plan Details – Second Floor	D	12/28/23	
A517A	Exterior Plan Details - First Floor	D	12/28/23	
A517B	Exterior Plan Details – Second Floor	D	12/28/23	
A518A	Exterior Plan Details - First Floor	D	12/28/23	
A518B	Exterior Plan Details – Second Floor	D	12/28/23	
A519A	Exterior Plan Details - First Floor	D	12/28/23	
A519B	Exterior Plan Details – Second Floor	D	12/28/23	
A520A	Exterior Plan Details - First Floor	D	12/28/23	
A520B	Exterior Plan Details – Second Floor	D	12/28/23	
A521	Ceiling Details	D	12/28/23	1/12/24
A522	Ceiling Section Details	D	12/28/23	
A523	Ceiling Section Details	D	12/28/23	
A531	Railing Details	D	12/28/23	1/19/24
A532	Railing Details	D	12/28/23	1/19/24
A541	Door Details - Interiors	D	12/28/23	
A542	Door Details - Interior	D	12/28/23	
A551	Section Details	D	12/28/23	
A560	Architectural Site Details	D	12/28/23	
A561	Architectural Site Details	D	12/28/23	
A562	Architectural Site Details	D	12/28/23	
A563	Architectural Site Details	D	12/28/23	
A564	Architectural Site Details	D	12/28/23	
A565	Architectural Site Details	D	12/28/23	
A590	Roofing Details	D	12/28/23	
A591	Roofing Details	D	12/28/23	
A601	Door Schedule	D	12/28/23	1/19/24
A602	Door Schedule	D	12/28/23	1/19/24
A603	Door Schedule - Exterior	D	12/28/23	1/19/24
A604	Door and Frame Types	D	12/28/23	1/19/24
A610	Exterior Storefront Types	D	12/28/23	
A611	Exterior Storefront Details	D	12/28/23	1/19/24
A612	Exterior Storefront Details	D	12/28/23	1/19/24
A613	Exterior Storefront Details	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
A614	Interior Storefront Types	D	12/28/23	1/19/24
A621	Curtain Wall Types	D	12/28/23	
A631	Translucent Wall Panel Types & Louver Types	D	12/28/23	1/19/24
A632	Translucent Wall Panel Types	D	12/28/23	
A633	Translucent Wall Panel Types	D	12/28/23	1/19/24
A634	Translucent Wall Panel Types	D	12/28/23	
A641	Glazing Details - Interior	D	12/28/23	1/19/24
A651	Exterior MCM Panel Schedule	D	12/28/23	
A701	Stair #1 & 8 - Plans and Sections	D	12/28/23	1/19/24
A702	Stair #2 & 3 & 6 - Plans and Sections	D	12/28/23	1/19/24
A703	Stair #4 & 7 - Plans and Sections	D	12/28/23	1/12/24
A704	Monumental Stair in Lobby A102- Plans and Sections	D	12/28/23	1/12/24
A705	Monumental Stair #5 – Plans and Sections (Add Alternate #7-BP-D)	D	12/28/23	
A706	Misc. Stairs, Ramps, and Details	D	12/28/23	1/19/24
A707	Elevator #1 – Plans and Sections	D	12/28/23	
Interiors				
I-001	Finish Legend	D	12/28/23	1/19/24
I-002	Overall First Floor Plan – Flooring Alternate	D	12/28/23	
I-111	First Floor Finish Plan - Keyplan 1	D	12/28/23	1/19/24
I-112	First Floor Finish Plan - Keyplan 2	D	12/28/23	1/19/24
I-113	First Floor Finish Plan - Keyplan 3	D	12/28/23	
I-114	First Floor Finish Plan - Keyplan 4	D	12/28/23	1/19/24
I-115	First Floor Finish Plan - Keyplan 5	D	12/28/23	
I-116	First Floor Finish Plan - Keyplan 6	D	12/28/23	
I-116A	First Floor Finish Plan – Keyplan 6 – Alternate #3	D	12/28/23	
I-117	First Floor Finish Plan - Keyplan 7	D	12/28/23	1/19/24
I-118	First Floor Finish Plan - Keyplan 8	D	12/28/23	
I-119	First Floor Finish Plan - Keyplan 9	D	12/28/23	
I-120	First Floor Finish Plan - Keyplan 10	D	12/28/23	
I-121	First Floor Finish Plan - Keyplan 11	D	12/28/23	1/19/24
I-131	Second Floor Finish Plan – Keyplan 4	D	12/28/23	
I-132	Second Floor Finish Plan - Keyplan 5	D	12/28/23	
I-133	Second Floor Finish Plan - Keyplan 7	D	12/28/23	1/19/24
I-134	Second Floor Finish Plan - Keyplan 8	D	12/28/23	
I-135	Second Floor Finish Plan - Keyplan 9	D	12/28/23	
I-136	Second Floor Finish Plan - Keyplan 10	D	12/28/23	
I-211	First Floor Furniture Plan - Keyplan 1	D	12/28/23	
I-212	First Floor Furniture Plan - Keyplan 2	D	12/28/23	
I-213	First Floor Furniture Plan - Keyplan 3	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
I-214	First Floor Furniture Plan - Keyplan 4	D	12/28/23	
I-215	First Floor Furniture Plan - Keyplan 5	D	12/28/23	
I-216	First Floor Furniture Plan - Keyplan 6	D	12/28/23	
I-217	First Floor Furniture Plan - Keyplan 7	D	12/28/23	
I-218	First Floor Furniture Plan - Keyplan 8	D	12/28/23	
I-219	First Floor Furniture Plan - Keyplan 9	D	12/28/23	
I-220	First Floor Furniture Plan - Keyplan 10	D	12/28/23	
I-221	First Floor Furniture Plan - Keyplan 11	D	12/28/23	
I-231	Second Floor Furniture Plan - Keyplan 4	D	12/28/23	
I-232	Second Floor Furniture Plan - Keyplan 5	D	12/28/23	
I-233	Second Floor Furniture Plan - Keyplan 7	D	12/28/23	
I-234	Second Floor Furniture Plan - Keyplan 8	D	12/28/23	
I-235	Second Floor Furniture Plan - Keyplan 9	D	12/28/23	
I-236	Second Floor Furniture Plan - Keyplan 10	D	12/28/23	
Mechanical				
G001	Cover Sheet – Volume 3	D	12/28/23	
G002	Drawing List	D	12/28/23	
M001	Legend And Abbreviations - HVAC	D	12/28/23	
M111	First Floor – Keyplan 1 – HVAC	D	12/28/23	
M112	First Floor – Keyplan 2 – HVAC	D	12/28/23	
M113	First Floor – Keyplan 3 – HVAC	D	12/28/23	
M114	First Floor – Keyplan 4 – HVAC	D	12/28/23	
M115	First Floor – Keyplan 5 – HVAC	D	12/28/23	
M116	First Floor – Keyplan 6 – HVAC	D	12/28/23	
M117	First Floor – Keyplan 7 – HVAC	D	12/28/23	
M118	First Floor – Keyplan 8 – HVAC	D	12/28/23	
M119	First Floor – Keyplan 9 – HVAC	D	12/28/23	
M120	First Floor – Keyplan 10 – HVAC	D	12/28/23	
M121	First Floor – Keyplan 11 – HVAC	D	12/28/23	
M131	Second Floor – Keyplan 1 – HVAC	D	12/28/23	
M132	Second Floor – Keyplan 2 – HVAC	D	12/28/23	
M133	Second Floor – Keyplan 3 – HVAC	D	12/28/23	
M134	Second Floor – Keyplan 4 – HVAC	D	12/28/23	
M135	Second Floor – Keyplan 5 – HVAC	D	12/28/23	
M136	Second Floor – Keyplan 6 – HVAC	D	12/28/23	
M137	Second Floor – Keyplan 7 – HVAC	D	12/28/23	
M138	Second Floor – Keyplan 8 – HVAC	D	12/28/23	
M139	Second Floor – Keyplan 9 – HVAC	D	12/28/23	
M140	Second Floor – Keyplan 10 – HVAC	D	12/28/23	
M141	Second Floor – Keyplan 11 – HVAC	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
MP111	First Floor – Keyplan 1 – Mechanical Piping	D	12/28/23	
MP112	First Floor – Keyplan 2 – Mechanical Piping	D	12/28/23	
MP113	First Floor – Keyplan 3 – Mechanical Piping	D	12/28/23	
MP114	First Floor – Keyplan 4 – Mechanical Piping	D	12/28/23	1/12/24
MP115	First Floor – Keyplan 5 – Mechanical Piping	D	12/28/23	1/12/24
MP116	First Floor – Keyplan 6 – Mechanical Piping	D	12/28/23	
MP116A	First Floor – Keyplan 6 – Alternate - Mechanical Piping	D	12/28/23	
MP117	First Floor – Keyplan 7 – Mechanical Piping	D	12/28/23	
MP118	First Floor – Keyplan 8 – Mechanical Piping	D	12/28/23	
MP119	First Floor – Keyplan 9 – Mechanical Piping	D	12/28/23	
MP120	First Floor – Keyplan 10 – Mechanical Piping	D	12/28/23	
MP121	First Floor – Keyplan 11 – Mechanical Piping	D	12/28/23	
MP131	Second Floor – Keyplan 1 – Mechanical Piping	D	12/28/23	1/19/24
MP132	Second Floor – Keyplan 2 – Mechanical Piping	D	12/28/23	
MP133	Second Floor – Keyplan 3 – Mechanical Piping	D	12/28/23	
MP134	Second Floor – Keyplan 4 – Mechanical Piping	D	12/28/23	1/12/24
MP135	Second Floor – Keyplan 5 – Mechanical Piping	D	12/28/23	
MP136	Second Floor – Keyplan 6 – Mechanical Piping	D	12/28/23	
MP137	Second Floor – Keyplan 7 – Mechanical Piping	D	12/28/23	1/12/24
MP138	Second Floor – Keyplan 8 – Mechanical Piping	D	12/28/23	1/12/24
MP139	Second Floor – Keyplan 9 – Mechanical Piping	D	12/28/23	
MP140	Second Floor – Keyplan 10 – Mechanical Piping	D	12/28/23	
MP141	Second Floor – Keyplan 11 – Mechanical Piping	D	12/28/23	
M151	Roof Plan – Areas 1 & 2 – HVAC	D	12/28/23	
M152	Roof Plan – Areas 2 3 & 6 – HVAC	D	12/28/23	
M153	Roof Plan – Areas 3 6, 8 & 11 – HVAC	D	12/28/23	
M154	Roof Plan – Areas 4, 5, 7, 8, 9 & 20 – HVAC	D	12/28/23	1/12/24
M201	Part Plans – HVAC	D	12/28/23	
M202	Part Plans – HVAC	D	12/28/23	
M203	Part Plans – HVAC	D	12/28/23	
M204	Part Plans – HVAC	D	12/28/23	
M205	Part Plans – HVAC	D	12/28/23	
M301	Details - HVAC	D	12/28/23	
M302	Details - HVAC	D	12/28/23	
M303	Details - HVAC	D	12/28/23	
M304	Details - HVAC	D	12/28/23	
M305	Details - HVAC	D	12/28/23	
M306	Details - HVAC	D	12/28/23	
M307	Details - HVAC	D	12/28/23	
M308	Details - HVAC	D	12/28/23	
M309	Details - HVAC	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
M310	Details - HVAC	D	12/28/23	
M311	Details - HVAC	D	12/28/23	
M312	Details - HVAC	D	12/28/23	
M313	Details - HVAC	D	12/28/23	
M314	Details - HVAC	D	12/28/23	
M315	Details - HVAC	D	12/28/23	
M316	Details - HVAC	D	12/28/23	
M319	Details – HVAC	D	12/28/23	
M401	Automatic Temperature Controls	D	12/28/23	
M402	Automatic Temperature Controls	D	12/28/23	
M403	Automatic Temperature Controls	D	12/28/23	
M404	Automatic Temperature Controls	D	12/28/23	
M405	Automatic Temperature Controls	D	12/28/23	
M406	Automatic Temperature Controls	D	12/28/23	
M407	Automatic Temperature Controls	D	12/28/23	
M408	Automatic Temperature Controls	D	12/28/23	
M409	Automatic Temperature Controls	D	12/28/23	
M410	Automatic Temperature Controls	D	12/28/23	
M411	Automatic Temperature Controls	D	12/28/23	
M412	Automatic Temperature Controls	D	12/28/23	
M413	Automatic Temperature Controls	D	12/28/23	
M414	Automatic Temperature Controls	D	12/28/23	
M415	Automatic Temperature Controls	D	12/28/23	
M416	Automatic Temperature Controls	D	12/28/23	
M417	Automatic Temperature Controls	D	12/28/23	
M418	Automatic Temperature Controls	D	12/28/23	
M419	Automatic Temperature Controls	D	12/28/23	
M420	Automatic Temperature Controls	D	12/28/23	
M501	Schedules - HVAC	D	12/28/23	
M502	Schedules - HVAC	D	12/28/23	
M503	Schedules - HVAC	D	12/28/23	
M504	Schedules - HVAC	D	12/28/23	
M505	Schedules - HVAC	D	12/28/23	
M506	Schedules - HVAC	D	12/28/23	
M507	Schedules - HVAC	D	12/28/23	
M508	Schedules - HVAC	D	12/28/23	
M509	Schedules - HVAC	D	12/28/23	
M510	Schedules - HVAC	D	12/28/23	
M601	Site Plan – HVAC	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
Fire Protection				
F101	Fire Protection Zoning Plan – First Floor	D	12/28/23	
F102	Fire Protection Zoning Plan – Second Floor	D	12/28/23	
F111	First Floor - Keyplan 1 - Fire Protection	D	12/28/23	
F112	First Floor - Keyplan 2 - Fire Protection	D	12/28/23	
F113	First Floor - Keyplan 3 - Fire Protection	D	12/28/23	
F114	First Floor - Keyplan 4 - Fire Protection	D	12/28/23	
F115	First Floor - Keyplan 5 - Fire Protection	D	12/28/23	
F116	First Floor - Keyplan 6 - Fire Protection	D	12/28/23	
F117	First Floor - Keyplan 7 - Fire Protection	D	12/28/23	
F118	First Floor - Keyplan 8 - Fire Protection	D	12/28/23	
F119	First Floor - Keyplan 9 - Fire Protection	D	12/28/23	
F120	First Floor - Keyplan 10 - Fire Protection	D	12/28/23	
F121	First Floor - Keyplan 11 - Fire Protection	D	12/28/23	
F131	Second Floor Plan - Keyplan 1 - Fire Protection	D	12/28/23	
F132	Second Floor Plan - Keyplan 2 – Fire Protection	D	12/28/23	
F133	Second Floor Plan - Keyplan 3 - Fire Protection	D	12/28/23	
F134	Second Floor Plan - Keyplan 4 - Fire Protection	D	12/28/23	
F135	Second Floor Plan - Keyplan 5 - Fire Protection	D	12/28/23	
F136	Second Floor Plan - Keyplan 6 - Fire Protection	D	12/28/23	
F137	Second Floor Plan - Keyplan 7 - Fire Protection	D	12/28/23	
F138	Second Floor Plan - Keyplan 8 - Fire Protection	D	12/28/23	
F139	Second Floor Plan - Keyplan 9 - Fire Protection	D	12/28/23	
F140	Second Floor Plan - Keyplan 10 - Fire Protection	D	12/28/23	
F141	Second Floor Plan - Keyplan 11 - Fire Protection	D	12/28/23	
F301	Details – Fire Protection	D	12/28/23	
F302	Details & Schedules - Fire Protection	D	12/28/23	
Plumbing				
P001	Legend & Abbreviations – Plumbing	D	12/28/23	1/12/24
P111	First Floor – Keyplan 1 – Plumbing	D	12/28/23	1/12/24
P112	First Floor – Keyplan 2 – Plumbing	D	12/28/23	1/12/24
P113	First Floor – Keyplan 3 – Plumbing	D	12/28/23	1/12/24
P114	First Floor – Keyplan 4 – Plumbing	D	12/28/23	1/12/24
P115	First Floor – Keyplan 5 – Plumbing	D	12/28/23	1/12/24
P116	First Floor – Keyplan 6 – Plumbing	D	12/28/23	1/12/24
P116A	First Floor – Keyplan 6 – Plumbing – Alternate - Plumbing	D	12/28/23	1/12/24
P117	First Floor – Keyplan 7 – Plumbing	D	12/28/23	1/12/24
P118	First Floor – Keyplan 8 – Plumbing	D	12/28/23	1/12/24
P119	First Floor – Keyplan 9 – Plumbing	D	12/28/23	1/12/24
P120	First Floor – Keyplan 10 – Plumbing	D	12/28/23	1/12/24

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
P121	First Floor – Keyplan 11 – Plumbing	D	12/28/23	1/12/24
P131	Second Floor – Keyplan 1 – Plumbing	D	12/28/23	1/12/24
P132	Second Floor – Keyplan 2 – Plumbing	D	12/28/23	1/12/24
P133	Second Floor – Keyplan 3 – Plumbing	D	12/28/23	1/12/24
P134	Second Floor – Keyplan 4 – Plumbing	D	12/28/23	1/12/24
P135	Second Floor – Keyplan 5 – Plumbing	D	12/28/23	1/12/24
P136	Second Floor – Keyplan 6 – Plumbing	D	12/28/23	1/12/24
P137	Second Floor – Keyplan 7 – Plumbing	D	12/28/23	1/12/24
P138	Second Floor – Keyplan 8 – Plumbing	D	12/28/23	1/12/24
P139	Second Floor – Keyplan 9 – Plumbing	D	12/28/23	1/12/24
P140	Second Floor – Keyplan 10 – Plumbing	D	12/28/23	1/12/24
P141	Second Floor – Keyplan 11 – Plumbing	D	12/28/23	1/12/24
P151	Roof - Areas 1 & 2 - Plumbing	D	12/28/23	1/12/24
P152	Roof - Areas 3 & 6 - Plumbing	D	12/28/23	1/12/24
P153	Roof - Areas 6, 8 & 11 - Plumbing	D	12/28/23	1/12/24
P154	Roof - Areas 4, 5, 7, 8, 9 & 10 - Plumbing	D	12/28/23	1/12/24
P201	Part Plans - Plumbing	D	12/28/23	1/12/24
P202	Part Plans – Plumbing	D	12/28/23	1/12/24
P203	Part Plans - Plumbing	D	12/28/23	1/12/24
P204	Part Plan - Plumbing	D	12/28/23	1/12/24
P205	Part Plans - Plumbing	D	12/28/23	1/12/24
P206	Part Plans - Plumbing	D	12/28/23	1/12/24
P207	Part Plans - Plumbing	D	12/28/23	1/12/24
P208	Part Plans - Plumbing	D	1/12/24	
P301	Details – Plumbing	D	12/28/23	1/12/24
P302	Details – Plumbing	D	12/28/23	1/12/24
P303	Details – Plumbing	D	12/28/23	1/12/24
P304	Details – Plumbing	D	12/28/23	1/12/24
P305	Details – Plumbing	D	12/28/23	1/12/24
P306	Details – Plumbing	D	12/28/23	1/12/24
P307	Details – Plumbing	D	12/28/23	1/12/24
P308	Details – Plumbing	D	12/28/23	1/12/24
P309	Details – Plumbing	D	12/28/23	1/12/24
P310	Details – Plumbing	D	12/28/23	1/12/24
P311	Details – Plumbing	D	12/28/23	1/12/24
P312	Details – Plumbing	D	12/28/23	1/12/24
P313	Details – Plumbing	D	12/28/23	1/12/24
P314	Details – Plumbing	D	12/28/23	
P315	Details – Plumbing	D	12/28/23	
P316	Details - Plumbing	D	12/28/23	
P317	Details - Plumbing	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
P401	Schedules – Plumbing	D	12/28/23	1/12/24
P402	Schedules - Plumbing	D	12/28/23	
P501	Risers – Plumbing	D	12/28/23	1/12/24
P502	Risers – Plumbing	D	12/28/23	1/12/24
P503	Risers – Plumbing	D	12/28/23	1/12/24
P504	Risers – Plumbing	D	12/28/23	1/12/24
P505	Risers – Plumbing	D	12/28/23	1/12/24
P506	Risers – Plumbing	D	12/28/23	1/12/24
P507	Risers – Plumbing	D	12/28/23	1/12/24
P508	Risers – Plumbing	D	12/28/23	1/12/24
P509	Risers – Plumbing	D	12/28/23	1/12/24
P510	Risers – Plumbing	D	12/28/23	1/12/24
P511	Risers – Plumbing	D	12/28/23	1/12/24
P512	Risers – Plumbing	D	12/28/23	1/12/24
P513	Risers – Plumbing	D	12/28/23	1/12/24
P514	Risers – Plumbing	D	12/28/23	1/12/24
P515	Risers – Plumbing	D	12/28/23	1/12/24
P516	Risers – Plumbing	D	12/28/23	1/12/24
P517	Risers – Plumbing	D	12/28/23	1/12/24
P518	Risers – Plumbing	D	12/28/23	1/12/24
P519	Risers – Plumbing	D	12/28/23	1/12/24
P520	Risers – Plumbing	D	12/28/23	1/12/24
P521	Risers – Plumbing	D	12/28/23	1/12/24
P522	Risers – Plumbing	D	12/28/23	1/12/24
P523	Risers – Plumbing	D	12/28/23	1/12/24
P524	Risers – Plumbing	D	12/28/23	1/12/24
P525	Risers – Plumbing	D	12/28/23	1/12/24
P526	Risers – Plumbing	D	12/28/23	1/12/24
P527	Risers – Plumbing	D	12/28/23	1/12/24
P528	Risers – Plumbing	D	12/28/23	1/12/24
P529	Risers – Plumbing	D	12/28/23	1/12/24
P530	Risers – Plumbing	D	12/28/23	1/12/24
P531	Risers – Plumbing	D	12/28/23	1/12/24
P532	Risers – Plumbing	D	12/28/23	1/12/24
P533	Risers – Plumbing	D	12/28/23	1/12/24
P534	Risers – Plumbing	D	12/28/23	1/12/24
P535	Risers – Plumbing	D	12/28/23	1/12/24
P536	Risers – Plumbing	D	12/28/23	1/12/24
P537	Risers – Plumbing	D	12/28/23	1/12/24

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
Electrical				
G001	Cover Sheet – Volume 4	D	12/28/23	
G002	Drawing List	D	12/28/23	
E001	Electrical Legend, Schedules & Abbreviations	D	12/28/23	1/12/24
E002	Lighting Fixture Schedule	D	12/28/23	1/19/24
E003	Lighting Fixture Schedule	D	12/28/23	1/19/24
E004	Site Plan Electrical	D	12/28/23	1/12/24
E005	Site Plan Electrical	D	12/28/23	
E006	Site Plan Electrical	D	12/28/23	1/12/24
E101	First Floor - Keyplan 1 - Power	D	12/28/23	1/19/24
E102	First Floor - Keyplan 2 - Power	D	12/28/23	1/12/24
E103	First Floor - Keyplan 3 - Power	D	12/28/23	1/12/24
E104	First Floor - Keyplan 4 - Power	D	12/28/23	
E105	First Floor - Keyplan 5 - Power	D	12/28/23	1/12/24
E106	First Floor - Keyplan 6 - Power	D	12/28/23	
E106A	First Floor - Keyplan 6A – Alternate #3 - Power	D	12/28/23	
E107	First Floor - Keyplan 7 - Power	D	12/28/23	1/12/24
E108	First Floor - Keyplan 8 - Power	D	12/28/23	1/12/24
E109	First Floor - Keyplan 9 - Power	D	12/28/23	1/12/24
E110	First Floor - Keyplan 10 - Power	D	12/28/23	
E111	First Floor - Keyplan 11 - Power	D	12/28/23	1/12/24
E121	Second Floor - Keyplan 4 - Power	D	12/28/23	
E122	Second Floor - Keyplan 5 - Power	D	12/28/23	1/12/24
E123	Second Floor - Keyplan 6 - Power	D	12/28/23	
E124	Second Floor - Keyplan 7 - Power	D	12/28/23	1/12/24
E125	Second Floor - Keyplan 8 - Power	D	12/28/23	1/12/24
E126	Second Floor - Keyplan 9 - Power	D	12/28/23	
E127	Second Floor - Keyplan 10 - Power	D	12/28/23	1/12/24
E128	Second Floor - Keyplan 11 - Power	D	12/28/23	
E129	Roof Plan - Overall - Power	D	12/28/23	
E201	First Floor - Keyplan 1 - Lighting	D	12/28/23	1/19/24
E202	First Floor - Keyplan 2 - Lighting	D	12/28/23	1/19/24
E203	First Floor - Keyplan 3 - Lighting	D	12/28/23	1/12/24
E204	First Floor - Keyplan 4 - Lighting	D	12/28/23	
E205	First Floor - Keyplan 5 - Lighting	D	12/28/23	1/12/24
E206	First Floor - Keyplan 6 - Lighting	D	12/28/23	1/12/24
E206A	First Floor – Keyplan 6A – Alternate #3 Lighting	D	12/28/23	
E207	First Floor - Keyplan 7 - Lighting	D	12/28/23	1/12/24
E208	First Floor - Keyplan 8 - Lighting	D	12/28/23	1/12/24
E209	First Floor - Keyplan 9 - Lighting	D	12/28/23	1/12/24
E210	First Floor - Keyplan 10 - Lighting	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
E211	First Floor - Keyplan 11 - Lighting	D	12/28/23	
E221	Second Floor - Keyplan 4 - Lighting	D	12/28/23	
E222	Second Floor - Keyplan 5 - Lighting	D	12/28/23	
E223	Second Floor - Keyplan 6 - Lighting	D	12/28/23	
E224	Second Floor - Keyplan 7 - Lighting	D	12/28/23	
E225	Second Floor - Keyplan 8 - Lighting	D	12/28/23	
E226	Second Floor - Keyplan 9 - Lighting	D	12/28/23	
E227	Second Floor - Keyplan 10 - Lighting	D	12/28/23	1/19/24
E228	Second Floor - Keyplan 11 - Lighting	D	12/28/23	1/12/24
E301	First Floor - Keyplan 1 - Fire Alarm	D	12/28/23	1/12/24
E302	First Floor - Keyplan 2 - Fire Alarm	D	12/28/23	
E303	First Floor - Keyplan 3 - Fire Alarm	D	12/28/23	
E304	First Floor - Keyplan 4 - Fire Alarm	D	12/28/23	1/12/24
E305	First Floor - Keyplan 5 - Fire Alarm	D	12/28/23	1/12/24
E306	First Floor - Keyplan 6 - Fire Alarm	D	12/28/23	
E306A	Firs Floor – Keyplan 6A – Alternate #3 – Fire Alarm	D	12/28/23	
E307	First Floor - Keyplan 7 - Fire Alarm	D	12/28/23	
E308	First Floor - Keyplan 8 - Fire Alarm	D	12/28/23	
E309	First Floor - Keyplan 9 - Fire Alarm	D	12/28/23	
E310	First Floor - Keyplan 10 - Fire Alarm	D	12/28/23	1/12/24
E311	First Floor - Keyplan 11 - Fire Alarm	D	12/28/23	1/12/24
E321	Second Floor - Keyplan 4 - Fire Alarm	D	12/28/23	
E322	Second Floor - Keyplan 5 - Fire Alarm	D	12/28/23	
E323	Second Floor - Keyplan 6 - Fire Alarm	D	12/28/23	
E324	Second Floor - Keyplan 7 - Fire Alarm	D	12/28/23	1/19/24
E325	Second Floor - Keyplan 8 - Fire Alarm	D	12/28/23	
E326	Second Floor - Keyplan 9 - Fire Alarm	D	12/28/23	
E327	Second Floor - Keyplan 10 - Fire Alarm	D	12/28/23	
E328	Second Floor - Keyplan 11 - Fire Alarm	D	12/28/23	
E401	Part Plan - Main Electrical/Mechanical Room	D	12/28/23	1/12/24
E402	Electrical Part Plans	D	12/28/23	
E403	Electrical Part Plans	D	12/28/23	
E404	Part Plan - Kitchen E105	D	12/28/23	1/12/24
E405	Part Plan - Culinary Lab D101	D	12/28/23	1/12/24
E406	Part Plan - Electrical Shop D110	D	12/28/23	
E407	Part Plan - Masonry Shop - D114	D	12/28/23	
E408	Part Plan - Plumbing Shop D116	D	12/28/23	1/12/24
E409	Part Plan - Carpentry Shop C101	D	12/28/23	1/12/24
E410	Part Plan - Cosmetology Lab C102B & C102K	D	12/28/23	1/12/24
E411	Part Plan - Industrial Millwright C118	D	12/28/23	1/12/24
E412	Part Plan - Autobody Shop C120	D	12/28/23	1/19/24

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
E413	Part Plan - Auto Tech Shop C124	D	12/28/23	1/12/24
E414	Part Plans - Mezzanine	D	12/28/23	
E415	Part Plans - Mezzanine	D	12/28/23	
E416	Part Plans - Mezzanine	D	12/28/23	
E417	Part Plan – Auditorium Theater Equipment Rough-Ins	D	12/28/23	1/12/24
E418	Part Plan – Auditorium Theater Equipment Lighting Rough-Ins	D	12/28/23	1/19/24
E419	Part Plan – Auditorium Theater Elevations	D	12/28/23	
E501	Schematic Power Riser Diagram	D	12/28/23	
E502	Schematic Power Riser Diagram	D	12/28/23	
E503	Schematic Power Riser Diagram	D	12/28/23	
E504	Schematic Power Riser Diagram	D	12/28/23	
E505	Schematic Power Riser Diagram	D	12/28/23	
E506	Schematic Fire Alarm Riser Diagram	D	12/28/23	1/12/24
E507	Fire Alarm Static Graphic Annunciator	D	12/28/23	
E601	Panel Schedules	D	12/28/23	1/12/24
E602	Panel Schedules	D	12/28/23	
E603	Panel Schedules	D	12/28/23	
E604	Panel Schedules	D	12/28/23	
E605	Panel Schedules	D	12/28/23	1/12/24
E606	Panel Schedules	D	12/28/23	1/12/24
E607	Panel Schedules	D	12/28/23	
E608	Panel Schedules	D	12/28/23	1/19/24
E609	Panel Schedules	D	12/28/23	
E610	Panel Schedules	D	12/28/23	
E611	Panel Schedules	D	12/28/23	1/12/24
E612	Panel Schedules	D	12/28/23	1/12/24
E613	Panel Schedules	D	12/28/23	1/19/24
E614	Panel Schedules	D	12/28/23	1/12/24
E615	Panel Schedules	D	12/28/23	1/12/24
E616	Panel Schedules	D	12/28/23	
E617	Panel Schedules	D	12/28/23	
E618	Panel Schedules	D	12/28/23	
E619	Panel Schedules	D	12/28/23	
E620	Mechanical Equipment Connection Schedule	D	12/28/23	
E621	Mechanical Equipment Connection Schedule	D	12/28/23	1/12/24
E622	Mechanical Equipment Connection Schedule	D	12/28/23	
E623	Mechanical Equipment Connection Schedule	D	12/28/23	
E624	Mechanical Equipment Connection Schedule	D	12/28/23	
E625	Mechanical Equipment Connection Schedule	D	12/28/23	
E626	Kitchen Equipment Connection Schedule	D	12/28/23	1/12/24

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
E701	Electrical Details	D	12/28/23	
E702	Electrical Details	D	12/28/23	
E703	Electrical Details	D	12/28/23	
E704	Electrical Details	D	12/28/23	
E705	Electrical Details	D	12/28/23	
E706	Electrical Details	D	12/28/23	1/19/24
E707	Electrical Details	D	12/28/23	1/19/24
E708	Electrical Details	D	12/28/23	
E709	Electrical Details	D	12/28/23	
E710	Electrical Details	D	12/28/23	
E711	Electrical Details	D	12/28/23	1/12/24
E712	Electrical Details	D	12/28/23	
E713	Electrical Details	D	12/28/23	
E714	Electrical Details	D	12/28/23	
E715	Electrical Details	D	12/28/23	
E716	Corridor Lighting Control Zones	D	12/28/23	
E717	Switched Receptacle Control Zones	D	12/28/23	
Theater				
G001	Cover Sheet – Volume 5	D	12/28/23	
G002	Drawing List	D	12/28/23	
AV-001	AV Systems - Schedules	D	12/28/23	
AV-002	AV Systems - Technical Power Concept	D	12/28/23	
AV-101	AV Systems - Level 1 Plan	D	12/28/23	
AV-201	AV Systems - Loudspeaker & Projection Centerline	D	12/28/23	
AV-301	AV Systems - Combo Panel Details	D	12/28/23	
AV-302	AV Systems - SVC Device Details	D	12/28/23	
AV-303	AV Systems - Rack Panel Details	D	12/28/23	
AV-304	AV Systems - Rack Elevations	D	12/28/23	
AV-401	AV Systems – Signal Flows 1	D	12/28/23	
AV-402	AV Systems – Signal Flows 2	D	12/28/23	
TE-110	Performance Lighting Systems	D	12/28/23	
TE-120	Performance Lighting Systems	D	12/28/23	
TE-130	Performance Lighting Systems	D	12/28/23	
TE-140	Performance Lighting Systems	D	12/28/23	
TE-150	Performance Lighting Systems	D	12/28/23	
TE-160	Performance Lighting Systems	D	12/28/23	
TR-101	Keyplan 2 – Stage Rigging Plan	D	12/28/23	
TR-201	Keyplan 2 – Stage Rigging Section	D	12/28/23	
TR-301	Keyplan 2 – Stage Rigging Elevations	D	12/28/23	
TR-302	Keyplan 2 – Stage Rigging Elevations	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
TR-401	Keyplan 2 – Stage Rigging Details	D	12/28/23	
TR-402	Keyplan 2 - Stage Rigging Details	D	12/28/23	
TS-101	Keyplan 2 – Auditorium Seating Plan	D	12/28/23	1/19/24
TS-102	Keyplan 2 – Auditorium Seating Centerline Section	D	12/28/23	1/19/24
Kitchen				
FS-1.0	Foodservice Equipment Plan - Overall	D	12/28/23	
FS-1.1	Foodservice Equipment Plan - Cafeteria	D	12/28/23	
FS-1.2	Foodservice Equipment Plan - Food Lab	D	12/28/23	
FS-1.3	Foodservice Equipment Schedule	D	12/28/23	1/19/24
FS-1.4	Foodservice Electrical Schedule	D	12/28/23	
FS-1.5	Foodservice Plumbing Schedule	D	12/28/23	
FS-1.6	Foodservice Details	D	12/28/23	
FS-1.7	Foodservice Plumbing Plan - Cafeteria	D	12/28/23	
FS-1.8	Foodservice Plumbing Plan - Food Lab	D	12/28/23	
FS-1.9	Foodservice Plumbing Schedule	D	12/28/23	
FS-1.10	Foodservice Details	D	12/28/23	
FS-2.0	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.1	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.2	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.3	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.4	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.5	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.6	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.7	Foodservice Exhaust Hood Details	D	12/28/23	
FS-2.8	Foodservice Utility Distribution System Details	D	12/28/23	
FS-2.9	Foodservice Utility Distribution System Details	D	12/28/23	
FS-2.10	Foodservice Utility Distribution System Details	D	12/28/23	
FS-2.11	Foodservice Utility Distribution System Details	D	12/28/23	
FS-3.0	Foodservice Walk-In Details	D	12/28/23	
FS-3.1	Foodservice Walk-In Details	D	12/28/23	
FS-3.2	Foodservice Walk-In Details	D	12/28/23	
FS-3.3	Foodservice Walk-In Details	D	12/28/23	
FS-4.0	Foodservice Equipment Plan – Support Kitchen	D	12/28/23	
Technology				
T000	Symbols And Notes	D	12/28/23	
T100	Site Plan	D	12/28/23	
T101	Overall First Floor Plan	D	12/28/23	
T102	Overall Second Floor Plan	D	12/28/23	
T103	Floor Plan - Shops - Mezzanine Level	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
T111	First Floor Plan - Keyplan 1	D	12/28/23	
T112	First Floor Plan - Keyplan 2	D	12/28/23	
T113	First Floor Plan - Keyplan 3	D	12/28/23	
T114	First Floor Plan - Keyplan 4	D	12/28/23	
T115	First Floor Plan - Keyplan 5	D	12/28/23	
T116	First Floor Plan - Keyplan 6	D	12/28/23	
T116A	First Floor Plan - Keyplan 6 Alternate	D	12/28/23	
T117	First Floor Plan - Keyplan 7	D	12/28/23	
T118	First Floor Plan - Keyplan 8	D	12/28/23	
T119	First Floor Plan - Keyplan 9	D	12/28/23	
T120	First Floor Plan - Keyplan 10	D	12/28/23	
T121	First Floor Plan - Keyplan 11	D	12/28/23	
T131	Second Floor Plan - Keyplan 4	D	12/28/23	
T132	Second Floor Plan - Keyplan 5	D	12/28/23	
T133	Second Floor Plan - Keyplan 7	D	12/28/23	
T134	Second Floor Plan - Keyplan 8	D	12/28/23	
T135	Second Floor Plan - Keyplan 9	D	12/28/23	
T136	Second Floor Plan - Keyplan 10	D	12/28/23	
T500	Main Telecom Room Details	D	12/28/23	
T501	Telecom Rooms First Floor 1	D	12/28/23	
T502	Telecom Rooms First Floor 2	D	12/28/23	
T503	Telecom Rooms Second Floor 1	D	12/28/23	
T504	Pathways	D	12/28/23	
T505	Faceplates	D	12/28/23	
T507	Intercom & Clock System	D	12/28/23	
T508	Cafeteria Audio System	D	12/28/23	
T509	Gymnasium Audio System	D	12/28/23	
T510	Demo Camera System	D	12/28/23	
Security				
TY000	Security Symbols and Notes	D	12/28/23	
TY100	Site Security Plan	D	12/28/23	
TY101	Overall First Floor Security Plan	D	12/28/23	
TY102	Overall Second Floor Security Plan	D	12/28/23	
TY103	Floor Plan - Shops - Mezzanine Level Security	D	12/28/23	
TY111	First Floor Security Plan - Keyplan 1	D	12/28/23	
TY112	First Floor Security Plan - Keyplan 2	D	12/28/23	
TY113	First Floor Security Plan - Keyplan 3	D	12/28/23	
TY114	First Floor Security Plan - Keyplan 4	D	12/28/23	
TY115	First Floor Security Plan - Keyplan 5	D	12/28/23	
TY116	First Floor Security Plan - Keyplan 6	D	12/28/23	

DRWG NO.	DRAWING NAME	BID PACKS	ISSUE DATE	LATEST REV. DATE
TY116A	First Floor Security Plan - Keyplan 6 Alternate	D	12/28/23	
TY117	First Floor Security Plan - Keyplan 7	D	12/28/23	
TY118	First Floor Security Plan - Keyplan 8	D	12/28/23	
TY119	First Floor Security Plan - Keyplan 9	D	12/28/23	
TY120	First Floor Security Plan - Keyplan 10	D	12/28/23	
TY121	First Floor Security Plan - Keyplan 11	D	12/28/23	
TY131	Second Floor Security Plan - Keyplan 4	D	12/28/23	
TY132	Second Floor Security Plan - Keyplan 5	D	12/28/23	
TY133	Second Floor Security Plan - Keyplan 7	D	12/28/23	
TY134	Second Floor Security Plan - Keyplan 8	D	12/28/23	
TY135	Second Floor Security Plan - Keyplan 9	D	12/28/23	
TY136	Second Floor Security Plan - Keyplan 10	D	12/28/23	
TY500	Intrusion Detection System	D	12/28/23	
TY501	Access Control System	D	12/28/23	
TY502	Video Surveillance System	D	12/28/23	

END OF SECTION

SECTION 011100 - SUMMARY OF WORK

1. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Sections, apply to work of this Section.

2. CONTRACTS

- A. The work will be performed under separate prime contracts managed by the Construction Manager.

3. ALTERATIONS & COORDINATION

- A. Contractor shall be responsible to coordinate their work with the work of others, including, but not limited to, the preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from the beginning of activity, through project close-out and warranty periods.

4. KNOWLEDGE OF CONTRACT REQUIREMENTS

- A. The Contractor and his Subcontractors, Sub-subcontractors and material men shall consult in detail the Contract Documents for instructions and requirements pertaining to the Work, and at his and their cost, shall provide all labor, materials, equipment and services necessary to furnish, install and complete the work in strict conformance with all provisions thereof.
- B. The Contractor will be held to have examined the site of the Work prior to submitting his proposal and informed himself, his Subcontractors, Sub-subcontractors and material men of all existing conditions affecting the execution of the Work.
- C. The Contractor will be held to have examined the Contract Documents and modifications thereto, as they may affect subdivisions of the Work and informed himself, his Subcontractors, Sub-subcontractors and material men of all conditions thereof affecting the execution of the Work.
- D. The Scope of Work for the Contract is not necessarily limited to the description of each section of the Specifications and the illustrations shown on the Drawings. Include all minor items not expressly indicated in the Contract Documents, or as might be found necessary as a result of field conditions, in order to complete the Work as it is intended, without any gaps between the various subdivisions of work.
- E. The Contractor will be held to be thoroughly familiar with all conditions affecting labor in the area of the Project including, but not limited to, Unions, incentive pay, procurements, living, parking and commuting conditions and to have informed his Subcontractors and Sub-subcontractors thereof.

5. CONTRACT DOCUMENTS INFORMATION

- A. The Contract Documents are prepared in accordance with available information as to existing

conditions and locations. If, during construction, conditions are revealed at variance with the Contract Documents, notify the Construction Manager immediately, but no more than three (3) days from the day the variance is first known. Failure to give timely notice shall operate to waive any claim Contractor might otherwise have for an adjustment to Contract Time or Sum as a consequence of such variance.

- B. The Specifications determine the kinds and methods of installation of the various materials, the Drawings establish the quantities, dimensions and details of materials, the schedules on the Drawings give the location, type and extent of the materials.
- C. Dimensions given on the Drawings govern scale measurements and large scale drawings govern small scale drawings, except as to anything omitted unless such omission is expressly noted on the large scale drawings.
- D. The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic/descriptive", "compliance with standards", "performance", "proprietary", or a combination of these. The methods used for specifying one unit of work has no bearing on requirements for another unit of work.
- E. Whenever a material, article or piece of equipment is referred to in the singular number in the Contract Documents, it shall be the same as referring to it in the plural. As many such materials, articles or pieces of equipment shall be provided as are required to complete the Work.
- F. Whenever a material, article or piece of equipment is specified by reference to a governmental, trade association of similar standard, it shall comply with the requirements of the latest publication thereof and amendments thereto in effect on the bid date.
- G. In addition to the requirements of the Contract Documents, Contractor's work shall also comply with applicable standards of the construction industry and those industry standards are made a part of Contract Documents by reference, as if copied directly into Contract Documents, or as if published copies were bound herein.
- H. Where compliance with two (2) or more industry standards, contract requirements, or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, then the most stringent requirements, which are generally recognized to be also the most costly, is intended and will be enforced, unless specifically detailed language written into the Contract Documents clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently equal but different requirements, and uncertainties as to which level of quality is more stringent, to Architect for decision before proceeding.
- I. Reference standards referenced directly in Contract Documents or by governing regulations have precedence over non-reference standards which are recognized in industry for applicability of work.
- J. Contractor's bid is based on the complete set of Contract Documents including documents not specifically issued as part of the bid pack but referenced in same.

6. SCOPE OF WORK/GENERAL INFORMATION

- A. A Scope of Work for each contract to be awarded on the project follows in this section. When a Contract has been awarded to a Contractor, the successful Contractor will be listed after the title of the Contract. When no Contract has yet been awarded, no Contractor's name will be listed. Previous Scopes of Work include addendum changes.
- B. Contractor is responsible for performing the work listed in the Summary of Work for his contract. Contractor is also responsible for knowing the work that has been assigned to preceding contracts. No additional compensation or extension of time will be allowed a Contractor due to his ignorance of the work assigned to his Contract or to other contracts which may affect his work. The Contractor is responsible, however, for all items which are covered in the Specifications and Drawings relating to their Contract if not specifically mentioned in the Summary of Work.
- C. The Construction Manager will provide on-site a source for temporary electric, temporary water and portable sanitation facilities only. It is each Contractor's responsibility to make the necessary connections, including all material for temporary electric and water. Please note that utility charges for office trailers will be the responsibility of the individual Contractors.
- D. A dumpster will be provided on site for free use by Contractors to dispose of non-hazardous, common, work-related refuse. Clean-up is the responsibility of each Contractor. Clean up shall be performed on a daily basis. Contractors not complying will be advised in writing and back charged for all costs associated with the cleanup of their work.
- E. Contractors are reminded that there are limited storage areas available on site. Off-site storage will be the responsibility of each individual Contractor.
- F. Office trailer permits off site will be the responsibility of each individual Contractor. On site Contractor's field offices, one (1) per Contractor, if required, will be located as directed by the Construction Manager.
- G. Contractor will be prepared to discuss and submit a detailed project schedule seven (7) days after receipt of Notice to Proceed and to begin its submittal process. The Project Schedule is an integral part of this contract. Certain construction sequences and priorities must take place in order to meet the target dates. Concentrated work periods will occur and each Contractor is responsible to staff the project as required by the current Construction Schedule or as directed by the Construction Manager. Contractor will cooperate with the Construction Manager in planning and meeting the required sequences of work and Project Schedule as periodically updated by the Construction Manager.
- H. All bids must include insurance limits in accordance with Article 11 of the Section 007300 SUPPLEMENTARY CONDITIONS.
- I. Hoisting, scaffolding and material handling is the responsibility of each Contractor, unless otherwise noted.
- J. Contractor will be responsible for layout of its own work. The Construction Manager will provide benchmark and layout of the building line.

- K. Contractor will be responsible to keep clean public roadways soiled by construction traffic on a daily basis. If cleaning is not done, the Construction Manager may perform the cleaning on an overtime basis and backcharge the Contractor responsible.
- L. Contractor Scopes of Work and Schedule are interrelated. Familiarity with each is required.
- M. The Construction Manager will provide testing services for soil, concrete and steel. Other testing as required by the Contract Documents will be in accordance with the technical specifications and/or the individual scope of work. Refer to Specification Section 004500 - QUALITY CONTROL.
- N. Safety is the responsibility of each individual Contractor. The project will be governed under the guidelines of OSHA.
- O. Inter-Contractor shop drawing distribution will be performed by the Construction Manager. Contractor is individually responsible for either coordinating his work with these distributed drawings or notifying the Construction Manager, in writing, of any discrepancies.
- P. Coordination with other trades will be required. The Contractor will be required to attend periodic coordination meetings with other trades where requirements, conflicts and coordination issues will be discussed and resolved. Attendance when requested will be mandatory. If inter-Contractor coordination is not satisfactorily performed, the conflicting Contractors shall mutually share the cost to relocate and/or reinstall their work.
- Q. Contractor shall submit a schedule of values to the Construction Manager prior to the submission of their first invoice for approval through Building Blok.
- R. Contractor is expected to review and coordinate its Work with the complete set of Contract Documents, including all items noted as by his trade whether or not shown on that particular set of drawings. Documents are available at the site for review.
- S. Contractor is responsible for obtaining all necessary permits required for his work, including street permits. Unless otherwise noted, building permit shall be secured by the Construction Manager. Any subcontractor who will be restricting access to street, right of way or adjacent property must notify the Construction Manager 48 hours in advance.
- T. Contractor's License: Submit a copy of all business licenses required by local and state agencies.
- U. Contractor shall absorb, without additional compensation, any and all costs of working beyond normal hours to maintain job progress in accordance with the current construction schedule.
- V. No asbestos or PCB's in or on any material or equipment will be accepted or allowed on this project. All hazardous materials will be treated in accordance with all State and Federal regulations.
- W. Daily cleanup of the work is the responsibility of each individual Contractor which includes broom cleaning of their debris as required. Contractor will be individually back charged by the

Construction Manager for cleanup not satisfactorily performed by the Contractor.

- X. In the event asbestos is uncovered, the Contractor shall notify the Construction Manager of the areas requiring removal of asbestos. The Construction Manager shall then coordinate the removal with the Owner.
- Y. This project is to be constructed adjacent to existing buildings. Contractor shall exercise all due precautions to minimize noise, air pollution and any other construction hazards which in any way would cause discomfort or danger to the occupants of the existing building in the area.
- Z. The Safety Cable System shall not be altered or removed without a written request submitted to the Project Manager with a copy to the Field Manager. It shall be the responsibility of each and every Contractor that is removing or altering the Safety Cable System to maintain the fall protection safety provided by the safety cable and not leave the area unprotected. Each and every Contractor shall be responsible to re-install the Safety Cable System immediately after work is completed. Each and every Contractor shall be responsible to re-install the Safety Cable System in accordance to OSHA standards.
- AA. Normal work hours for this project are from 7:00 a.m. to 3:30 p.m. Any work to be performed outside of these hours must receive prior approval from the Construction Manager. Requests to work beyond normal work hours shall be submitted at least 48 hours prior.
- AB. Contractor is responsible for having a competent project superintendent/foreman on-site during all work performed under its contract.
- AC. In the event the Contractor has non-English speaking employees or subcontractors on the project, they shall have a superintendent or foreman on site, at all times, who speaks English and can communicate with Contractor's employees. Should the Contractor fail to meet this requirement, at any time, Construction Manager may direct all Work to stop until the proper supervision is on site. The Contractor will be responsible for maintaining the project work schedule and make up at its own expense, any delay to the Schedule resulting from the work stoppage.
- AD. **Punch List Procedures:** Contractor shall be given a copy of the punch list with his appropriate work identified. Contractor shall have nine (9) calendar work days to complete its punch list work. On the 10th day or as determined by the Construction Manager, the Construction Manager shall employ other contractors, as required, to complete any incomplete punch list work and retain from the appropriate Contractors retainage all costs incurred.
- AE. Contractor shall provide the necessary safety barricades and railings required to complete their work and comply with all OSHA, local code and contract specifications.
- AF. **Prohibition of Using Photographs on EDiS Projects:** The Contractor and all associated subcontractors agrees to not issue any news release or advertising pertaining to the Work or the Project, including references to the Project on the Contractor's/subcontractor website or other social media outlets, without obtaining EDiS' prior written approval, in each instance. The Contractor, for itself, its employees, vendors and subcontractors, agrees to not use the name of the Owner, the Project, EDiS or any photographs, videos, or other images of the Project in connection with any of

Contractor's business promotion activities, advertising, website, social media outlets, or operations, without EDiS' prior written approval in each instance.

- AG. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
- AH. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
- AI. All contractors must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented into the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
- AJ. All contractors shall be responsible to protect all non-metallic piping within the building envelope from overspray of the Applied Fireproofing, intumescent coatings, fire caulking and fire safing as it pertains to the scope of your course of work. The contractor shall be familiar with and comply with the NFPA regulations, including but not limited to the following 6.3.7.5 Firestopping materials intended for use on nonmetallic piping penetrations shall be investigated for compatibility with the nonmetallic pipe materials. 6.3.7.5 Protection plan shall be submitted and reviewed with the CM prior to implementation.
- AK. For all contracts which include allocations for COOP hours with NCCVT students, any unutilized COOP hours shall be returned to the district at the rates published in the documents, as a credit change order.

CONTRACT NO. D-01 - UNIT MASONRY

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 033000	Concrete (coordination)
Section 042000	Unit Masonry
Section 047200	Cast Stone Masonry
Section 321413.13	Interlocking Concrete Unit Paving
Section 070553	Fire and Smoke Assembly Identification
Section 072100	Insulation
Section 072640	Sprayed Polyurethane Foam Insulating Air Barrier
Section 072500	Weather Barriers
Section 076200	Sheet Metal Flashing and Trim
Section 078400	Firestopping
Section 079100	Preformed Joint Sealers
Section 007900	Joint Sealers

This contract provides and includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide masonry units, cast stone, reinforcing, accessories and related work. This contract includes all masonry work except the work provided by BP-C Foundation Masonry contract. This contractor owns coordination with the BP-C contractor and must review and understand the BP-C scope of work.
2. Provide all concrete interlocking pavers, grading, subbase, concrete substrate, grouting and cleaning as required to provide a complete brick pavers system.
3. **This contractor to provide Detail F2 sheet A106 complete for all areas. Including concrete subbase and 8" thick concrete slab section. (Addendum No. 2)**
4. **This contractor to provide the colored concrete medallion in the courtyard complete. (Addendum No. 2)**
5. Provide all special shape, cast stone masonry and custom masonry units as defined in the construction documents.
6. This contract shall provide all Sprayed Polyurethane Foam Insulating Air Barrier with intumescent coatings, special paint layer per NFPA 285, and all "Self-Adhering Flashing Tape" at all locations (vertical and horizontal) behind vertical brick, block, metal panels, canopies and overhangs. The Flashing tape shall be applied to seal all exterior openings, including but not limited to doors, louvers, windows, curtain walls, storefronts etc. This includes all exterior sheathed areas, and block back up areas, whether behind masonry or not. Include spray insulation termination angles as needed for the spray foam insulation installation Coordination of work with other trades shall be required and final

- installation work to be coordinated with project schedule and CM. Provide a “complete system” in its entirety for this project.
7. This contractor shall include multiple mobilizations within their base bid amount to accommodate the exposure time recommendation for the sprayed insulation, special coatings and self-adhering flashing tape in all areas per the construction schedule and project phasing.
 8. This contractor shall provide installation and coordination of sleeves required to go through any masonry walls above finished floor elev. 0.00. Coordinate with the MEP contractors for sleeves (to be provided by MEP contractor) and coordinated/installed by the Masonry contractor.
 9. Provide Fire and Smoke Identify markings on all masonry walls that require marking per governing jurisdictions. Coordinate marking walls with pant. \stencils with the CM on site.
 10. Provide all caulking and sealants for masonry to masonry conditions. Masonry to dissimilar materials provided by Caulking contractor.
 11. Integral masonry flashings, expansion joints, insulation and other related items as required.
 12. Mock up as required. Provide a complete mockup of all masonry items within a sample wall to be coordinated by the CM. This contractor to provide and install the concrete footing required for the mock up. Include demolition, removal and clean up of the mock up area.
 13. This contractor shall include within their bid the incorporation of **2000 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5.
 14. Grouting of door frames at all masonry openings. Include grouting of HM vision panels in CMU and grouting of after-set frames in stair towers built by BP-C masonry contractor.
 15. Weather protection and temporary heat as required to perform the work and maintain the project schedule. This would include tenting, tarping, heating (providing fuel and equipment), installation, maintenance and removal. Kerosene is not an acceptable fuel for work within the interior spaces.
 16. Layout of the work including responsibility for all elevations and dimensions as they affect other Contractor’s work.
 17. Lintels either required by this Contract or install loose lintels furnished by others. Include bolting or welding of lintels as per details.
 18. Provide mixing stations as required to perform your work. The station locations shall be coordinated with the CM (include 5 separate locations and the remobilization of the station 5 times) The mixing area shall be protect as required by DNREC and it shall be this contractors responsibility to maintain the station area at all times. Remove all components and restore area when work of this contract complete.
 19. Concrete fill/grout at all masonry units as identified.

20. Purchasing and installing reinforcing steel in block walls.
21. Provide all fire safing/fire stopping, and continuous fire sealant at top and bottom of masonry walls as shown on the contract documents. Also include these sealants at all steel penetrations through the provided masonry.
22. Silicone waterproofing/sealant if specified.
23. This contractor shall provide the required firewall/smoke wall assembly identification for work of this contract. (labelling of the walls with fire rating)
24. Interior exposed masonry walls shall be cleaned and scraped thoroughly; a second pass of scraping and refining the cleaning shall be included in the base bid. CM to review and coordinate second pass with the masonry foreman in the field.
25. Temporary protection for final wash down/cleaning of masonry. This includes covering and protecting the curtain wall, storefronts, Kalwall and all door window openings.
26. This contractor shall supply and install straw at the base of wall when work of this contract has been completed to stop splashing of mud and water on completed walls.
27. Flashing at locations indicated on drawings for your work.
 - a) Thru wall and cavity flashing below the roof line shall be by the Masonry Contractor.
 - b) Thru wall and cavity flashing above the roof line shall be by the Roofing Contractor.
 - c) Flashings at rising wall conditions shall be provided by this contractor.
28. Cutting, fitting and building into masonry work, embedments provided by others. Coordinate all work with other trades as required.
29. Provide all firesafing and fire caulking as required for your course of work.
30. Provide masonry veneer anchors as required for your course of work.
31. Bond beams including supplying and installing reinforcing and fill.
32. Elevator shaft masonry block in BP-C contractors scope. All veneer and finish masonry shall be provided by this contractor. Include the final infill toothing of the block around the elevator door frames at each level in this contract. Include sealing and fire safing as required at top of shaft wall.
33. Furnish and install all masonry veneer anchors where required. Welding of anchors that are not shown to be fabricated with the structural steel shall be welded in place as needed by this contractor.
34. Masonry contractor shall supply and manage dumpsters for use in removal of masonry debris. The project dumpsters may not be used for masonry debris.

35. Mock up as required. Provide your portion of a complete mock-up of the exterior wall assembly for areas of masonry, metal panel, translucent panels and others as detailed. within a sample wall to be coordinated by the CM.
36. Provide generators and services as required to provide temp power, water etc. as needed for your course of work.
37. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
38. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
39. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
40. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented into the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
41. Include within this contracts base bid an allocation of \$40,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-02 - MISCELLANEOUS METALS, STAIRS, AND RAILS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 055000	Metal Fabrications
Section 055100	Metal Stairs
Section 055133	Metal Ladders
Section 055213	Pipe and Tube Railings
Section 057300	Decorative Metal Railing

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide stairs, loose lintels, misc. metal angles, plates, handrails, railings, metal ladders and accessories.
2. Furnish loose steel lintels, angles, plates and embedded items to the Concrete and Masonry contractors.
3. Review Alternates as per the Bid Form and Alternate section for work related to Stair #5.
4. **This contractor will be required to coordinate work of this contract with the Structural Steel, Joist and Deck contract which is part of BP-C. Review and understand the BP-C contract as it relates to your work. (Addendum No. 2)**
5. This is not a secure site. All contractors are responsible for concealing , locking and/or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
6. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
7. Provide miscellaneous rough hardware, iron shapes, framing and support angles.
8. Provide pipe bollards and specified covers per spec section 055000-11.
9. Provide powder coated downspout boots per section 055000-10.
10. Provide stair nosing's.
11. Provide gratings.
12. Overhead door frames, furnished and installed.
13. Elevator hoist beams, provide and coordinate installation with BP-C masonry contractor.

14. Elevator sill angles, provide and coordinate anchoring systems, bolts etc. and installation with other trades.
15. Toilet partition supports, if not part of the manufactured toilet partition frame shall be supplied by this contractor.
16. Dock bumpers and loading dock equipment. Provide (furnish and install.)
17. Provide ships ladder, access ladders and related fastening devices and accessories.
18. Galvanizing and other special coatings as required.
19. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items.
20. Field touch-up paint.
21. No electrical power for welders will be provided.
22. Verify all field dimensions prior to fabrication.
23. No electrical power for this contractors equipment or welders will be provided. Electrical power to be provided as needed by this contractor.
24. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
25. Include within this contracts base bid an allocation of \$20,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-03 - EXTERIOR STRUCTURAL STUD ASSEMBLY

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 054000	Cold-Formed Metal Framing
Section 070553	Fire and Smoke Assembly Identification
Section 072100	Thermal Insulation
Section 072129	Sprayed Acoustical Insulation (coordination)
Section 072640	Spray Polyurethane Foam Insulating Air barrier (coordination)
Section 072500	Weather Barriers (coordination with mason contractor)
Section 079100	Preformed Joint Sealants
Section 079200	Joint Sealants
Section 078400	Firestopping
Section 092116	Gypsum Board Assemblies

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide structural stud assembly for the exterior skin of the building. Including but not limited to Metal Studs, gyp sheathing, Fire safing and delegated design on the exterior wall assembly.
2. Provide rock wool thermal insulation at area where exterior walls create parapets and at edge of floor slab connections.
3. This contractor shall be responsible to coordinate with the masonry contractor as related to the exterior wall assembly and the installation of the spray foam insulation system.
4. Steel stud construction as related to the roof parapet construction.
5. Steel stud construction related to framing out for openings in exterior walls.
6. Provide secondary support framing as required.
7. Clips, anchors, supports and other accessories that interface between steel framing and steel studding and steel studding with masonry interaction.
8. Expansion systems as required for performance of your course of work.
9. Scaffolding, lifts, and all necessary equipment required for your contract's course of work.
10. Provide engineered drawings (delegated design requirements.)

11. This contractor shall be responsible for coordinating with other trades for exterior openings and layout of design features.
12. Comebacks and out-of-sequence work may be required and as such should be included in your base bid proposal.
13. No power for welding equipment will be provided. This contractor shall provide portable generators, fuel, etc. to power equipment required for their scope of work.
14. Coordinate Self Sealing Flashing installation at base of wall assemblies and flashed areas. with Masonry contractor who is providing. This contract (D-30 Ext Wall) to provide any required metal flashings for your course of work.
15. This contractor shall supply and install any access panels in the exterior wall assembly that are required by the contract documents. In addition the contractor shall install (40) 2'X2' Access panels provided by other. (exterior walls only)
16. Provide fire resistant joint sealants, fire safing, fire stopping, as it relates the work of your contract.
17. Bidders are advised to pay particular attention to top of wall conditions, fire and smoke safing of slabs and acoustical sealants.
18. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
19. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented into the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
20. Layout of the work including responsibility for all elevations and dimensions as they affect other Contractor's work.
21. Mock up as required. Provide your portion of a complete mock-up of the exterior wall assembly for areas of masonry, metal panel, translucent panels and others as detailed. within a sample wall to be coordinated by the CM.
22. This contractor shall include within their bid the incorporation of **750 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5.
23. This contract shall include in their bid the necessary crews to complete the work as per the project schedule. Provide additional crews as required to maintain schedule at no additional cost to the project.

24. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
25. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
26. Include within this contracts base bid an allocation of \$40,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-04 - CARPENTRY AND GENERAL WORK

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 055800	Architectural Metal Column Covers
Section 06100	Rough Carpentry
Section 06200	Finish Carpentry
~~Section 062023~~	~~Interior Finish Carpentry~~ (Addendum No. 2)
Section 079200	Joint Sealants
Section 081113	Hollow Metal Doors and Frames (coordination, handing, installation)
Section 081416	Flush Wood Doors (coordination, handing, installation)
Section 081613	Integrated Door Opening Assemblies (coordination, handling, installation) (Addendum No. 3)
Section 083100	Access Doors and Panels
Section 087100	Door Hardware (coordination, handing, installation)
Section 087106	Door Hardware Schedule (coordination, handing, installation)
Section 089100	Louvers
Section 101101	Visual Display Boards and Display Cases (coordinate blocking and supports)
Section 102113	Plastic Toilet Compartments (coordinate blocking and supports)
Section 102123	Cubicle Curtains and Track (coordinate blocking and supports)
Section 102601	Door and Wall Protection (coordinate blocking and supports)
Section 102800	Toilet Accessories (coordinate blocking and supports)
Section 104400	Fire Protection Specialties (coordinate blocking and supports)
Section 129300	Site Furnishings
Section 116625	Gymnasium Equipment
Section 116653	Gymnasium Dividers
Section 323119	Decorative Metal Fences and Gates

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide labor and materials to perform the work related to all carpentry and general work.
2. All rough carpentry related to the exterior skin of the building and roof areas, including wood nailers and blocking, roof blocking, curb blocking, MEP blocking coordinated with MEP trade, fire shutter blocking etc. as required. Include blocking for roller shades.
3. All rough carpentry related to the interior of the building including blocking, wood nailers, etc. for the installation of fire extinguishers, doors, windows, toilet accessories, cabinets, toilet partitions, casework, millwork, AED's, gas and air cabinets, rollup doors, coiling doors, kitchen equipment and accessory blocking, etc. including fire treating as required.
4. Provide interior architectural metal column covers as required. (Note the MCM exterior column

enclosures are provided by the Metal Panel contractor)

5. Provide all decorative metal fencing and gates as per contract documents. Include complete installation and coordination with electrical and special systems contractor for the locking interface and card access.
6. Provide and install plywood back boards on all wall areas, floor to ceiling in all electric, MDF and IDF rooms. Backboards to be ¾ inch plywood, painted one side with white Fire Proof paint and fire caulked to the walls tightly.
7. **This contract shall provide all bollards complete as indicated on the contract documents,. This includes the bollards that are shown and detailed on the MEP documents as well as the architectural other documents. (Addendum No. 3)**
8. This contractor shall include the installation of the key box system and all required blocking and anchoring systems.
9. Provide blocking and anchoring for all roof ladders, TV and monitor mounts, Smart Board displays, Visual display boards, chalk, tack and white board assemblies. Coordinate with other trades for locations and installation direction.
10. Provide blocking for door hold opens, wall mounted closers, and wall door stops. **Hold open hardware is to be provided by Contract D-11 HM, Doors and Hardware and installation provided by this contract. (Addendum No. 3)**
11. **This contractor shall install the interactive displays as furnished by the owner. Work shall be coordinated with Contract D-35 Special Systems. (Addendum No. 3)**
12. Provide all Gymnasium equipment and Gymnasium dividers as part of this contract.
13. Install metal and wood doors and frames, including receipt of doors and frames at the curb side. Contractor shall receive the doors, frames and hardware and inventory immediately. This contractor responsible for safe keeping of all materials and shall provide written documentation that all materials were received. All hardware shall be secured in a fully locked and protected area. By this contractor.
14. Install finish hardware related to all doors (hollow metal, wood and coordinate keying with aluminum hardware) including receipt of hardware at the curb side. This contractor is responsible for coordinating door hardware with their work to ensure each opening is properly prepped for hardware being supplied by others. All low voltage wiring within the doors and frames to be installed by this contractor. Conduits and raceways will be provided by the electrical contractor, as well as installation of the electrical supply power and the final power connections to equipment. Final connections of low voltage wiring to hardware to be provided by the Special Systems contractor. This contractor to work with the electrical contractor and Special Systems contractor to provide a complete installation.
15. This contractor shall advise the hardware supply contractor of any deficiencies or missing item immediately after initial inventory (in writing) as installation takes place. Reporting and tracking is the responsibility of this contractor.
16. All field trimming required to adjust to the existing in place conditions shall be part of this contractors

scope of work. Field measuring and verification is to be included.

17. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items.
18. Provide all architectural louvers, including insulated panels etc. All louvers are to be included within this contract, they are shown on the architectural drawings and specs and referenced by MEP documents. Provide 'custom' color costs in the base bid. Coordinate the louvers provided within the Kalwall System for custom color, sizing, design or other integrated features. This contractor shall coordinate with other trades for integration of the louvers into their course of work. All material handling and on site protection of the louvers is this contractors responsibility.
19. Provide blocking and support for the Visual Display Boards and Display Cases.
20. Provide all blocking as required for Toilet Partitions, Cubicle Curtains, Door and Wall Protection, Toilet Accessories and Fire Protection Specialties. Coordinate with the BP-D contract for "Specialties" on all required blocking. Volleyball sleeves and installation shall be coordinated and installed by this contractor,
21. This contractor shall provide and install all Gymnasium Equipment a per contract documents, to include blocking, supports, material handling etc. 100% protection of the gym floor while performing your work is required by this contract. Floor protection shall be as provided by the wood floor manufacturers recommendations.
22. This contractor shall provide al Gymnasium scoreboards as indicated on A-111 (3 scoreboards in total)
23. This contractor shall provide and install all Site Furnishings as detailed in the contract documents. Include all work related to this course of work, concrete pads, anchoring, touch up paint etc.
24. This contractor to coordinate all card reader blocking requirements with Special Systems contractor.
25. Provide protection at Elevator door openings at each floor. Include the required mesh protection fabric and the necessary wooden framing that allow easy access by other trades. Include maintenance for a period of 30 months from initial installation. Once elevator is installed, provide ¾" blue board foam insulation on all surfaces taped and secured so as not to damage finishes of elevator. Provide maintenance of this protection until substantial completion of project.
26. Provide and maintain temporary wood railings and handrails at stairs. Provide wood infill of stair pans and landing pans. Each tread to have abrasive edge tape applied immediately after installation of infill.
27. This Contractor shall include in the base bid 600 hours of Journeyman carpenter time and 250 hours of common labor time for work to be directed by the Construction Manager.
28. This Subcontractor shall at a minimum provided, maintained, and inspect for the length of the project, one temporary fire extinguisher for each 3,000 sq. ft of the protected building area. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet. In multistory buildings, at least one fire extinguisher shall be located adjacent to stairway. Fire extinguishers shall be at least 10lb, Multi-Purpose (ABC) dry chemical, UL labeled, with a rating of

- 3a:40bc. Maintain for the duration of the project until substantial completion to insure coverage and compliance.
29. Coordinate electrical requirements with any automatic door operations. This contractor owns all controls, switches and wiring as required for a complete system. Power to be supplied by Electrical contractor.
30. Gate hardware ~~provided by others shall be~~ **provided and installed by this contractor , Contract D-04 Carpentry.** ~~installed and completed by this contract.~~ (Addendum No. 3)
31. Provide three Knox Boxes coordinated with the local fire company for installation at locations identified by the owner/CM.
32. Coordinate and install hold open closers with fire alarm interface. Power wiring by Electrical Contractor. Fire alarm ties in by Electrical Contractor.
33. This contractor will work with the Special Systems contract to allow the installation of harnesses, whips and connections while installing frames, doors, hardware and access controls.
34. Provide (2) separate scaffold stairways, each must be erected to accommodate access to the roof area from the exterior of the building. The scaffold must provide a landing with stairs at the roof area. Each scaffold leg should have adjustable base plates to accommodate the installation of roofing material without the disassembly of the unit. An 8 foot plywood "wall" must surround the bottom of the stairway with a hinged plywood door installed with a hasp to accept a lock. The scaffold must be installed per OSHA regulations, inspected and tagged for use. **Include for a period of 18 months.** (Addendum No. 3)
35. Provide and maintain perimeter netting at each floor level including all floor openings. Perimeter rail or cable to be provided by the steel contractor. This work shall include toe boards at all location. **Netting to be included as detailed on the "Perimeter Safety Netting at Leading Edge Conditions" sketch included as part of this scope of work.** (Addendum No. 3)
36. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
37. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented into the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
38. Layout of the work including responsibility for all elevations and dimensions as they affect other Contractor's work.
39. Provide all work related to the building mock up, blocking, installation of door frame, doors, hardware, flashings, fasteners etc. as it relates to mocking up of the systems included in the Carpentry Scope. **Contract D-04 shall install the doors and hardware for the project mock up. Contract D-11 shall provide the door, frame and hardware for the mock up.** (Addendum No. 3)

40. This contractor shall include within their bid the incorporation of **2000 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5.
41. Provide and maintain temporary handrails per OSHA standards at all stair assemblies. The below section is a guideline and doesn't replace the OSHA regulations Stairs having two or more risers or rising more than 30 inches (76 cm), whichever is less, shall be equipped with: At least one handrail; and one stairrail system along each unprotected side or edge. The height of stairrails shall be not less than 36 inches from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread. Handrails shall provide an adequate handhold for employees grasping them to avoid falling. Handrails that will not be a permanent part of the structure being built shall have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stairrail systems, and other objects. Midrails, and intermediate vertical members, or equivalent intermediate structural members, shall be provided between the top rail of the stairrail system and the stairway steps. Midrails, when used, shall be located at a height midway between the top edge of the stairrail system and the stairway steps. When intermediate vertical members, such as balusters, are used between posts, they shall not be more than 19 inches (48 cm) apart.
42. This contractor shall provide temporary rails at all exterior opening on the building until permanent window/doors/curtainwall etc. installed.
43. This contractor shall include protective wooden covers and marking for any floor openings, holes, shafts etc. Include labelling of the covers with clear ad readable markings or stickers.
44. Provide temporary protective handrails at stage front, steps, stairs and ramp locations.
45. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
46. Provide **fall** protection at Elevator door openings at each floor. Include the required mesh protection fabric and the necessary wooden framing that allow easy access by other trades. Include maintenance for a period of 30 months from initial installation. Meeting the minimum requirements provided by the elevator vendor.
47. This contractor shall provide within the base bid, (8) sets of exterior steps to be constructed to create safe and easy access to the building first floor from the exterior grade. The step assemblies shall be figured to manage a 24" rise from grade to the first floor elevation, be 40" wide and shall have no-slip tread tape applied to each tread.
48. Provide, maintain and remove a prefabricated manufactured trash chute from the second floor to the dumpster below for a period of 24 months. This chute shall be maintained and all safety barriers, restraints etc. managed until substantial completion of the project.

49. This contractor shall provide and include all costs associated with installing temporary doors at the exterior of the building (all openings) and a cattle chute on the 2nd floor for accepting deliveries to the second floor. Safety equipment, gates, railings and tie-offs as required by OSHA safety standards shall be included.
50. **This contractor shall include within their base bid an allowance of \$100,000 for work relate to temporary enclosures at window, storefront and curtainwall areas as directed by the Owner and CM. (Addendum No. 2)**
51. Provide wood safety barricades to extend top of roof parapets to OSHA required height during construction. Coordinate removal and replacement of wood safety barricades with metal wall cap installation.
52. Provide within this contracts base bid an allocation of \$40,000 for work to be directed by the owner and CM. Unused portions of the allocation shall be returned to the owner.



CONTRACT NO. D-05 - EXTERIOR METAL PANELS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 054000	Cold-Formed Metal Framing
Section 050500	Metal Fabrications
Section 074213.13	Metal Wall Panels
Section 074213.23	Metal Composite Material Wall Panels
Section 076200	Flashing and Sheet Metal
Section 079100	Preformed Joint Sealants
Section 079000	Joint Sealants

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all metal panels, framing, sub girts, Z furring, insulation and all other components to provide a complete metal panel system.
2. Provide Flashing and complete “engineered and sealed” (Delegated Design) as shown in detail D1/A612. Include all flashing, closures, jamb reveal detail, self-adhered flashing tape etc. to provide a complete system at all locations. This contractor must work with and in conjunction with the spray foam system installation and sealing.
3. This contractor shall provide the MCM metal column enclosures color 2 as indicated on A-202, A-203 and A-207. Provide a complete and sealed systems.
4. The spray installation system will be provided by the Masonry contractor, however this contractor is responsible to coordination. Specifically for installation durations and the completeness of the installation of the Z furring system this contract is providing. Timely installation to not impact the spray foam installation is required by this scope of work.
5. Provide all composite metal panel return systems as identified in detail A1/A612, A7/A612 and similar details as indicated. Jamb return needs to be coordinated with the window installation.
6. Provide all fascia’s, soffits, overhangs etc. as required for a complete system.
7. Flashing of panels integral with the panel system.
8. Coordinating, cutting and fitting around the work of other trades is required by this contract and should be part of your base bid work.
9. Caulking of panels as required to provide a complete system. Vertical joints where metal panels meet adjacent materials shall be caulked by the Caulking and Salant contractor.

10. Miscellaneous metal items necessary to support panels other than required structural steel.
11. Furnish anchorage items for embedding into other construction for support of panels.
12. Touch up of all welding.
13. Galvanized, epoxy or stainless steel, etc. anchors as specified.
14. Metal fascia's and copings related to the panel system.
15. This Contractor shall coordinate his shop drawings with the Window Contractor's shop drawings and the overall construction schedule.
16. Coordinate all work of this contract with the Carpentry contractor for the installation, flashing and complete installation of the louvers into the metal panel system. Close coordination of shop drawings is required by these two contracts.
17. All material handling, lifts, cranes etc. are the responsibility of this contractor.
18. Verification of field dimensions is the responsibility of this Contractor. Coordination and review window openings, door openings and others during the shop drawing process is required so materials can be ordered to accommodate schedule. Material may be required to be ordered in advance of the ability to field measure. This coordination is the responsibility of this contractor.
19. Provide all flashing as identified with the metal panel installation. Provide all hat channels and sub-girts for the panel installation. Coordinate with the work of other contractors related to the spray foam installation.
20. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
21. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
22. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
23. Include within this contracts base bid an allocation of \$30,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-06 – DRYWALL AND INTERIOR METAL FRAMING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 051200	Structural Steel (related work)
Section 055000	Metal Fabrications (related work)
Section 054000	Cold-Formed Metal Framing
Section 061000	Rough Carpentry
Section 070553	Fire and Smoke Assembly
Section 072100	Thermal Insulation
Section 078400	Firestopping
Section 079200	Joint Sealers
Section 092116	Gypsum Board Assemblies
Division 15	Mechanical (coordination)
Division 16	Electrical (coordination)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide metal studs, framing, insulation, gypsum wallboard, taping, spackling and specified wall finishes. (Level 5 where identified) Include all trims and finish pieces for a complete installation.
2. This contract shall provide all insulation in the exterior walls of the building system. Coordinate all insulation work and interior drywall work with the exterior Metal Framing contractor.
3. Provide secondary support framing and fastening devices as required. If Misc. metals are required by your installation and not identified in the documents this contractor shall provide and install.
4. Provide Fireproofing at the exterior wall and the edge of slab as shown in the typical wall sections. (A1/A312 example and all related details) Sealants required to complete this system shall be provided by this contractor.
5. Provide all interior metal framing at required for back up of other materials.
6. Provide batt insulation, both thermal and acoustical and related work.
7. ~~Include molded shapes if specified.~~ (Addendum No. 3)
8. Acoustical sealants, fire safing and fire caulking as required for penetrations and top of wall conditions.
9. Removal of spray fireproofing to expose points of attachment to structural steel is to be performed in a workmanlike manner. Removal of spray fireproofing in excess of 3" greater than the attached item will require repatching which will be back charged to this Contractor.

10. This contractor shall coordinate with the other trades for all box outs, penetrations, framed openings etc. as required.
11. This contractor shall provide cleaning of the floor areas of all drywall spackle, mud, finishes etc. that are used by this contractor. Review and acceptance by the CM will be required.
12. Access panel installation (assume 100 total). Assume panels to be 30"x 30" for framing purposes.
13. Coordinate work of this contract with the Carpentry contract for wood blocking and support installation.
14. Coordination of door and interior framed openings with the Carpentry contractor who will install the door and lite frames.
15. Coordinate interior louver extensions and incorporation of louver installation with Carpentry contractor as necessary.
16. Include fire taping and sealing at perimeter edge and as shown or indicated in the contract documents.
17. Provide architectural expansion joint systems, including joint covers materials at concrete slab, drywall and masonry construction (interior only).
18. Scaffolding, lifts and material handling equipment for the course of your work.
19. Comebacks and out-of-sequence work may be required and as such should be included. Include (4) additional mobilization/return trips for touch up and repairs. Each trip shall include 16 hours of carpenter/finisher time as well as materials required for general patching. **Comebacks and out-of-sequence work may be required by this contract and as such should be included. This shall include but not be limited to, mobilization for topping out of the drywall partitions including utilizing "paperless drywall" to accommodate environmental conditions and ratings to allow the mechanical systems to be roughed in. Additionally sequencing of the exterior drywall system with the temporary opening protection and the final blocking, door/window returns and the window system installation shall be considered and additional mobilizations included as needed. (Addendum No. 3)**
20. Include all necessary field measurements.
21. Include three (3) passes per floor to "touch-up" mechanical penetrations to ensure ratings required. The first pass will be required prior to ceiling grid installation and the second pass will be required prior to final inspection for Certificate of Occupancy.
22. Bidders are advised to pay particular attention to top of wall conditions, fire and smoke safing of slabs and acoustical sealants. This work is include within the scope of this contract.
23. This contractor to provide caulking at the base and top of drywall partitions, furred walls and all drywall conditions.
24. This contractor shall work with other trades to install openings that are in wall assemblies being

constructed.

25. Provide metal furring as required.
26. ~~Provide all glass fiber reinforced gypsum work including materials, taping (interior only).~~ (Addendum No. 3)
27. Provide all backing board (cement board) for tile areas and as directed by the contract documents. Coordinate with the Tiling contractor for requirements of this work.
28. Engineered shop and installation drawings. (delegated design)
29. This Contractor shall include a \$175,000 allocation in his contract to supply, install, inspect and maintain a complete scaffold system to accommodate the construction of the Auditorium framing, ceiling systems, clouds, MEP installation etc. This contractor shall be the responsible contractor for this scaffolding system throughout construction until all work is completed and the CM authorized the removal of the system. All contractors shall provide signed waiver forms to the controlling contractor (this contractor) before they may access the scaffold system.
30. This contractor shall include within their bid the incorporation of **1000 hours of COOP participation** by an NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
31. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
32. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
33. Provide trash and debris removal daily. This means everything leaves the building and goes to the dumpsters. No piling of trash inside building will be permitted.
34. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
35. Include within this contracts base bid an allocation of \$30,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-07 – GENERAL LABOR AND CLEAN-UP

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Procurement and Contract Requirements
Division 1	General Requirements

This contract also includes, but is not necessarily limited to, all labor, materials, and equipment for the following:

1. This contractor shall provide General labor to the project the direction of the owner and project manager.
2. Include within the Base Bid for this contract \$7,500 worth of material handling tools. To include but not limited to, wheeled bins for trash removal, shovels, brooms, trash bags etc. purchased materials shall be tracked with receipts and verified. Any funds left unspent will be returned to the owner via credit change order. (all tools purchased under this allocation shall be organized and turned over to the owner at completion of the work)
3. The contract shall include a total of 6,000 manhours of general labor to be scheduled by the Construction Manager. The work will start Feb 15 2024 and the duration of the coverage could extend to 15 May 2026. This work may be scheduled anytime within the scheduled date range without penalty or additional costs to NCCVT or the CM.
4. A unit price will be provided by this contractor that will pertain to any hours that may be deducted or added to this contract.
5. Pay Applications each month will be backed up with daily tickets and a complete accounting of the monthly hours utilized. Field Superintendent or hid designated representative shall sign all daily tickets.
6. The owner and CM have the right to request replacement of any personnel provide to service this contract, without out obligation or explanation.
7. **Include within this contracts base bid an allocation of \$7,500 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order. (Addendum No. 2)**

CONTRACT NO. D-08 - ROOFING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 072100	Thermal Insulation
Section 075300	Elastomeric Membrane Roofing
Section 076200	Sheet Metal Flashing and Trim
Section 077100	Roof Specialties
Section 077123	Manufactured Gutters and Downspouts
Section 077200	Roof Accessories
Section 079100	Preformed Joint Sealants
Section 07900	Joint Sealants
Division 23	HVAC (controls coordination)
Division 26	Electrical (power, fire alarm, lightning protection)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide single ply flexible roofing system, including rigid and tapered insulation and all related accessories.
2. This contractor shall carefully review the edge of roof details to determine if the roof can be placed before the exterior wall assembly is complete. This contractor shall include all costs associated with returning to the jobsite to complete the roof perimeter after wall assembly is complete.
3. Provide caulking and joint assemblies related to roofing, flashing and roof accessories.
4. Roof drains and associated plumbing shall be provided by the Mechanical Contractor. Flashing of the roof drains shall be by the Roofing Contractor. Openings for the roof drains in the roofing materials shall be cut by the Roofing Contractor. Openings in the metal deck shall be cut by others. This contractor shall be responsible to coordinate the roof drain locations as needed by the steel contractor and plumbing contractor so reinforcing of the decking and roof support frames may be installed in accordance with the sequence of work.
5. Metal parapet coping, receiver system and all components required for a complete coping assembly. Caulking and sealing of all copings is the responsibility of this contractor.
6. Provide boot for piping and conduits that penetrate the roofing assembly. Coordinate with other trades.
7. Coordinate the roofing installation and flashing required for line sets, piping, electric and control penetrations. Coordinate with MEP contractors.
8. Roof hatches, smoke vents, smoke hatches, access covers etc. are to be provided by this contractor.

Coordination of this work with other trades and the MEP vendors are required by this contract. Rail systems and curbs to be provided by this contract. The smoke hatches are not accessible shall be provided with remote controllers to test and re-set.

9. Walk pads and walk pad layout shop drawings are required by this contract.
- ~~10. Perform cutting, patching and maintenance of temporary patch for work performed by others on existing roofs intended to be re-roofed as part of this work.~~ (Addendum No. 2)
11. Metal drip edges, complete including all caulking and sealants.
12. Gravel stops, complete including all caulking and sealants.
13. Roof curbs to be installed by this contractor, provided by the MEP trades as identified in the contract documents. Coordination with the Carpentry contractor on the roof blocking thickness is required by this contractor. Provide detail shop drawings identifying the insulation thickness so blocking can be installed accordingly.
14. This contractor shall coordinate with the carpentry contractor on location of wood blocking, curbing, etc. to facilitate the installation of the tapered insulation, crickets etc.
15. Provide expansion joints that are integral to the roof. Including but not limited to edge of wall Details E3/A590 and B1/A590.
16. Gutters, downspouts, splash pans, splash blocks. This contractor shall be responsible to coordinate with the plumbing contractor for the connection to the RW system. Provide membrane flashing, metal flashings, sealants, drip edge, gutters , drain covers etc. as related the gutter systems for this course of work.
17. Metal scuppers, over flows, drains etc. as required by the contract documents are this contractors responsibility.
18. Provide a means to lift materials to the roof for materials not stored on the roof at initial time of delivery. All costs shall be the responsibility of the roofing contractor.
19. This contractor shall manage, handle, lift and install the insulation materials supplied by the steel contractor for the areas of acoustical decking. Lifting of these materials to the roof when needed is the responsibility of the roofing contractor. At areas of Acoustical Decking below, fasteners for the first layer of roof insulation shall be installed so they "do not "penetrate the bottom surface of the decking. All layers of insulation above are to be imbedded into full bed of adhesive in accordance with roofing and insulation manufacturer's instructions.
20. This contractor shall provide waterproof seals around lightning protection system as required by roof manufacturer requirements. If location of lightning protection conduits are not clearly shown on the roof plan, include within your base bid an additional; cost to seal one penetration for every 1000 sf of roof area.
21. This contractor shall review the schedule for the roofing scope of work and include within the base bid

considerations (costs) for cold weather roofing installations. This shall include but is not limited to providing a warming hut/enclosure to keep material warm and allow the roof installation to continue in cold temperatures. All costs related to cold weather roof installation shall be the responsibility of this contractor.

22. The owner may at any time select to have a third party roof inspector review and inspect the roofing installation and finished roof system. This contractor shall work with and allow access to this third party inspector as needed.
23. All trash shall be removed from this contractors work area daily to the dumpsters. No trash may be stored on the roof area.
24. Flashing and sheet metal systems related to the scope of this contract work.
25. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
26. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
27. This contractor shall include within the base bid proposal (2) additional roofing inspections of the entire roofing assembly to facilitate any damage or overuse repairs that may be required. These inspections will be schedule by the CM within the duration of the construction schedule. These inspections do not in any way take the place of the final warranty inspections as required by the contract documents.
21. Flashing Summary:
 - a. Thru wall and cavity flashing below the roof line shall be by the Masonry Contractor.
 - b. Thru wall and cavity flashing above the roof line shall be by the Roofing Contractor.
22. Include within this contracts base bid an allocation of \$35,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of credit change order.

CONTRACT NO. D-09 - FIREPROOFING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 072129	Sprayed Acoustical Insulation
Section 078100	Applied Fireproofing
Section 078400	Firestopping

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all fireproofing, both exposed and concealed as required by the contract documents.
2. Provide all intumescent and special coatings required by the code documents, identified in contract drawings, plans and details.
3. Provide Sprayed Acoustical Insulation as required by the contract documents. The Alternates apply to this area of work.
4. Clean up on a daily basis, all over spray materials. Remove all excessive water from spraying operation.
5. This contractor shall be responsible to protect all non-metallic piping within the building envelope from over spray of the Applied Fireproofing, intumescent coatings, fire caulking and fire safing as it pertains to the scope of your course of work. The contractor shall be familiar with and comply with the NFPA regulations, including but not limited to the following
6.3.7.5 Firestopping materials intended for use on nonmetallic piping penetrations shall be investigated for compatibility with the nonmetallic pipe materials.
6.3.7.5
Protection plan shall be submitted and reviewed with the CM prior to implementation.
6. Inspection of the fireproofing for compliance will be provided by a third party inspector provided by the owner.
7. Protect fireproofing according to advice of fireproofing manufacturer and installer from damage resulting from construction operations or other causes so that fireproofing will be without damage or deterioration at time of Substantial Completion.
8. Coordinate installation of fireproofing with other work in order to minimize the need for other trades to cut or remove fireproofing. As other trades successively complete installation of their work, maintain protection of structure afforded by fireproofing by patching any areas which have been removed or damaged prior to concealment of fireproofing by other work.
9. This contractor to include and submit as a shop drawing for review a detailed mshop drawing of all

areas of fireproofing and the required coatings on floor plans and elevations, to clearly illustrate where the fireproofing materials and special coatings will be applied.

10. This shop drawing will be shared with the Steel contractor for review and incorporation into their steel and joist preparation plan. (no primer, coatings, primers etc.)
11. Repair or replace work which has not been successfully protected.
12. Prepare all surfaces including priming of substrate if required.
13. Provide all required steel frame fireproofing whether clearly shown or not on the drawings. Do not include concrete fire proofing.
14. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
15. Provide Alternate pricing as required by the contract documents. (k-12 Sprayed Insulation at Shop Areas)
16. Include within you base bid 80 hours of labor and ~~\$15,000~~ **\$20,000** **(Addendum No. 2)** of materials required to touch up fireproofing systems as required by the governing agencies (FM) or the construction manager.

CONTRACT NO. D-10 – JOINT SEALANTS AND PREFORMED JOINT ASSEMBLIES

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 078400	Firestopping
Section 079100	Preformed Joint sealants
Section 079200	Joint Sealants

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide required caulking at control and construction joints.
2. Provide all preformed joint sealant products including but not limited to Emseal expansion joint as required.
3. Provide caulking of masonry to masonry and to dissimilar materials. **(Addendum No. 2)**
4. Provide within your Base Bid proposal (240) man hours and \$7,500 in materials to be utilized for Misc. fire safing and Fire sealants that may be required due to agency walk throughs and inspections. This work shall only be authorized by NCCVT or EDiS. Any remaining funds shall be returned to the owner via credit change order.
5. Provide caulking of vertical joints on exterior metal panels to adjacent materials (Metal Panel contractor to provide sealants and caulking between panels and as required to seal their assembly, including where metal panels sit on masonry.)
- ~~6. Provide caulking related to interior glazing. Caulking of interior perimeter of new aluminum windows, storefront and curtainwall to finished surfaces to be provided by this contract. To include all rated sealants and Ballistic sealants at required areas.~~ **(Addendum No. 2)**
- ~~7. Provide all caulking and sealants for of kitchen equipment and laboratory furniture to adjacent surfaces.~~ **(Addendum No. 2)**
8. Provide caulking of exterior perimeter of hollow metal door frames. **(including overhead doors)**
(Addendum No. 2)
9. Provide caulking of interior perimeter of hollow metal door frames to masonry. (HM frames to drywall shall be provided by the Painting contractor)
10. Provide caulking of all hollow metal frames to the floor. Coordinate caulking with flooring materials.
11. Provide caulking of all interior exposed drywall to masonry and metal wall panels.

12. Provide caulking at the tops and bottoms of all exterior and interior column covers.
13. Provide caulking of all interior exposed concrete slab control joints, expansion joints and perimeter slab to walls.
14. Provide caulking for interior perimeter of sinks, urinals, toilets, bath accessories, toilet partitions, fire extinguisher cabinets, hose reel cabinets, gas cabinets and any other accessories identified on the contract documents. **(work as indicated on contract documents) (Addendum No. 2)**
15. Provide caulking of joints in ceramic tile areas, including ~~inside corners, floors~~ **(Addendum No. 2)** and ceilings.
16. Provide caulking of the top and sides of all finished stair stringers to adjacent materials. Include caulking of all stair stringers and bottom riser to floor.
- ~~17. Provide caulking for penetrations through wall, floors, etc. including cutting, patching, sleeves, angle rings, and fire safing. (Addendum No. 2)~~
18. Examine areas and conditions where joint sealers are to be installed and correct any conditions detrimental to the proper and timely completion of this scope of work. Do not proceed with work until unsatisfactory conditions are corrected to permit proper installation.
19. Provide mock ups of all products and adhesion tests for exterior caulking.
20. Provide custom colors or all caulks and sealants.
21. Protection and cleaning of adjacent surfaces to be the responsibility of this contractor.
22. This contractor shall include the Pollution Insurance coverage as specified in the contract documents.
23. This is not a secure site, the contractor is responsible for the safe storage of all of their materials. NCCVT and EDiS will not be responsible for lost or stolen materials
24. All subbase preparation, priming etc. to be performed before caulking is applied.
- ~~25. Include caulking and preparation of all painted materials prior to painting (Addendum No. 2)~~
26. Include within this contracts base bid an allocation of \$15,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-11 - HOLLOW METAL, WOOD DOORS, AND FINISH HARDWARE

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 081113	Hollow Metal Doors and Frames
Section 081416	Flush Wood Doors
Section 081700	Integrated Door Opening Assemblies
Section 087100	Door Hardware
Section 080671	Door Hardware Schedule
Section 088000	Glass and Glazing (coordinate with glazing contractor)
Section 084313	Aluminum Framed Storefronts (coordination of keying)
Section 089100	Louvers (as related to doors)
Division 26	Electrical (coordination)
Division 27	Communications (coordination)
Division 28	Electronic Safety and Security (Coordination)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Furnish only hollow metal doors, frames, vision panels, wood doors and finish hardware.
2. **This contract shall furnish and deliver the Integrated Door Opening Assemblies Section 081613. (Addendum No. 3)**
3. **Furnish all work related to the building mock up of doors frames, hardware for each type of door on the project. Contract D-04 shall install the doors and hardware for the project mock up. Contract D-11 shall provide the door, frame and hardware for the mock up. (Addendum No. 3)**
4. Keying for Aluminum Entrance doors to be coordinated and provided by this contract.
5. Keying. All lock sets. Provide Owner with a complete schedule of all keying and pin schedules as required.
6. Provide hex keys or flat keys for hardware not keyed to building hardware.
7. Provide cylinders and keying for elevator, light switches, panic bar dogging and door openers.
8. Construction door cylinders shall be provided by this contractor to the Carpentry contractor for use during construction. Plan and include the cost of providing (3) three separate levels of cylinders (green, red, blue) to allow areas to be secured separately as required by the CM. Provide (25) keys per color system.
9. All exterior Hollow Metal frames shall include a box and raceway built into the door frame for locations

- at the latch and hinge as required. Provide a box and raceway at the head of the frames for door contact access and installation.
10. This contractor shall pay close attention to the Alternate section of the specifications as they relate to the scope of this contracts scope of work. (Access Control System- Salto Alternate)
 11. This contractor shall coordinate the hardware and door materials with the Carpentry contractor prior to ordering materials. Including but not limited to all coordination meetings with the Owner, CM Carpentry contractor and Special Systems contractor as required to properly coordinate all doors, frames, hardware and connections, prior to ordering of materials.
 12. This contractor shall deliver all materials as coordinated with the installer to the project site in an orderly organized manner. Deliveries will not be received unless the Carpentry contractor is notified and the delivery is coordinated. The Owner and EDiS will receive any materials. Additionally provide 48 hour notice prior to delivery. All deliveries are to be between 7:00 AM and 3:30 PM (allow time for check in of all hardware when scheduling)
 13. Provide field assistance to Electrical and Carpentry Contractor as required to facilitate the installation of the materials supplied by your course of work.
 14. This contractor to coordinate with the Special Systems contractor and Electrical contractor to ensure that all cut outs, plates, receiver etc. that are required to be built into your doors and frames are fully coordinated. In person attendance at review and coordination meetings for the doors, hardware, special systems, raceway and electrical connections shall be the responsibility of this contractor.
 15. As changes are made to the hardware schedule, whether due to issued ASI's, RFI's, architectural changes etc., this contractor shall make updates to the hardware schedule and re-issue so the schedule is always updated and submitted to EDiS.
 16. Coordinate electrical requirements with any automatic door operations.
 17. Provide harness lengths to reach above accessible ceilings. Coordination of this work and the lengths required is the responsibility of this contractor. Provide any harness adapters and connectors required allow hardware to have a splice free system.
 18. This contractor shall provide all magnetic hold open hardware, including extensions as required.
 19. Provide a key box system to hold up to 25% over the amount of keys being supplied.
 20. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.

CONTRACT NO. D-12: OVERHEAD COILING DOORS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 055000	Metal Fabrications
Section 083313	Overhead Counter Doors (Addendum No. 2)
Section 083323	Overhead Coiling Doors
Division 26	Electrical (coordination)
Division 28	Electronic Safety and Security (coordination)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all overhead coiling doors as required by the contract documents. To include but not limited to exterior and interior coiling doors systems. Hardware, openers, buttons and controllers required for a complete system shall be provided by this contractor.
2. Provide all overhead coiling grilles.
3. **Provide all overhead counter doors. (Addendum No. 2)**
4. Include all wall framed openings and openings including trims, flashings, and sealants as required to perform your course of work.
5. Provide additional supports for overhead coiling doors. Structural members identified on the structural drawings are not part of this contract scope. Provide ancillary steel, connectors, all thread and other misc. items as required. Coordinate all electrical and special systems requirements for work of this contract with the appropriate contractors. Provide keyed switches for both electric and low voltage to match building keying.
6. Keying coordination for all lock sets. (coordinate with same hardware system as Dor Hardware supply contract..
7. Coordinate electrical requirements with any automatic overhead door operations.
8. Provide low-voltage wiring required for overhead doors automatic door operations. Include all raceways, boxes and switches required for a complete installation.
9. Ensure that all garage doors fully open the entire height of the door opening and close with the bottom edge touching the ground. Garage doors will fit square in the openings with no gaps along the top, bottom or sides when the door is closed.

10. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
11. Provide all sensing and safety devices as specified for each assembly to provide a complete assembly.
12. Exterior overhead doors and grilles shall have the appropriate specified seals, and weatherstripping at all edges. Top, sides and bottom. Seals shall maintain water tightness when installed.
13. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
14. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-13 - CURTAIN WALL/GLAZING/STOREFRONTS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 054000	Cold Formed Metal Framing (coordination)
Section 055000	Metal Fabrication (as required for work)
Section 072500	Weather Barriers
Section 079100	Preformed Joint Sealants
Section 079200	Joint Sealers
Section 089100	Louvers
Section 084313	Aluminum Framed Storefronts
Section 084333	Folding Glass Storefronts
Section 084413	Glazed Aluminum Curtain Walls
Section 084523	Translucent Wall Assemblies
Section 008710	Door Hardware
Section 088000	Glazing
Section 088723	Safety and Security Films
Division 26	Electrical (coordination)
Division 28	Electronic Safety and Security (coordination)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide curtain wall, storefront, glass and glazing systems, Fiberglass Sandwich Panel Systems, complete.
2. Provide all Safety and Security Films required by Section 088723 and the contract documents.
3. Provide aluminum door systems and handling.
4. Provide automatic aluminum door systems, including hardware, low voltage wiring, coordination of power and all hardware. Coordinate with Division 26 and Division 28 for access of their work in to your framing system.
5. All work of this contract shall be coordinated thoroughly with Division 26 Electrical and Division 28 Electronic Safety and Security.
6. Curtain wall systems complete, including all Delegated Design requirements required to provide a complete system. Coordinate your work with the envelope systems and contractors to insure sealing of the units for a tight seal. (pressure caps and Blueskin seals)
7. Furnish hardware for aluminum doors only. (all other finish hardware by Door and Hardware contract. (coordinate the keying and keying systems, including card reader systems)

8. All glass and glazing at exterior of building.
9. Caulking related to storefront doors and curtain wall systems.
10. Mock-ups as required by the Drawings and Specifications.
11. Custom breakmetal trim and infill.
12. Hoisting/scaffolding/cranes and all other material handling or access equipment. This contractor owns all material and manpower handling.
13. Coordinate edge of slab tolerances and field verify all rough openings. Field verification of edge of slab details is required by this contractor.
14. Provide all caulking and sealants, including any Preformed Sealants, required for your systems. All exterior caulking of your system and caulking to adjacent exterior surfaces by this contractor. The caulking and Sealant contractor shall caulk interior surfaces to your Alum frames.
15. Provide interior glass and glazing systems. Coordinate with the door and frame contractor and carpentry contractor.
16. Interior door, partition, vision panel and window glass.
17. Caulking and sealants related to interior glazing.
18. Do not provide interior hollow metal or hardware. These items will be provided by the Door and Hardware contractor.
19. Any openings that are missing glass (due to this contractors issues) during construction shall have plywood installed to secure and weatherproof the building by this contractor.
20. Clean up of all trash and debris related to this contract shall performed daily and removed to the dumpsters. All material shall always be stored neatly and orderly.
21. Coordinate glass types with partition and door fire ratings. Contact Construction Manager with any discrepancies. Shop drawings, samples and product data must be submitted within 3 weeks after award of contract.
22. This contract shall coordinate and work with the Special Systems contractor to allow the installation of harnesses, whips and connections while installing frames and hardware.
23. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
24. Include within this contracts base bid an allocation of \$35,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-14 – TILING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 090561	Common Work Results for Flooring Preparation
Section 093000	Tiling

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide ceramic tile, marble tile, quarry tile, base material and thresholds as required by the contract documents, complete.
2. Provide all mortar bed installations as directed by the specifications and drawings.
3. Grout, including Epoxy grout and custom colors as specified.
4. Cutting and fitting around work installed by others.
5. Provide waterproofing and crack-isolation systems as required by contract documents.
6. **Precast mop receptors as per contract documents. (Addendum No. 2)**
7. Patching and leveling of “new” concrete system to be included in this contracts base bid. Contractor to review concrete floor installations and report any deficiencies in tolerance prior to mobilizing for any tile installation. Float inconsistent defects as needed to bridge tile for wall assemblies receiving wall tile.
8. Provide protection of finished products until acceptance by Construction Manager. This contract shall include the material and labor to cover all ceramic tile areas with Ramboard panels (not roll material or corrugated plastic panels. Seams to be taped and sealed for effective protection.
9. Attic stock, delivered and unloaded into owner storage room.
10. Provide crack suppression membrane for this set tile installation.
11. This contractor to coordinate work of this contract with contractor installing cement backer boards to receive your tile.
12. Provide metal strips and Schluter strips installed as part of the tile installation.
13. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or

equipment modifications such as adding water to equipment during exposed work and keep records of exposure.

14. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
15. Include within this contracts base bid an allocation of \$15,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-15 - ACOUSTICAL CEILINGS AND SPECIALTY CEILINGS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 072100	Thermal Insulation
Section 079200	Joint Sealants
Section 095100	Acoustical Ceilings
Section 095420	Specialty Ceiling Systems
Section 098400	Acoustical Room Components

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide complete acoustical ceiling systems to include suspension system, hangers and all required components for a complete system.
2. Provide specialty ceiling systems complete, including framing, supports and necessary components.
3. Provide acoustical wall treatments and acoustical room components complete.
4. This contract includes all Sound Reflecting Tiles, Sound Diffusing tiles, Suspension grids, struts, metal panel ceiling systems and architectural metal wall panel systems. Provide cutting, fitting and coordination with MEP trades for outlets, grilles, cable access etc.
5. **This contract to provide Decorative Metal panels shown on A441, A442, and A443. (Addendum No. 3)**
6. Acoustical lay in insulation blankets and rigid panels above ceilings and behind wall grid systems as identified in the contract documents.
7. Supplemental suspension hangers at large ducts above ceilings and at openings for lighting fixtures shall be provided and coordinated to minimize exposed clips, anchors, and wires.
8. Continuous acoustical sealant on back of vertical leg before installing moldings as indicated.
9. Furnish and install hold down clips where required by governing regulations for fire resistant ratings.
10. Provide all material handling, scaffolds, lifts, Spyder cranes, access to work etc. as required for the scope of this contracts work.
11. Expansion joints for all acoustical ceilings, specialty ceilings and acoustical systems.
12. Provide ceiling grid layout on floor for cassette and duct placement in ceiling grid system.

13. This contractor shall review all documents, shop drawings, plans, and drawing model for ceiling height issues. All issues shall be reported to the EDiS prior to installing wall angles.
14. Reflected ceiling layout plans and shop drawings for approval and installation must be provided for all ceiling systems, clouds, acoustical panels, metal wall systems, etc.
15. This Contractor shall cut openings in ceilings for sprinkler heads, lights, mechanical diffusers and grilles, etc. Coordinate work with other trades.
16. Coordinate with other trades for layout and install of their materials into the grid system provided by this contract.
17. Attic stock as per the contract documents, delivered, inventoried, and moved to a storage area within the building at the owner's direction.
18. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
19. Include within this contracts base bid an allocation of \$20,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner via credit change order.

CONTRACT NO. D-16 - FLOORING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 090561	Common Work Results for Flooring Preparation
Section 096500	Resilient Flooring
Section 096813	Tile Carpeting
Section 096816	Sheet Carpeting
Section 096933	Low-Profile Fixed Height Access Flooring

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide flooring in accordance with the contract documents.
2. Prepare subfloor for finished flooring including leveling and patching. Base bid shall include all flashing patching and surface preparation required to perform the work of this Contractor.
3. Provide all Resilient flooring, LVT, Sheet vinyl, rubber tile, rubber treads, rubber base, resilient base, carpeting, carpet tile complete.
4. Provide Low-Profile fixed height access flooring system, complete.
5. Provide all moldings, transitions and edge strips as required.
6. Provide recessed flooring systems at specified areas, to include a shop drawings for approval, recessed floor system, carpet inset and required attic stock materials.
7. Resilient transition and reducer strips at edges of resilient flooring and at edges of carpeting.
8. Cleaning and protection of floors after installation shall be required by the cope of this contract.
9. Seaming diagrams are required to be submitted for approval.
10. Provide mock up's as defined by the contract documents.
11. Attic stock to be delivered to the site, inventoried and then moved to a storage area within the building at the direction of the owner.
12. This contractor shall own all material handling and means to unload, move and lift materials to second floor locations.
13. Provide entrance mat systems complete.

14. Provide finish floor material in elevator cab as specified.
15. Provide cutting and fitting around work of others.
16. This contractor shall protect the adjacent work of other trades while performing the scope of this contract.
17. Include within this contracts base bid an allocation of ~~\$15,000~~ **\$25,000 (Addendum No. 2)** for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-17: RESILIENT ATHLETIC FLOORING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 090561	Common Work Results for Flooring Preparation
Section 096566	Resilient Athletic Flooring

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide flooring in accordance with the finish schedule and specifications.
2. Provide resilient athletic flooring, base, and associated striping, logos, sealants etc.
3. Provide moisture level testing and reporting as part of this contract scope.
4. This contract includes removal of curing and sealing coatings that may be incompatible with the flooring adhesives of your product. Shot blasting, grinding or any required floor preparation is the responsibility of this contractor.
5. Prepare subfloor for finished flooring including leveling and patching. Base bid shall include all flashing patching and surface preparation required to perform the work of this Contractor. This shall include any moisture barriers that may be required.
6. Provide required flashing and transitions to adjacent materials. This include ramping of existing concrete floor if required for the fit and completeness of the Resilient Athletic Flooring system.
7. Provide cleaning, sealing and protection. Protection will be with Ramboard Pro panels with taped seams or Masonite with taped seams. Cover floor immediately after installation.
8. Seaming diagrams, and shop drawings for approval/installation.
9. Include within this contracts base bid an allocation of \$15,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner via credit change order.

CONTRACT NO. D-18 - RESINOUS MATRIX TERRAZZO FLOORING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 090561	Common Work Results for Flooring Preparation
Section 096623	Resinous Matrix Terrazzo Flooring
Section 096616	Precast Cement Terrazzo Treads and Landings (Addendum No. 2)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide vapor retarding sealer prior to terrazzo application' include required cost in this contracts base bid.
2. Provide all thresholds, reducers etc. as required to perform the work of this contract.
3. **Provide all Precast Cement Terrazzo Treads and landings as defined by the contract documents. (Addendum No. 2)**
4. Prepare subfloor for finished flooring including leveling and patching. Include in the base bid, leveling and patching as per the manufacturer's recommendations for the resinous terrazzo flooring. Include shot blasting, grinding, and moisture barriers as required for a complete installation.
5. Provide moisture vapor treatment on all slabs on grade.
6. Provide crack suppression membrane as required. Crack suppression, control joints and expansion joints shall be clearly identified in a shop drawing of all Terrazzo areas for design team approval.
7. Provide standard and custom samples for approval. Include three (3) in-field mock ups for final selection and approval.
8. Prep all floors for terrazzo application per manufacture and industry standard.
9. Cutting and fitting around work installed by others.
10. Provide protection of finished products until acceptance by Construction Manager. Protection shall RamBoard pro Sheets with Ram tape.
11. Attic stock, delivered, unloaded and moved to owners storage area within building.
12. Protection of surrounding surfaces and work of others.

13. Provide joint sealants required for Terrazzo installation.
14. Protect materials from damage and contamination in storage or delivery, including moisture, heat, cold, direct sunlight, etc.
15. Maintain temperature of storage area between 60 and 80 degrees F (15 and 26 degrees C).
16. Keep containers sealed until ready for use.
17. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with Resinous Terrazzo materials. Include all bead blasting required to perform the work of this contract.
18. Close spaces to traffic during Terrazzo application. Coordinate traffic on unpolished Terrazzo with CM and construction schedule.
19. Maintain proper ventilation of the area during application and curing time period.
20. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
21. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
22. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
23. Contractor must provide additional crews as needed to maintain the project schedule.
24. Provide pricing for all alternates as described in Section 012300-Alternates.
25. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-19 - FLUID-APPLIED FLOORING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 079200	Joint Sealants
Section 090561	Common Work Results for Flooring Preparation
Section 096700	Fluid Applied Flooring

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide fluid-applied flooring and integral base.
2. Provide mock-ups as required by plans and specifications.
3. Provide standard and custom color samples for review and approval.
4. Provide vapor retarding sealer prior to resinous application, as required by specifications or manufacturer's installation instructions.
5. Provide protection of work of others as well as cutting and fitting around work installed by others.
6. Patching and leveling of areas to receive resinous flooring to be included in the base bid of this contract.
7. Provide cleaning, finishes and protection. Protection shall be RamBoard Pro sheets with Ram tape. Provide protection of finished products until acceptance by Construction Manager.
8. Provide crack suppression membrane required for the work of this contract. The submitted shop drawing for the Resinous Flooring areas shall reflect all control joints, expansion joints and crack suppression locations for review and approval.
9. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
10. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
11. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records

of exposure.

12. Contractor must provide additional crews as needed to maintain the project schedule.
13. Provide multiple out of sequence installations. Each area shall be considered a separate mobilization and all costs shall be included in the base bid.
14. Provide pricing for all alternates as described in Section 012300-Alternates.
15. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-20 - PAINT AND VWC

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 079200	Joint Sealants
Section 099113	Exterior Painting
Section 099123	Interior Painting

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all painting and vinyl or fabric wall covering (all walls and ceilings indicated on the finish schedule) include all preparation of surfaces, trims and finish wood locations.
2. Provide sealing of all interior joints between dissimilar materials that require sealants before painting.
3. This contractor shall provide "all" interior and exterior painting complete.
4. Paint all exposed block work and concrete work as shown on the room finish schedule and contract documents. Include painting of the elevator shaft from F.F. down to the bottom of pit (white)
5. Prime, stain or seal, all wood trim and doors as required by the contract documents.
6. Paint exposed piping (sprinkler, plumbing, gas piping, electrical) and ductwork in accordance with the contract documents. Include preparation work for all items specified. Review and coordinate any color requirements specified in the contract documents or as required by code. Pay close attention to MEP documents for specific locations of piping colors.
7. Provide supplementary ventilation as required in enclosed spaces.
8. Paint and caulk all hollow metal frames and doors as shown on the door schedule.
9. Paint metal stairs and railings.
10. Prefinished items will not be painted by this Contractor.
11. Paint all semi-exposed wood blocking as indicated on the drawing.
12. Include "preparation" of all surfaces and items required to be covered by the scope of this contract.
13. This contractor shall allow a touch up pass from drywall contractor/mason contractor between prime coat and first coat of finish.

14. Protection of adjacent surfaces required by this contractor.
15. Minor patching prior to application of finishes shall be included in the base bid.
16. This contractor shall provide sealing/hardener of concrete floors, including scraping, brushing, removal of markings, grease, foreign materials and thoroughly cleaning all the floors prior to installation of the sealer/hardener materials. Coordination with other finishes will require multiple mobilizations for the sealer/hardener preparation and installation. Include within your base bid a (6) additional mobilizations for this work.
17. Installation of rated wall identification to be provided by this contractor. Access, lifts, ladders etc. to be provided by this contractor.
18. Provide painting of all exterior bollards and gates that are not prefinished.
19. Paint gas lines at both the interior and exterior of the building.
20. All lintels shall be painted by this contractor.
21. Paint all railings and handrails that are not prefinished.
22. Provide cleanup of your work areas and storage areas on a daily basis. Removal of spent paint cans and buckets is the responsibility of this contractor.
23. This contractor shall protect all areas, materials and work of others from over-spray from the work of this contract.
24. This Contractor to allow 240 man hours and all required paint materials for these man hours to be used as directed by the Construction Manager.
25. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
26. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
27. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
28. Contractor must provide additional crews as needed to maintain the project schedule.
29. Provide pricing for all alternates as described in Section 012300-Alternates
30. Include within this contracts base bid an allocation of \$20,000 for work to be determined by owner and

construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-21 - WOOD STRIP FLOORING - GYM FLOORING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 062000	Finish Carpentry (coordination of work)
Section 079200	Joint Sealants
Section 090561	Common Work Results for Flooring Preparation
Section 096429	Wood Strip Flooring

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide complete gymnasium floor system including sleepers, base, plywood, finishes, transitions, and striping (including logos). Flooring installation shall be coordinated and installed so the integrity of the concrete floor is not impacted. Include within your base bid a penetrating water/vapor sealer application prior to starting the Gym floor assembly.
2. Provide underfloor ventilation fan as required by the specification or manufacturer's requirements. Power connection provided by the electrical contractor, all interconnection wiring or low voltage work to complete work shall be provided by this contractor.
3. Provide wood strip flooring, hardboard floors in, and accessories at all areas indicated by the contract documents. This contract to provide all stage flooring and the required painting.
4. Provide wall base and trims associated with wood strip flooring.
5. Coordination with the bleacher contractor and other trades with the installation of the wood floor.
6. This contractor shall include patching and leveling of low areas identified after the slab floor analysis. The high areas will be reviewed and the concrete contractor will be responsible to adjust.
7. Sealants and caulking associated with your course of work shall be provided by this contractor.
8. Provide thresholds as required to finish your course of work. Threshold locations and types shall be submitted for Owner/Design Team approval.
9. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
10. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.

11. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
12. Moisture and humidity readings are the responsibility of this contractor, monitoring and reporting results will be required. Results shall be provided each day in your daily reports, with photos of measuring device and reading. In addition provide the CM with a separate set of humidity sensors and a testing device for concrete floor moisture content.
13. All work to be coordinated with the carpentry contractor installing the gym equipment. Sequencing and timing shall be discussed and agreed to by this contractor.
14. Contractor must provide additional crews as needed to maintain the project schedule.
15. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
16. Provide pricing for all alternates as described in Section 012300-Alternates.
17. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-22 - SPECIALTIES

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 061000	Rough Carpentry
Section 062000	Finish Carpentry
Section 079200	Joint Sealers
Section 101101	Visual Display Boards and Display Cases
Section 102113.19	Plastic Toilet Compartments
Section 102123	Cubicle Curtains and Track
Section 102600	Wall Protection
Section 102800	Toilet Accessories
Section 104400	Fire Protection Specialties
Section 105100	Metal Lockers
Section 107316.13	Metal Canopies

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following: (provide and install)

1. Provide and install all specialties listed within this contract specification sections and scope.
2. Provide White boards, Markerboards (including glass markerboards), Chalk boards, tack boards, and tack strips.
3. Provide display boards and display cases.
4. This contractor shall own providing, engineering and installation of the Metal Canopies Section 107316.13. Coordinate all work with other trades.
5. Provide Projection screens if identified on documents. Electric service is the responsibility of the Electrical Contractor. All other control wiring, raceways and special boxes as specified will be the responsibility of this Contractor.
6. Provide Lockers including locker bases that are not identified as "concrete bases" (concrete locker bases provided by the Misc. Concrete and Grouting contract.)
7. Provide Toilet partitions. Coordinate any structural requirements with the structural steel and blocking requirements with the Carpentry contractor.
8. Provide toilet and bath accessories, complete. This contract shall include installing all owner supplied toilet accessories and specialties.
9. Provide all accessories as indicated on the contract documents.

10. Provide Fire extinguishers, cabinets and accessories. Include labeling of extinguishers and cabinets. Coordinate with other trades for opening size and placement.
11. Provide Vertically Retractable Walls coordinate any structural requirements with the structural steel and carpentry contractors. Provide all supplementary steel as needed to hang partitions from structural support steel, provided by the Structural Steel Contractor. It is assumed, no additional steel will be required below structural support steel. If so, it will be provided by this contractor.
12. Provide all signage and plaques (interior and exterior.)
13. Provide wall and corner protection. Including FRP Paneling.
14. Provide Mirrors (both framed and frameless.)
15. Verification of field dimensions is the responsibility of this Contractor.
16. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items.
17. All blocking and bracing requirements for all work of this contract shall be coordinated with the Carpentry contractor for correct installation of blocking etc. Include any blocking not specified to be provided by the carpentry contractor.
18. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
19. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
20. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
21. Provide hand dryers and installation, electrical power connection by electrical contractor.
22. Contractor must provide additional crews as needed to maintain the project schedule.
23. This contractor shall include within their bid the incorporation of **500 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
24. Provide pricing for all alternates as described in contract documents.
25. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the

company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.

26. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
27. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
28. This contractor shall be on site to coordinate when walls are being installed for penetrations and sleeve installations. If penetrations and sleeves are missed, this will be the responsibility of this contractor to cover associated costs of fixing.
29. Provide \$20,000 allowance to be used as directed by the owner and CM. All funds not expended will be returned to the owner via a credit change order by means of a credit change order.

CONTRACT NO. D-23 - FOOD SERVICE EQUIPMENT

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 11400	Food Service Equipment
Division 22	Plumbing
Division 24	HVAC
Division 26	Electrical

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide food service equipment, hoods, connective ductwork and accessories All final connections shall be made by the Electrical and Mechanical Contractors.
2. Any discrepancies between the Drawings, Specifications and site conditions or ambiguities in the documents shall immediately be reported to the Construction Manager in writing. Inconsistencies shall be corrected in writing or by reissuing the drawings. If the Contract Documents disagree with the quality or quantity of work required, the better quality or greater quantity shall be supplied unless otherwise instructed in writing by the Construction Manager. Any work performed by the Contractor at locations in question after his discovery of discrepancies, inconsistencies, ambiguities, or errors, without securing resolution, shall be at the Contractor's risk.
3. This Contractor shall verify all measurements at the site and assume full responsibility for their correctness before proceeding with his work. No extra compensation will be allowed because of differences between site conditions and those indicated on the drawings.
4. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer and shall be protected from damage until acceptance. Prefinished products which are damaged before or after installation shall be replaced with new and perfect materials. Materials finished after installation which are damaged shall be refinished or replaced as the Construction Manager may direct. No additional charge will be honored by the Construction Manager for repair or replacement of finished materials.
5. Should this Contractor feel that the Contract Documents call for work which he cannot guarantee, he shall so state, in writing, prior to bidding. Proceeding with any operation shall be construed as acceptance of all guarantee conditions.
6. Secure certificates of inspection and occupancy required by authorities having jurisdiction. Deliver copies of certificates to the Construction Manager prior to filing application for final payment.
7. Supply and install any pedestals, curbs or doghouses required for equipment on the roof in this contract. This should be a finished product so the roofer can flash to the system complete.

8. Any penetrations for work of this contract are the responsibility of this contractor whether through walls, floors or roof areas. Sealing of all penetrations (sealant, fire sealant or otherwise) and coordination with others is part of this contract.
9. This contractor shall include any blocking requirements required on a drawing that shall be coordinate with the carpentry contractor for blocking installation.
10. This contractor is responsible to make field visits to review rough in of underground utilities/piping/electric conduit, for placement in relationship to equipment locations.
11. This contractor to provide complete hood assemblies, including the hood fire protection assembly (Ansul) complete.
12. **Provide licensed electrician to make all interconnections within equipment furnished by this contract. This includes, but is not limited to power and control wiring interconnecting the kitchen hoods and make up air units provided by the mechanical contractor. (Addendum No. 3)**
13. This contractor shall coordinate and provide assistance to the electrical, fire alarm and controls contractor for interconnection into your hood assemblies and attached equipment.
14. Provide technicians on site to test all systems, hoods, equipment in advance of any required inspections.
15. This contractor is to accept delivery of their equipment and supplies, CM will not receive and unload equipment. Provide any and all material handling and unloading equipment and man power.
16. It is this Contractor's responsibility to make certain statutes, building codes, and regulations including those of the appropriate health agencies having jurisdiction over this type of facility are met.
17. Any items furnished as part of this Scope of Work that require mechanical or electrical rough ins or services that are different from those shown on the Contract Drawings shall be so noted at the time of bid. Failure to do so shall make this Contractor liable for costs of any changes required by same.
18. Provide all caulking and sealants for proper installation and in accordance with public health regulations. This contractor provides caulking and sealants for your own course of work.
19. Start, test and demonstrate all equipment installed under this category of work. Provide proposed schedule, including names and telephone numbers of attending representatives (3) three weeks in advance of demonstration.
20. Obtain approvals and permits and coordinate inspections and testing with governing local and state agencies.
21. This contractor shall provide factory start up of all equipment and the reports to document the start up's. CM to receive reports following start up.
22. (2) preliminary inspection or walk through of the project with the Health Department is to be include within this contracts scope.

23. This contractor to provide and install all low voltage capacitors, contactors etc. and required connections to allow the kitchen hood system to communicate and interface with the fire alarm system and exhaust systems. Electrical contractor to provide power connection to units.
24. This Contractor shall verify all measurements at the site and assume full responsibility for their correctness before proceeding with his work. No extra compensation will be allowed because of differences between site conditions and those indicated on the drawings.
25. Provide protection of all equipment during and after installation has been completed.
26. Provide coordinated shop drawings that indicate all MEP requirements and accurately reflect the actual conditions and spacing of the area.
27. All foodservice components consist of those items identified in Section 114000 and the "K" Series drawings that identify the Food Service items. All items are to be included in the base bid of this contract to completely provide all systems in their entirety. This contractor shall pay particular attention to the "Standard Details" section of typical drawings within Specification section 114000.
28. Any items furnished as part of this Scope of Work that require mechanical or electrical rough ins or services that are different from those shown on the Contract Drawings shall be so noted at the time of bid. Failure to do so shall make this Contractor liable for costs of any changes required by same.
29. Provide licensed electrician to make all interconnections within equipment furnished by this contractor. This includes, but is not limited to, power and control wiring interconnecting the kitchen hoods and make-up air units provided by the mechanical contractors.
30. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
31. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
32. Include within this contracts base bid an allocation of \$15,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of credit change order.

CONTRACT NO. D-24 - WINDOW SHADES AND ROLLER SHADES

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 061000	Rough Carpentry
Section 062000	Finish Carpentry
Section 122400	Window Shades
Section 122413	Window Treatment – Roller Shades

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide window shades and rollers shades complete.
2. Do not fabricate shades until field dimensions for each opening have been taken.
3. Do not install shades until final surface finishes and painting are complete.
4. Provide manual window shades as indicated on the contract documents.
5. Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
6. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
7. Do not install shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
8. This contractor shall include any blocking not identified or specified in the Carpentry contractors scope.
9. Provide all material handling and access equipment required for your work. Including scaffolds and lifts as necessary. CM will not receive or unload an of this contracts materials.

CONTRACT NO. D-25 - LAMINATE CLAD CASEWORK, COUNTERTOPS, AND SILLS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 062000	Finish Carpentry
Section 079200	Joint Sealants
Section 123400	Manufactured Plastic Laminate Casework
Section 123600	Countertops, Backsplashes and Window Stools

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide labor and materials to perform the work related to all casework, millwork, counter tops, back splashes and window sills. Coordinate rubber base after installation with flooring contractor.
2. This contractor shall provide all plastic laminate and millwork required in the Auditorium. This shall include panels, sills, casework etc. as detailed in the contract documents.
3. Provide all SS Tops, trims and accessories as required by the contract documents.
4. Provide all field trimming required to adjust to conditions on site.
5. Coordinate power and data requirements and locations with the electrical contractor for locations and sizes of holes needed. Grommets provided by this contractor.
6. Include all venting of cabinets and casework as indicated in the contract documents.
7. Provide solid surface window stools, wood trim, aprons, wood veneer paneling, and plastic laminate veneer paneling.
8. Provide solid surface base.
9. Provide countertops and backsplashes
10. Coordinate cutting holes in casework with other trades, and provide grommets at all openings.
11. Coordinate blocking requirements with Carpentry contract.
12. Provide joint sealants integral to casework/millwork and to dissimilar materials.
13. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.

14. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
15. This contractor shall include within their bid the incorporation of **1000 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
16. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
17. Contractor must provide additional crews as needed to maintain the project schedule.
18. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
19. Provide pricing for all alternates as described in Section 012300-Alternates.
20. Include within this contracts base bid an allocation of \$15,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.
21. This contractor shall coordinate the installation of the Fume hood assembly with the HVAC contractor who is providing this work.

CONTRACT NO. D-26 - STAGE RIGGING, LIGHTING, AND ACCESSORIES

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 116133	Rigging Systems and Draperies
Section 111663	Loose Performance Lighting Fixtures

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete theatrical rigging system as specified in Section 116133. Provide layout drawings and coordinate with electrical contractor for requirements of stage lighting and electric. This contract is responsible for any supplemental and miscellaneous steel/support required beyond the structural steel shown in the structural drawings to provide a complete and operational rigging system.
2. Provide theatrical draperies, operating systems, control wiring, motors etc. required to provide a complete system.
3. Provide Loose Lighting Fixtures and all low voltage wiring, motors, and controls to make system operational.
4. Provide (4) sets of any keys required to operate systems installed.
5. Provide specified warranties, attic stock, and as-builts. All attic stock to be delivered, inventoried, and delivered to a storage area on site directed by the owner.
6. Provide stage lighting systems including fixtures, controls, wiring, light grids, supports and attachments. Provide any Unistrut, support rods or other required anchoring devices for lighting support in theater. Coordinate work with electrical contractor for power connections.
7. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
8. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDis will not be responsible for any lost tools, materials or equipment.
9. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.

10. Provide BIM services as detailed in spec section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
11. Contractor must provide additional crews as needed to maintain the project schedule.
12. Provide pricing for all alternates as described in Section 012300-Alternates.
13. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-27 - FIXED AUDITORIUM SEATING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 126113	Fixed Audience Seating

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide seating layout, numbering, shop drawings, product data, samples, etc.
2. Provide Fixed, Removable, and loose audience seating as detailed in the drawings and section 126113. Coordinate finishes, coverings, colors, mounting, etc. between the fixed and loose audience seating.
3. This contractor responsible for their own layout and drilling of anchors for fixed seating. After installation, each day the area shall be cleaned of concrete dust, debris, boxes, packing materials etc. All materials must go to dumpster each day. Provide dimensioned layout drawings for lighting box layout for chairs.
4. Provide specified warranty, attic stock, and as-builts. Attic stock shall be delivered, inventoried and move to a storage location on site as directed by the owner.
5. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
6. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDis will not be responsible for any lost tools, materials or equipment.
7. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
8. Provide BIM services as detailed in spec section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
9. Contractor must provide additional crews as needed to maintain the project schedule.
10. Provide pricing for all alternates as described in Section 012300-Alternates.

11. Provide a final clean, vacuuming and wipe down of all seating and support brackets by this contractor. Coordinate scheduling of this work with CM.
12. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-28 - TELESCOPING BLEACHERS AND PLATFORMS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 061000	Rough Carpentry
Section 079200	Joint Sealers
Section 126613	Telescoping Bleachers
Section 126623	Telescoping Chair Platforms

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all Telescoping Bleachers and Telescoping Chair Platforms as required by the contract documents.
2. Provide bleacher seating systems. Coordinate electrical requirements with electrical contractor. Low voltage wiring, motors and controls are to be provided and installed by this contractor. Power supply will be supplied by electrical contractor.
3. This contractor shall coordinate all work of this contract with the carpentry contractor and wood flooring installer.
4. Protection of the work of others including but not limited to protection of all finished flooring installed before your scope of work can be installed. Protection of the flooring shall be reviewed with the CM before installation.
5. Verification of field dimensions is the responsibility of this Contractor.
6. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items. Provide all material handling and access equipment required for the scope of your contract.
7. All material handling. Loading, moving, lifting of the materials of this contract shall be the responsibility of this contractor. The CM will not receive or unload your materials.
8. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
9. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDis will not be responsible for any lost tools, materials or equipment.

10. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
11. Provide BIM services as detailed in spec section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
12. Provide pricing for all alternates as described in Section 012300-Alternates
13. Include within this contracts base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-29 - HYDRAULIC HOLELESS PASSENGER ELEVATOR

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 142013	Hydraulic Holeless Passenger Elevator
Division 26	Electrical (power and communications)
Section 284621	Addressable Fire Alarm Systems (coordination)
Section 281100	Access Control Systems (coordinate elevator access controls)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide hydraulic elevator system complete. Including all shaft anchoring, framing and Misc. steel required to install the elevator.
2. Grouting of all elevator sill angles will be the responsibility of the Misc. Concrete contractor Contract D-43.
3. Spyderys for elevator shaft installation shall be delivered to the site when required by the BP-C Masonry contractor.
4. Coordinate and work directly with the fire alarm contractor to meet all local, state, fire marshal and elevator inspector requirements.
5. Before the owner accepts the elevator for substantial completion, the elevator contractor shall train the owners maintenance personnel on operation of the elevator and review the contact operation and protocol for elevator service, warranty claims, etc. The training shall be professionally videotaped as part of the warranty package.
6. Provide control wiring and telephone signal wiring to top of elevator shaft as required.
7. Provide (2) sets of elevator protection padding, in addition to all other attic stock specified by contract documents. Provide CM one of these sets for use during construction.
8. This Contractor to furnish and install all rough wiring, low voltage wiring and devices (phones) necessary for the installation of emergency telephones.
9. Electric service and disconnect switch for the elevator are the responsibility of the Electrical Contractor. (This contractor shall work with electrical to coordinate type of disconnect with Fire Marshal and Elevator Inspector before installation) All other control wiring as required will be the responsibility of this Contractor.

10. This Contractor to submit for approval the layout and detailed dimensions of the elevator pit area, sump pump area, etc.
11. Provide BIM services as detailed in spec section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
12. Provide and include warranty extensions to include 9 months of temporary construction use. This contractor to include within the base bid 600 hours of temporary elevator operator to be utilized at the discretion of the owner and CM.
13. Include the costs associated with the inspections required for “construction” use in your base bid.
14. This contractor will work with other trades to insure access is given as needed to complete all work for a complete installation. This includes lifting contractors to the top of the shaft to complete work required. This includes but is not limited to fire sealing, sprinkler heads, lighting, smoke detectors, disconnects etc. Include within the base bid 4 separate mobilizations and 8 hours of operator time to allow contractors to access the shaft for work that requires installation.
15. This contractor shall own fire sealing of all penetrations for work of this contract.
16. This contractor to owns coordinating the final keying to the owners keyed system.
17. Provide all temporary signage required for machine room or elevator I order to facilitate inspections, until completion and final signage is installed.
18. Provide (2) complete sets of tools and keys to the owner. Provide and install key cabinet in the machine room, keyed to the building system for use by the owner to store the elevator keys.
19. Provide full and complete coordination with other trades for installations within the elevator shaft and machine room.
20. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
21. Include within this contractor’s base bid an allocation of \$10,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-30 - FIRE PROTECTION

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 22	Plumbing
Division 26	Electrical
Division 32	Site Improvements
Section 312300	Excavation and Backfill for pipelines and Structures
Section 03310	Cast in Place Concrete
Section 210500	Common Work Results for Fire protection
Section 210505	Fire Suppression System Piping, Fittings and Valves
Section 211000	Water Based Fire Suppression System- Fire Pump

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide piping, fittings, couplings, valves and sprinkler heads to provide a complete Fire Protection system.
2. The fire pump, and all related work shall be part of this contract.
3. Excavation and backfill related to fire protection work as detailed below is the responsibility of this Contractor. (Geo-Tech reports included for this contractor's review)
4. Backfilling is the responsibility of this Contractor. Soil types shall be in accordance with project documents. Backfill materials shall be covered after excavation and protected. If materials become wet and unusable this contractor shall remove the material from site and provide stone dust (#10 stone dust) to backfill all piping trenches and remove unsuitable material off site.
5. Provide As-built drawings in both hard copy and BIM format.
6. Provide concrete equipment pads, curbs and thrust blocks related to the Fire Protection work (sprinkler system) and Fire Pump system.
7. Permits, testing, inspections required for the Fire Protection work are to be provided by this contractor.
8. Providing of sleeve assemblies for work of this contract that penetrates the foundation wall, interior footings or any concrete footings shall be provided to the masonry and concrete contractor for installation. This contractor shall coordinate and assist with the sleeving install. Sleeves are to be sealed per contract documents.
9. Firesafing of all penetration is a requirement of this contract.

10. Design of the system, submissions to the Fire Marshall, review with Fire Marshall and expediting the permit for the Fire Suppression system is a priority of this contract scope.
11. Flow and tamper switches to be supplied by this Contractor and wired by the Electrical Contractor. It is this Contractors responsibility to provide flow and tamper switches to meet applicable state and local codes as well coordinate with the MEP contract documents.
12. Fire pump, controller and related work. Wiring of pump and controller to be by the Electrical Contractor.
13. If a water meter is required when the review process and permitting is completed, this contractor shall purchase, pay for, install and coordinate all work with the required authorities.
14. This Contractor to coordinate the need for and compatibility of his system to the emergency generator, supplied by other.
15. Pipe identification and labelling is a requirement of this contract. Valve labels, etc. are required as per the contract documents.
16. Provide fire main from +/- 5 feet outside building including connection in the building. Final connection of your fire line and the line provided by the site contractor shall be the Fire Protection contractors responsibility. Provide a registered plumbing contractor licensed to perform the tie in as part of you base bid.
17. This contractor will flush the UG system with the assistance of the site contractor and provide written documentation to the CM.
18. All cored walls require sleeves and are required to be sealed per contract documents. Any mess from the coring operation shall be immediately cleaned up by this contractor and shall not affect any installed finishes. If this work is not performed efficiently, the work will be performed by the owner and back charged to this contractor.
19. This contractor shall be onsite while walls are being constructed for layout and installation of valve cabinets, concealed, piping, etc.
20. The work of this contract will require out of sequence installations. This should be considered and included in your base bid.
21. This contractor shall provide all access panels required for the work of this contract. They should be lockable, fire rated where required. Panels shall meet the requirements of the contract documents.
22. This contractor shall include within their bid the incorporation of **750 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5.
23. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.

24. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
25. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
26. Provide the necessary coordination with trades to avoid interferences with other work and make corrections at no extra charge.
27. Include within this contracts base bid an allocation of \$20,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-31 – PLUMBING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 21	Fire Protection (coordination)
Division 22	Plumbing
Division 23	HVAC (coordination)
Division 26	Electrical (coordination)
Division 32	Site Improvements
Section 312300	Excavation and Backfill for pipelines and Structures
Section 03310	Cast in Place Concrete

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete plumbing and piping system as indicated by the contract documents. All plumbing work/systems are to be fully coordinated with all other MEP trades as well as the other trades involved with the project.
2. This contractor shall provide all pipe insulation, insulation coverings, valve insulation, labelling, and identification of plumbing lines.
3. **This contractor shall provide the pre-fabricated trench drain as indicated on P302 and subsequent plumbing drawings (typical. The plumbing contractor will be responsible to coordinate the drain installation with the concrete contractor for the SOG pours. (Addendum No. 3)**
4. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
5. Division 26 of the specifications should be reviewed as it relates to the power wiring to trap primers and controls within this contracts scope of work. Coordinate this work with the electrical contractor.
6. Permits, testing, inspections required for the Plumbing system work are to be provided by this contractor. This contractor shall pay all permit and inspection fees for the work of their contract.
7. This Contractor shall be responsible to designate an individual within his organization, intimately familiar with this project and assigned on site, to act as the System Start-up Coordinator. This individual must be pre-approved by the Construction Manager. This individual's responsibilities shall include, but not be limited to, coordinating the start-up of all mechanical equipment, including the coordination between the Electrical Contractor, the Controls Contractor, and all testing, adjusting and balancing work. This individual shall report on a weekly basis, in written form, to the Construction Manager. These reports shall include a summary of current conditions including manufacturers' start-ups, systems' deficiencies noted to date and the remediation of same, coordination issues between trades,

system interfacing and forecasting, as necessary to project the completion of each individual system within the building.

8. Excavation and backfill for underground plumbing work as detailed below is the responsibility of this Contractor. Soil types shall be in accordance with the contract documents Refer Section 312300 for requirements on soils. (Geo-Tech reports included for reference and use)
9. Backfilling is the responsibility of this Contractor. Soil types shall be in accordance with project documents. It is the intent to use on site material and not imported fill. The use of this on site material shall conform with the compaction requirements identified in Section 312300. Excavated materials shall be covered immediately and protected from moisture mitigation. If Materials become unusable, this contractor shall own purchasing #10 stone dust to utilize as backfill in all trench or structure locations. Excess unsuitable materials from plumbing excavations shall be removed from the site by this contractor. (includes water meter pit installation) it is not acceptable for any UG piping to be in the stone layer installed by the concrete contractor, all UG piping must be installed in the subbase with adequate soil coverage.
10. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad site at subgrade to the required tolerance in the contract documents to receive stone fill. The Plumbing, Mechanical and Electrical contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill. Note: while working on the building pad area this contractor shall utilize track drive equipment only. No rubber tire equipment will be allowed. Preservation of the building pad shall be the responsibility of this contractor. The onsite testing and inspection agency provided the owner will monitor the excavation, travel and backfilling operation.
11. The plumbing and concrete contractor and CM will meet to review the building pad for turnover to the next trade. If not accepted correction will need to be made to correct concerns and sign off.
12. Equipment bases and housekeeping pads identified on the structural drawings are to be provided by the BP-C concrete contractor. Any required pads or bases for the scope of this contract not identified on the documents will be provided by this contractor.
13. Permits, testing, inspections required for the Plumbing system work is to be provided by this contractor.
14. Providing of sleeve assemblies for work of this contract that penetrates the foundation wall, interior footings or any concrete footings shall be provided to the masonry and concrete contractor for installation. This contractor shall coordinate and assist with the sleeving install. All sleeves must be provided with the appropriate seals, this contract owns sealing the sleeves related to this contract's work.
15. Pipe insulation, insulation coverings, valve insulation, labelling and identification of plumbing lines shall be provided by this contractor.
16. Valve tags, charts, and labelling shall be part of this contractor's responsibility.
17. **Provide Mop sinks and Receptors as indicated on the contract documents. (Addendum No. 2)**

18. Penetrations through wall, floors, etc. including cutting, patching and fire safing.
19. Testing and balancing shall be provide by a separate contract however the Plumbing contractor shall coordinate and communicate with the testing and balancing contractor for all testing required on the plumbing system.
20. Clean up shall be provided daily, all trash, debris, crates, boxes etc. shall be moved out of the building to the dumpsters each day. No storage of trash will be allowed inside the building or courtyards.
21. All guarantees and warranties to begin at the substantial completion of the entire project. Maintain equipment prior to substantial completion.
22. This contractor shall provide all necessary material handling equipment, cranes, scaffolds, hoisting and rigging equipment and supplies for work associated with this contracts.
23. Coordination with the ATC contractor is required by this contractor.
24. Roof drains, pans, sumps and all related anchoring, support and adjustment elements that are required per the contract documents.
25. This contractor is responsible for providing, setting, bracing, anchoring, and aligning all floor drains, floor basins etc. required by the contract documents. The plumbing contractor shall have a plumber on site 100% of the time when the concrete contractor is pouring S.O.G. floors or elevated slabs. Drains that are misaligned will be demolished, removed, and replaced by this contractor. Including but not limited to replacing and re-engineering floor reinforcement and paying the concrete contractor to re-pour the slab areas.
26. Piping work associated with the emergency generator (including fuel piping, exhaust piping, regulators etc.). Include initial fill up of fuel tanks if Diesel and provide and coordinate the gas piping system is natural gas fueled. The DNREC permit submission will be provided by the Electrical contractor however this contractor must supply any required documentation for the permitting as well as coordinate all work with electrical contractor and other trades.
27. Fuel detection/monitoring system in accordance with local codes.
28. Gas piping, meter and pressure regulator valve. (proper sizing of the regulators is the responsibility of this contractor.) Include anchoring this equipment to the concrete pad provided by the concrete contractor ad anchoring the piping and stand to the exterior wall.
29. Trap priming system, including detailed submittals of the system and then provide as-builts of the location of the rack installations. Photos marked with locations to be provided by this contractor.
30. All utilities will be brought to within +/- 5 feet of the building line by others. The Plumbing Contractor is responsible for connecting the utilities from +/- 5 feet outside the building line and completing the system within the building. This contractor shall own the underground line with the assistance of the site contractor, including any chemical treatment required by NCCo, Artesian or any other regulatory agency. Reports shall be submitted to CM.

31. This contractor will flush the underground with the assistance of site contractor and provide documentation to CM.
32. Provide complete water sterilization, testing and reporting. Include within your proposal (4) additional testing mobilization for potential Phase utilization.
33. Install Owner pre-purchased equipment, if identified within the contract documents.
34. Provide access panels to the drywall contractor for framing information and final installation.
35. This contractor shall be on site to coordinate when walls are being installed for penetrations and sleeve installations. If penetrations and sleeves are missed, this will be the responsibility of this contractor to cover associated costs of fixing.
36. Final connection of kitchen equipment and appliances is the responsibility of this contractor.
37. As-built drawings is both hard copy and BIM submission as part of the project closeout.
38. This contractor shall include within their bid the incorporation of **2500 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
39. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
40. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
41. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
42. Provide the necessary coordination with trades to avoid interferences with other work and make corrections at no extra charge.
43. Include within this contracts base bid an allocation of \$75,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.

CONTRACT NO. D-32 – MECHANICAL PIPING - HVAC

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 089100	Louvers
Division 21	Fire Protection (coordination)
Division 22	Plumbing
Division 23	HVAC
Section 230900	Instrumentation and Controls of HVAC system
Division 26	Electrical (coordination)
Division 28	Electronic Safety and Security (coordination of work)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete mechanical system as indicated on the Drawings and in the Specifications. Coordinate all work with associated trades, Plumbing, Fire Protection, Electrical and Electronic Safety and Security
2. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
3. This contractor shall include all piping, fittings, and connections required for the installation of the complete HVAC system.
4. Provide all insulation, wraps, covers etc. for work of this contract. Include all labelling and identification markers as directed by the contract documents.
5. Provide all condensate piping and condensate pumps and installations. Backcheck valves shall be included as part of this contract.
6. Division 16 of the specifications should be reviewed as it relates to the power wiring and other requirements for HVAC equipment including the coordination of furnishing and installing motor starters as provided in the specifications.
7. This Contractor shall be responsible to designate an individual within his organization, intimately familiar with this project and assigned on site, to act as the System Start-up Coordinator. This individual must be pre-approved by the Construction Manager. This individual's responsibilities shall include, but not be limited to, coordinating the start-up of all mechanical equipment, including the coordination between the Electrical Contractor, the Controls Contractor, and all testing, adjusting and balancing work. This individual shall report on a weekly basis, in written form, to the Construction Manager. These reports shall include a summary of current conditions including manufacturers' start-ups, systems' deficiencies noted to date and the remediation of same, coordination issues between trades,

system interfacing and forecasting, as necessary to project the completion of each individual system within the building.

8. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad site at subgrade as identified per the contract documents in preparation to receive stone fill. The Plumbing, Mechanical and Electrical contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill. Note: while working on the building pad area this contractor shall utilize track drive equipment only. No rubber tire equipment will be allowed. Preservation of the building pad shall be the responsibility of this contractor. The onsite testing and inspection agency provided the owner will monitor the excavation, travel and backfilling operation.
9. The HVAC, and concrete contractor and CM will meet to review the building pad for turnover to the next trade. If not accepted correction will need to be made to correct concerns and sign off.
10. Equipment bases and housekeeping pads that are not included in BP-C and identified on the structural documents will be provided by the Misc. Concrete contract. This contract shall provide detailed shop drawings and field layout of the pads/bases for installation by the concrete contractor. Failure to properly coordinate this work will result in the Mechanical contractor installing the pads at no cost to the owner or any other contractor. Any bases or pads related to the scope of this contract, not identified on the drawings will be provided by this contractor (complete installation)
11. Permits, testing, inspections required for the mechanical piping and HVAC work are to be provided by this contractor.
12. Providing of sleeve assemblies for work of this contract that penetrates the foundation wall, interior footings or any concrete footings shall be provided to the masonry and concrete contractor for installation. Provide sealing of all sleeves as required. This contractor shall coordinate and assist with the sleeving install.
13. Pipe insulation, insulation coverings, valve insulation, labelling and identification of mechanical piping, ductwork, shafts, connections to systems etc. shall be provided by this contractor. (all insulation and sealing as it relates to the work of this contract)
14. Valve tags, charts, and labelling shall be part of this contractors responsibility.
15. Penetrations through wall, floors, etc. including cutting, patching and fire safing.
16. Testing and balancing shall be provided by this contract, Coordination of work with other trades is required.
17. Clean up shall be provided daily; all trash, debris, crates, boxes etc. shall be moved out of the building to the dumpsters each day. No storage of trash will be allowed inside the building or courtyards.
18. All guarantees and warranties begin at the substantial completion of the entire project. Maintain equipment prior to substantial completion.

19. This contractor shall provide all necessary material handling equipment, cranes, scaffolds, hoisting and rigging equipment and supplies for work associated with this contracts.
20. Provide pipe and duct insulation, coverings, wraps, supports and bridging for penetrations through wall, floors, etc. including cutting, patching and fire safing and fire caulking as required.
21. This contractor is responsible to coordinate the work of this contract with the Testing and balancing contractor. Coordination and assistance when the balancing is TAB is being performed is a requirement of this contract.
22. This contract should include man hours for season testing from heating to cooling or vice versa to work with the testing and balancing contractor.
23. Ductwork, flex duct, grilles, diffusers, including detailed layout for the drywall and ceiling contractor shall be provided by this contractor.
24. This contractor shall fully coordinate and verify all louver sizes, mounting details, flashing details, colors with the Carpentry and General Trades contract which will supply and install all louvers.
25. Coordinate damper size, location and type of damper with contract documents, pay special attention to architectural drawings and finish surfaces. Fire dampers are to be included as part of this contractors scope.
26. This contractor shall be on site to coordinate when walls are being installed for penetrations and sleeve installations. If penetrations and sleeves are missed, this will be the responsibility of this contractor to cover associated costs of fixing.
27. Temporary heat and ventilation installation, maintenance and removal. Refer to Division 1, Specification Section 015123 - TEMPORARY HEAT AND VENTILATION, for specific scope. This contractor shall include within the base bid an allocation of \$200,000 for the fuel to power the temporary heating equipment if no other owner supplied source is available.
28. Electric baseboard heat shall furnished and installed by this contractor. Electrical connection by EC.
29. Roof curbs, rails, etc. to be provided and loaded to the roof by this contractor. Layout and installation by this contractor, coordinate with the carpentry contractor for blocking and the roofing contractor for flashing and roofing details. Include any doghouses or raceways for service lines, including coordination of flashing.
30. Provide access panels to the drywall contractor for framing information and final installation.
31. Final connection of kitchen equipment and appliances related to the mechanical piping and HVAC system provided by this contractor. Coordination with other trades (Special Systems, Electrical, Fire Alarm etc.) for final interconnections of these systems shall be provided by this contractor.
32. This contractor shall provide all required fire dampers, connections and remote controllers for the HVAC system.

33. Provide all VFD's complete for electrical contractor to install.
34. Provide (2) sets of filters for construction use. Include changing out the filters during the construction phase. Additionally include a complete change out of all filters prior to turn over to the owner (these filters shall be separate from the attic stock filters required) Providing a complete filter listing as part of the closeout documents is required.
35. As-built drawings. As-built drawings is both hard copy and BIM submission as part of the project closeout.
36. This contractor shall include within their bid the incorporation of **2000 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
37. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
38. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
39. This is not a secure site. All contractors are responsible for concealing, locking and /or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.
40. Provide the necessary coordination with trades to avoid interferences with other work and make corrections at no extra charge.
41. Include within this contracts base bid an allocation of \$75,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner by means of a credit change order.
42. This contractor shall provide the work of Section 230900 Instrumentation and Controls of HVAC system in its entirety. Coordinate with all other trades as required. Provide all instrumentation, controls, coordination of work, testing as required to provide a complete ATC system for this project. This work shall include but not be limited to instrumentation and controls for: Provide all instrumentation, controls, coordination of work, testing as required to provide a complete ATC system for this project.
43. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
44. Environmental controls.
45. Ventilation controls.

46. Kitchen Ventilation Controls
47. Carbon Monoxide System Controls
48. Air Flow Monitoring Controls
49. Cooling controls.
50. Humidification controls.
51. Refrigeration controls.
52. Motorized dampers when not specified as part of the factory packaged equipment supplied to job site for distribution and installation by others.
53. Controls air compressor complete with accessories and insulation.
54. Remote reading gauges, transmitters and recorders for automatic temperature controls.
55. Building centralization controls including centralized temperature, humidity, pressure and flow indication and recorders, centralization of air conditioning, heating, ventilation, humidification and refrigeration equipment operation.
56. Smoke hatches and relief vents that are not accessible shall have remote controllers to test and reset units.
57. This contract shall supply control valves per contract documents and drawings.
58. This contractor shall coordinate closely with the Kitchen Equipment contractor for controls to equipment.
59. Coordinate and provide controls required for the emergency generator.
60. Building life safety control and equipment safety control including: operators and controls for motorized smoke dampers, operators and controls for motorized fire dampers, firestats, freeze protection thermostats, shut down safety devices forming part of automatic temperature control.
61. Provide all permits required for the work of this contract, pay all fee's.
62. Inspections as required under this contract scope.
63. Electrical thermostats intended for automatic temperature controls complete with subbases or adapter plates to mount on standard electrical box.
64. Supply only of access doors when specifically required for access to automatic temperature control.
65. Control wiring and/or air piping required for all automatic temperature controls supplied under this contract scope.

66. Wiring for remote thermostats and remote prewired auxiliary control panels for packaged equipment.
67. Boiler feed water control wiring.
68. The magnetic starter coil and relay coils supplied under contract scope 16000 and intended for automatic temperature controls, including interlocking between starters and/or relays when controlled automatically.
69. Access panels directly associated with this work if not included by other division.
70. Exclude direct reading temperature and pressure gauges connected directly to non-potable water systems.
71. Exclude motorized dampers when specified as integral part of packaged equipment.
72. Exclude automatic temperature controls when specified as integral part of packaged equipment.
73. Exclude flow measuring and control devices.
74. Exclude direct reading temperature and pressure gauges connected directly to refrigeration systems.
75. Exclude filter gauges directly connected to duct systems.
76. Electrical wiring for thermostats and controls which directly switch the power line to the equipment (directly shall mean not through magnetic coil) is by Division 16000.
77. Power wiring is by Division 16000.
78. Control power supply outlets are by Division 16000.
79. Exclude fire alarm, fan shut-down, relays and wiring Section 16720.
80. This contractor shall provide all raceways, conduits, pull strings and boxes required for the complete ATC system.
81. Review Alternate section and provide Alternate #10 to utilize Modern Controls for the work of the scope.
82. Coordinate and work alongside the commissioning team until project is fully accepted. Include multiple trips to the site with testing equipment, ten (10.)

CONTRACT NO. D-33 - TESTING, ADJUSTING, AND BALANCING

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials, and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 21	Fire Protection
Division 22	Plumbing
Division 23	HVAC
Section 220500	Common Work Results for Plumbing
Section 230900	Instrumentation and Controls
Section 230950	Testing & Balancing of Mechanical Systems

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide water and air testing and balancing.
2. Contractor shall prepare, at a minimum, a preliminary balance report for the New Castle County Final Inspection.
3. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
4. Provide pricing for all alternates as described in Section 012300-Alternates.
5. Submissions will be reviewed once, and any resubmittals will be reviewed once. Any other submittals will be billed to the contractor at the Engineers standard rates. Please thoroughly review all submissions prior to forwarding to avoid these costs.
6. Provide complete signed and sealed testing report prior to substantial completion and final inspection as required by New Castle County.
7. This contractor has been allotted 30 days to complete all work and provide final, sealed balancing report by the Construction Manager. This contractor will need to work closely with the Construction Manager and all MEP trades to sequence work so that the completion of the balancing is completed in a manner that does not delay acceptance from New Castle County or owner.
8. Provide a pencil copy for submission to NCCo and have final official report within 30 days of the pencil copy.
9. Provide confirmation of duct testing completed by Mechanical Contractor.
10. This contractor must provide all lifts or scaffold means to access all elements.

11. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
12. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
13. Provide circulating water system test.
14. Include balancing and testing of all plumbing and heating lines installed to the future field house.
15. This contract should include seasonal testing from heating to cooling, until system has been fully commissioned and accepted.

CONTRACT NO. D-34 - ELECTRICAL, LIGHTING, AND FIRE ALARM SYSTEMS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 22	Plumbing (coordination of work)
Division 21	Fire Protection (coordination of work)
Division 23	HVAC (coordination of work)
Division 26	Electrical
Section 111663	Loose Performance Lighting Fixtures (coordinate)
Division 27	Communications
Division 28	Electronic Safety and Security raceways and coordination)
Section 284621	Addressable Fire Alarm Systems (complete)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete electrical system, lighting, addressable fire alarm system and infrastructure for all Division 21, Division 27 and Division 28 as indicated on the contract documents.
2. Provide Transformer and Generator system complete. Include all infrastructure, raceways, duct banks (including all excavation, backfill, identification systems, trace wiring, etc.) This contractor shall be fully responsible for preparing, submitting, paying all fees and coordinating the DNREC required permitting for the Generator. Coordinate with NCCVT as required.
3. Lightning protection shall be provided by this contract and coordinated with the Carpentry contractor and Roofing Installer.
4. This contractor to supply power to all areas of work ~~in~~ of (Addendum No. 3) other trades requiring electrical power.
5. Provide complete infrastructure system for all Division 27 and Division 28 systems. Including all interior and exterior duct banks, raceways and sleeves for special systems.
6. This contractor shall include in the base bid temporary exterior lighting installed and maintained ~~to accommodate a minimum of 3-foot candles~~ **to provide lighting adequate for safety and security purposes (Addendum No. 3)** for the exterior of the building for the purpose of site security. The lights must be installed to meet the requirements for exterior use and illuminated during low light hours. These lights will be utilized until permanent exterior lighting has been installed and powered. Supplying the temp power for this lighting is part of this contract. Include providing temporary power and lighting as needed for the entire duration of the project. This include the necessary power outlets required for all contractor use. Power must be available within a reasonable distance at all times.
7. Division 23 of the specifications should be reviewed as it relates to the power wiring and other

requirements for HVAC equipment including the coordination of furnishing and installing motor starters and controllers as detailed in the Specifications and on the Drawings.

8. This contractor shall provide all conduits, raceways and boxes required for thermostat and sensor installation.
9. The HVAC contractor will supply all VFD's to the electrical contractor for installation and powering.
10. Provide all smoke damper, power and remote controllers as required by the contract documents.
11. Excavation and backfill for underground electrical work as required below is the responsibility of this Contractor. Soil types shall be in accordance with project specifications and the Geo-Tech report. Geo-Tech reports included for review and acceptance.
12. Backfilling is the responsibility of this Contractor. Soil types shall be in accordance with project documents. It is the intent to use on site material and not imported fill. The use of this on site material shall conform to the compaction requirements identified in Section 312300. Excavated materials shall be covered immediately and protected from moisture mitigation. If Materials become unusable, this contractor shall own purchasing acceptable off site materials.
13. Provide all excavation, layout, concrete, reinforcing for duct banks, light standards, above ground conduit encasement, equipment bases and any other concrete work specifically related to the electrical work. This shall include services from the roadways and all communication duct banks as required. Include requirements of New Castle County, State and local codes for concrete encasement.
14. All runs in exposed ceilings are to be in conduit.
15. All exterior underground raceways and infrastructure are to be installed by this contractor as required by the contract documents. (Cameras, security, electric etc.)
16. Temporary electric installation, maintenance and removal. Refer to Division 1, Specification Section 015113 - TEMPORARY ELECTRIC, for additional information.
17. This contractor shall provide temporary transformers as required to provide electrical power generation until permanent service is installed by Delmarva power. Include all permits, cabling, switch gear, breakers etc. to provide a complete temporary power system capable of supplying the electrical loads required for the project. This contractor to coordinate and arrange for temporary power from the source, Delmarva Power.
18. Provide temporary power ~~for meter bank with transformer~~ (Addendum No. 2) including (10) individual electric meters with disconnects for contractors trailers. Coordinate all work with Delmarva Power.
19. **Power Centers for miscellaneous tools and equipment used in the construction work shall be provided with a minimum of four 20-amp, 120 volt grounding type outlets. Each outlet shall be provided with ground fault detecting circuit breaker protection. The distance between each receptacle location shall not exceed 50 feet. (Addendum No. 3)**

20. **Construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lighted to not less than the minimum illumination intensities at five (5) foot candles and any additional OSHA Temporary lighting and receptacles exposed to wet or damp locations must be weatherproof. Adequate lighting for safe working conditions and the exterior of the structure shall be provided and maintained on a 24 hour per day basis throughout the building. Voltage of each lighting component must be able to accommodate lighting requirements. (Addendum No. 3)**
21. Rough in and final connection and related work for equipment provided under other contracts (i.e. kitchen, elevators, HVAC, sprinkler, motorized doors, vertical walls, etc.)
22. Provide all permits and inspections. Pay all fees associated with the permits and inspection.
23. Penetrations through walls, floors, etc. including cutting, patching and fire safing.
24. Testing of all systems, as related to the scope of work for this contract shall be provided. Reporting and verification documentation shall be supplied to NCCVT and EDiS.
25. This contractor shall provide all supplemental hangers and fasteners for lighting installation to the building structure.
26. All runs in exposed ceilings shall be installed in conduit.
27. Clean up on a daily basis shall be provided by this contractor. All work areas shall be organized and cleaned up to the dumpsters each day.
28. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad site at subgrade required by the contract documents in preparation to receive stone fill. The Mechanical and Electrical Contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill. Note: while working on the building pad area this contractor shall utilize track drive equipment only. No rubber tire equipment will be allowed. Preservation of the building pad shall be the responsibility of this contractor. The onsite testing and inspection agency provided the owner will monitor the excavation, travel and backfilling operation.
29. The electrical, and concrete contractor and CM will me to review the building pad for turnover to the next trade. If not accepted correction will need to be made to correct concerns and sign off.
30. Note: all raceways are to be installed into the subgrade soils and shall have adequate cover for protection from traffic above. No raceways will be installed in the stone base provided by the concrete contractor.
31. All guarantees and warranties to begin at the substantial completion of the entire project. Maintain equipment prior to substantial completion.
32. Hoisting, rigging and scaffolding required to perform you scope of work shall be provided by this contractor.

ADDENDUM NO. 3

33. ~~Provide all primary service work, including all utility company related costs/fees for this work. Coordination with the utility company is the responsibility of this contractor. This contract shall~~ **provide coordination with Delmarva power for the Primary electrical service which the owner will apply for and pay the associated Delmarva fees. Delmarva will run the power from the pole to the transformer and this contractor shall be responsible for the work from the transformer to the building and throughout. (Addendum No. 3)**
34. Provide a complete fire alarm system. Water flow devices are supplied and installed by the Sprinkler Contractor and wired by this Contractor. Include tie-in to fire sprinkler flow and tamper switch. (fire dampers, smoke detectors, remote testing switches are all part of this contract)
35. Provide all heat tracing and insulation systems as required.
36. Coordinate closely with the work of the Special Systems contractor. This contract (electrical) provides all infrastructure, conduit and raceways required for the Special Systems work. Provide pull strings and boxes for all systems. (voice, data, communication, fire alarm, AV systems, Audio systems, and public address system, clock system etc.) Include all required sleeving, sealing and fire sealing for raceways and conduits through walls, floors, ceilings etc. for this work.
37. This contract shall provide and install wire mesh cable tray for low voltage distribution as shown on documents and specified. Cable tray shall be installed 3" above drop ceilings and have 3" clear above the top rim for access.
38. This contractor shall provide and install 4' conduits as shown for low voltage distribution.
39. This contractor shall provide and install 2' conduits into each space above the ceiling for low voltage distribution.
40. Coordinate, review and fully understand and integrate all cable tray, raceways and infrastructure interior or exterior that may be indicated on all contract documents including the T series drawings.
41. Lightning protection with master UL certification. Coordinate with the Carpentry and Roofing contractors.
42. Coordinate and provide a complete grounding system for the entire project. This includes but is not limited to the building columns, interior spaces, exterior wall assemblies, Electrical rooms, IDF and IDF rooms) and provide any testing and reports required.
43. As-built drawings in both hard copy, electronic and final BIM modelling per contract documents.
44. Provide rough-in and final connection and related work for equipment provided under other contracts (i.e. kitchen, elevators, HVAC, sprinkler, motorized doors, etc.). Provide power to automatic hardware. Low voltage wiring from the controller to hardware shall be provided by the Doors, Frames and Hardware Contractor. Include power panels and power supplies supplied by other trades.
45. Provide complete infrastructure for audio and audiovisual systems.
46. Provide rough-in and final connection of kitchen equipment and appliances. Refer to Specification

Section 11400 Food Service Equipment for specifics. Coordinate power/plug requirements with rough in for equipment with the Kitchen Equipment Contractor.

47. Section 116163 Loose Performance Lighting shall be provided by the Stage Rigging contractor as follows; stage lighting systems including fixtures, controls, light grids, supports and attachments shall be provided. This contract (electrical) shall provide all power and power connections to the Loose Performance lighting. All other lighting in the Auditorium shall be supplied and installed by the electrical contractor. Coordination of work between trades is tis contractors responsibility.
48. This contractor shall include within their bid the incorporation of **2500 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
49. Perform certification testing for all wiring and systems supplied by this contract scope.
50. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
51. Provide access doors and frames for all access to Structured Cable components or equipment that require routine or periodic maintenance. Installation of access doors and frames provided by the Metal Stud & Drywall Contractor. **(provide (75) 2'x2' access panels within your base proposal) (Addendum No. 3)**
52. Include within this contracts base bid an allocation of \$75,000 for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-35 - SPECIAL SYSTEMS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 26	Electrical (coordination of work)
Section 078400	Firestopping
Section 079200	Joint Sealants
Section 270500	Telecommunications Pathways and Spaces
Section 271000	Structured Cabling
Section 272000	Network Equipment
Section 274000	Classroom and Conference Room AV Equipment
Section 274100	Specialized AV Systems
Section 274117	Audio Video Systems
Section 275000	Public Address and Clock
Section 280501	Security Pathways and Spaces
Section 281000	Intrusion Detection System
Section 281100	Access Control System
Section 282000	Video Surveillance System
~~Section 283112~~	~~Public Safety — First Responder Radio Amplification System~~ (Addendum No. 3)

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete Special Syatem package as to include but not limited to, structured cabling, network equipment, AV systems, public address and clock system, intrusion detection, access controls, video surveillance and ~~radio amplification system~~. **This section 283112 is removed from Contract D-35. (Addendum No. 3)**
2. Provide wireless clock system including all equipment, cable, and accessories.
3. Telephone and voicemail system including telephone handsets and patch cables from device to jack will be provided by owner.
4. Provide intercom/public address system. Structured Cable Contractor will provide all network cabling including wiring, devices, and terminations at the source (MDF/IDF patch panel) and at the communication port (jack).
5. Provide complete cafeteria and Auditorium sound reinforcement audio/visual system. Projectors and mounts provided by the owner and installed by the Electrical Contractor.
6. The electrical contractor shall provide and install the fire alarm system, this contractor (Special Systems) will wire fire alarm terminations, and programming of electrified hold open hardware. Low

voltage power to electrified hold open hardware provided by this contract. Hold open hardware provided by Carpentry and General Work Contractor.

7. Provide complete intrusion system.
8. Provide access control and security management system complete. Provide coordination with door and frame installation for a complete system. The contractor responsible for supplying the doors, frames, and hardware shall provide all wiring and accessories from the power supply (or junction box) to the door hardware. The contractor responsible for installation of doors and hardware shall provide terminations from door hardware to door whip, from door whip to power transfer, and from frame whip to power transfer. Frame whip shall be secured and protected by the door, frame, and hardware contractor(s) for the direct access of the Special Systems Contractor. Termination of the frame whip to the power supply (or junction box) shall be provided by the Special Systems Contractor. Power supply shall be furnished by the door, frame, and hardware contractor(s) and installed by the Special Systems Contractor. The Special Systems Contractor shall provide low-voltage wire from the card reader to the access controller, from the status switch (door contact) to the access controller, from access controller to the power supply(or junction box), and from power supply (or junction box) to power supply (or junction box) as necessary. The Electrical Contractor is responsible for providing 120v circuits to all power supplies and/or transformers as indicated in the documents. The Electrical Contractor shall provide conduits, device boxes, raceways, and pull strings for low-voltage wiring at doors receiving electronic, security, or access control hardware. Electrical contractor shall provide a junction box above each door scheduled to receive a card reader and a pathway & pull string. A mock-up shall be field installed and coordinated by all related Contractors for review prior to commencing work.
9. Provide a complete CCTV - Network Digital Video Management System. Owner shall provide server.
10. Provide all patch cords from communication port (jack) to each device included in this Contractor's scope. Patch cords at source (MDF/IDF) from patch panel to network switch provided by owner.
11. Provide all patch cords for switches.
12. Supply and install any fiber lines need for a complete installation including terminations.
13. Provide all testing of all installations.
14. Provide and install the racks, switches, uninterrupted power supplies etc. for a complete installation.
15. Coordinate all WAP's as per the specifications if supplied by the owner, install if not supplied provide and install under this contract.
16. This contractor shall own all notes as per the T series drawings unless note otherwise in the scope of this contract or the electrical contract. This includes but is not limited to the following series of notes. Note 6- Audio and Videa Systems, Note 7- Classroom/Conference Room AV Systems, Note 8-Demo Camera System and Note 9- Data Drop Allowance. These systems shall be provide as complete without any qualifications.
17. Provide coordination of the work of this contract with the Electrical including final equipment locations.

This contractor must coordinate with Electrical Contractor as indicated on the drawings and as specified. The Electrical Contractor shall provide all device boxes, conduit and pull strings to circuits for special systems as indicated and also to provide 120 Volt circuits for all Special Systems. This Contractor will be responsible for providing independent support systems, as indicated in the specifications, for all cable and wiring installed by this Contractor in locations where pathways and raceways are not required by the documents. All runs of cable/low voltage in open areas shall be installed in conduit. If raceways are required for the scope of this contract and they are not identified, this contractor shall provide.

18. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
19. This contractor shall be on site to coordinate when walls are being installed for penetrations and sleeve installations. If penetrations and sleeves are missed, this will be the responsibility of this contractor to cover associated costs of fixing.
20. Interactive screens/displays and mounting brackets will be supplied by Owner and mounted by the Carpentry & General Works Contractor. The Carpentry and General Works Contractor will coordinate blocking with mounting hardware and install all necessary clips and blocking to the wall for hanging. Audio/visual interface and/or controls by Special Systems Contractor.
21. Hardware for permanent exterior gates will be provided by the other trades. Access control hardware/software and fire alarm integrations of gate hardware, including terminations, cabling, etc. will be provided by this contractor. The Electrical Contractors shall provide all pathways & electrical requirements to support installation.
22. Provide access doors and frames for all access to Special Systems components or equipment that require routine or periodic maintenance. Installation of access doors and frames provided by the Metal Stud & Drywall Contractor.
23. Provide all network cabling including wiring, devices, and terminations to communication devices identified in plans and referenced on "Communications Outlet Configuration" chart on Drawing E-501. Two (2) terminations should be provided (1) at the source (MDF/IDF patch panel) and (1) at the communication port (jack) in all instances.
24. This contract shall provide communication wiring from the (3) access control panels to the source (MDF/IDF patch panel) including terminations on both ends. Location of access control panels to be coordinated with the documents and the Construction Manager prior to installation.
25. This contractor shall provide communication wiring from the intrusion control headend to the source (MDF/IDF patch panel) including terminations on both ends. This communication wiring shall include (1) dedicated POTS line from the MDF room to the intrusion control dialer. Location of intrusion control headend to be coordinated with the documents and Construction Manager prior to installation.
26. This contractor shall provide communication wiring from the Fire Alarm Control Panel (FACP) to the source (MDF/IDF patch panel) including terminations on both ends. This communication wiring shall include (2) dedicated POTS line from the MDF room to the FACP dialer(s). Location of FACP to be coordinated with the documents and the Construction Manager prior to installation.

27. This contractor shall supply communication wiring from the intercom/public address amplifiers to the source (MDF/IDF patch panel) including terminations on both ends. Location of amplifiers to be coordinated with the documents and the Construction Manager prior to installation. Contractor should assume (3) amplifiers, one located in each MDF/IDF.
28. This contractor shall provide communication wiring from the Building Management System headend to the source (MDF/IDF patch panel). Location of Building Management System headend to be coordinated with the documents, the Mechanical Contractor, and the Construction Manager prior to installation.
29. This contractor will install all network cable within the kitchen and kitchen hood identified on the Kitchen Equipment Drawings. Final location of network drops to be coordinated with the documents, the Kitchen Equipment Contractor, and the Construction Manager prior to installation.
30. This contractor will install communication wiring from the food management systems to the POS devices, menu display boards, and temperature monitoring systems, including terminations on both ends. Final location of the food management systems to be coordinated with the documents and the Construction Manager prior to installation.
31. Provide installation for all wireless access points furnished by owner. Patch cords from device to communication port (jack) provided by this Contractor.
32. Provide penetrations through walls, floors, etc., including cutting, patching and fire safing.
33. Provide all design and coordination necessary to provide complete systems.
34. Provide and coordinate for inspections and testing.
35. Provide fire resistive sealants for the work of this contract.
36. Provide pricing for all alternates as described in Section 012300-Alternates.
37. Provide video documentation of training on systems.
38. Provide at least a 48 hour notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
39. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
40. This contractor must provide a silica exposure plan that meets or exceeds the new 2017 silica OSHA requirements before any work can commence. At a minimum, it must be incorporated into the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
41. Contractor must provide additional crews as needed to maintain the project schedule.

42. This contractor shall include within their bid the incorporation of **1200 hours of COOP participation** by a NCCVT student. Contractor to comply with project documents and requirements set forth in 19 del. C.ch.5
43. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
44. This contractor must provide a silica exposure plan that meets or exceeds the new 2017silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
45. Include within this contracts base bid an allocation of ~~\$30,000~~ **\$20,000 (Addendum No. 2)** for work to be determined by owner and construction manager. Unused allocation funds to be returned to the owner.

CONTRACT NO. D-36 - VERTICAL RETRACTABLE WALLS

- A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

Technical Specification sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 055000	Metal Fabrications
Section 079200	Joint Sealants
Section 102239	Vertically Retractable Walls
Division 26	Electrical

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide labor and materials to perform all work associated with the Vertically Retractable Walls System to provide a complete operating wall system.
2. Provide coordinated shop drawings that reflect all structural requirements with the structural steel, metal studs, ceilings, electrical power, lighting and communication systems, etc.
3. This contract includes all Division 0 and Division 1 General Requirements. All commissioning requirements are identified in Division 1 and are a requirement of this contract.
4. Provide all trim components, hardware, hinges, and operators for electrical units, appropriate finishes, sensors, key switches and pocket doors for concealing doors when not in use.
5. Coordinate any structural requirements with the structural steel and carpentry contractors. Provide all supplementary steel as needed to hang partitions from structural support steel, provided by the Structural Steel Contractor. It is assumed, no additional steel will be required below structural support steel. If so, it will be provided by this contractor.
6. Electrical connections will be provided by Electrical Contractor. This contractor shall provide assistance to Electrical Contractor for coordination and installation of necessary connections. Low voltage wiring for devices, controls, raceways, boxes etc. to be provide by this contractor (not electrical contract)
7. Provide any required signage for safe operations.
8. Provide attic stock, warranty and demonstrations for all materials and types of panels.
9. Provide specified testing, adjusting, warranty and training demonstrations on the operation.

10. Provide (3) additional sets of keys for switch operating controls over and above the number of sets required by specifications.
11. Provide data and submittal information related to the Scope of this Contract signed and sealed by a Professional Engineer as required by the Contract Documents, including but not limited to delegated design requirements.
12. Provide all low voltage wiring, motors motor transformers and final connections to allow for a complete operating system. Electrical contractor shall supply the line voltage power connection. Include all raceways and boxes for your work.
13. Provide all BIM services as specified in Section 013700 BIM Execution Plan. As part of the coordination process all contractors are responsible for obtaining a Revizto license. The cost of this license is \$1,200 and shall be included in your base bid proposal.
14. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. EDiS will not be responsible for any lost tools, materials or equipment.

CONTRACT NO. D-37 - MISCELLANEOUS CONCRETE AND GROUTING

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 03	Concrete
Section 033000	Concrete
Division 07	Thermal and Moisture Protection
Section 072100	Thermal Insulation
Section 072600	Under-Slab Vapor Barrier
Section 312300	Excavation and Backfill for pipeline and structures
Section 321313	Concrete Paving

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide Misc. concrete items and grouting as described in the Scope of Work and defined on the contract documents. Include all preparations and excavation, backfill, stone subbase, forms, and reinforcing required.
 - Provide footings and concrete piers as show on drawings A560-A565, include footings for dumpster pad.
 - Provide concrete locker bases as indicated in the contract documents.
 - Provide the electrical, mechanical and plumbing concrete pads as indicated on the contract documents. (Structural foundations and pads shown on Struct. Drawings excluded)
 - Provide all concrete slab on grade at the interior courtyard areas.
 - Provide all poured foundations for block walls, poured concrete walls at all areas outside of the main building foot print.
 - Provide all concrete excavation, footings and backfill as required for the masonry walls at the child care and playground areas.
2. This Contractor will be responsible for laying out all concrete work for this contract course of work.
3. This Contractor to furnish and install reinforcing steel, admixtures, curing compound, sealers, accessories, bolsters, ties and braces as required in the Contract Documents and for the performance of the work of this contract.
4. All work of this contract shall be considered "out of sequence" as such the contractor shall price each element of work as a mobilization and if required "short load" concrete delivery.
5. This contractor is responsible to provide material handling equipment, concrete pumps, etc. for work of this contract. NCCVT and EDiS will not be responsible for any additional material handling costs above the base bid proposal.
6. Provide sealants/caulking as required at grouted freezer and cooler box floors. Caulk all edges where

grout seals to box floor panels.

7. This contractor shall provide installation of sleeves required for MEP lines, under footings, below frost walls, under thickened slabs as related to this contractors course of work. This includes all excavation and backfill required for these installations. (sleeves will be supplied by the contractor installing the services, future BP-D) Coordinate with Arch and MEP documents for extent of this work.
8. Provide grouting of floor expansion joints once they are set and adjusted by installing contractors.
9. Grouting of all elevator sill angles will be the responsibility of this contractor.
10. Provide all door stoops, pads, entrance/exit concrete complete as provided for o the Architectural and MEP drawings. (if the concrete is shown on the structural drawings it shall be part of Contract C-01 Concrete and Reinforcing) This will be out of sequence work, contractor to include (5) re-mobilization to perform work out of sequence, this shall include premium costs for short load concrete pours as well.
11. Underslab vapor barrier, insulation, reglets, waterstops, control and construction joints. (Caulking by Joint and Sealants Contractor)
12. Provide foundation wall insulation and insulation under slabs. Include backfill of all foundation walls as detailed. Stone under slab to be provided by this contractor. Include re-dressing the stone after the MEP contractors have installed their UG work. As related to the work detailed for this contract.
13. Placement of related items furnished under other Specification Sections.
14. Anchor bolt assemblies to be placed with templates only.
15. All blockouts and embedment's required by plans and specifications.
16. This Contractor is responsible for grouting all structural steel base or leveling plates and elevator sill angles. As defined by the scope of this contract.
17. Include all weather, frost protection, and water pumping as required. This Contractor is also responsible for the premiums required for hot water, heated aggregate and admixtures for cold weather concrete.
18. Provide dewatering as it relates to the work of this contract.
19. All concrete testing will be completed by the Construction Manager, however, it will be the responsibility of this Contractor to furnish all samples.
20. This contractor shall include an allowance amount of \$15,000 within the base bid for work to be identified by NCCVT and the CM. All unused portions of this allocation to be returned to the owner by means of a credit change order.
21. Provide all grout infill **inside the (Addendum No. 2)** walk-in freezers and refrigerators after freezers and refrigerators have been set in place. **Also grout the space between the freezers and refrigerator and the surrounding concrete. (Addendum No. 2)** Coordinate requirements with the architectural

drawings for BP-D and technical specifications.

22. This contractor owns coordinating all slab depressions identified on the documents with the products, flooring, insulation etc. shop drawings and layout drawings for each material that will be installed in the recess. A pre-install meeting will be held to review this information before each depressed pour.
23. Provide all means of transporting concrete including, but not limited to: pump trucks, cranes, ramps, chutes, buggies.
24. Provide at least 48 hours' notice prior to any delivery. All deliveries are to be between 7:00 AM and 3:30 PM.
25. Provide and maintain a DNREC approved concrete dumpster for washout required by the scope of this contracts work.
26. This is not a secure site. All contractors are responsible for concealing, locking and/or removing any materials on a daily basis. NCCVT and EDiS will not be responsible for any lost tools, materials or equipment.
27. This contractor must provide a silica exposure plan that meets or exceeds the silica OSHA requirements before any work can commence. At a minimum, it must be implemented in to the company safety plan, include all monitoring, testing, limits exposure, provide respiratory plan and/or equipment modifications such as adding water to equipment during exposed work and keep records of exposure.
28. Provide daily fine cleanup of the work is the responsibility of each individual Contractor which includes broom cleaning of their debris as required. Daily Fine clean up, on a daily basis, shall be defined as those means/methods utilized to perform the daily cleaning tasks without producing dust, noise and stacking of stored materials. Furnish fine clean up on a daily basis. All debris must be removed from the work area at the end of each work day to the appropriate dumpster. Cleaning of roadways shall be included and performed daily while this contractor is on site performing work of this contract.
29. All materials excavated for installation of footings and foundations shall immediately be protected with appropriate moisture protection.
30. BIM coordination is "not" part of this contract scope.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls.
 - 3. Slabs-on-grade.
 - 4. Suspended slabs.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Samples: For waterstops and vapor retarder.
- E. Welding certificates.

- F. Qualification Data: For Installer, manufacturer, testing agency.
- G. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates.
- H. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Waterstops.
 - 6. Curing compounds.
 - 7. Floor and slab treatments.
 - 8. Bonding agents.
 - 9. Adhesives.
 - 10. Vapor retarders.
 - 11. Semirigid joint filler.
 - 12. Joint-filler strips.
 - 13. Repair materials.
- I. Floor surface flatness and levelness measurements to determine compliance with specified tolerances.
- J. Field quality-control test reports.
- K. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.

2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
 - D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
 - E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."
 - F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 1. ACI 301, "Specification for Structural Concrete,"
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 - G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
 - H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, [curing procedures, construction contraction and isolation joints, and joint-filler strips, forms and form removal limitations, vapor-retarder installation, steel reinforcement installation, floor and slab flatness and levelness measurement, and concrete protection.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
 - B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other approved panel materials.
 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
 2. Furnish ties that, when removed, will leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.
 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60 (Grade 420), deformed bars, assembled with clips.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I/II, gray. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class C.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Silica Fume: ASTM C 1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 1 inch (25 mm) nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.

- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 4. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C. Provide at exterior concrete slabs.
1. Products:
 - a. Boral Material Technologies, Inc.; Boral BCN.
 - b. Euclid Chemical Company (The); Eucon CIA.
 - c. Grace Construction Products, W. R. Grace & Co.; DCI.
 - d. Master Builders, Inc.; Rheocrete CNI.
 - e. Sika Corporation; Sika CNI.
- D. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete. Provide at exterior concrete slabs.
1. Products:
 - a. Axim Concrete Technologies; Catexol 1000CI.
 - b. Boral Material Technologies, Inc.; Boral BCN2.
 - c. Grace Construction Products, W. R. Grace & Co.; DCI-S.
 - d. Master Builders, Inc.; Rheocrete 222+.
 - e. Sika Corporation; FerroGard-901.
- E. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
1. Manufacturers:
 - a. Bayer Corporation.
 - b. ChemMasters.
 - c. Conspec Marketing & Manufacturing Co., Inc.; a Dayton Superior Company.
 - d. Davis Colors.
 - e. Elementis Pigments, Inc.
 - f. Hoover Color Corporation.
 - g. Lambert Corporation.
 - h. Scofield, L. M. Company.

- i. Solomon Colors.
- 2. Color: As selected by Architect from manufacturer's full range.

2.7 WATERSTOPS

- A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch (19 by 25 mm).
 - 1. Products:
 - a. Colloid Environmental Technologies Company; Volclay Waterstop-RX.
 - b. Approved equal

2.8 VAPOR RETARDERS

A. Vapor Barrier shall have all of the following qualities:

- 1. Maintain permeance of less than 0.01 Perms [grains/(ft² * hr * inHg)] as tested in accordance with mandatory conditioning tests per ASTM E1745 Section 7.1 (7.1.1-7.1.5).
- 2. Other performance criteria:
 - a. Strength: ASTM E1745 Class A.
 - b. Thickness: 15 mils minimum
- 3. Provide third party documentation that all testing was performed on a single production roll per ASTM E1745 Section 8.1

B. Vapor Barrier Products: 15 mil plastic sheet - single ply vapor barrier.

- 1. Stego Wrap (15 mil) Vapor Barrier by STEGO INDUSTRIES LLC, San Clemente, CA (877) 464-7834 www.stegoindustries.com
- 2. Griffolyn 15 mil Green Vapor Barrier by Reef Industries, Inc.
- 3. VaporBlock 15 by Raven Industries, Inc.
- 4. Viper II by ISI Building Products.

C. ACCESSORIES

- 1. Seam Tape
 - a. Tape must have the following qualities:
 - 1) Water Vapor Transmission Rate ASTM E 96: 0.3 perms or lower
- 2. Vapor Proofing Mastic
 - a. Mastic must have the following qualities:
 - 1) Water Vapor Transmission Rate ASTM E 96: 0.3 perms or lower
- 3. Pipe Boots
 - a. Provide manufacturer's supplied pipe boot system or construct pipe boots from vapor barrier material, pressure sensitive tape and/or mastic per manufacturer's instructions.

2.9 FLOOR AND SLAB TREATMENTS

- A. Penetrating Liquid Floor Treatment: Provide at all exposed concrete surfaces to be treated to harden, seal and densify exposed concrete. Clear, chemically reactive, waterborne solution of

inorganic silicate or siliconate materials and proprietary components; odorless; colorless; that penetrates, hardens, and densifies concrete surfaces.

1. Products:
 - a. Dayton Superior Corporation; Day-Chem Sure Hard.
 - b. Euclid Chemical Company (The); Euco Diamond Hard.
 - c. L&M Construction Chemicals, Inc.; Seal Hard.
 - d. Meadows, W. R., Inc.; Liqui-Hard.

- B. Stained Hardener with matching cure/sealer - Pigmented Mineral Dry-Shake Floor Hardener: Factory-packaged, dry combination of portland cement, graded quartz aggregate, color pigments, and plasticizing admixture. Use color pigments that are finely ground, nonfading mineral oxides interground with cement. Placing of hardener is followed by manufacturer's recommended water membrane-forming cure and seal: ASTM C 309

1. Products:
 - a. L&M Construction Chemicals, Inc.; Quartz Plate FF Hardener followed by Dress & Seal WB 30 per manufacturer's recommendations and specifications.
 - b. Scofield, L. M. Company; Lithochrome Color Hardener followed by Lithochrome Colorwax in matching color per manufacturer's recommendations and specifications.

2.10 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 1. Products:
 - a. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Aquafilm.
 - b. Dayton Superior Corporation; Sure Film.
 - c. Euclid Chemical Company (The); Eucobar.
 - d. L&M Construction Chemicals, Inc.; E-Con.
 - e. Meadows, W. R., Inc.; Sealtight Evapre.
 - f. Sika Corporation, Inc.; SikaFilm.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Products:

- a. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
- b. Euclid Chemical Company (The); Kurez DR VOX.
- c. L&M Construction Chemicals, Inc.; L&M Cure R.
- d. Meadows, W. R., Inc.; 1100 Clear.
- e. Tamms Industries, Inc.; Horncure WB 30.

2.11 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Reglets: Fabricate reglets of not less than 0.0217-inch- (0.55-mm-) thick, galvanized steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- D. Dovetail Anchor Slots: Hot-dip galvanized steel sheet, not less than 0.0336 inch (0.85 mm) thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.12 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
 4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
 4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.13 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
 - 2. Silica Fume: 10 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement at exterior conditions and 0.30 percent by weight of cement at interior conditions.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 - 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
- E. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup. Coordinate color and location with Architect.

2.14 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4500 psi (31.0 MPa) at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 3 inch minimum and 5 inch maximum (at point of concrete placement), plus or minus 1 inch (25 mm).
 - 4. Exposure Class: F2, S0, C1, P0
- B. Foundation Walls: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4500 psi (31.0 MPa) at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 3 inch minimum and 5 inch maximum (at point of concrete placement), plus or minus 1 inch (25 mm).
 - 4. Exposure Class: F2, S0, C1, P0

- C. Slabs-on-Grade - Interior: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
 2. Minimum Cementitious Materials Content: 520 lb/cu. yd. (309 kg/cu. m).
 3. Slump Limit: 3 inch minimum and 5 inch maximum (at point of concrete placement), plus or minus 1 inch (25 mm).
 4. Exposure Class: F0, S0, C1, P0
- D. Slabs-on-Grade – Exterior (Exposed to Exterior Conditions): Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 4500 psi (31 MPa) at 28 days.
 2. Minimum Cementitious Materials Content: 520 lb/cu. yd. (309 kg/cu. m).
 3. Slump Limit: 3 inch minimum and 5 inch maximum (at point of concrete placement), plus or minus 1 inch (25 mm).
 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch (25-mm) nominal maximum aggregate size.
 5. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.
 6. Exposure Class: F2, S0, C2, P0
- E. Suspended Slabs: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 3500 psi (24.1 MPa) at 28 days.
 2. Minimum Cementitious Materials Content: 470 lb/cu. yd. (309 kg/cu. m).
 3. Slump Limit: 3 inch minimum and 5 inch maximum (at point of concrete placement), plus or minus 1 inch (25 mm). For pumpable concrete, slumps may be increased by 3 inches.
 4. Exposure Class: F0, S0, C0, P0

2.15 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.16 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
 2. Class C, 1/2 inch (13 mm) for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 1. Install keyways, reglets, recesses, and the like, for easy removal.
 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

- A. Comply with ACI 318 (ACI 318M) and ACI 301 for design, installation, and removal of shoring and reshoring.
 - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.
- B. Bituminous Vapor Retarders: Place, protect, and repair vapor retarders according to manufacturer's written instructions.

3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.9 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.10 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to be covered with a coating or covering material applied directly to concrete.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.11 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings.

- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated, exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 2. Finish surfaces to the following tolerances, according to ASTM E 1155 (ASTM E 1155M), for a randomly trafficked floor surface and per ACI 117 “Specification For Tolerances For Concrete Construction & Materials”:
 - a. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 25 as a minimum. Coordinate and specify minimum F(F) and F(L) values with flooring manufacturer during concrete pre-installation conference. Note: Flooring manufacturer may require very flat surface classification (F(F) 45; F(L) 35) or super flat surface classification (F(F) 60 ; F(L) 40). Coordinate locations and requirements prior to installation.
 - b. Provide maximum floor variation of 1/8” in 10’ and 1/16” in 1’ for terrazzo floor tile area or requirement as indicated by product manufacturer, whichever is more stringent.
- E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.13 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.

- c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.14 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.15 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete, but not less than 1 inch (25 mm) in

- depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, pop-outs, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.16 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
 - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 - 6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 7. Compression Test Specimens: ASTM C 31/C 31M.

- a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
 8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
 11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
 14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 15. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing. Values to be documented and provided to Architect and Flooring Manufacturer prior to placing flooring.

END OF SECTION

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Division 01, Section 017419 – Construction Waste Management.

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel framing and supports for countertops.
 - 2. Steel framing and supports for mechanical and electrical equipment.
 - 3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 4. Loose bearing and leveling plates for applications where they are not specified in other Sections.
 - 5. Metal Ladders & Ladder Safety Cages
 - 6. Metal Downspout Boots
 - 7. Metal Bollards
 - 8. Wire Mesh Wall Panel
- B. Products furnished, but not installed, under this Section:
 - 1. Loose steel lintels.
 - 2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
 - 3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
- C. Related Sections:
 - 1. Division 03 Section "Cast-in-Place Concrete" and "Architectural Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
 - 2. Division 04 Section "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.
 - 3. Division 05 Section "Structural Steel Framing."
 - 4. Division 05 Section "Pipe and Tube Railings."

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design ladders, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Structural Performance of Aluminum Ladders: Aluminum ladders, including landings, shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Paint products.
 - 2. Grout.
 - 3. Ladders
 - 4. Bollards
 - 5. Downspout Boots
 - 6. Mesh Wall Panels
- B. Shop Drawings: Show fabrication and installation details for metal fabrications, including (but not limited to) ladders, bollards, steel framing and supports, etc.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
 - 2. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Shop drawings: dimensioned and scaled (min. $\frac{1}{4}"=1'-0"$) plan and elevations of metal mesh wall panels and installation details (min. $\frac{1}{2}"=1'-0"$)
- D. Samples for Verification: For metal bollards, metal ladders, and downspout boots, metal mesh.
- E. Delegated-Design Submittal: For installed products (including metal ladders) indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Qualification Data: For qualified professional engineer.
- G. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.
- H. Welding certificates.

- I. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
 - 3. AWS D1.6, "Structural Welding Code - Stainless Steel."

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.7 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages and steel weld plates and angles for casting into concrete. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 Metal Mesh Panels: Basis of Design McNichol's 4800121848 - 48" x 96"

- 1. Products by other manufacturers meeting the basis of design specifications and design intent are acceptable.
 - a. Expanded Metal, Standard, Stainless Steel, Type 304, Mill Finish, 1/2" No. 16 Standard (Raised), 0.480" Short Way of Design (SWD), 1.200" Long Way of Design (LWD), Long Way of Opening (LWO) Parallel to Length of Sheet, 69% Open Area

- b. Edging: U-Edging, Stainless Steel, Type 304, Mill Finish, 14 Gauge (.0750" Thick), Type 402 U-Edging (1/8" Opening x 1" Width). McNichols 4080140210 or equal by other manufacturers meeting the basis of design specifications and design intent.

2.3 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Stainless-Steel Sheet, Strip, and Plate: ASTM A 240/A 240M or ASTM A 666, Type 304.
- C. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- D. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
- E. Abrasive-Surface Floor Plate: Steel plate with abrasive granules rolled into surface or with abrasive material metallurgically bonded to steel.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. IKG Industries, a division of Harsco Corporation; Mebac.
 - b. SlipNOT Metal Safety Flooring, a W. S. Molnar company; SlipNOT.
 - c. Approved equal.
- F. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- G. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40) unless otherwise indicated.
- H. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - 1. Size of Channels: 1-5/8 by 1-5/8 inches (41 by 41 mm).
 - 2. Material: Galvanized steel, ASTM A 653/A 653M, commercial steel, Type B, with G90 (Z275) coating; 0.108-inch (2.8-mm) nominal thickness.
- I. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.

2.4 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209 (ASTM B 209M), Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T6.
- C. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- D. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

- E. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
- F. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).
- G. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).
- H. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.
- I. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.5 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
 - 2. Provide stainless-steel fasteners for fastening stainless steel.
 - 3. Provide stainless-steel fasteners for fastening nickel silver.
 - 4. Provide bronze fasteners for fastening bronze.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3 (ASTM A 325M, Type 3); with hex nuts, ASTM A 563, Grade C3 (ASTM A 563M, Class 8S3); and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593 (ASTM F 738M); with hex nuts, ASTM F 594 (ASTM F 836M); and, where indicated, flat washers; Alloy Group 1 (A1).
- D. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.
 - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- E. Eyebolts: ASTM A 489.
- F. Machine Screws: ASME B18.6.3 (ASME B18.6.7M).
- G. Lag Screws: ASME B18.2.1 (ASME B18.2.3.8M).
- H. Wood Screws: Flat head, ASME B18.6.1.
- I. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).
- J. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).

- K. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- L. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.
- M. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594.
- N. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches (41 by 22 mm) by length indicated with anchor straps or studs not less than 3 inches (75 mm) long at not more than 8 inches (200 mm) o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Shop Primers: Provide primers that comply with Division 09 painting Sections.
- C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- D. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- G. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.
- H. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

- I. Concrete: Comply with requirements in Division 03 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa).

2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.8 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.
 - 3. Provide bearing plates welded to beams where indicated.
 - 4. Drill or punch girders and plates for field-bolted connections where indicated.
 - 5. Where wood nailers are attached to girders with bolts or lag screws, drill or punch holes at 24 inches (600 mm) o.c.
- C. Fabricate steel pipe columns for supporting wood frame construction from steel pipe with steel baseplates and top plates as indicated. Drill or punch baseplates and top plates for anchor and connection bolts and weld to pipe with fillet welds all around. Make welds the same size as pipe wall thickness unless otherwise indicated.
 - 1. Unless otherwise indicated, fabricate from Schedule 40 steel pipe.
 - 2. Unless otherwise indicated, provide 1/2-inch (12.7-mm) baseplates with four 5/8-inch (16-mm) anchor bolts and 1/4-inch (6.4-mm) top plates.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.
- F. Basis of Design: Countertop Bracket
 - 1. Provide the following product, or approved equal:
 - a. Centerline Steel LLC – Front Mounting Plus Bracket
 - b. Mount as noted in drawings.
 - 2. Properties:
 - a. A36 Steel
 - b. Cross Section: Min. 3/8" x 2-1/2"
 - c. Finish / Color: TBD

2.9 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates.
- C. Prime plates with zinc-rich primer.

2.10 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches (200 mm) unless otherwise indicated.
- C. Galvanize loose steel lintels located in exterior walls.
- D. Prime loose steel lintels located in exterior walls with zinc-rich primer.

2.11 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2.12 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.13 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with universal shop primer unless zinc-rich primer is indicated.
- C. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

3. Items Indicated to Receive Primers Specified in Division 09 Section "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 4. Other Items: SSPC-SP 3, "Power Tool Cleaning."
- D. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.14 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).
- C. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

2.15 METAL ROOF LADDERS

- A. Exterior Fixed Roof Ladders: Tubular Rail Low Parapet Access Ladder with Platform and Return.
 1. Basis of Design Product: As noted on drawings.
 2. Walk-Through Rail and Roof Rail Extension: Not less than 3 feet 6 inches (1067 mm) above the landing and shall be fitted with deeply serrated, square, tubular grab rails.
 3. Landing Platform: 1-1/2 inches (38 mm) or greater diameter, tubular aluminum guardrails and decks of serrated aluminum treads.
 4. Provide personal fall arrest system or a ladder safety system.
- B. Ladder Materials
 1. Aluminum Sheet: Alloy 5005-H34 to comply with ASTM B209.
 2. Aluminum Extrusions: Alloy 6063-T6 to comply with ASTM B221.
- C. Ladder finish: Clear Anodic Finish: AA-M10C22A41 Mechanical finish as fabricated. Architectural Class I, clear coating 0.018 mm or thicker.
- D. Rungs: Not less than 1-1/4 inches (32 mm) in section and 18-3/8 inches (467mm) long, formed from tubular aluminum extrusions. Squared and deeply serrated on all sides.
 1. Rungs shall withstand a 1,500 pound (454 kg) load without deformation or failure.
 2. Fit rungs in centerline of siderails; fasten by welding or with stainless-steel fasteners or brackets and aluminum rivets.
- E. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c. with welded or bolted aluminum brackets.
- F. Comply with ANSI A14.3

- G. Provide intermediate brackets in order to keep maximum bracket spacing at 10 feet on center. For exterior roof ladders, provide mounting bracket to wall to keep ladder rails above roof.
- H. Heavy Duty Tubular Side Rails: Assembled from two interlocking aluminum extrusions no less than 1/8 inch (3 mm) wall thickness by 3 inches (76 mm) wide. Construction shall be self-locking stainless steel fasteners, full penetration TIG welds and clean, smooth and burr-free surfaces.

2.16 DOWNSPOUT BOOTS

- A. Downspout Boots: Smooth interior without boxed corners or choke points; include integral lug slots, integral cleanout, cleanout cover, and tamper proof fasteners.
 - 1. Configuration: Offset.
 - 2. Material: Cast iron; ASTM A48/A48M; casting thickness 3/8 inch (9.5 mm), minimum.
 - 3. Finish: Manufacturer's standard factory applied powder coat finish.
 - 4. Color: To be selected by Architect from manufacturer's standard range.
 - 5. Accessories: Manufacturer's standard stainless steel fasteners, stainless steel building wall anchors, integral neoprene gaskets, and rubber coupling.
 - 6. Available Manufacturers offering Basis of Design products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Downspoutboots.com, a division of J. R. Hoe & Sons; O Series
 - b. Neenah Foundry, a division of Neenah Enterprises, Inc; Model R-4929-O6C

2.17 METAL BOLLARDS

- A. Manufacturer (or Approved Equal):
 - 1. Reliance Foundry Co. Ltd.
 - 2. Phone: 604-547-0460 or 1-877-789-3245
 - 3. Fax: 604-590-8875
 - 4. Website: <http://www.reliance-foundry.com/bollard>
 - 5. Email: info@reliance-foundry.com
- B. Bollard:
 - 1. Model: Reliance Foundry; **R-8902.**
 - 2. Height: 36 inches
 - 3. Diameter: 4-3/8 inches body; 7-1/2 inches base
 - 4. Design: Cylindrical with rounded top.
 - 5. Material: Stainless steel, ASTM A312, Grade TP 316.
 - 6. Installation Type:
 - a. SSB1: Fixed Embedded Concrete Anchor.
 - b. SSB2: Removable Receiver.
 - 1) Stainless Steel receiver with lid.
 - 2) Stainless Steel 5/16 inch Bollard Chain
 - a) Stainless Steel Quick Link Connector – 2 per chain
 - 3) Stainless Steel 3/8 inch Chain Eye
 - a) 2 per bollard
 - c. SSB3: Flange Concrete Surface Mount.
 - 1) Anchor bolts and sleeves: as required by manufacturer

~~C. Fill with 3,000 psi concrete.~~

- ~~1. Slightly overfill top for drainage.~~

~~D. Bollard Cover:~~

- ~~1. High Density Polyethylene (HDPE) post cover~~
- ~~2. Color: Yellow~~

~~E. Fabricate bollards with stainless steel baseplates for bolting to concrete slab. Drill baseplates at all four corners for 3/4 inch anchor bolts.~~

- ~~1. Where bollards are to be anchored to sloping concrete slabs, angle baseplates for plumb alignment of bollards.~~

~~F. Fabricate sleeves for bollard anchorage from steel pipe or tubing with 1/4 inch (6.4 mm) thick steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches (200 mm) deep and 3/4 inch (19 mm) larger than OD of bollard.~~

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- Field Welding: Comply with the following requirements:
 - Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - Obtain fusion without undercut or overlap.
 - Remove welding flux immediately.
 - At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.
- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
 - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.
 - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.3 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
 - 1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations unless otherwise indicated.
 - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION

SECTION 07 21 29 - SPRAYED ACOUSTICAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cellulose insulation applied to underside of structure.

1.02 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2015.
- B. ASTM C739 - Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation; 2011.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on materials, describing insulation properties.
- C. Certificates: Certify that products of this section meet or exceed specified requirements.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- E. Manufacturer's Qualification Statement.
- F. Submit manufacturer's written certification that product contains no asbestos, fiberglass or other man-made mineral fibers.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and approved by manufacturer.

1.05 MOCK-UP

- A. Provide room mock-up, 10 feet long by 10 feet wide minimum, illustrating ceiling construction.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver in original, unopened containers bearing name of manufacturer, product identification and reference to U.L. testing.
- B. Store materials dry, off ground, and under cover.
- C. Protect liquid adhesive from freezing.

1.07 FIELD CONDITIONS

- A. Maintain acceptable ambient and substrate surface temperatures prior to, during, and after installation of primer and insulation materials and overcoat.
- B. Clips, hangers, supports, sleeves and other attachments to spray bases are to be placed by other trades prior to the application of sprayed insulation.
- C. Ducts, piping, conduit or other suspended equipment shall not be positioned until after the application of sprayed insulation.

- D. Roof penetrations to be installed prior to application.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Cellulosic Fiber Sprayed Insulation:

1. Basis of Design: International Cellulose Corp; “SonaSpray “fc””: www.spray-on.com. Products by other manufacturers that meet the basis of design specifications and design intent may be substituted according to Section 016000-Product Requirements

2.02 MATERIALS

- A. Cellulose Fiber Insulation: ASTM C739; treated cellulose fiber, color as selected from manufacturers standard range.
1. Thickness: 1 inch, unless otherwise noted
 2. Color: as selected from manufacturer standard range
- B. Material to have been tested in accordance with ASTM E 1042. Testing laboratory must be NVLAP accredited.
- C. Product shall meet or exceed the following requirements:
1. Bond strength shall be greater than 100 psf per ASTM E 736.
 2. Product shall be Class 1 Class A per ASTM E 84/ UL 723.
 3. Non-corrosive per ASTM C 1149.
 4. Bond Deflection per ASTM E 759: 6” Deflection in 10’ Span - No Spalling or Delamination.
 5. Comply with IBC 803.3/2018 IBC 803.10 stability requirements for interior finishes.
 7. Meet ASTM C 1149
- D. Product shall not contain any added Urea-Formaldehyde Resins.
- E. Provide Manufacturer’s written certification that product contains no asbestos, fiberglass or other man-made mineral fibers

2.03 ACCESSORIES

- A. Primer: As required by insulation manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.
- B. Verify that ceiling hangers and supporting clips have been are installed correctly.
- C. Verify other work on and within spaces to be insulated is complete prior to application.

3.02 PREPARATION

- A. Mask and protect adjacent surfaces from overspray or damage.
- B. Apply primer in accordance with manufacturer's instructions.

3.03 INSTALLATION

- A. Install sprayed insulation in accordance with manufacturer's instructions.
- B. Install sprayed insulation to a uniform monolithic density without voids.
- C. Install to a minimum cured thickness of 2 inches.

3.04 PROTECTION

- A. Do not permit subsequent construction work to disturb applied sprayed insulation.

END OF SECTION

SECTION 08 06 71 – DOOR HARDWARE SCHEDULE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section references specification sections relating to commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Sliding Doors.
 - 3. Other doors to the extent indicated.
- B. Commercial door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical and access control door hardware.
 - 3. Electromechanical and access control door hardware power supplies, back-ups and surge protection.
 - 4. Automatic operators.
 - 5. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section “Integrated Door Opening Assemblies”.
 - 2. Division 08 Section “Door Hardware”.
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: Reference Related Sections for requirements regarding compliance with applicable industry standards.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.
- D. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service

representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.

- F. Warranties and Maintenance: Special warranties and maintenance agreements specified in the Related Sections.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

1.6 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. Refer to "PART 3 – EXECUTION" for required specification sections.

PART 3 - EXECUTION

3.1 DOOR HARDWARE SETS

- A. The door hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a

hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
 2. The supplier is responsible for handing and sizing all products.
 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
- B. Products listed in the hardware sets shall be supplied by and in accordance with the requirements described in the specification section as noted for each item.
1. Section 08 17 00 – Integrated Door Opening Assemblies.
 2. Section 08 71 00 – Door Hardware.
- C. Manufacturer's Abbreviations:
1. MK - McKinney
 2. MR - Markar
 3. PE - Pemko
 4. SU - Securitron
 5. RO - Rockwood
 6. SA - SARGENT
 7. OT - Other
 8. RI - RITE Door
 9. NO - Norton
 10. MC - Medeco
 11. HS - HES
 12. RF - Rixson
 13. LU - Lund Equipment Co

Hardware Sets

Set: 1.0

Doors: C100E-2, D100B-2

2 Continuous Hinge	CFM-SLF-HD1 PT		PE	087100	
2 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Mullion	L980A	US28	SA	087100	
1 Rim Exit Device, Exit Only	16 43 55 56 63 8810 EO	US32D	SA	087100	⚡
1 Rim Exit Device, Storeroom	16 43 55 56 63 8804 Less Pull	US32D	SA	087100	⚡
1 Cylinder	60 980C1	US26D	SA	087100	
4 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Pull	RM201 Mtg-Type 12XHD	US32D-316	RO	087100	
2 Conc Overhead Stop	6-X36	630	RF	087100	
2 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100	
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113	
2 Sweep	29326CNB TKSP		PE	087100	
1 Threshold	1715AK MSES25SS		PE	087100	
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
2 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 2.0

Doors: A101-2, E101-1

2 Continuous Hinge	CFM-SLF-HD1 PT		PE	087100	
2 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Mullion	L980A	US28	SA	087100	
1 Rim Exit Device, Exit Only	16 43 55 56 63 8810 EO	US32D	SA	087100	⚡
1 Rim Exit Device, Storeroom	16 43 53 55 56 63 8804 Less Pull	US32D	SA	087100	⚡
1 Cylinder	60 980C1	US26D	SA	087100	
4 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Pull	RM201 Mtg-Type 12XHD	US32D-316	RO	087100	
2 Conc Overhead Stop	6-X36	630	RF	087100	
1 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100	
1 Automatic Opener	6021 / 6031 x D - confirm head detail	689	NO	087100	⚡
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113	
2 Sweep	29326CNB TKSP		PE	087100	
1 Threshold	1715AK MSES25SS		PE	087100	
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Switch	505 - wall mount		NO	087100	⚡
1 Door Switch	504 - vestibule		NO	087100	⚡
2 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor and report open / closed status of opening to buildings access control system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring upon egress.

Free egress at all times.

Fail-secure.

Activating actuator switch retracts latch bolt of exit device, if locked, and initiates automatic operator

cycle.

Activating exterior actuator switch initiates cycle of automatic operator if the latch bolt is in the retracted position (push /pull operation).

After hours - access by valid use of card reader outside / automatic operator will only operate if card reader is authorized first.

Set: 3.0

Doors: A101-1, C100E-1, E101-2, E101-3, E101-4

2 Continuous Hinge	CFM-SLF-HD1 PT		PE	087100	
2 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Mullion	L980A	US28	SA	087100	
2 Rim Exit Device, Exit Only	16 43 55 56 63 8810 EO	US32D	SA	087100	⚡
1 Cylinder	60 980C1	US26D	SA	087100	
3 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Pull	RM201 Mtg-Type 12XHD	US32D-316	RO	087100	
2 Conc Overhead Stop	6-X36	630	RF	087100	
2 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100	
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113	
2 Sweep	29326CNB TKSP		PE	087100	
1 Threshold	1715AK MSES25SS		PE	087100	
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
2 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors to be on lock / unlock schedule per the buildings access control system.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 5.0

Doors: B114B-1, B114C2-2, B114C3-2

1 Continuous Hinge	CFM-SLF-HD1 PT		PE	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	16 43 55 56 63 8804 Less Pull	US32D	SA	087100	⚡
2 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Pull	RM201 Mtg-Type 12XHD	US32D-316	RO	087100	
1 Conc Overhead Stop	6-X36	630	RF	087100	
1 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100	
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113	
1 Sweep	29326CNB TKSP		PE	087100	
1 Threshold	1715AK MSES25SS		PE	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 6.0

Doors: ST1-1, ST2-1, ST3-2, ST4-1

2 Continuous Hinge	CFM-SLF-HD1-M	PE	087100
--------------------	---------------	----	--------

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

1 Mullion	L980A	US28	SA	087100
1 Rim Exit Device, Storeroom	16 43 60 8804 Less Pull	US32D	SA	087100
1 Rim Exit Device, Exit Only	16 43 60 8810 EO	US32D	SA	087100
4 Interchangeable Core	322401_ GMK	26	MC	087100
2 Pull	RM201 Mtg-Type 12XHD	US32D-316	RO	087100
2 Conc Overhead Stop	6-X36	630	RF	087100
2 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113
2 Sweep	29326CNB TKSP		PE	087100
1 Threshold	1715AK MSES25SS		PE	087100
2 Door Position Switch	- Provided by Security Contractor		OT	281300 ⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT	

Notes:

Door position switches to monitor / report open closed status of opening to security system.

Set: 7.0

Doors: A102-1, A102-4, D117-1, D117-4, E103-2, E103-3

2 Continuous Hinge	CFM-SLF-HD1-M		PE	087100
2 Concealed Vert Rod Exit, Classroom	CPC 43 60 AD8613 ETL *NC-E35*	US32D	SA	087100
2 Interchangeable Core	322401_ GMK	26	MC	087100
2 Conc Overhead Stop	6-X36	630	RF	087100
2 Surface Closer	7500 - pull side mount	689	NO	087100
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113
2 Sweep	29326CNB TKSP		PE	087100
1 Threshold	1715AK MSES25SS		PE	087100
2 Door Position Switch	- Provided by Security Contractor		OT	281300 ⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT	

Notes:

Door position switches to monitor / report open closed status of opening to security system.

Set: 7.1

Doors: E103-1, E103-4

2 Continuous Hinge	CFM-SLF-HD1-M		PE	087100	
2 Concealed Vert Rod Exit, Classroom	NB 43 60 AD8613 ETL	US32D	SA	087100	
2 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Conc Overhead Stop	6-X36	630	RF	087100	
2 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100	
1 Weatherstrip	- Integral within construction of door and frame assembly		OT	08 4113	
2 Sweep	29326CNB TKSP		PE	087100	
1 Threshold	1715AK MSES25SS		PE	087100	
2 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Door position switches to monitor / report open closed status of opening to security system.

Set: 8.0

Doors: C100B-2, D101D, D104K, E100C, E104G-2, E110-2, E112-2, F101-3

2 Continuous Hinge	CFM-HD1 PT		PE	087100	
2 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Mullion	L980S	PC	SA	087100	
1 Rim Exit Device, Exit Only	16 43 55 56 63 8810 EO	US32D	SA	087100	⚡
1 Rim Exit Device, Storeroom	16 43 55 56 63 8804 Less Pull	US32D	SA	087100	⚡
1 Cylinder	60 980C1	US26D	SA	087100	
4 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Vandal Resistant Trim	VRT22	US32D	RO	087100	
1 Vandal Resistant Trim	VRT22 C	US32D	RO	087100	
2 Surface Closer	UNI7500	689	NO	087100	
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

2 Astragal	316APK TKSP8	PE	087100	
1 Gasketing	2891APK TKSP8	PE	087100	
1 Rain Guard	346C TKSP8	PE	087100	
2 Door Bottom	216AFG TKSP	PE	087100	
1 Threshold	252x3AFG Pemkote MSES25SS	PE	087100	
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)	MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to exit device rail)	MK	087100	⚡
1 Card Reader	- Provided by Security Contractor	OT	281300	⚡
2 Door Position Switch	- Provided by Security Contractor	OT	281300	⚡
1 Power Supply	- Provided by Security Contractor	OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 9.0

Doors: C101-1, C101-2, C118-1, C120-1, C124-1, D110-1, D114-1, D116-1, D118-2, E104E-2, E106-2, E110A-2, E114-2, F103B-2, F114B

1 Continuous Hinge	CFM-HD1 PT	PE	087100	
1 Electric Power Transfer	EL-CEPT	630 SU	087100	⚡
1 Rim Exit Device, Storeroom	16 43 55 56 63 8804 Less Pull	US32D SA	087100	⚡
2 Interchangeable Core	322401_ GMK	26 MC	087100	
1 Vandal Resistant Trim	VRT22 C	US32D RO	087100	
1 Surface Closer	UNI7500	689 NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D RO	087100	
1 Gasketing	2891APK TKSP8	PE	087100	
1 Rain Guard	346C TKSP8	PE	087100	
1 Door Bottom	216AFG TKSP	PE	087100	
1 Threshold	252x3AFG Pemkote MSES25SS	PE	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)	MK	087100	⚡

1 ElectroLynx Harness	QC-C (power transfer to exit device rail)	MK	087100	⚡
1 Card Reader	- Provided by Security Contractor	OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor	OT	281300	⚡
1 Power Supply	- Provided by Security Contractor	OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT		

Notes:

Door normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolt allowing ingress.

Door position switch to monitor / report open closed status of opening to security system.

Exit device equipped with request to exit switch at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 10.0

Doors: **F101-4**

2 Continuous Hinge	CFM-HD1-M	PE	087100	
1 Mullion	L980S	PC	SA	087100
1 Rim Exit Device, Storeroom	16 43 60 8804 Less Pull	US32D	SA	087100
1 Rim Exit Device, Exit Only	16 43 60 8810 EO	US32D	SA	087100
1 Cylinder	60 980C1	US26D	SA	087100
4 Interchangeable Core	322401_ GMK	26	MC	087100
1 Vandal Resistant Trim	VRT22	US32D	RO	087100
1 Vandal Resistant Trim	VRT22 C	US32D	RO	087100
2 Surface Closer	UNI7500	689	NO	087100
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
2 Astragal	316APK TKSP8		PE	087100
1 Gasketing	2891APK TKSP8		PE	087100
1 Rain Guard	346C TKSP8		PE	087100
2 Door Bottom	216AFG TKSP		PE	087100
1 Threshold	252x3AFG Pemkote MSES25SS		PE	087100
2 Door Position Switch	- Provided by Security Contractor	OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT		

Notes:

Door position switches to monitor / report open closed status of opening to security system.

Set: 11.0

Doors: [E106-3](#)

1 Continuous Hinge	CFM-HD1 PT		PE	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Fail Secure Lock	RX 63 8271 LNL	US26D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	UNI7500	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Gasketing	2891APK TKSP8		PE	087100	
1 Rain Guard	346C TKSP8		PE	087100	
1 Door Bottom	216AFG TKSP		PE	087100	
1 Threshold	252x3AFG Pemkote MSES25SS		PE	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Door normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolt allowing ingress.

Door position switch to monitor / report open closed status of opening to security system.

Exit device equipped with request to exit switch at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 12.0

Doors: [A234-2](#)

1 Continuous Hinge	CFM-HD1-M		PE	087100	
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100	

1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
1 Gasketing	2891APK TKSP8		PE	087100
1 Rain Guard	346C TKSP8		PE	087100
1 Door Bottom	216AFG TKSP		PE	087100
1 Threshold	252x3AFG Pemkote MSES25SS		PE	087100
1 Door Position Switch	- Provided by Security Contractor	OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT		

Notes:

Door position switch to monitor / report open closed status of opening to security system.

Set: 13.0

Doors: B228-2, C201B, D214B

1 Continuous Hinge	CFM-HD1-M		PE	087100
1 Wireless Access Control Mortise Lock	- XS4 Series (Salto)	26D	OT	087100 ⚡
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
1 Gasketing	2891APK TKSP8		PE	087100
1 Rain Guard	346C TKSP8		PE	087100
1 Door Bottom	216AFG TKSP		PE	087100
1 Threshold	252x3AFG Pemkote MSES25SS		PE	087100

Set: 14.0

Doors: B114D

1 Continuous Hinge	CFM-HD1-M		PE	087100
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	UNI7500	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Gasketing	2891APK TKSP8		PE	087100
1 Rain Guard	346C TKSP8		PE	087100
1 Door Bottom	216AFG TKSP		PE	087100

1 Threshold	252x3AFG Pemkote MSES25SS	PE	087100	
1 Door Position Switch	- Provided by Security Contractor	OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT		

Notes:

Door position switch to monitor / report open closed status of opening to security system.

Set: 15.0

Doors: C220

1 Continuous Hinge	CFM-HD1-M	PE	087100	
1 Wireless Access Control Mortise Lock	- XS4 Series (Salto)	26D OT	087100	⚡
1 Surface Closer	UNI7500	689 NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D RO	087100	
1 Gasketing	2891APK TKSP8	PE	087100	
1 Rain Guard	346C TKSP8	PE	087100	
1 Door Bottom	216AFG TKSP	PE	087100	
1 Threshold	252x3AFG Pemkote MSES25SS	PE	087100	

Set: 17.0

Doors: A101-3, A101-4, C100E-3

2 Continuous Hinge	CFM-SLF-HD1 PT	PE	087100	
2 Electric Power Transfer	EL-CEPT	630 SU	087100	⚡
1 Mullion	L980A	US28 SA	087100	
2 Rim Exit Device, Exit Only	16 43 55 56 63 8810 EO	US32D SA	087100	⚡
1 Cylinder	60 980C1	US26D SA	087100	
3 Interchangeable Core	322401_ GMK	26 MC	087100	
2 Pull	RM201 Mtg-Type 12XHD	US32D-316 RO	087100	
2 Conc Overhead Stop	6-X36	630 RF	087100	
2 Surface Closer	J7500 x mounting plate to suit application	689 NO	087100	
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)	MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to exit device rail)	MK	087100	⚡
2 Door Position Switch	- Provided by Security Contractor	OT	281300	⚡
1 Power Supply	- Provided by Security Contractor	OT	281300	⚡

1 Wiring Diagram - Elevation and Point to Point as Specified OT

Notes:

Doors to be on lock / unlock schedule per the buildings access control system.
 Door position switches to monitor / report open closed status of opening to security system.
 Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.
 Free egress at all times.
 Fail-secure.

Set: 19.1

Doors: E101-5, E101-6, E103-5

2 Continuous Hinge	CFM-SLF-HD1-M		PE	087100
2 Concealed Vert Rod Exit, Classroom	NB 43 60 AD8613 ETL	US32D	SA	087100
2 Interchangeable Core	322401_ GMK	26	MC	087100
2 Conc Overhead Stop	6-X36	630	RF	087100
2 Surface Closer	J7500 x mounting plate to suit application	689	NO	087100

Set: 20.0

Doors: B228-1, E104L-2, E104M-2, E112-1

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	12 43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	PR7500	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
1 Gasketing	S88BL		PE	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device lever trim)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Door normally closed and locked.
Presentation of valid credential at card reader retracts exit device latch bolt allowing ingress.
Door position switch to monitor / report open closed status of opening to security system.
Exit device equipped with request to exit switch at rail to shunt door monitoring at egress.
Free egress at all times.
Fail-safe.

Set: 21.0

Doors: **D100C-1**

6 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
2 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Mullion	L980S	PC	SA	087100	
1 Rim Exit Device, Storeroom	43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Rim Exit Device, Dummy	43 55 56 8810 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Surface Closer	PR7500	689	NO	087100	
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
2 Door Stop	400 / 441CU	US26D	RO	087100	
2 Silencer	608 / 609		RO	087100	
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
2 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.
Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.
Door position switches to monitor / report open closed status of opening to security system.
Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.
Fail-secure.

Set: 22.0

Doors: [B107H-2](#), [B114B-2](#), [C114](#), [D112](#), [E104E-1](#), [E104E-3](#), [E104L-1](#), [E104M-1](#), [E110-1](#), [E114](#)

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	PR7500	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.
Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.
Door position switches to monitor / report open closed status of opening to security system.
Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.
Free egress at all times.
Fail-secure.

Set: 23.0

Doors: [A250-2](#), [B238-1](#), [B246-2](#)

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	CPS7500T	689	NO	087100	

1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 24.0

Doors: A110-2, A112-1, A202-1, A202-2, A240-1, A240-2, A250-1, B107C-1, B114-1, B114-2, B238-2, B240-1, B240-2, B242-1, B242-2, B244-1, B244-2, B246-1, C102E-1, C102E-2, C102K-1, C118-2, C120-2, C124, D101-2, D101Q-1, D102C1-1, D102C1-2, D102C2-1, D102C2-2, D103, D106-1, D106-2, D109, D110B, D111, D114B, D116-2, D118-1, F130-2, F131-2

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	PR7500H	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 25.0

Doors: [E104A1](#), [E104A2](#)

4 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	CPS7500	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 26.0

Doors: [A242-1](#), [A242-2](#), [A248-1](#), [A248-2](#), [D101Q-2](#), [D105-1](#), [E104B-1](#), [E104C-1](#), [E105-4](#)

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Rim Exit Device, Storeroom	12 43 55 56 63 8804 ETL	US32D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	PR7500	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
1 Gasketing	S88BL		PE	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Doors normally closed and locked.

Presentation of valid credential at card reader retracts exit device latch bolts allowing ingress.

Door position switches to monitor / report open closed status of opening to security system.

Exit devices equipped with request to exit switches at rail to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 27.0

Doors: F130-1, F131-1

6 Hinge (heavy weight)	T4A3786	US26D	MK	087100	
1 Mullion	L980S	PC	SA	087100	
1 Rim Exit Device, Storeroom	43 60 8804 ETL	US32D	SA	087100	
1 Rim Exit Device, Exit Only	43 8810 EO	US32D	SA	087100	
1 Cylinder	60 980C1	US26D	SA	087100	
2 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Surface Closer	PR7500H	689	NO	087100	
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
2 Door Stop	400 / 441CU	US26D	RO	087100	
2 Silencer	608 / 609		RO	087100	

DOOR HARDWARE SCHEDULE

Bid Pack D – Building Envelope & Fit Out

08 06 71 - 21

Addendum #3 IFB – 01/19/24

Set: 29.0

Doors: [F101-1](#), [F101-2](#), [F101-5](#)

8 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Mullion	L980S	PC	SA	087100
2 Rim Exit Device, Classroom	43 60 8813 ETL	US32D	SA	087100
1 Cylinder	60 980C1	US26D	SA	087100
3 Interchangeable Core	322401_GMK	26	MC	087100
2 Surface Closer	CPS7500T	689	NO	087100
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
2 Silencer	608 / 609		RO	087100

Set: 30.1

Doors: [B107H-1](#)

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Rim Exit Device, Classroom	43 60 8813 ETL	US32D	SA	087100
1 Interchangeable Core	322401_GMK	26	MC	087100
1 Surface Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 30.2

Doors: [B107J](#)

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Rim Exit Device, Classroom	43 60 8813 ETL	US32D	SA	087100
1 Interchangeable Core	322401_GMK	26	MC	087100
1 Surface Closer	CPS7500	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 33.0

Doors: D100C-1, ST1-2, ST2-2, ST2-3, ST3-1, ST3-3

6 Hinge (heavy weight)	T4A3786	US26D	MK	087100
2 Concealed Vert Rod Exit, Passage	12 NB 43 MD8615 ETL	US32D	SA	087100
2 Surface Closer	PR7500	689	NO	087100
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
2 Door Stop	400 / 441CU	US26D	RO	087100
2 Electromagnetic Holder	994M	689	RF	087100 ⚡
1 Astragal	S772C		PE	087100
1 Gasketing	S88BL		PE	087100

Notes:

Doors to be normally held open on door / wall mounted magnetic hold open devices.
Magnetic hold open devices to release at activation of fire alarm or emergency lockdown.

Set: 33.1

Doors: ST4-2

8 Hinge (heavy weight)	T4A3786	US26D	MK	087100
2 Concealed Vert Rod Exit, Passage	12 NB 43 MD8615 ETL	US32D	SA	087100
2 Surface Closer	PR7500	689	NO	087100
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
2 Door Stop	400 / 441CU	US26D	RO	087100
2 Electromagnetic Holder	994M	689	RF	087100 ⚡
1 Astragal	S772C		PE	087100
1 Gasketing	S88BL		PE	087100

Notes:

Doors to be normally held open on door / wall mounted magnetic hold open devices.
Magnetic hold open devices to release at activation of fire alarm or emergency lockdown.

Set: 36.0

Doors: B102-4, F121

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Electric Power Transfer	EL-CEPT	630	SU	087100 ⚡

1 Fail Secure Lock	RX 63 8271 LNL	US26D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Door normally closed and locked.

Presentation of valid credential at card reader unlocks electric lock allowing ingress.

Door position switch to monitor / report open closed status of opening to security system.

Electric lock equipped with request to exit switch at interior lever to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 37.0

Doors: [B102-2](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Fail Secure Lock	RX 63 8271 LNL	US26D	SA	087100	⚡
1 Mortise Deadlock	60 4875	US26D	SA	087100	
2 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)		MK	087100	⚡

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

1 Card Reader	- Provided by Security Contractor	OT 281300	⚡
1 Door Position Switch	- Provided by Security Contractor	OT 281300	⚡
1 Remote Release	- Provided by Security Contractor	OT 281300	
1 Power Supply	- Provided by Security Contractor	OT 281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT	

Notes:

Door normally closed and locked.

Presentation of valid credential at card reader or remote release unlocks electric lock allowing ingress to corridor.

Door position switch to monitor / report open closed status of opening to security system.

Electric lock equipped with request to exit switch at interior lever to shunt door monitoring at egress.

Free egress to office from corridor at all times.

Fail-secure.

Deadbolt to be used to secure office for after hours functions.

Set: 38.0

Doors: [B102-1](#)

3 Hinge, Full Mortise	TA2714	US26D MK 087100	
1 Electric Power Transfer	EL-CEPT	630 SU 087100	⚡
1 Fail Secure Lock	RX 63 8271 LNL	US26D SA 087100	⚡
1 Interchangeable Core	322401_ GMK	26 MC 087100	
1 Surf Overhead Stop	10-X36	630 RF 087100	
1 Surface Closer	7500 - pull side mount	689 NO 087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D RO 087100	
3 Silencer	608 / 609	RO 087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)	MK 087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)	MK 087100	⚡
1 Card Reader	- Provided by Security Contractor	OT 281300	⚡
1 Intercom	- Provided by Security Contractor	OT 281300	
1 Door Position Switch	- Provided by Security Contractor	OT 281300	⚡
1 Remote Release	- Provided by Security Contractor	OT 281300	
1 Power Supply	- Provided by Security Contractor	OT 281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT	

Notes:

Door normally closed and locked.

Presentation of valid credential at card reader or intercom / remote release unlocks electric lock allowing ingress.

Door position switch to monitor / report open closed status of opening to security system.

Electric lock equipped with request to exit switch at interior lever to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 39.0

Doors: [E107](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Electric Power Transfer	EL-CEPT	630	SU	087100	⚡
1 Fail Secure Lock	RX 63 8271 LNL	US26D	SA	087100	⚡
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surf Overhead Stop	10-X36	630	RF	087100	
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Gasketing	S88BL		PE	087100	
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Door normally closed and locked.

Presentation of valid credential at card reader unlocks electric lock allowing ingress.

Door position switch to monitor / report open closed status of opening to security system.

Electric lock equipped with request to exit switch at interior lever to shunt door monitoring at egress.

Free egress at all times.

Fail-secure.

Set: 41.0

Doors: [A103](#), [A113](#), [A119](#), [A125](#), [A211](#), [A222](#), [A223](#), [A225](#), [A232](#), [A233](#), [A236](#), [A238](#), [B105](#), [B108](#), [B213](#), [B215](#), [B218](#), [B234](#), [C106](#), [C112](#), [C116](#), [C125](#), [C224B](#), [D101K](#), [D108](#), [D114G](#), [D114H](#), [E104F](#),

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

E106C, E106D, E106E, E108, F118, F119

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Wireless Access		26D	OT	087100	⚡
1 Control Mortise Lock	- XS4 Series (Salto)				
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 Coat Hook	796	US26D	RO	087100	

Set: 42.0

Doors: A110, A212, B106, B208, D102D-1, D102D-2

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Wireless Access		26D	OT	087100	⚡
1 Control Mortise Lock	- XS4 Series (Salto)				
1 Surface Closer	PR7500	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 Coat Hook	796	US26D	RO	087100	

Set: 43.0

Doors: A202B

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Wireless Access		26D	OT	087100	⚡
1 Control Mortise Lock	- XS4 Series (Salto)				
1 Surf Overhead Stop	10-X36	630	RF	087100	
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
3 Silencer	608 / 609		RO	087100	
1 Coat Hook	796	US26D	RO	087100	

Set: 44.0

Doors: C201A, E104K, E110A-1

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Wireless Access Control Mortise Lock	- XS4 Series (Salto)	26D	OT	087100	⚡
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
1 Gasketing	S88BL		PE	087100	
1 Coat Hook	796	US26D	RO	087100	

Set: 45.0

Doors: E103D, E103E

6 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Flush Bolt	2845 / 2945	US26D	RO	087100	
1 Dust Proof Strike	570	US26D	RO	087100	
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100	
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Coordinator	2672	US28	RO	087100	
2 Surface Closer	7500 - pull side mount	689	NO	087100	
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
2 Door Stop	400 / 441CU	US26D	RO	087100	
1 Astragal	S772C		PE	087100	
1 Gasketing	S88BL		PE	087100	

Set: 46.0

Doors: A104B, A105, A106J, A107B, A108, A123, A201, B101E, B102D, B102L, B116D-1, B216, C102G, D116, F127

3 Hinge, Full Mortise	TA2714	US26D	MK	087100	
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100	
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	7500 - pull side mount	689	NO	087100	
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100	
1 Door Stop	400 / 441CU	US26D	RO	087100	
3 Silencer	608 / 609		RO	087100	

Set: 47.0

Doors: [B217](#), [B225](#), [C101-5](#), [C102C](#), [E102](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500H	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 48.0

Doors: [A109](#), [A127-1](#), [A127C1-1](#), [A203](#), [A204-1](#), [A205](#), [A206](#), [A207](#), [A208](#), [A214](#), [A216](#), [A218](#), [A224](#), [A226](#), [A227](#), [A228](#), [A229](#), [A230](#), [A231](#), [B109-1](#), [B201](#), [B203](#), [B204](#), [B205](#), [B206](#), [B207](#), [B210](#), [B212](#), [B214](#), [B219](#), [B220](#), [B221](#), [B222](#), [B223](#), [B224](#), [B226](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	PR7500H	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 50.0

Doors: [C103](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surf Overhead Stop	10-X36	630	RF	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 51.0

Doors: [A244](#), [B109-2](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100

Set: 52.0

Doors: A104, A106, A107, B101B, B101V, B102K, B116, C102-1

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Office/Entry Lock	60 8205 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 53.0

Doors: F126

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Office/Entry Lock	60 8205 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surf Overhead Stop	10-X36	630	RF	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 54.0

Doors: D101-1

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Office/Entry Lock	60 8205 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

1 Surf Overhead Hold Open	10-X26	630	RF	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 55.0

Doors: B114A2-1, B114A2-2

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Passage Latch	8215 LNL	US26D	SA	087100
1 Conc Overhead Stop	2-X36	630	RF	087100
3 Silencer	608 / 609		RO	087100

Set: 56.0

Doors: C101D, C118D, D114F, D116F

6 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Flush Bolt	2805 / 2905	US26D	RO	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
2 Door Stop	400 / 441CU	US26D	RO	087100
2 Silencer	608 / 609		RO	087100

Set: 57.0

Doors: A104C, A104D, A104F, A106C, A106D, A106K-1, A106K-2, A107A, A107H, A110B, A110D, A127E, A127G, A202C, A246-1, A246-2, B101U, B102C, B102G-1, B102M, B102N-2, B107F, B107G-1, B112A, B112C, B114B1, B114B2, B114E, B114F, B114H, B114J, B116E, C102D, C102J, C122-2, C122-3, C124D, D101L, D101N, D102E-1, D102E-2, D102F-1, D102F-2, D103A, D104E, D105D, D106C, D114-3, D114E, D116D, D116E, E105G, E105H, E105K, E105L-1, E106B, F116, F117

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 58.0

Doors: [A202D](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100
1 Gasketing	S44BL		PE	087100
1 Gasketing	ACPI12BL/2		PE	087100
1 Door Bottom	STC411APK		PE	087100

Set: 59.0

Doors: [A104H](#), [A127B1](#), [A127B2](#), [A220](#), [B101D](#), [B102N-1](#), [B107G-2](#), [B114G](#), [B114K](#), [B114L](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Conc Overhead Stop	2-X36	630	RF	087100
3 Silencer	608 / 609		RO	087100

Set: 60.0

Doors: [D104](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 61.0

Doors: [A112C1](#), [A112C2](#), [A127C1](#), [A204-2](#), [B114C1](#), [B114C2-1](#), [B114C3-1](#), [C101C](#), [C118C](#), [C120C](#), [C124C](#), [D101C-1](#), [D105C](#), [D110C](#), [D110E](#), [D114C](#), [D116C](#), [E105-1](#), [E105-3](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500H	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 62.0

Doors: D114K-1, D114K-2

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	CPS7500	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 63.0

Doors: A127-2, C102H

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Lock	60 8237 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100

Set: 64.0

Doors: E106-1

6 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Flush Bolt	2845 / 2945	US26D	RO	087100
1 Dust Proof Strike	570	US26D	RO	087100
1 Classroom Security Intruder Lock	60 8238 LNL	US26D	SA	087100
2 Interchangeable Core	322401_ GMK	26	MC	087100
1 Coordinator	2672	US28	RO	087100
2 Mounting Bracket	2601AB / 2601C	US28	RO	087100
2 Surface Closer	PR7500	689	NO	087100

2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
1 Astragal	S772C		PE	087100
1 Gasketing	S88BL		PE	087100
3 Silencer	608 / 609		RO	087100

Notes:

Set: 65.0

Doors: A104G, A106A, A106B, A107C, A107D, A107E, A107F, A107G, A107J, A202A, B101F, B101G, B101H, B101J, B101N, B101P, B101Q, B101R, B101S, B101T, B102F, B102G-2, B102H, B110-1, B110-2, B112, B112B, B112D, B112E, B116D-2, B116F, B116G, B116H, D101M, D104F, F115, F123, F125

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Classroom Security Intruder Lock	60 8238 LNL	US26D	SA	087100
2 Interchangeable Core	322401_ GMK	26	MC	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Notes:

Set: 66.0

Doors: A121, A221, B103, B114A, B209, B211

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Storeroom Deadbolt Lock	LB V21 60 8251 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100
1 Coat Hook	796	US26D	RO	087100

Set: 67.0

Doors: A219

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
-----------------------	--------	-------	----	--------

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

1 Storeroom Deadbolt Lock	LB V21 60 8251 LNL	US26D	SA	087100
1 Interchangeable Core	322401_GMK	26	MC	087100
1 Surf Overhead Stop	10-X36	630	RF	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100
1 Coat Hook	796	US26D	RO	087100

Set: 68.0

Doors: B101K, B101L, B102H-1, D102A1, D102A2, D106A, E105A, F115A, F122A

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Privacy Lock	LB V21 8265 LNL	US26D	SA	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100
1 Coat Hook	796	US26D	RO	087100

Set: 69.0

Doors: D105A

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Privacy Lock	LB V21 8265 LNL	US26D	SA	087100
1 Conc Overhead Stop	2-X36	630	RF	087100
3 Silencer	608 / 609		RO	087100
1 Coat Hook	796	US26D	RO	087100

Set: 70.0

Doors: A104-1, A104A-2, A106H, A112A, B101A, B102A, B104, B107A1, B107A2, C101A, C102A1, C102A2, C118A, C120A, C124A, D101A1, D101A2, D110A, D114A, D116A, E106A, F129

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Privacy Lock	LB V21 8265 LNL	US26D	SA	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

1 Coat Hook	796	US26D	RO	087100
-------------	-----	-------	----	--------

Set: 71.0

Doors: [A127A](#)

3 Hinge, Full Mortise	TA2714	US26D	MK	087100
1 Privacy Lock	LB V21 8265 LNL	US26D	SA	087100
1 Surf Overhead Stop	10-X36	630	RF	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
3 Silencer	608 / 609		RO	087100
1 Coat Hook	796	US26D	RO	087100

Set: 72.0

Doors: [B102-3](#)

6 Hinge, Full Mortise	TA2714	US26D	MK	087100
2 Single Dummy Trim	8295 LNL	US26D	SA	087100
2 Roller Latch	592	US26D	RO	087100
2 Door Stop	400 / 441CU	US26D	RO	087100
2 Silencer	608 / 609		RO	087100

Set: 73.0

Doors: [A124](#), [F102](#)

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Storeroom/Closet Lock	60 8204 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Armor Plate	K1050 36" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 74.0

Doors: [C102-2](#)

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Office/Entry Lock	60 8205 LNL	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 75.0

Doors: C102B, D101B1, D101B2, E101A, E101B, E105B, F105A-1, F111A-1, F120, F128B

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Push Plate	70E	US32D-316	RO	087100
1 Pull Plate	BF 111x70B	US32D	RO	087100
1 Surface Closer	7500 - pull side mount	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 76.0

Doors: F103B-1, F107B, F109B, F114B-1

3 Hinge (heavy weight)	T4A3786	US26D	MK	087100
1 Classroom Deadlock	60 4877	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
1 Push Plate	70E	US32D-316	RO	087100
1 Pull Plate	BF 111x70B	US32D	RO	087100
1 Surface Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100
1 Door Stop	400 / 441CU	US26D	RO	087100
3 Silencer	608 / 609		RO	087100

Set: 77.0

Doors: E105D

1 Mortise Deadlock	60 4875	US26D	SA	087100
1 Interchangeable Core	322401_ GMK	26	MC	087100
2 Push Plate	70E	US32D-316	RO	087100
1 Concealed Closer	73_	689	RF	087100
2 Kick Plate	K1050 10" high CSK BEV	US32D	RO	087100

2 Door Stop

400 / 441CU

US26D RO 087100

Set: 78.0

Doors: A100.2, A200B-2, A200D-1, B100A-2, B200A-2, B200B, C100B-1, D100B-1, D100C-3, E100A-1, E100A-2, E100B-1, E104J-2, F100A-2, ST1-3, ST4-3, ~~ST1-2, ST4-2~~

2 Continuous Hinge	FM200	Gray Powder Coat Primer	MR	087100	
2 Recessed Exit	D3676 MEC	US32D	RI	081700	
2 Trim	D3080-01 LC	US32D	RI		
2 Mortise Cylinder	60 43	US32D	SA	087100	
2 Interchangeable Core	322401_GMK	26	MC	087100	
2 Surface Closer	D-DC-351P9	EN	RI	081700	
2 Electromagnetic Holder	D-MDH-310	689	RI	081700	⚡
1 Seal Kit	D-SS-STK-CLR	Clear	RI	081700	

Notes:

Doors to be normally held open on door / wall mounted magnetic hold open devices.
Magnetic hold open devices to release at activation of fire alarm or emergency lockdown.

Set: 78.1

Doors: E101-8, E101-9

2 Continuous Hinge	FM200	Gray Powder Coat Primer	MR	087100	
2 Recessed Exit	D3676 MEC	US32D	RI	081700	
2 Trim	D3080-01 LC	US32D	RI		
1 Electric Hold Open Closer	7200 Series	689	NO	087100	⚡
2 Mortise Cylinder	60 43	US32D	SA	087100	
2 Interchangeable Core	322401_GMK	26	MC	087100	
1 Surface Closer	D-DC-351P9	EN	RI	081700	
1 Electromagnetic Holder	D-MDH-310	689	RI	081700	⚡
1 Seal Kit	D-SS-STK-CLR	Clear	RI	081700	
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡

Notes:

Doors to be normally held open on 1 door / wall mounted magnetic hold open devices and 1 electric hold open door closer.

Magnetic / electric hold open devices to release at activation of fire alarm or emergency lockdown.

Set: 78.2

Doors: [A100-1](#), [A200B-1](#), [B100A-1](#), [B200A-1](#), [C100A](#), [D100A](#), [E100B-2](#), [F100A-3](#)

2 Continuous Hinge	FM200	Gray Powder Coat Primer	MR	087100
2 Recessed Exit	D3676 MEC	US32D	RI	081700
2 Trim	D3080-01 LC	US32D	RI	
2 Mortise Cylinder	60 43	US32D	SA	087100
2 Interchangeable Core	322401_GMK	26	MC	087100
2 Surface Closer	D-DC-351P9	EN	RI	081700
2 Electromagnetic Holder	D-MDH-310	689	RI	081700 ⚡

Notes:

Doors to be normally held open on 1 door / wall mounted magnetic hold open devices and 1 electric hold open door closer.

Magnetic / electric hold open devices to release at activation of fire alarm or emergency lockdown.

Set: 78.3

Doors: [E104G-1](#), [E104J-1](#)

2 Continuous Hinge	FM200	Gray Powder Coat Primer	MR	087100
2 Recessed Exit	D3676 MEC	US32D	RI	081700
2 Trim	D3080-01 LC	US32D	RI	
2 Mortise Cylinder	60 43	US32D	SA	087100
2 Interchangeable Core	322401_GMK	26	MC	087100
2 Surface Closer	D-DC-351P9	EN	RI	081700
2 Door Stop	400 / 441CU	US26D	RO	087100

Set: 78.4

Doors: A200D-2, B200C

2 Continuous Hinge	FM200	Gray Powder Coat Primer	MR	087100	
2 Recessed Exit	D3676 MEC	US32D	RI	081700	
2 Trim	D3080-01 LC	US32D	RI		
1 Electric Hold Open Closer	7200 Series	689	NO	087100	⚡
2 Mortise Cylinder	60 43	US32D	SA	087100	
2 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Surface Closer	D-DC-351P9	EN	RI	081700	
1 Electromagnetic Holder	D-MDH-310	689	RI	081700	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡

Notes:

Doors to be normally held open on 1 door / wall mounted magnetic hold open devices and 1 electric hold open door closer.

Magnetic / electric hold open devices to release at activation of fire alarm or emergency lockdown.

Set: 79.0

Doors: G04, G05, G06, G07, ~~G09~~, G10, ~~G11~~

2 Rim Exit Device, Classroom	CPC 43 60 8813 ETL *NC-E35*	US32D	SA	087100	
2 Interchangeable Core	322401_ GMK	26	MC	087100	

Notes:

Coordinate mounting of exit device with gate manufacturer.

Set: 79.1

Doors: ~~G02~~, G03, G08

1 Rim Exit Device, Classroom	CPC 43 60 8813 ETL *NC-E35*	US32D	SA	087100	
1 Interchangeable Core	322401_ GMK	26	MC	087100	

Notes:

Coordinate mounting of exit device with gate manufacturer.

Set: 79.2

Doors: G01, ~~G02~~

1 Rim Exit Device, Storeroom	CPC 43 64 8804 ETL *NC-E35*	US32D	SA	087100	
1 Interchangeable Core	322401_ GMK	26	MC	087100	
1 Electric Strike	9600	630	HS	087100	⚡
1 SMART Pac Bridge Rectifier	2005M3		HS	087100	⚡
1 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
1 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)		MK	087100	⚡
1 Card Reader	- Provided by Security Contractor		OT	281300	⚡
1 Door Position Switch	- Provided by Security Contractor		OT	281300	⚡
1 Power Supply	- Provided by Security Contractor		OT	281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified		OT		

Notes:

Coordinate mounting of exit device with gate manufacturer.

Gate normally closed and locked.

Presentation of valid credential at card reader unlocks electric strike allowing ingress.

Free egress at all times.

Fail-secure.

Set: 79.3

Doors: ~~G09~~, G11

2 Rim Exit Device, Storeroom	CPC 43 64 8804 ETL *NC-E35*	US32D	SA	087100	
2 Interchangeable Core	322401_ GMK	26	MC	087100	
2 Electric Strike	9600	630	HS	087100	⚡
2 SMART Pac Bridge Rectifier	2005M3		HS	087100	⚡
2 ElectroLynx Harness	QC-C1500P (power transfer or electric strike to junction box above)		MK	087100	⚡
2 ElectroLynx Harness	QC-C (power transfer to lock or electric strike location)		MK	087100	⚡

1 Card Reader	- Provided by Security Contractor	OT 281300	⚡
2 Door Position Switch	- Provided by Security Contractor	OT 281300	⚡
1 Power Supply	- Provided by Security Contractor	OT 281300	⚡
1 Wiring Diagram	- Elevation and Point to Point as Specified	OT	

Notes:

Coordinate mounting of exit device with gate manufacturer.

Gate normally closed and locked.

Presentation of valid credential at card reader unlocks electric strike allowing ingress.

Free egress at all times.

Fail-secure.

Set: 80.0

Doors: [MISC](#)

1 Repair Kit	QC-R001	MK 087100	⚡
1 Crimp Tool	QC-R003	MK 087100	⚡
1 Key Cabinet	1200 Series x Mounting Brackets & Capacity as Required	LU	

END OF SECTION

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.
- B. Section 211200 - Fire-Suppression Standpipes: Valve cabinet enclosure for standpipes. and blankets

1.03 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers 2017, with Errata (2018).
- B. UL (DIR) - Online Certifications Directory Current Edition.

1.04 SUBMITTALS

- A. Product Data: Provide extinguisher ratings and classifications.
- B. Shop Drawings: Indicate locations of cabinets and cabinet physical dimensions.
- C. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 FIELD CONDITIONS

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fire Extinguishers, Fire Extinguisher Cabinets and Accessories:
 - 1. JL Industries, Inc: www.jlindustries.com.
 - 2. Larsen's Manufacturing Co: www.larsensmfg.com.
 - 3. Potter-Roemer: www.potterroemer.com.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
- B. Dry Chemical Type Fire Extinguishers: Cast steel tank, with pressure gage.
 - 1. Type: 2A:10B:C.
 - 2. Class: A,B & C.
 - 3. Size: 5 pound multi-purpose.
 - 4. Finish: Baked enamel, color as selected.

- C. K Type Extinguisher: Provide Wet Chemical (WC- 6L) Class K fire extinguishers with standard bracket in kitchen. (Maximum travel distance from cooking fire hazard to extinguisher = 30')

1. Type 2A:K
2. 6 liters
 - a. Provide three (3) K Type Extinguishers (minimum).
 - b. Approved manufacturers: JL Industries, Larsen's, or Elkhart.

2.03 FIRE EXTINGUISHER CABINETS (FEC)

- A. Metal: Formed primed steel sheet.
- B. Cabinet Configuration: Basis of design Larsen architectural series. Manufacturers offering cabinets that may meet the basis of design specification and design intent include, but are not limited to:
JL Industries
Safety one
1. Non-rated cabinet for mounting in Stud walls: Provide Semi-Recessed cabinet.
 - 1) Basis of Design: Larsen 2409-6R
 - 2) Internal Dimensions: 24"H x 9 1/2"W x 6"D
 - 3) Rough Opening Dimensions: 25"H x 10 1/2"W x 4"D
 2. Fire-rated cabinet for mounting against Stud walls: Provide Semi-Recessed cabinet.
 - 1) Basis of Design: Larsen FS 2409-6R
 - 2) Internal Dimensions: 24"H x 9 1/2"W x 6"D
 - 3) Rough Opening Dimensions: 26 1/8"H x 11 5/8"W x 4 7/8"D
 3. For mounting against CMU walls: Provide Surface Mounted cabinet with mounting height to be less than 27" from finish floor to bottom of cabinet to meet accessibility requirements.
 - 1) Basis of Design: Larsen 2409-SM
 - 2) Internal Dimensions: 27.5"H x 13"W x 6"D
 - 3) Rough Opening Dimensions: N/A
 4. Trim: 2 1/2" Backbend
 5. Provide cabinet enclosure with right angle inside corners and seams, and with formed perimeter trim and door stiles.
- C. Door: 1/2 inch thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with continuous piano hinge.
- D. Door Style and lock: Recess mounted, vertical duo style, 18 gauge pressed steel construction with Duo-Panel doors and emergency safety locks (such as Larsen-Loc/Saf-T-lok).
- E. Verify that cabinets are sized to accommodate extinguishers.
- F. Door Glazing: Clear tempered safety glass, 1/8 inch thick, and set in resilient channel glazing gasket.
- G. Lettering: Vertical, die cut, white.
- H. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- I. Fabrication: Weld, fill, and grind components smooth.
- J. Finish of Cabinet Exterior Trim and Door: No.4 - Brushed stainless steel.
- K. Finish of Cabinet Interior: White colored enamel.

2.04 HOSE VALVE CABINETS (FPHVC)

- A. Non-rated cabinet:
 - 1. Basis of design: Guardian 2040.
 - 2. Inside Box Dimensions: 18"W x 18"H x 8"D.
 - 3. Rough Opening Dimensions: 19"W x 19"H x 6"D.
 - 4. Trim Projection: 2 1/2".
- B. Fire-rated cabinet:
 - 1. Basis of design: Guardian FR2040.
 - 2. Inside Box Dimensions: 18"W x 18"H x 8"D.
 - 3. Rough Opening Dimensions: 20 1/8"W x 20 1/8"H x 7"D.
 - 4. Trim Projection: 2 1/2".

2.05 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, chrome-plated.
- B. Cabinet Signage: 3-D Fire Extinguisher Rigid Plastic Angle Sign – #PTD182..

2.06 ADDITIONAL EQUIPMENT

- A. Provide 4 Dry Chemical Type fire extinguishers and cabinets in addition to those shown on contract documents.

2.07 OTHER EQUIPMENT

- A. AED Cabinets: Philips Model PFE7023D.
 - 1. Semi-Recessed with Audible Alarm and Strobe Light
 - 2. Provide 3D wall sign, MacGill item 12325 or equivalent
 - 3. Quantity: 4
 - 4. Other approved manufacturers/products: Activar 1417F12FX2 Semi-Recessed Cabinet with 3" Rolled Trim & Silkscreen AED Graphic
- B. Epinephrine Cabinet/AED Combo: same as AED cabinet.
 - 1. Semi-Recessed with Audible Alarm and Strobe Light
 - 2. Provide 3D wall sign, AED /Epinephrine, MacGill item 16285 or equivalent
 - 3. Quantity: 2.

2.08 FIRE BLANKET CABINET

- A. Fire Blanket Cabinet:
 - 1. Dimensions: 24 x 11 x 6 inches
 - 2. Material and finish: 22GA steel, red powder coat finish
 - 3. Lettering on cabinet: white; "FIRE BLANKET"
- B. Fire Blanket: 62 x 80 inches, 70% wool, meeting the Flammable Fabrics Act: Flammability of Clothing Textiles, Title 16, CFR1610
- C. Manufacturers:
 - 1. Windy City Cabinet: <https://windycitycabinet.com>
 - 2. Other manufacturers listed in Article 2.01.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level in wall openings.

- C. Secure rigidly in place.
- D. Place extinguishers in cabinets.

END OF SECTION

SECTION 11 40 00
FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. Provide all material, labor, equipment and services required to execute and complete all items of work relating to the food service equipment, both existing and new, all as required to make the resulting facility a fully functional and reliable operating unit in accordance with this Specification. All food service equipment shall be furnished as specified, delivered prepaid, unloaded and uncrated, assembled with all components and accessories connected within the equipment, set-in-place in proper location as indicated on the drawings, leveled and fastened to the wall, ceiling or floor as required, left ready for final utility connections. The work shall include:
 - 1. To prevent extended warehousing of all food service equipment, no pre-ordering of equipment is permitted; schedule ordering of the equipment so that warehousing of the equipment shall not be required for longer than 60 days prior to delivery to the site for installation.
 - 2. All food service equipment shall have a manufacturer extended warranty covering parts and labor for a period of two years which shall take effect only after acceptance and beneficial use by the District. All labor shall be performed by a factory authorized and qualified representative.
 - 3. A “complete and thorough” demonstration and start-up for each item of equipment must be conducted by a qualified manufacturer representative in the use, sanitation and maintenance of the equipment.
- B. Furnishing scheduled items of custom fabricated food service equipment as specified utilizing a food service equipment fabricator listed with the National Sanitation Foundation (NSF) for custom equipment fabrication.
- C. Delivery of food service equipment in factory fabricated containers designed to protect equipment and finish until final installation. Delivery of food service equipment shall be coordinated with the construction schedule. If necessary, delivery of the food service equipment shall be by means other than common carrier to expedite delivery and to maintain project schedule.
- D. Warehousing of the food service equipment in a bonded warehouse and re-delivery of the food service equipment from the storage facility to the project site or arrangement for secured storage

at the project site to assure availability of the food service equipment to maintain project schedule.

- E. Field installation of the food service equipment including buy out equipment at the project site including on site receiving and unloading, uncrating from packing containers, conveyance of the food service equipment from the receiving area to the installation location, erection and assembly of the food service equipment including field welding and polishing of sub assemblies and installation of fixtures and components and setting in place in final location.
- F. Removal and disposal of discontinued items of food service equipment not to be reused including costs for transport and scrapping. This shall include pump-down and reclaim of refrigerant and fire system propellant and disposal costs of all refrigeration systems as required. Utility disconnection and termination of utility services shall be provided by the Plumbing, Electrical and Mechanical (HVAC) Trades.
- G. Removal and disposal of discontinued items of food service equipment not to be reused including costs for transport and scrapping. This shall include pump-down and reclaim of refrigerant and disposal costs of all refrigeration systems as required. Utility disconnection and termination of utility services shall be provided by the Plumbing, Electrical and Mechanical (HVAC) Trades.
- H. Removal, cleaning, servicing, reassemble and reinstallation of items of food service equipment to be reused including warehousing and transportation costs for scheduled items of food service equipment to be refurbished off-site or to be temporarily stored off-site. This shall include pump-down and reclaim of refrigerant and disposal costs of all refrigeration systems as required. Utility disconnection and termination of discontinued services and modification or preparation or relocated utility services shall be provided by the Plumbing, Electrical and Mechanical (HVAC) Trades.
- I. Removal, cleaning, servicing, crating and delivery including costs for transport of items of food service equipment to be reused in an alternate location. This shall include pump-down and reclaim of refrigerant and disposal costs of all refrigeration systems as required. Utility disconnection and termination of utility services shall be provided by the Plumbing, Electrical and Mechanical (HVAC) Trades.
- J. Removal and disposal of all packing material.
- K. All costs for special tools, crane rental or usage cost or rigging as may be required for delivery or installation of the food service equipment.
- L. All work is to be performed by skilled labor utilizing the proper Trades having respective jurisdiction thereto. All work shall be performed at hours required to maintain consistent work schedules with all other Trades without additional cost.
- M. Preparation of dimensioned utility rough-in floor plans coordinated with the Contract Documents and site conditions and the food service equipment manufacturers' utility connection points for all food service equipment.

- N. Assist in the preparation of "chalk-line" mark-up of utility rough-in locations on the building floor at the job site.
- O. Take complete financial responsibility for any and all additional expenses resulting from incomplete or inaccurate rough-in drawings or instructions for the final rough-in dimensioning at the job site.
- P. Provide complete manufacturers' and fabricator shop drawings of all related items of food service equipment.
- Q. Provide competent on site supervision for the coordination of work and to assist and supervise the erection, assembly and installation of the food service equipment, this shall include any moving, shifting or disassembly of the food service equipment to enable work to be performed free of obstruction.
- R. Attend all job conferences and meetings.
- S. Maintaining coordination and control over the form, fit, function and utility requirements of all food service equipment, from placement of purchase orders through Final Acceptance
- T. Provide competent on-site final testing, demonstration and instruction in the use and service of all items of food service equipment in the form of a qualified manufacturer's representative for each item of food service equipment.
- U. Providing access to the custom equipment fabricator's shop for inspection of construction and materials used at any time during the progress of fabrication.
- V. Field verification of all measurements at the project site prior to the fabrication of custom fabricated and buy-out equipment and correct any deviation from the dimensions indicated on any plans and shop drawing which may affect the final form or fit of any item of food service equipment as a result of final building conditions and actual field dimensions.
- W. All food service equipment shall conform to field verified dimensions and to the finished building conditions with edges scribed and sealed to wall surfaces, fitting to and around building obstructions. All joints, seams or surfaces shall be fully sealed with General Electric or equivalent clear silicone sealer.
- X. Field verification of delivery access into and through the building to the final equipment location including access and clearance through hallways, doorways and elevators (cab size and weight restrictions); furnish food service equipment in sections or sub-assemblies as required for access.
- Y. Keeping the premise free from accumulation of waste material and rubbish caused by his work. At the completion of each workday all waste material and rubbish must be removed and all areas swept broom clean.
- Z. Physical damage to equipment, building or previous work completed or in the process of completion shall be repaired or replaced.

- AA. Furnish as part of and affixed to the food service equipment, accessories, components and fixtures furnished standard with the equipment as specified or listed as an option and shall include the following:
1. PLUMBING ACCESSORIES: Pop-up, lever or basket type waste outlets, tailpieces, standing or connected overflows, faucets and spray units, vacuum breakers, shut-off and control valves and fittings.
 2. STEAM AND GAS ACCESSORIES: Steam supply valves, thermostats, pressure reducing and regulating valves, shut-off and control valves, temperature and pressure gauges, copper steam coils or injector assemblies, traps and fittings
 3. ELECTRICAL ACCESSORIES: Terminal blocks, conduit, wiring, signal and pilot lamps, on-off and control switches, control panels, magnetic contactor assemblies, heating elements, junction boxes, outlet boxes and receptacles and cord and plug sets.
 4. REFRIGERATION ACCESSORIES: Copper insulated refrigeration tubing, valves, fittings, hangers, high and low pressure control switches, solenoid valves, evaporator coils, expansion valves, condensing units and condensate evaporators.
- BB. All built-in accessories, components and fixtures shall be factory installed at the time of fabrication and shall comply with all applicable codes and regulations.
- CC. Furnish and install copper insulated refrigeration lines from compressor location to evaporator coils and expansion valves for all refrigeration units and ice makers with remote or refrigeration systems other than self-contained.
- DD. Furnish and install flexible stainless steel gas flue tubing from exhaust collar on gas hot water booster heater terminating at the exhaust vent connection at the vent extension or condensate hood.
- EE. Furnish 14 gauge galvanized steel welded roof curbs for all refrigeration condensing unit stands and exhaust fans and supply fan make-up air units including setting-in-place and securing to the building roof.
- FF. Furnish and install in exhaust hood, plenum, duct and surface fire protection system. Entire system shall be furnished and installed in compliance with UL Standard 1254, UL Standard 300, NFPA 96 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17A-27. The manufacturer of the fire suppression system shall be ISO 9001 registered. The entire installation must conform to ADA (American Disabilities Act) latest edition. The system shall be an automatic fire suppression system using a wet chemical agent for grease related fires. The system shall be the pre-engineered type having minimum and maximum guidelines established by the manufacturer and listed by Underwriters Laboratories (UL). The system shall be installed and serviced by certified personnel trained by the manufacturer. Provide as part of fire system, mechanically operated gas supply line shut-off valve to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.
- GG. Furnish and install remote and self-contained refrigeration system complete with Copeland condensing unit and insulated copper refrigeration lines charged with R404A refrigerant.

Condensing unit shall be interconnected to a low profile, high velocity evaporator coil. Refrigeration system shall include all fittings, valves, switches, controls and all related components to comprise a complete operating unit of sufficient BTU capacity to maintain automatic operation of 35 degree F product temperature in coolers and -10 degree F product temperature in freezers. Refrigeration system provided with outdoor remote air cooled condensing unit shall be provided with winterized controls (low ambient package) including crankcase heater, line dryers and head pressure control unless specified as part of a pre-assembled refrigeration rack system. Refrigeration lines to be run within any slab or floor shall be either hard copper or soft copper if run within conduit.

- HH. All electrical wiring, plumbing lines, gas lines (except exposed threaded pipe gas manifolds at cooking appliances), steam lines and refrigeration lines shall be concealed in the floor, walls or above the finished ceiling in an acceptable manner and in compliance with all applicable codes. Where it is impractical to run lines within the floor, walls or above the finished ceiling, lines shall be enclosed in a stainless steel (or alternate “smooth and cleanable” approved material) with appropriate access for service or replacement. In situations of an island arrangement or where equipment is not situated with access to a wall surface, lines must be installed in the floor in an approved manner including in-ground conduit for refrigeration and beverage lines. In no case shall any lines be “exposed”.
- II. Furnish materials and install all interconnecting wiring as required for the food service equipment, except for exhaust ventilation and fire suppression systems. This shall include inter-wiring of control panels furnished as a part of a fixture or appliance, on-off switches for light fixtures furnished as a part of a fixture or appliance, inter-wiring of control devices to motors furnished as a part of a fixture or appliance, time clock circuits for freezers from remote condensing unit to evaporator coil, heated pressure relief ports in walk-in freezer, electrical receptacles furnished as a part of a fixture or appliance, light fixtures in exhaust hoods and walk-in refrigeration to on-off switches and conduit junction boxes, ceiling mounted heat lamps to remote wall switch and inter-wiring of food waste disposer from control device to disposer motor as required to complete the installation of the food service equipment.
- JJ. Furnish materials and install heat tracing tape to all condensate lines within walk-in freezer; insulate entire heat tracing tape with foam pipe insulation.
- KK. Furnish materials and install all interconnecting plumbing as required for the food service equipment, except for exhaust ventilation and fire suppression systems. This shall include faucets, drains, drains with connected overflow, shut-off valves, vacuum breakers, flow or pressure control valves, gauges, bleeder tubes, piping from disposer control device to disposer cone and disposer body inlets and piping for steam operated equipment from boiler take-off valve at steam generator to steam inlet connection at appliance as required to complete the installation of the food service equipment.
- LL. Furnish materials and install insulated copper interconnecting piping between the dishmachine and the hot water booster heater, this shall include the installation of pressure and temperature gauges, strainer and shock absorber in the hot water supply line to the booster heater.

- MM. Furnish materials and install insulated copper interconnecting piping between the dishmachine and the hot water booster heater, this shall include the installation of pressure and temperature gauges, strainer and shock absorber in the hot water supply line to the booster heater.
- NN. Furnish and install water filter assemblies, sized and of the proper type to accommodate the water flow rate and “particulate” requirement of the food service equipment; this shall include all combi and bake ovens, steam cookers, proofing cabinets, ice makers, coffee brewing equipment and soda and beverage dispensing equipment.
- OO. Furnish and install copper condensate lines in walk-in refrigeration from evaporator coil to waste receptor.
- PP. Furnish and install gas supply shut-off valve at each gas manifold connection and furnish and install flexible gas hose connectors to each shut-off valve and to each cooking appliance.
- QQ. Furnish materials and install interconnecting chrome plated exposed piping for hose reel and hose bibs including installation of check valves and vacuum breaker in supply line; this shall include chrome plated bleeder outlet if required by local health department regulations or local plumbing codes.

1.3 WORK BY THE ELECTRICAL TRADE

- A. Rough-in utility connections including proper voltage, phase and amperage required to satisfactorily operate all items of food service equipment.
- B. Final connection of the food service equipment from the rough-in location to the connection point on all food service equipment and necessary connection points.
- C. All electrical components for the exhaust and supply ventilation system (including condensate hoods and pant leg vent systems) including, electrical disconnects, starters, exhaust fan on-off switch with indicator lights located in kitchen and supply fan controller with indicator lights located in kitchen and dishroom.
- D. Furnishing and installation of all accessories, components and fixtures other than those specified as part of the food service equipment, to include but not be limited to, electrical circuit breakers or fuses, electrical receptacles, disconnect switches, on-off switches or other fittings and appurtenances that are required to connect the food service equipment in accordance with manufacturer’s instructions and result in proper operation.
- E. Utility disconnection and termination of discontinued services of existing food service equipment to be terminated.
- F. Furnishing and installing electrical plug and cord sets where not furnished as part of the appliance.
- G. Electrical contractors or shunt-trip circuit breakers to interrupt electrical power to all electrically operated food service cooking appliances.

- H. In-floor, flush mounted, waterproof electrical receptacles of type and capacity to match plug and cord sets for all mobile food service counter equipment.
- I. Ceiling mounted, retractable drop cords to accommodate food service equipment in an island arrangement, of the type and capacity to match plug and cord sets of the food service appliances.
- J. Furnishing materials and installation of all interconnecting wiring as required for the food service exhaust ventilation and fire suppression systems; this shall include wiring of electrically operated gas supply shut-off valves for fire suppression systems, fire suppression system wiring to building fire alarm, heat detector electrical detection device to automatically start supply and exhaust fans and exhaust hood light fixtures to remote wall switch.

1.4 WORK BY THE PLUMBING TRADE

- A. Rough-in utility connections including gas, steam, hot and cold water and floor receptors and drains in proper sizes, pressures and quantities required to satisfactorily operate all items of food service equipment.
- B. Final connection of the food service equipment from the rough-in location to the connection point on all food service equipment and necessary outlets.
- C. Furnishing and installation of all accessories, components and fixtures other than those specified as part of the food service equipment, to include but not be limited to stop cocks, traps, pipe, shut-off valves, pressure reducing valves or other fittings and appurtenances that are required to connect the food service equipment in accordance with manufacturer's instructions and result in proper operation.
- D. Furnishing and installing chrome plated indirect waste outlet piping for food service equipment, from the waste outlet connection on the food service equipment to the building waste receptacle (floor sink, etc.).
- E. Flushing and sanitizing of lines before making final connections to the food service equipment.
- F. Grease interceptors for food service equipment in capacity and size as required by code.
- G. Furnish and install exposed threaded gas manifold piping for all cooking appliances and welded in-wall gas manifold piping.
- H. Install gas shut-off valve supplied as part of the fire suppression system in the gas supply line in an exposed and accessible location.

1.5 WORK BY THE MECHANICAL TRADE

- A. Supply and exhaust ventilation for indoor refrigeration condensing units based on 750 cfm for each air cooled compressor horsepower and 250 cfm for each water cooled compressor horsepower.
- B. Exhaust ventilation for condensate applications including fully welded 18 gauge stainless steel or 12 gauge aluminum liquid tight ductwork pitched toward source to prevent leaking, fan and start-stop switch with indicator lights located in the dishroom.
- C. Exhaust hood exhaust ventilation system including roof top mounted “utility set” type up-blast centrifugal fan with backward incline wheel, adjustable sheaves, vibration mounts and bird screen at discharge end; fan shall be rated at 14 sones or less and shall be UL 710 listed; roof curb, exhaust ductwork constructed of a minimum 16 gauge galvanized steel or 18 gauge stainless steel, fully welded liquid tight with clean-outs at every major bend and in 20 foot intervals; ductwork shall not exceed a three to one aspect ratio, connection to exhaust fan shall include a UL listed and rated vibration eliminator and ductwork shall be insulated with all prevailing codes.
- D. Exhaust hood supply ventilation system including roof top mounted UL listed supply fan with vibration mounts, adjustable sheaves, roof curb, bird screen at intake end, maintainable filtration system, and gas or electric heated supply air heater (supply air heater heat incoming supply air below a 65 degree F ambient temperature) and 22 gauge galvanized steel ductwork.
- E. Disconnection and termination of discontinued ductwork of existing exhaust or condensate hoods to be terminated or relocated, and modification or preparation of exhaust system for existing exhaust or condensate hoods to be relocated at the new location.

1.6 WORK BY THE CONSTRUCTION TRADE

- A. Masonry bases, floor curbs, structural pads, floor depressions, roof curbs, flues and fireproof duct shafts or enclosures.
- B. Conduit for beverage lines (PVC if embedded in concrete or smooth aluminum if exposed) with 24" radius sweep bends and 24" x 24" pull boxes every 100 lineal feet or three turns including sleeves any through walls, floors and ceilings.
- C. Sleeves and openings through wall, floors and ceilings for passage of refrigeration lines.
- D. Wall blocking or reinforcing to adequately support wall mounted food service equipment or fixtures; provide 3/4" thick exterior grade plywood backing for wood stud applications and 16 gauge steel backing for metal stud applications.
- E. Stainless steel or FPR wall paneling behind all mop receptors, dishtables and pot / utensil washing sinks.

- F. Installation of floor pans in floor depression with floor pans set flush and finished watertight around entire perimeter at juncture with floor surface.
- G. Conduit for refrigeration lines (PVC if embedded in concrete or smooth aluminum if exposed) with 24" radius sweep bends including sleeves any through walls, floors and ceiling.

1.7 WORK BY THE ROOFING TRADE

- A. Roof penetrations properly sealed and flashed to prevent water penetration.

1.8 BIDDING INSTRUCTIONS AND QUALIFICATION OF BIDDER

- A. The primary items of food service equipment described in this specification are considered the basis of the bid. Only "equal" items listed as part of this specification will be considered and must meet the conditions of the base bid item; this shall include all materials and material finishes, fabrication methods, electrical, plumbing, and mechanical components, electrical control devices, hardware, accessories and options, exactly as specified without exception. It will be the full and complete responsibility of the Food Service Equipment Contractor to pay any and all costs incurred in adapting any other "equal" item to the mechanical, electrical, exhaust ventilation or structural systems of the building including any other cost increase incurred as a result of engineering changes to the mechanical, electrical, exhaust ventilation, architectural, structural or food service drawings. The contract is to be awarded as follows:
 - 1. The competence and responsibility of the bidder.
 - 2. An itemized cost breakdown of each scheduled item of food service equipment is required, as specified, in order that the District may, at his option, delete any item or supply any portion thereof, or increase the quantity of any item without affecting the cost quoted for the remaining items. "Pre-approved" substituted items must be submitted as an add or deduct alternate in addition to the base bid.
 - 3. The District is not obligated to accept the lowest or any other bid. The award of the contract and choice of the food service equipment Contractor shall be at the District's discretion.
- B. Each bidder shall be responsible to visit the project site of the proposed work and fully acquaint himself with conditions as they exist.
- C. Each bidder is responsible to attend any pre-bid meeting as required by the District.
- D. Each bidder shall be responsible to examine and review the contract document drawings and specifications. Should the bidder find during examination of the drawings and specifications any discrepancies, omissions, ambiguities, or conflicts in or among the contract documents or shall be in doubt as to their meaning, the District shall be notified no later than four working days prior to bid opening for clarification.
- E. The failure or omission by any bidder to receive or examine any form, instrument or document or to visit the project site shall in no way relieve him from obligation with respect to his bid. No

claims for any extras will be allowed due to unintentional errors, conflicts, or omissions in the contract documents drawings or specifications.

1.9 SUBMITTALS

- A. Product Data: For each buy-out item of food service equipment indicated. Include manufacturer's model number and accessories and requirements for access and maintenance clearances, water and drainage, power or fuel and service connections including roughing-in dimensions
- B. Shop Drawings: For food service equipment not manufactured as standard production and catalog items by manufacturers. Shop drawings shall include the following information:
 - 1. Dimensioned rough-in plans scaled at 1/4"=1'-0" accurately locating connection points and indicating utility data for all mechanical, electrical and supply and exhaust ventilation requirements.
 - 2. Dimensioned plans scaled at 1/2"=1'-0" accurately locating and indicating the finished size of masonry bases, floor depressions in structural slabs, stub walls, curbs and finished openings for pass-thru equipment.
 - 3. Dimensioned plans scaled at 1/4"=1'-0" accurately locating conduit and pull boxes for beverage and refrigeration lines including floor, wall and ceiling penetrations and termination points.
 - 4. Dimensioned plans and detailed drawings of all custom fabricated food service equipment scaled at 3/4"-1'-0" for plan and elevation views and 1-1/2"=1'-0" for sectional views.
- C. Copies of original maintenance and repair manuals including a list of all authorized service agencies responsible for each item of food service equipment.

1.10 QUALITY ASSURANCE

- A. Manufacturer's qualifications shall include a firm that has regularly engaged in the manufacturing of food service equipment of the same type, capacity, performance and size as specified and whose products have been in similar service for not less than five years.
- B. Custom fabricator qualifications for custom food service equipment shall include a skilled sheet metal shop with a minimum of five years' experience in custom sheet metal food service equipment fabrication of similar type as specified. All custom food service equipment shall be fabricated at the same shop.
- C. Installer's qualifications shall include a firm with at least three years of successful installation experience on projects with a similar scope to that as required for this project.
- D. Food service equipment dealers' qualifications shall include a firm which is regularly engaged in the purchasing of food service equipment as is a manufacturer authorized agent of the specified equipment for not less than five years. The dealer shall also employ a full time project

management staff to oversee the purchase of the equipment in compliance with the specifications, coordinate the form and fit of the equipment to the project site conditions, attend all project meetings, coordinate shop drawing review, coordinate installation with the Trades, coordinate factory training and address all issues as they relate to the satisfactory completion of the facility in compliance with the specifications and related documentation.

- E. Codes and Standards: All food service equipment furnished and installed under this specification shall be manufactured in strict compliance with the following publications or the current or revised related publication as well as all state, national and local codes and agencies having jurisdiction over same:
1. National Electrical Manufacturer Association NEMA
 - a. ICS-77 Industrial Controls and Systems
 2. National Electrical Manufacturer Association NEMA
 - a. ICS-77 Industrial Controls and Systems
 - b. 17.4 Local Application System
 - c. 17.13 Water Sprinkler Systems
 - d. 96-76 Installation of Equipment for the Removal of Smoke and Grease Laden Vapors for Commercial Cooking Equipment
 3. National Sanitation Foundation NSF
 - a. 11 76 Food Service Equipment
 - b. 4 73 Commercial Cooking and Warming Equipment
 - c. C-2-72 Special Equipment and/or Devices
 4. National Electrical Manufacturer Association NEMA
 - a. 57-78 Electric Lighting Fixtures
 - b. 197-78 Commercial Electric Cooking Appliances
 - c. 300 Fire Extinguishing Systems
- F. All food service equipment shall be manufactured in strict compliance with standards as set forth by the National Sanitation Foundation (NSF) including fabrication of custom built equipment and shall be listed with same and shall bear their seal. Any item of food service equipment lacking the NSF seal will be rejected.
- G. All electrically operated food service equipment shall be constructed in strict compliance with standards as set forth by the Underwriters Laboratories (UL) and shall utilize approved components and assemblies and shall bear the label thereof.
- H. Custom fabricated food service equipment shall be constructed to the standards as set forth by the National Association of Food Equipment Manufacturers (NAFEM).
- I. All refrigeration equipment and all pressurized vessels shall be constructed, approved, inspected, registered and stamped and installed in strict compliance with the American Society of Mechanical Engineers (ASME), state and local codes for Unfired Pressure Vessels and all other agencies having jurisdiction thereof.
- J. All gas operated food service equipment shall be fabricated in strict compliance with standards as set forth by the Underwriter Laboratory (UL) and shall be listed with same and shall bear their seal.

- K. Steam operated equipment shall be fabricated and installed in accordance with Pennsylvania Department of Labor and Industry standards.
- L. Product Options: Drawings indicate food service equipment based on the specific products indicated. Other manufacturers' equipment with equivalent size and performance characteristics may be considered.
- M. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings." Review methods and procedures related to food service equipment including, but not limited to the following:
 - 1. Review access requirements for equipment delivery.
 - 2. Review equipment storage and security requirements.
 - 3. Inspect and discuss condition of substrate and other preparatory work performed by other Trades.
 - 4. Review structural loading limitations.
 - 5. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver food service equipment as factory-assembled units with protective crating and covering.
- B. Store food service equipment in original protective crating and covering and in a dry location.

1.12 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions of food service equipment installation areas by field measurements before equipment fabrication and indicate measurements on Shop Drawings and Coordination Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.13 COORDINATION

- A. Coordinate equipment layout and installation with other work including light fixtures, HVAC equipment and fire-suppression system components.
- B. Coordinate location and requirements of service-utility connections.
- C. Coordinate size, location and requirements of concrete bases, positive slopes to drains, floor depressions and insulated floors. Concrete, reinforcement and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete".
- D. Coordinate installation of roof curbs, equipment supports and roof penetrations, as specified in Division 7 Section "Roof Accessories".

1.14 WARRANTIES

- A. General Warranty: The special warranty specified in this Article shall not deprive the District of other rights the District may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
- B. All buy-out food service equipment herein specified shall have all parts and labor warranted in writing, from the date of Final Acceptance by the District against defective parts, materials, workmanship and design for a period of time as stated within the manufacturers standard published warranty, but no less than two years.
- C. All custom fabricated food service equipment shall be warranted as stated above except for a period of two years.
- D. Refrigeration equipment shall include start-up and two year parts and labor warranty on the entire refrigeration system and manufacturers five year parts warranty on hermetic scroll and semi-hermetic sealed compressors.
- E. Existing equipment refurbished for reuse shall be warranted in writing, against defective parts, materials and labor as stated above but for a period of 90 days.

PART 2 - PRODUCTS

2.1 MATERIALS AND WORKMANSHIP

- A. Stainless steel shall be type 302 or type 304 extra low carbon non-magnetic austenitic 18% chrome, 8% nickel alloy steel. Gauges shall be U.S. Standard of Thickness set forth below:

GAUGE	THICKNESS	GAUGE	THICKNESS
10	.1346	16	.0598
11	.1196	18	.0478
12	.1046	20	.0359
14	.0747	22	.0299

- B. All sheets shall be of maximum length to permit fabrication from one sheet. All thickness must meet the above gauge thickness within tolerances set forth by the ANSI after polishing. Finished sheets exceeding these tolerances shall be rejected as not meeting this Specification.
- C. Galvanealled steel shall be ARMCO steel or an approved grade of copper bearing steel shall be properly primed, degreased and finished with two coats of synthetic aluminum bronze.

- D. Structural steel members used for framing, consisting of angles, bands, bars and channels shall be ductile in quality, free of hard spots, runs, checks, cracks and other surface defects and shall be smooth galvanized by the hot dip process with all surplus removed, free of runs, blisters, excess splatter and uncoated spots or patches.
- E. White metal shall consist of corrosion resistant metal containing not less than 21% nickel. All castings shall be rough ground, polished and buffed to a bright luster and shall be free from pit marks, runs, checks, burrs and other imperfections.
- F. Stainless steel pipe and tubing shall be seamless or welded of gauge specified and of true roundness. Seamless tubing shall be thoroughly and correctly annealed and ground smooth. Welded tubing shall be thoroughly heat treated and properly quenched to eliminate carbide precipitation, drawn true to size and roundness and polished to match stainless steel sheets.
- G. Welding shall be of the electric submerged or concealed arc type, heliarc wherever practical. Where welding rods are required they shall be of the same composition as materials to be joined coated with a non-carbonaceous flux.
- H. Plastic Laminate: Complying with NEMA LD 3 and NSF 35 requirements; NSF certified for end-use application indicated; 0.050 inch (1.27 mm) thick, smooth texture and easily cleanable.
 - 1. Color: As selected by Architect from manufacturer's full range of colors.
- I. Plywood and Lumber: Close grain exterior grade mahogany or birch plywood.
- J. Sealant: ASTM C 920; Type S, Grade NS, Class 25, Use NT. Provide elastomeric sealant NSF certified for end-use application indicated. Provide sealant that when cured and washed meets requirements of Food and Drug Administration's 21 CFR, Section 177.2600 for use in areas that come in contact with food.
 - 1. Color: As selected by Architect from manufacturer's full range of colors.
 - 2. Backer Rod: Closed-cell polyethylene in diameter larger than joint width.
- K. Plastic: Except for plastic laminate, provide plastic materials and components complying with NSF 51.
- L. Sound Dampening: NSF-certified, non-absorbent, hard drying, sound-deadening coating. Provide coating compounded for permanent adhesion to metal in 1/8-inch (3-mm) thickness that does not chip, flake or blister.
- M. Gaskets: NSF certified for end-use application indicated; of resilient rubber, neoprene or PVC that is nontoxic, stable, odorless, nonabsorbent and unaffected by exposure to foods and cleaning compounds.

2.2 ACCESSORIES

- A. Cabinet Hardware: Provide NSF-certified stainless steel hardware for equipment items as indicated.
- B. Casters: NSF-certified standard-duty stainless-steel swivel stem casters with 5-inch (125-mm) diameter wheels, polyurethane tires with 1-inch (25-mm) tread width and 300-lb (90-kg) load capacity per caster. Provide brakes on 2 casters per unit.

2.3 FABRICATION, GENERAL

- A. All welds shall be strong and ductile, nonporous, free of pits and cracks. Parts which are to be welded shall be homogeneous, of a like color and finish to adjoining material. Excess metal and carbide precipitation shall be ground off, finished smooth and polished. Unexposed welds shall be pacified to prevent attrition. Brazed or soldered joints are unacceptable. Where galvanizing has been damaged due to the welding or grinding process, these areas shall be galvawelded to replace finish
- B. All exposed surfaces of the food service equipment shall be free from bolts, screws and rivet fastenings. Wherever bolts are required they shall be of similar composition and finish as the metal to which they are applied.
- C. Wherever practical all food service equipment and fixtures shall be factory or shop fabricated of one-piece construction, shipped to the project site as one unit completely assembled.
- D. Items of food service equipment or fixtures too large to enter or transverse the building to the installation location in one assembly shall be constructed in sections and shall be furnished with field joints. Where field joints are necessary, all adjoining exposed surfaces shall be field welded at the project site as specified above for welding. Where conditions make welded field joints impractical, each sub-assembly shall be fabricated with off-set draw angles welded to the underside of each adjoining top surface and drawn together to a “hairline” seam with 1/4"-20 stainless steel bolts with lock washers and chrome plated acorn nuts. Bolted field joints will be permitted only where specifically shown on Drawings or specified for a particular item.
- E. Wherever shear edges occur they shall be free of burrs, fins or irregular projections and shall be finished to prevent cutting or laceration when the hand is drawn over such shear edges. Brake bends shall be free of undue and where such bends do mar the uniform surface appearance of the material, such marks shall be removed by suitable grinding, polishing and finishing. In no case where miters or bullnose corners occur is overlapping materials acceptable.

2.4 GENERAL FRABRICATION STANDARDS

- A. TOPS:
 - 1. Tops shall be fabricated of 14 gauge stainless steel unless otherwise specified. All edges shall be bullnose or formed as specified with all joints butt-edged and electrically welded,

ground smooth and polished so no evidence of welding will appear. Soldered corners to achieve round corner construction will not be accepted.

2. Tops adjacent to walls, columns or other equipment shall be turned up integrally into a backsplash as specified. All interior corners shall be coved on a $\frac{3}{4}$ " radius, both horizontally and vertically, forming spherical corners. Ends of backsplashes shall be fully enclosed to the low point of the top edge, fully welded, ground smooth and polished.

B. SUPPORT FRAMING

1. Around the entire perimeter on the underside of all tops and set back 1" from the down-turned edge shall be a fully welded frame assembly fabricated of 1-1/2" x 1-1/2" x 1/8" stainless steel angle iron or material as specified. Provide intermediate cross bracing fabricated of the same material as the angle framing and fully weld to perimeter frame on centers not to exceed 24". Tack weld the entire frame assembly to the underside of the top surface.
2. Open base tables shall be provided with leg mounting channels for weld anchoring leg gussets and shall be fabricated of 1" x 4" x 1" 12 gauge stainless steel or material as specified fully welded at each end of frame and at intervals not to exceed 6'-0".
3. Cabinet base tables and counters shall be provided with triangular corner gusset plates for weld anchoring counter type legs and shall be fabricated of 12 gauge stainless steel fully welded at each corner of table or counter body and at intervals not to exceed 6'-0".
4. Freestanding sinks and Bain Maries shall be provided with triangular corner gusset plates for weld anchoring leg gussets and shall be fabricated of 12 gauge stainless steel, fully welded at each corner of sink or Bain Marie bottom and at intervals not to exceed 6'-0".

C. LEGS AND ADJUSTABLE BULLET FEET

1. Legs shall be constructed of 1-5/8" diameter 16 gauge stainless steel tubing. Each leg shall be swaged and tapered at the bottom. Fasten each leg to a 3-1/2" high conical shaped die-formed stainless steel gusset equivalent to Component Hardware A20-0206. Provide each leg with stainless steel adjustable foot insert equivalent to Component Hardware A10-0852.
2. Cabinet base tables and counters shall be provided with 6" high conical shaped die-formed stainless steel equipment leg with stainless steel adjustable round foot insert equivalent to Component Hardware A72-0811.

D. CROSSRAILS

1. Provide all open base tables and freestanding sinks and bain Maries with 1-1/4" diameter 16 gauge stainless steel tubular cross railing running between legs at a point 10" above the finished floor. Cross railing shall be continuously welded to legs, filleted, ground smooth and polished to provide a smooth coved radius with leg surface.
2. Where cross railing abuts cabinet base fixtures, cross railing shall be concealed bolt anchored to same utilizing stainless steel hardware.

E. UNDERSHELVES

1. Provide solid fixed undershelf, constructed of 16 gauge stainless steel. Front edge shall be turned down 1" at 90 degrees and returned ½" at 45 degrees. Rear and ends shall be turned up 2" high on a 90 degree angle, interior corners coved on ¾" radius.

F. DRAWERS

1. Provide drawer pan constructed of 14 gauge stainless steel with inside corners coved on a ¾" radius. Drawer front face shall be double pan type constructed of 16 gauge stainless steel with inner pan set into outer pan and welded in place. Drawer front shall be set into and shall be removable from a 14 gauge stainless steel, channel shaped drawer cradle. Drawer suspension slides shall be secured to drawer frame assembly and shall be Component Hardware S52 series full extension type with 14 gauge stainless steel slides with stainless steel ball bearing wheels having a load capacity of 200 pounds. Provide hard rubber bumper drawer stops. Drawer suspension guides shall be fastened to 18 gauge stainless steel housing which is suspended from the angle framing under the table top. Provide drawer fronts with full grip recessed stainless steel flush pull handles.
2. Stainless steel drawer enclosure cabinet with quantity of drawers as specified with cabinet body fabricated of 18 gauge stainless steel, wrap around construction. The backs of front stiles shall be closed with tight fitting channel sections of 18 gauge stainless steel, welded in place, and closed on top and bottom. Drawer suspension slides shall be secured to drawer frame assembly and shall be Component Hardware S52 series full extension type with 14 gauge stainless steel slides with stainless steel ball bearing wheels having a load capacity of 200 pounds. Provide hard rubber bumper drawer stops. Provide drawer fronts with full grip recessed stainless steel flush pull handles.

G. CABINET BASES

1. Cabinet body shall be fabricated of 18 gauge stainless steel wrap around construction. The backs of front stiles shall be closed with tight fitting channel sections of 18 gauge stainless steel, welded in place and closed on top and bottom.
2. Cabinet base shelves shall be fixed bottom and intermediate fabricated of 18 gauge stainless steel. Front edge shall be turned down 1 1/2" at 90 degrees, returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" at 90 degrees with interior corners coved on a ¾" radius. Shelf shall be weld anchored to cabinet body. Bottom shelf shall be fabricated flush with front mullions with fully welded facing junctures presenting seamless construction. Fixed intermediate shelves shall be designed similar to bottom shelf except front edge shall be set behind vertical mullions and fully welded thereto.

H. SLIDING DOORS

1. Sliding doors shall be double pan type constructed of 16 gauge stainless steel with inner pan set into outer pan and welded in place. Doors shall have welded internally 1" x 4" x 1" 14 gauge stainless steel hat type reinforcing channels. Doors shall be fitted with full grip, recessed type stainless steel flush pull handles. Provide 16 gauge stainless steel angle door stops welded to door. Provide hard rubber door stops. Provide each door with two, 1 3/8" diameter stainless steel ball bearing sheaves fastened to 1" x 1/8" thick stainless steel bar stock hangers welded to top corners of each door for suspending on overhead door channel track. Provide hangers with stainless steel removable locks to

prevent doors from jumping track during operation while permitting ease of removal. Fabricate overhead track of 14 gauge stainless steel and weld to cabinet body. Provide bottom of doors with nylon door guides secured to bottom shelf. Guides shall not interfere with door removal.

I. HINGED DOORS

1. Hinged doors shall be double pan type constructed of 16 gauge stainless steel with inner pan set into outer pan and welded in place. Hinges shall be stainless steel cam action pin type fastened by means of counter sunk flat head stainless steel screws staggered on centers and tapped into 1/4" thick stainless steel bar stock welded behind door jamb. Doors shall be removable from hinges without the use of tools. Doors shall be held closed by permanent magnet closure devices. Doors shall be fitted with a full grip recessed type stainless steel flush pull handles. Provide hard rubber door stop bumpers.

J. SINKS

1. Sinks shall be fabricated of 14 gauge stainless steel with all interior corners coved on a 3/4" radius both horizontally and vertically forming spherical corners.
2. Exposed edges of sink shall be finished with a 1 1/2" diameter 180 degree rolled edge, rear and sides adjacent to adjoining surfaces shall have a backsplash turned up 10" high at a 90 degree angle on a 3/4" radius and turned back 2 1/2" on a 45 degree angle, then down 1/2" at 90 degrees along back.
3. Multiple sink compartments shall be divided with double wall 14 gauge stainless steel partitions 1" wide rounded on top and all corners at a 3/4" radius. Finish bottom, back and front with 14 gauge stainless steel to form one continuous sink with no overlapping joints or open spaces between sink compartments.
4. Integral drainboards shall be constructed of 14 gauge stainless steel. The front portion shall continue the 1 1/2" diameter 180 degree rolled rim of the sink bowl on a continuous level horizontal plane. The surface of the drainboard shall be pitched from 2 1/2" at the end away from the sink to 3" at the sink bowl. Sink and drainboard backsplash shall be continuous and level on the horizontal plane. All interior corners both vertical and horizontal shall be coved on a 3/4" radius. Drainboards shall be reinforced with 1" x 4" x 1", 12 gauge stainless steel "hat" channels extending front to rear tack welded to underside of drainboard for weld anchoring leg gussets.
5. Provide crossrails extending front to rear between legs, crossrails shall not extend along rear at sink to prevent interference with plumbing.
6. Built-in sink compartments shall be fabricated as an integral part of fixture with sink fully welded with adjacent top, weld ground smooth and polished.

K. MILLWORK

1. Millwork fabricator shop shall be a certified participant in AWI's Quality Certification Program (QCP) to standard "Premium" construction.
2. Tops shall be fabricated of 3/4" thick 5-7 ply BW marine grade plywood build up to a 1 1/2" thickness. All plastic laminate finished edges shall be applied prior to the surface laminate. Provide cross bracing around entire perimeter below tops and above all interior dividers to minimize deflection from equipment. Tops shall be fabricated in sections as

large as possible to minimize field seams. Field seams shall be assembled utilizing TB-2 yellow glue. The bottom surfaces of all tops must be sealed with gray cabinet liner to comply with Board of Health requirements. Cut-outs for drop-in equipment shall be cut in the shop and with all edges sealed. All drop-in equipment shall be pre-fitted in top prior to delivery to the job site. All drop-in equipment shall be sealed with General Electric or equivalent clear silicon sealer after installation. Hardwood edges shall be applied prior to surface laminate. All hardwood to match for color and grain. Edges to be chamfered and finished as specified. Solid surface tops shall receive full plywood substrate with 3/4" x 3" batons for proper air space. All tops shall be prepared for installation of sneeze guards including additional blocking and / or cutouts.

3. All cabinet base and interiors shall be fabricated of 3/4" thick 5-7 ply marine grade plywood with high-pressure laminate finish. Recessed toe base shall be 6" high fabricated of 3/4" thick 5-7 ply marine grade plywood with 16 gauge stainless steel finish. Shelf pilasters to be recessed type 250WH with 253WH locking clips. Cabinet backs shall be fabricated of 1/4" thick MELA-MDF board. Cabinet ends to be dadoed for back and bottom and notched to receive aprons and kicks. Butt or dowel construction will not be acceptable. Cabinets shall be assembled with TB-2 yellow glue with screws and staples. Cabinets with finished backs shall be fabricated of 3/4" thick 5-7 marine grade plywood with high-pressure laminate finish. Cabinets over 48" in length shall have interior dividers. Dividers shall be dadoed into the bottom and notched for aprons. Dividers shall be notched as required for equipment. Aprons shall be large enough to conceal drop-in equipment and also to house control panels. Cabinet bases shall be fabricated in sections as large as possible to minimize field seams.
4. Doors shall be fabricated of 3/4" thick MDF board with high-pressure laminate finish and shall be furnished with three BLUM 75M5580 or 75M5680 European style concealed hinges. Door pulls shall be Hafele 116.39.437. Locks where required shall be cam style, keyed alike. Doors shall not exceed 27" in width and shall be of equal size.
5. Drawers shall be constructed of 3/8" thick birchwood with dove tail joinery. Drawer slides shall be Accuride 150 lb. full extension type with stainless steel ball bearing hardware.
6. Applied wood fascia panels and doors shall be stile and rail design. Panels to be recessed or raised as specified. All wood to be select for color and grain. Finish shall match stock color samples or custom to match furnished sample. All panels and doors to be equally sized per cabinet. Provide full wood louvered panels as required for equipment requiring air circulation. Finish all wood with stain followed by single coat of sealer. After sealer, apply one layer of Armourcote conversion varnish approved for use in food service with 55% gloss.

L. SOLID AND HARD SURFACE MATERIAL ("CORIAN" / "ZODIAK")

1. Provide counter top, tray slide, etc. of approved solid surface material. Material shall be fabricated and assembled per manufacturers approved methods utilizing a factory authorized and certified fabricator and installer. The edges of the top shall be formed as indicated on the food service and architectural detail drawings, routed and finished as directed. Openings shall have radius corners and shall be reinforced with additional material. Where drop-in appliances are to set on tops, the fixture shall be furnished with a 3/4" thick marine grade plywood sub-top fabricated with a perimeter frame extending through the opening in the top preventing the appliance from setting directly on the solid

surface material and allowing the sub-top to distribute the weight of the appliance. Where heated appliances are to set on the top the sub-top is to be fabricated as above to prevent heat from being in direct contact with the solid surface top; additional fiberboard insulation material is to be provided where transfer of radiated heat will contact any solid surface material

M. PAINTING

1. Galvanized steel shall be cleaned and degreased with mineral spirits, primed with a minimum of two coats of primer and spray finished with a minimum of two coats of gray epoxy enamel paint

N. LAMINATED PLASTIC

1. All exposed surfaces shall be faced with 1/16" thick high pressure plastic laminate in color and pattern as specified.
2. All unexposed surfaces shall be faced with .020 or .030 gray thermoset decorative overlay.
3. Where the plastic laminate is to be bonded to removable or fixed panels the panels shall be fabricated of 3/4" thick close grain marine grade mahogany or birch plywood with surfaces bonded with waterproof glue.
4. Where the plastic laminate is to be bonded directly to the metal facing of a cabinet base table or counter, surfaces shall be bonded with contact adhesive.

O. CLOSURE TRIM

1. Provide closure trim pieces fabricated of 16 gauge stainless steel or of material and finish as specified, trim shall be one piece constructions furnished to seal both horizontal and vertical junctures and openings

2.5 STAINLESS STEEL FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal products" for recommendations relative to applying and designating finishes.
1. Remove or blend tool and die marks and stretch lines into finish.
 2. Grind and polish surfaces to produce uniform directional textured polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Concealed Surfaces: Minimum of 80 grit finish.
- C. Exposed Surfaces: No. 4 finish (bright, directional polish) of 180 grit.
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

- E. Protect mechanical finishes on exposed surfaces from damage by applying a strippable temporary protective covering before shipment.

2.6 STANDARDS FOR EXISTING EQUIPMENT

- A. The food service equipment contractor shall examine each item of food service equipment specified as existing to be reused prior to his submission of his bid to ascertain proper fit and alignment in its proposed location, inspect for any physical damage and to determine the present operational performance and condition of each item or any component thereof and submit to the Owner as part of his bid the extent of repairs or replacement parts, required to recondition the entire unit for satisfactory operation.
- B. The food service equipment contractor shall disassemble each existing item to be reused, clean, service and recondition including any transport for reconditioning if required at any service agency or shop, redeliver or relocate at the project site to the new location, set-in-place, align and secure in its new location and assemble any fixtures, components and sub-assemblies, left ready for final utility connections by the Trades.
 - 1. Cleaning of the food service equipment shall include a thorough scrapping and steam cleaning to remove scale and all foreign material.
 - 2. Repainting of all fabricated and buy-out items having worn or scarred exposed surfaces that are not stainless steel materials. Repainting shall be a minimum of two coats of original paint or touched-up as required.
 - 3. Repair any damage incurred during relocation or transit such as dents, cracks or broken welds.
 - 4. Replacement of door gaskets and seals and realignment for proper operation.
 - 5. Replace non-functioning condensate evaporators in refrigerators.
 - 6. Replacement of broken door hinges, drawer slide assemblies, door and drawer handles, door pans or lock assemblies.
 - 7. Servicing and cleaning of all condensing units, (vacuum and comb), evaporator coils, expansion valves, etc. setting and adjusting of all temperature controls to maintain normal operating temperature and charging of the refrigeration system with proper refrigerant. Refrigeration systems to be re-used shall be recharged with proper refrigerant or converted to an acceptable code compliant refrigerant.
 - 8. Replace or repair all plumbing components as required including faucets and waste outlets with fixtures of similar type and manufacturer.
 - 9. Pump-down of all refrigeration systems to be discontinued or relocated and re-claiming and disposal of all refrigerant and toxic materials as necessary.
- C. The following work shall be included as part of this contract on specified items or as required by the Owner or as determined or recommended as necessary during the site inspection.
 - 1. Repair or replacement of all materials or parts to correct any gas, steam or electrically operated cooking appliance including power generation devices such as boilers and related mechanical and electrical heating and control components and devices.
 - 2. Remove, sharpen and reinstall all cutting blades on all cutting machinery including slicers, food cutters and food choppers.

3. Recondition and lubricate electric motors and transmission devices, replacing worn or damaged gears, drive belts, etc. and repacking or replacing oil with proper type as recommended by the manufacturer.
 4. Inspecting, cleaning and upgrading of exhaust ventilation systems including fire protection systems and components. Exhaust hood shall be steam cleaned and chemically treated to remove all traces of grease and foreign material, painted exhaust hoods shall be primed and repainted with a minimum of two coats of primer and fire resistant paint, filters shall be replaced with grease extractor type filters to match design air volume requirements and fusible links shall be replaced with proper heat values. Fire system shall be inspected and recharged to full operational condition. Fire system nozzles and related piping and fittings shall be relocated and reworked to accommodate the new equipment arrangement with nozzle heads replaced as required. All ductwork shall be inspected to assure compliance with present codes and statutes with all ductwork thoroughly cleaned. Air movement shall be measured for proper air quantities and velocities and conditions corrected to meet proper requirements. All conditions of the existing exhaust ventilation and fire protection system shall be in compliance with all current prevailing codes, statutes and NFPA requirements.
- D. All nameplates are to be left completely legible.
- E. Existing equipment to be reused shall have all utilities disconnected, terminated, or capped-off by the Plumbing, Electrical and Mechanical (HVAC) Trades.
- F. Plumbing, Electrical and Mechanical (HVAC) Trades shall provide all mechanical, electrical and HVAC services as required and provide final connection to same at the new site location.
- G. Final determination and verification of Plumbing, Electrical and Mechanical (HVAC) requirements for all existing food service equipment to be reused is the responsibility of the Mechanical and Electrical Engineer. Provisions for relocated utility requirements shall conform to current codes and statutes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions with Installer for compliance with requirements for installation tolerances, service-utility connections and other conditions affecting installation and performance of food service equipment. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Examine roughing-in for piping, mechanical and electrical systems to verify actual locations of connections before installation

3.2 INSTALLATION

- A. Set each item of fixed food service equipment securely in place, level and adjust to correct height. Anchor to supporting surface where required for sustained operation and use without shifting or dislocation. Provide concealed anchoring where possible. Adjust work surfaces to a level tolerance of 1/16" maximum offset and slope drainage surfaces at 1/16" per foot.
- B. Complete field assembly of field joints by welding or bolting utilizing the method as indicated with the fixture. Grind all field welds smooth and polish. Set and trim all gaskets to be installed as part of field assembly.
- C. Treat enclosed spaces that are inaccessible after food service equipment installation by covering all horizontal surfaces with powdered borax at a rate of 4 ounces per square foot.
- D. Provide closure trim pieces fabricated of 16 gauge stainless steel or of material and finish as specified, trim shall be one piece construction furnished to seal both horizontal and vertical junctures and openings where the conditions given below occur:
 - 1. Food service equipment is installed into wall openings. Trim shall apply to both sides of wall opening with all corners fully welded, ground smooth and polished.
 - 2. Two or more items of food service equipment are butted together.
 - 3. Food service equipment is installed against wall, columns other equipment resulting in a gap or juncture exceeding 1/4" in width.
 - 4. An open gap of any size between the juncture or joint between adjoining items of food service equipment, wall or column surfaces which might result in the penetration or collection of grease or vermin.
- E. Provide cut-outs and openings in food service equipment as required to extend plumbing, electric, steam or gas lines through the food service equipment either for interconnection of utility lines or final connection.
- F. Seal around each item of food service equipment with sealant for gaps or spaces less than 1/4" in width and with stainless steel trim for gaps or spaces exceeding 1/4" in width. Closure strips shall conform to the shape and size of the surfaces or juncture to be sealed and shall be neatly scribed for a tight fit.

3.3 PROTECTION AND CLEANING

- A. Provide final protection and maintain conditions in a manner acceptable to District, Manufacturer and Installer that ensure food service equipment is without damage or deterioration at the time of Substantial Completion.
- B. After completion of the food service equipment installation and completion of other major work in the food service area remove protective coverings and clean and sanitize all food service equipment both internally and externally. Restore exposed and semi-exposed finished to remove abrasions or other surface damage, polish exposed metal surfaces and touch-up painted surfaces. Replace work which cannot be successfully restored.

3.4 COMMISIONING

- A. Delay start-up of the food service equipment until utility services have been installed, completed and tested, balanced and adjusted for pressure and voltage, and until water and steam lines have been treated and cleaned for sanitation. Before start-up of the food service equipment lubricate in accordance with manufacturer's instructions.
 - 1. Coordinate food service equipment startup with service-utility testing, balancing and adjustments. Do not operate steam lines before they have been cleaned and sanitized.
- B. Provide on-site demonstration and formal technical training by the manufacturer's technical representative for each item of food service equipment as required to instruct the District and its personnel in the safe operation and sanitation and maintenance of the food service equipment.
- C. Test each item of food service equipment for proper operation.
 - 1. Repair or replace equipment that is defective in operation including units that operate below required capacity or that operate with excessive noise or vibration.
 - 2. Test refrigeration equipment's ability to maintain specified operating temperature under heavy-use conditions. Repair or replace equipment that does not maintain specified operating temperature.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 - 4. Test motors and rotating equipment for proper rotation and lubricate moving parts according to manufacturer's written instructions.
 - 5. Test water, drain, gas, steam, oil, refrigerant and liquid-carrying components for leaks. Repair or replace leaking components.
 - 6. Train District's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing and preventive maintenance for each food service equipment item.
 - 7. Review data in the operation and maintenance manuals. Refer to Division 1 Section "Contract Closeout".
 - 8. Review data in the operation and maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data".
 - 9. Schedule training with District through Construction Manager with at least seven days advance notice.

3.5 SCHEDULE OF EQUIPMENT

- A. Equipment Schedule: Refer to all Contract Documents pertaining to the food service areas. Equipment itemized along with brands and model numbers and salient features establish the standard for construction, operation and engineering criteria.
- B. Equipment indicated below is intended to establish the standard of quality of the food service equipment. Alternate "Equal" products by other manufacturers may be considered if equivalent in design, performance, durability and function.

- C. This document is the intellectual property of Corsi Associates and as such use by any other entity is prohibited.

ITEM #01 WALK-IN COOLER
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: Size and shape as per plan
Construction: Furnish and erect, compartment, sectional, urethane insulated walk-in cooler assembly.

Walk-in assembly shall bear the UL label and NSF and Factory Mutual seals and shall meet 2009 Federal Regulations.

Ceiling and wall panels shall be constructed of 4" thick urethane insulation, assembly to be accomplished by the use of integral cam type locking device, secured in place during the foaming process. Seams between panels shall be insulated with vinyl foamed in place gasket material.

Ceiling and wall panels shall be finished of 18 gauge embossed aluminum on interior and exterior surfaces.

Walk-in assembly shall be provided with 1/8" thick aluminum diamond tread plate floor with NSF approved coved corners, insulated with 4" thick urethane insulation and reinforced with 3/4" thick 5-7 ply marine grade plywood underlayment. Floor installation shall be in accordance with manufacturer's recommended practice and shall sit in a depression. Building floor finish shall be flush and smooth to allow a level installation.

Construction Trade shall furnish and install floor depression and finished floor within walk-in assembly. Pitch floor within walk-in towards entrance door at 1/8" per foot minimum.

Walk-in assembly shall be furnished with in-fitting type door and frame assemblies constructed of 16 gauge stainless steel provided with three self-closing cam action chrome plated hinge assemblies, handles and hardware.

Provide door with 2" dial type flush mount thermometer with chrome plated bezel mounted in door frame.

Provide door with triple pane observation and 36" high 3/16" thick aluminum diamond tread kick plate on both interior and exterior side.

Provide door with UL listed, vapor proof LED light fixture complete with toggle switch and pilot light and full perimeter frame condensation heater.

Provide a total of four (4) U.L. listed, vapor proof LED ceiling mounted light fixture

complete with stainless steel mounting hardware.

Foodservice Equipment Contractor shall install ceiling mounted light fixtures and furnish materials and inter-wire light fixtures and switch.

Furnish and install 18 gauge embossed aluminum vertical trim angles and ceiling closure panels.

Furnish and install entire refrigeration system complete with Copeland semi-hermetic condensing units and insulated copper refrigeration lines charged with R404A refrigerant. Each condensing unit shall be interconnected to a low profile, high velocity evaporator coil in each walk-in compartment. Refrigeration system shall include all fittings, valves, switches, controls and all related components to comprise a complete operating unit of sufficient BTU capacity to maintain automatic operation of 35 degree F product temperature in cooler.

Refrigeration system shall be provided with outdoor remote air cooled condensing units with each condensing unit to be located on the building roof.

Condensing units shall be provided with winterized controls (low ambient package), including crankcase heater, line dryer, head pressure control and galvanized steel stand with stainless steel weather hood.

Provide all hangers and brackets as required to install refrigeration lines.

Construction Trade shall furnish all sleeves and openings through walls, ceiling and floor for passage of refrigeration lines. Furnish galvanized steel stand.

Mechanical (HVAC) Trade shall provide exhaust ventilation for indoor condensing units based on 750 CFM exhaust for compressor horsepower for air cooled condensing units.

Foodservice Equipment Contractor shall furnish and install copper tubing and extend evaporator coil condensate line to floor receptacle.

Set and adjust all temperature and defrost cycles.

Provide start-up and two year material and labor warranty on entire refrigeration system, and five years manufacturer's warranty on compressor.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #02	EVAPORATOR, WALK-IN COOLER
Quantity:	One (1)
Manufacturer:	American Panel / Norbec / Arctic
Model:	BEL0105BS6AM
Remarks:	Refer to latest approved Engineering Drawings for engineering data and design

methods and features which shall take precedence to this specification.

ITEM #03 CONDENSING UNIT, WALK-IN COOLER
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: FFAM-A17Z-TFC-075
Remarks: Refer to latest approved Engineering Drawings for engineering data and design
 methods and features which shall take precedence to this specification.

ITEM #04 WIRE SHELVING
Quantity: Fifty-One (51)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2454NK3 (204)
Options: 70UPK3 Posts (204)
 5MP Casters (102)
 5MPB Casters (102)
Sup Info: Assemble into four tier shelving units, locate bottom shelf 12” above floor.

ITEM #05 WIRE SHELVING
Quantity: Twenty (20)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2430NK3 (80)
Options: 70UPK3 Posts (80)
 5MP Casters (40)
 5MPB Casters (40)
Sup Info: Assemble into four tier shelving units, locate bottom shelf 12” above floor.

ITEM #06 WIRE SHELVING
Quantity: Three (3)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2454NK3 (15)
Options: 74UPK3 Posts (12)
 5MP Casters (16)
 5MPB Casters (16)
Sup Info: Assemble into five tier shelving units, locate bottom shelf 12” above floor.

ITEM #07 WIRE SHELVING
Quantity: Four (4)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2442NK3 (20)
Options: 74UPK3 Posts (16)
 5MP Casters (8)
 5MPB Casters (8)
Sup Info: Assemble into five tier shelving units, locate bottom shelf 12” above floor.

ITEM #08 WIRE SHELVING
Quantity: Twelve (12)
Manufacturer: Metro / Eagle group / Quantum

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Model: PR2460NK3 (60)
Options: 74UPK3 Posts (48)
5MP Casters (24)
5MPB Casters (24)
Sup Info: Assemble into five tier shelving units, locate bottom shelf 12” above floor.

ITEM #09 WIRE SHELVING
Quantity: Nine (9)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2448NK3 (45)
Options: 74UPK3 Posts (36)
5MP Casters (18)
5MPB Casters (18)
Sup Info: Assemble into five tier shelving units, locate bottom shelf 12” above floor.

ITEM #10 COMMERCIAL WASTE CONTAINER
Quantity: Eleven (11)
Manufacturer: Rubbermaid
Model: FG265500GRAY
FG265400GRAY Lid (11)
FG264000BLA Dolly (11)

ITEM #11 CLEAN DISHTABLE
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: CDTR-72-14/3
E120 Table limit switch

ITEM #12 GLASS RACK, WALL MOUNT
Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: 606642
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

ITEM #13 DISHWASHER, CONVEYOR TYPE
Quantity: One (1)
Manufacturer: Hobart / Champion / Stero
Model: CLPS86eN+BUILDUP
Options: CLPS86EN-ADVHTE15K Electric tank heat 15kW
CLPS86EN-ADVERH30K 30kW electric booster
CLPS86EN-ADVELE0AX 208/60/3-ph
SGLPT-KIT3-CLE Single point electrical connection
HOBINST-SGLPT-CLE Accessory installation
CLPS86EN-ADVHGTSTD Standard height
CLPS86EN-ADVDIR0LR Left to right operation

CLPS86EN-ADVFETSTD Standard feet
1/2INSHK-ABSRBR Water shock absorber kit
CLE/TBL-SWITCH Table limit switch CLE-Series
PRESREG-1/20BR pressure regulator
Exhaust fan activation switch

ITEM #14 CONDENSATE HOOD
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape per plan
Construction: Furnish and install condensate hood.

Entire condensate ventilation system shall be constructed in compliance with UL, NSF and any prevailing statutes and codes.

Fabricate entire hood of 18 gauge 304 stainless steel fully welded watertight construction.

Provide stainless steel welded hanger mounting clips with threaded stainless steel hanger and structural ceiling providing necessary angles and channels and utilizing stainless steel mounting hardware.

Mechanical (HVAC) Trade shall provide stainless steel welded ductwork (horizontal duct runs shall be pitched back toward condensate hood) and fan to comprise a complete condensate exhaust system.

Electrical Trade shall install fan switch with indicator lights located on dish machine and inter-wire to fan.

Furnish and install plastic drain tubing from nipple on bleeder drain outlet to soiled dishtable top surface.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Furnish and install 18 gauge 304 stainless steel wall panels extending from the bottom of the rear of the exhaust hood to the upper edge of the baseboard molding and extending along the full length of all wall surfaces. Wall panel sections shall be fitted with ½" wide off-set seams at intermediate joints to allow panel sections to fit tightly against the wall and to result in watertight seams. Secure wall panels to building wall with wall panel adhesive of proper type for wall construction. Seal end seams with General Electric or equivalent clear silicone sealer.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #15 FOOD WASTE DISPOSER

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Quantity: Three (3)
Manufacturer: Salvajor / In-sinkerator / Red Goat
Model: 300-CA-ARSS-LD
Options: 18CC Stainless steel cone cover (3)
PP PP-type control panel with mounted solenoid valve, flow control & pressure switch for all controls (3)
980105 Mounting bracket (3)
DP Dejamming prong (3)
Sup Info: Foodservice Equipment Contractor shall furnish and install interconnecting piping and all components or parts as required by disposer manufacturer or as supplied as part of disposer in accordance with the manufacturer instructions.

Foodservice Equipment Contractor shall furnish and install all interconnecting wiring as required between disposer motor and control device.

Mount to control panel to wall or mounting bracket with stainless steel mounting hardware of proper type for application.

Construction Trade shall reinforce wall as required to support weight of control panel while in use.

ITEM #16 SOILED DISHTABLE
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: SDTCL-60-14/4
Options: Pre-rinse spray unit, splash mount
301190 Pre-rinse wall bracket
-SRP Dishtable kit includes scrap basket, rack slide
Disposal provision package

ITEM #17 HAND SINK
Quantity: Sixteen (16)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: HSA-10-FAW
Options: 318496 Paper towel dispenser (16)
300602 Soap dispenser (16)
-LRS Left and right side splashes (16)
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

Foodservice Equipment Contractor to verify soap dispenser and paper towel dispenser type with the District.

ITEM #18 TRASH CAN, SLIM
Quantity: Twenty (20)
Manufacturer: Rubbermaid

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Model: FG354060GRAY
Options: FG267360GRAY Lid (20)

ITEM #19 DUNNAGE RACK
Quantity: Nine (9)
Manufacturer: Cambro / Metro / Eagle group
Model: DRS480131

ITEM #20 WIRE SHELVING
Quantity: Six (6)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2436NK3 (30)
Options: 74UPK3 Posts (24)
5MP Casters (12)
5MPB Casters (12)

Sup Info: Assemble into five tier shelving units, locate bottom shelf 12" above floor.

ITEM #21 WIRE SHELVING
Quantity: One (1)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2430NK3 (5)
Options: 74UPK3 Posts (4)
5MP Casters (2)
5MPB Casters (2)

Sup Info: Assemble into five tier shelving units, locate bottom shelf 12" above floor.

ITEM #22 WALK-IN COOLER/FREEZER COMBINATION
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: Size and shape per plan
Construction: Furnish and erect four (4) compartment sectional urethane insulated walk-in cooler assembly.

Walk-in assembly shall bear the UL label and NSF and Factory Mutual seals and meet 2015 Federal Regulations.

Ceiling and wall panels shall be constructed of 4" thick urethane insulation, assembly to be accomplished by the use of integral cam type locking device secured in place during the foaming process. Seams between panels shall be fully insulated with vinyl foamed-in-place gasket material.

Ceiling and wall panels shall be finished of 18 gauge embossed aluminum on interior and exterior surfaces.

Walk-in assembly shall be provided with 1/8" thick aluminum diamond tread plate floor with NSF approved coved corners, insulated with 4" thick urethane insulation and reinforced with 3/4" thick 5-7 ply marine grade plywood underlayment. Floor installation shall be in accordance with manufacturer's recommended practice and shall

sit in a depression. Building floor finish shall be flush and smooth to allow a level installation.

Construction Trade shall furnish and install floor depression and finished floor within walk-in assembly. Pitch floor within walk-in towards entrance door at 1/8" per foot minimum.

Walk-in assembly shall be furnished with in-fitting type door and frame assemblies constructed of 16 gauge stainless steel provided with three self-closing cam action chrome plated hinge assemblies, handles and hardware.

Provide each door with 2" dial type flush mount thermometer with chrome plated bezel mounted in door frame.

Provide each door with triple pane observation and 36" high x 1/8" thick aluminum diamond tread kick plates on both interior and exterior side.

Provide each door with UL listed vapor-proof LED light fixture complete with glass globe, toggle switch and pilot light and full perimeter frame condensation heater.

Provide twenty-four (24) additional UL listed vapor-proof LED ceiling mounted light fixtures (six in each compartment) complete with stainless steel mounting hardware.

Food Service Equipment Contractor shall install ceiling mounted light fixtures and furnish materials and inter-wire light fixtures and switch.

Walk-in freezer assembly shall be furnished with heated pressure relief port.

Furnish and install 18 gauge embossed aluminum vertical trim angles and ceiling closure panels.

Furnish and install entire refrigeration system complete with hermetic condensing units and insulated copper refrigeration lines charged with R448A refrigerant. Each condensing unit shall be interconnected to a low profile, high velocity evaporator coil in each walk-in compartment. Refrigeration system shall include all fittings, valves, switches, controls and all related components to comprise a complete operating unit of sufficient BTU capacity to maintain automatic operation of 35 degree F product temperature in cooler and -10 degree F product temperature in freezer.

Refrigeration system shall be provided with outdoor remote air cooled condensing units located outdoors on building roof.

Condensing units shall be provided with winterized controls (low ambient package) including crankcase heater, line dryer, head pressure control, and galvanized steel stand with stainless steel weather hood.

Provide all hangers and brackets as required to install refrigeration lines.

Construction Trade shall furnish all sleeves and openings through walls for passage of refrigeration lines.

Roofing Trade shall provide waterproof roof opening for passage of refrigeration lines.

Foodservice Equipment Contractor shall furnish materials and inter-wire defrost time clock circuit for walk-in freezer, from condensing unit to evaporator coil.

Foodservice Equipment Contractor shall furnish materials and install (wrap and insulate with foam pipe insulation) heat tracing tape to evaporator coil condensate line in walk-in freezer.

Food Service Equipment Contractor shall furnish and install copper tubing and extend evaporator coil condensate line to floor receptacle.

Set and adjust all temperature and defrost cycles.

Provide start-up and two year material and labor warranty on entire refrigeration system and five years manufacturer's warranty on compressor.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #23 SPARE NUMBER

ITEM #24 SPARE NUMBER

ITEM #25 EVAPORATOR, WALK-IN COOLER

Quantity: One (1)

Manufacturer: American Panel / Norbec / Arctic

Model: BEL0115BS6AM

Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #26 CONDENSING UNIT, WALK-IN COOLER

Quantity: One (1)

Manufacturer: American Panel / Norbec / Arctic

Model: FFAP-A20Z-TFC-075

Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #27 EVAPORATOR, WALK-IN COOLER

Quantity: One (1)

Manufacturer: American Panel / Norbec / Arctic

Model: BEL0115BS6AM

Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #34 WIRE SHELVING
Quantity: Eight (8)

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Manufacturer: Metro / Eagle group / Quantum
Model: PR2436NK3 (32)
Options: 70UPK3 Posts (32)
5MP Casters (16)
5MPB Casters (16)
Sup Info: Assemble into four tier shelving units, locate bottom shelf 12” above floor.

ITEM #35 WORK TABLE, STAINLESS STEEL TOP W/ PREP SINK
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T30144SE
Options: E36A Welded base
E59 Undershelf upgrade
E22 Sink bowl, weld in
341189 Twist handle drain
-TB bracket
351585 Sink cover
E47 Sink cover holder
YCORSI-502971-MOD Drawer (2)
DOS10132-14/3 Double overshelf

ITEM #36 WORK TABLE, STAINLESS STEEL
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T30144SE
Options: E36A Welded base
E59 Undershelf upgrade
YCORSI-502971-MOD Drawer (3)

ITEM #37 BUN PAN RACK
Quantity: Eight (8)
Manufacturer: Channel Manufacturing / Metro / Nexel
Model: 404A
Options: /022 Corner bumper (8)
/011 Casters with brakes (8)

ITEM #38 BLAST CHILLER, ROLL-IN
Quantity: One (1)
Manufacturer: American Panel / Irinox / Victory
Model: AP20BCF200-3
Options: (4) probes total
Wi-Fi communication

ITEM #39 ICE BIN
Quantity: One (1)
Manufacturer: Hoshizaki / Manitowoc / Ice-o-Matic
Model: B-500SF
Options: LP-6 LEG Leg package

HS-5607 Scoop holder kit

ITEM #40 ICE MAKER
Quantity: Two (2)
Manufacturer: Hoshizaki / Manitowoc / Ice-o-Matic
Model: KM-515MAJ

ITEM #40F WATER FILTRATION SYSTEM FOR ICE CUBER
Quantity: Two (2)
Manufacturer: Everpure / 3M / Optipure
Model: QC7I SINGLE 4FC-S
Remarks: EV969221 Replacement cartridge (2)
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

General contractor shall provide wall blocking as required for mounting.

Food Service Equipment Contractor shall install ice maker filter system in water supply line and furnish and install interconnecting piping between water filter and ice maker water inlet.

ITEM #41 REVERSE OSMOSIS SYSTEM
Quantity: Three (3)
Manufacturer: Everpure / 3M / Optipure
Model: EZ-RO 200/16G-BL
Remarks: EV969331 Replacement cartridge (3)
 EZ-200 Replacement cartridge (3)
 RO SYSTEM INSTALL - LEVEL I Installation
 TEMP VALVE INSTALL (W/RO INSTALL) Installation of Thermostatic Mixing Valve (3)
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

General contractor shall provide wall blocking as required for mounting.

Food Service Equipment Contractor shall install RO system in water supply line and furnish and install interconnecting piping between Ro system and combi oven water inlet.

Food Service Equipment Contractor shall install RO system in water supply line and furnish and install interconnecting piping between Ro system and convection oven water inlet.

Food Service Equipment Contractor shall install RO system in water supply line and furnish and install interconnecting piping between Ro system and hydrovection oven(s) water inlet.

ITEM #42 UTILITY DISTRIBUTION SYSTEM

Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape per plan
Construction: Furnish and install utility distribution system.

Utility distribution system shall be fabricated in accordance with UL, NSF, NEC, IMC 2015.

Utility distribution system shall be fabricated of a minimum of 18 gauge 304 stainless steel consisting of two utility compartments and fabricated in sections as required with factory pre-assembled field connections and furnished with one primary end riser with single point connection for all utilities and one secondary end riser.

Primary riser shall be furnished with built-in exhaust hood controls, including push button fan control switches with status lights, individual and shunt-trip main circuit breaker and emergency “kill” button with guard.

Provide as part of raceway exhaust hood interlock device to prevent all electrically and gas operated cooking appliances from operating unless the supply and exhaust fans of the exhaust hood is operating as required by all local and prevailing codes including IMC 2015.

Provide raceway with splash proof electrical chase with copper wire-way wired to a circuit breaker panel box with ground fault protection for each appliance in the primary end riser, and UL listed power cords and matching electrical receptacles as required.

Provide raceway with gas supply (looped) service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance. Provide as part of utility distribution system, mechanically operated gas supply line shut-off valves to interrupt gas supply to all gas operated cooking appliances. Gas valves shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide raceway with hot and cold water service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance.

Provide each riser with ventilator connecting collars for positive connection to the exhaust hood.

Provide secondary end riser with hinged access door for mounting of gas supply line shut-off valve (looped gas service).

Furnish and install labor and material to assemble all internal interconnecting gas piping, water piping and electrical wiring to install the utility distribution system. Test all connections for leaks.

ITEM #43 POWER WASH SINK

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Quantity: One (1)
Manufacturer: Champion
Model: PP3-STD-4TNK 156" L-R
Options: Right to left configuration
Left to right configuration
" soiled drainboard
" scrapper table
" power wash sink
" rinse sink
" sanitizing sink
" clean drainboard
" overall length
Thermostat controlled electric wash tank heater with low water shut-off
Automatic shut-down timer
Rear discharge agitator with stainless steel pump and impeller
Stainless steel perforated utensil basket
Pre-rinse spray above scrapper table
Factory installation of disposer cone in soiled drainboard
Stainless steel disposer control panel
Two faucet
Lever drains with connected overflow

ITEM #44 INGREDIENT BINS
Quantity: Six (6)
Manufacturer: Cambro / Carlisle
Model: IBS20148
Options: SCP24CW135 Scoop (6)

ITEM #45 MIXER, FLOOR
Quantity: One (1)
Manufacturer: Hobart / Varimixer / Globe
Model: HL800-1STD
Options: BOWL-HL80P Mixer bowl
DWHIP-HL80 wire whip
Sup Info: Accessories include but not limited to power bowl lift, stainless steel bowl guard,
stainless steel bowl, "B" beater, "ED" dough hook, bowl truck.

ITEM #46 FOOD CUTTER
Quantity: One (1)
Manufacturer: Hobart / Varimixer / Globe
Model: 84145-18
Options: VS9-12 Vegetable slicer

ITEM #47 WORK TABLE, STAINLESS STEEL TOP W/ DBL PREP SINK
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T30144SE
Options: E36A Welded base

E59 Undershelf upgrade
E22 Sink bowl, weld in (2)
341189 Twist handle drain (2)
-TB bracket
351585 Sink cover (2)
E47 Sink cover holder
YCORSI-502971-MOD Drawer (2)
DOS10132-14/3 Double overshef

ITEM #48 CONVECTION STEAMER
Quantity: Two (2)
Manufacturer: Cleveland / Groen / Vulcan
Model: 24-CGA-10.2
Options: Gas pressure regulator (2)
11000115898 Installation of unit (2)
11000115830 Pre installation site survey (2)
INSKITCGA6 Installation kit (2)
DISSOLVE Descaling solution (2)
BDPK1 Boiler descaling pump kit (2)
LGDCK Drain cooling kit (2)
Dormont 1675KITCF2S48 Gas hose kit (2)
Dormont W75BP2Q48 Water hose kit (4)
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to
cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #49 WORK TABLE, STAINLESS STEEL TOP
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T3030SE-BS
Options: E36A Welded base
E59 Undershelf upgrade

ITEM #50 REACH-IN REFRIGERATOR
Quantity: One (1)
Manufacturer: Continental / Victory / True
Model: SW60N24M
Options: Stainless steel interior
Stainless steel exterior
Stainless steel case back
Field reversible door
Exterior mounted digital thermometer
Automatic condensate evaporator
Swivel casters with polyurethane tires and front locking brakes
Plug and cord set
Flat lid with vision panel with hinges

DOS60 Double overshef

- ITEM #51 REACH-IN REFRIGERATOR
Quantity: One (1)
Manufacturer: Continental / Victory / True
Model: 3RNSS
Options: Stainless steel interior
 Stainless steel exterior
 Stainless steel case back
 Left Door hinged on left, center & right doors hinged on right, standard
 Exterior mounted digital thermometer
 Automatic condensate evaporator
 Swivel casters with polyurethane tires and front locking brakes
 Plug and cord set
- ITEM #52 REACH-IN FREEZER
Quantity: One (1)
Manufacturer: Continental / Victory / True
Model: 1FNSS
Options: Stainless steel interior
 Stainless steel exterior
 Stainless steel case back
 Door hinged on right, standard
 Exterior mounted digital thermometer
 Automatic condensate evaporator
 Swivel casters with polyurethane tires and front locking brakes
 Plug and cord set
- ITEM #53 EXHAUST HOOD
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape as per plan
Construction: Furnish and install exhaust hood with integral plenum box make-air system.

Entire exhaust ventilation system shall be constructed in compliance with UL, NSF, NFPA, IMC 2018 (including automatic start-up of the exhaust and supply ventilation upon activation of any cooking appliance) and any prevailing statutes and codes.

Hood shall be 15'-9" long constructed in one equal sections of 18 gauge 304 stainless steel with all seams continuously welded, ground smooth and polished. Hood mounted utility cabinet is 1'. Provide a full compliment of stainless steel "high efficiency" Captrate Solo baffle type grease extractors.

Furnish remote bulb thermostat with watertight hardware and install in either the exhaust plenum of the hood or in the exhaust duct. Provide NEMA 3 control panel box with hinged front cover complete with supply and exhaust fan contactors wired to an adjustable thermostat control, field wiring terminal strip and on-off switch.

Provide 18 gauge 304 stainless steel supply and exhaust duct collar.

Provide 18 gauge 304 stainless steel insulated supply air plenum box assembly with internal air volume control damper integral along the face of the hood. Mount in finished ceiling along face of hood and furnish full length stainless steel perforated removable panels for discharge of supply air along entire face of hood.

Provide stainless steel threaded hanger rods complete with stainless steel mounting hardware for securing to structural ceiling.

Mechanical (HVAC) Trade shall furnish and install a complete exhaust air handling system including exhaust fan and controller, fan start-stop switch with status lights, 16 gauge insulated welded ductwork from exhaust collar on exhaust hood to fan, hinged roof curb with grease trough and removable grease container.

Mechanical (HVAC) Trade shall install exhaust hood heat detector(s) in exhaust hoods with multiple exhaust collars in the exhaust duct just after the point of the pant leg juncture; this includes punching of the required hole in the duct and installation of the heat detector and fitting.

Mechanical (HVAC) Trade shall furnish and install a complete supply air handling system including supply fan and controller (with maintainable filter system) and supply air heater with thermostat control (to temper incoming supply air below 65 degree F ambient), fan start-stop switch with indicator lights, galvanized steel ductwork from supply collar on exhaust hood to fan and roof curb.

Electrical Trade shall furnish and install interconnecting wiring between fan motors, controllers and switches.

Electrical Trade shall furnish and install inter-wiring of cooking appliance start-up inter-lock device and the supply and exhaust ventilation system and wire per the manufacturer's instructions and per applicable codes.

Furnish four (4) UL listed vapor-proof recessed LED light fixtures wired to a common on-off switch with stainless steel cover plate located in hood mounted utility cabinet.

Electrical Trade shall furnish materials and inter-wire light fixtures to hood mounted utility cabinet.

Mechanical (HVAC) Trade shall furnish and install INVERTER DUTY THREE PHASE exhaust fan and controller.

Mechanical (HVAC) Trade shall furnish fans set compatible with variable frequency drive specification.

Electrical Trade shall furnish and install Interconnecting wiring of the system between the exhaust hood sensors, remote frequency drive unit and exhaust and supply fan motors.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Furnish and install 18 gauge 304 stainless steel wall panels extending from the bottom of the rear of the exhaust hood to the upper edge of the baseboard molding and extending along the full length of all wall surfaces. Wall panel sections shall be fitted with ½" wide off-set seams at intermediate joints to allow panel sections to fit tightly against the wall and to result in watertight seams. Secure wall panels to building wall with wall panel adhesive of proper type for wall construction. Seal end seams with General Electric or equivalent clear silicone sealer.

Electrical Trade shall provide the inter-wiring between the control enclosure, fire system, supply and exhaust fans and variable frequency drives and duct riser temperature switch.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #53.1

HOOD CONTROL PANEL

Quantity:

One (1)

Manufacturer:

Captive Aire / Caddy / Avtec

Model:

Size and shape per plan

Sup Info:

Furnish 18 gauge stainless steel utility and fire system enclosure cabinet with hinged access doors for both hood and fire system controls and fire suppression tanks. System shall be listed by ETL (UL 508A) NSF, NFPA, IMC 2018 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17-27. Cabinet may be freestanding wall type or integral with exhaust hood as shown on the contract drawings. Furnish stainless steel mounting hardware of proper type for wall construction for wall mounted cabinet.

Furnish and install variable volume motor control center with variable frequency drive, input / output processor and keypad enclosed within a stainless steel utility cabinet for remote mounting. System shall include, but not be limited to, electronic variable volume motor starters with thermal overload, input / output processors, control keypad, temperature and optic sensors and plug and play cables. Temperature sensor shall be mounted in the exhaust duct collar; optic sensor shall be mounted inside the ends of the hood with air purge units mounted on top.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #53.2

FIRE PROTECTION SYSTEM

Quantity:

One (1)

Manufacturer: Captive Aire
Model: TANK
Sup Info: Furnish and install in exhaust hood, plenum and surface fire protection system.

TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solutionextinguishing system.

TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300,UL1254, ULCORD-C1254.6.

Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ULC-S527-11.

TANK Fire Suppression System intended for installation and for use in accordance withthe National Fire Protection Association Standards:

1. Wet Chemical Extinguishing Systems, NFPA 17A
2. National Electrical Code, NFPA 70
3. National Fire Alarm & Signaling Code, NFPA 72

New York City and FDNY approved under COA# 5870.

California State Fire Marshal (CFSM), Listing No. 7085-2199:0502.

A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system forprotection of all hazard areas associated with cooking operations, including exhaust hoods, plenums, ductwork, and cooking appliances.

Exhaust hood fire system components to be factory installed.

Cylinder and Valve Assembly

1. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.
2. Wet chemical agent shall be contained in one or more stored pressure DOT/TC ratedsteel cylinder and valve assemblies.
3. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIGat 70°F.

Distribution Nozzles

4. Nozzles shall be located to protect the exhaust ducts, plenums, and all cookingappliances requiring protection.
5. All nozzles shall be equipped with a metal blow off cap. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing agent to flow to the protected hazard area.
6. All nozzles shall incorporate a stamped part number to easily identify nozzle type.

Distribution System

7. The distribution system shall consist of Copper, Schedule 40 black iron, chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.

8. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

Suppression System

9. The system control equipment shall be capable of all functions associated with automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.

10. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).

11. All mechanical components of the actuator kit shall be enclosed.

12. The actuator kit shall be capable of automatic or manual activation means.

13. Supervisory Pressure Switch added to monitor operating system pressure.

14. For manual activation, an electrically operated manual release shall be used to actuate the system manually.

15. For automatic activation, the system will be activated by a Firestat (heat) detector.

Electrical

16. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.

17. Printed circuit board with microprocessor-based controller that provides all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.

18. Independent supervised loops incorporate redundancy and fault detection.

19. Real-time cloud-based monitoring connection provided with system by owner-ship.

20. Primary power supply, with battery backup for power loss.

21. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction (AHJ).

22. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.

23. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

As part of this item, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

Inter-wiring of the fire system to the exhaust hood shall be furnished and installed by the Electrical Trade.

Provide as part of fire system, electrically operated gas supply line shut-off valve (two required for “loop” gas service) to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide one remote manual pull station to actuate fire system in the event of a fire.

Plumbing Trade shall install gas shut-off valve(s) in gas supply line.

Electrical Trade shall inter-wire gas shut-off valve(s) to fire system.

Electrical Trade shall furnish and install electric shunt-trip circuit breakers or electric shut-off contactors to interrupt electric power to all electrically operated cooking appliances.

Provide dry contacts in fire system to interface with building fire alarm system as required, electrical tie-in shall be the responsibility of the Electrical Trade.

Provide as part of fire system, start-up testing of the fire system as required by local fire codes. Subsequent testing of the fire system for a period of one year after start-up shall be included as part of this contract.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #54	TILT SKILLET
Quantity:	One (1)
Sup Info:	Refer to Specification Section 2.6, Standards for Existing Equipment; survey the ex-

isting item of equipment to be reused to determine the extent of reconditioning or repairs necessary to place equipment in proper working order.

ITEM #55 FLOOR TROUGH
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: FT-2496-SG
Sup Info: Construction Trade shall provide floor recess and install floor pan in recess flush with adjacent kitchen floor in a watertight manner.

ITEM #56 KETTLE, STEAM JACKETED
Quantity: Two (2)
Manufacturer: Cleveland / Groen / Vulcan
Model: KGL-40-T
Options: TD2 2" tangent draw-off valve with strainer
TDDC Drain cup assembly
KM2G Kettle Markings, 5 gallon increments
CHS40 Spring assisted cover
DKFK Double pantry kettle filler with 60" hose
KAK Kettle Accessory Kit
Gas pressure regulator
Dormont 1675KITCF2S-48 gas hose kit (2)
Dormont W50BP48 Water hose kit (4)
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #57 EXHAUST HOOD
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape as per plan
Construction: Furnish and install exhaust hood with integral plenum box make-air system.

Entire exhaust ventilation system shall be constructed in compliance with UL, NSF, NFPA, IMC 2018 (including automatic start-up of the exhaust and supply ventilation upon activation of any cooking appliance) and any prevailing statutes and codes.

Hood shall be 14'-6" long constructed in one equal sections of 18 gauge 304 stainless steel with all seams continuously welded, ground smooth and polished. Hood mounted utility cabinet is 1'. Provide a full compliment of stainless steel "high efficiency" Captrate Solo baffle type grease extractors.

Furnish remote bulb thermostat with watertight hardware and install in either the exhaust plenum of the hood or in the exhaust duct. Provide NEMA 3 control panel box with hinged front cover complete with supply and exhaust fan contactors wired to an adjustable thermostat control, field wiring terminal strip and on-off switch.

Provide 18 gauge 304 stainless steel supply and exhaust duct collar.

Provide 18 gauge 304 stainless steel insulated supply air plenum box assembly with internal air volume control damper integral along the face of the hood. Mount in finished ceiling along face of hood and furnish full length stainless steel perforated removable panels for discharge of supply air along entire face of hood.

Provide stainless steel threaded hanger rods complete with stainless steel mounting hardware for securing to structural ceiling.

Mechanical (HVAC) Trade shall furnish and install a complete exhaust air handling system including exhaust fan and controller, fan start-stop switch with status lights, 16 gauge insulated welded ductwork from exhaust collar on exhaust hood to fan, hinged roof curb with grease trough and removable grease container.

Mechanical (HVAC) Trade shall install exhaust hood heat detector(s) in exhaust hoods with multiple exhaust collars in the exhaust duct just after the point of the pant leg juncture; this includes punching of the required hole in the duct and installation of the heat detector and fitting.

Mechanical (HVAC) Trade shall furnish and install a complete supply air handling system including supply fan and controller (with maintainable filter system) and supply air heater with thermostat control (to temper incoming supply air below 65 degree F ambient), fan start-stop switch with indicator lights, galvanized steel ductwork from supply collar on exhaust hood to fan and roof curb.

Electrical Trade shall furnish and install interconnecting wiring between fan motors, controllers and switches.

Electrical Trade shall furnish and install inter-wiring of cooking appliance start-up inter-lock device and the supply and exhaust ventilation system and wire per the manufacturer's instructions and per applicable codes.

Furnish four (4) UL listed vapor-proof recessed LED light fixtures wired to a common on-off switch with stainless steel cover plate located in hood mounted utility cabinet.

Electrical Trade shall furnish materials and inter-wire light fixtures to hood mounted utility cabinet.

Mechanical (HVAC) Trade shall furnish and install INVERTER DUTY THREE PHASE exhaust fan and controller.

Mechanical (HVAC) Trade shall furnish fans set compatible with variable frequency drive specification.

Electrical Trade shall furnish and install Interconnecting wiring of the system between the exhaust hood sensors, remote frequency drive unit and exhaust and supply fan motors.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Furnish and install 18 gauge 304 stainless steel wall panels extending from the bottom of the rear of the exhaust hood to the upper edge of the baseboard molding and extending along the full length of all wall surfaces. Wall panel sections shall be fitted with ½" wide off-set seams at intermediate joints to allow panel sections to fit tightly against the wall and to result in watertight seams. Secure wall panels to building wall with wall panel adhesive of proper type for wall construction. Seal end seams with General Electric or equivalent clear silicone sealer.

Electrical Trade shall provide the inter-wiring between the control enclosure, fire system, supply and exhaust fans and variable frequency drives and duct riser temperature switch.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #57.1

HOOD CONTROL PANEL

Quantity:

One (1)

Manufacturer:

Captive Aire / Caddy / Avtec

Model:

Size and shape per plan

Sup Info:

Furnish 18 gauge stainless steel utility and fire system enclosure cabinet with hinged access doors for both hood and fire system controls and fire suppression tanks. System shall be listed by ETL (UL 508A) NSF, NFPA, IMC 2018 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17-27. Cabinet may be freestanding wall type or integral with exhaust hood as shown on the contract drawings. Furnish stainless steel mounting hardware of proper type for wall construction for wall mounted cabinet.

Furnish and install variable volume motor control center with variable frequency drive, input / output processor and keypad enclosed within a stainless steel utility cabinet for remote mounting. System shall include, but not be limited to, electronic variable volume motor starters with thermal overload, input / output processors, control keypad, temperature and optic sensors and plug and play cables. Temperature sensor shall be mounted in the exhaust duct collar; optic sensor shall be mounted inside the ends of the hood with air purge units mounted on top.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #57.2

FIRE PROTECTION SYSTEM

Quantity:

One (1)

Manufacturer: Captive Aire
Model: TANK
Sup Info: Furnish and install in exhaust hood, plenum and surface fire protection system.

TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solutionextinguishing system.

TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300,UL1254, ULCORD-C1254.6.

Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ULC-S527-11.

TANK Fire Suppression System intended for installation and for use in accordance withthe National Fire Protection Association Standards:

4. Wet Chemical Extinguishing Systems, NFPA 17A
5. National Electrical Code, NFPA 70
6. National Fire Alarm & Signaling Code, NFPA 72

New York City and FDNY approved under COA# 5870.

California State Fire Marshal (CFSM), Listing No. 7085-2199:0502.

A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system forprotection of all hazard areas associated with cooking operations, including exhaust hoods, plenums, ductwork, and cooking appliances.

Exhaust hood fire system components to be factory installed.

Cylinder and Valve Assembly

24. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.
25. Wet chemical agent shall be contained in one or more stored pressure DOT/TC ratedsteel cylinder and valve assemblies.
26. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIGat 70°F.

Distribution Nozzles

27. Nozzles shall be located to protect the exhaust ducts, plenums, and all cookingappliances requiring protection.
28. All nozzles shall be equipped with a metal blow off cap. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing agent to flow to the protected hazard area.
29. All nozzles shall incorporate a stamped part number to easily identify nozzle type.

Distribution System

30. The distribution system shall consist of Copper, Schedule 40 black iron, chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.

31. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

Suppression System

32. The system control equipment shall be capable of all functions associated with automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.

33. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).

34. All mechanical components of the actuator kit shall be enclosed.

35. The actuator kit shall be capable of automatic or manual activation means.

36. Supervisory Pressure Switch added to monitor operating system pressure.

37. For manual activation, an electrically operated manual release shall be used to actuate the system manually.

38. For automatic activation, the system will be activated by a Firestat (heat) detector.

Electrical

39. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.

40. Printed circuit board with microprocessor-based controller that provides all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.

41. Independent supervised loops incorporate redundancy and fault detection.

42. Real-time cloud-based monitoring connection provided with system by owner-ship.

43. Primary power supply, with battery backup for power loss.

44. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction (AHJ).

45. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.

46. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

As part of this item, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

Inter-wiring of the fire system to the exhaust hood shall be furnished and installed by the Electrical Trade.

Provide as part of fire system, electrically operated gas supply line shut-off valve (two required for “loop” gas service) to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide one remote manual pull station to actuate fire system in the event of a fire.

Plumbing Trade shall install gas shut-off valve(s) in gas supply line.

Electrical Trade shall inter-wire gas shut-off valve(s) to fire system.

Electrical Trade shall furnish and install electric shunt-trip circuit breakers or electric shut-off contactors to interrupt electric power to all electrically operated cooking appliances.

Provide dry contacts in fire system to interface with building fire alarm system as required, electrical tie-in shall be the responsibility of the Electrical Trade.

Provide as part of fire system, start-up testing of the fire system as required by local fire codes. Subsequent testing of the fire system for a period of one year after start-up shall be included as part of this contract.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #58 CONVECTION OVEN
Quantity: Two (2)
Manufacturer: Garland / Blodgett / Vulcan
Model: DFG-200 DBL

Solid state thermostat
Mechanical timer
Stainless steel draft diverter
4 ¼" low profile swivel casters with polyurethane tires and front locking brakes
Stainless steel solid back panel
Stainless steel solid doors with view window
Gas manifold
Gas pressure regulator
Dormont 1675KITCF2S48 Gas hose kit
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #59 HEAVY DUTY RANGE
Quantity: One (1)
Manufacturer: Garland / Vulcan / Impererial
Model: M43R
Options: 3/4" Rear gas connection, including "Tee" in manifold, end cap & cover
Stainless steel main back
Swivel Casters, with Polyurethane wheels (non-marking)
M34SD Single High Shelf
Gas pressure regulator
Dormont 1675KITCF2S-48 gas hose kit
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #60 WORK TABLE, STAINLESS STEEL TOP W/ PREP SINK
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T30144SE
Options: E36A Welded base
E59 Undershelf upgrade
E24A Sink bowl, weld in
341189 Twist handle drain
-TB bracket
351585 Sink cover
E47 Sink cover holder
YCORSI-502971-MOD Drawer (2)
E41A Disposal provision package

ITEM #61 HEATED CABINET, PASS THRU
Quantity: Five (5)
Manufacturer: Continental / Victory / True

Model:	DL1WE-SS-PT
Options:	Stainless steel interior (5) Stainless steel exterior (5) • Door hinged on right, control side (2 most southern boxes on FS 1.1) • Door hinged on left, rear side (2 most southern boxes on FS 1.1) • Door hinged on left, control side, Door hinged on right, rear side (second box down from north on FS 1.1) • Door hinged on right, control side, door hinged on right, rear side (northern most box on FS 1.1) • Door hinged on left, control side, door hinged on left, rear side (box on FS 1.2) Exterior mounted digital thermometer (5) Swivel casters with polyurethane tires and front locking brakes (5 sets) Plug and cord set (5) 50-P008A-E Pan slide assembly (5)
ITEM #62	REFRIGERATOR, PASS THRU
Quantity:	Five (5)
Manufacturer:	Continental / Victory / True
Model:	1RENPT
Options:	Stainless steel interior (5) Stainless steel exterior (5) • Door hinged on right, control side (2 most southern boxes on FS 1.1) • Door hinged on left, rear side (2 most southern boxes on FS 1.1) • Door hinged on left, control side, Door hinged on right, rear side (second box down from north on FS 1.1) • Door hinged on right, control side, door hinged on right, rear side (northern most box on FS 1.1) • Door hinged on left, control side, door hinged on right, rear side (box on FS 1.2) Exterior mounted digital thermometer (5) Swivel casters with polyurethane tires and front locking brakes (5 sets) Plug and cord set (5) 50-P008A-E Pan slide assembly (5)
ITEM #63	HYDROVECTION OVEN
Quantity:	One (1)
Manufacturer:	Blodgett / Garland / Vulcan
Model:	HV-100G ADDL Stainless steel front, top sides and back Natural gas 58412 Platinum Professional Installation Side heat shield, per section Water pressure regulator (per section) Multi-purpose fry pan Gas pressure regulator Stacking kit included, stack onto #X-02

Sup Info: Dormont 1675KITCF2S48 Gas hose kit
W75BP48 Water hose connector kit
Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #64 SHELF, MOP
Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: US0824-16/3
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

ITEM #65 MOP SINK
Quantity: () Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: F1916
Options: 321561 Mop broom holder (2)
312690 Service faucet (2)
503096 Splash kit (2)
Sup Info: All seams sealed with General Electric or equivalent silicone sealer.

ITEM #66 WORK TABLE, STAINLESS STEEL TOP
Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T3084SE-BS
Options: E36A Welded base (2)
E59 Undershelf upgrade (2)
YCORSI-502971-MOD Drawer (2)

ITEM #67 REACH-IN REFRIGERATOR
Quantity: One (1)
Manufacturer: Continental / True / Victory
Model: 1RNSS
Options: Stainless steel interior
Stainless steel exterior
Stainless steel case back
Door hinged on left
Exterior mounted digital thermometer
Automatic condensate evaporator
Swivel casters with polyurethane tires and front locking brakes
Plug and cord set
50-P008A Pan slide assembly
Three (3) additional shelves on bottom section

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

ITEM #68 P.O.S. SYSTEM
Quantity: Five (5)
Sup Info: Not in Foodservice Equipment contract, furnished by the Owner.

ITEM #69 CASHIER COUNTER
Quantity: Four (4)
Manufacturer: Duke/ Multiteria / Delfield
Model: TCS-30SS
Options: Owner/Architect to select laminate finish (4)
 Custom size 60”W
 CS-DR-LK Stainless steel drawer with lock (4)
 SOLID-HD-2OC Tray slide, opposite cashier (4)
 MOD-2S-2OC Kickplate, opposite cashier (4)

ITEM #70 MILK COOLER
Quantity: Four (4)
Manufacturer: Beverage Air / Continental / True
Model: NC28-1-W

ITEM #71 SOLID TOP UNIT
Quantity: Eight (8)
Manufacturer: Duke/ Multiteria / Delfield
Model: TST-32SS
Options: Owner/Architect to select laminate finish (8)
 SOLID-HD-2CU Tray slide, customer side (8)
 MOD-2S-2CU Kick plate, customer side (8)

ITEM #72 DROP-IN, HOT/COLD/FREEZE
Quantity: One (1)
Manufacturer: Duke/ Multiteria / Delfield
Model: HCF-4
Options: HCF-4-120 120v/60/1-ph, 21.0 amps, NEMA 5L-30P
 Fill faucet

ITEM #73 TRIANGLE CORNER UNIT
Quantity: Four (4)
Manufacturer: Duke/ Multiteria / Delfield
Model: TTU-90SS
Options: Owner/Architect to select laminate finish (4)

ITEM #74 FOOD WASTE DISPOSER
Quantity: One (1)
Manufacturer: Salvajor / In-sinkerator / Red Goat
Model: 300-SA-3-ARSS-LD
Options: 980105 Mounting bracket
 DP Dejamming prong
 SLE6SS Seismic flange for leg support

Sup Info: Foodservice Equipment Contractor shall furnish and install interconnecting piping and all components or parts as required by disposer manufacturer or as supplied as part of disposer in accordance with the manufacturer instructions.

Foodservice Equipment Contractor shall furnish and install all interconnecting wiring as required between disposer motor and control device.

Mount to control panel to wall or mounting bracket with stainless steel mounting hardware of proper type for application.

Construction Trade shall reinforce wall as required to support weight of control panel while in use.

ITEM #75 DROP-IN, HOT/COLD/FREEZE
Quantity: Eight (8)
Manufacturer: Duke/ Multiteria / Delfield
Model: HCF-3
Options: HCF-3-120 120v/60/1-ph, 16.0 amps, NEMA 5-20P (8)
Fill Faucet (8)

ITEM #76 WALK-IN COOLER/FREEZER COMBINATION
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: Size and shape per plan
Construction: Furnish and erect two (2) compartment sectional urethane insulated walk-in cooler assembly.

Walk-in assembly shall bear the UL label and NSF and Factory Mutual seals and meet 2015 Federal Regulations.

Ceiling and wall panels shall be constructed of 4" thick urethane insulation, assembly to be accomplished by the use of integral cam type locking device secured in place during the foaming process. Seams between panels shall be fully insulated with vinyl foamed-in-place gasket material.

Ceiling and wall panels shall be finished of 18 gauge embossed aluminum on interior and exterior surfaces.

Walk-in assembly shall be provided with 1/8" thick aluminum diamond tread plate floor with NSF approved coved corners, insulated with 4" thick urethane insulation and reinforced with 3/4" thick 5-7 ply marine grade plywood underlayment. Floor installation shall be in accordance with manufacturer's recommended practice and shall sit in a depression. Building floor finish shall be flush and smooth to allow a level installation.

Construction Trade shall furnish and install floor depression and finished floor within walk-in assembly. Pitch floor within walk-in towards entrance door at 1/8" per foot minimum.

Walk-in assembly shall be furnished with in-fitting type door and frame assemblies constructed of 16 gauge stainless steel provided with three self-closing cam action chrome plated hinge assemblies, handles and hardware.

Provide each door with 2" dial type flush mount thermometer with chrome plated bezel mounted in door frame.

Provide each door with triple pane observation and 36" high x 1/8" thick aluminum diamond tread kick plates on both interior and exterior side.

Provide each door with UL listed vapor-proof LED light fixture complete with glass globe, toggle switch and pilot light and full perimeter frame condensation heater.

Provide eight (8) additional UL listed vapor-proof LED ceiling mounted light fixtures (four in each compartment) complete with stainless steel mounting hardware.

Food Service Equipment Contractor shall install ceiling mounted light fixtures and furnish materials and inter-wire light fixtures and switch.

Walk-in freezer assembly shall be furnished with heated pressure relief port.

Furnish and install 18 gauge embossed aluminum vertical trim angles and ceiling closure panels.

Furnish and install entire refrigeration system complete with hermetic condensing units and insulated copper refrigeration lines charged with R448A refrigerant. Each condensing unit shall be interconnected to a low profile, high velocity evaporator coil in each walk-in compartment. Refrigeration system shall include all fittings, valves, switches, controls and all related components to comprise a complete operating unit of sufficient BTU capacity to maintain automatic operation of 35 degree F product temperature in cooler and -10 degree F product temperature in freezer.

Refrigeration system shall be provided with outdoor remote air cooled condensing units located outdoors on building roof.

Condensing units shall be provided with winterized controls (low ambient package) including crankcase heater, line dryer, head pressure control, and galvanized steel stand with stainless steel weather hood.

Provide all hangers and brackets as required to install refrigeration lines.

Construction Trade shall furnish all sleeves and openings through walls for passage of refrigeration lines.

Roofing Trade shall provide waterproof roof opening for passage of refrigeration lines.

Foodservice Equipment Contractor shall furnish materials and inter-wire defrost time clock circuit for walk-in freezer, from condensing unit to evaporator coil.

Foodservice Equipment Contractor shall furnish materials and install (wrap and insulate with foam pipe insulation) heat tracing tape to evaporator coil condensate line in walk-in freezer.

Food Service Equipment Contractor shall furnish and install copper tubing and extend evaporator coil condensate line to floor receptacle.

Set and adjust all temperature and defrost cycles.

Provide start-up and two year material and labor warranty on entire refrigeration system and five years manufacturer's warranty on compressor.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #77 EVAPORATOR, WALK-IN COOLER
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: BEL0115BS6AM
Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #78 CONDENSING UNIT, WALK-IN COOLER
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: FFAP-A20Z-TFC-075
Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #79 EVAPORATOR, WALK-IN FREEZER
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: BEL0130BS6EE
Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #80 CONDENSING UNIT, WALK-IN FREEZER
Quantity: One (1)
Manufacturer: American Panel / Norbec / Arctic
Model: FFAL-A30Z-TFC-075
Remarks: Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #81 WORK TABLE, STAINLESS STEEL TOP W/ PREP SINK
Quantity: One (1)

Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T30144STE
Options: E36A Welded base
E22 Sink bowl, weld in
341189 Twist handle drain
-TB bracket
351585 Sink cover
E47 Sink cover holder
YCORSI-502971-MOD Drawer
DOS10132-14/3 Double overshef

ITEM #82 WORK TABLE, STAINLESS STEEL TOP
Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T3054SE
Options: E36A Welded base (2)
E59 Undershelf upgrade (2)
DOS1048-14/3 Double overshef (2)

ITEM #83 EXHAUST HOOD
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape as per plan
Construction: Furnish and install exhaust hood with integral plenum box make-air system.

Entire exhaust ventilation system shall be constructed in compliance with UL, NSF, NFPA, IMC 2018 (including automatic start-up of the exhaust and supply ventilation upon activation of any cooking appliance) and any prevailing statutes and codes.

Hood shall be 20'-11" long constructed in two sections of 18 gauge 304 stainless steel with all seams continuously welded, ground smooth and polished. First section is 10', second section is 10'-11". Hood mounted utility cabinet is 1'. Provide a full compliment of stainless steel "high efficiency" Captrate Solo baffle type grease extractors.

Furnish remote bulb thermostat with watertight hardware and install in either the exhaust plenum of the hood or in the exhaust duct. Provide NEMA 3 control panel box with hinged front cover complete with supply and exhaust fan contactors wired to an adjustable thermostat control, field wiring terminal strip and on-off switch.

Provide 18 gauge 304 stainless steel supply and exhaust duct collar.

Provide 18 gauge 304 stainless steel insulated supply air plenum box assembly with internal air volume control damper integral along the face of the hood. Mount in finished ceiling along face of hood and furnish full length stainless steel perforated removable panels for discharge of supply air along entire face of hood.

Provide stainless steel threaded hanger rods complete with stainless steel mounting hardware for securing to structural ceiling.

Mechanical (HVAC) Trade shall furnish and install a complete exhaust air handling system including exhaust fan and controller, fan start-stop switch with status lights, 16 gauge insulated welded ductwork from exhaust collar on exhaust hood to fan, hinged roof curb with grease trough and removable grease container.

Mechanical (HVAC) Trade shall install exhaust hood heat detector(s) in exhaust hoods with multiple exhaust collars in the exhaust duct just after the point of the pant leg juncture; this includes punching of the required hole in the duct and installation of the heat detector and fitting.

Mechanical (HVAC) Trade shall furnish and install a complete supply air handling system including supply fan and controller (with maintainable filter system) and supply air heater with thermostat control (to temper incoming supply air below 65 degree F ambient), fan start-stop switch with indicator lights, galvanized steel ductwork from supply collar on exhaust hood to fan and roof curb.

Electrical Trade shall furnish and install interconnecting wiring between fan motors, controllers and switches.

Electrical Trade shall furnish and install inter-wiring of cooking appliance start-up inter-lock device and the supply and exhaust ventilation system and wire per the manufacturer's instructions and per applicable codes.

Furnish four (4) UL listed vapor-proof recessed LED light fixtures wired to a common on-off switch with stainless steel cover plate located in hood mounted utility cabinet.

Electrical Trade shall furnish materials and inter-wire light fixtures to hood mounted utility cabinet.

Mechanical (HVAC) Trade shall furnish and install INVERTER DUTY THREE PHASE exhaust fan and controller.

Mechanical (HVAC) Trade shall furnish fans set compatible with variable frequency drive specification.

Electrical Trade shall furnish and install Interconnecting wiring of the system between the exhaust hood sensors, remote frequency drive unit and exhaust and supply fan motors.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Furnish and install 18 gauge 304 stainless steel wall panels extending from the bottom of the rear of the exhaust hood to the upper edge of the baseboard molding and extending along the full length of all wall surfaces. Wall panel sections shall be fitted with ½" wide off-set seams at intermediate joints to allow panel sections to fit tightly against the wall and to result in watertight seams. Secure wall panels to building wall with wall panel adhesive of proper type for wall construction. Seal end seams with General Electric or equivalent clear silicone sealer.

Electrical Trade shall provide the inter-wiring between the control enclosure, fire system, supply and exhaust fans and variable frequency drives and duct riser temperature switch.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #83.1

HOOD CONTROL PANEL

Quantity:

One (1)

Manufacturer:

Captive Aire / Caddy / Avtec

Model:

Size and shape per plan

Sup Info:

Furnish 18 gauge stainless steel utility and fire system enclosure cabinet with hinged access doors for both hood and fire system controls and fire suppression tanks. System shall be listed by ETL (UL 508A) NSF, NFPA, IMC 2018 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17-27. Cabinet may be freestanding wall type or integral with exhaust hood as shown on the contract drawings. Furnish stainless steel mounting hardware of proper type for wall construction for wall mounted cabinet.

Furnish and install variable volume motor control center with variable frequency drive, input / output processor and keypad enclosed within a stainless steel utility cabinet for remote mounting. System shall include, but not be limited to, electronic variable volume motor starters with thermal overload, input / output processors, control keypad, temperature and optic sensors and plug and play cables. Temperature sensor shall be mounted in the exhaust duct collar; optic sensor shall be mounted inside the ends of the hood with air purge units mounted on top.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #83.2

FIRE PROTECTION SYSTEM

Quantity:

One (1)

Manufacturer:

Captive Aire

Model:

TANK

Sup Info:

Furnish and install in exhaust hood, plenum and surface fire protection system.

TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solutionextinguishing system.

TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300,UL1254, ULCORD-C1254.6.

Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ULC-S527-11.

TANK Fire Suppression System intended for installation and for use in accordance with the National Fire Protection Association Standards:

7. Wet Chemical Extinguishing Systems, NFPA 17A
8. National Electrical Code, NFPA 70
9. National Fire Alarm & Signaling Code, NFPA 72

New York City and FDNY approved under COA# 5870.

California State Fire Marshal (CFSM), Listing No. 7085-2199:0502.

A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system for protection of all hazard areas associated with cooking operations, including exhaust hoods, plenums, ductwork, and cooking appliances.

Exhaust hood fire system components to be factory installed.

Cylinder and Valve Assembly

47. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.
48. Wet chemical agent shall be contained in one or more stored pressure DOT/TC rated steel cylinder and valve assemblies.
49. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIG at 70°F.

Distribution Nozzles

50. Nozzles shall be located to protect the exhaust ducts, plenums, and all cooking appliances requiring protection.
51. All nozzles shall be equipped with a metal blow off cap. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing agent to flow to the protected hazard area.
52. All nozzles shall incorporate a stamped part number to easily identify nozzle type.

Distribution System

53. The distribution system shall consist of Copper, Schedule 40 black iron, chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.
54. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

Suppression System

55. The system control equipment shall be capable of all functions associated with

automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.

- 56. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).
- 57. All mechanical components of the actuator kit shall be enclosed.
- 58. The actuator kit shall be capable of automatic or manual activation means.
- 59. Supervisory Pressure Switch added to monitor operating system pressure.
- 60. For manual activation, an electrically operated manual release shall be used to actuate the system manually.
- 61. For automatic activation, the system will be activated by a Firestat (heat) detector.

Electrical

- 62. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.
- 63. Printed circuit board with microprocessor-based controller that provides all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.
- 64. Independent supervised loops incorporate redundancy and fault detection.
- 65. Real-time cloud-based monitoring connection provided with system by ownership.
- 66. Primary power supply, with battery backup for power loss.
- 67. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction (AHJ).
- 68. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.
- 69. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

As part of this item, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

Inter-wiring of the fire system to the exhaust hood shall be furnished and installed by the Electrical Trade.

Provide as part of fire system, electrically operated gas supply line shut-off valve (two required for "loop" gas service) to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas

flow to pilot devices on appliances prior to restart.

Provide one remote manual pull station to actuate fire system in the event of a fire.

Plumbing Trade shall install gas shut-off valve(s) in gas supply line.

Electrical Trade shall inter-wire gas shut-off valve(s) to fire system.

Electrical Trade shall furnish and install electric shunt-trip circuit breakers or electric shut-off contactors to interrupt electric power to all electrically operated cooking appliances.

Provide dry contacts in fire system to interface with building fire alarm system as required, electrical tie-in shall be the responsibility of the Electrical Trade.

Provide as part of fire system, start-up testing of the fire system as required by local fire codes. Subsequent testing of the fire system for a period of one year after start-up shall be included as part of this contract.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #84	OVEN, DECK TYPE
Quantity:	One (1)
Manufacturer:	Doyon / Revent / Baxter
Model:	2T2
Options:	Built as modular, per deck High: 8" high interior, for bottom deck High: 8" high interior, for top deck 1" refractory stone deck, standard ARTISANBRUSH Cleaning brush
ITEM #85	WORK TABLE, STAINLESS STEEL
Quantity:	One (1)

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T30144SE
Options: E36A Welded base
E59 Undershelf upgrade
YCORSI-502971-MOD Drawer (3)

ITEM #86 SHELF, WALL MOUNT
Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: WSP1284-14/3
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

ITEM #87 POT RACK, WALL MOUNT
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: WM72PR
Sup Info: Includes (12) double pronged pot hooks.

Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

ITEM #88 THREE COMPARTMENT SINK
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: FN2860-3-30-14/3
Options: 313296 Pre-rinse faucet
313297 Add-a-faucet
301190 Pre-rinse wall bracket
313294 Splash mount faucet
341189 Twist handle drain (3)
-TB Twist bracket (3)
326271 Sink cover (3)
E47 Sink cover holder
E41A Disposal provision package

ITEM #89 POT RACK, WALL MOUNT
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: WM36PR
Sup Info: Includes (6) double pronged pot hooks.

Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

ITEM #90	EXHAUST HOOD
Quantity:	One (1)
Manufacturer:	Captive Aire / Caddy / Avtec
Model:	Size and shape as per plan
Construction:	Furnish and install exhaust hood with integral plenum box make-air system.

Entire exhaust ventilation system shall be constructed in compliance with UL, NSF, NFPA, IMC 2018 (including automatic start-up of the exhaust and supply ventilation upon activation of any cooking appliance) and any prevailing statutes and codes.

Hood shall be 9'-6" long constructed in one equal sections of 18 gauge 304 stainless steel with all seams continuously welded, ground smooth and polished. Hood mounted utility cabinet is 1'. Provide a full compliment of stainless steel "high efficiency" Captrate Solo baffle type grease extractors.

Furnish remote bulb thermostat with watertight hardware and install in either the exhaust plenum of the hood or in the exhaust duct. Provide NEMA 3 control panel box with hinged front cover complete with supply and exhaust fan contactors wired to an adjustable thermostat control, field wiring terminal strip and on-off switch.

Provide 18 gauge 304 stainless steel supply and exhaust duct collar.

Provide 18 gauge 304 stainless steel insulated supply air plenum box assembly with internal air volume control damper integral along the face of the hood. Mount in finished ceiling along face of hood and furnish full length stainless steel perforated removable panels for discharge of supply air along entire face of hood.

Provide stainless steel threaded hanger rods complete with stainless steel mounting hardware for securing to structural ceiling.

Mechanical (HVAC) Trade shall furnish and install a complete exhaust air handling system including exhaust fan and controller, fan start-stop switch with status lights, 16 gauge insulated welded ductwork from exhaust collar on exhaust hood to fan, hinged roof curb with grease trough and removable grease container.

Mechanical (HVAC) Trade shall install exhaust hood heat detector(s) in exhaust hoods with multiple exhaust collars in the exhaust duct just after the point of the pant leg juncture; this includes punching of the required hole in the duct and installation of the heat detector and fitting.

Mechanical (HVAC) Trade shall furnish and install a complete supply air handling system including supply fan and controller (with maintainable filter system) and supply air heater with thermostat control (to temper incoming supply air below 65 degree F ambient), fan start-stop switch with indicator lights, galvanized steel ductwork from supply collar on exhaust hood to fan and roof curb.

Electrical Trade shall furnish and install interconnecting wiring between fan motors, controllers and switches.

Electrical Trade shall furnish and install inter-wiring of cooking appliance start-up inter-lock device and the supply and exhaust ventilation system and wire per the manufacturer's instructions and per applicable codes.

Furnish three (3) UL listed vapor-proof recessed LED light fixtures wired to a common on-off switch with stainless steel cover plate located in hood mounted utility cabinet.

Electrical Trade shall furnish materials and inter-wire light fixtures to hood mounted utility cabinet.

Mechanical (HVAC) Trade shall furnish and install INVERTER DUTY THREE PHASE exhaust fan and controller.

Mechanical (HVAC) Trade shall furnish fans set compatible with variable frequency drive specification.

Electrical Trade shall furnish and install Interconnecting wiring of the system between the exhaust hood sensors, remote frequency drive unit and exhaust and supply fan motors.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Furnish and install 18 gauge 304 stainless steel wall panels extending from the bottom of the rear of the exhaust hood to the upper edge of the baseboard molding and extending along the full length of all wall surfaces. Wall panel sections shall be fitted with ½" wide off-set seams at intermediate joints to allow panel sections to fit tightly against the wall and to result in watertight seams. Secure wall panels to building wall with wall panel adhesive of proper type for wall construction. Seal end seams with General Electric or equivalent clear silicone sealer.

Electrical Trade shall provide the inter-wiring between the control enclosure, fire system, supply and exhaust fans and variable frequency drives and duct riser temperature switch.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #90.1	HOOD CONTROL PANEL
Quantity:	One (1)
Manufacturer:	Captive Aire / Caddy / Avtec
Model:	Size and shape per plan

Sup Info: Furnish 18 gauge stainless steel utility and fire system enclosure cabinet with hinged access doors for both hood and fire system controls and fire suppression tanks. System shall be listed by ETL (UL 508A) NSF, NFPA, IMC 2018 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17-27. Cabinet may be freestanding wall type or integral with exhaust hood as shown on the contract drawings. Furnish stainless steel mounting hardware of proper type for wall construction for wall mounted cabinet.

Furnish and install variable volume motor control center with variable frequency drive, input / output processor and keypad enclosed within a stainless steel utility cabinet for remote mounting. System shall include, but not be limited to, electronic variable volume motor starters with thermal overload, input / output processors, control keypad, temperature and optic sensors and plug and play cables. Temperature sensor shall be mounted in the exhaust duct collar; optic sensor shall be mounted inside the ends of the hood with air purge units mounted on top.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #90.2

FIRE PROTECTION SYSTEM

Quantity:

One (1)

Manufacturer:

Captive Aire

Model:

TANK

Sup Info:

Furnish and install in exhaust hood, plenum and surface fire protection system.

TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solutionextinguishing system.

TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300,UL1254, ULCORD-C1254.6.

Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ULC-S527-11.

TANK Fire Suppression System intended for installation and for use in accordance withthe National Fire Protection Association Standards:

10. Wet Chemical Extinguishing Systems, NFPA 17A

11. National Electrical Code, NFPA 70

12. National Fire Alarm & Signaling Code, NFPA 72

New York City and FDNY approved under COA# 5870.

California State Fire Marshal (CFSM), Listing No. 7085-2199:0502.

A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system forprotection of all hazard areas associated with cooking operations, including

exhaust hoods, plenums, ductwork, and cooking appliances.

Exhaust hood fire system components to be factory installed.

Cylinder and Valve Assembly

70. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.

71. Wet chemical agent shall be contained in one or more stored pressure DOT/TC rated steel cylinder and valve assemblies.

72. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIG at 70°F.

Distribution Nozzles

73. Nozzles shall be located to protect the exhaust ducts, plenums, and all cooking appliances requiring protection.

74. All nozzles shall be equipped with a metal blow off cap. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing agent to flow to the protected hazard area.

75. All nozzles shall incorporate a stamped part number to easily identify nozzle type.

Distribution System

76. The distribution system shall consist of Copper, Schedule 40 black iron, chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.

77. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

Suppression System

78. The system control equipment shall be capable of all functions associated with automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.

79. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).

80. All mechanical components of the actuator kit shall be enclosed.

81. The actuator kit shall be capable of automatic or manual activation means.

82. Supervisory Pressure Switch added to monitor operating system pressure.

83. For manual activation, an electrically operated manual release shall be used to actuate the system manually.

84. For automatic activation, the system will be activated by a Firestat (heat) detector.

Electrical

85. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.

86. Printed circuit board with microprocessor-based controller that provides

all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.

87. Independent supervised loops incorporate redundancy and fault detection.

88. Real-time cloud-based monitoring connection provided with system by ownership.

89. Primary power supply, with battery backup for power loss.

90. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction(AHJ).

91. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.

92. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

As part of this item, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

Inter-wiring of the fire system to the exhaust hood shall be furnished and installed by the Electrical Trade.

Provide as part of fire system, electrically operated gas supply line shut-off valve (two required for "loop" gas service) to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide one remote manual pull station to actuate fire system in the event of a fire.

Plumbing Trade shall install gas shut-off valve(s) in gas supply line.

Electrical Trade shall inter-wire gas shut-off valve(s) to fire system.

Electrical Trade shall furnish and install electric shunt-trip circuit breakers or electric shut-off contactors to interrupt electric power to all electrically operated cooking appliances.

Provide dry contacts in fire system to interface with building fire alarm system as required, electrical tie-in shall be the responsibility of the Electrical Trade.

Provide as part of fire system, start-up testing of the fire system as required by local

fire codes. Subsequent testing of the fire system for a period of one year after start-up shall be included as part of this contract.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #91	FRYER
Quantity:	One (1)
Manufacturer:	Frymaster / Pitco / Vulcan
Model:	FPPH255
Options:	8030002 Filter powder 8030170 Filter paper 8239116 Sediment filter screen 8030103 Sediment tray 8030197 Clean-out rod 8236559 Splash shield 8030429 Fryer brush 8239416 Frypot cover 8233938 Crumb scoop CM3.5 Controller, standard 6" casters Gas pressure regulator Rear gas manifold FWH-1A French fry warmer and holding station (with heat lamp) Spreader cabinet with cutout in top Holding pan with screen for spreader cabinet Natural gas Dormont 16100KITCF2S-48 gas hose kit
Sup Info:	Foodservice Equipment Contractor shall install disconnect at wall and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #92	GRIDDLE, COUNTERTOP
Quantity:	One (1)
Manufacturer:	Garland / Vulcan / Imperial

Model: GTGG36-GT36M
Options: Gas pressure regulator
Dormont 1675KITCF2S48 Gas hose kit
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #93 REFRIGERATED EQUIPMENT STAND
Quantity: One (1)
Manufacturer: Continental / Victory / True
Model: D36GN
Options: Flat top
Stainless steel interior
Stainless steel exterior
Stainless steel case back
Exterior mounted digital thermometer
Automatic condensate evaporator
Swivel casters with polyurethane tires and front locking brakes
Plug and cord set

ITEM #94 FOUR OPEN BURNER RANGE
Quantity: Two (2)
Manufacturer: Garland / Vulcan / Imperial
Model: G24-4L
Options: Stainless steel sides (2)
Stainless steel back (2)
Rear gas connection (2)
Stainless steel manifold covers (2)
Manifold end caps (2)
Swivel casters with polyurethane tires and front locking brakes (2 sets)
Gas pressure regulator (2)
Dormont 1675KIT48PS gas hose kit (2)
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #95 COMBI-OVEN
Quantity: Two (2)
Manufacturer: Alto-Shaam / Convotherm / Angelo Po
Model: CTP7-20G OVER CTP7-20G
Options: 5021522 Installation kit (2)
Natural gas (4)
Removeable single-point temperature probe (4)
Doors hinged right, standard (2)

	COMBILQUICLEAN Automatic liquid cleaning system (2) CE-36457 Liquid cleaner (2) CE-27889 Deliming product (2) BH-38059 Cleanoutbrush (2) SC-47403 Oven scraper (2) BS-26730 Fry basket (4) 5016707 Stacking hardware (2) 5017391 Mobile stacking base (2) Gas pressure regulator (4) 5015711 Mobile oven stand (2) 1675KITCF2S48PS Dormont gas hose kit (4) W50BP2Q48 Dormont water hose kit (8)
Sup Info:	Kitchen Equipment Contractor shall install disconnect at wall and to cooking appliance per manufacturer's instructions. Kitchen Equipment Contractor shall provide and secure restraining cable between wall and equipment.
ITEM #96	FLOOR TROUGH
Quantity:	One (1)
Manufacturer:	Eagle Group / John Boos / Advance Tabco
Model:	ASFT-2430-SG
Sup Info:	Construction Trade shall provide floor recess and install floor pan in recess flush with adjacent kitchen floor in a watertight manner.
ITEM #97	REFRIGERATOR, UNDERCOUNTER
Quantity:	One (1)
Manufacturer:	Continental / Victory / True
Model:	SW60N24M-FB
Options:	Stainless steel interior Stainless steel exterior Stainless steel case back Field reversible doors Exterior mounted digital thermometer Automatic condensate evaporator Swivel casters with polyurethane tires and front locking brakes Plug and cord set
ITEM #98	CHEF'S COUNTER
Quantity:	One (1)
Manufacturer:	Eagle Group / John Boos / Advance Tabco
Model:	Custom
Construction:	Furnish and install chef's counter assembly with 14 gauge stainless steel top with 2" diameter rolled edges with bullnosed corners. Counter base shall be fabricated of 18 gauge stainless steel wrap around type construction. Provide stainless steel fully welded channel frame around the entire perimeter of the counter top with intermediate cross bracing extending front to rear on cen-

ters not to exceed 24" to support top. Provide interior of counter base with solid fixed open bottom and intermediate shelves constructed of 16 gauge stainless steel unless specified otherwise. The front edge of each shelf shall be turned down 2" at 90 degrees and returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" high on a 90 degree angle, interior corners coved on 3/4" radius.

Sink section shall be furnished with one 12" x 15" x 8" deep stainless steel sink fabricated of 14 gauge stainless steel with all interior corners coved on a 3/4" radius, both horizontally and vertically, forming spherical corners. Sink shall be fabricated as an integral part of fixture with sink fully welded with adjacent top, welds ground smooth and polished.

Provide and install Component Hardware E38-1012 basket type drain assembly with stainless steel crumb cup stopper.

Punch top and provide T&S Brass & Bronze Works B-222 faucet with aerator.

Provide counter base below sink with 18 gauge stainless steel hinged apron. Below apron provide 16 gauge stainless steel double pan hinged access door with stainless steel recessed handle. Base below sink shall have bottom and rear open for passage of plumbing lines.

Chefs counter shall be provided with open plate storage cabinet along counter front. Plate cabinet shelves shall be fixed bottom and intermediate fabricated of 18 gauge stainless steel. Front edge shall be turned down 1-1/2" at 90 degrees, returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" at 90 degrees with interior corners coved on a 1/2" radius. Shelf shall be weld anchored to cabinet body. Bottom shelf shall be fabricated flush with front mullions with fully welded facing junctures presenting seamless construction. Fixed intermediate shelves shall be designed similar to bottom shelf except front edge shall be set behind vertical mullions and fully welded thereto. Top of plate storage cabinet shall be 34" high overall with top of chefs counter turned down 2" at 90 degrees into top of plate storage cabinet.

Provide full length 16" wide two tier overself constructed of 18 gauge stainless steel with 1-1/2" diameter rolled edges with bullnose corners. Lower shelf shall be 16" above table surface, upper shelf shall be 12" above lower shelf. Shelf shall be mounted on 1-1/4" diameter 16 gauge stainless steel tubular uprights, fully welded, ground smooth and polished to equipment top. Along bottom of shelf, uprights shall be fully welded to 1" X 4" X 1"; 14 gauge stainless steel "hat" type mounting channels. Tack weld mounting channel front to rear along underside of shelf on centers not to exceed 48". Provide longitudinal reinforcing channels constructed identical to mounting channels, weld to same and extend full length along center of shelf between mounting channels. Furnish and factory install to underside of upper shelf, Hatco GRH infra-red heat lamps with built-in infinite control and pilot light.

Provide provisions for Item #72 drop-in hot/cold/freezer.

Provide provisions for Item #97 refrigerated sandwich unit.

Provide provisions for Item #138 heat lamp.

Provide working side of cabinet base with stainless steel NEMA 4 electrical panel box with main and individual circuit breakers for all related electrical appliances and components. The panel box shall be provided with shunt-trip circuit breakers for all electrically operated cooking appliances. All appliances and components to be furnished as built-in equipment as part of the counter shall be factory installed per the manufacturers instructions, all electrical wiring and components shall conform to UL and shall be installed in accordance with the National Electric Code. The entire counter assembly shall bear the UL seal.

Mount counter assembly on 12 gauge stainless steel triangular leg gusset mounting channels on centers not to exceed 48" in length and fully welded to the cabinet body. Mount counter assembly on 6" high 1 5/8" diameter 16 gauge stainless steel tubular legs with stainless steel adjustable bullet feet fully weld legs to mounting gussets.

ITEM #99 ICE BIN
Quantity: One (1)
Manufacturer: Follet / Hoshizaki / Manitowoc
Model: DEV1080SG-60
Options: ABICEPADDL46 Ice paddle
 00146365 Guardian scoop system

ITEM #100 ICE MAKER
Quantity: One (1)
Manufacturer: Hoshizaki / Manitowoc / Ice-O-Matic
Model: KM-1100MAH

ITEM #100F ICE MAKER WATER FILTER
Quantity: One (1)
Manufacturer: Everpure / 3M / Optipure
Model: QC7I TWIN 7FC5-S
 EV969371 Replacement cartridge
Sup Info: Foodservice Equipment Contractor shall install ice maker filter system in water supply line and furnish and install interconnecting piping between water filter and ice maker water inlet.

ITEM #101 WORK TABLE, STAINLESS STEEL TOP W/ DOUBLE PREP SINK
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T3084S-BS
Options: E36A Welded base
 E59 Undershelf upgrade
 E22 Sink bowl, weld in (2)
 341189 Twist handle drain (2)
 -TB bracket (2)
 351585 Sink cover (2)

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

E47 Sink cover holder
YCORSI-502971-MOD Drawer

ITEM #102 ICE CADDY
Quantity: One (1)
Manufacturer: Cambro / Carlisle
Model: ICS125L110

ITEM #103 SODA SYSTEM
Quantity: One (1)
Sup Info: Not in Foodservice Equipment contract, furnished by the Owner.

ITEM #104 SODA/ICE DISPENSER
Quantity: One (1)
Sup Info: Not in Foodservice Equipment contract, furnished by the Owner.

ITEM #105 WORK TABLE, STAINLESS STEEL TOP W/ DOUBLE PREP SINK
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: BEV30120SE-10BS/L

ITEM #106 TEA BREWER
Quantity: One (1)
Manufacturer: Bunn-O-Matic
Model: 36700.0009
Options: 34100.0002 Dispenser

ITEM #106F TEA BREWER WATER FILTER
Quantity: One (1)
Manufacturer: Everpure / 3M / Optipure
Model: QC7I SINGLE 4FC-S
 EV969231 Replacement cartridge (primary filter)
Sup Info: Foodservice Equipment Contractor shall install tea brewer filter system in water supply line and furnish and install interconnecting piping between water filter and tea brewer water inlet.

ITEM #107 COFFEE BREWER
Quantity: One (1)
Manufacturer: Bunn-O-Matic
Model: 39200.0000
Options: 39400.0001 Thermal server

ITEM #107F COFFEE BREWER WATER FILTER
Quantity: One (1)
Manufacturer: Everpure / 3M / Optipure
Model: QC7I SINGLE 7FC5-S
 EV969371 Replacement cartridge (primary filter)
 EV953426 Replacement cartridge (prefilter)

Sup Info: Foodservice Equipment Contractor shall install tea brewer filter system in water supply line and furnish and install interconnecting piping between water filter and tea brewer water inlet.

ITEM #108 REFRIGERATOR, UNDERCOUNTER
Quantity: Sixteen (16)
Manufacturer: Continental / Victory / True
Model: SW27N-U
Options: Stainless steel interior (16)
Stainless steel exterior (16)
Stainless steel case back (16)
Field reversible doors (16)
Exterior mounted digital thermometer (16)
Automatic condensate evaporator (16)
Swivel casters with polyurethane tires and front locking brakes (16)
Plug and cord set (16)

ITEM #109 CAN RACK
Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: CRC4

ITEM #110 UTILITY DISTRIBUTION SYSTEM
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape per plan
Construction: Furnish and install utility distribution system.

Utility distribution system shall be fabricated in accordance with UL, NSF, NEC, IMC 2015.

Utility distribution system shall be fabricated of a minimum of 18 gauge 304 stainless steel consisting of two utility compartments and fabricated in sections as required with factory pre-assembled field connections and furnished with one primary end riser with single point connection for all utilities and one secondary end riser.

Primary riser shall be furnished with built-in exhaust hood controls, including push button fan control switches with status lights, individual and shunt-trip main circuit breaker and emergency “kill” button with guard.

Provide as part of raceway exhaust hood interlock device to prevent all electrically and gas operated cooking appliances from operating unless the supply and exhaust fans of the exhaust hood is operating as required by all local and prevailing codes including IMC 2015.

Provide raceway with splash proof electrical chase with copper wire-way wired to a circuit breaker panel box with ground fault protection for each appliance in the primary end riser, and UL listed power cords and matching electrical receptacles as re-

quired.

Provide raceway with gas supply (looped) service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance. Provide as part of utility distribution system, mechanically operated gas supply line shut-off valves to interrupt gas supply to all gas operated cooking appliances. Gas valves shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide raceway with hot and cold water service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance.

Provide each riser with ventilator connecting collars for positive connection to the exhaust hood.

Provide secondary end riser with hinged access door for mounting of gas supply line shut-off valve (looped gas service).

Furnish and install labor and material to assemble all internal interconnecting gas piping, water piping and electrical wiring to install the utility distribution system. Test all connections for leaks.

ITEM #111

WORK TABLE, ENCLOSED BASE

Quantity:

Seven (7)

Manufacturer:

Eagle group / John Boos / Advance Tabco

Model:

Size and shape per plan

Construction:

Top shall be fabricated of 14 gauge stainless steel. Exposed edges shall be rolled down 2" diameter at 180 degrees. Provide backsplash along adjoining surfaces with top turned up integrally 6" high on a 3/4" radius at a 90 degree angle, turned back 1" on a 90 degree angle and down 1/2" on a 90 degree angle.

Cabinet body shall be fabricated of 18 gauge stainless steel wrap around construction. The backs of front stiles shall be closed with tight fitting channel sections of 18 gauge stainless steel, welded in place and closed on top and bottom.

Provide sink section(s) with 14" x 16" x 10" deep sink fabricated of 14 gauge stainless steel with all interior corners coved on a 3/4" radius, both horizontally and vertically, forming spherical corners. Sink shall be fabricated as an integral part of fixture with sink fully welded with adjacent top, welds ground smooth and polished. Sinks shall be facing in towards ranges on each side.

Punch top and provide T&S Brass & Bronze Works B-300 double pantry faucet(s) with gooseneck nozzle and aerator.

Furnish and install Component Hardware D50-7215 lever type drain assemblies with connected overflow and stainless steel flat strainer plate.

Provide counter base below sink with stainless steel apron with recess for lever waste

handle. Below apron provide stainless steel, double pan hinged access door with stainless steel recessed handle. Access doors shall be behind the undercounter refrigerators on both sides. Base below sink shall have bottom and rear open for passage of plumbing lines.

Provide provisions for Item #108 undercounter refrigerators on each side of the table, facing opposite of each other.

Provide cutout/provisions for Item #132 2-range burners (qty 4 for each table).

Provide remainder of cabinet base with open fixed bottom and intermediate fabricated shelves fabricated of 18 gauge stainless steel. Front edge shall be turned down 1-1/2" at 90 degrees, returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" at 90 degrees with interior corners coved on a 3/4" radius. Shelf shall be weld anchored to cabinet body. Bottom shelf shall be fabricated flush with front mullions with fully welded facing junctures presenting seamless construction. Fixed intermediate shelves shall be designed similar to bottom shelf except front edge shall be set behind vertical mullions and fully welded thereto.

Mount on counter type stainless steel conical shaped die-formed legs with stainless steel, bullet shaped adjustable foot fully welded to leg mounting channel.

Refer to elevations on FS-1.2 for detail.

ITEM #112	SOILED DISHTABLE
Quantity:	One (1)
Manufacturer:	Eagle Group / John Boos / Advance Tabco
Model:	SDTL-96-14/3
Options	-SRP Dishtable kit, includes scrap basket, rack slide and T&S pre-rinse

ITEM #113	DISHWASHER, CONVEYOR TYPE
Quantity:	One (1)
Manufacturer:	Hobart / Champion / Stero
Model:	CL44EN-ADV4+BUILDUP
Options:	CL44EN-ADVHTE15K Electric tank heat 15kW CL44EN-ADVERH30K 30kW electric booster CL44EN-ADVELE0AX 208v/60/3-ph SGLPT-KIT4-CLE Single point electrical connection HOBINST-SGLPT-CLE Accessory installation CL44EN-ADVHGTSTD Standard height CL44EN-ADVDIR0RL Right to left operation CL44EN-ADVFETSTD Standard feet PRESREG-1/20BR Brass pressure regulator 1/2INSHK-ABSRBR Water shock absorber kit CLE/TBL-SWITCH Table limit switch CLE-Series Exhaust fan activation switch

ITEM #114 CONDENSATE HOOD
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape per plan
Construction: Furnish and install condensate hood.

Entire condensate ventilation system shall be constructed in compliance with UL, NSF and any prevailing statutes and codes.

Fabricate entire hood of 18 gauge 304 stainless steel fully welded watertight construction.

Provide stainless steel welded hanger mounting clips with threaded stainless steel hanger and structural ceiling providing necessary angles and channels and utilizing stainless steel mounting hardware.

Mechanical (HVAC) Trade shall provide stainless steel welded ductwork (horizontal duct runs shall be pitched back toward condensate hood) and fan to comprise a complete condensate exhaust system.

Electrical Trade shall install fan switch with indicator lights located on dish machine and inter-wire to fan.

Furnish and install plastic drain tubing from nipple on bleeder drain outlet to soiled dishtable top surface.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Furnish and install 18 gauge 304 stainless steel wall panels extending from the bottom of the rear of the exhaust hood to the upper edge of the baseboard molding and extending along the full length of all wall surfaces. Wall panel sections shall be fitted with ½" wide off-set seams at intermediate joints to allow panel sections to fit tightly against the wall and to result in watertight seams. Secure wall panels to building wall with wall panel adhesive of proper type for wall construction. Seal end seams with General Electric or equivalent clear silicone sealer.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #115 CLEAN DISHTABLE
Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: CDTR-60-14/3
Options: E120 Table limit switch provision

ITEM #116 HAND SINK, DROP-IN

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: SR10-14-9.5-1
Options: Standard faucet
Faucet hole punched on 4" centers, standard
DP-10 Wall mounted Eagle paper towel and soap dispenser

ITEM #117 WORK TABLE, STAINLESS STEEL TOP

Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: T36144SE
Options: E36A Welded base
E59 Undershelf upgrade
YCORSI-502971-MOD Drawer (3)
DOS10132-14/3 Double overshelf (center)

ITEM #118 AIRPOT

Quantity: Four (4)
Manufacturer: Bunn-O-Matic
Model: 32125.0000

ITEM #119 DISPLAY, NON-REFRIGERATED

Quantity: One (1)
Manufacturer: Equipex / Structural Concepts / Federal
Model: TN583

ITEM #120 FRONT COUNTER

Quantity: One (1)
Manufacturer: Duke / Multiteria / Delfield
Model: Size and shape per plan

Construction: Fabricate counter top of solid surface material. Material shall be fabricated and assembled per manufacturers approved methods utilizing a factory authorized and certified fabricator and installer. The edges of the top shall be formed as indicated. Openings shall have radius corners and shall be reinforced with additional material.

Counter base shall be fabricated of 18 gauge stainless steel wrap around type construction. Provide stainless steel fully welded channel frame around the entire perimeter of the counter top with intermediate cross bracing extending front to rear on centers not to exceed 24" to support top. Provide interior of counter base with solid fixed open bottom and intermediate shelves constructed of 16 gauge stainless steel unless specified otherwise. The front edge of each shelf shall be turned down 2" at 90 degrees and returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" high on a 90 degree angle, interior corners coved on 3/4" radius.

Hinged doors shall be fabricated of 3/4" thick MDF board and shall be furnished with three BLUM 75M5580 or 75M5680 European style concealed hinges. Door pulls shall be Hafele 116.39.437. Finish doors with laminated plastic on all edges and interior and exterior face. Doors shall not exceed 27" in width and shall be of equal size. Provide each door with chrome plated cylinder locks keyed alike.

All appliances and components to be furnished as built-in equipment as part of the counter shall be factory installed per the manufacturer's instructions, all electrical wiring and components shall conform to UL and shall be installed in accordance with the National Electric Code with all wiring extended to a junction box connection point in counter base with all wires tagged and identified.

Provide provisions for Item #108 undercounter refrigerator.

Provide provisions for Item #116 drop-in sink.

Provide provisions for Item #123 undercounter refrigerator.

Furnish utility chases through counter body and die-raised openings in counter top for passage of plumbing and utility lines.

Provide 12 gauge stainless steel 1" x 5" x 1" "hat" type leg mounting channels extending full width of counter on centers not to exceed 48" in length and fully welded to the angle iron frame. Mount counter assembly on 6" high stainless steel counter type conical legs with stainless steel adjustable bullet feet fully welded to leg mounting channels.

Counter front and exposed ends shall be provided with high pressure laminated plastic faced panels close fitted with hairline joints and secured in position in a concealed manner and removable without the use of tools. Laminate selection to be made by the Architect/Owner.

Provide 6" high recessed toe base on customers side and exposed ends fabricated of 18 gauge 304 stainless steel and secured to counter base for removal without tools.

ITEM #121

CONDIMENT COUNTER

Quantity:

One (1)

Manufacturer:

Duke / Multiteria / Delfield

Model:

Size and shape per plan

Construction:

Fabricate counter top of solid surface material. Material shall be fabricated and assembled per manufacturers approved methods utilizing a factory authorized and certified fabricator and installer. The edges of the top shall be formed as indicated. Openings shall have radius corners and shall be reinforced with additional material.

Counter base shall be fabricated of 18 gauge stainless steel wrap around type construction. Provide stainless steel fully welded channel frame around the entire perimeter of the counter top with intermediate cross bracing extending front to rear on centers not to exceed 24" to support top. Provide interior of counter base with solid fixed open bottom and intermediate shelves constructed of 16 gauge stainless steel unless specified otherwise. The front edge of each shelf shall be turned down 2" at 90 degrees and returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" high on a 90 degree angle, interior corners coved on 3/4" radius.

Hinged doors shall be fabricated of $\frac{3}{4}$ " thick MDF board and shall be furnished with three BLUM 75M5580 or 75M5680 European style concealed hinges. Door pulls shall be Hafele 116.39.437. Finish doors with laminated plastic on all edges and interior and exterior face. Doors shall not exceed 27" in width and shall be of equal size. Provide each door with chrome plated cylinder locks keyed alike.

Furnish one 20" hole in countertop for trash as shown on plans. Line the entire opening perimeter with laminated plastic in finish as the counter top and furnish hole with an 18 gauge type 304 stainless steel removable sleeve to line opening. Each sleeve shall have a 1/2" flange around the perimeter of the top and shall be 1-1/2" high overall.

Furnish utility chases through counter body and die-raised openings in counter top for passage of plumbing and utility lines.

Provide 12 gauge stainless steel 1" x 5" x 1" "hat" type leg mounting channels extending full width of counter on centers not to exceed 48" in length and fully welded to the angle iron frame. Mount counter assembly on 6" high stainless steel counter type conical legs with stainless steel adjustable bullet feet fully welded to leg mounting channels.

Counter front and exposed ends shall be provided with high pressure laminated plastic faced panels close fitted with hairline joints and secured in position in a concealed manner and removable without the use of tools. Laminate selection to be made by the Architect/Owner.

Provide 6" high recessed toe base on customers side and exposed ends fabricated of 18 gauge 304 stainless steel and secured to counter base for removal without tools.

ITEM #122 COMMERCIAL WASTE CONTAINER

Quantity: Two (2)
Manufacturer: Rubbermaid
Model: FG263200GRAY
 FG263100GRAY Lid (2)
 FG264000BLA Dolly (2)

ITEM #123 REFRIGERATOR, UNDERCOUNTER

Quantity: One (1)
Manufacturer: Continental / Victory / True
Model: SW36N-U
Options: Stainless steel interior
 Stainless steel exterior
 Stainless steel case back
 Field reversible doors
 Exterior mounted digital thermometer
 Automatic condensate evaporator
 Swivel casters with polyurethane tires and front locking brakes
 Plug and cord set

- ITEM #124 SOLID TOP UNIT
Quantity: Four (4)
Manufacturer: Duke/ Multiteria / Delfield
Model: TST-32SS
Options: Owner/Architect to select laminate finish (4)
 MOD-12-32 Extend top – Custom size 38” (4)
 TDST-X-2 Recessed top (4)
 SOLID-HD-2CU Tray slide, customer side (4)
 MOD-2S-2CU Kick plate, customer side (4)
- ITEM #125 SIDE LOADER
Quantity: One (1)
Manufacturer: Hobart / Champion / Stero
Model: SL23/E-NOHDLR
- ITEM #126 WIRE SHELVING
Quantity: Three (3)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2442NK3 (12)
Options: 70UPK3 Posts (12)
 5MP Casters (6)
 5MPB Casters (6)
Sup Info: Assemble into four tier shelving units, locate bottom shelf 12” above floor.
- ITEM #127 SNEEZE GUARD, STATIONARY
Quantity: Eight (8)
Manufacturer: BSI / Premier Brass / English
Model: ZG9930
 Stainless steel tubing, posts and framing (8)
 3/8" Tempered glass (8)
 End panels (8)
 705 Stealth Warmer & Light Combo (8)
 Remote Infinite (8)
 SSU5-N Stainless steel undercounter mount (8)
- ITEM #128 EXHAUST HOOD
Quantity: Seven (7)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape as per plan
Construction: Furnish and install exhaust hood with integral plenum box make-air system.

Entire exhaust ventilation system shall be constructed in compliance with UL, NSF, NFPA, IMC 2018 (including automatic start-up of the exhaust and supply ventilation upon activation of any cooking appliance) and any prevailing statutes and codes.

Hood shall be 6’ long island configuration constructed in one equal sections of 18 gauge 304 stainless steel with all seams continuously welded, ground smooth and

polished. Provide a full compliment of stainless steel “high efficiency” Captrate Solo baffle type grease extractors.

Furnish remote bulb thermostat with watertight hardware and install in either the exhaust plenum of the hood or in the exhaust duct. Provide NEMA 3 control panel box with hinged front cover complete with supply and exhaust fan contactors wired to an adjustable thermostat control, field wiring terminal strip and on-off switch.

Provide 18 gauge 304 stainless steel supply and exhaust duct collar.

Provide 18 gauge 304 stainless steel insulated supply air plenum box assembly with internal air volume control damper integral along the face of the hood. Mount in finished ceiling along face of hood and furnish full length stainless steel perforated removable panels for discharge of supply air along entire face of hood.

Provide stainless steel threaded hanger rods complete with stainless steel mounting hardware for securing to structural ceiling.

Mechanical (HVAC) Trade shall furnish and install a complete exhaust air handling system including exhaust fan and controller, fan start-stop switch with status lights, 16 gauge insulated welded ductwork from exhaust collar on exhaust hood to fan, hinged roof curb with grease trough and removable grease container.

Mechanical (HVAC) Trade shall install exhaust hood heat detector(s) in exhaust hoods with multiple exhaust collars in the exhaust duct just after the point of the pant leg juncture; this includes punching of the required hole in the duct and installation of the heat detector and fitting.

Mechanical (HVAC) Trade shall furnish and install a complete supply air handling system including supply fan and controller (with maintainable filter system) and supply air heater with thermostat control (to temper incoming supply air below 65 degree F ambient), fan start-stop switch with indicator lights, galvanized steel ductwork from supply collar on exhaust hood to fan and roof curb.

Electrical Trade shall furnish and install interconnecting wiring between fan motors, controllers and switches.

Electrical Trade shall furnish and install inter-wiring of cooking appliance start-up inter-lock device and the supply and exhaust ventilation system and wire per the manufacturer’s instructions and per applicable codes.

Furnish three (3) UL listed vapor-proof recessed LED light fixtures wired to a common on-off switch with stainless steel cover plate located in control box..

Electrical Trade shall furnish materials and inter-wire light fixtures to wall mounted control panel.

Mechanical (HVAC) Trade shall furnish and install INVERTER DUTY THREE PHASE exhaust fan and controller.

Mechanical (HVAC) Trade shall furnish fans set compatible with variable frequency drive specification.

Electrical Trade shall furnish and install Interconnecting wiring of the system between the exhaust hood sensors, remote frequency drive unit and exhaust and supply fan motors.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Electrical Trade shall provide the inter-wiring between the control enclosure, fire system, supply and exhaust fans and variable frequency drives and duct riser temperature switch.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #128.1

HOOD CONTROL PANEL

Quantity:

One (1)

Manufacturer:

Captive Aire / Caddy / Avtec

Model:

Size and shape per plan

Sup Info:

Furnish 18 gauge stainless steel utility and fire system enclosure cabinet with hinged access doors for both hood and fire system controls and fire suppression tanks. System shall be listed by ETL (UL 508A) NSF, NFPA, IMC 2018 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17-27. Cabinet may be freestanding wall type or integral with exhaust hood as shown on the contract drawings. Furnish stainless steel mounting hardware of proper type for wall construction for wall mounted cabinet.

Furnish and install variable volume motor control center with variable frequency drive, input / output processor and keypad enclosed within a stainless steel utility cabinet for remote mounting. System shall include, but not be limited to, electronic variable volume motor starters with thermal overload, input / output processors, control keypad, temperature and optic sensors and plug and play cables. Temperature sensor shall be mounted in the exhaust duct collar; optic sensor shall be mounted inside the ends of the hood with air purge units mounted on top.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #128.2

FIRE PROTECTION SYSTEM

Quantity:

One (1)

Manufacturer:

Captive Aire

Model:

TANK

Sup Info: Furnish and install in exhaust hood, plenum and surface fire protection system.

TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solutionextinguishing system.

TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300,UL1254, ULCORD-C1254.6.

Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ULC-S527-11.

TANK Fire Suppression System intended for installation and for use in accordance withthe National Fire Protection Association Standards:

13. Wet Chemical Extinguishing Systems, NFPA 17A

14. National Electrical Code, NFPA 70

15. National Fire Alarm & Signaling Code, NFPA 72

New York City and FDNY approved under COA# 5870.

California State Fire Marshal (CFSM), Listing No. 7085-2199:0502.

A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system forprotection of all hazard areas associated with cooking operations, including exhaust hoods, plenums, ductwork, and cooking appliances.

Exhaust hood fire system components to be factory installed.

Cylinder and Valve Assembly

93. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.

94. Wet chemical agent shall be contained in one or more stored pressure DOT/TC ratedsteel cylinder and valve assemblies.

95. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIGat 70°F.

Distribution Nozzles

96. Nozzles shall be located to protect the exhaust ducts, plenums, and all cookingappliances requiring protection.

97. All nozzles shall be equipped with a metal blow off cap. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing agent to flow to the protected hazard area.

98. All nozzles shall incorporate a stamped part number to easily identify nozzle type.

Distribution System

99. The distribution system shall consist of Copper, Schedule 40 black iron,

chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.

100. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

Suppression System

101. The system control equipment shall be capable of all functions associated with automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.

102. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).

103. All mechanical components of the actuator kit shall be enclosed.

104. The actuator kit shall be capable of automatic or manual activation means.

105. Supervisory Pressure Switch added to monitor operating system pressure.

106. For manual activation, an electrically operated manual release shall be used to actuate the system manually.

107. For automatic activation, the system will be activated by a Firestat (heat) detector.

Electrical

108. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.

109. Printed circuit board with microprocessor-based controller that provides all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.

110. Independent supervised loops incorporate redundancy and fault detection.

111. Real-time cloud-based monitoring connection provided with system by ownership.

112. Primary power supply, with battery backup for power loss.

113. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction (AHJ).

114. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.

115. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

As part of this item, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

Inter-wiring of the fire system to the exhaust hood shall be furnished and installed by the Electrical Trade.

Provide as part of fire system, electrically operated gas supply line shut-off valve (two required for “loop” gas service) to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide one remote manual pull station to actuate fire system in the event of a fire.

Plumbing Trade shall install gas shut-off valve(s) in gas supply line.

Electrical Trade shall inter-wire gas shut-off valve(s) to fire system.

Electrical Trade shall furnish and install electric shunt-trip circuit breakers or electric shut-off contactors to interrupt electric power to all electrically operated cooking appliances.

Provide dry contacts in fire system to interface with building fire alarm system as required, electrical tie-in shall be the responsibility of the Electrical Trade.

Provide as part of fire system, start-up testing of the fire system as required by local fire codes. Subsequent testing of the fire system for a period of one year after start-up shall be included as part of this contract.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #129	WORK TABLE, ENCLOSED BASE
Quantity:	One (1)
Manufacturer:	Eagle group / John Boos / Advance Tabco
Model:	Size and shape per plan
Construction:	Top shall be fabricated of 14 gauge stainless steel. Exposed edges shall be rolled down 2" diameter at 180 degrees. Provide backsplash along adjoining surfaces with

top turned up integrally 6" high on a 3/4" radius at a 90 degree angle, turned back 1" on a 90 degree angle and down 1/2" on a 90 degree angle.

Cabinet body shall be fabricated of 18 gauge stainless steel wrap around construction. The backs of front stiles shall be closed with tight fitting channel sections of 18 gauge stainless steel, welded in place and closed on top and bottom.

Provide sink section with 16" x 20" x 8" deep sink fabricated of 14 gauge stainless steel with all interior corners coved on a 3/4" radius, both horizontally and vertically, forming spherical corners. Sink shall be fabricated as an integral part of fixture with sink fully welded with adjacent top, welds ground smooth and polished.

Punch top and provide T&S Brass & Bronze Works B-300 double pantry faucet with gooseneck nozzle and aerator.

Furnish and install Component Hardware D50-7215 lever type drain assembly with connected overflow and stainless steel flat strainer plate.

Provide counter base below sink with stainless steel apron with recess for lever waste handle. Below apron provide stainless steel, double pan hinged access door with stainless steel recessed handle. Base below sink shall have bottom and rear open for passage of plumbing lines.

Provide provisions for Item #108 undercounter refrigerator.

Provide cutout/provisions for Item #94 4-range burner.

Provide remainder of cabinet base with open fixed bottom and intermediate fabricated shelves fabricated of 18 gauge stainless steel. Front edge shall be turned down 1-1/2" at 90 degrees, returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" at 90 degrees with interior corners coved on a 3/4" radius. Shelf shall be weld anchored to cabinet body. Bottom shelf shall be fabricated flush with front mullions with fully welded facing junctures presenting seamless construction. Fixed intermediate shelves shall be designed similar to bottom shelf except front edge shall be set behind vertical mullions and fully welded thereto.

Mount on counter type stainless steel conical shaped die-formed legs with stainless steel, bullet shaped adjustable foot fully welded to leg mounting channel.

ITEM #130	REACH-IN REFRIGERATOR
Quantity:	Two (2)
Manufacturer:	Continental / Victory / True
Model:	2RNSS
Options:	Stainless steel interior (2)
	Stainless steel exterior (2)
	Stainless steel case back (2)
	Field reversible doors (2)
	Exterior mounted digital thermometer (2)

Automatic condensate evaporator (2)
Swivel casters with polyurethane tires and front locking brakes (2 sets)
Plug and cord set (2)
Pan slides on top sections (2)
Shelves on bottom sections (2)

ITEM #131 EXHAUST HOOD
Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape as per plan
Construction: Furnish and install exhaust hood with integral plenum box make-air system.

Entire exhaust ventilation system shall be constructed in compliance with UL, NSF, NFPA, IMC 2018 (including automatic start-up of the exhaust and supply ventilation upon activation of any cooking appliance) and any prevailing statutes and codes.

Hood shall be 5' long island configuration constructed in one equal sections of 18 gauge 304 stainless steel with all seams continuously welded, ground smooth and polished. Provide a full compliment of stainless steel "high efficiency" Captrate Solo baffle type grease extractors.

Furnish remote bulb thermostat with watertight hardware and install in either the exhaust plenum of the hood or in the exhaust duct. Provide NEMA 3 control panel box with hinged front cover complete with supply and exhaust fan contactors wired to an adjustable thermostat control, field wiring terminal strip and on-off switch.

Provide 18 gauge 304 stainless steel supply and exhaust duct collar.

Provide 18 gauge 304 stainless steel insulated supply air plenum box assembly with internal air volume control damper integral along the face of the hood. Mount in finished ceiling along face of hood and furnish full length stainless steel perforated removable panels for discharge of supply air along entire face of hood.

Provide stainless steel threaded hanger rods complete with stainless steel mounting hardware for securing to structural ceiling.

Mechanical (HVAC) Trade shall furnish and install a complete exhaust air handling system including exhaust fan and controller, fan start-stop switch with status lights, 16 gauge insulated welded ductwork from exhaust collar on exhaust hood to fan, hinged roof curb with grease trough and removable grease container.

Mechanical (HVAC) Trade shall install exhaust hood heat detector(s) in exhaust hoods with multiple exhaust collars in the exhaust duct just after the point of the pant leg juncture; this includes punching of the required hole in the duct and installation of the heat detector and fitting.

Mechanical (HVAC) Trade shall furnish and install a complete supply air handling system including supply fan and controller (with maintainable filter system) and sup-

ply air heater with thermostat control (to temper incoming supply air below 65 degree F ambient), fan start-stop switch with indicator lights, galvanized steel ductwork from supply collar on exhaust hood to fan and roof curb.

Electrical Trade shall furnish and install interconnecting wiring between fan motors, controllers and switches.

Electrical Trade shall furnish and install inter-wiring of cooking appliance start-up inter-lock device and the supply and exhaust ventilation system and wire per the manufacturer's instructions and per applicable codes.

Furnish three (3) UL listed vapor-proof recessed LED light fixtures wired to a common on-off switch with stainless steel cover plate located in control box..

Electrical Trade shall furnish materials and inter-wire light fixtures to wall mounted control panel.

Mechanical (HVAC) Trade shall furnish and install INVERTER DUTY THREE PHASE exhaust fan and controller.

Mechanical (HVAC) Trade shall furnish fans set compatible with variable frequency drive specification.

Electrical Trade shall furnish and install Interconnecting wiring of the system between the exhaust hood sensors, remote frequency drive unit and exhaust and supply fan motors.

Furnish and install 18 gauge stainless steel ceiling closure panels extending from the top of the exhaust ventilator to the finished ceiling. Panels shall be removable without the use of tools for access.

Electrical Trade shall provide the inter-wiring between the control enclosure, fire system, supply and exhaust fans and variable frequency drives and duct riser temperature switch.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #131.1	HOOD CONTROL PANEL
Quantity:	One (1)
Manufacturer:	Captive Aire / Caddy / Avtec
Model:	Size and shape per plan
Sup Info:	Furnish 18 gauge stainless steel utility and fire system enclosure cabinet with hinged access doors for both hood and fire system controls and fire suppression tanks. System shall be listed by ETL (UL 508A) NSF, NFPA, IMC 2018 and any prevailing statutes or codes including automatic shut-down of all cooking appliances per code section 44 of NFPA 17-27. Cabinet may be freestanding wall type or integral with

exhaust hood as shown on the contract drawings. Furnish stainless steel mounting hardware of proper type for wall construction for wall mounted cabinet.

Furnish and install variable volume motor control center with variable frequency drive, input / output processor and keypad enclosed within a stainless steel utility cabinet for remote mounting. System shall include, but not be limited to, electronic variable volume motor starters with thermal overload, input / output processors, control keypad, temperature and optic sensors and plug and play cables. Temperature sensor shall be mounted in the exhaust duct collar; optic sensor shall be mounted inside the ends of the hood with air purge units mounted on top.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #131.2

FIRE PROTECTION SYSTEM

Quantity:

One (1)

Manufacturer:

Captive Aire

Model:

TANK

Sup Info:

Furnish and install in exhaust hood, plenum and surface fire protection system.

TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solutionextinguishing system.

TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300,UL1254, ULCORD-C1254.6.

Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ULC-S527-11.

TANK Fire Suppression System intended for installation and for use in accordance withthe National Fire Protection Association Standards:

16. Wet Chemical Extinguishing Systems, NFPA 17A

17. National Electrical Code, NFPA 70

18. National Fire Alarm & Signaling Code, NFPA 72

New York City and FDNY approved under COA# 5870.

California State Fire Marshal (CFSM), Listing No. 7085-2199:0502.

A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system forprotection of all hazard areas associated with cooking operations, including exhaust hoods, plenums, ductwork, and cooking appliances.

Exhaust hood fire system components to be factory installed.

Cylinder and Valve Assembly

116. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.

117. Wet chemical agent shall be contained in one or more stored pressure DOT/TC rated steel cylinder and valve assemblies.

118. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIG at 70°F.

Distribution Nozzles

119. Nozzles shall be located to protect the exhaust ducts, plenums, and all cooking appliances requiring protection.

120. All nozzles shall be equipped with a metal blow off cap. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing agent to flow to the protected hazard area.

121. All nozzles shall incorporate a stamped part number to easily identify nozzle type.

Distribution System

122. The distribution system shall consist of Copper, Schedule 40 black iron, chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.

123. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

Suppression System

124. The system control equipment shall be capable of all functions associated with automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.

125. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).

126. All mechanical components of the actuator kit shall be enclosed.

127. The actuator kit shall be capable of automatic or manual activation means.

128. Supervisory Pressure Switch added to monitor operating system pressure.

129. For manual activation, an electrically operated manual release shall be used to actuate the system manually.

130. For automatic activation, the system will be activated by a Firestat (heat) detector.

Electrical

131. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.

132. Printed circuit board with microprocessor-based controller that provides all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.

133. Independent supervised loops incorporate redundancy and fault detection.

134. Real-time cloud-based monitoring connection provided with system by owner-

ship.

135. Primary power supply, with battery backup for power loss.

136. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction(AHJ).

137. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.

138. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

As part of this item, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

Inter-wiring of the fire system to the exhaust hood shall be furnished and installed by the Electrical Trade.

Provide as part of fire system, electrically operated gas supply line shut-off valve (two required for "loop" gas service) to interrupt gas supply to all gas operated cooking appliances. Gas valve shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide one remote manual pull station to actuate fire system in the event of a fire.

Plumbing Trade shall install gas shut-off valve(s) in gas supply line.

Electrical Trade shall inter-wire gas shut-off valve(s) to fire system.

Electrical Trade shall furnish and install electric shunt-trip circuit breakers or electric shut-off contactors to interrupt electric power to all electrically operated cooking appliances.

Provide dry contacts in fire system to interface with building fire alarm system as required, electrical tie-in shall be the responsibility of the Electrical Trade.

Provide as part of fire system, start-up testing of the fire system as required by local fire codes. Subsequent testing of the fire system for a period of one year after start-up shall be included as part of this contract.

Refer to latest approved Engineering Drawings for engineering data and design

methods and features which shall take precedence to this specification.

Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

Refer to latest approved Engineering Drawings for engineering data and design methods and features which shall take precedence to this specification.

ITEM #132 2-BURNER, GAS
Quantity: Twenty-Eight (28)
Manufacturer: Electrolux / Garland / Vulcan
Model: 169101
Options: Natural gas
 1675KITCF2S48PS
Sup Info: Foodservice Equipment Contractor shall install disconnect at point of gas connection and to cooking appliance per manufacturer's instructions.

ITEM #133 COMBI-OVEN, VENTLESS
Quantity: Two (2)
Manufacturer: Alto-Shaam / Convotherm / Angelo Po
Model: CTP6-10E/CTP10-10E W/ VENT HOOD
Options: 5021519 Installation kit (4)
 6-10EVH PLUS Ventech PLUS Type 1 hood (2)
 FI-24114 Charcoal filter for hood (2)
 FI-24113 Washable grease filter (2)
 FI-46923 Front condensing coil (2)
 Wifi standard (4)
 Removable "T" style temperature probe, standard (4)
 COMBILQUICLEAN Automatic liquid cleaning system (2)
 CE-46869 Oven cleaner, liquid soap injection cleaner (2)
 CP-46870 Liquid dispensing cap (2)
 CE-46991 Concentrated oven cleaner (2)
 CE-46829 Non caustic cleaner (2)
 BH-38059 Clean out brush (2)
 SC-47403 Oven scraper (2)
 5030719 Stacking hardware (2)
 5017404 Mobile stacking base (2)
 Polyurethane tires and front locking brakes (2 sets)
 Dormont W50BP48 Water hose kit (4)
Sup Info: Foodservice Equipment Contractor shall install disconnect at wall connection and to cooking appliance per manufacturer's instructions.

Foodservice Equipment Contractor shall provide and secure restraining cable between wall and equipment.

ITEM #134 DROP-IN REFRIGERATED DISPLAY CASE, SELF CONTAINED

Quantity: Four (4)
Manufacturer: Federal Industries / Structural Concepts / RPI
Model: ITR3634-SC
Options: Stainless steel shelving, per tier (4)
Reflective ends (pair) (4)
Removable sliding rear doors, standard (4)

ITEM #135 POT RACK, CEILING MOUNTED

Quantity: Two (2)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: CM144PR
Sup Info: Furnish stainless steel mounting hardware of proper type for wall construction and to sustain weight while in use.

Construction Trade shall provide wall blocking as required for mounting.

ITEM #136 UTILITY DISTRIBUTION SYSTEM

Quantity: One (1)
Manufacturer: Captive Aire / Caddy / Avtec
Model: Size and shape per plan
Construction: Furnish and install utility distribution system.

Utility distribution system shall be fabricated in accordance with UL, NSF, NEC, IMC 2015.

Utility distribution system shall be fabricated of a minimum of 18 gauge 304 stainless steel consisting of two utility compartments and fabricated in sections as required with factory pre-assembled field connections and furnished with one primary end riser with single point connection for all utilities and one secondary end riser.

Primary riser shall be furnished with built-in exhaust hood controls, including push button fan control switches with status lights, individual and shunt-trip main circuit breaker and emergency “kill” button with guard.

Provide as part of raceway exhaust hood interlock device to prevent all electrically and gas operated cooking appliances from operating unless the supply and exhaust fans of the exhaust hood is operating as required by all local and prevailing codes including IMC 2015.

Provide raceway with splash proof electrical chase with copper wire-way wired to a circuit breaker panel box with ground fault protection for each appliance in the primary end riser, and UL listed power cords and matching electrical receptacles as required.

Provide raceway with gas supply (looped) service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance.

Provide as part of utility distribution system, mechanically operated gas supply line shut-off valves to interrupt gas supply to all gas operated cooking appliances. Gas valves shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide raceway with hot and cold water service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance.

Provide each riser with ventilator connecting collars for positive connection to the exhaust hood.

Provide secondary end riser with hinged access door for mounting of gas supply line shut-off valve (looped gas service).

Furnish and install labor and material to assemble all internal interconnecting gas piping, water piping and electrical wiring to install the utility distribution system. Test all connections for leaks.

ITEM #137	UTILITY DISTRIBUTION SYSTEM
Quantity:	One (1)
Manufacturer:	Captive Aire / Caddy / Avtec
Model:	Size and shape per plan
Construction:	Furnish and install utility distribution system.

Utility distribution system shall be fabricated in accordance with UL, NSF, NEC, IMC 2015.

Utility distribution system shall be fabricated of a minimum of 18 gauge 304 stainless steel consisting of two utility compartments and fabricated in sections as required with factory pre-assembled field connections and furnished with one primary end riser with single point connection for all utilities and one secondary end riser.

Primary riser shall be furnished with built-in exhaust hood controls, including push button fan control switches with status lights, individual and shunt-trip main circuit breaker and emergency “kill” button with guard.

Provide as part of raceway exhaust hood interlock device to prevent all electrically and gas operated cooking appliances from operating unless the supply and exhaust fans of the exhaust hood is operating as required by all local and prevailing codes including IMC 2015.

Provide raceway with splash proof electrical chase with copper wire-way wired to a circuit breaker panel box with ground fault protection for each appliance in the primary end riser, and UL listed power cords and matching electrical receptacles as required.

Provide raceway with gas supply (looped) service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance.

Provide as part of utility distribution system, mechanically operated gas supply line shut-off valves to interrupt gas supply to all gas operated cooking appliances. Gas valves shall be provided with manual reset to prevent gas flow to pilot devices on appliances prior to restart.

Provide raceway with hot and cold water service with shut-off valves for each disconnect hose or connection and safety retainer cables for each mobile appliance.

Provide each riser with ventilator connecting collars for positive connection to the exhaust hood.

Provide secondary end riser with hinged access door for mounting of gas supply line shut-off valve (looped gas service).

Furnish and install labor and material to assemble all internal interconnecting gas piping, water piping and electrical wiring to install the utility distribution system. Test all connections for leaks.

ITEM #138 WARMER, FOOD OVERHEAD
Quantity: Two (2)
Manufacturer: Hatco / Merco / APW Wyott
Model: GRAHL-96
Options: BLT INF 2 Built in infinite controls (2)
 TANDEM-SINGLE Tandem elements (2)
 STANDARD Clear anodized aluminum housing (2)
 ADJ ANGLE 7 Adjustable angle bracket (2)

ITEM #139 SOLID TOP UNIT
Quantity: Two (2)
Manufacturer: Duke/ Multiteria / Delfield
Model: TST-18SS
Options: Owner/Architect to select laminate finish (2)
 SOLID-HD-1CU Tray slide, customer side (2)
 MOD-2S-1CU Kick plate, customer side (2)
 ILD Interlocking device (2)

ITEM #140 SOLID TOP UNIT
Quantity: Four (4)
Manufacturer: Duke/ Multiteria / Delfield
Model: TST-60SS
Options: Owner/Architect to select laminate finish (4)
 SOLID-HD-4CU Tray slide, customer side (4)
 MOD-2S-4CU Kick plate, customer side (4)
 329-4SS-LK (4)
 ILD Interlocking device (4)

ITEM #141 SOLID TOP UNIT
Quantity: Eight (8)

NEW CASTLE COUNTY VOCATIONAL –
TECHNICAL SCHOOL DISTRICT

PAUL M. HODGSON VOCATIONAL
TECHNICAL HIGH SCHOOL

Manufacturer: Duke/ Multiteria / Delfield
Model: TST-60SS
Options: Owner/Architect to select laminate finish (8)
SOLID-HD-4CU Tray slide, customer side (8)
CUT-OP4 Rectangular cutout (8)
445-4S-HD-OP Cutting board, shelf, operator's side (8)
MOD-2S-4CU Kick plate, customer side (8)
ILD Interlocking device (8)

ITEM #142 INDUCTION COOKING SYSTEM

Quantity: One (1)
Manufacturer: Spring USA / Cooktek / Electrolux
Model: ICB234-26
Options: AF98710 Cell filter
AF98711 Carbon filter
AF9879 Baffle prefilter

ITEM #143 WORK TABLE, STAINLESS STEEL, ENCLOSED BASE

Quantity: One (1)
Manufacturer: Eagle Group / John Boos / Advance Tabco
Model: CBH30120SEM
Options: E27A Top cutout & reinforcement, for heavy drop-in equipment (Item #142 Spring USA ICB234-26)

ITEM #144 WIRE SHELVING

Quantity: One (1)
Manufacturer: Metro / Eagle group / Quantum
Model: PR2460NK3 (4)
Options: 70UPK3 Posts (4)
5MP Casters (2)
5MPB Casters (2)

Sup Info: Assemble into four tier shelving units, locate bottom shelf 12" above floor.

ITEM #145 CONDIMENT COUNTER

Quantity: One (1)
Manufacturer: Duke / Multiteria / Delfield
Model: Size and shape per plan
Construction: Fabricate counter top of solid surface material. Material shall be fabricated and assembled per manufacturers approved methods utilizing a factory authorized and certified fabricator and installer. The edges of the top shall be formed as indicated. Openings shall have radius corners and shall be reinforced with additional material.

Counter base shall be fabricated of 18 gauge stainless steel wrap around type construction. Provide stainless steel fully welded channel frame around the entire perimeter of the counter top with intermediate cross bracing extending front to rear on centers not to exceed 24" to support top. Provide interior of counter base with solid fixed open bottom and intermediate shelves constructed of 16 gauge stainless steel unless specified otherwise. The front edge of each shelf shall be turned down 2" at 90

degrees and returned 1/2" at 90 degrees. Rear and ends shall be turned up 2" high on a 90 degree angle, interior corners coved on 3/4" radius.

Hinged doors shall be fabricated of 3/4" thick MDF board and shall be furnished with three BLUM 75M5580 or 75M5680 European style concealed hinges. Door pulls shall be Hafele 116.39.437. Finish doors with laminated plastic on all edges and interior and exterior face. Doors shall not exceed 27" in width and shall be of equal size. Provide each door with chrome plated cylinder locks keyed alike.

Furnish one 20" hole in countertop for trash as shown on plans. Line the entire opening perimeter with laminated plastic in finish as the counter top and furnish hole with an 18 gauge type 304 stainless steel removable sleeve to line opening. Each sleeve shall have a 1/2" flange around the perimeter of the top and shall be 1-1/2" high overall.

Furnish utility chases through counter body and die-raised openings in counter top for passage of plumbing and utility lines.

Provide 12 gauge stainless steel 1" x 5" x 1" "hat" type leg mounting channels extending full width of counter on centers not to exceed 48" in length and fully welded to the angle iron frame. Mount counter assembly on 6" high stainless steel counter type conical legs with stainless steel adjustable bullet feet fully welded to leg mounting channels.

Counter front and exposed ends shall be provided with high pressure laminated plastic faced panels close fitted with hairline joints and secured in position in a concealed manner and removable without the use of tools. Laminate selection to be made by the Architect/Owner.

Provide 6" high recessed toe base on customers side and exposed ends fabricated of 18 gauge 304 stainless steel and secured to counter base for removal without tools.

ITEM #X-01	EXISTING COMBI-OVEN
Quantity:	One (1)
Sup Info:	Refer to Specification Section 2.6, Standards for Existing Equipment; survey the existing item of equipment to be reused to determine the extent of reconditioning or repairs necessary to place equipment in proper working order.
ITEM #X-02	EXISTING HYDROVECTION OVEN
Quantity:	One (1)
Sup Info:	Refer to Specification Section 2.6, Standards for Existing Equipment; survey the existing item of equipment to be reused to determine the extent of reconditioning or repairs necessary to place equipment in proper working order.
ITEM #X-03	EXISTING FOOD SLICER
Quantity:	One (1)
Sup Info:	Refer to Specification Section 2.6, Standards for Existing Equipment; survey the existing item of equipment to be reused to determine the extent of reconditioning or re-

pairs necessary to place equipment in proper working order.

ITEM #S-01	RESIDENTIAL MICROWAVE
Quantity:	One (1)
Sup Info:	Not in foodservice equipment contract, furnished by others.
ITEM #S-02	RESIDENTIAL RANGE
Quantity:	One (1)
Sup Info:	Not in foodservice equipment contract, furnished by others.
ITEM #S-03	RESIDENTIAL HOOD
Quantity:	One (1)
Manufacturer:	Denlar
Model:	D1036-D-WF-NFPA
Construction:	The Fire Suppression Range Hood shall be installed in accordance with the manufacturer's instructions and applicable codes.
	Unit shall be of 304 stainless steel construction with no sharp edges and brushed finish, having a fire suppression system pre-engineered into the design of the hood.
	Hood shall be wall mounted so that the bottom of the mounting bracket sits 24" to 30" above the cooktop. Dimensions are 30"L x 19.38" D.
	Unit shall have top ducted wall mount fan. Dimensions are 13.2" side to side, 17" top to bottom, and 4.4" front to back. CFM + 2.5% 172-522 with Electronic Control Module with fan speed controller being infinitely variable.
	Unit shall include a fuel shut-off device for gas and electric appliances, activated at suppression system discharge.
	Unit shall also automatically disconnect range element once certain pre-set temperature is reached.
	Unit shall have multiple alarm contacts pre-installed (local, remote & trouble alarms) and an audible buzzer.
	Lighting shall be by 60w shatter-proof bulb.
	D1000-Tank is integral to all D1000 hood models. Self-contained fire suppression system, UL-1995 compliance, stainless steel, chemical type Amerex 660, volume 1300 mL. Tank is equipped with a pressure switch opens on discharge. Discharge hose with quick fitting attached.
	The Manual Pull Station is design to discharge the D1000 Model when a user pulls the tab from the Manual Pull Station Face Plate. The D1000-MPK is provided with 25 ft stainless steel cable and with three 90 degree corner pulleys. It is required to have 7-10 inches extra of the stainless steel cable at the pull station box. The manual pull station comes equipped with 1x enclosure 4" x 1.5" octagon metal box, 1x man-

ual pull station face plate, 1x ½” ENT conduit connector, 3x 90 degree corner pulleys, 1x 25’ stainless steel cable with clevis pin.

Provide with Clockbox standard. Clockbox shall be surface mount or flush. Includes two hour timer, is password protected, and has adjustable timer.

ITEM #S-04 3-COMPARTMENT SINK, DROP-IN
Quantity: One (1)
Manufacturer: Eagle group / John Boos / Advance Tabco
Model: SR12-14-9.5-3
Options: Standard faucet

ITEM #S-05 RESIDENTIAL DISHWASHER
Quantity: One (1)
Sup Info: Not in foodservice equipment contract, furnished by others.

ITEM #S-07 RESIDENTIAL REFRIGERATOR
Quantity: One (1)
Sup Info: Not in foodservice equipment contract, furnished by others.

END OF SECTION 114000

SECTION 11 66 25 - GYMNASIUM EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Basketball equipment, including backstop assemblies, backboards, and goals.
- B. Wall-mounted protection pads.
- C. Volleyball nets and posts.
- D. Floor sleeves for net and goal posts
- E. Wrestling mats, storage, and accessories
- F. Gym Equipment Group Control System

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Concrete for outdoor backstop foundations.
- B. Section 05 12 00 - Structural Steel Framing: Structural members supporting basketball systems.
- C. Section 05 50 00 - Metal Fabrications: Secondary structural members supporting gymnasium equipment.
- D. Section 11 66 53 – Gymnasium Dividers: Divider specified therein shall be connected to and operated from control switch specified herein.
- E. Section 09 64 29 - Wood Strip Flooring: Gymnasium flooring.
- F. Section 26 05 83 - Wiring Connections

1.03 REFERENCE STANDARDS

- A. ASTM D412 - 06 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- B. ASTM D1056 - 07 - Standard Specification for Flexible Cellular Materials—Sponge or Expanded Rubber.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- D. ASTM F-355-01 - Test Method for Shock Absorbing Properties of Playing Surface Systems and Materials.
- E. ASTM F-1081-03 - Standard Specification for Competition Wrestling Mats.
- F. ASTM F1292 - 09 Standard Specification for Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment
- G. AWS D1.1/D1.1M - Structural Welding Code - Steel 2020.
- H. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth 2019.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Large Components: Ensure that large components can be moved into final position without damage to other construction.
- B. Electrically Operated Equipment: Coordinate location and electrical characteristics of service connection

1.05 SUBMITTALS

- A. Product Data: Provide manufacturer's data showing configuration, sizes, materials, finishes, hardware, and accessories; include:
 - 1. Electrical characteristics and connection locations.
 - 2. Fire rating certifications.
 - 3. Manufacturer's installation instructions.
- B. Shop Drawings: For custom fabricated equipment indicate, in large scale detail, construction methods; method of attachment or installation; type and gauge of metal, hardware, and fittings; plan front elevation; elevations and dimensions; minimum one cross section; utility requirements as to types, sizes, and locations.
- C. Samples: Submit samples of wall pad coverings in manufacturer's available range of colors.
- D. Operating and maintenance data for each operating equipment item.
- E. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified with minimum three years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to project site in manufacturer's original packaging with factory original labels attached.
- B. Store products indoors and elevated above floor; prevent warping, twisting, or sagging.
- C. Store products in accordance with manufacturer's instructions; protect from extremes of weather, temperature, moisture, and other damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Gymnasium Equipment and Volleyball Equipment
 - 1. Draper, Inc: www.draperinc.com/sle.
 - 2. Performance Sports Systems: www.perfsports.com.
 - 3. Porter Athletic Equipment Company: www.porterathletic.com.
- B. Where a basis-of-design product is listed below, approved equal products by manufacturers listed herein shall be acceptable subject to meeting the requirements of this section.
- C. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 GENERAL REQUIREMENTS

- A. See drawings for sizes and locations, unless noted otherwise.
- B. Where mounting dimensions or sizes are not indicated, comply with applicable requirements of the following:
 - 1. National Federation of State High School Associations (NFHS) sports rules.
- C. Provide mounting plates, brackets, and anchors of sufficient size and strength to securely attach equipment to building structure; comply with requirements of Contract Documents.
- D. Hardware: Heavy duty steel hardware, as recommended by the manufacturer.
- E. Electrical Wiring and Components: Comply with NFPA 70; provide UL-listed equipment.

- F. Structural Steel Fabrications: Welded in accordance with AWS D1.1/D1.1M, using certified welders.

2.03 BASKETBALL EQUIPMENT

A. Indoor Backstop Assemblies

- a. Ceiling – suspended Backstop Assemblies:
- b. Location: Gym room #F101
- c. Basis of Design: Porter
 - 1) Ceiling suspended, Forward-folding, forward-braced: 900 series.
 - 2) ~~Side folding, side braced: EZ Fold TBS 26 B.~~
2. Features
 - a. Capable of mounting both rectangular and fan-shaped backboards.
 - b. Framing
 - 1) Material: Steel.
 - 2) Configuration: Center strut, ceiling-suspended, ceiling-braced.
 - 3) Fabrication: Bolt-together or welded.
 - 4) Color: As selected from manufacturer's standard selection.
 - c. Height Adjuster
 - 1) Raises or lowers assembly by 2 feet to adjust goal height.
 - 2) Manually operated.
 - d. Height Control System
 - 1) Motorized winch with safety strap.
 - 2) Control switch: Seven-gang gymnasium equipment key switch.
 - e.

B. Backboards

1. Basis of Design
 - a. Porter 208 “Center strut” Backboard
 - b. To meet NCAA, NFHA and professional requirements.
2. Features
 - a. Material: ½” thick Tempered glass.
 - b. Configuration: Rectangular, 72 inches wide by 42 inches high.
 - c. Markings: 2” White border and shooting target.
 - d. Provide manufacturer’s backboard safety padding.
 - e. Provide shot clock support

C. Goals

1. Basis of Design
 - a. Porter 240180 “Torq Flex Competition goal.
 - b. NCAA Division 2/3 and NFHS compliant
2. Features
 - a. Design to allow the goal to flex in a complete 180 radius as players hang on the front or sides of the rim. Spring mechanism shall be easily adjustable to meet rebound/elasticity needs. Non-adjustable goals, goals pivoting in only one plane, or goals incorporating shock absorber type mechanisms shall not be considered as equal.
 - b. Rim: 5/8" diameter cold drawn alloy steel, round formed to an 18" inside diameter ring. Inside diameter of ring shall be positioned 6" from face of backboard by a heavy formed steel housing with a removable bottom cover to conceal spring mechanisms of goal, and also protect against finger entrapment.
 - c. Net attachment: T-style slots.
 - d. Provide nylon net and mounting hardware.
 - e. Finish: Powder coat orange.

2.04 WALL PADDING

- A. Wall Padding: Foam filling bonded to backing board, wrapped in covering; each panel fabricated in one piece.
 - 1. Surface Burning Characteristics: Flame spread index (FSI) of 25 or less, smoke developed index (SDI) of 450 or less, Class A, when tested in accordance with ASTM E84 as a complete panel.
 - 2. Flammability: Comply with NFPA 286.
 - 3. Covering: Vinyl-coated polyester fabric, mildew, and rot resistant; stapled to back of board.
 - a. Color: As selected from manufacturer's standard range.
 - b. Texture: Embossed leather-look.
 - c. Fabric Weight: 14 oz/sq yd, minimum.
 - 4. Foam, Fire-Rated: Open cell polychloroprene (Neoprene), with 5.5 pcf nominal density.
 - 5. Foam Thickness: 2 inches.
 - 6. Backing Board: Plywood.
 - 7. Panel height: 84".
 - 8. Fastening Margins: 1 inch wide, covered by fabric covering.
 - 9. Mounting: Permanent; using screws.
 - 10. Manufacturers:
 - a. Draper, Inc: www.draperinc.com/#sle or approved equal.
 - b. Performance Sport Systems: www.perfsports.com or approved equal.
 - c. Porter Athletic Equipment Company: www.porterathletic.com or approved equal.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 VOLLEYBALL EQUIPMENT

- A. Standards:
 - 1. Powr-Trak Universal Sleeve-Type Volleyball standards, No. 01951-000 manufactured by Porter Athletic Equipment Company, Basis of Design. Alternate manufacturers:
 - a. Volleyball System, No. PVS 500001 manufactured by Draper, Inc.
 - b. Performance Sports Systems: Product No. 6100.
 - 2. Quantity: 1 set
- B. Net:
 - 1. No. 02255-000 with Boundary Marker with Antenna No. 00546-000 manufactured by Porter Athletic Equipment Company, Basis of Design. Alternate manufacturers:
 - a. Volleyball System, No. PVS 500001 manufactured by Draper, Inc.
 - b. Performance Sports Systems: Product No. 6100.
 - 2. Quantity: 1
- C. Protective Pads:
 - 1. No. 00717-003 manufactured by Porter Athletic Equipment Company, Basis of Design. Alternate manufacturers:
 - a. No. 5011XX manufactured by Draper, Inc.
 - b. Performance Sports Systems: Product No. 6100.
 - 2. Quantity: 1 set
- D. Judge's Stand:
 - 1. Folding Stand No. 00540-100 with protective pads No. 00547-003 manufactured by Porter Athletic Equipment Company, Basis of Design. Alternate manufacturers:
 - a. No. 5013XX manufactured by Draper, Inc.
 - b. Performance Sports Systems: Product No. 6446/6040.
 - 2. Quantity: 1

E. Storage Rack and Transporter:

1. No. 00956-100 manufactured by Porter Athletic Equipment Company, Basis of Design.
Alternate manufacturers:
 - a. No. 501016 manufactured by Draper, Inc.
 - b. Performance Sports Systems: Product No. 6295.
2. Quantity: 1

2.06 WRESTLING

A. Wrestling mat:

1. Fire-retardant continuous 1.25" thick rubber nitrile foam core
2. ASTM F-1081-03: The foam core shall have received a PASS rating of less than 100 maximum Gmax when tested in accordance with Procedure A of ASTM F-355-01.
3. ASTM F-1292-09: Wrestling Mat shall be tested for impact protection. The wrestling mat shall have a Gmax reading of less than 200 and a HIC score (Head Injury Criterion) of less than 1,000 from a four foot (4') drop height.
4. ASTM D-1056: Foam core shall have a compression / deflation of 5.5 - 7.5 psi.
5. ASTM D-412: Foam core shall have a tensile (tension) strength of 75 psi or greater and an elongation property of 100 percent.
6. Provide mats with a built-in antimicrobial product, providing protection against bacteria, mold, and mildew.
7. Wrestling Room: Provide custom mat sizes and configurations as shown on the Drawings.
 - a. Provide filler and transition pieces as necessary for wall-to-wall installation.
8. Competition Mat: Provide regulation size competition mat for main gymnasium, in addition to Wrestling Room mats.
9. Provide full-color, computer renderings of wrestling mats with graphics for review for layout, design, and placement.
10. Provide two-sided wrestling and/or practice areas on both sides of the mat.
11. Provide mat storage tubes and straps.
12. Foam shall be coated on all sides and edges with hot-spray polyvinyl coating.
13. Manufacturer shall be able to provide 3rd party, independent test results upon request.
14. Manufacturer shall provide a 3-year warranty from the date of shipment.
15. Wrestling Mat to be able to be reconditioned in the future.
16. Quantity: 2 in wrestling room 1 in main gym.

B. Mat Hoist: Capacity: Three (3) 15'x45' wrestling mats (1,800 lb maximum)

1. Stationary Mat Hoist: Mini Mat Mover, No 91105-100, manufacturer by Porter Athletic Equipment Company, Basis of Design. Alternate manufacturers:
 - a. Triple Mat Lifter: Product: Sectional M.L. 502019 manufactured by Draper, Inc.
 - b. Performance Sport Systems: Product No. 4091
2. Electrical: 2HP, 208V, 3 PH, 60HZ
3. Operation: Keyswitch.
4. Quantity: 1

C. Mat Edge Transition.

1. Material: Durable PVC.
2. Dimensions 6 ¼" wide x 1 ½" high x 6' long. 2" extended lip to cover the mat edge.
3. Tape to secure the transition lip to the mat surface.

D. Accessories

1. Provide required supplemental support to secure mat hoist to ceiling joists

2.07 MISCELLANEOUS

A. Gym Equipment Group Control System:

1. Product Smart Gym Control Systems manufactured by Draper, Inc.
2. Processor assembly in surface mounted 8 x15 x2 inch enclosure, quantity as required for controlling all gym equipment.
3. Color Touchscreens in recessed 3.5 x 5.5 x 2.5 inch box, locations and quantity as shown on drawings.
4. Gym Up/Down control:
 - a. Basketball Goals, Main Courts
 - b. Basketball Goals, Side Courts
 - c. Basketball Goal, side Courts Height Adjustment
5. On/Off Control:
 - a. Scoreboards
 - b. Shock Clocks

2.08 SCOREBOARDS

- A. Wall mounted Scoreboards: Interior, electronic basketball scoreboard with two integral horns and LED displays for time, scores, period, number for player fouling with personal fouls, team fouls, timeout left, bonus and double indicators and next possession arrows. Team Name and intelligent Captions™ 100% electronics.
 1. Product: Model **BB-2155** by Daktronics.
 - a. Dimension: 6'-0" (1.83m) high, 10'-0" (3.05 m) wide, 0'-6" (152 mm) deep
 - b. Scoreboard Back, face, and perimeter: 0.063" (1.60 mm) thick aluminum.
 - c. Decorative accents: Indoor Non-Backlit Ad Panel: 2' x 10' horizontal.
 2. Locker Room Clocks: Daktronics TI -2031 wall mounted locker room clocks.
 - a. Displays time in synchronization with scoreboard clocks.
 - b. Provide one (1) per locker room.
 3. Shot Clock: Daktronics Model **BB-2115**.
 - a. Displays game time and shot times up to a value of 99 seconds.
 - b. Dimensions: 2'-4" (711 mm) high, 2'-5" (737 mm) wide, 0'-6" (152mm) deep
 - c. Quantity: 2. Mount to main court backstops with brackets by basketball backstop manufacturer.
 4. Control Console: Wireless, microprocessor based, operator's control center with receiver unit mounted as scoreboard and designed to operate different models of scoreboard by interchange of keyboard overlay.
 - a. Product: Model #AS-5000 as manufactured by Daktronics.

2.09 FLOOR MOUNTED EQUIPMENT

- A. Floor Sleeves for Posts: Metal sleeve, with latch cover, cast into concrete subfloor to hold poles for nets and goals; installed flush with finish floor surface.
 1. Latch Cover: Brass, round, tamper resistant lock with key.
 2. Sleeve: Aluminum.
 3. Depth of Sleeve: 9 inches from floor surface to bottom, including latch cover.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Take field measurements to ensure proper fitting of work. If taking field measurements before fabrication will delay work, allow for adjustments within recommended tolerances.
- B. Inspect areas and conditions before installation. Notify Architect in writing of unsatisfactory or detrimental conditions.

- C. Do not proceed with this work until conditions have been corrected; commencing installation constitutes acceptance of work site conditions.

3.02 INSTALLATION

A. General

1. Install in accordance with Contract Documents and manufacturer's instructions.
2. Install equipment rigid, straight, plumb, and level.
3. Secure equipment with manufacturer's recommended anchoring devices.
4. Install wall padding securely, with edges tight to wall and without wrinkles in fabric covering.
5. Separate dissimilar metals to prevent electrolytic corrosion.

B. Control switch location

1. Requirements
 - a. Switch shall be located where switch operator can see and monitor raising and lowering of backstop assemblies and of gymnasium divider curtain while telescoping bleachers are fully extended.
 - b. Switch location and mounting height shall comply with accessibility requirements for maneuvering clearances, forward-reach ranges, and side-reach ranges.
2. Approval: Obtain Owner's approval of switch location prior to installation.

3.03 ADJUSTING

- A. Verify proper placement of equipment.
- B. Verify proper placement of equipment anchors and sleeves and use actual movable equipment to be anchored if available.
- C. Adjust operating equipment for proper operation; remove and replace equipment causing noise or vibration; lubricate equipment as recommended by manufacturer.

3.04 CLEANING

- A. Remove masking or protective covering from finished surfaces.
- B. Clean equipment in accordance with manufacturer's recommendations.

3.05 PROTECTION

- A. Protect installed products until Date of Substantial Completion.
- B. Replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 12 61 13 – FIXED AUDIENCE SEATING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary conditions and Division 01 Specification Sections, apply to this Section.

1.02 DEFINITIONS

- A. Furnish – supply equipment to the project for use or installation by others.
- B. Install – install equipment provided to the project by others.
- C. Provide – supply and install equipment.

1.03 WORK INCLUDED

- A. Provide fixed theatre seating and related items, as indicated on the drawings, specified here, and as required to complete the installation.

1.04 RELATED WORK

- A. Related work which is not part of the Fixed Seating Contract includes, but is not limited to, the following:
 - 1. Auditorium floors.
 - 2. Demountable platforms.
 - 3. Handrails and guardrails.
 - 4. Electrical services and connections.
 - 5. Electrical connection to aisle lights.
 - 6. HVAC System

1.05 ACCEPTABLE MANUFACTURERS

- A. The following are acceptable manufacturers:
 - 1. Hussey Seating Company
38 Dyer Street Extension
North Berwick, Maine 03906
Tel: (207)-676-2271
 - 2. Irwin Seating Company
PO Box 2429
3251 Fruit Ridge Road NW
Grand Rapids MI 49504
(616) 784-2881
 - 3. Wenger Corporation
555 Park Drive
Owatonna, MN 55060
507.774.8570

1.06 QUALITY ASSURANCE

- A. Product reference: See section 2.1 below and refer to the Design Intent drawings for design details. (if applicable)
- B. The installation shall comply with the applicable requirements of the laws, codes, ordinances and regulation of the Federal, State and Municipal authorities having jurisdiction.
- C. Seating manufacturer shall verify that minimum clearances shall meet ADAAG (ADA Accessibility Guidelines for Buildings and Facilities) regulations and local code.

1.07 SUBMITTALS

- A. If product coordination shop drawings or seating layout review is required more than three times because of seating manufacturer's failure to incorporate earlier comments, all subsequent reviews will be charged on a time and materials basis to the seating manufacturer.
- B. Shop drawings shall be of uniform size, bound and include the following:
 - 1. Title sheet listing all sheets in the submittal.
 - 2. Scale plans and elevations.
 - 3. All information necessary to explain fully the design features, appearance, function, fabrication, installation, and use of components in all phases of operation.
 - 4. Country or origin for equipment not manufactured in the United States.
- C. Product coordination shop drawings shall include the following:
 - 1. Complete plans for all levels indicating dimensions to aisle light stub-ups.
 - 2. Details showing methods of seat installation and anchorage, relationship to adjacent work and complete setting diagrams.
 - 3. Detail sections and elevations for each different seat condition, showing back pitch, viewer eye location, and clear distance from adjacent seat or guardrail with the seat both up and down, and (where applicable) the relationship to the adjacent riser or wall.
 - 4. Hinged end standard details.
 - 5. Removable seat details, including means of attachment to demountable platforms, if applicable.
 - 6. Details of aisle lighting connections, including connections for seats on platforms and removable seats.
- D. Submit product development sample following approval of product coordination shop drawings. Fabrication shall not commence until the Theatre Consultant, the Architect, and the Owner determine that the product coordination shop drawing and sample are in compliance with the design intent of the Contract Documents.
- E. Following approval of the product coordination shop drawings and once accurate as-built field measurements of the seating areas can be obtained, submit the seating layout for approval. The seating layout shall include the following:
 - 1. Complete seating plans for all levels, showing all seats, seat sizes, locations of base structures, aisle widths, end standards, transfer arms, and aisle lights.
 - 2. Field measurements and survey information. Seating layout will not be approved unless all dimensions have been field verified.
- F. Submit complete manufacturer's product data for all work in this Section, consisting of complete product description and specifications, catalog cuts, laboratory test results, installation instructions, maintenance instructions, and other data required for product approval and use.
- G. Submit the following detail samples for approval:
 - 1. 8-inch square minimum piece of wood in the species and finish specified, for both solid and laminated applications.
 - 2. 3-inch square minimum piece of metal in the finish specified.
 - 3. 12-inch square minimum piece of each fabric type of the material specified.
 - 4. Seat number and row letter plate.
- H. The product development sample shall be complete in every respect, including upholstery and finishes. The architect reserves the right to request replacement samples or portions of the samples until the appropriate party's approval has been obtained. The samples may not be incorporated in the final installation. Samples shall remain the property of the Owner/Operator.

- I. Submit written approval of the proposed seating as required from all building, safety, and fire officials and agencies having jurisdiction over the work. Copies of all such approvals shall be delivered to the appropriate party and the Owner prior to installation.
- J. Provide an instruction and maintenance manual in a 3-ring binder for the Owner at time of installation. In addition, provide electronic copies on thumb drives for the Owner, Architect and Theatre Consultant. Electronic copies shall be in PDF format. The manual shall include:
 - 1. Manufacturer and installer contact information.
 - 2. Spare parts list and source information, including upholstery fabric.
 - 3. Recommended procedures for cleaning, touch-up and maintenance of all finished surfaces and upholstery, including all precautions against materials and methods which could damage upholstery fabric and/or its fire retardance characteristics.
 - 4. Catalog cuts for standard equipment
 - 5. “As-built” drawings showing all seating as installed.
- K. Provide a full attic-stock inventory list.

1.08 WARRANTY

- A. Warrant the equipment in this Section to be free of defective components, faulty workmanship and improper installation and adjustment for a period of 5 years after acceptance of the completed installation by the Owner. Items showing evidence of defective materials or workmanship shall be repaired and replaced at no cost to the Owner within 15 days of notification. Rectify conditions that might present a hazard to human life or property within 48 hours of notification. The Warranty shall not cover the results of normal use, nor shall it cover damage due to neglect or improper use or vandalism.

PART 2 PRODUCTS

2.01 PRODUCT REFERENCE

- A. Product reference for the fixed seating is as follows or equal:
 - 1. Irwin Seating Model “Citation”, which includes the following:
 - a. No. 12 Upholstered, self-rising 3/4-fold seat with black injection molded pan.
 - b. No. 90 Citation molded plastic back with upholstered front.
 - c. No. 10 enclosed end standard with veneer surfaced insert panel.
 - d. Steel center standards.
 - e. Standard solid maple hardwood arm rests with comfort curve profile.
 - 2. Hussey Seating Company Model “Quattro Traditional” detailed as above is a pre-approved equal.

2.02 METAL COMPONENTS

- A. Metal components shall be of sufficient gauge and designed to withstand normal use and abuse.
- B. Metal components shall have smooth surfaces, including cut edges. Grind all welded connections smooth. Cut plate parts shall have dressed edges.
- C. All exposed metal parts, including bolts and hardware, shall be powder-coated steel with a hybrid thermosetting powder coat finish. The powder coat finish shall be applied by electrostatic means to a thickness of 2 - 2.5 mils and shall provide a durable coating having a 2H Pencil hardness. Prior to powder coating, metal parts shall be treated with a five-stage bonderization process for superior finish adhesion, and after coating shall be oven baked to cause proper flow of the epoxy powder to result in a smooth, durable finish.

- D. Paint colors shall be determined by the Architect from within Manufacturer's standard color range. Paint application shall be of sufficient film depth to afford wear resistance of institutional quality.

2.03 WOOD

- A. Plywood, whether exposed or concealed, shall be hardwood. Plywood shall be hot press laminated (16 plies per inch thickness minimum) using high frequency process. Interior plies shall be Maple, Class 3 or better. Exposed, exterior plies shall be select veneer Maple, Class 1, continuous, and selected as to color. Plies shall be of equal thickness, without voids or defects affecting appearance or performance.
- B. Milled maple shall be clear, well-seasoned stock, containing no defects affecting appearance or performance, and shall be selected as to color.
- C. Wood species shall be North American Maple.

2.04 WOOD FINISHES

- A. All exposed wood parts shall be stained to the color selected by Architect from within the Manufacturer's standard color range and provided with a high-quality furniture finish, produced with two top coats of high density clear lacquer following stroke-sanding of raw wooden parts, sealing, and light preparatory sanding prior to both lacquer top coats. Film depth must be sufficient to afford wear resistance of institutional quality.
- B. If field applied, wood finishes shall meet the requirements of Section 01415: VOC Limits for Adhesives, Sealants and Paints. The maximum allowable VOC content for lacquer is 275 grams/liter.

2.05 PADDING

- A. Seat and back padding material shall be of new (prime manufacture) open cell, medium density polyurethane foam. Padding material shall comply with the flammability requirements outlined in the California Technical Information Bulletin #117, Resilient Cellular Materials, Section A & D, dated February 1975, when tested in accordance with Federal Test Method Standard 191, Method 5903.2.

2.06 FABRICS

- A. Seat Cushion Upholstery fabric shall be selected from the manufacturer's standard line:
 - a. Successful bidder shall provide a memo-sized sample booklet for the Architect's use.
 - b. An 8-inch square minimum fabric sample of the selected fabric shall be submitted with relevant manufacturer and dye lot information.
- B. Seat fabric material shall meet Class 1 flammability requirements of the U.S. Department of Commerce Commercial Standard 191-53 per Bulletin #117 and to applicable local codes. (Include Bulletin #133 for Boston or California)
- C. Seat fabric shall meet wearability criteria – double rub – Wyzenbeek 100,000, heavy duty test.

2.07 SEAT PANS

- A. Seat pans shall be self-rising, gravity return or compression spring. Self-rise shall be essentially silent.
- B. Seat cushions shall be fully upholstered, with glass-filled, injection molded polypropylene pan fully enclosing the hinge mechanism.
- C. Fabric covering sewn into box construction shall be without welts and securely attached without the use of staples, tacks or screws. Lock the first and last 1-1/2 inches of stitching. Fabric shall extend a minimum of 3/8-inch past the stitching.

- D. Pivot and stop mechanisms shall be totally enclosed. All stops shall have neoprene pads for quiet operation.
- E. Plastic seat pan shall be of a color chosen from the manufacturer's standard line.
- F. Foam seat cushions shall contain a minimum of 2~~3~~-1/2 inches of molded polyurethane foam.
- G. Seat pans should incorporate seat number identification plates, centered and recessed in the leading edge of the seat pan. Plates shall be natural satin anodized stamped aluminum with engraved black numbers and concealed/ tamper proof fixation hardware.

2.08 SEAT BACKS

- A. Fabricate the chair backs as padded, upholstered components with molded black plastic outer back.
- B. Back inside wood upholstery panel shall be of plywood of not less than 5-ply construction and not less than 5/16" thick.
- C. Where inside upholstered panels and exposed back panels connect, they shall be formed on the same radius and mounted to each other using concealed fasteners.
- D. Foam back cushions shall be minimum of 1½ inches and max of 2 ½ inches thick polyurethane foam cemented to the inside panel and covered with back fabric as outlined above.
- E. All plastic component finishes shall match.

2.09 ARM RESTS

- A. Armrests shall be solid Maple as per Architect's sample and finished to match end standard. Armrests will be mounted onto metal standards. Armrests will have 2 keyhole slots to lock onto dovetail lugs on standards and one security screw.
- B. The armrest must be capable of being fitted as a transfer armrest where necessary, as shown on drawings. The shape of these transfer armrests will have no visible difference to the non-transfer armrests. The transfer armrests will have natural satin anodized stamped aluminum plates to identify them with an ADA international insignia. Transfer armrests shall be mounted so that the hinge and hardware are hidden.
- C. End-standard armrests shall incorporate concealed aisle lights as described below and located as indicated in Electrical Drawings.
- D. End-standard armrests should incorporate row identification plates recessed in arm. Plates shall be natural satin anodized stamped aluminum with engraved black lettering and concealed/ tamper proof fixation hardware.

2.10 STANDARDS

- A. Standards shall be floor mount 14-gauge (minimum) steel structure.
- B. Center standards shall be modern pedestal welded steel design fabricated of 14-gauge steel to a 1" x 3" vertical rectangular column. Brackets for seat support shall be 7 gauge MIG-welded to pedestal. Wing plates for mounting backs to be 14 gauge steel. A 14 gauge steel foot shall be welded to bottom of column, all around column, and concealed on inside. Any protruding anchorage rod shall be capped with acorn nuts or approved equivalent. The standard shall be fabricated to be compatible with floor incline and to maintain seat and back height regardless of slopes. Standards shall be painted black.
- C. Provide hinged end-standards (transfer arms) where shown on the drawings.
- D. End-standards with transfer arms shall be of the same style and construction as normal end-standards with slight modification as necessary to accommodate hinges, floor slopes, and removable seating requirements.

- E. End standards shall have row identification plates. Plate finish shall match seat identification plate.
- F. The end panels are to be minimum ¾-inch thick plywood with maple veneer and a 2-inch wide X ¾-inch thick solid block front, and shall be finished to match the back and seat bottom. End panel will be mounted onto metal standards.

2.11 AISLE LIGHTS

- A. Aisle lights shall be low voltage LED non-hazardous fixtures, utilizing a miniature element in sufficient quantity to provide adequate illumination (minimum 2/10 foot candle) for floor and steps adjacent to the end-standards. The light assembly shall be recessed under the end-standard armrest, concealed from sight and protected from damage. The standard shall be completely pre-wired with an 18-inch lead extending beyond the standard.
- B. Provide each standard with a 18" black flex-steel conduit connector through which the lead passes. Low-voltage cabling may use approved non-steel black flexible sleeving.
- C. Provide dimmable transformers, suitably housed in steel safety enclosures and equipped with primary and secondary fuses, terminal blocks, and safety disconnects. The transformers shall be in a remote location, as shown on the Electrical drawings.
- D. All electrical components shall be UL approved.
- E. Wiring connections from the electrical distribution system to the end standards, as well as installation and connection of the voltage reduction device shall be by the Electrical Contractor.
- F. Provide quantity and location of aisle lights as indicated in architectural drawings.

2.12 IMPACT CRITERIA

- A. Seats shall be capable of withstanding the repeated impact of a 40-pound sand bag dropped onto the seat pan from a height of 12 inches. The front edge of the seat pan shall not drop more than ¾ inch.
- B. The seats shall be certified to withstand a 600 lbs. static load, laterally distributed three inches from the leading edge of the seat. The seat shall also be certified to pass seat cycle oscillation testing, ASTM Designation F851-87 Test Method for Self-Rising Seat Mechanism, and sandbag testing.
- C. Seats shall be capable of withstanding without failure the repeated impact of two 40-pound sandbags suspended 10 inches below the top of the chair back and on both sides of the chair back.

2.13 SEATING LAYOUT

- A. Provide seats of varying widths with standards in each row spaced laterally so that the end standards will be in alignment from the first to last row, whether aisles are of constant or varying widths. The average seat width shall be at least 21 inches. Seating shall be staggered to optimize sightlines. Seat width distribution and seat quantities indicated on the Seating Drawings (TS-xxx) shall be reviewed and confirmed by the manufacturer.
- B. Final seating layout shall be determined based on actual field conditions and measurements. If field conditions warrant a change in the seating layout, the Architect and Theatre Consultant shall be notified before installation. Changes in the layout shall be documented and approved by the Architect and Theatre Consultant prior to installation.

2.14 REMOVABLE SEATS

- A. Provide removable seats where shown on the drawings.
- B. A maximum of 3 seats shall be ganged.

- C. Each removable seat or gang of seats for wheelchair viewing positions shall have self-contained arms.
- D. Each removable seat or gang of seats shall have a quick-release device for attachment to floor. This shall consist of a thumbscrew and insert with threaded connection.
- E. Provide a sled base for each removable seat, or group of seats.
- F. The plug and receptacle for removable seats are to be furnished by the Seating Manufacturer and shall be NEMA ML-1P midget locking plugs. They shall be installed by the Electrical Contractor. The manufacturer shall coordinate with the Electrical Contractor, immediately upon receipt of approved shop drawings, the type and quantity of connectors required.

2.15 MAINTENANCE MATERIALS

- A. Provide cut and sewn seat and back covers for 1 percent of the seating installed, per venue. Covers shall be produced at the same time, using identical fabric and shall be presented to the Owner upon completion of the seating installation. Cover sizes and colors shall be prorated according to the seating sizes in the final layout.
- B. Provide an additional 20 yards per fabric for each type of upholstery, and each type shall be of the same dye lot as the balance of the project.
- C. Provide complete spare chairs components for 1 percent of the installed seating, proportional to each configuration of seat supplied (e.g. removable seats, transfer arm seats, 20" seats, 21" seats, 22" seats, balcony back angle seats, orchestra back angle seats, etc.), with a minimum of 10 chairs per type/size, and a minimum of 1 piece per component.

PART 3 EXECUTION

3.01 PREPARATION

- A. Before beginning the installation, check all construction and substrate materials to receive the seating to assure that they are sound, rigid, properly sized and located, level (or properly sloped), plumb and square, and that there is nothing to prevent proper and timely execution of the installation. All overhead work, including painting, staining, and finishing shall be finished prior to start of chair installation. Concrete floors shall have a clear 3" of 3000 psi concrete above top of metal deck fluting.
- B. Do not proceed until unsatisfactory conditions have been corrected. Start of work shall indicate acceptance of the substrate and surrounding conditions.

3.02 PROTECTION OF EQUIPMENT

- A. Protect the materials in this Section from soiling and damage during all phases of the work, from the time of manufacture to installation.
- B. Cover the seats to protect them from dust, paint, carpet installation, and debris as required during and after installation.

3.03 COORDINATION

- A. The Contractor is responsible for reviewing all drawings, specifications, and field conditions which affect the work in this Section. Notify the Architect whenever field measurements, analysis of the drawings and specifications, or progress of other trades indicates that the work in this Section cannot be completed as specified or as scheduled.
- B. Within 6 weeks of the award of contract, and prior to the preparation of shop drawings, the Fixed Theatre Seating Contractor shall submit a written review of related work as it appears on the Contract Documents. The review shall identify errors, omissions or obstructions related to

the installation and operation of the equipment in this Section. The sole intent of this written review is to identify potential problems as soon as possible. It is understood that some errors, omissions or obstructions may not be evident until the Contractor prepares shop drawings.

3.04 INSTALLATION

- A. Installation shall be by the manufacturer or an authorized dealer or agent of the manufacturer. All installation work shall be carried out under the supervision of a capable superintendent experienced in the installation of seating of similar type and quality.
- B. Coordinate the installation schedule as required with related trades.
- C. Coordinate the cutting and coring of air supply and return holes with related trades, if applicable.
- D. Commencement of installation means acceptance of site conditions.
- E. The installation shall conform to the approved shop drawings and layout drawings and to the printed installation instructions of the manufacturer.
- F. Floor anchorages shall be of sufficient strength and capacity to assure safe, rigid, and permanent attachment.
- G. All related work for installation, such as drilling, coring, and cutting through finish floor materials in place at the time of installation shall be done as work of this Section.
- H. Upon completion of the installation, adjust all operating parts and assemblies for proper quiet operation. Clean and polish all exposed surfaces.
- I. Adjust seats as required to assure that seats in each row are aligned when in upright position.

3.05 CLEANING AND REPAIR

- A. Remove all cartons, wrappings and debris associated with the installation from the building and legally dispose of same.
- B. Upon completion of the installation, touch-up all marred finishes with coating to match factory-applied finish. Replace any unit whose finish cannot be restored to high quality appearance, in the opinion of the Architect and Theatre Consultant.
If field applied, wood finishes shall meet the requirements of Section 01415: VOC Limits for Adhesives, Sealants and Paints. The maximum allowable VOC content for lacquer is 275 grams/liter.
- C. Replace upholstery which has been damaged in installation. Replacement of upholstery shall not deplete the extra materials stock.
- D. Upon completion of the installation, leave all areas of installation broom clean.

3.06 DEMONSTRATION

- A. Installed seating shall be inspected for quality by the Owner, the Architect and the Theatre Consultant.
- B. Any necessary adjustments or modifications shall be made as required to comply with approved shop drawings.
- C. Owner's designated staff or representatives shall be instructed in the care and maintenance of all items.
- D. Tests and instruction to be scheduled in conformance with project construction schedules and the availability of the Owner, the Architect, the Acoustics Consultant, and the Theatre Consultant, pending on-time approvals of all prior requirements.
- E. Cost of reinspection and additional testing by the Architect or the Theatre Consultant, if required due to lack of completion and/or errors and omissions made by the manufacturer or

installer shall be paid by the Seating Contractor or the General Contractor respective to the area of work concerned. This work will be conducted on a time and materials basis, including the Architect's and the Theatre Consultant's standard hourly rates, and shall be scheduled and approved in writing prior to the reinspection/testing session between 1) the Architect, the Theatre Consultant and the Owner, and 2) the Owner and the contractor(s).

END OF SECTION

SECTION 12 66 23 - TELESCOPING BLEACHERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED

- A. In the Gymnasium, provide wall-attached telescoping bleachers and related items as indicated on the drawings, specified here, and as required to complete the installation.

1.03 RELATED WORK

- A. Section 12 66 23 – Telescoping Chair Platforms: Telescoping audience seating in the Auditorium.

1.04 REFERENCES

- A. American Plywood Association (APA)
 - 1. DOC PS 1-09, Structural Plywood.
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM A 36/A 36M-19, Standard Specification for Carbon Structural Steel.
 - 2. ASTM A 653/A 653M-20, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 3. ASTM A 500-21a, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 4. ASTM A 501-21, Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
 - 5. ASTM A 513-20a, Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
 - 6. ASTM A 1008/A 1008M-21a, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable.
 - 7. ASTM A 1011/A 1011M-18a, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
 - 8. ASTM B 221/B 221M-21, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- C. American Welding Society (AWS)
 - 1. AWS D1.1-2020, Structural Welding Code – Steel.
 - 2. AWS D1.3-2018, Structural Welding Code – Sheet Steel.
- D. International Code Council (ICC)
 - 1. ICC 300-2017, Standard on Bleachers, Folding and Telescopic Seating, and Grandstands.
- E. National Fire Protection Association (NFPA)
 - 1. NFPA 102-2021, Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures.
- F. Southern Pine Inspection Bureau (SPIB)
 - 1. 2021 Standard Grading Rules for Southern Pine Lumber.

1.05 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design telescoping stands, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance: Telescoping stands shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ICC 300 and NFPA 102.

1.06 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for telescoping stands.
- B. Shop Drawings: For telescoping stands in both stacked and extended positions. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For units with factory-applied finishes.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Decking: 6-inch square Samples of finished material.
 - 2. Metal Components: 6-inch square Sample of each color and finish indicated.
 - 3. Seating: 6-inch square Sample of each seating material, color, and finish indicated.
- E. Delegated-Design Submittal: For telescoping stands indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.07 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer & professional engineer.
- B. Welding certificates.
- C. Product Certificates.

1.08 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For telescoping stands to include in operation and maintenance manuals.
 - 1. Precautions for cleaning materials and methods that could be detrimental to telescoping stand finishes and performance.

1.09 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," and AWS D1.3, "Structural Welding Code - Sheet Steel."
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Standard: Provide telescoping stands to comply with ICC 300 & NFPA 102.
- E. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.10 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings and construction contiguous with telescoping stands by field measurements before fabrication. Verify locations of walls, columns, and other construction that will interface with operating telescoping stands.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Wood
 - 1. Lumber: Kiln dried, surfaced four sides; southern pine complying with SPIB's "Standard Grading Rules for Southern Pine Lumber" for grade-of-finish requirements.
 - 2. Plywood: APA-grade trademarked, DOC PS 1.
- B. Steel
 - 1. Structural-Steel Shapes, Plates, and Bars: ASTM A 36/A 36M.
 - 2. Galvanized-Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.
 - 3. Uncoated Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold-rolled commercial steel), or ASTM A 1011/A 1011M, Designation CS (hot-rolled commercial steel).
 - 4. Tubing: ASTM A 500, cold formed; ASTM A 501, hot formed; or ASTM A 513, mechanical.
- C. Extruded Aluminum: ASTM B 221 (ASTM B 221M), alloy as standard for manufacturer.

2.02 TELESCOPING STANDS

- A. General: Operable systems of multiple-tiered seating on interconnected folding platforms that close, without being dismantled, into a nested stack for storing. Stand units permit opening and closing of adjacent rows, allow individual and collective rows to be locked open for use, and close with vertical faces of upper skirts on the same vertical plane.
- B. Wall-Attached Telescoping Stands: Forward-folding system, in which the bleachers open in the forward direction by initially moving the front row away from the stack to the fully extended position, and the rear of bleacher understructure is permanently attached to wall construction.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Irwin Seating's "VersaTract" or a comparable product by one of the following:
 - a. Hussey Seating Company.
 - b. Interkal LLC.
 - c. Kodiak Industries Ltd.
 - 2. Row Spacing: 26"
 - 3. Row Rise: 10" nominal.
 - 4. Motor Operation: Manufacturer's standard drive mechanism, using motor adequately sized for the purpose.
 - a. All electrical components and wiring to be UL listed. Provide all wiring internal to bleacher units, to junction box located where indicated, ensure that wiring is not energized except during operation.
 - 1) Electrical Characteristics: Three-phase power per manufacturer's requirements.
 - b. Controls: Start, Stop, Forward and Reverse in a single control unit.
 - c. Limit Switches: Automatically stop integral power system when telescoping stands reach fully opened or closed positions.
 - d. Motion Monitor: Flashing light with self-contained warning horn, rated at 85 dB at 10 feet, mounted under telescoping seating for audio and visual warning during integral power operation.

- e. Transformer: As required to coordinate current characteristics of motor and control station with building electrical system.
- f. Remote Control: Removable plug-in low-voltage pendant station, with first-row plug-in location for each monitor.
- 5. Design Loads: Design to withstand the following loading conditions.
 - a. Live Load on Structural Supports: 100 psf, minimum, of gross horizontal projection.
 - b. Live Load on Seats and Walking Surfaces: 120 pounds per linear foot.
 - c. Lateral Sway Stress on Structural Supports: 24 pounds per linear foot of seat plank.
 - d. Perpendicular Sway Stress on Structural Supports: 10 pounds per linear foot of seat.
- 6. Structural Supports: Steel or aluminum; manufacturer's standard wheeled carriages supporting each tier separately, with moving parts permanently lubricated and metal parts cushioned to prevent metal-to-metal contact during operation.
 - a. Design each row carriage so that it will individually support the design loads and is self-supporting when fully assembled without dependence on platform panels or boards, seats, or fascia.
 - b. Welding: In accordance with AWS D1.1 and AWS D1.3.
 - c. Bolting: Use lock-washers or locknuts
 - d. Wheels: Minimum 5" diameter by 1-1/8" inch wide, with non-marring rubber tires; ball, roller, or oil-impregnated metal bearings; minimum of 2 wheels at each floor support.
 - e. Row Locking: Automatically mechanically lock each carriage to adjacent carriages when fully extended.
 - f. Unlocking: Automatically unlock all rows before engaging retraction mechanism.

2.03 COMPONENTS

- A. Benches: Seats and skirts.
 - 1. Manufacturer and model line: Infinity Seating Module by Irwin or equal.
 - 2. Bench Height: Not less than 16 inches or more than 18 inches
 - 3. Bench Depth: 10 inches
- B. Wheelchair-Accessible Seating: Locate seating cutouts to provide wheelchair-accessible seating at locations indicated on Drawings.
 - 1. Equip tiers adjacent to wheelchair-accessible seating with front rails as required by referenced safety standard.
 - 2. Equip cutouts with full-width front closure panels that match decking construction and finish and that extend from underside of tiers adjacent to cutouts to 1-1/2 inches from finished floor.
- C. Deck: 5/8" minimum clear coat plywood.
- D. Extended Rear Deck Filler: Provide an extended rear deck filler mounted between rear wall building columns. Provide appropriately sized rear filler on each bleacher to allow for a continuous row of seating at the top row.
- E. Risers: Steel sheet with manufacturer's standard rust-inhibiting coating or hot-dip galvanized finish.
- F. Safety Rails: Structural steel, finished with manufacturer's standard powder coat system.
 - 1. Folding / Self-storing mid-aisle handrails located at centerline of each vertical aisle with seating on both sides.
 - 2. End rails (guards) that are telescoping and self-storing.
 - 3. Back rails (guards) along rear of units where required by referenced safety standard.
 - 4. Color: As selected by Architect from manufacturer's standard colors

- G. Understructure: Structural steel.
 - 1. Finish: Manufacturer's standard.
- H. Support Column Wheels: Nonmarring, soft, rubber-face wheel assembly under each support column.
 - 1. Include wheels of size, number, and design required to support stands and operate smoothly without damaging the flooring surface, but no fewer than four per column or less than 3-1/2 inches in diameter and 1 inch wide.
- I. Fasteners & Anchorage: Vibration proof, in manufacturer's standard size and material.

2.04 ACCESSORIES

- A. Steps
 - 1. Slip-resistant, abrasive tread nosings at vertical aisles.
 - 2. Intermediate aisle steps, fully enclosed, at each vertical aisle.
 - 3. Transitional top step, fully enclosed, at each vertical aisle where last row of telescoping stands is adjacent to a cross aisle.
 - 4. Removable front steps, fully enclosed, at each vertical aisle, that engage with front row to prevent accidental separation or movement and are equipped with a minimum of four skid-resistant feet.
- B. Closure Panels and Void Fillers
 - 1. Aisle closures at foot level that produce flush vertical face at aisles when system is stored.
 - 2. End panels covering exposed ends of stands in the stored position.
 - 3. Panels at cutouts and truncations for accessible seating.
 - 4. Rear fillers including supports for closing openings between top row and rear wall of adjoining construction.
 - 5. Gap fillers for closing openings between stand units or between stand units and adjoining construction.
- C. Signage: Accessibility signs at each accessible space and accessible aisle seat.

2.05 FABRICATION

- A. Fabricate understructure from structural-steel members in size, spacing, and form required to support design loads specified in referenced safety standard.
- B. Weld understructure to comply with applicable AWS standards.
- C. Round corners and edges of components and exposed fasteners to reduce snagging and pinching hazards.
- D. Form exposed sheet metal with flat, flush surfaces, level and true in line, and without cracking and grain separation.
- E. Seating Supports: Fabricate supports to withstand, without damage to components, the forces imposed by use of stands without failure or other conditions that might impair the usefulness of seating units.
 - 1. Cantilever bench seat supports to produce toe space uninterrupted by vertical bracing.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas where telescoping stands are to be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install telescoping stands to comply with referenced safety standard and manufacturer's written instructions.

3.03 ADJUSTING AND CLEANING

- A. On completion of installation, lubricate, test, and adjust each telescoping stand unit so that it operates according to manufacturer's written operating instructions.
- B. Clean installed telescoping stands on exposed and semi-exposed surfaces. Touch up shop-applied finishes or replace components as required to restore damaged or soiled areas.

3.04 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain telescoping stands.

END OF SECTION

SECTION 12 66 23 – TELESCOPING CHAIR PLATFORMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary conditions and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED

- A. The work in this Section includes all labor, materials and equipment to furnish and install the telescopic seating system described here and shown on the Contract Drawings.
- B. Provide telescopic riser units and all accessory items required to achieve the seating configurations shown on the Contract Drawing. Accessory items include, but are not limited to, guardrails and steps.

1.03 RELATED WORK

- A. Related Work: Related work includes, but is not limited to, the following:
 - 1. Theatre and storage area floors.
 - 2. Electrical service and interconnections

1.04 WARRANTY

- A. Warrant the equipment in this Section to be free of defects in materials and workmanship for a period of 5 years after acceptance of the completed installation by the Owner. Defective work shall be repaired and replaced at no cost to the Owner. The Warranty shall not cover the results of normal use, nor shall it cover damage due to neglect or improper use of the equipment.

1.05 SUBMITTALS

- A. Submit shop drawings for fabrication and installation. Include plans, elevations, and details as required. Indicate materials, methods, finishes, attachments, and accessory items.
- B. Submit verification that the floor is properly constructed and suitable for all phases of the telescopic riser operation.
- C. Shop drawings shall indicate the load imposed on the floor when the riser is in both the extended and retracted positions, as well as the load imposed when the unit is raised on its transport wheels and moved across the floor.
- D. The Manufacturer shall employ a registered, licensed engineer to certify that equipment supplied meets or exceeds the design criteria of the Contract Documents.
- E. Provide samples of chair colors and fabrics, carpet, colored plastic, and painted material for the Architect's review.
- F. Provide the Owner with an operation and maintenance manual.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. The telescopic riser system shall be manufactured by one of the following:
 - 1. Audience Systems
19B Washington Rd.
West Wilts Trading Estate
Westbury Wiltshire, BA13 4JP
Tim Whiting
610-644-3157

2. Hussey Seatway
3 Centurian Way
Crusader Park
Warminster Wiltshire, BA12 8BT
Logan Grier
410-638-6358

2.02 FINISHES

- A. Metal parts shall be free from rust, scale, dirt, and welding spatter. All weldments or other metal components shall receive a coat of corrosion resistant primer prior to finish coating and component assembly.
- B. The steel understructure and risers shall be painted with corrosion resistant, low gloss enamel. Color: black.
- C. Visible aluminum components, including nosings, shall have black powder-coated finish.
- D. All exposed bolt and rivet heads shall be black or painted black.

2.03 DESIGN CRITERIA

- A. Telescopic seating platform system shall be designed to support, in addition to its own weight, and the weight of added accessories, a uniformly distributed live load of not less than 100 lbs. per square foot of gross horizontal projection.
- B. Telescopic seating shall be designed to withstand a sway force applied to seats of 24 pounds per linear foot parallel to the seats and 10 pounds per linear foot perpendicular to the seats. Sway forces shall not be considered simultaneously applied.
- C. Railings, posts and sockets shall be designed to withstand the following forces applied separately:
 1. A concentrated load of 200 pounds at any point and in any direction along the top railing member and;
 2. A uniform load of 50 pounds per foot applied horizontally at the required guardrail height and simultaneous uniform load of 100 pounds per foot vertically downward at the top of the guardrail. The concentrated and uniform loading conditions shall not be required to be applied simultaneously.
- D. American Institute of Steel Construction (AISC), American Iron and Steel Institute (AISI) and Aluminum Association (AA) design criteria shall be the basis for calculation of member sizes and connections.
- E. Wood members shall be designed in accordance with National Forest Products Association, (NFOPA), and National Design Specification for Wood Construction.

2.04 DESCRIPTION

- A. The telescopic riser system shall consist of multiple tiers of closed deck chair platforms. Platforms shall be operable on the telescopic principal, stacking vertically in minimal floor area when not in use. All rows shall be mechanically locked, operable only when unlocking and cycling the first row. Each platform row shall be comprised of a closed decking component, a complete set of supportive frames, braces and upholstered, integral chairs.
- B. The first moving row shall be secured with both friction and mechanical locks. All other rows shall be mechanically locked, operable only upon unlocking and cycling of the first row.

2.05 FABRICATION

- A. Steel supports and rolling frames shall be constructed of formed steel shapes of the size and shape necessary to support the design loads.

- B. Wheels shall not be less than 6 inch non-marring soft rubber face to protect wood or synthetic floor surfaces. Each operating row shall have a minimum of 6 wheels.
- C. Wheel channels shall be continuously in contact with adjacent channels by nylon guides, to eliminate metal to metal contact, and non-binding guide rods to provide alignment when opening and closing.
- D. Cantilever arms shall be equipped with a heavy duty roller to assure adequate row to row support and smooth operation. Cantilever arms shall be field adjustable.
- E. Vertical columns shall be structural tube to meet design criteria.
- F. Deck supports shall be bolted to the rear beam, nose, and deck board with locking hardware. Supports shall be equipped with a heavy duty roller to assure adequate row to row support and smooth operation.

2.06 AISLE STEPS

- A. Aisle steps shall be permanently attached, closed design. The front step shall be hinged for storage on first row deck without the need for removal.

2.07 CARPETING

- A. Risers and decks shall be carpeted with 26-ounce commercial grade, low level, looped olefin fiber carpet with polypropylene backing. Color to be selected from manufacturer's standard.

2.08 AISLE HANDRAILS

- A. Removable aisle railings shall be an individual rail design, located on both sides of every row. Rail pockets that protrude beyond the face of the riser while in the closed position, or railings with blunt, non-turned ends will not be allowed.
- B. Provide storage carts or integrated storage hooks within the stored unit for railings.

2.09 AISLE LIGHTS

- A. Aisle lights to be located as shown on the drawings or as required for code compliance.
- B. Lights shall be low voltage. Provide dimming transformers, controls, and wiring as required.

2.10 CHAIRS

- A. Chairs shall have blow mold plastic backs and seats with padded, upholstered inserts, and plastic armrests. Fabric shall be selected by the Architect from the manufacturer's standard.
- B. Chairs shall be provided in 20, 21 and 22 inch widths to achieve staggered seating and even row ends.
- C. Chairs shall be beam-mounted for integral fold-down operation. Chair seats shall be fully cantilevered and hinged at the rear. Seats shall be self-rising to a uniform 3/4 safety fold.
- D. Chairs shall be ganged in groups, and manually raised and lowered. Chair operation shall be semi-automatic, where counterbalanced chairs are manually raised and lowered in groups with a maximum of 14 chairs.
- E. Provide row letters and seat numbers.

2.11 CARPETING

- A. Carpeted decking shall be 26 ounce commercial grade, low level, looped olefin fiber carpet with polypropylene backing. Apply carpet with to 5/8 inch carpet grade plywood. Color to be selected from manufacturer's standard.
- B. Nosing shall be one piece, formed, 14 gauge steel with black powder coated finish.
- C. Nosing with panelam or carpeted decks shall be aluminum extrusion. Finish to be black anodized.

2.12 EXTENSION / RETRACTION SYSTEM

- A. Risers shall open and close, by the friction drive system, as a complete unit. The manufacturer will determine the number of power units required based on the group length and number of rows involved. Hinging of the lower skirt board is not acceptable.
- B. Each power unit shall use two large 6" diameter by 9 1/2" long tubes with non-marring 1/2" thick rubber covering to grip floor for opening and closing.
- C. The power units shall develop tractive forces adequate to operate risers under normal conditions but inadequate to operate should significant obstacles be encountered.
- D. Manufacturer shall provide all wiring from power source within riser seating including pendant control. Removable pendant control shall be handheld with forward and reverse button, plugging into a single receptacle. Electrical contractor shall provide power source behind the seating as shown on the electrical plans. Amperage to be as specified by seating manufacturer depending on the number of power units required. For wall-attached installations, power source to terminate in a surface mounted junction box above floor. For reverse units; power source to terminate in a junction box, flush mounted under first seating row in center of group. Electrical contractor shall perform the connections to the seating equipment at the junction box. All electrical parts and wiring shall be installed in complete accord with the National Electric Code. ALL SYSTEMS SHALL BE DESIGNED TO COMPLY WITH U.L. (U.L. Listing #E168517)

2.13 TABLET ARMS

- A. Provide tablet arms as indicated on the drawings.
- B. Tablet shall be designed with a self-retracting mechanism wherein the tablet flips out of the way and drops down to allow clear passage of the occupant in an emergency.
- C. The folding writing tablets shall be high-pressure plastic laminate with a durable applied finish.
- D. Tablets shall be constructed from 5/8", 11-ply hardwood.

2.14 FASCIA PANELS

- A. Provide fascia panels as indicated on the drawings.
- B. Fascia panels shall be constructed of either high-pressure laminate, solid plastic, or MDF faced plywood.
- A-C. Panel color shall be to match Architects sample. Finish can be integral or applied.

PART 3 EXECUTION

3.01 COORDINATION

- A. The Contractor is responsible for reviewing all drawings, specifications, and field conditions which affect the work in this Section. Notify the Architect whenever field measurements, analysis of the drawings and specifications, or progress of other trades indicates that the work in this Section cannot be completed as specified or as scheduled.

3.02 JOB CONDITIONS

- A. The Manufacturer is responsible for the equipment fitting the intended spaces without interference.
- B. The Manufacturer shall visit the site and verify all dimensions and existing conditions. The Manufacturer shall survey the floor and advise the Architect of any irregularities which will adversely affect the operation of the telescopic riser system.
- C. The Manufacturer shall be familiar with the work of adjoining trades and coordinate with their work.

3.03 PROTECTION OF EQUIPMENT

- A. Protect the equipment in this Section from damage and deterioration, including rust, during all phases of the work, from the time of manufacture to installation.
- B. Notify the General Contractor or Construction Manager in writing of jobsite conditions that would adversely affect the equipment after installation. Do not install the equipment if jobsite conditions beyond the control of the RiserContractor will result in damage or deterioration, including rust.
- C. Rust resulting from flaws in manufacturing and finishing shall be covered under the Warranty.

3.04 INSTALLATION

- A. Install the risers in accordance with the Manufacturer's instructions and approved shop drawings.
- B. Adjust all equipment for smooth and proper operation.
- C. At the end of each day during the installation period, remove all refuse and scrap materials to designated collection points. Upon completion of the installation, leave all areas broom clean.

3.05 REPAIRS

- A. Repair any work or finishes that are damaged during installation by the Contractor for the work in this Section. This includes work in this Section and the work of others. Where the work of others is damaged, reimburse the appropriate contractor for the repair.

3.06 PUNCHLISTING

- A. The Contractor shall work with the General Contractor or Construction Manager to arrange for a punchlisting period for the work in this Section. Punchlisting shall consist of a minimum of one 8-hour day. The building schedule shall be such that no other conflicting or obstructing activity is taking place. The Contractor shall deploy the units in each of the configurations shown on the Contract Drawings. The Contractor shall provide sufficient labor for the required service.

3.07 TRAINING

- A. The Manufacturer shall conduct a demonstration and instruction session to assist the Owner in becoming familiar with the completed installation, and to personally instruct representatives of the Owner in the proper operation and maintenance of all equipment provided.

END OF SECTION

SECTION 28 11 00
ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES A.

Access Control cabling

- B. Access Control sensors
- C. Access Control devices
- D. Access Control headend equipment
- E. Access Control Hardware, Panels, Nodes, Card Readers, Servers, Software and associated cabling.
- F. Associated power supplies, terminations, equipment, labeling and associated cable performance testing.
- G. Wireless Locks

1.02 Definitions

- A. Access Control system refers to system database to allow or prevent access to the facility.
- B. Access Control system refers equipment including card readers, door controllers, access control panels, access control cards, access control database, door contacts, control panels, communication panels, power supplies, expansion modules and associated wiring.

1.03 System Description A.

Design Requirements

- 1. Provide labor, materials, equipment, services and operations required for complete installation of an integrated CCTV, Intrusion Detection and Access Control System.
- 2. Remote Access
 - a. The system shall provide a method for users to remotely access the system and perform all of the functions possible on an operator terminal by LAN (IP). Provide Cat 6 cable and associated connections to school's data network. Install associated Bosch system software on all administrative and custodial office computers (pc's) for controlling and monitoring system. Turn over software disc to owner after installations.
- 3. Provide labor, materials, equipment, services and operations required for a complete installation an Intrusion Detection System.
 - a. Base panel
 - b. Expansion modules

- c. Card Readers
 - d. Door Controllers
 - e. Communication Modules
 - f. Power Supplies
 - g. Controllers
 - h. Servers
 - i. Cabling and connectors
 - j. Application Software
4. All wiring shall be wired according to manufactures specifications.
- a. Refer to notes on each drawing to determine exact installation methods.
 - b. Strictly adhere to most current version of TIA/EIA Telecommunications cabling standards.
 - c. Permanently identify and label all cables and termination devices, at distribution rack and workstation in accordance with ANSI TIA/EIA-606 Standard or as agreed by Design consultant and Authority.
 - d. Remove and replace any cables failing to meet end-to-end testing requirements; do not abandon cable in place. All cable shall be terminated at both ends, unless noted in T-Drawings.
- B. Performance Requirements
- C. Access Control System Requirements
- 1. The system shall interface with the Building Controls System at the facility.
 - 2. The system shall allow or prevent access to the facility and certain areas of the facility
 - 3. The system shall provide notification of events occurring on the system
 - 4. The system shall be on emergency power systems
 - 5. The system shall be on the local area network
 - 6. The system shall be connected to the Intrusion Detection System
 - 7. The system shall integrate with other currently installed systems within the district.
 - 8. The system shall allow for a key to override any lock.
 - 9. The system shall be field controllable and programmable.
 - 10. The system shall allow for instantaneous deletion of a card holder from the system.

11. The system shall allow for access restriction.
12. The system shall have a backup database.
13. Contractor shall be responsible for form, fit, function, and coordination of all part numbers listed above, and bring to owner's attention any changes or substitutions for approval.
14. Indoor/outdoor card readers shall be recessed. No exposed conduit shall be used.
15. No surface metal raceway shall be used unless approved by owner, and if approved, shall be painted to match adjacent wall color.
16. The system shall be capable of being scheduled.
17. The systems will be capable of communicating onsite as well as to remote locations.
18. The systems shall be controllable in case of emergency situation.
19. All systems shall operate on dedicated circuits with associated cabling in EMT.

D. Codes

1. Comply with applicable requirements in Local, State and Federal Codes, TIA/EIA Standards, and BICSI methodology.
2. Specified cabling system derived from recommendations in approved telecommunications industry codes, standards and methods, including the following documents:
3. ANSI/TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises.
4. ANSI/TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
5. ANSI/TIA-568-C.2: Balanced Twisted Pair Cabling and Components Standard
6. ANSI/TIA-568-C.3: Optical Fiber Cabling Components Standard
7. ANSI/TIA-569-B: Commercial Building Standard for Telecommunications Pathways and Spaces
8. ANSI/TIA-570-B: Residential Telecommunications Cabling Standard
9. ANSI/TIA-606-A: Administration Standard for Telecommunications Infrastructure of Commercial Buildings
10. ANSI-J-STD-607-A: Commercial Building Grounding and Bonding Requirements for Telecommunications
11. ANSI/TIA-758-A: Customer-Owned Outside Plant Telecommunications Cabling Standard
12. BICSI Telecommunications Distribution Methods Manual (TDMM), Latest Edition

1.04 National Fire Protection Agency (NFPA-70): National Electrical Code (NEC) Submittals

- A. Comply with requirements of Division 0 and Division 1 - Submittals and as modified below.
- B. Product Data: Submit manufacturer's product literature, technical specifications and similar information for the following items demonstrating compliance with the specified requirements.
 - 1. Card Readers
 - 2. Network nodes
 - 3. Network Node cards
 - 4. Access Controllers
 - 5. Headend Control Panels and Communications Modules
 - 6. Power supplies
 - 7. Copper cable and termination devices.
 - 8. Inner duct and accessories.
 - 9. Wiring diagrams.
 - 10. Servers
- C. Samples: Provide samples of assemblies and connections as described below, prior to installation, for approval by designer.
 - 1. Access Control cables and devices – Submit samples of cables and terminations to be provided including following components and characteristics:
 - a. Provide all components in colors selected by Design consultant.
- D. Quality Control Submittal
 - 1. Test Reports: Submit complete sample test data and reports with exact labels used on cables termination fields.
 - 2. Certificates
 - a. Manufacturer Certification: Submit certification from manufacturer of products to be installed under this contract certifying that Installer is authorized by manufacturer to install specified products.
 - b. Installer Experience Listing: Submit list of at least 5 completed projects as specified below in "Quality Assurance – Qualifications – Installer."

- E. Contract Closeout Submittal: Comply with requirements of Division 0, including submission of operating and maintenance instructions as item in “Operation and Maintenance Data” manual described in that Section.

1.05 Quality Assurance

- A. All Work shall be installed in a first class, neat and workmanlike manner by skilled Technicians. The quality of the workmanship shall be subject to inspection and approval by authorized school district personnel. Any work found to be of inferior quality and/or workmanship shall be replaced and/or reworked until the approval of school district personnel is obtained.
- B. Qualifications
 - 1. Installer
 - a. Qualified to cable, terminate, program and test Intrusion Detection systems, and associated power wiring specified in this Section and other Division 17000 series specifications, certified by manufacturer of products to be installed, and completed at least 5 installations of similar size, nature and complexity as specified for this project.
- C. Conditions for Consideration of "Or Equal" Products: Where products are specified by name and accompanied by the term "or equal", the proposed "or equal" product will be considered when the following conditions are satisfied. If all the following conditions are not satisfied, Design Consultant will return requests without action, except to record noncompliance with these requirements:
 - 1. Proposed product does not require extensive revisions to the Contract Documents.
 - 2. With the exception of the product name or number and manufacturer's name, proposed product conforms with requirements indicated on the Drawings and in the Specifications in every respect and will produce indicated results.
 - 3. Proposed product is fully documented and properly submitted.
 - 4. Proposed product has received necessary approvals of authorities having jurisdiction.
 - 5. Proposed product is compatible with AND has been coordinated with other portions of the Work.
 - 6. Proposed product provides specified warranty.
 - 7. If proposed product involves more than one contractor, proposed product has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
 - 8. Submission is accompanied with detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

9. Submission is accompanied with a list of similar installations for completed projects with project names and addresses and names and addresses of design consultants and authorities, if requested.
10. Submission is accompanied with proposed product's Manufacturer signed written statement on Manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents.

1.06 Warranty

- A. Installer's Warranty: Provide manufacturer's system warranty against electrical or mechanical defects for 2 years from date of final acceptance.
- B. A fifteen (15) year Extended Product Warranty and Systems Assurance Warranty for UTP camera wiring system shall be provided by the Manufacturer as follows:
 1. System Certification: Upon successful completion of the installation and subsequent inspection, the Authority shall be provided with a numbered certificate, from the manufacturing company, registering the installation.

1.07 Training

- A. Installing contractor shall provide a minimum of 8 hours of training on system operation and managements as part of their scope of work.
 1. Additional hours shall be provided on a time and materials basis at the request of the owner.
- B. Installing contractor shall provide a video recording on a standard format DVD to the owner which includes training sessions.

1.08 Operation And Maintenance Manuals

- A. Installing contractor shall provide a minimum of two hardcopy and one electronic copy of all operation and maintenance manuals to the owner at project completion.

PART 2 - PRODUCTS

2.01 Manufacturers A. Basis

of Design

1. Honeywell PW-Series Access Control System
- B. Acceptable Substitutes
 1. Avigilon
 2. Salto

2.02 Access Control Components A.

Honeywell Pro-Watch 5.0

1. Client Software
 - a. Enterprise Edition
 - b. Wireless Reader License
 - c. Aperio Integration (AH30RN38192) or latest related to hardware.
2. Controllers
 - a. PW6K1IC 32 I/O board
 - i. Quantity as required to support card reader locations.
 - b. PW7K1IC 32 I/O board
 - i. Quantity as required to support card reader locations.
3. Dual Reader modules
 - a. PW6K1R2
 - b. PW7K1R2
 - c. Quantity as required to support card reader locations.
4. Enclosures
 - a. PW5K1ENC3
 - b. PW5K2ENC1
 - c. Quantity as required to support card reader locations.
5. Power Supplies
 - a. PW7KPSU120
6. Advanced Logic Relay
 - a. Camden CX-33
7. Additional Nodes
 - a. Supervised Input Blades
 - b. Relay Controlled Output Blades
 - c. I/O Module, for interface with school's security panel.
 - d. Access Power Controller, for interface with school's fire alarm panel.
 - e. Network Interface Module, for IP network link communications.

8. Card Readers
 - a. HID Signo Multi-Class reader 20/40
 - b. Salto
9. Access Card/FOB
 - a. Salto Mifare Classic 4K Cards
 - b. Quantity of five-hundred (500).
10. Power supply
 - a. Altronix eFlowSeries
 - b. Quantity as required to support system.
11. Standby batteries
 - a. Quantity as required to support system for specified hours upon loss of power.
Note: Card access system shall be fed from school's emergency generator power source. It is the responsibility of contractor to coordinate with other trades to fulfill this requirement regardless if shown on contract drawings (electrical drawings).
12. Door Contacts
 - a. Sentrol DPDT Recessed
 - b. MC180 Door Channel Magnet
13. Request-to-exit Sensor
 - a. Honeywell IS310
 - b. with activation LED on doors where hardware does not provide egress.
14. Access Control Server
 - a. Intel Core Xeon, 24 cores, 3.6 GHz Turbo
 - b. Workstation Hardware
 - c. Windows 2019 Server Enterprise Addition, 64 bit.
 - d. Nvidia Quadro P2000, 5 GB
 - e. 32 GB DDR4 2666 MHz RDIMM ECC Memory
 - f. Raid Array 2
 - g. Raid Array 1

- h. 1 TB Sata Hard drive
 - i. DVD Drive
 - 15. Pedestals
 - a. Pedestal Pro 42-3-12 with hood
 - b. Pedestal Pro 72-DSP-3-12-12 Dual with Hoods and Extensions
- B. Cabling
 - 1. PW-Series daisy chain cable
 - 2. 18/2 AWG Plenum Cable
 - 3. 18/4 AWG Plenum Cable
 - 4. 18/6 AWG Plenum Cable
- C. Kitchen Doorbell
 - 1. Buzzer
 - 2. Edwards Company No. 340 A-N5, 120 V, 0.05 A
- D. Panic Button
 - 1. Honeywell 5869
- E. Lock Release
 - 1. RCI 909S / 909F
 - 2. Schlage 8200 Series
- F. Pushbutton Plate
 - 1. Edwards Company No. 852 flush-mounted on a nominal 4.5- by 3-inch plate finished in satin chrome, 125 volt at 6 amps, complete with rubber gasket between wall and plate. Normally open contacts.
- G. Pushbutton for buzzer
 - 1. Edwards Company No. 821 locknut weatherproof-type mounted in plate No. 149-1 to fit standard switchbox
 - 2. Power supply. Quantity as required to support system.
 - 3. Standby batteries. Quantity as required to support system for specified hours upon loss of power. Note: Card access system shall be fed from school's emergency generator power source. It is the responsibility of contractor to coordinate with other trades to fulfill this requirement regardless if shown on contract drawings (electrical drawings).

- H. Main Entry Door Video intercoms
 - 1. Axis I8016-LVE Exterior Station
 - 2. Axis TI8602 Wall Mount for Exterior Station
 - 3. 2N Indoor View Interior Station with Desk Stand
 - 4. Axis A9188 Network I/O Relay Module
 - 5. Chime Extension Speaker from Axis
 - 6. Cat 6 UTP
 - 7. 2 Conductor Cable, AWG based on distance and load.

2.03 Wireless locks and access control

1. Basis of Design: Salto systems XS4 Original +ANSI

a. Always operable for egress

b. Virtual Privacy Option

c. Finish: US26D Satin Chrome, BioCote (antimicrobial)

2. Provided as offline locks but with the ability to be reprogrammed as an online lock to communicate with school security system

PART 3 - EXECUTION

3.01 Examination

- A. Verification of Conditions: Examine conditions under which Intrusion Detection cabling and equipment and related components are to be installed in coordination with Installer of materials and components specified in this Section and notify affected Prime Contractors and Design consultant in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected to ensure a safe and timely installation.
 - 1. When Installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to Design consultant written confirmation from applicable Installer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to Installer.
 - 2. Visit Site to identify and become familiar with existing field conditions and specific requirements of each Site.

3. Verify all dimensions in field and confirm condition of existing hardware to be utilized.
4. Confirm space requirements and physical confines of all work areas to ensure that all materials can be installed in indicated spaces.
5. Confirm all outlet locations and cable pathways and advise Design consultant in writing of any discrepancies or issues in Design described in Contract Documents.

3.02 Preparation

- A. Protection: Provide adequate protection of equipment and hardware before and after installation.
- B. Existing Intrusion Detection Equipment: Ensure all systems remain operational throughout the project.
 1. Identify any circuits and/or wiring at the site not shown on T-Drawings and interfering with installation of specified Equipment.
 2. Remove all accessible portions of abandoned communications cabling per NEC 800.52. Tag all communications cabling not terminated at both ends but retained for future use.

3.03 Installation

- A. Provide and install all components necessary to install a complete Intrusion Detection System, including (but is not limited to) connectors, sensors, panels, power supplies, terminators, etc...
 1. Cable runs shall be per manufacturer's recommendations in all cases. Any deviation will result in system rejection.
 2. Secure all horizontal cables within ceiling cavities to building structure.
 3. Loosely bundle all cables and support from structure at unequal intervals from 5 to 6 feet with spring steel fasteners and cable clip rated for use with high performance cables where cable tray or other support structure has not been provided as indicated on Drawings. All mounting clips shall be seismic type as per BOCA.
 4. Do not violate manufacturer's recommended loadings. Leave 30% capacity for future use of pathway.
 5. Do not support cables from ceiling grid T-Bars, grid wire supports or bridle rings. Do not allow cables to touch ceiling grid.

6. Install cables in EMT conduit in all unfinished, exposed areas as shown in Design consultant and Architectural roof plans and/or T-Drawings, unless alternate pathways are noted.
 7. Do not secure cables with permanent cable ties. Do not tighten cable bundles in such a way as to cause jacket deformation
 8. Place cables in compliance with TIA/EIA-568.B standards and BICSI recommended methods.
 9. Tight 90-degree bends are unacceptable and use of plastic “cinch-type” tie-wraps are not permitted, in order to prevent damage to cable jacket and compromise the cable’s electrical or optical characteristics.
 10. Cable bundles shall be neatly routed with a service loop to provide 10 feet of slack at the cross-connect end and as noted in the T-drawings. Cable bundles shall be secured using only black Velcro cable wraps.
- B. Install all exposed cabling in surface raceway by Wiremold, Hubbell or Panduit where inwall conduit has not been provided. Follow all manufacturers’ guidelines requirements regarding bending radius and slack. All bends, offsets and fittings shall be appropriately sized to provide 30% capacity after installation.
- C. Install all cable in accordance with National, state and local codes and ANSI/TIA/EIA Standards, and BICSI methods.
1. Follow manufacturer’s guidelines and requirements for all cable termination.
 2. Identification: Provide permanent identification labels for patch panels, access panels and entrance facilities.

3.04 Testing

A. Access Control System

1. Upon completion of work, all parts of the systems installation shall be tested by the installing Contractor and demonstrated free of any defects. Preliminary testing will be permitted but shall not be accepted in lieu of obtaining final test results. Final test results shall be accomplished by the use of proper test equipment for the system being tested.
2. Each device shall be demonstrated individually and provide all functions as specified by the manufacturer’s literature. Any system failing this requirement will be wholly rejected at the contractor’s expense.
3. Re-terminate and re-test any cables or pairs of cables failing end-to-end testing requirements. Replace any faulty cables/pairs or termination devices. Remove all defective cables completely from pathways.

3.05 As-Builts

- A. All devices shall be shown in their accurate location with associated wiring.

- B. All equipment and cables shall be properly identified and labeled.

28 11 00 -

- C. Accurate as-built drawings shall be provided in electronic and hard copy format.

1. 3 copies of electronic (CAD) drawings shall be distributed on appropriate media: 1 to construction management, 1 to designers and 1 to school district personnel.
2. 3 hard copies of CAD drawings shall be plotted on full size sheets and test results of every installed cable have been given to the construction management for appropriate distribution.

3.06 Demonstration

- A. Access Control Systems Demonstration

1. 8 Hours of demonstration and training on all aspects of the completely installed systems must be provided for the owner.
 - a. Training shall be video recorded for the owner and given to them after acceptance.
 - b. Training and system demonstration must include all aspects of the system and its operation.
 - c. Additional training, beyond the initial 16 hours, shall be provided for the owner at their request on an hourly rate basis.

3.07 Acceptance

- A. Contractors work shall be considered complete after the following conditions have been met:
1. Cable and equipment installation is completed and all cables and equipment have been tested and documented to be installed according to specifications and drawings
 2. A school district Security and Technology representative has successfully tested the “LIVE” system.
 3. All programming has been provided and entered into the system.
 4. All punch list items have been reconciled.
 5. All disturbed ceiling panels, covers, etc. have been properly reinstalled.
 6. A 2-Year Installers warranty has been given to a school district Security representative.
 7. Submit Manufacturers Extended Warranty Application.

END OF SECTION