



ADDENDUM 05
DELAWARE TECHNICAL & COMMUNITY COLLEGE
ALLIED HEALTH – C-WING ADDITION & RENOVATIONS

January 31, 2013

The following constitutes **Addendum 05** for the above listed project. This addendum is hereby made a part of the contract documents. Please note the following additions, revisions, and/or clarifications in connection with this contract and be governed accordingly in submitting bids.

1. **CLARIFICATION** – All **Bid Forms – Bid Bond**, bidders shall disregard the blank space in front of “Delaware Technical Community College” found in three (3) locations on the bid bond document.
2. **ADDITION** – 21 – Electrical Contractor shall furnish and install all **exterior lighting** including but not limited to all fixtures, excavation, compaction, backfill, concrete bases/foundations, raceways, grounding, etc. for a complete installation.
3. **CLARIFICATION** – Specification 010110 – Summary of Work – 09 – Roofing, Skylight, & Waterproofing (Revised 01/17/13) item 7.1.5., flat metal fascia panel and metal soffit panel is in reference to general sheet metal and self-adhering sheet flashing and trim only. **22 – Metal Wall Panel Systems Contractor** shall furnish and install **all Roof Soffit Metal Panels** per contract documents.
4. **REVISION** – Specification 010110 – Summary of Work – For the **Light Box**. Added HSS steel column members, stainless steel bar, base plates and anchors bolts shall be furnished and installed by the **06 – Structural & Misc. Steel Contractor**. Light Box exterior skin and glass shall be furnished and installed by the **11 – Curtain Wall, Storefront, & Glazing Contractor**. Light fixture components and final electrical connection shall be the **21 – Electrical Contractor**.
5. **CLARIFICATION** – Specification 010110 - Summary of Work – 21 – Electrical, item 7.1.16. In regards to telecommunication rough-in, Contractor shall include all telecommunication outlets as referenced on the Electrical (E) and Low Voltage System (TA) drawings. Any telecommunication outlets perceived as duplicates between the two drawing sets shall not be included.

6. **REVISION** – Specification 010110 – Summary of Work – 07 – General Trades – Furnish and install of all **Whiteboards (WB)** shall be removed from the **07 – General Trades Contractors Summary of Work**.

ENCLOSED:

- BSA+A Addendum 5 – dated 01/31/13
- Contractor's Request for Information Log – dated 01/31/13
- Specification 080671 – Door Hardware Schedule – dated 01/31/13
- Specification 084113 – Aluminum Framed Entrances, Storefronts & Doors – dated 01/31/13
- Specification 084126 – All Glass Entrances & Storefronts – dated 01/31/13
- Specification 084413 – Glazed Aluminum Curtain Walls – dated 01/31/13
- Specification 096813 – Carpet Tile – dated 01/31/13
- Specification 226213 – Vacuum Piping Systems – dated 01/31/13
- SSK-001 – dated 01/31/13
- SSK-002 – dated 01/31/13
- SSK-003 – dated 01/31/13
- SSK-004 – dated 01/31/13
- SSK-005 – dated 01/31/13
- SSK-006 – dated 01/31/13
- SSK-007 – dated 01/31/13
- CSK-002 – dated 01/31/13
- ASK-022 – dated 01/31/13
- ASK-023 – dated 01/31/13
- ASK-024 – dated 01/31/13
- ASK-025 – dated 01/31/13
- ASK-026 – dated 01/31/13
- ASK-027 – dated 01/31/13
- ASK-028 – dated 01/31/13
- ASK-029 – dated 01/31/13
- ASK-030 – dated 01/31/13

Prepared By:
Bancroft Construction Company



Planning

Architecture

Interior design

Graphic Design

Project Management

ADDENDUM to CONTRACT DOCUMENTS

Date: January 31st, 2013

To: All Bidders

From: Renee Richardson, BSA + A

Copies: Delaware Technical & Community College
MacIntosh Engineering
Landmark/JCM
Delaware Engineering & Design Corporation
Bandcroft Construction Company

Project Name: **Delaware Technical & Community College – Allied Health, “C” Wing Addition & Renovation**

Project Number: BSA+A # 11.103

Subject: **ADDENDUM 5**

NOTICE:

Attention is called to the following item(s), effective as of the date above, which shall be added to, deleted from, or changed in the contract documents dated **January 10, 2013** and any previously issued addenda, thereby incorporating these items into the contract documents.

Attach this Addendum to the project manual for this project. Work or materials not specifically mentioned herein are to be as described in the main body of the specifications and as shown on the drawings. Bidders shall acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the bidder to disqualification.

The following clarification, changes and/or additions shall by this reference be incorporated into the contract documents as though fully set forth therein.

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A. GENERAL

Item No.		Item
A-1		NOTE: Please provide card access reader for door 115.1 at the same location as the ADA push button at the top of the ramp. More information will be clarified in a future ASI.
A-2		SECTION: TABLE OF CONTENTS DELETE: 101100 – Visual Display Surfaces INSERT NEW: 226213 – Vacuum Piping Systems

B. MODIFICATIONS TO PROJECT MANUAL

Item No.		Description:
B-1		SECTION 105626 – MOBILE STORAGE SHELVING REVISE: Part 2 – Products, 2.1 Manufacturers, B. Basis-of-Design Product, to read: “B. Basis-of-Design Product: Subject to compliance with requirements, provide product by one of the following:”
B-2		SECTION 080671 – DOOR HARDWARE SCHEDULE DELETE: 086671 – Door Hardware Schedule in its entirety. INSERT NEW: 086671 – Door Hardware Schedule. See Attachment
B-3		SECTION 084113 – ALUMINUM FRAMED ENTRANCES, STOREFRONTS & DOORS DELETE: 084113 –Aluminum Framed Entrances & Storefronts in its entirety. INSERT NEW: 084113 –Aluminum Framed Entrances & Storefronts. See Attachment
B-4		SECTION 084126 – ALL GLASS ENTRANCES & STOREFRONTS DELETE: 084126 – All Glass Entrances & Storefronts in its entirety. INSERT NEW: 084126 – All Glass Entrances & Storefronts. See Attachment
B-5		SECTION 084413 – GLAZED ALUMINUM CURTAIN WALLS DELETE: 084413 – Glazed Aluminum Curtain Walls in its entirety.

	<p>INSERT NEW: 084413 – Glazed Aluminum Curtain Walls. See Attachment</p>
B-6	<p>SECTION 096813 – CARPET TILE</p> <p>DELETE: 096813 – Carpet Tile in its entirety. INSERT NEW: 086813 – Carpet Tile See Attachment</p>
B-7	<p>SECTION 051200 – STRUCTURAL STEEL</p> <p>REVISE: 1.6 QUALITY ASSURANCE, Paragraph A DELETE: Paragraph A in its entirety.</p>
B-8	<p>SECTION 096623 – RESINOUS MATRIX TERRAZZO FLOORING</p> <p>REVISE: PART 2 – PRODUCTS, 2.1 to read: “2.1 EPOXY-RESIN TERRAZZO (TR-1, TR-2, TR-3 AND TR-4).”</p>
B-9	<p>SECTION 93103 – CERAMIC TILE</p> <p>REVISE: 2.3 TILE PRODUCTS, Paragraph B. to read: “B. Glazed Ceramic Mosaic Tile W-1 (Wall Tile): Factory-mounted flat tile as follows:</p> <p>REVISE: 2.3 TILE PRODUCTS, Paragraph C, 3. to read: “3. Module Size: 6” x 24”</p> <p>REVISE: 2.5 SETTING AND GROUTING MATERIALS, Paragraph B. to read: “B. Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored aggregate as required to produce color indicated.”</p>
B-10	<p>SECTION 101100 – VISUAL DISPLAY SURFACES</p> <p>DELETE: 101100 – Visual Display Surfaces in its entirety.</p>
B-11	<p>SECTION 226213 – VACUUM PIPING SYSTEMS</p> <p>INSERT NEW: 226213 – Vacuum Piping Systems in its entirety. See Attachments</p>

C. BIDDER QUESTIONS & CLARIFICATIONS

Item No.	Question/Answer
C-1	Contractor’s Request for Information Log See attachment

D. MODIFICATIONS TO DRAWINGS

Item No.	Description:
D-1	Drawing S-503: a) Add supplemental framing support for concrete counter tops. Refer to Structural’s Supplemental Sketch SSK-1 .
D-2	Drawing S-102 – Second Floor Framing Plan: a) Revised designation in plan notes for full moment connection and wind moment connection locations. Refer to Structural’s Supplemental Sketch SSK-2 .
D-3	Drawing S-103 – Roof Framing Plan: a) Revised designation in plan notes for full moment connection and wind moment connection locations. Refer to Structural’s Supplemental Sketch SSK-3 .
D-4	Drawing S-101 – Foundation Plan: a) Additional steel columns added to support exterior light box framing. Refer to Structural’s Supplemental Sketch SSK-4 .
D-5	Drawing S-102 – Second Floor Framing Plan: a) Additional steel columns added to support exterior light box framing. Light Box is attached to the vertical steel posts. Refer to Structural’s Supplemental Sketch SSK-5 .
D-6	Drawing S-504 – a) Revision to light box support requirements on Detail 8/ S-504. Refer to Structural’s Supplemental Sketch SSK-6 .
D-7	Drawing S-601 –

		a) Added column designation ‘C5’ to column schedule. Refer to Structural’s Supplemental Sketch SSK-7 .
D-8		Drawing CC-02 - Site Construction Details: a.) Add detail for Alternate#8 to sheet. Refer to Engineer’s Supplemental Sketch CSK-002 .
D-9		Drawing A111 - First Floor Plan: a.) Add callout box to plan for sheet 5/A502. Refer to Architect’s Supplemental Sketch ASK-022 .
D-10		Drawing A313 - Wall Sections: a.) Revise details 6/A313 and notes per Architect’s Supplemental Sketch ASK-027 . b.) Revise details 8/A313 and notes per Architect’s Supplemental Sketch ASK-028 .
D-11		Drawing A344 - Enlarged Plan Details: a.) Add Detail 12/A344 per Architect’s Supplemental Sketch ASK-024 . b.) Add Detail 13/A344 per Architect’s Supplemental Sketch ASK-025 .
D-12		Drawing A401 – Door Schedule, Door & Frame Types: a.) Revise Hardware Sets per Architect’s Supplemental Sketch ASK-030 .
D-13		Drawing A411 – Curtainwall & Hollow Metal Frame Types: a.) Add Film Types to legend per Architect’s Supplemental Sketch ASK-029 .
D-14		Drawing A412 – Curtainwall Types: a.) Add Film Types to legend per Architect’s Supplemental Sketch ASK-029 .
D-15		Drawing A501 – Misc. Details: a.) Revise detail 6/A501 per Architect’s Supplemental Sketch ASK-026 .
D-16		Drawing A502 – Misc. Details: a.) Add structural steel columns to details 12/A344 & 13/A344 per Architect’s Supplemental Sketch ASK-023 .

E. ATTACHMENTS

Items	Date
Contractor’s Request for Information Log	01/31/13

Section 080671 – Door Hardware Schedule	01/31/13
Section 084113 – Aluminum Framed Entrances, Storefronts & Doors	01/31/13
Section 084126 – All Glass Entrances & Storefronts	01/31/13
Section 084413 – Glazed Aluminum Curtain Walls	01/31/13
Section 096813 – Carpet Tile	01/31/13
Section 226213 – Vacuum Piping Systems	01/31/13
SSK-001	01/31/13
SSK-002	01/31/13
SSK-003	01/31/13
SSK-004	01/31/13
SSK-005	01/31/13
SSK-006	01/31/13
SSK-007	01/31/13
CSK-002	01/31/13
ASK-022	01/31/13
ASK-023	01/31/13
ASK-024	01/31/13
ASK-025	01/31/13
ASK-026	01/31/13
ASK-027	01/31/13
ASK-028	01/31/13
ASK-029	01/31/13
ASK-030	01/31/13

END OF ADDENDUM #5



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
Q1	Is there a cost associated with the successful contractor obtaining drawings on CAD? If so, what is the cost?	01/16/13	ADDM #1	
A1	Yes, See Spec Section 007344 – Cost is \$150.00 per consultant. Note: Cad Files will only be distributed to the awarded contractor.	01/17/13	ADDM #1	BSA+A
Q2	Specifications - I see a General Provisions for Plumbing and Fire Protection specification but no Fire Protection specifications. Is one going to be provided?	01/16/13	ADDM #1	
A2	Performance specification provided on drawings.	01/17/13	ADDM #1	DEDC
Q3	Scope of Work – Fire Protection - Item 7.1.3: includes: a dry-pipe system, a fire pump [if required], concealed/recessed sprinkler heads & seismic supports. Is there a dry-pipe system on the project, plans do not indicate one? Plans do not indicate a fire / jockey pump system; Plans call for semi-recessed pendent sprinkler heads. Please indicate if & where concealed heads are required. Is seismic support required?	01/16/13	ADDM #1	
A3	Fire Protection Contractor shall be responsible for the fire suppression sprinkler system in its entirety to meet all governing codes. Concealed heads with white cover plates are to be provided in all gypsum board ceilings.	01/17/13	ADDM #1	BANCROFT BSA+A
Q4	Scope of Work – Fire Protection - Item 7.1.4: Maintain a fully functional sprinkler system in the renovation area of work in the renovation area of work for the entire duration of the project. What is the intent of this? [is the system to be turned back on each night?].	01/16/13	ADDM #1	
A4	Fire Protection Contractor shall take all means to limit existing system impairments. Fire Protection Contractor shall bare all costs associated with providing a fire watch when system is nonoperational.	01/17/13	ADDM #1	BANCROFT
Q5	Scope of Work – Fire Protection – Item 7.1.6: Tie into the domestic water main. The plumber should leave a flanged tee for the sprinkler contract after the drop down to & at the backflow preventor of the sprinkler system. This way he is responsible for the chlorination/testing of that piping.	01/16/13	ADDM #1	
A5	Fire Protection Contractor shall tie in at and including the backflow preventer per Summary of Work.	01/17/13	ADDM #1	BANCROFT
Q6	Scope of Work – Fire Protection – Item 7.1.10: Heads to be installed in the center of the ceiling tiles. Are the quarter points of the 2’ x 4’ tile permitted?	01/16/13	ADDM #1	
A6	Heads to be installed in center of ceiling tiles.	01/17/13	ADDM #1	DEDC



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
Q7	Scope of Work – Fire Protection – Item 7.1.14: Seismic. Is this a requirement?	01/16/13	ADDM #1	
A7	Reference the Answer to Question 3.	01/17/13	ADDM #1	BANCROFT
Q8	Scope of Work – Fire Protection – Item 7.1.15: Fire department location. Has the location as indicated on the plans been approved by the Fire Marshal / Fire Chief?	01/16/13	ADDM #1	
A8	Site Plans have been approved by the Fire Marshal.	01/17/13	ADDM #1	LANDMARK
Q9	Scope of Work – Fire Protection – Item 7.1.15: Item 7.1.20 & .21: Fire pump / controller. Again, required?	01/16/13	ADDM #1	
A9	Reference the Answer to Question 3.	01/17/13	ADDM #1	BANCROFT
Q10	Scope of Work – Fire Protection – Item 7.2.7: Material testing. Please clarify what this means and if this is an actual requirement. If it is, what are the costs involved?	01/16/13	ADDM #1	
A10	No material testing from the Fire Protection scope of work is expected.	01/17/13	ADDM #1	BANCROFT
Q11	Drawings – FP001: Flow test information. Please provide the gpm for the water flow test from a fire hydrant flow test and not the inspectors test. That is what will be required from the Fire Marshal.	01/16/13	ADDM #1	
A11	Information is not available. Fire Protection Contractor is required to perform flow test as part of Contractor’s scope of work.	01/17/13	ADDM #1	DEDC BANCROFT
Q12	Drawings – FP001: Detail 2 indicates 6” underground main however Detail 3 on drawing FP101 [& drawing P121] indicates a 4” underground water main. Please clarify. Also, this information should be on the plumbing drawings as this is under his scope of work. In fact, there are FP notes on drawing P001 that should be on the FP drawings. Please indicate where the sprinkler contractor is to begin his work. See 7.1.6 under Scope of Work, above.	01/16/13	ADDM #1	
A12	6” main is required; refer to site plans and details on FP-001. Reference Answer to Question 5 for where the Fire Protection Contractor work begins.	01/17/13	ADDM #1	DEDC
Q13	Drawings - FP001: General Notes: #2 refers to keeping the existing sprinkler system active during the project. Again, need clarification/confirmation. #7 indicates an MRI room [as well as note 3C under Construction Notes. Please advise where the MRI room is as I do not see it on the plans.	01/16/13	ADDM #1	
A13	Reference the Answer to Question 4 for requirements of the existing sprinkler system. Disregard Note #7 in General section of Fire Protection notes on Sheet FP001.	01/17/13	ADDM #1	BANCROFT DEDC
Q14	Drawings - FP001: Demolition Notes: All existing sprinkler heads are to be	01/16/13	ADDM #1	



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	removed. Please clarify/confirm that new heads are to be re-installed.			
A14	Sprinkler heads to be demolished and replaced to meet notes provided on Sheet FP-001 within areas shown on Sheet FP-102.	01/17/13	ADDM #1	DEDC
Q15	Drawings - FP001: Construction Notes: #1 refers to fire alarm devices and is not part of our scope.	01/16/13	ADDM #1	
A15	Reference the Electrical Summary of Work for fire alarm scope of work.	01/17/13	ADDM #1	BANCROFT
Q16	Drawings - FP001: Construction Notes: #3B: indicates that upright heads are to be provided for the un-finished areas. Confirm that these should be on 1” sprigs for future renovation [this would be in case the alternates are not accepted – this will provide the proper outlet to install the pendent heads at a later time].	01/16/13	ADDM #1	
A16	Contractor is to design sprinkler system mains throughout building for the case that all alternates are accepted, including first floor shelled space. Contractor is to provide upright heads in unused shelled space to meet all governing codes.	01/17/13	ADDM #1	DEDC
Q17	Drawings - FP001: Construction Notes: #7: Again, the request for clarification that the heads be permitted to be installed in the quarter points of the tiles.	01/16/13	ADDM #1	
A17	Reference the Answer to Question 6.	01/17/13	ADDM #1	DEDC
Q18	Drawings - FP001: Detail 1 indicates that there is an “SP” rising up to the 2 nd floor. Is there to be a floor control assembly in this rise? If one is to be provided, can it be in the riser room with the 1 st floor assembly?	01/16/13	ADDM #1	
A18	Fire Alarm Contractor to locate floor control assemblies, flow switches, tamper switches, etc. within Mechanical Room C143.	01/17/13	ADDM #1	DEDC
Q19	Drawings - FP001: Detail 3: I am assuming that the main drain for the systems can go to the floor drain in the room [and the inspectors tests will be run overhead and outside as indicated].	01/16/13	ADDM #1	
A19	Correct.	01/17/13	ADDM #1	DEDC
Q20	Drawings - FP001: Roof soffit / overhang: Is the Fire Marshal requiring that this be sprinkled?	01/16/13	ADDM #1	
A20	Fire Protection Contractor shall be responsible for the fire suppression sprinkler system in its entirety to meet all governing codes.	01/17/13	ADDM #1	BANCROFT
Q21	Are the existing sprinkler system drawings available?	01/16/13	ADDM #1	
A21	The existing sprinkler system drawings are not currently available.	01/17/13	ADDM #1	DEDC



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
Q22	I am assuming that we are not responsible for relocating any existing sprinkler piping for other trades. Please confirm.	01/16/13	ADDM #1	
A22	Fire Protection Contractor shall modify the existing sprinkler system including demolition/relocation /addition to conform to all renovations of all trades as shown on Contract Documents, including, but not limited to relocated wall partitions, and coordination with all mechanical and plumbing systems new and existing.	01/17/13	ADDM #1	BANCROFT
Q23	Mechanical drawings M112, M114, M121, M123, & M171-A are all smaller drawings and didn't print out as 30"x42" drawings. Can these please be re-issued as full scale drawings?	01/16/13	ADDM #1	
A23	Drawings will be reissued under the next Addendum.	01/17/13	ADDM #1	BSA+A
Q24	In reference to alternates #2 & #3, is the price of RTU #3 to be included in both bids?	01/17/13		
A24	No. Reference Specification 012300 – Alternates. Price of RTU #3 to be included in Alternate #2.	01/17/13	ADDM #2	BANCROFT
Q25	On specification page 012300-4, alternate #4 makes reference to a M438 drawing under mechanical. This drawing is not in the bid set. Can this be issued?	01/17/13		
A25	Refer to Drawing M114-A4.	01/18/13	ADDM #2	DEDC
Q26	In spec section 220010-11, it states all domestic water to be Viega Press Fit; however, on spec page 220120-2, it states all domestic water to be type L solder joints. Which is correct?	01/17/13		
A26	Either are acceptable.	01/18/13	ADDM #2	DEDC
Q27	Drawing M113 @ column line J shows 12" round exhaust up to EF-5. Drawing M112 & M114 shows 18" round exhaust duct. Which size is correct?	01/17/13		
A27	12" Round duct up and down to EF-5 in chase. Transition required on first floor to existing 18" round at point of new connection shown on sheet M-112.	01/18/13	ADDM #2	DEDC
Q28	Cover sheet 001, showing the list of drawings available, drawing E114-A4 pertains to alternate #4, I can not locate this drawing / please advise.	01/17/13		
A28	Refer to E438-A4.	01/18/13	ADDM #2	DEDC

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
Q29	01-Stiework Summary of Work page 010110-2, paragraph 3.1.4 (under “Work by Others”) has the site contractor excluding the installation of the natural gas line from the main to the meter. Page 010110-4, paragraph 7.1.22 (first sentence) has the site contractor providing the gas service systems. Please clarify.	01/18/13		
A29	01 - Site Work Summary of Work was revised in Addendum 01. 01 - Site Contractor to provide gas service systems.	01/18/13	ADDM #2	BANCROFT
Q30	01-Stiework Summary of Work page 010110-4, paragraph 7.1.15 has the site contractor backfilling the building foundations. Under the Summary of Work for 04-Concrete, page 010110-3, paragraph 7.1.3 has the concrete contractor backfilling their work. Please clarify.	01/18/13		
A30	01 - Site Contractor to backfill building foundations to subgrade. 04 - Concrete Contractor responsible for sub base and grading within the building footprint. Reference Concrete Summary of Work paragraph 7.1.11	01/18/13	ADDM #2	BANCROFT
Q31	In reviewing summary of work for contract # 20 Plumbing, Mechanical & ATC Item 7.1.24 States Furnish & Install Dishwasher, Washer & Dryer Including all Connections	01/18/13		
A31	Correct. 20 - Plumbing, Mechanical & ATC Contractor to furnish and install dishwasher, washer, and dryer including all connections. Revise all connections to include Electrical Contractor to provide electrical terminations.	01/18/13	ADDM #2	BANCROFT
Q32	I noticed that the Alternates are not spelled out on the Plumbing drawings except Alts 4 & 6. Does all plumbing work go into the base bid or does it need to be divided into the Alternates?	01/18/13		
A32	All plumbing is base-bid with the exception of work specifically outlined as part of Alternate 6 and Alternate 4.	01/18/13	ADDM #2	DEDC
Q33	The specifications call for 3/4" glass in railings, the drawings call for 1/2", 1/2" is preferable at bent glass locations.	01/21/13		
A33	Provide ½" glass in railings as indicated on drawings	01/23/13	ADDM #2	BSA+A
Q34	What film is needed for the storefront glass at SF1-7. Is the film installation by contract 11?	01/21/13		
A34	... 11 - Glazing Contractor is responsible for film installation. Reference Addendum 01 Summary of Work – 11, 7.1.3 for inclusion of this item. Refer to ADDM #5, ASK-029.	01/21/13 01/31/13	ADDM#2 ADDM #5	BANCROFT BSA+A



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
Q35	Spec. Sect. 088113 Decorative Glass, where is it being used?	01/21/13		
A35	Frosted or etched glass is being used on exterior light fixture.	01/23/13	ADDM #2	BSA+A
Q36	Regarding glazing note 3 on A412, who owns installation of sheet metal trim at ceilings?	01/21/13		
A36	Sheet metal trim to be furnished and installed under 07 - General Trade Contractor.	01/21/13	ADDM #2	BANCROFT
Q37	Will the louver in CW14 be provided to contract 11 by mechanical contractor?	01/21/13		
A37	Yes.	01/21/13	ADDM #2	BANCROFT
Q38	The glazing types on sheets A411 & A412 do not coincide with the glass types on page 9 & 10 of spec. sect. 088000. (Is vision glass to be GL-1 or GL-3) Low e is not used on both the #2 & #3 surfaces, used on one surface or the other.	01/21/13		
A38	This is high-end energy efficient glazing system – provide low E surfaces on both glass panels.	01/23/13	ADDM #2	BSA+A
Q39	Will spec. sect. 088000-13, item 3.6 E, final cleaning of glass, be required by contract 11?	01/21/13		
A39	11 - Glazing Contractor shall include a final whip down of all glazing surfaces interior and exterior at the completion of this Contractor’s Summary of Work. Final cleaning of Glass at Substantial Complete will be completed by others.	01/21/13	ADDM #2	BANCROFT
Q40	Contract 11 scope of work, item 7.1.9 calls for interior and exterior perimeter caulking of our frames. The interior is also in contract 10, item 7.1.6. Usually interior caulking occurs after curtainwall contractor has demobilized and is no longer on site.	01/21/13		
A40	This item has been revised. Reference Addendum 01 Summary of Work – 11 for clarification of all caulking requirements.	01/21/13	ADDM #2	BANCROFT
Q41	Is the intent for contract 6 to provide and install the decorative metal railing posts and contract 11 to provide and install the glass in the railings?	01/21/13		
A41	No. Reference Addendum 01 Summary of Work – 11, 7.1.9.	01/21/13	ADDM #2	BANCROFT
Q42	The specifications call out Qwiktrak, which guides the system utilizing tracks fastened to the ground. Can we offer a product that has a track system above the units.	01/21/13		
A42	Compliance with Section 10 56 26 is required for this work and Qwiktrak, with floor mounted rails, is the basis of design.	01/23/13	ADDM #2	Design Collective

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
Q43	The unit specified is a post and wire configuration. Does the end user want 4-post shelving with solid steel shelving mounted on carriages or post and wire on casters?	01/21/13		
A43	Compliance with Section 10 56 26 is mandatory. Post and wire shelving on casters does not meet the specification. The specification requires a system of shelving on carriages that run in tracks.	01/23/13	ADDM #2	Design Collective
Q44	Specs call for total load: 1000 lb/ft per carriage (section 2.2). The specified system does not utilize carriages. The system specified is post and wire mounted on casters. Which of the following configurations should be quoted: Post and wire on casters? Wire shelving mounted on carriages (1,000 lb/ft carriage capacity)? 4-post and solid steel shelving on carriages (1,000 lb/ft carriage capacity)?	01/21/13		
A44	The statement about the specified system is incorrect. The specified system requires shelving on carriages that utilize floor mounted tracks to run in. The specifications call for support of a total load of 1000 lbs/ft per carriage.	01/23/13	ADDM #2	Design Collective
Q45	What is being stored on these shelves?.	01/21/13		
A45	Medical devices and supplies but this question is of no relevance. Section 10 56 26 must be complied with, regardless of what will be stored on the shelves.	01/23/13	ADDM #2	Design Collective
Q46	The Rough Carpentry scope references design and shop drawings being required for the exterior wall framing system. The specification does not require these submittals. Will the Rough Carpentry Contractor be responsible for design and engineering of the exterior wall framing system?	01/21/13		
A46	Yes. Reference Addendum 01 Summary of Work - 07, 7.1.30.	01/21/13	ADDM #2	BANCROFT
Q47	Which package is responsible for the air infiltration barrier? Can a specification be provided for it	01/21/13		
A47	Note the spray foam insulation provides the air infiltration barrier so no additional air barrier is required. Yes. Spray foam insulation should lap air infiltration barrier and flashing a minimum of 6” at all conditions. 07 – General Trade Contractor shall furnish and install the air infiltration barrier. Specification enclosed.	01/21/13 Rev. 01/29/13	ADDM #2 ADDM #4	BSA+A BSA+A
Q48	Which package is responsible for the 3” spray insulation on the exterior walls?	01/21/13		
A48	07 – General Trade Contractor is responsible. Reference Addendum 01 Summary of Work – 07, 7.1.22	01/21/13	ADDM #2	BANCROFT
Q49	The specified curtain wall framing, per 084413-7, 2.1, is Kawneer 1600, 6 inch deep frames. This will work at most openings but will not meet wind loads at CW8,	01/21/13		



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ITEM	Q & A	DATE	ISSUED	Answered By
	CW9, CW11 and CW12. Mid span steel support is needed regardless of the internal steel reinforcement used within the mullion.			
A49	<p>Provide mid span steel internal reinforcement. Revised per ADDM #5. As per Addendum #5, the Light Box will be directly attached to the vertical HSS steel column members added. Due to the span of the larger curtain wall sections, we would anticipate that vertical and / or horizontal steel reinforcing is required to support the curtainwall wind loading. This embedded steel should be designed and included by the curtainwall manufacturer.</p> <p>To clarify, the added HSS steel column members, stainless steel bar, base plates and anchors bolts shall be furnished and installed by the 06 – Structural & Misc. Steel Contractor. Light Box exterior skin and glass shall furnished and installed by the 11 – Curtain Wall, Storefront, & Glazing Contractor. Light fixture components and final electrical connection shall be the 21 – Electrical Contractor.</p> <p>Embedded vertical and / or horizontal steel reinforcing required to support the curtain wall wind loading shall be designed, furnished and installed by the 11 – Curtain Wall, Storefront, & Glazing Contractor.</p>	01/23/13 Rev. 01/30/13	ADDM #2 ADDM #5	BSA+A MacEng BANCROFT
Q50	Page A131 - C108, C112 & C112A-Nothing is noted for floors/base in these areas, do you know what they are to get?	01/22/13		
A50	Items not noted or indicated with a dash are existing finishes to remain.	01/29/13	ADDM #4	BSA+A
Q51	Page A132 - C144 & C146-Does not show pattern for the two vcts requested	01/22/13		
A51	Refer to ASK-020.	01/29/13	ADDM #4	BSA+A
Q52	Page A135-A4 – C101-Does not show pattern for 3 vcts requested	01/22/13		
A52	Refer to ASK-021	01/29/13	ADDM #4	BSA+A
Q53	Page A134-A1 – C232 & C233 – B-4 (tile base) is shown for these vct areas, should it be B-3 (4.5” traditional cove base)	01/22/13		
A53	Classroom C232 & C233 base to be B-3	01/29/13	ADDM #4	BSA+A
Q54	Page A134 – C230 – B-1 (terrazzo) is shown for this vct area, should it be B-3 (4.5” traditional cove base)	01/22/13		
A54	Yes. Base to be B-3.	01/29/13	ADDM #4	BSA+A

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ITEM	Q & A	DATE	ISSUED	Answered By
Q55	Door C205 (Alt #4) listed as office is a closet pair. No hardware listed on Door Schedule.	01/22/13		
A55	Door C205 should receive hardware set 8.0 per ASK-016.	01/29/13	ADDM #4	BSA+A
Q56	Door C148.2 has Set 10 listed. Is this correct?	01/22/13		
A56	Door C148.2 should receive hardware set 11.0 in lieu of 10.0 per ASK-016	01/29/13	ADDM #4	BSA+A
Q57	Specification index lists 080671 as “Door Hardware Schedule” and 087100 as “Door Hardware”. Both these sections are 080671. The “Door Hardware Schedule” section only goes up to Set 18. There are 22 Sets listed on Door Schedule A401 and in “Door Hardware” section. It appears we should go by sets listed on drawings and per spec section “Door Hardware”. Please confirm.	01/22/13		
A57	Keep Specification Section 087100. This Section works in conjunction with Section 080671 since door hardware mfg. are listed in Section 087100.	01/23/13	ADDM #2	BSA+A
Q58	We will be bidding Package 16 – Specialties, and would like to request a substitution on the toilet partitions. We would like to offer MARLITE Stainless Steel as an accepted alternate to Section 102113. Please let me know if you need any additional information.	01/22/13		
A58	Provide specified toilet partition type as part of Bid. Substitution may be considered after award of Bid under Specification Section 012500 – Substitution Procedure.	01/23/13	ADDM #2	BSA+A
Q59	It looks like drawing E114-A4 is missing from the package.	01/22/13	ADDM #2	DEDC
A59	REFER TO SHEET E438-A4			
Q60	There are two doors C214 on base bid door schedule.	01/22/13		
A60	Refer to ASK-016	01/29/13	ADDM #4	BSA+A
Q61	Alternate #2 Door Schedule missing Door C228 (Seminar) shown on floor plan.	01/22/13		
A61	Refer to ASK-016	01/29/13	ADDM #4	BSA+A
Q62	Is there a specification on the Vacuum piping	01/23/13		
A62	Yes. Refer to Addendum #5.	01/31/13	ADDM #5	DEDC
Q63	Several openings for Alt #6 have frame type F4. There is no frame type F4	01/23/13		
A63	Refer to ASK-018 issued with Addendum #4.	01/29/13	ADDM #4	BSA+A
Q64	In regards to the Selective Demo Bid Pack, does this pertain to architectural demo only (except the curtain walls both interior and exterior, as noted in item 3 of the summary) or will that contract be responsible to remove the MEP demo material	01/23/13		



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	after it is dropped to the floor by the respective trade or is that not to be included in that scope. Additionally, I assume all site demo is included in the site scope.			
A64	No. Reference Summary of Work 03 – Selective Demolition. 03 – Selective Demolition Contractor is responsible for all MEP demo. MEP Contractor’s to provide safing of MEP systems only. All site demo is included under 01 – Site Work Contractor.	01/23/13	ADDM #3	BANCROFT
Q65	There are two specification sections for laminate casework. Please advise what work the PL Lab Casework spec applies to so we know where you are expecting to have Epoxy resin Counters.	01/23/13		
A65	Section 12 35 53.16 governs the work shown on the A430 series sheets and the casework for the laboratories on the first floor.	1/23/13	ADDM #3	Design Collective
Q66	Please verify that ALL sinks and fixtures throughout are being provided by the plumbing contractor.	01/23/13		
A66	Yes. All sinks and plumbing fixtures are being provided 20 – Plumbing, Mechanical, & ATC Contractor.	01/23/13	ADDM #3	BANCROFT
Q67	Our contract scope indicates we own the Vessel sinks in the 4 bathrooms, yet the plumbing drawings call them out as drop-in stainless steel sinks. Please advise which is correct and if we do in fact own anything beyond the concrete counter and supporting structure beneath.	01/23/13		
A67	Refer to Addendum #3, and sketch PSK-001 PSK-007, PSK-008 & PSK-009 for clarification. Vessel sinks shall be provided by 20 – Plumbing, Mechanical, & ATC Contractor.	1/24/13	ADDM #3	DEDC
Q68	The supporting structure for the 4 Vessel sink details need sot improved upon greatly. Currently it is shown as a “suspended” configuration. With a 2” concrete counter, this will need substantial support carried from the floor to the bottom of the counter. Suspending this from the wall will not work. Please provide additional mounting details for these.	01/23/13		
A68	See future addendum for Restroom sink support steel.	01/28/13	ADDM #4	MacEng
Q69	Are the counters and casework for Control Rooms C145 & C149 to be similar to 4/A434?	01/23/13		
A69	yes, that is correct.	01/23/13	ADDM #3	Design Collective
Q70	Our contract scope indicates we own closet and utility shelving, however I am	01/23/13		

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	unable to locate any on the plans. Please advise if there is any shelving and if so, where it will be located.			
A70	Closet and utility shelving was deleted from the Summary of Work. Reference Addendum 01 Summary of Work – 07 – General Trades.	01/23/13	ADDMM #3	BANCROFT
Q71	The specification states Galv. Sch. 80 piping on the compressed air system...Can this be clarified? We have done medical offices, dentist offices, and other buildings of this nature and have always used Type L Copper on all the vac, air, and med lines.	01/23/13		
A71	Type-L copper is an acceptable alternative material to galvanized steel.	01/24/13	ADDMM #3	DEDC
Q72	Requested Substitution – Specification 102800 - Toilet, Bath and Laundry Accessories – to include Machflow MA09	01/23/13		
A72	Yes, this is an acceptable substitution. Provide Product data with Substitution Request.	01/25/13	ADDMM #3	BSA+A
Q73	Requested Substitution – Specification 074213 - Insulation Metal Panels – Specification 055813 – to include Kingspan	01/23/13		
A73	No, factory installed foam Metal Panel system matching basis for design will only be considered.	01/25/13	ADDMM #3	BSA+A
Q74	Specification section 055813- Metal Column Covers – Are there any other approved manufacturers?	01/23/13		
A74	Other manufacturers will be considered for compliance with basis for design.	01/25/13	ADDMM #3	BSA+A
Q75	Specification section 074213- Exterior Wall Panels – Are there any other approved manufacturers?	01/23/13		
A75	Other manufacturers will be considered for compliance with basis for design.	01/25/13	ADDMM #3	BSA+A
Q76	Specification section 074213.19- Insulated Metal Wall Panels – Are there any other approved manufacturers?	01/23/13		
A76	Other manufacturers will be considered for compliance with basis for design.	01/25/13	ADDMM #3	BSA+A
Q77	Summary of work for bid package 9 & 22 both notes scope of work to include column covers. Please clarify bid package	01/23/13		
A77	Reference Addendum 01. Column covers is included in Addendum 01 Summary of Work – 22 – Metal Wall Panel Systems and is excluded from Addendum 01 Summary of Wok – 09 – Roofing, Skylight, & Waterproofing.	01/23/13	ADDMM #3	BANCROFT
Q78	Summary of work for bid package 22 notes roof screen panels by others. What bid package is this scheduled?	01/23/13		

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ITEM	Q & A	DATE	ISSUED	Answered By
A78	Roof screen panels is included in 06 – Structural & Misc. Steel Contractor.	01/23/13	ADDM #3	BANCROFT
Q79	Detail 5 A313 What bid package (9 or 22) is scheduled to provide this metal coping.	01/23/13		
A79	Detail 5 A313 metal coping is to be provided by 09 – Roofing, Skylight, & Waterproofing Contractor. Addendum 01 Summary of Wok – 09 – Roofing, Skylight, & Waterproofing 7.1.12.	01/13/13	ADDM #3	BANCROFT
Q80	Detail 5 A313 What bid package (9 or 22) is scheduled to install this metal coping.	01/23/13		
A80	Detail 5 A313 metal coping is to be installed by 09 – Roofing, Skylight, & Waterproofing Contractor. Addendum 01 Summary of Wok – 09 – Roofing, Skylight, & Waterproofing 7.1.12.	01/23/13	ADDM #3	BANCROFT
Q81	Detail 5 A180 What bid package (9 or 22) is scheduled to provide this metal coping.	01/23/13		
A81	Detail 5 A180 metal coping is to be provided by 09 – Roofing, Skylight, & Waterproofing Contractor.	01/13/13	ADDM #3	BANCROFT
Q82	Detail 5 A180 What bid package (9 or 22) is scheduled to install this metal coping.	01/23/13		
A82	Detail 5 A180 metal coping is to be installed by 09 – Roofing, Skylight, & Waterproofing Contractor.	01/23/13	ADDM #3	BANCROFT
Q83	Ref. specification section 010110, Summary of Work – 12 Ceramic Tile, page 4, paragraph 7.2.11, final cleaning. Please confirm that final cleaning by this contractor is limited to cleaning upon completion of installation with final cleaning prior to the building turnover to be provided by the General Contractor.	01/24/13		
A83	Correct.	01/24/13	ADDM #3	BANCROFT
Q84	Ref. specification section 010110, Summary of Work – 13 Terrazzo, page 3, paragraphs 7.1.3 & 7.1.5, saw-cutting. Saw-cutting is typically completed by the Concrete Contractor shortly after the concrete is poured. Since spec section 010110, Summary of Work, 04 Concrete, paragraphs 7.1.10 and 7.1.17 note that saw cuts and control joints are to be provided by the Concrete Contractor we assume this will be removed from our scope of work unless otherwise advised.	01/24/13		
A84	Assumption is incorrect. 13 – Terrazzo Contractor shall be responsible for all saw cutting for work performed under this 13 – Terrazzo Summary of Work.	01/24/13	ADDM #3	BANCROFT
Q85	Ref. specification section 010110, Summary of Work – 13 Terrazzo, page 4, paragraph 7.1.16, protection. It is impossible to put a price on policing the job site to maintain temporary protection and removal after our work is complete and we are off the job. Please consider excluding (or re-assigning) maintenance and removal of temporary protection from this bid package. Please note we will not include	01/24/13		

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	temporary protection on stairs in our bid due to safety concerns.			
A85	13 – Terrazzo Summary of Work 7.1.16 is correct as written.	01/24/13	ADDM #3	BANCROFT
Q86	Ref. specification section 010110, Summary of Work – 13 Terrazzo, page 4, paragraph 7.1.12, Preparation of surfaces. We note that the Terrazzo contractor is to provide correction of minor deviations of flatness on the concrete substrate, based on a provided substrate flatness not to exceed a gap of ¼” in 10’-0” per specification section 03300, page 19, paragraph 3.11.D.2a, Finished Floors and Slabs.	01/24/13		
A86	13 – Terrazzo Summary of Work 7.1.12 is correct as written.	01/24/13	ADDM #3	BANCROFT
Q87	Ref. specification section 010110, Summary of Work – 13 Terrazzo, page 5, paragraph 7.2.11, final cleaning. Please confirm that final cleaning by this contractor is limited to cleaning upon completion of installation with final cleaning prior to the building turnover to be provided by the General Contractor.	01/24/13		
A87	Correct.	01/24/13	ADDM #3	BANCROFT
Q88	Ref. specification section 093103, Ceramic Tile, Page 11, Paragraph 3.6, Slate Installation. Upon review of the contract documents no slate work can be found. Please confirm there is no slate work on this project.	01/24/13		
A88	No slate in project.	01/29/13	ADDM #4	BSA+A
Q89	Ref. specification section 093103 Ceramic Tile, page 12, paragraph 3.8.A& B, Floor and Wall Tile installation Schedule. We note that TCA installation methods F113 & W243 are specified for the floor and wall tile with a water based urethane grout. Upon review of the contract documents we could not find water based urethane grout in paragraph 2.5, Setting and Grouting Materials. Per the attached details from the 2012 TCNA handbook methods F113 and W243 are specified to use cementitious grout. We will assume cementitious grout is to be used for both floor and wall tile installations unless advised otherwise.	01/24/13		
A89	Provide cementitious grout.	01/29/13	ADDM #4	BSA+A
Q90	Ref. specification section 096623, Resinous Matrix Terrazzo Flooring, page 5, paragraph 2.1.B.4, Marble chips and aggregates. We note that marble chips and aggregates are listed in the specifications for this project. We assume the terrazzo will have only marble aggregates unless otherwise advised.	01/24/13		
A90	Correct.	01/29/13	ADDM #4	BSA+A
Q91	Ref. specification section 096623, Resinous Matrix Terrazzo Flooring, page 7,	01/24/13		

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	paragraph 2.4.D.1, Terrazzo Floor Tile. Please provide a manufacturer and series of the terrazzo tile to be used under this designation. Would poured-in-place epoxy terrazzo to match the Terrazzo in Lobby 112 & 212 be an acceptable approved equal for use in the elevator cab?			
A91	Wasua Tile	01/29/13	ADDM #4	BSA+A
Q92	Ref. specification section 096623, Resinous Matrix Terrazzo Flooring, page 7, paragraph 2.5.A, Precast manufactures. We assume Romoco Precast Terrazzo Products will be an approved manufacture for the precast treads and risers as they are listed on the precast base unless otherwise advised. Please see the attached literature for your reference.	01/24/13		
A92	Romoco Tile May be considered under Spec Section 012500 – Substitution Procedure after award of Bid.	01/29/13	ADDM #4	BSA+A
Q93	Ref. drawing A132, 1st Floor Finish Plan, Terrazzo Logo. Please provide additional details for the terrazzo logo in Lobby 100. We assume the use of no more than four colors on this logo unless advised otherwise.	01//24/13		
A93	No more than four (4) colors – Detail to be provided in Future ASI.	01/29/13	ADDM #4	BSA+A
Q94	Ref. drawing A132, 1st Floor Finish Plan and A134 2nd Floor Finish Plan, Stair 100/200. The referenced drawings indicate that W-1 wall finish is to be used in the stair well. As no elevations or details could be found to clarify the use of this finish, please confirm the intended height of the tile finish from the floor level.	01/24/13		
A94	Same as Lobby - Panels above base to ceiling. Refer to Elevation 4/A441	01/29/13	ADDM #4	BSA+A
Q95	Ref. drawing A601, Vertical Circulation – Stair Plans & Sections, Stair 100/200. We note that specification section 096623 indicates the use of ¾” thick Epoxy Terrazzo treads and risers however section detail #8 on drawing A601 depicts treads only. Please confirm that Stair 100/200 is to receive treads only. We assume these treads are non-structural unless advise otherwise.	01/24/13		
A95	Provide both risers & treads.	01/29/13	ADDM #4	BSA+A
Q96	Ref drawing A601, Vertical Circulation – Stair Plans & Sections, Interior Vestibule Stairs. We note that per detail #10 the precast terrazzo treads and risers are to receive end caps. Please provide clarification if the sloped surface between the stairs and the wall is to receive terrazzo flooring and wall base.	01/24/13		
A96	Yes. Precast flooring, precast wall base.	01/29/13	ADDM #4	BSA+A
Q97	In regards to the door schedule, are all glass doors and glazing for the other door	01/24/13		



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	types included in the rough carpentry scope or is that material to be included in the Curtain Wall, Store Front & Glazing Scope ?			
A97	Material for all the glass doors are covered in the Glazing Spec, with references in the Curtain Wall and Alum. Storefront Spec Sections	01/29/13	ADDM #4	BSA+A
Q98	Kawneer's engineering informed me this morning that the main entrance light box structure cannot be supported by the curtainwall framing. The vertical mullions will have internal steel windload reinforcing and will not be able to accomidate any other "embedded" steel that is shown on 8/S504. They also pointed out that this will void warranty.	01/24/13		
A98	Ok. MacEng will provide steel support for lightbox – See future Addendum.	1/28/13	ADDM #4	MacEng
Q99	Summary of Work – Site Work – 7.1.12 - Will other contractors place excavated materials on one stockpile or must the site contractor pick up excavated soils throughout the site ?(to be disposed of by Site Contractor).	01/24/13		
A99	Other Contractor to place excavated materials on one stockpile with all haul-off disposed of by the 01 - Site Work Contractor.	01/24/13	ADDM #3	BANCROFT
Q100	Summary of Work – Site Work – 7.1.22 - Will the gas service be installed by Delmarva Power and light	01/24/13		
A100	No. Gas service shall be installed by 01 - Site Work Contractor.	01/24/13	ADDM #3	BANCROFT
Q101	Summary of Work – Site Work – 7.1.39 - Provide typical section showing sub base materials and pavers.Provide specification and color for type of brick to be used.	01/24/13		
A101	Refer to CSK-002. Brick to be the same color and type as brick on the building.	01/29/13	ADDM #5	BSA+A
Q102	Summary of Work – Site Work – 7.1.49 - provide detailed plan showing limits of striping.provide detail showing traffic and parking signage	01/24/13		
A102	Refer to sheet CC-04 and CF-01 for parking striping, fire lane striping, and signage. Limits are contained within the plan view. Handicap parking signage is located on sheet CC-02 declaring a proposed sign for each proposed handicap parking space.	01/29/13	ADDM #5	LANDMARK
Q103	Please confirm Vessel sinks are by others at the restrooms shown on A437.	01/24/13		
A103	All vessel sinks shall be provided by 20 – Plumbing, Mechanical, & ATC Contractor.	01/25/13	ADDM #3	BANCROFT
Q104	The concrete tops will need tube steel structural support (not by me- misc. metals) or some type of support to the floor. The drawings do not show this, can this be	01/24/13		

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ITEM	Q & A	DATE	ISSUED	Answered By
	clarified as to how the weight will be supported?			
A104	07 – General Trades Contractor shall be responsible for concrete top support. Reference Addendum 01 - 07 – General Trades Summary of Work 7.1.16.	01/25/13	ADDMM #3	BANCROFT
Q105	The reception desk concrete top- Is there a concrete end panel? If not, what is the end panel?	01/24/13		
A105	It is a concrete end panel on one side only and a stainless steel standoff to support it from the desk on the other.	01/25/13	ADDMM #3	BSA+A
Q106	Please confirm Vessel sinks are by others at the restrooms shown on A437.	01/24/13		
A106	Reference the Answer to Question 103.	01/25/13	ADDMM #3	BANCROFT
Q107	The concrete tops will need tube steel structural support (not by me- misc. metals) or some type of support to the floor. The drawings do not show this, can this be clarified as to how the weight will be supported?	01/24/13		
A107	Reference the Answer to Question 104.	01/24/13	ADDMM #3	BANCROFT
Q108	The reception desk concrete top- Is there a concrete end panel? If not, what is the end panel? (support issue)	01/24/13		
A108	Reference the Answer to Question 105.	01/25/13	ADDMM #3	BANCROFT
Q109	Specification section 074213.19- Insulated Metal Wall Panels – Is the panel surface scheduled to be smooth or stucco embossed?	01/24/13		
A109	Provide Smooth finish.	01/29/13	ADDMM #4	BSA+A
Q110	Drawing A171- Roof Plan- General Note 7 “ Typical insulation to be 3” (2) layers of 1 ½” (=R-18). Specification section 075323 Part 2.4B notes 3” minimum insulation. Please note that this does not meet the “ Minimum R-30 insulation” as per note 3 on A171. Please clarify if a minimum of R-30 is required or (2) layers of 1 ½” is scheduled.	01/24/13		
A110	Revise notes to Provide (2) layers of 2” insulation (R-20) per ASK-017.	01/29/13	ADDMM #4	BSA+A
Q111	Summary of work 09- Item 7.1.9 Notes” Furnish and install all waterproofing as shown on contract documents including the elevator pit walls...” The drawings do not indicate waterproofing at any location including the elevator pit. There is no specification for waterproofing. Please clarify if this is scheduled to be installed at the elevator pit only and provide a specification.	01/24/13		
A111	Correct. Reference Addendum 01 – 09 – Roofing, Skylight, & Waterproofing Summary of Work 7.1.8.	01/24/13	ADDMM #3	BANCROFT

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ITEM	Q & A	DATE	ISSUED	Answered By
Q112	Substitution request to Kingspan Benchmark, DesignWall, 200H - Substitution request for the insulated metal panels as well as attachments that accompany the request. If the architect will not accept another manufacturer prior to the bid, the chances are very high that Centria, knowing they have no competition, will put out a very elevated price.	01/24/13		
A112	This is not a suitable manufacturer based on basis of design intent. See Answer A113.	01/30/13	ADDM #5	BSA+A
Q113	Substitution request to Quality Metalcrafts, Americlad, AC-1000 - Substitution request for the composite column covers as well as attachments that accompany the request.	01/24/13		
A113	Basis of Design intent is for Colum cover manufacturer, insulated metal panel and composite metal panel manufacturers to all be by the same manufacturer so that there is not discrepancy in finish.	01/30/13	ADDM #5	BSA+A
Q114	Section 230760: Is AAON an acceptable alternative to the specified manufacturers.	01/24/13		
A114	AAON is an acceptable alternative manufacturer, provided the equipment meets all specified performance, construction, and physical criteria in the contract documents.	01/24/13	ADDM #3	DEDC
Q115	Ref. specification section 093103, Ceramic Tile, Page 5, Paragraph 2.3.B, Glazed Ceramic Mosaic Tile WT-1. The specification is indicating that a 6”x6” tile is to be used with a color per the finish legend. However the finish legend on drawing A134-A3 indicates a 12”x24” tile is to be used with a color to be determined. Please confirm the tile size and color group to be used for this finish.	01/25/13		
A115	12” x 24” Tiles – Group I, Cross Sheen Finish	01/29/13	ADDM #4	BSA+A
Q116	Ref. specification section 093103, Ceramic Tile, Page 5, Paragraph 2.3.C, Glazed Ceramic Mosaic Tile FT-1. The specification is indicating that a 12”x24” tile is to be used. However the finish legend on drawing A134-A3 indicates an 8”x24” tile is to be used. As there is no 8”x24” tile size available in this by the manufacture in this series we will assume the use of a 12”x24” tile unless advised otherwise.	01/25/13		
A116	Tile size 6’ x 24”	01/29/13	ADDM #4	BSA+A
Q117	Ref. drawing A134-A1, Second Floor Finish Plan, General Finish Notes. Note #4 indicates that Men’s and Women’s Rooms require full height W-1 tile at wet walls with all other walls to receive a 48” wainscot. We assume wet walls to be at the urinals and toilets only, unless otherwise advised.	01/25/13		

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ITEM	Q & A	DATE	ISSUED	Answered By
A117	Full height all walls. Alt. #4 Full height at wet wall only as noted.	01/29/13	ADDM #4	BSA+A
Q118	We would like to know who is to supply the hardware, Posts & railings for the Glass Stair Railings? The Structural & Misc. Steel, Masons or Glaziers? Please advise.	01/25/13		
A118	Posts and railings for the interior and exterior glass guardrail and handrail systems shall be by the 11 – Curtain Wall, Storefront, & Glazing Contractor. Reference Addendum 01 – 11 – Curtain Wall, Storefront, & Glazing Summary of Work 7.1.9.	01/28/13	ADDM #4	BANCROFT
Q119	Hardware set is missing from door number C205. Also for some reason there are two hardware schedules in the specs. Not sure why	01/25/13		
A119	Door C205 is to receive Hardware Set 23. Refer to ASK-030, ADDM #5.	01/30/13	ADDM #5	BSA+A
Q120	Drawing A502, Detail 10 - What bid package is scheduled to provide and install this “breakmetal cap”?	01/25/13		
A120	09 – Roofing, Skylight & Waterproofing Contractor shall provide and install this “breakmetal cap”. Reference Addendum 01 – 09 – Roofing, Skylight & Waterproofing Summary of Work 7.1.13	01/28/13	ADDM #4	BANCROFT
Q121	Drawings note “ 5/8” Sheathing”. Specification 092900- 2.5 Notes “ Exterior gypsum board...”. Please clarify sheathing type and note that Dens-glass is not an approved substrate for EPDM roofing. DensDeck or plywood sheathing are approved substrates.	01/25/13		
A121	New Spec Section 061600 – Sheathing Is being further clarified in the project manual.	01/29/13	ADDM #4	BSA+A
Q122	On Drawings M112 & M114 the new diffusers and grills are not specified.	01/25/13		
A122	ALL NEW DIFFUSERS TO BE <u>CD-2</u>, 8” ROUND INLET W/ 8” ROUND FLEX RUNOUTS. ALL NEW GRILLES TO BE <u>CR-1</u>. REFER TO SCHEDULES ON SHEET M-601.	01/28/13	ADDM #4	DEDC
Q123	Is there going to be another walk thru or can contractors schedule their own site visits?	01/25/13		
A123	No.	01/28/13	ADDM #4	BANCROFT
Q124	Is Bancroft supplying a dumpster for construction waste or demoed materials?	01/25/13		
A124	Yes. Bancroft is supplying all dumpsters for construction waste and demoed materials at a centralized on-site location. Contractor shall provide all	01/28/13	ADDM #4	BANCROFT

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	collection and hauling of material to dumpsters provided by Bancroft.			
Q125	Substitution request to Firestone’s UNA FOAM Flat Panels in lieu of Centria Formabond Dimension series panels specified. Attached please find two comparable product submissions for the project referenced above. Let me know if there are any questions or if supplemental information is required in considering our Firestone metal wall products.	01/25/13		
A125	Yes, this is acceptable, however, it is required that the insulated panel and the composite wall panel manufacturer be the same so that there is no finish difference.	01/30/13	ADDM #5	BSA+A
Q126	Substitution request to Firestone’s Series 1200 in lieu of Centria Formabond II panels specified. Attached please find two comparable product submissions for the project referenced above. Let me know if there are any questions or if supplemental information is required in considering our Firestone metal wall products.	01/25/13		
A126	You are correct, the triangles should be reversed. Open = Wind Moment & Closed = Full Penetration Welded Connection. See future addendum for sketches. Revised ADDM #5 -Yes, this is acceptable, however, it is required that the insulated panel and the composite wall panel manufacturer be the same so that there is no finish difference.	1/28/13 Rev 01/30/13	ADDM #4 ADDM #5	MacEng BSA+A
Q127	Drawings(Moment Connections): Per Structural Plan “Notes” they are calling out Wind Moment Connections with the filled/darkened triangle symbol and Full Penetration Welded Moments W/ a Non-Shaded Triangle. Please Verify that this is correct as it is usually reversed and especially along column lines I & B on Sheet S103, I would assume that those beams cantilevering would need to be Full Penetration Welded Connections not Bolted as stated on the drawings.	01/25/13		
A127	You are correct, the triangles should be reversed. Open = Wind Moment & Closed = Full Penetration Welded Connection. See addendum #5 for sketches. Revised ADDM #5 to correct location. Placed in the wrong answer line in ADDM #4.	01/30/13	ADDM #5	MacEng BSA+A
Q128	Summary of Work: Per S.O.W 06 (Dated 1/17/13) Section– 7.1.18, Please Verify that the steel contractor is responsible for hoisting mesh and rebar for other trades.	01/25/13		
A128	Correct.	01/28/13	ADDM #4	BANCROFT
Q129	Summary of Work: Per S.O.W 06 (Dated 1/17/13) Section- 7.1.14, Please Verify that we are to install toe plates along with our a Perimeter Safety Cables, as this is	01/25/13		

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	usually picked by the carpenter.			
A129	Correct.	01/28/13	ADDM #4	BANCROFT
Q130	Spec Section 055000: Please Verify if Structural Steel & Misc Contractor owns the following items corner guards & Down Spout Boots.	01/25/13		
A130	Correct.	01/28/13	ADDM #4	BANCROFT
Q131	Summary of Work: Per S.O.W 06 (Dated 1/17/13) Section – 7.1.10, Please Verify that screen wall steel will be Painted and not Galvanized. Also Please Verify if the Steel Contractor owns the metal panels and fasteners for the screen. As it states in Section 3.1.4, that we do not own any Insulated or Non Insulated Metals Panels.	01/25/13		
A131	Structural steel framing for the screen wall to be factory primed, finish painting by 15 – Painting Contractor. Metal panels to be factory finished by 06 – Structural & Misc. Steel Contractor. 06 – Structural & Misc. Steel Contractor to provide metal panels and fasteners for the equipment screen ONLY. All other insulated and non-insulated metal panels by 22 – Metal Wall Panel System Contractor.	01/28/13	ADDM #4	BANCROFT
Q132	Summary of Work: Per S.O.W 06 (Dated 1/17/13) Section – 3.1.3, Please Verify that the Steel Misc. Contractor does not own Any/All Glass Filled Rails including railing system guardrails & sleeves. BUT do we own the Stair Stringers for Stair100? The following are rails that I am assuming will not be owned by the Misc. Steel Contractor: <ul style="list-style-type: none"> • Glass Rails @ Stair S100 Per Detail 12/A601 • Exterior Glass Rails Per 6/A601 • Exterior Glass Railing @ Vestibule Per Details 8&10/A501 • Interior Elevator Lobby Rails Per Detail 3/A501 	01/25/13		
A132	Correct. 06 – Structural & Misc. Steel shall provide pipe handrail per detail 3 & 5 on A60.1.	01/28/13	ADDM #4	BANCROFT
Q133	Per Addendum 1: Please Verify per Addendum the following items are no longer in the Structural & Misc. Steel Package: Steel Framing for Countertops – Ref. S.O.W 07 – 7.1.16 & 7.1.18 Misc Steel Supports for Mech & Elec. Contractors (We Will Own Roof Frames) Ref S.O.W. 20 – 7.1.36	01/25/13		
A133	Correct, unless detailed on Structural Drawings. Future addendum of the countertop supports shall be the responsibility of the 07 – General Trades	01/28/13	ADDM #4	BANCROFT

Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	Contractor.			
Q134	Schedule: Per the bid Schedule it seems that you have the Steel Contractor Detailing the Steel after its expected to be Fabbed & Installed Please Advise.	01/25/13		
A134	ID 163 “Detail Structural Steel” is in reference to plumbing, adjusting, and final completion of the structural steel. ID 163 is NOT in reference to detailing for submittals and shop drawings.	01/28/13	ADDM #4	BANCROFT
Q135	In Addendum #1 the gas line from the existing main to the meter was added to the sitework scope of work. We are about 99% certain that DP&L must perform this work from the tap at the main to the meter. The sitework contractor will sometimes excavate and backfill the trench but cannot do the pipe installation work. In most cases Delmarva Power self performs all of the work including the excavation and backfill. Can we get the gas line work put back into the “Work by Others” section in the Sitework Summary of Work?	01/25/13		
A135	No. 01 – Site Work Contractor shall be responsible for this work.	01/28/13	ADDM #4	BANCROFT
Q136	Douron intends to provide pricing as a Sub Contractor for the Mobile Storage Shelving, section 105626. After Looking over the bid specifications, I noticed that the basis of design contradicts what is actually called out in the specifications. I attached a cut sheet of the system that is the basis of design for your review. None of the other acceptable manufacturers fabricate their mobile systems this way. Datum, Montel, and SpaceSaver, all have steel carriages that the shelving is attached to. (i.e. Section 2.3 C – Carriages requires a rigid frame of C-shaped cold-formed steel. The manufacturer’s system listed as the basis of design does not have this characteristic.) Will you please clarify if you are looking for a heavier duty Mobile Shelving System similar to what the acceptable manufacturers produce or a lighter weight system similar to the one listed as the basis of design (Qwiktrak by Metro)?	01/25/13		
A136	The heavier weight system to meet the specification is what is required. Qwiktrak is no longer the basis of design.	01/30/13	ADDM #5	Design Collective
Q137	Can MC be used on branch lighting & branch power circuits?	01/25/13		
A137	Installation of MC cable, EMT or rigid conduits shall be provided from the branch, distribution panel, etc.. to the specified space, at this location (MC) may only be used in concealed wall spaces. Using FMC for lighting shall be installed as noted in specification section 260533, 3.2 Raceway Requirements	01/28/13	ADDM #4	DEDC



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	#5. But shall start with EMT or Rigid			
Q138	Can you clarify that Liquidated Damages are N/A on this project.	01/25/13		
A138	There is no Liquidated Damages on this project.	01/28/13	ADDM #4	BANCROFT
Q139	The Spec Book states that we can run HCFC (hospital grade MC Cable) where concealed in walls but I'm wondering if we can also run where concealed in all building construction? (above drop ceilings, drywall ceilings etc.)	01/25/13		
A139	Reference Answer to Question 137	01/29/13	ADDM #4	BANCROFT
Q140	RFI log #47 in Addendum #2 states that the spray insulation will provide the air infiltration barrier. While this is correct there are areas at metal panel installation that show an air infiltration barrier where there is no spray insulation. We will need a specification for these areas.	01/25/13		
A140	Reference revised 01/29/13 answer to Question #47.	01/29/13	ADDM #4	BANCROFT
Q141	Does the Demolition contractor own a temporary plywood enclosure upon removal of the existing curtain wall?	01/25/13		
A141	No. 07 – General Trades Contractor shall be responsible for a temporary construction partition. Reference Addendum 01 – 07 - General Trades Summary of Work 7.1.29.	01/28/13	ADDM #4	BANCROFT
Q142	General Trades scope item 7.1.39 states to install mechanical, electrical, and plumbing access panels. Please provide a quantity or an allowance for bidding purposes.	01/25/13		
A142	A quantity is not available.	01/28/13	ADDM #4	BANCROFT
Q143	Visual Display Boards are specified, but not on the drawings. Please provide a quantity or locations.	01/25/13		
A143	CTDG Response: If contractor question is in reference to LCD or Plasma Flat Panel Displays specified in section 274100, please refer to drawings TA110 through TA125 for locations. Architect to respond regarding locations of other types of visual displays boards specified outside of section 274100. Bancroft Response: Furnish and install of all Whiteboards (WB) shall be removed from the 07 – General Trades Contractors Summary of Work.	01/31/13	ADDM#5	CTDG BANCROFT
Q144	General Trades scope item 7.1.65 states to “Include all scaffolding”. If the General Trades contractor is to provide scaffolding for all trades to use, please provide locations where scaffolding is desired, along with estimated time durations. I would	01/25/13		



Contractor Requests For Information

ITEM	Q & A	DATE	ISSUED	Answered By
	suggest that each trade be responsible for access to their work, whether it be scaffolding or lifts.			
A144	Unclear where this is stated. Addendum 01 – 07 - General Trades Summary of Work 7.1.91 indicates scaffolding requirement. Reference individual Summary of Work for whom is responsible for scaffolding and or hoisting/access of personnel and materials.	01/28/13	ADDM #4	BANCROFT

SECTION 080671 – DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section references specification sections relating to commercial door hardware for the following:
1. Swinging doors.
 2. 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. Cylinders specified for doors in other sections.
- C. Related Sections:
1. Section 08 11 13 - Hollow Metal Doors and Frames.
 2. Section 08 14 16 - Flush Wood Doors.
 3. Section 08 41 13 - Aluminum Framed Entrances and Storefronts.
 4. Section 08 41 23 – Fire Rated Aluminum Framed Entrances and Storefronts.
 5. Section 08 41 26 - All-Glass Entrances.
 6. Section 08 71 00 - Door Hardware.
 7. Section 08 74 00 – Access Control Hardware.
 8. Section 28 13 00 – Access Control.
- 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.

1.2 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.

1.3 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum [5] years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum [3] years documented experience installing both standard and electrified builders hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum [5] years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor in good standing by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of Door Hardware specified in the Related Sections from a single source, qualified supplier unless otherwise indicated.
- E. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the applicable model building code.
- F. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

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 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.6 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.

1.7 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. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets at the end of Part 3 of each referenced section that products are to be supplied under.
 - 1. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - a. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

- B. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.3 FINISHES

- A. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 or traditional U.S. finishes shown by certain manufacturers for their products.

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.
- B. The supplier is responsible for handing and sizing all products as listed in the door hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Products listed in the Door Hardware Sets are to be provided under and meet the requirements described in the specification sections noted.
 - 1. Section 08 71 00 – Door Hardware.
 - 2. Section 08 74 00 – Access Control Hardware.
- D. Manufacturer's Abbreviations:

- 1. MK - McKinney
- 2. RO - Rockwood
- 3. RU - Corbin Russwin
- 4. NO - Norton
- 5. RF - Rixson

- 6. PE - Pemko
- 7. SU - Securitron
- 8. 00 - Other

Hardware Schedule

Set: 1.0

5 Hinge	TA2714 x NRP 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge	TA2714-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Flush Bolt (automatic)	2842 (or) 2942	US26D	RO	
1 Dust Proof Strike	570	US26D	RO	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Coordinator	1700	BLK	RO	087100
2 Door Closer	PR7500	689	NO	087100
2 Kick Plate	K1050 8" 4BE	US32D	RO	
2 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100
1 Astragal	S771C		PE	
1 Astragal	357SP		PE	
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 2.0

2 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge	TA2714-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
3 Silencer	608 (or) 609	GRY	RO	
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 3.0

2 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge	TA2714-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 4.0

2 Hinge	TA2714 x NRP 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge	TA2714-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 5.0

2 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 6.0

2 Hinge (heavy weight)	T4A3786 x NRP 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 7.0

2 Hinge (heavy weight)	T4A3786 x NRP 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	CLP7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Gasketing	S773BL		PE	087100

1 Frame Harness	QC-C1500	MK	087100
1 Door Harness	QC-CXXX	MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 8.0

2 Hinge (heavy weight)	T4A3786 5" x 4-1/2"	US26D	MK	087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 5" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 9.0

2 Hinge (heavy weight)	T4A3786 x NRP 5" x 4-1/2"	US26D	MK	087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 5" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 10.0

3 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK	087100
1 Push Plate	70E (6 x 16)	630	RO	087100
1 Door Pull	BF Y110	US32D	RO	087100
1 Door Closer	R7500	689	NO	087100
1 Mop Plate	K1050 4" 4BE	US32D	RO	
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
3 Silencer	608 (or) 609	GRY	RO	

Set: 11.0

3 Hinge (heavy weight)	T4A3786 5" x 4-1/2"	US26D	MK	087100
1 Mortise Lock (passage)	ML2010 NSA	626	RU	087100
1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100

Set: 12.0

2 Continuous Hinge	MCK-12HD - DOOR HEIGHT	CL	MK	087100
2 Push/Pull Bar Set	BF15847 T1	US32D	RO	087100
1 Door Closer	UNIJ7500	689	NO	087100
2 Frame Switch	672		NO	087113
1 Automatic Operator	6960	689	NO	087113

Notes: Perimeter/meeting stile seals by door/frame supplier.

Set: 12.1

2 Continuous Hinge	MCK-12HD - DOOR HEIGHT	CL	MK	087100
2 Push/Pull Bar Set	BF15847 T1	US32D	RO	087100
2 Door Closer	UNIJ7500	689	NO	087100

Notes: Perimeter/meeting stile seals by door/frame supplier.

Set: 13.0

2 Continuous Hinge	MCK-12HD EPT - DOOR HEIGHT	CL	MK	087100
1 Removable Mullion	908BKM - OPENING HEIGHT	SPEC	RU	087100
1 Exit Device (rim, exit only)	ED4200 M92 M52	630	RU	087100
1 Exit Device (rim, nightlatch)	ED4200 K157 M92 M94 M52	630	RU	087100
3 Cylinder (mortise)	1000 - LENGTH/CAM TO SUIT	626	RU	
1 Cylinder (rim)	3000	626	RU	
2 Door Pull	BF158 Mtg-Type 1	US32D	RO	087100
1 Door Closer	UNIJ7500	689	NO	087100
1 Post Switch	578		NO	087113
1 Frame Switch	672D		NO	087113
1 Automatic Operator	6960	689	NO	087113
1 Threshold	270A MSES25SS		PE	087100
1 Rain Guard	346C		PE	087100
2 Frame Harness	QC-C1500		MK	087100
2 Door Harness	QC-CXXX		MK	087100
1 Card Reader	744F719		RU	087400
2 Electric Power Transfer	EL-CEPT		SU	087100
2 Door Position Switch	DPS-M-GY		SU	087100
1 Controller	781N-120		RU	087100

Notes: Perimeter/meeting stile seals by door/frame supplier.

Access Control provider to furnish all wiring, terminations and panel interface modules required to render the commissioning of the system.

Card reader power by security.

Locate card reader on switch post.

Electronic Operation: Valid card or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Removable mullion to receive custom paint color to match glazed curtain wall frame finish type.

Set: 13.1

2 Continuous Hinge	MCK-12HD EPT - DOOR HEIGHT	CL	MK	087100
1 Removable Mullion	908BKM - OPENING HEIGHT	SPEC	RU	087100
2 Exit Device (rim, exit only)	ED4200 M92 M52	630	RU	087100
2 Cylinder (mortise)	1000 - LENGTH/CAM TO SUIT	626	RU	
2 Door Pull	BF158 Mtg-Type 1	US32D	RO	087100
2 Door Closer	UNIJ7500	689	NO	087100
1 Threshold	270A MSES25SS		PE	087100
1 Rain Guard	346C		PE	087100

2 Frame Harness	QC-C1500	MK 087100
2 Door Harness	QC-CXXX	MK 087100
2 Electric Power Transfer	EL-CEPT	SU 087100
2 Door Position Switch	DPS-M-GY	SU 087100

Notes: Perimeter/meeting stile seals by door/frame supplier.

Access Control provider to furnish all wiring, terminations and panel interface modules required to render the commissioning of the system

Electronic Operation: Depressing touchbar shunts door position switch to signal authorized egress.

Removable mullion to receive custom paint color to match glazed curtain wall frame finish type.

Set: 14.0

2 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D MK 087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 4-1/2" x 4-1/2"	US26D MK 087100
1 Card Reader Exit Device (fail-safe)	ED5400AN N9S603 M812 24AD	626 RU 087400
1 Cylinder (rim)	3000	626 RU
1 Door Closer	PR7500	689 NO 087100
1 Kick Plate	K1050 8" 4BE	US32D RO
1 Door Stop	403 (or) 441CU	US26D RO 087100
1 Gasketing	S88BL	PE 087100
1 Frame Harness	QC-C1500	MK 087100
1 Door Harness	QC-CXXX	MK 087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains unlocked.

Set: 15.0

2 Hinge	TA2714 4-1/2" x 4-1/2"	US26D MK 087100
1 Electric Hinge	TA2714-QC12 4-1/2" x 4-1/2"	US26D MK 087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626 RU
1 Door Closer	R7500	689 NO 087100
1 Kick Plate	K1050 8" 4BE	US32D RO
1 Door Stop	403 (or) 441CU	US26D RO 087100
1 Threshold	270A MSES25SS	PE 087100
1 Gasketing	S773BL	PE 087100

1 Acoustic Corner Pad	ACP112BL	PE	087100
1 Door Bottom (automatic)	4301CRL	PE	087100
1 Frame Harness	QC-C1500	MK	087100
1 Door Harness	QC-CXXX	MK	087100

Notes: Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 16.0

1 All Hardware	BY DOOR SUPPLIER	00
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Notes: All of hardware by door/frame supplier.

Set: 17.0

3 Hinge (heavy weight)	T4A3386 x NRP 4-1/2" x 4-1/2"	US32D	MK	087100
1 Exit Device (rim, exit only)	ED5200	626	RU	087100
1 Door Closer	CPS7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Threshold	270A MSES25SS		PE	087100
1 Rain Guard	346C		PE	087100
1 Gasketing	S773BL		PE	087100
1 Sweep	3452CNB		PE	087100
1 Door Position Switch	DPS-M-GY		SU	087100

Set: 18.0

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK	087100
1 Mortise Lock (storeroom)	ML2057 NSA	626	RU	087100
1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100

Set: 19.0

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK	087100
1 Mortise Lock (classroom)	ML2055 NSA	626	RU	087100

1 Door Closer	R7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S88BL		PE	087100

Set: 20.0

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK	087100
1 Mortise Lock (classroom)	ML2055 NSA	626	RU	087100
1 Door Stop	403 (or) 441CU	US26D	RO	087100
3 Silencer	608 (or) 609	GRY	RO	

Set: 21.0

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK	087100
1 Mortise Lock (storeroom)	ML2057 NSA	626	RU	087100
1 Door Stop	403 (or) 441CU	US26D	RO	087100
3 Silencer	608 (or) 609	GRY	RO	

Set: 22.0

2 Hinge (heavy weight)	T4A3786 x NRP 4-1/2" x 4-1/2"	US26D	MK	087100
1 Electric Hinge (heavy weight)	T4A3786-QC12 4-1/2" x 4-1/2"	US26D	MK	087100
1 Card Reader Lock (fail-secure)	ML20605 x TCRNE1 NSA SS078 M812 24AD	626	RU	
1 Door Closer	PR7500	689	NO	087100
1 Kick Plate	K1050 8" 4BE	US32D	RO	
1 Door Stop	403 (or) 441CU	US26D	RO	087100
1 Gasketing	S773BL		PE	087100
1 Frame Harness	QC-C1500		MK	087100
1 Door Harness	QC-CXXX		MK	087100

Notes: Coordinate hardware requirements with existing conditions.

Lock power by security.

Electronic Operation: Valid card unlocks outside lever or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked.

Set: 23.0

6 Hinge	TA2714 x NRP 4-1/2" x 4-1/2"	US26D	MK	087100
1 Dust Proof Strike	570	US26D	RO	087100

2 Flush Bolt	555 (or) 557	US26D	RO	087100
1 Mortise Lock (classroom)	ML2055 NSA	626	RU	087100
2 Door Stop	403 (or) 441CU	US26D	RO	087100
2 Silencer	608 (or) 609	GRY	RO	

END OF SECTION 080671

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES / STOREFRONTS & DOORS

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. Section Includes:

1. Exterior and interior storefront framing.
2. Exterior and interior manual-swing aluminum entrance doors.
3. Steel elements clip angles, brackets, and reinforcing for storefront and securing same to abutting construction

B. Related Sections:

1. Division 7, Section "Sealants"
2. Division 8, Section 081416 - "Flush Wood Doors" for wood doors in modified aluminum frames.
3. Division 8, Section 088000 - "Glazing" for glass and glazing materials
4. Division 8, Section 084413 - "Glazed Aluminum Curtain Walls".

1.3 DEFINITIONS

- A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:

1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.

2. Dimensional tolerances of building frame and other adjacent construction.
3. Failure includes the following:
 - a. Deflection exceeding specified limits.
 - b. Thermal stresses transferring to building structure.
 - c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
 - d. Noise or vibration created by wind and by thermal and structural movements.
 - e. Loosening or weakening of fasteners, attachments, and other components.
 - f. Sealant failure.
 - g. Failure of operating units.

B. Structural Loads:

1. Wind Loads:
 - a. Basic Wind Speed: 107 mph.
 - b. Importance Factor: 1.15.
 - c. Exposure Category: C.
2. Design Wind Pressure: System shall be designed to withstand the following loads normal to the plane of the wall:
 - a. Pressure (Positive and negative) of not less than 35 PSF at non-corner zones.
 - b. Pressure (Positive and negative) of not less than 35 PSF at corner zones.

C. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to $1/175$ of clear span for spans up to 13 feet 6 inches (4.1 m) and to $1/240$ of clear span plus $1/4$ inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to $3/4$ inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to $L/360$ of clear span or $1/8$ inch (3.2 mm), whichever is smaller.

D. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity, but not fewer than 10 seconds.

- E. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).
 - F. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
 - 1. Maximum Water Leakage: No uncontrolled water penetrating aluminum-framed systems or water appearing on systems' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters that is drained to exterior and water that cannot damage adjacent materials or finishes.
 - G. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
 - 2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
 - a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F (82 deg C).
 - b. Low Exterior Ambient-Air Temperature: 0 deg F (minus 18 deg C).
 - 3. Interior Ambient-Air Temperature: 75 deg F (24 deg C).
 - H. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than 58 when tested according to AAMA 1503.
 - I. Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having an average U-factor of not more than 0.58 Btu/sq. ft. x h x deg F when tested according to AAMA 1503.
- 1.5 SUBMITTALS
- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum-framed systems.

- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
 - 2. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.
 - C. Engineering Analysis: Provide data indicating compliance with all performance requirements and design criteria indicated.
 - 1. Provide load analysis, design calculations and/or manufacturers design tables, fully demonstrating compliance with lateral design loads as well as gravity loading as applicable. Indicate reinforcing, anchorage and bracing and other supports and engineering analysis.
 - D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
 - E. Submit a set of two (2) samples of required aluminum finish, showing extremes of color and appearance, on minimum 4" long extrusions of the alloys to be used for the Work.
 - 1. The right is reserved to require samples of typical fabricated sections, showing joints, exposed fastenings (if any), quality of workmanship, hardware and accessory items, before fabrication of the Work proceeds.
 - F. Other Action Submittals:
 - 1. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
 - G. Qualification Data: For qualified Installer.
 - H. Welding certificates.
 - I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.
 - J. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
 - K. Warranties: Sample of special warranties.
- 1.6 QUALITY ASSURANCE
- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
 - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- D. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
- E. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.
- F. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code - Aluminum."

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration caused by thermal movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Adhesive or cohesive sealant failures.
 - e. Water leakage through fixed glazing and framing areas.
 - f. Failure of operating components.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Aluminum Framed Storefront Systems: Basis-of-Design Product and Subject to compliance with requirements, provide Kawneer North America; Series 450 and 451T, center set outside glazed, Storefront Framing, or comparable product by one of the following:
1. EFCO Corporation 433T
 2. Tubelite Inc.
 3. United States Aluminum.
 4. Vistawall Architectural Products
 5. YKK
- B. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
1. Door Construction: 1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 2. Door Design: Wide stile; 5-inch nominal width. Kawneer 500 series or equal
 - a. Bottom rail: not less than 10 inches above floor or ground plane and complying with accessibility requirements.
 3. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets. Provide nonremovable glazing stops on outside of door.
 4. Entrance Door Hardware: As specified in Division 8 Section "Door Hardware."

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 4. Structural Profiles: ASTM B 308/B 308M.
 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.
- B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Construction:
 - a. **Exterior Storefront: Thermally broken.**
 - b. **Interior Storefront: non-thermally broken.**
 2. Glazing System: Retained mechanically with gaskets on four sides.
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components. Provide reinforcing as required to achieve design loading indicated.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 2. Reinforce members as required to receive fastener threads.
 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
 4. **Sub-Sill Framing Members: fabricate components for assembly using manufacturer's sub-sill receptor system.**
- D. Attachments, Supports and Bracing: All work and components required for proper installation - but not indicated - shall be the responsibility of the window wall systems installer. Installer shall provide all components, materials and equipment necessary for the complete and operational installation of products and materials described here. Any work, including supports, brackets, anchorage, miscellaneous steel, not indicated on the drawings to be provided by others, shall be the responsibility of the installer.
- E. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123/A 123M or ASTM A 153/A 153M.
- F. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- G. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.

2.4 GLAZING SYSTEMS

- A. Glazing: As specified in Division 8 Section "Glazing."
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.

- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
 - a. Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - b. Color: Matching structural sealant.

2.5 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
 - 1. Door Construction: 1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 - 2. **Door Design: Narrow stile; 2 1/8-inch nominal width. Kawneer 190 Narrow style series or equal**
 - a. **Bottom rail: not less than 10 inches above floor or ground plane and complying with accessibility requirements.**
 - 3. **Door Design (Exterior Doors w/ Exit Devices): Wide stile; 5-inch nominal width. Kawneer 500 style series or equal.**
 - a. **Bottom rail: not less than 10 inches above floor or ground plane and complying with accessibility requirements.**
 - 4. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets. Provide nonremovable glazing stops on outside of door.
 - 5. Entrance Door Hardware: As specified in Division 8 Section "Door Hardware."

2.6 ENTRANCE DOOR HARDWARE

- A. **General: Provide entrance door hardware and entrance door hardware sets indicated in door and frame schedule for each entrance door to comply with requirements in this Section.**
 - 1. **Entrance Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products.**
 - 2. **Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.**
 - 3. **Opening-Force Requirements:**

- a. Egress Doors: Not more than **15 lbf (67 N)** to release the latch and not more than **30 lbf (133 N)** to set the door in motion.
 - b. Accessible Interior Doors: Not more than **5 lbf (22.2 N)** to fully open door.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of entrance door hardware are indicated in "Entrance Door Hardware Sets" Article. Products are identified by using entrance door hardware designations as follows:**
1. **Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in "Entrance Door Hardware Sets" Article.**
- C. Opening-Force Requirements:**
1. **Delayed-Egress Locks: Lock releases within 15 seconds after applying a force of not more than 15 lbf (67 N) for not more than 3 seconds.**
 2. **Latches and Exit Devices: Not more than 15 lbf (67 N) required to release latch.**
 3. \
- D. Continuous-Gear Hinges: Manufacturer's standard with stainless-steel bearings between knuckles, fabricated to full height of door and frame.**
- E. Mortise Auxiliary Locks: BHMA A156.5, Grade 1.**
- F. Automatic and Self-Latching Flush Bolts: BHMA A156.3, Grade 1.**
- G. Panic Exit Devices: BHMA A156.3, Grade 1, listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.**
- H. Cylinders: As specified in Section 087100 "Door Hardware."**
- I. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for aluminum framing.**
- J. Operating Trim: BHMA A156.6.**
- K. Closers: BHMA A156.4, Grade 1, with accessories required for a complete installation, sized as required by door size, exposure to weather, and anticipated frequency of use; adjustable to meet field conditions and requirements for opening force.**
- L. Concealed Overhead Holders: BHMA A156.8, Grade 1.**
- M. Surface-Mounted Holders: BHMA A156.16, Grade 1.**
- N. Door Stops: BHMA A156.16, Grade 1, floor or wall mounted, as appropriate for door location indicated, with integral rubber bumper.**

- O. **Weather Stripping: Manufacturer's standard replaceable components.**
 - 1. **Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.**
 - 2. **Sliding Type: AAMA 701, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.**
- P. **Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.**
- Q. **Silencers: BHMA A156.16, Grade 1.**
- R. **Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch (13 mm).**
- S. **Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored to frame hinge-jamb at center-pivoted doors.**

2.7 ACCESSORY MATERIALS

- A. **Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."**
- B. **Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil (0.762-mm) thickness per coat.**

2.8 FABRICATION

- A. **Form or extrude aluminum shapes before finishing.**
- B. **Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.**
- C. **Framing Members, General: Fabricate components that, when assembled, have the following characteristics:**
 - 1. **Profiles that are sharp, straight, and free of defects or deformations.**
 - 2. **Accurately fitted joints with ends coped or mitered.**
 - 3. **Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.**
 - 4. **Physical and thermal isolation of glazing from framing members.**
 - 5. **Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.**
 - 6. **Provisions for field replacement of glazing from exterior.**

7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 1. At exterior doors, provide compression weather stripping at fixed stops.
 2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
 1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
 2. At exterior doors, provide weather sweeps applied to door bottoms.
- G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. **Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, 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.

3.2 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" to produce weathertight installation.

E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

F. Install glazing as specified in Division 8 Section "Glazing."

G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

H. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" to produce weathertight installation.

3.3 ERECTION TOLERANCES

A. Install aluminum-framed systems to comply with the following maximum erection tolerances:

1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.

2. Alignment:
 - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
 - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).

- B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections.
 1. Water Spray Test: Before installation of interior finishes has begun, a minimum area of 75 feet (23 m) by 1 story of aluminum-framed systems designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
- B. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- D. Aluminum-framed assemblies will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

3.5 ADJUSTING

- A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
 1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches (75 mm) from the latch, measured to the leading door edge.

END OF SECTION 084113

SECTION 084126 - ALL-GLASS ENTRANCES AND STOREFRONTS

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.

1.2 SUMMARY

A. Section Includes:

1. Interior and exterior manual-swinging all-glass entrance doors.
2. All-glass sidelights and transoms.
3. Interior and exterior all-glass storefronts.

B. Related Sections:

1. Section 055000 "Metal Fabrications" for overhead-steel support for all-glass systems.
2. Section 084113 "Aluminum-Framed Entrances and Storefronts" for storefront systems that incorporate all-glass entrance doors.
3. Section 084413 "Glazed Aluminum Curtain Walls" for curtain-wall systems that incorporate all-glass entrance doors.
4. Section 088000 "Glazing" for general glass requirements.

1.3 DEFINITIONS

- A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: All-glass systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction.

- B. Structural Performance: All-glass systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to SEI/ASCE 7.

1. Wind Loads:

- a. Basic Wind Speed: 90 mph (40 m/s).
- b. Importance Factor: 1.15.

- c. Exposure Category: B.
 - 2. Seismic Loads: As indicated on Structural Drawings.
 - 3. Deflection Limits: Deflection normal to glazing plane is limited to 1/175 of clear span or **3/4 inch (19 mm)**, whichever is smaller.
- C. Delegated Design: Design all-glass systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- D. Thermal Movements: Allow for thermal movements resulting from the following ambient and surface temperature changes.
 - 1. Temperature Change (Range): **120 deg F (67 deg C)**, ambient; **180 deg F (100 deg C)**, material surfaces.

1.5 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 all-glass system.
- B. Shop Drawings: Show fabrication and installation details, including the following:
 - 1. Plans, elevations, and sections.
 - 2. Details of fittings and glazing, including isometric drawings of rail fitting.
 - 3. Door hardware locations, mounting heights, and installation requirements.
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 - 1. Metal Finishes: **6-inch- (150-mm-)** long sections of rail fittings, accessory fittings, and other items.
 - 2. Glass: **6 inches (150 mm)** square, showing exposed-edge finish.
 - 3. Door Hardware: For exposed door hardware of each type, in specified finish, full size.
- D. Other Action Submittals:
 - 1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, sidelights, transoms, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- E. Delegated-Design Submittal: For all-glass systems 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. Detail fabrication and assembly of all-glass systems.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and testing agency.
- B. Seismic Qualification Certificates: For all-glass systems, accessories, and components, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for all-glass systems.
- D. Field quality-control reports.
- E. Warranty: Sample of special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For all-glass systems to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- C. Engineering Responsibility: Prepare data for all-glass systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- D. Source Limitations: Obtain all-glass systems from single source from single manufacturer.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockups for all-glass systems including entrance door hardware, rail fittings, and accessory fittings.
 - a. Size: one entrance bay size.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Accessible All-Glass Entrance Doors: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
- G. Preinstallation Conference: Conduct conference at Project site.

1.9 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with all-glass systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of all-glass systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Structural failures including excessive deflection, air infiltration, or water leakage.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - c. Failure of operating components.
 2. Warranty Period: Two years from date of Substantial Completion, except as follows:
 - a. Concealed Floor Closers: Five years from date of Substantial Completion.

1.11 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of all-glass system Installer. Include quarterly preventive maintenance, repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper all-glass system operation. Provide parts and supplies the same as those used in the manufacture and installation of original equipment.
- B. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACI Distribution; a division of Vitro America, Inc.
 2. Alpha Door & Rail, Inc.
 3. Arch Aluminum & Glass Co., Inc.
 4. Blumcraft of Pittsburgh.

5. Oldcastle Glass, Inc.
6. Virginia Glass Products Corporation; a subsidiary of Virginia Mirror Company.
7. Vistawall Architectural Products; The Vistawall Group; a Bluescope Steel company.

2.2 MATERIALS

- A. Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated surfaces), Type I (transparent), tested for surface and edge compression per ASTM C 1048 and for impact strength per 16 CFR 1201 for Category II materials.
1. Class 1: Clear monolithic.
 - a. Thickness: 3/4 inch (19 mm).
 - b. Locations: As indicated.
 - c. Visible Light Transmittance: 81 percent minimum.
 - d. Solar Heat Gain Coefficient: 0.67 maximum.
 - e. Outdoor Visible Reflectance: 7 percent maximum.
 2. Exposed Edges: Machine ground and flat polished.
 3. Butt Edges: Flat ground.
 4. Corner Edges: Lap-joint corners with exposed edges polished.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), with strength and durability characteristics of not less than Alloy 6063-T5.
1. Stainless-Steel Cladding: ASTM A 666, Type 304.

2.3 METAL COMPONENTS

- A. Fitting Configuration:
1. Manual-Swinging, All-Glass Entrance Doors Sidelights and Transoms: Continuous rail fitting at top and bottom.
 2. All-Glass Storefronts: Continuous rail fitting at top and bottom.
- B. Rail Fittings:
1. Material: aluminum.
 2. Height:
 - a. Top Rail: 3-1/2 inches (89 mm) unless indicated otherwise.
 - b. Bottom Rail: 3 -1/2 inches (255 mm) unless indicated otherwise..
 3. Profile: Tapered flat.
 4. End Caps: Manufacturer's standard precision-fit end caps for rail fittings.
- C. Accessory Fittings: Match rail-fitting metal and finish for the following:
1. Overhead doorstep.

2. Center-housing lock.
3. Glass-support-fin brackets..

D. Anchors and Fastenings: Concealed.

E. Weather Stripping: Pile type; replaceable without removing all-glass entrance doors from pivots.

2.4 ENTRANCE DOOR HARDWARE

A. General: Heavy-duty entrance door hardware units in sizes, quantities, and types recommended by manufacturer for all-glass entrance systems indicated. For exposed parts, match metal and finish of rail fittings.

B. Concealed Floor Closers and Top Pivots: Center hung; BHMA A156.4, Grade 1; including cases, bottom arms, top walking beam pivots, plates, and accessories required for complete installation.

1. Swing: Single acting.

a. Positive Dead Stop: Coordinated with hold-open angle if any, or at angle selected.

2. Hold Open: Automatic, at angle selected.

3. Opening-Force Requirements:

a. Egress Doors: Not more than **15 lbf (67 N)** to release the latch and not more than **30 lbf (133 N)** to set the door in motion[and not more than **15 lbf (67 N)** to open the door to its minimum required width.

b. Accessible Interior Swinging Doors: Not more than **5 lbf (22.2 N)** to fully open door.

C. Concealed Overhead Holder: BHMA A156.8, Grade 1, with dead-stop setting coordinated with concealed floor closer.

D. Push-Pull Set: As selected from manufacturer's full range or as indicated on the drawings.

E. Cylinders: As specified in Section 087100 "Door Hardware."

F. Exit Devices: UL 305.

1. Function: Operation by push-pull when inside operator is locked down (dogged).

2. Latching: At door head.

3. Style: Concealed vertical rod in housing style indicated and to be a component of manufacturer's Push-Pull door hardware set.

4. Provide exit devices on both leaves of pairs of doors.

G. Threshold: Not more than 1/2 inch (13 mm) high. Construct thresholds with bevel edges per the requirements listed in governing accessibility codes.

- H. Removable Mullions: provide removable jamb frame members sizes as indicated on drawings. Member material and finishes are to match the All-Glass Entrance finishes.**

2.5 FABRICATION

- A. Provide holes and cutouts in glass to receive hardware, fittings, and accessory fittings before tempering glass. Do not cut, drill, or make other alterations to glass after tempering.
1. Fully temper glass using horizontal (roller-hearth) process, and fabricate so that when glass is installed, roll-wave distortion is parallel with bottom edge of door or lite.
- B. Factory assemble components and factory install hardware and fittings to greatest extent possible.

2.6 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
1. Run grain of directional finishes with long dimension of each piece.
 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
 3. Directional Satin Finish: No. 4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, 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.

3.2 INSTALLATION

- A. Install all-glass systems and associated components according to manufacturer's written instructions.
- B. Set units level, plumb, and true to line, with uniform joints.
- C. Maintain uniform clearances between adjacent components.
- D. Lubricate hardware and other moving parts according to manufacturer's written instructions.
- E. Set, seal, and grout floor closer cases as required to suit hardware and substrate indicated.

- F. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce weathertight installation.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. After completion of all-glass storefront installation and nominal curing of sealant and glazing compounds, but before installation of interior finishes, test for water leaks according to AAMA 501.2.
- C. Perform test for total areas as designated by Architect.
- D. Work will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

3.4 ADJUSTING AND CLEANING

- A. Adjust all-glass entrance doors and hardware to produce smooth operation and tight fit at contact points and weather stripping.
 - 1. For all-glass entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to **3 inches (75 mm)** from the latch measured to the leading door edge.
- B. Remove excess sealant and glazing compounds and dirt from surfaces.

END OF SECTION 084126

SECTION 084413 - GLAZED ALUMINUM CURTAIN WALLS

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.

1.2 SUMMARY

- A. Section includes conventionally glazed aluminum curtain walls installed as stick or unitized assemblies.
- B. Related Sections:
 - 1. Section 079200 "Joint Sealants" for installation of joint sealants installed with glazed aluminum curtain walls and for sealants to the extent not specified in this Section.
 - 2. **Section 089000 "Louver & Vents" for units installed with glazed aluminum curtain walls.**

1.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Comply with performance requirements specified, as determined by testing of manufacturer's standard glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Glazed aluminum curtain walls shall withstand movements of supporting structure indicated on Drawings including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 - 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- B. Delegated Design: Design glazed aluminum curtain walls, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Structural Loads:
 - 1. Wind Loads:

- a. Basic Wind Speed: 90 mph (40 m/s).
 - b. Importance Factor: 1.15.
 - c. Exposure Category: B.
2. Blast Loads: Provide system designed to meet or exceed the following requirements of the UFC 4-010-01 (8 October, 2003), "DoD Minimum Antiterrorism Standard for Buildings.
 3. Periodic Maintenance-Equipment Loads: As indicated on Drawings.
- D. Structural-Test Performance: Test according to ASTM E 330 as follows:
1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- E. Deflection of Framing Members: At design wind pressure, as follows:
1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane not exceeding $L/175$ of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to $3/4$ inch (19 mm), whichever is less.
 2. Deflection Parallel to Glazing Plane: Limited to $L/360$ of clear span or $1/8$ inch (3.2 mm), whichever is smaller.
 3. Cantilever Deflection: Where framing members overhang an anchor point, limit deflection to two times the length of cantilevered member, divided by 175.
- F. Seismic Performance: Glazed aluminum curtain walls shall withstand the effects of earthquake motions determined according to SEI/ASCE 7
1. Component Importance Factor is 1.0.
- G. Story Drift: Accommodate design displacement of adjacent stories indicated.
1. Design Displacement: As indicated on Drawings.
 2. Test Performance: Meeting criteria for passing based on building occupancy type when tested according to AAMA 501.4 at design displacement.
- H. Water Penetration under Static Pressure: No evidence of water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
1. Maximum Water Leakage: According to AAMA 501.1. Water leakage does not include water controlled by flashing and gutters that is drained to exterior.
- I. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures:

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
 2. Test Interior Ambient-Air Temperature: 75 deg F (24 deg C).
- J. Energy Performance: Glazed aluminum curtain walls shall have certified and labeled energy performance ratings in accordance with NFRC.
1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.66 Btu/sq. ft. x h x deg F (3.92 W/sq. m x K) as determined according to NFRC 100.
 2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.35 as determined according to NFRC 200.
 3. Air Infiltration: Maximum air leakage through fixed glazing and framing areas of 0.30 cfm/sq. ft. (1.50 L/s per sq. m) of fixed wall area as determined according to ASTM E 283 at a minimum static-air-pressure differential of 6.24 lbf/sq. ft. (300 Pa).
 4. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC- certified condensation resistance rating of no less than 58 as determined according to NFRC 500.

1.4 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Provide glazed aluminum curtain walls that comply with test-performance requirements indicated, as evidenced by reports of tests performed on manufacturer's standard assemblies by a qualified testing agency.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For glazed aluminum curtain walls. Include plans, elevations, sections, full-size details, and attachments to other work.
1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 2. Include full-size isometric details of each vertical-to-horizontal intersection of glazed aluminum curtain walls, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Expansion provisions.
 - d. Glazing.
 - e. Flashing and drainage.
 3. Include laboratory mockup Shop Drawings, prepared by a qualified preconstruction testing agency, showing details of laboratory mockup.
 - a. Resubmit Shop Drawings with changes made to glazed aluminum curtain walls to successfully complete preconstruction testing.

- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:
 - 1. Joinery, including concealed welds.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- F. Delegated-Design Submittal: For glazed aluminum curtain walls indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and testing agency.
- B. Seismic Qualification Certificates: For glazed aluminum curtain walls, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
- C. Welding certificates.
- D. Energy Performance Certificates: For glazed aluminum curtain walls, accessories, and components, from manufacturer.
 - 1. Basis for Certification: NFRC-certified energy performance values for each glazed aluminum curtain wall.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency, for glazed aluminum curtain walls, indicating compliance with performance requirements.
- F. Field quality-control reports.
- G. Warranties: Sample of special warranties.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For glazed aluminum curtain walls to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer capable of fabricating glazed aluminum curtain walls that meet or exceed energy performance requirements indicated and of documenting this performance by certification, labeling, and inclusion in lists.
- B. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- C. Preconstruction Testing Agency Qualifications: Qualified according to ISO/IEC 17025 and accredited by ICC-ES for preconstruction testing indicated.
- D. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- E. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- F. 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."
- G. Energy Performance Standards: Comply with NFRC for minimum standards of energy performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.
 - 1. Provide NFRC-certified glazed aluminum curtain walls with an attached label.
- H. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. **Build mockup of typical wall area as directed by architect.**
 - 2. Field testing shall be performed on mockups according to requirements in "Field Quality Control" Article.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- I. Preinstallation Conference: Conduct conference at Project site.

1.9 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for glazed aluminum curtain walls by field measurements before fabrication and indicate measurements on Shop Drawings.

1.10 WARRANTY

- A. Special Assembly Warranty: Standard form in which Installer agrees to repair or replace components of glazed aluminum curtain walls that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

- a. Structural failures including, but not limited to, excessive deflection.
- b. Noise or vibration created by wind and thermal and structural movements.
- c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- d. Water penetration through fixed glazing and framing areas.
- e. Failure of operating components.

2. Warranty Period: Two years from date of Substantial Completion.

- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:

- a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
- b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
- c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Basis-of-Design Product: Subject to compliance with requirements, provide Kawneer North America; an Alcoa company. 1600 Series (6 inch Deep Frames) or comparable product by one of the following:
2. Wausau Window and Wall Systems.
3. YKK AP America Inc.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: **ASTM B 209 (ASTM B 209M)**.
 2. Extruded Bars, Rods, Profiles, and Tubes: **ASTM B 221 (ASTM B 221M)**.
 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 4. Structural Profiles: ASTM B 308/B 308M.
 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.
- B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 FRAMING

- A. Framing Members: Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Construction: Thermally broken.
 2. Glazing System: Retained mechanically with gaskets on four sides.
 3. Glazing Plane: Front.
 4. **Sub-Sill Framing Members: fabricate components for assembly using manufacturer's sub-sill receptor system.**
 5. **Miscellaneous Framing Members: fabricate "break metal" aluminum panel members as indicated and detailed on drawings. Finish to match glazed curtain wall system.**
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 2. Reinforce members as required to receive fastener threads.
 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- D. Anchors: Three-way adjustable anchors with minimum adjustment of **1 inch (25.4 mm)** that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- E. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.

- F. Framing Sealants: Manufacturer's standard sealants.

2.4 GLAZING

- A. Glazing: Comply with Section 088000 "Glazing."
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
- C. **Glazing Sealants: As recommended by manufacturer.**
 - 1. **Sealants used inside the weatherproofing system shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).**

2.5 INSULATED SPANDREL PANELS (SECTION DELETED)

2.6 OPERABLE UNITS

- A. Doors: Comply with Section 084113 "Aluminum Framed Entrances and Storefront" for aluminum entrance doors.

2.7 ACCESSORY MATERIALS

- A. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.8 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from exterior.
 - 6. Provisions for safety railings mounted on interior face of mullions.
 - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
 - 8. Components curved to indicated radii.

- D. Fabricate components that, when assembled, have the following characteristics:
1. Internal guttering system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
 2. Pressure-equalized system or double barrier design with primary air and vapor barrier at interior side of glazed aluminum curtain wall and secondary seal weeped and vented to exterior.
- E. Factory-Assembled Frame Units:
1. Rigidly secure nonmovement joints.
 2. Seal joints watertight unless otherwise indicated.
 3. Install glazing to comply with requirements in Section 088000 "Glazing."
- F. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, 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.

3.2 INSTALLATION

- A. General:
1. Comply with manufacturer's written instructions.
 2. Do not install damaged components.
 3. Fit joints to produce hairline joints free of burrs and distortion.
 4. Rigidly secure nonmovement joints.
 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 6. Weld components in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
 7. Seal joints watertight unless otherwise indicated.
- B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- F. Install glazing as specified in Section 088000 "Glazing."

3.3 ERECTION TOLERANCES

- A. Erection Tolerances: Install glazed aluminum curtain walls to comply with the following maximum tolerances:
1. Plumb: **1/8 inch in 10 feet (3.2 mm in 3 m); 1/4 inch in 40 feet (6 mm in 12 m).**
 2. Level: **1/8 inch in 20 feet (3.2 mm in 6 m); 1/4 inch in 40 feet (6 mm in 12 m).**
 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to **1/2 inch (12.7 mm)** wide, limit offset from true alignment to **1/16 inch (1.6 mm).**
 - b. Where surfaces are separated by reveal or protruding element from **1/2 to 1 inch (12.7 to 25.4 mm)** wide, limit offset from true alignment to **1/8 inch (3.2 mm).**
 - c. Where surfaces are separated by reveal or protruding element of **1 inch (25.4 mm)** wide or more, limit offset from true alignment to **1/4 inch (6 mm).**
 4. Location: Limit variation from plane to **1/8 inch in 12 feet (3.2 mm in 3.7 m); 1/2 inch (12.7 mm)** over total length.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of representative areas of glazed aluminum curtain walls shall take place as installation proceeds to determine compliance of installed assemblies with specified requirements.
1. Air Infiltration: Areas shall be tested for air leakage of 1.5 times the rate specified for laboratory testing in "Performance Requirements" Article, but not more than **0.50 cfm/sq. ft. (2.25 L/s per sq. m)**, of fixed wall area when tested according to ASTM E 783 at a minimum static-air-pressure differential of **6.24 lbf/sq. ft. (300 Pa)**

- a. Test Area: One bay wide, but not less than **30 feet (9.1 m)**, by one story of glazed aluminum curtain wall.
 - b. Perform a minimum of three tests in areas as directed by Architect.
2. Water Penetration: Areas shall be tested according to ASTM E 1105 at a minimum uniform and cyclic static-air-pressure differential of 0.67 times the static-air-pressure differential specified for laboratory testing in "Performance Requirements" Article, but not less than **6.24 lbf/sq. ft. (300 Pa)**, and shall not evidence water penetration.
 - a. Test Area: One bay wide, but not less than **30 feet (9.1 m)**, by one story of glazed aluminum curtain wall.
 - b. Perform a minimum of three tests in areas as directed by Architect.
 3. Water Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Test Area: A minimum area of **75 feet (23 m)** by one story of glazed aluminum curtain wall.
- C. Glazed aluminum curtain walls will be considered defective if they do not pass tests and inspections.
 - D. Prepare test and inspection reports.

END OF SECTION 084413

SECTION 096813 - CARPET TILE

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 includes modular, tufted carpet tile.
- B. Related Sections include the following:
 - 1. Division 9 Section "Resilient Tile Flooring, Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.
- B. Shop Drawings: Show the following:
 - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
 - 2. Existing flooring materials to be removed.
 - 3. Existing flooring materials to remain.
 - 4. Carpet tile type, color, and dye lot.
 - 5. Type of subfloor.
 - 6. Type of installation.
 - 7. Pattern of installation.
 - 8. Pattern type, location, and direction.
 - 9. Pile direction.
 - 10. Type, color, and location of insets and borders.
 - 11. Type, color, and location of edge, transition, and other accessory strips.
 - 12. Transition details to other flooring materials.
- C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.

2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- (300-mm-) long Samples.
- D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- E. Qualification Data: For Installer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency.
- G. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.
- H. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Mockups: Before installing carpet tile, build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."

- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.7 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, loss of tuft bind strength, dimensional stability, excess static discharge, and delamination.
 - 3. Warranty Period: 10 years from date of Substantial Completion.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).

PART 2 - PRODUCTS

2.1 CARPET TILE – CT-1

- A. **Manufacturers: Basis-of-Design Product: Subject to compliance with requirements, provide Shaw Carpet Tile, “Shine Tile” or a comparable product by one of the following:**
 - 1. **Mannington Commercial**
 - 2. **Interface**
 - 3. **Bently**
 - 4. **Lees**
- B. **Color: See Finish Legend**

- C. **Pattern:** See Finish Legend
- D. **Fiber System:** Duracolor.
- E. **Nylon Type:** Antron Legacy.
- F. **Dye Method:** Solution dyed/Space dyed.
- G. **Pile Characteristic:** Textured multi-colored Loop
- H. **Density:** 7286.
- I. **Pile Thickness:** .084" (2.13 mm).
- J. **Stitches per inch:** 9.8 per inch (38.5 8/10 cm).
- K. **Gauge:** 1/2" (47 rows per 10 cm).
- L. **Face Weight:** 17.0 oz/ per sq. yd. (576 g/m²)
- M. **Primary Backing/Backcoating:** EcoFlex ICT.
- N. **Antimicrobial Treatment:** Manufacturer's standard material.
- O. **Size:** 24" x 24"
- P. **Protective Treatment:** DuraTech.
- Q. **Performance Characteristics:** As follows:
 - 1. **Critical Radiant Flux Classification:** Not less than 0.45 W/sq. cm.
 - 2. **Dry Breaking Strength:** Not less than 100 lbf (445 N) per ASTM D 2646.
 - 3. **Tuft Bind:** Not less than 3 lbf (13 N) per ASTM D 1335.
 - 4. **Delamination:** Not less than 3.5 lbf/in. (15 N/mm) per ASTM D 3936.
 - 5. **Dimensional Tolerance:** Within 1/32 inch (0.8 mm) of specified size dimensions, as determined by physical measurement.
 - 6. **Dimensional Stability:** 0.2 percent or less per ISO 2551 (Aachen Test).
 - 7. **Resistance to Insects:** Comply with AATCC 24.
 - 8. **Colorfastness to Crocking:** Not less than 4, wet and dry, per AATCC 165.
 - 9. **Colorfastness to Light:** Not less than 4 after 40 AFU (AATCC fading units) per AATCC 16, Option E.
 - 10. **Antimicrobial Activity:** Not less than 2-mm halo of inhibition for gram-positive bacteria; not less than 1-mm halo of inhibition for gram-negative bacteria; no fungal growth; per AATCC 174.
 - 11. **Electrostatic Propensity:** Less than 3.5 kV per AATCC 134.
 - 12. **Environmental Requirements:** Provide carpet tile that complies with testing and product requirements of Carpet and Rug Institute's "Green Label Plus" program.

2.2 CARPET TILE – CT-3 (WALK-OFF CARPET)

A. **Manufacturers: Basis-of-Design Product:** Subject to compliance with requirements, provide Interface Flor, Entry Level #1290102500 or a comparable product by one of the following:

1. Mannington Commercial
2. Lees Commercial
3. Bentley
4. Atlas
5. Shaw

B. **Manufacturer:** Interface Flor
Product Name / style: Entry Level
Product Number: 1290102500
Color: As indicated on Finish Legend.
Product Construction: Tufted Textured Loop
Yarn System: 100% Solution Dyed
Tufted Yarn Weight: 28 oz./sq. yd.
Pile Height: .22 in.
Pile Thickness: .15 in.
Pile Density: 6720
Size: 19.69 in X 19.69 in (50 cm X 50 cm)
Radiant Panel: (ASTM E-648) Class 1
Smoke Density: (ASTM E-662) <450
Lightfastness: (AATCC 16-E) >4.0 @ 60 AFU's
Static: (AATCC – 134) < 3.0 KV
Backing: Graphlar Tile
Gauge: 1/12 in.
Stitches: 10/in.
Installation Method: Monolithic

2.3 CARPET TILE – CT-4

A. **Manufacturers: Basis-of-Design Product:** Subject to compliance with requirements, provide Lees, “By The Book” or a comparable product by one of the following:

1. Mannington Commercial
2. Interface
3. Bently
4. Shaw

B. **Color:** See Finish Legend

C. **Pattern:** See Finish Legend

D. **Fiber System:** Duracolor.

- E. **Nylon Type: Antron Legacy.**
- F. **Dye Method: Solution dyed/Space dyed.**
- G. **Pile Characteristic: Textured multi-colored Loop**
- H. **Density: 7286.**
- I. **Pile Thickness: .084" (2.13 mm).**
- J. **Stitches per inch: 9.8 per inch (38.5 8/10 cm).**
- K. **Gauge: 1/2" (47 rows per 10 cm).**
- L. **Face Weight: 17.0 oz/ per sq. yd. (576 g/m²)**
- M. **Primary Backing/Backcoating: EcoFlex ICT.**
- N. **Antimicrobial Treatment: Manufacturer's standard material.**
- O. **Size: 24" x 24"**
- P. **Protective Treatment: DuraTech.**
- Q. **Performance Characteristics: As follows:**
 - 1. **Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm.**
 - 2. **Dry Breaking Strength: Not less than 100 lbf (445 N) per ASTM D 2646.**
 - 3. **Tuft Bind: Not less than 3 lbf (13 N) per ASTM D 1335.**
 - 4. **Delamination: Not less than 3.5 lbf/in. (15 N/mm) per ASTM D 3936.**
 - 5. **Dimensional Tolerance: Within 1/32 inch (0.8 mm) of specified size dimensions, as determined by physical measurement.**
 - 6. **Dimensional Stability: 0.2 percent or less per ISO 2551 (Aachen Test).**
 - 7. **Resistance to Insects: Comply with AATCC 24.**
 - 8. **Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC 165.**
 - 9. **Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC 16, Option E.**
 - 10. **Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria; not less than 1-mm halo of inhibition for gram-negative bacteria; no fungal growth; per AATCC 174.**
 - 11. **Electrostatic Propensity: Less than 3.5 kV per AATCC 134.**
 - 12. **Environmental Requirements: Provide carpet tile that complies with testing and product requirements of Carpet and Rug Institute's "Green Label Plus" program.**

2.4 CARPET TILE – CT-5

- A. **Manufacturers: Basis-of-Design Product: Subject to compliance with requirements, provide Lees, "Color Blocks" or a comparable product by one of the following:**
 - 1. **Mannington Commercial**

2. **Interface**
 3. **Bently**
 4. **Shaw**
- B. Color: See Finish Legend**
- C. Pattern: See Finish Legend**
- D. Fiber System: Duracolor.**
- E. Nylon Type: Antron Legacy.**
- F. Dye Method: Solution dyed/Space dyed.**
- G. Pile Characteristic: Textured multi-colored Loop**
- H. Density: 7286.**
- I. Pile Thickness: .084" (2.13 mm).**
- J. Stitches per inch: 9.8 per inch (38.5 8/10 cm).**
- K. Gauge: 1/2" (47 rows per 10 cm).**
- L. Face Weight: 17.0 oz/ per sq. yd. (576 g/m²)**
- M. Primary Backing/Backcoating: EcoFlex ICT.**
- N. Antimicrobial Treatment: Manufacturer's standard material.**
- O. Size: 24" x 24"**
- P. Protective Treatment: DuraTech.**
- Q. Performance Characteristics: As follows:**
1. **Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm.**
 2. **Dry Breaking Strength: Not less than 100 lbf (445 N) per ASTM D 2646.**
 3. **Tuft Bind: Not less than 3 lbf (13 N) per ASTM D 1335.**
 4. **Delamination: Not less than 3.5 lbf/in. (15 N/mm) per ASTM D 3936.**
 5. **Dimensional Tolerance: Within 1/32 inch (0.8 mm) of specified size dimensions, as determined by physical measurement.**
 6. **Dimensional Stability: 0.2 percent or less per ISO 2551 (Aachen Test).**
 7. **Resistance to Insects: Comply with AATCC 24.**
 8. **Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC 165.**
 9. **Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC 16, Option E.**
 10. **Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria; not less than 1-mm halo of inhibition for gram-negative bacteria; no fungal growth; per AATCC 174.**

11. **Electrostatic Propensity: Less than 3.5 kV per AATCC 134.**
12. **Environmental Requirements: Provide carpet tile that complies with testing and product requirements of Carpet and Rug Institute's "Green Label Plus" program.**

2.5 CARPET TILE – CT-6

- A. **Manufacturers: Existing Reused, see Finish Legend Remarks.**
- B. **Color (Existing): See Finish Legend.**
- C. **Pattern (Existing): See Finish Legend.**

2.6 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
 1. VOC Limits: Provide adhesives with VOC content not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider and protrusions more than 1/32 inch (0.8 mm), unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Clean metal substrates of grease, oil, soil and rust, and prime if directed by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.
- H. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 226213 – VACUUM PIPING SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. Refer to Section 220005 for a general description of the scope of work in this contract.
- B. This section includes:
 - 1. Laboratory vacuum piping and specialties designated “laboratory vacuum”

1.3 REFERENCE STANDARDS

- A. Refer to Section 220000 for a general description of requirements applying to this section.

1.4 QUALITY ASSURANCE

- A. Refer to Section 220010 for a general description of requirements applying to this section.

1.5 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 220000.
- B. Submit the following:
 - 1. Product data on all systems, and equipment.
 - 2. Vacuum pipes and valve boxes.
 - 3. Vacuum service connection and vacuum-bottle brackets.
- C. Piping Material Certification: Signed by installer certifying that vacuum piping materials comply with NFPA 99 requirements.
- D. Qualification Data: For Installer.
- E. Brazing Certificates.
- F. Operation and Maintenance Data: For vacuum piping specialties to include in emergency, operation, and maintenance manuals.

See requirements for submission of cross referencing information.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications:
 - a. Medical Vacuum Piping Systems: Qualifying installers according to ASSE Standard 6010.
 - b. Extruded-Tee outlet procedure: Qualifying operators according to training provided by T-Drill Industries, Inc., for making branch outlets.
 - c. Pressure-Seal joining procedure for copper tubing: Qualifying operators according to training provided by Viega; Plumbing and Heating Systems.
- B. Testing Agency Qualifications: An independent testing agency, with the experience and capability to conduct the vacuum piping testing indicated, that is an NRTL, and that is acceptable to authorities having jurisdiction.
 - a. Qualifying testing personnel according to ASSE Standard 6020 for inspectors and ASSE Standard 6030 for verifiers.
- C. Source Limitations: Obtain vacuum service connections of same type and from same manufacturer as service connections provided for in Division 22 Section, "Gas Piping Systems."
- D. Brazing: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications," or AWS B2.2, "Standard for Brazing Procedure and Performance Qualification."
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- F. Comply with ASME B31.9, "Building Services Piping," for vacuum piping in laboratory facilities.
- G. NFPA Compliance: Comply with NFPA 99, "Health Care Facilities," for medical vacuum system materials and installation in healthcare facilities.

1.6 PROJECT CONDITIONS

- A. Interruption of Existing Laboratory and Medical Vacuum Service(s): Do not interrupt laboratory or medical vacuum service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
 - a. Notify Construction Manager and Owner no fewer than two weeks in advance of proposed interruption of laboratory and medical vacuum service(s).
 - b. Do not proceed with interruption of laboratory and medical vacuum service(s) without Construction Manager's and Owner's written permission.

1.7 COORDINATION

- A. Coordinate medical vacuum service connections with other service connections. Medical compressed-air service connections are specified in Division 22 Section "Compressed-Air Piping or Laboratory and Healthcare Facilities," and medical gas service connections are specified in Division 22 Section "Gas Piping for Laboratory and Healthcare Facilities."

PART 2 PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

- A. Copper Medical Gas Tube: ASTM B 819, Type L, seamless, drawn temper that has been manufacturer cleaned, purged, and sealed for oxygen service for use in medical vacuum service or according to CGA G-4.1 for oxygen service. Include standard color marking "OXY," "MED," "OXY/MED," "OXY/ACR," or "ACR/MED" in blue.
 - a. General Requirements for Copper Fittings: Manufacturer cleaned, purged, and bagged for oxygen service according to CGA G-4.1.
 - b. Wrought-Copper Fittings: ASME B16.22, solder-joint pressure type or MSS SP-73, with dimensions for brazed joints.
 - c. Copper Unions: ASME B16.22 or MSS SP-123, wrought copper or cast-copper alloy.

2.2 JOINING MATERIALS

- A. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- B. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general duty brazing unless otherwise indicated.
- C. Threaded-Joint Tape: PTFE.

2.3 VALVES

- A. General Requirements for Valves: Manufacturer cleaned, purged, and bagged according to CGA G-4.1 for oxygen service.
 - a. Exception: Factory cleaning and bagging are not required for valves for WAGD service.
- B. Copper-Alloy Ball Valves: MSS SP-110, 3-piece body, bronze.
 - a. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - i. BeaconMedaes.
 - b. Pressure Rating: 300 psig minimum.
 - c. Ball: Full-port, chrome-plated brass.
 - d. Seats: PTFE or TFE.
 - e. Handle: Lever type with locking device designed for quarter turn between open and closed positions.
 - f. Stem: Blowout proof with PTFE or TFE seal.

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. BeaconMedaes.

- B. Connection Devices: For specific medical vacuum service listed. Include roughing-in assemblies, finishing assemblies, and cover plates. Individual cover plates are not required if service connection is in multiple unit or assembly with cover plate. Furnish recessed-type units made for concealed piping unless otherwise indicated.
 - a. Roughing-in Assembly:
 - i. Steel outlet box for recessed mounting and concealed piping.
 - ii. Brass-body inlet block.
 - iii. Seals that will prevent vacuum leakage.
 - iv. ASTM B 819, NPS 3/8 copper outlet tube brazed to valve with service marking and tube-end dust cap.
 - b. Finishing Assembly:
 - i. Brass housing with primary check valve.
 - ii. Seals that will prevent vacuum leakage.
 - iii. Cover plate with gas-service label.
 - c. Quick-Coupler Service Connections: Suction inlets for medical vacuum and WAGD evacuation service outlets with non-interchangeable keyed indexing to prevent interchange between services, constructed to permit one-handed connection and removal of equipment, and with positive-locking ring that retains equipment stem in valve during use.
 - d. D.I.S.S. Service Connections: Suction inlets, complying with CGA V-5, with threaded indexing to prevent interchange between services, constructed to permit one-handed connection and removal of equipment.
 - i. Medical Vacuum Service Connections: CGA V-5, D.I.S.S. No. 1220.
 - ii. WAGD Evacuation Service Connections: CGA V-5, D.I.S.S. No. 2220.
 - e. Vacuum Bottle Slide Brackets: One piece, with pattern and finish matching corresponding service cover plate.
 - f. Cover Plates: One piece, stainless steel, with NAAMM AMP 503, No. 4 finish and permanent, color-coded, identifying label matching corresponding service.

2.5 MEDICAL VACUUM PIPING ALARM SYSTEMS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. BeaconMedaes.

- B. Panels for medical vacuum piping systems may be combined in single panels with medical compressed-air and medical gas piping systems.

- C. Components: Designed for continuous service and to operate on power supplied from ac power source to alarm panels and with connections for low-voltage wiring to remote sensing devices. Include step-down transformers if required.

- D. Vacuum Switches or Transducer Sensors: Continuous line monitoring with electrical connections for alarm system.
 - a. Vacuum Operating Range: 0- to 30-in. Hg.

- E. General Requirements for Medical Vacuum Alarm Panels: Factory wired with audible and color-coded visible signals to indicate specified functions.
 - a. Mounting: Exposed, surface or Recessed installation.
 - b. Enclosures: Fabricated from minimum 0.047-inch- thick steel or minimum 0.05-inch thick aluminum, with knockouts for electrical and piping connections.

- F. Master Alarm Panels: With separate trouble alarm signals, vacuum gages, and indicators for medical vacuum piping systems.
 - a. Include alarm signals when the following conditions exist:
 - i. Medical Vacuum: Vacuum drops below 12-in. Hg and backup vacuum pump is in operation.
 - ii. WAGD Evacuation: Vacuum drops below 12-in. Hg.
 - iii. Medical Laboratory Vacuum: Vacuum drops below 10-in. Hg.

- G. Anesthetizing-Area Alarm Panels: Separate trouble alarm signals; vacuum gages; and indicators for medical vacuum piping systems.
 - a. Include alarm signals when the following conditions exist:
 - i. Medical Vacuum: Vacuum drops below 12-in. Hg.
 - ii. WAGD Evacuation: Vacuum drops below 12-in. Hg.

- H. Area Alarm Panels: Separate trouble alarm signals; vacuum gages; and indicators for medical vacuum piping systems.
 - a. Include alarm signals when the following condition exists:
 - i. Medical Vacuum: Vacuum drops below 12-in. Hg.

- I. Medical Laboratory Area Alarm Panels: Separate trouble alarm signals; vacuum gages; and indicators for medical vacuum piping systems.
 - a. Include alarm signals when the following condition exists:
 - i. Medical Vacuum: Vacuum drops below 12-in. Hg.

2.6 NITROGEN

- A. Description: Comply with USP 28 - NF 23 for oil-free dry nitrogen for use in system purging.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Cleaning of Medical Gas Tubing: If manufacturer-cleaned and -capped fittings or tubing are not available or if precleaned fittings or tubing must be recleaned because of exposure, have supplier or separate agency acceptable to authorities having jurisdiction perform the following procedures:
 - a. Clean medical gas tube and fittings, valves, gages, and other components of oil, grease, and other readily oxidizable materials as required for oxygen service according to CGA G-4.1, "Cleaning Equipment for Oxygen Service."
 - b. Wash medical gas tubing and components in hot, alkaline-cleaner-water solution of sodium carbonate or trisodium phosphate in proportion of 1 lb of chemical to 3 gal. of water.
 - i. Scrub to ensure complete cleaning.
 - ii. Rinse with clean, hot water to remove cleaning solution.

3.2 PIPING APPLICATIONS

- A. Connect new copper tubing to existing tubing with memory-metal couplings.
- B. Medical Vacuum Piping: Use one of the following piping materials for each size range:
 - a. NPS 4 and Smaller: Type L, copper medical gas tube; wrought-copper fittings; and brazed joints.
 - b. NPS 5 to NPS 8 Type L, copper medical gas tube; wrought-copper fittings; and brazed joints.
- C. WAGD Evacuation Piping: Use the following piping materials for each size range:
 - a. NPS 4 and Smaller: Type L, copper medical gas tube; wrought-copper fittings; and brazed joints.
 - b. NPS 5 to NPS 8: Type L, copper medical gas tube; wrought-copper fittings; and brazed joints.
- D. Medical Laboratory Vacuum Piping: Use one of the following piping materials for each size range:
 - a. NPS 4 and Smaller: Type L, copper medical gas tube; wrought-copper fittings; and brazed joints.
 - b. NPS 5 to NPS 8: Type L, copper medical gas tube; wrought-copper fittings; and brazed joints.
- E. Drain Piping: Use the following piping materials:
 - a. 1. Copper water tube, cast- or wrought-copper fittings, and soldered joints.

3.3 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of vacuum piping. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, air-compressor sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- B. Comply with ASSE Standard #6010 for installation of vacuum piping.

- C. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal and coordinate with other services occupying that space.
- F. Install piping adjacent to equipment and specialties to allow service and maintenance.
- G. Install vacuum and drain piping with 1 percent slope downward in direction of flow.
- H. Install nipples, unions, and special fittings, and valves with pressure ratings same as or higher than piping pressure rating used in applications below unless otherwise indicated.
- I. Install eccentric reducers, if available, where vacuum piping is reduced in direction of flow, with bottoms of both pipes and reducer fitting flush.
- J. Provide drain leg and drain trap at end of each main and branch and at low points.
- K. Install thermometer and vacuum gage on inlet piping to each vacuum producer and on each receiver. Comply with requirements in Division 22 Section "Meters and Gages for Plumbing Piping."
- L. Install piping to permit valve servicing.
- M. Install piping free of sags and bends.
- N. Install solder-joint pressure-type brazed wrought-copper fittings for changes in direction and for branch connections.
- O. Install medical vacuum piping to medical vacuum service connections specified in this Section and to equipment specified in other Sections requiring medical vacuum service.
- P. Install seismic restraints on vacuum piping. Seismic-restraint devices are specified in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment."
- Q. Install medical vacuum service connections recessed in walls. Attach roughing-in assembly to substrate; attach finishing assembly to roughing-in assembly.
- R. Install medical vacuum bottle slide bracket adjacent to each wall-mounted medical vacuum service connection suction inlet.
- S. Connect vacuum piping to vacuum producers and to equipment requiring vacuum service.
- T. Install unions, in copper vacuum tubing adjacent to each valve and at final connection to each piece of equipment, machine, and specialty.

- U. Install unions, in PVC vacuum piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment, machine, and specialty.
- V. Install flanges, in PVC vacuum piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment, machine, and specialty.
- W. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."
- X. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."
- Y. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements or escutcheons specified in Division 22 Section "Escutcheons for Plumbing Piping."

3.4 VALVE APPLICATIONS

- A. Valves for Copper Vacuum Tubing: Use bronze ball and bronze check types.

3.5 VALVE INSTALLATION

- A. Install shutoff valve at each connection to and from vacuum equipment and specialties.
- B. Install check valves to maintain correct direction of vacuum flow to vacuum-producing equipment.
- C. Install valve boxes recessed in wall and anchored to substrate. Single boxes may be used for multiple valves that serve same area or function.
- D. Install zone valves and gages in valve boxes. Rotate valves to angle that prevents closure of cover when valve is in closed position.
- E. Install safety valves on vacuum receivers, where required by NFPA 99, and where recommended by specialty manufacturers.
- F. Install automatic drain valves on equipment, specialties, and piping with drain connection. Run drain piping to floor drain, so contents spill over or into it.
- G. Install flexible pipe connectors in suction inlet piping to each vacuum producer.

3.6 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from outside of cleaned tubing and fittings before assembly.
- C. Remove and oil-free dry nitrogen purge scale, slag, dirt, and debris from inside and outside of pipe

and fittings before assembly.

- D. Threaded Joints: Apply appropriate tape to external pipe threads.
- E. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook," "Brazed Joints" Chapter. Continuously purge joint with oil-free dry nitrogen during brazing.
- F. Soldered Joints: Apply ASTM B 813, water-flushable flux to tube end. Join copper tube and fittings according to ASTM B 828.
- G. Extruded-Tee Outlets: Form branches in copper tube according to ASTM F 2014, with tools recommended by procedure manufacture.
- H. Flanged Joints:
 - a. Copper Tubing: Install flange on copper tubes. Use pipe-flange gasket between flanges. Join flanges with gasket and bolts according to ASME B31.9 for bolting procedure.

3.7 MEDICAL VACUUM PIPING ALARM SYSTEM INSTALLATION

- A. Panels for medical vacuum piping systems may be combined in single panels with medical compressed-air piping systems and medical gas piping systems.
- B. Install medical vacuum piping system alarm system components in locations required by and according to NFPA 99.
- C. Install medical vacuum piping system area and master alarm panels where indicated.
- D. Install computer interface cabinet with connection to medical vacuum piping alarm system and to facility computer.

3.8 HANGER AND SUPPORT INSTALLATION

- A. Comply with requirements in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment" for pipe hanger and support devices.
- B. Vertical Piping: MSS Type 8 or 42, clamps.
- C. Individual, Straight, Horizontal Piping Runs:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel, clevis hangers.
 - b. Longer Than 100 Feet: MSS Type 43, adjustable, roller hangers.
- D. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze. Comply with requirements in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment" for trapeze hangers.
- E. Base of Vertical Piping: MSS Type 52, spring hangers.

- F. Support horizontal piping within 12 inches of each fitting and coupling.
- G. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.
- H. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 - a. NPS 1/4: 60 inches with 3/8-inch rod.
 - b. NPS 3/8 and NPS 1/2: 72 inches with 3/8-inch rod.
 - c. NPS 3/4: 84 inches with 3/8-inch rod.
 - d. NPS 1: 96 inches with 3/8-inch rod.
 - e. NPS 1-1/4: 108 inches with 3/8-inch rod.
 - f. NPS 1-1/2: 10 feet with 3/8-inch rod.
 - g. NPS 2: 11 feet with 3/8-inch rod.
 - h. NPS 2-1/2: 13 feet with 1/2-inch rod.
- I. Install supports for vertical copper tubing every 10 feet.

3.9 LABELING AND IDENTIFICATION

- A. Install identifying labels and devices for laboratory vacuum piping, valves, and specialties. Comply with requirements in Division 22 Section "Identification for Plumbing Piping and Equipment."
- B. Install identifying labels and devices for medical vacuum piping systems according to NFPA 99. Use the following or similar captions and color-coding for piping products where required by NFPA 99:
 - a. Medical Vacuum: Black letters on white background.
 - b. WAGD: White letters on violet background.
 - c. Medical Laboratory Vacuum: Black boxed letters on white-and-black checkerboard background.

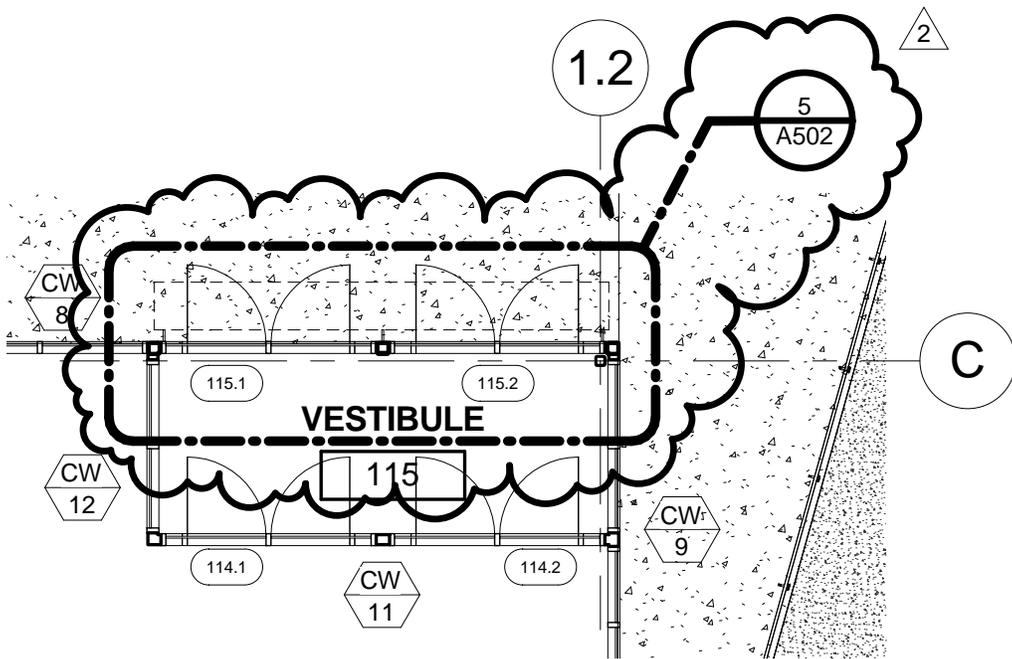
3.10 FIELD QUALITY CONTROL FOR FACILITY NONMEDICAL VACUUM PIPING

- A. Testing Agency: Owner will engage qualified testing agency to perform field tests and inspections of vacuum piping in nonmedical laboratory facilities.
- B. Perform tests and inspections of vacuum piping in nonmedical laboratory facilities.
- C. Tests and Inspections:
 - a. Piping Leak Tests for Vacuum Piping: Test new and modified parts of existing piping. Cap and fill vacuum piping with oil-free, dry nitrogen. Isolate test source and let stand for four hours to equalize temperature. Refill system, if required, to test pressure; hold for two hours with no drop in pressure.
 - i. Test Pressure for Copper Tubing: 100 psig.
 - b. Repair leaks and retest until no leaks exist.
 - c. Inspect filters for proper operation.
- D. Prepare test reports.

3.11 DEMONSTRATION

- A. Engage factory-authorized service representative to train. Owner's maintenance personnel to adjust, operate, and maintain medical vacuum alarm systems. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 226213



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Drawn By:	MJS
Date Issued:	01/30/2013
Scale:	1/8" = 1' - 0"
Project No.:	11.103

**ADDENDUM #5
 LIGHT BOX CALLOUT**

Reference:	A111	Sheet:	ASK-022
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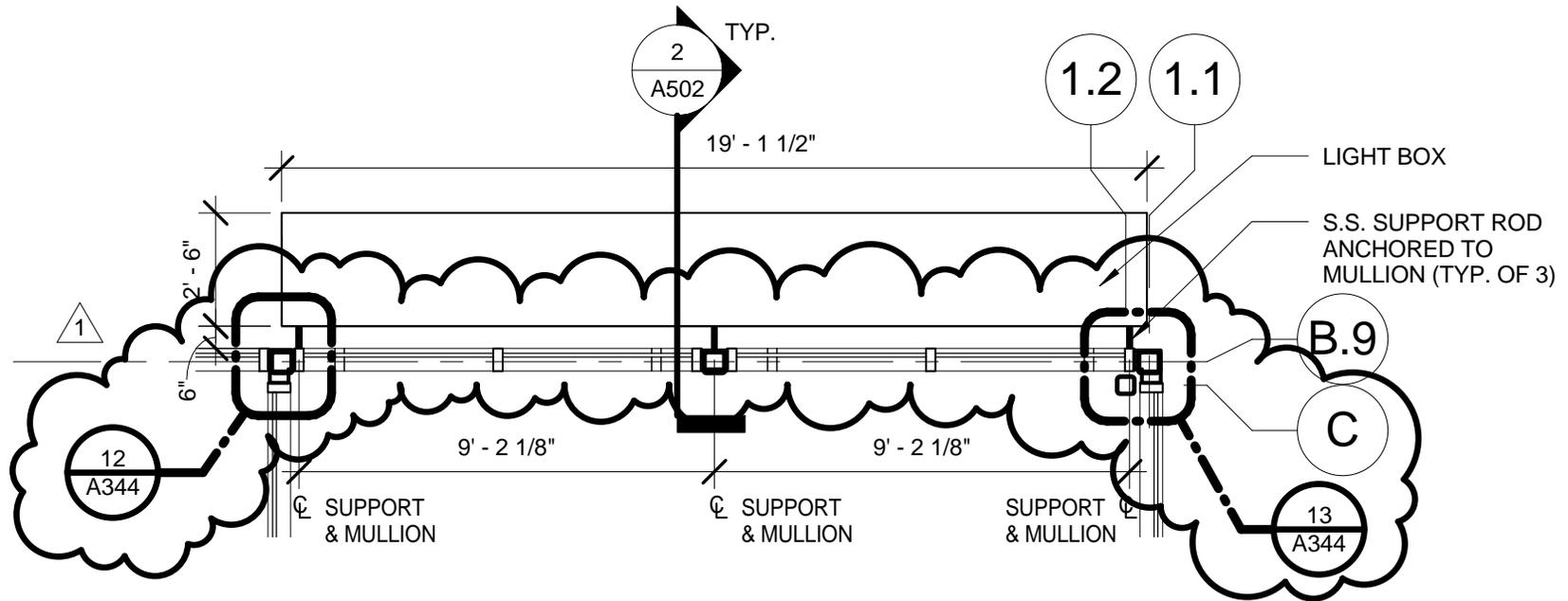
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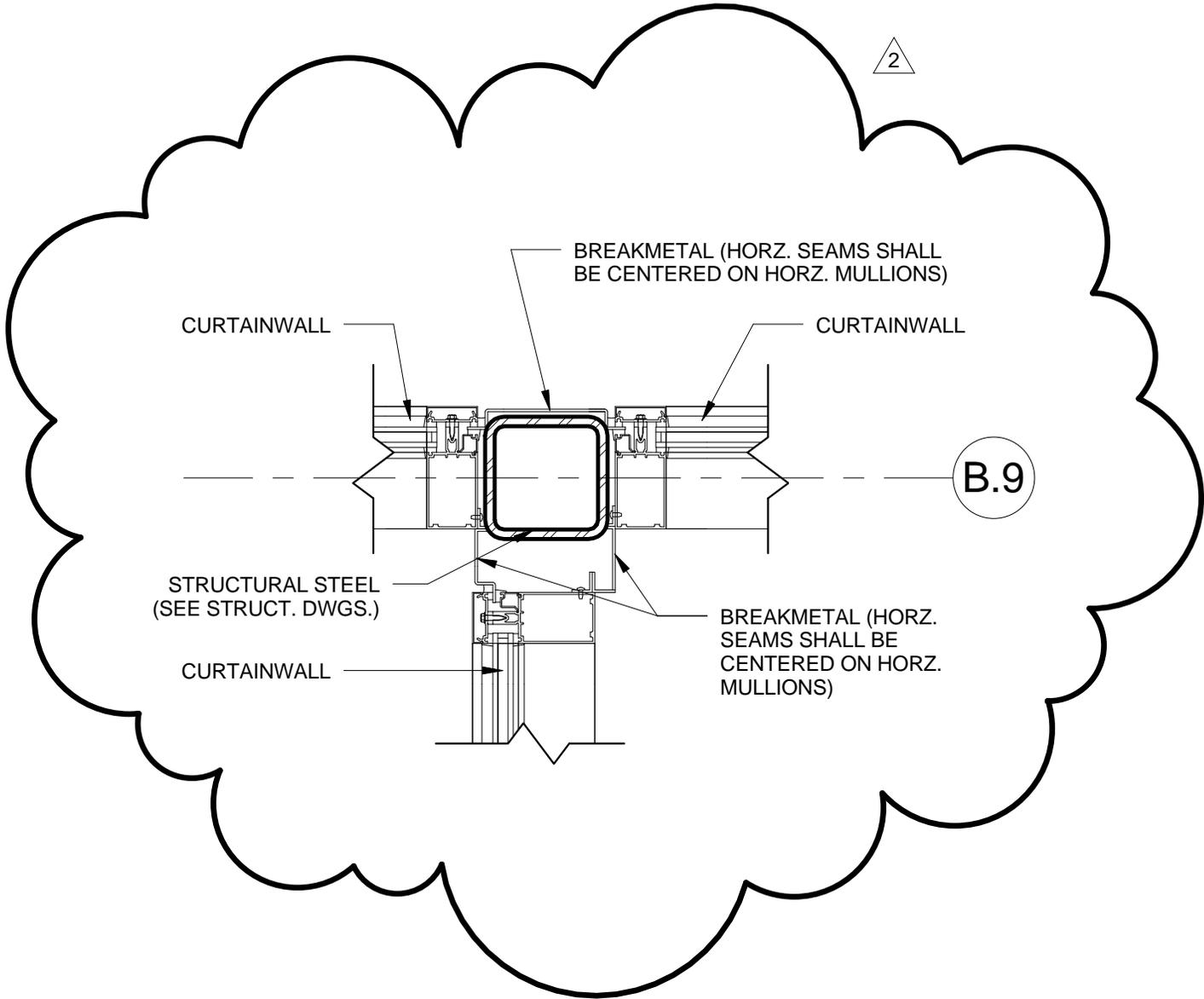
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ADDENDUM #5 ENLARGED PLAN - LIGHT BOX

Reference:	A502	Sheet:	ASK-023
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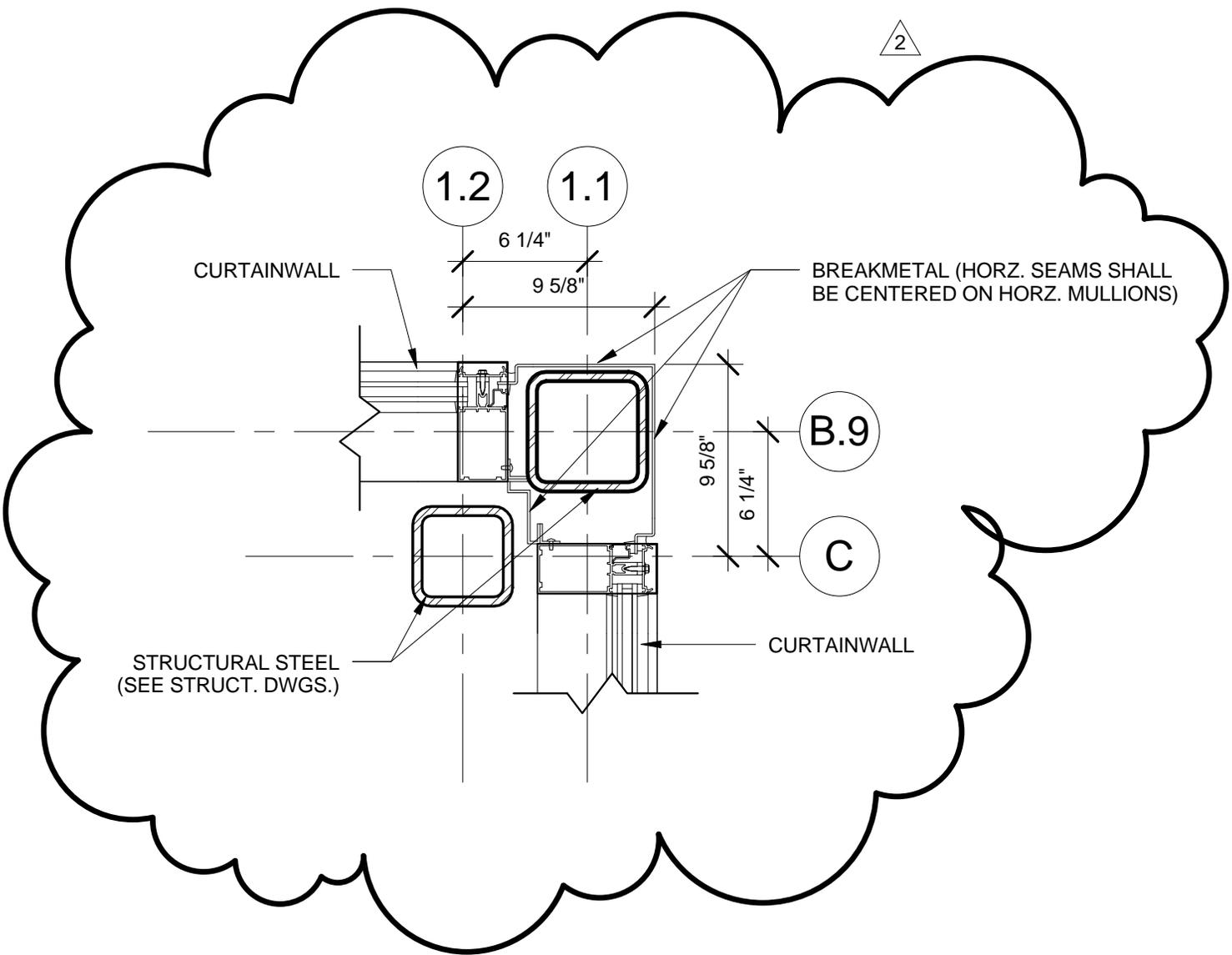
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ADDENDUM #5
NEW DETAIL 12/A344

Reference:	A344	Sheet:	ASK-024
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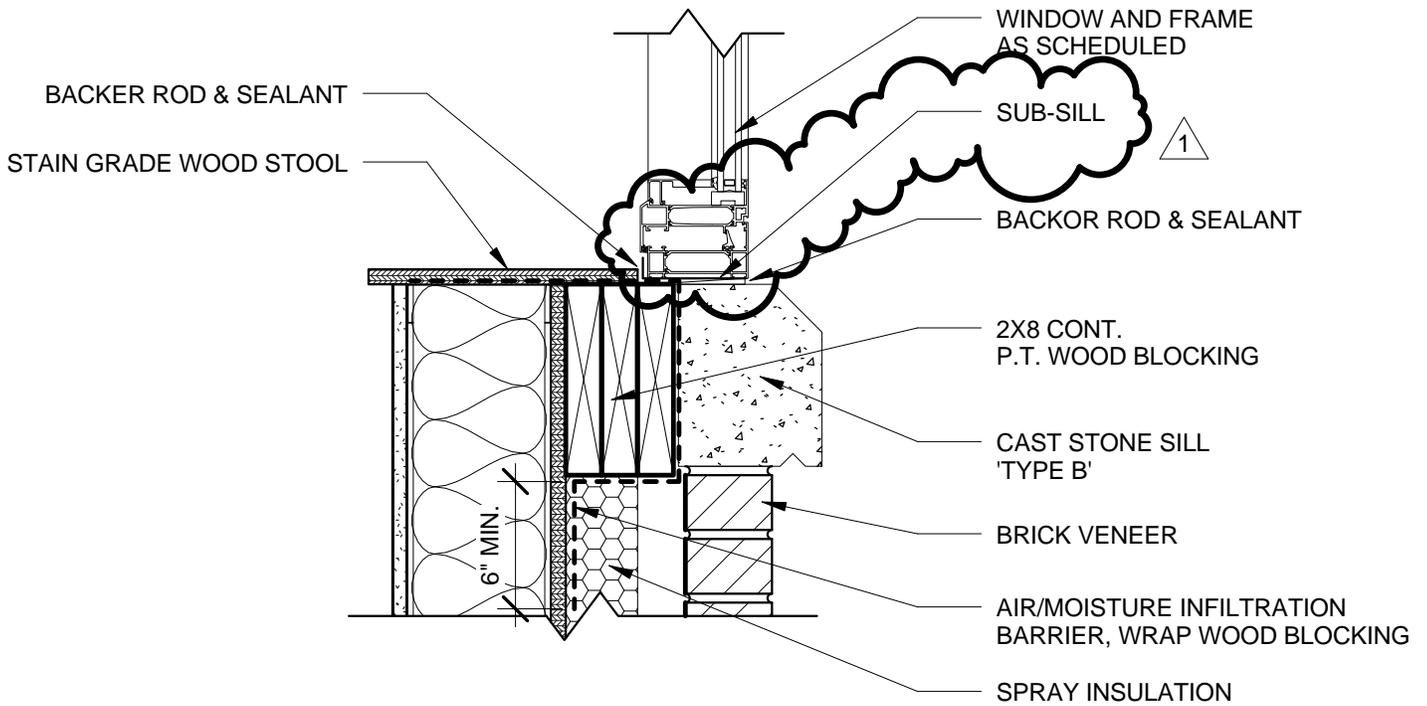
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ADDENDUM #5
NEW DETAIL 13/A344

Reference:	A344	Sheet:	ASK-025
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ADDENDUM #5
REVISED DETAIL
6/A501

Reference:	A501	Sheet:	ASK-026
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ALUMINUM FRAMED CURTIAN
WALL SYSTEM W/
STRUCURALLY REINFORCED
MULLIONS

1

GLAZING

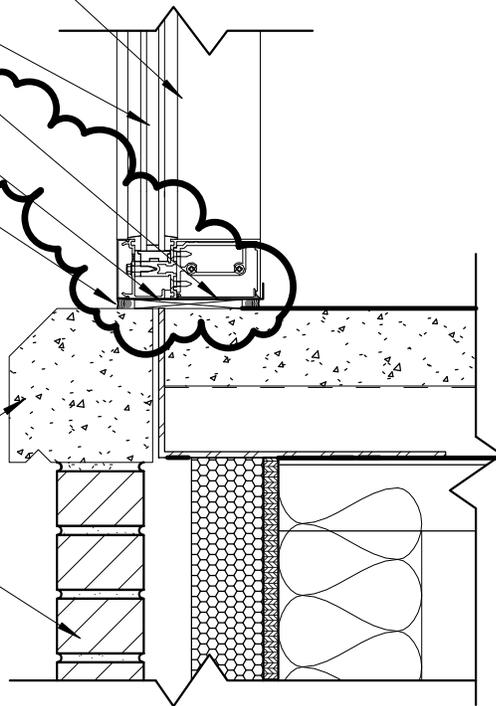
SUB-SILL

SHIM AS REQ'D

BACKER ROD & SEALANT

CAST STONE SILL
TYPE 'A'

BRICK VENEER



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Project No.:	11.103

**ADDENDUM #5
REVISED DETAIL
6/A313**

Reference:	A313	Sheet:	ASK-027
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ALUMINUM FRAMED CURTAIN
WALL SYSTEM W/
STRUCTURALLY REINFORCED
MULIONS

1

GLAZING

SUB-SILL

SHIM AS REQ'D

BACKER ROD & SEALANT

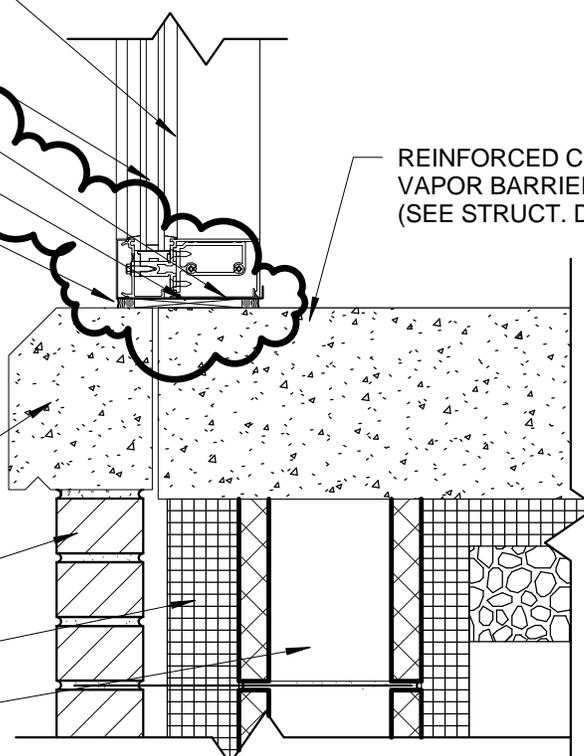
REINFORCED CONC. SLAB AND
VAPOR BARRIER ON STONE BASE
(SEE STRUCT. DWGS.)

CAST STONE SILL
TYPE 'B'

BRICK VENEER

RIGID INSULATION

CMU FOUNDATION WALL
(SEE STRUCT. DWGS.)



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Scale: 1 1/2" = 1' - 0"
Project No.: **11.103**

ADDENDUM #5
REVISED DETAIL
8/A313
Reference: A313 Sheet: **ASK-028**

1

GLAZING TYPES:

- GT-1 1" INSULATED LOW-E GLAZING
- GT-2 1" INSULATED SPANDREL GLAZING
- GT-3 1/4" TEMPERED CLEAR GLAZING
- GT-4 7/8" FIRE RATED GLAZING

FILM TYPES:

TO BE APPLIED TO ROOM SIDE FACE OF GLASS ONLY;
 SOLYX PRODUCT, 3M 7725-314 DUSTED CRYSTAL

GLAZING NOTES:

1. ALL ROUGH OPENINGS FOR WINDOWS, DOORS, LOUVERS, AND OTHER PENETRATIONS SHALL RECEIVE CONT. FLEXIBLE FLASHING. APPLY OVER EXTERIOR SHEATHING AND AS RECOMMENED BY MANUFACURER.
2. PACK ALL METAL STUDS AND OTHER VOIDS AT JAMBS, HEADERS AND SILLS WITH BATT. INSULATION.
3. ALL ACP CEILINGS THAT ABUT CURTAINWALL SHALL RECIEVE WHITE SHEET METAL TRIM WHERE CURTAINWALL IS AT A HIGHER ELEVATION THAN THE CEILING.
4. ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING HOLLOW METAL AND CURTAINWALL SYSTEMS.
5. ALL GLAZING WITHIN 48" OF A DOOR IS TO BE FULLY TEMPERED.

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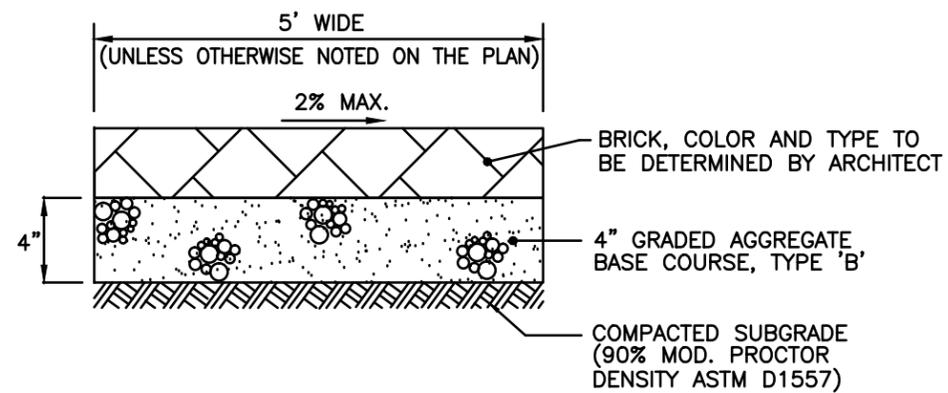
ADDENDUM #5 GLAZING NOTES AND LEGEND

Reference:	A411 AND A412	Sheet:	ASK-029
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DOOR SCHEDULE - BASE BID																	
Level	Mark	Room Name	DOOR						FRAME			Threshold	Jamb Detail	Head Detail	Fire Rating	Hardware Set	Remarks
			Type	Width	Height	Thickness	Material	Finish	Type	Material	Finish						
ENTRY VESTIBULE	114.1	ENTRANCE LOBBY	D4	3' - 3 1/2"	8' - 9 1/2"		GLASS	-	-	-	-					12.0	PAIR
ENTRY VESTIBULE	114.2	ENTRANCE LOBBY	D4	3' - 3 1/2"	8' - 9 1/2"		GLASS	-	-	-	-					12.1	PAIR
ENTRY VESTIBULE	115.1	VESTIBULE	D4	3' - 3 1/2"	8' - 9 1/2"		GLASS	-	-	-	-					13.0	PAIR
ENTRY VESTIBULE	115.2	VESTIBULE	D4	3' - 3 1/2"	8' - 9 1/2"		GLASS	-	-	-	-					13.1	PAIR
FIRST FLOOR	C107	CLASSROOM	D2	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J2	H2		5	
FIRST FLOOR	C109	STORAGE	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J2	H2		18	
FIRST FLOOR	C110	CLASSROOM	D2	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J2	H2		5	

DOOR SCHEDULE - ALT.#4																	
Level	Mark	Room Name	DOOR						FRAME			Threshold	Jamb Detail	Head Detail	Fire Rating	Hardware Set	Remarks
			Type	Width	Height	Thickness	Material	Finish	Type	Material	Finish						
FIRST FLOOR	C102A	OFFICE	D2	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		19	
FIRST FLOOR	C103	CORR	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		21	
FIRST FLOOR	C103A	CORR	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		18	
FIRST FLOOR	C104	WOMEN'S RM.	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		10	
FIRST FLOOR	C105	CORR	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		10	
SECOND FLOOR	C205	OFFICE	D3	6' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F2	HM	PTD		J1	H1		23	
SECOND FLOOR	C290	WOMEN'S RM.	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		10	
SECOND FLOOR	C291	MEN'S RM.	D1	3' - 0"	7' - 0"	0' - 1 3/4"	WD	SN	F1	HM	PTD		J1	H1		10	

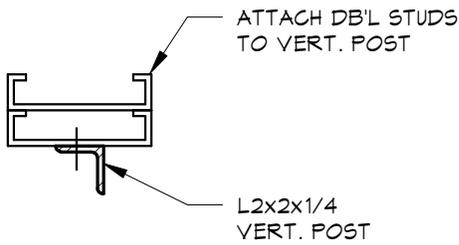
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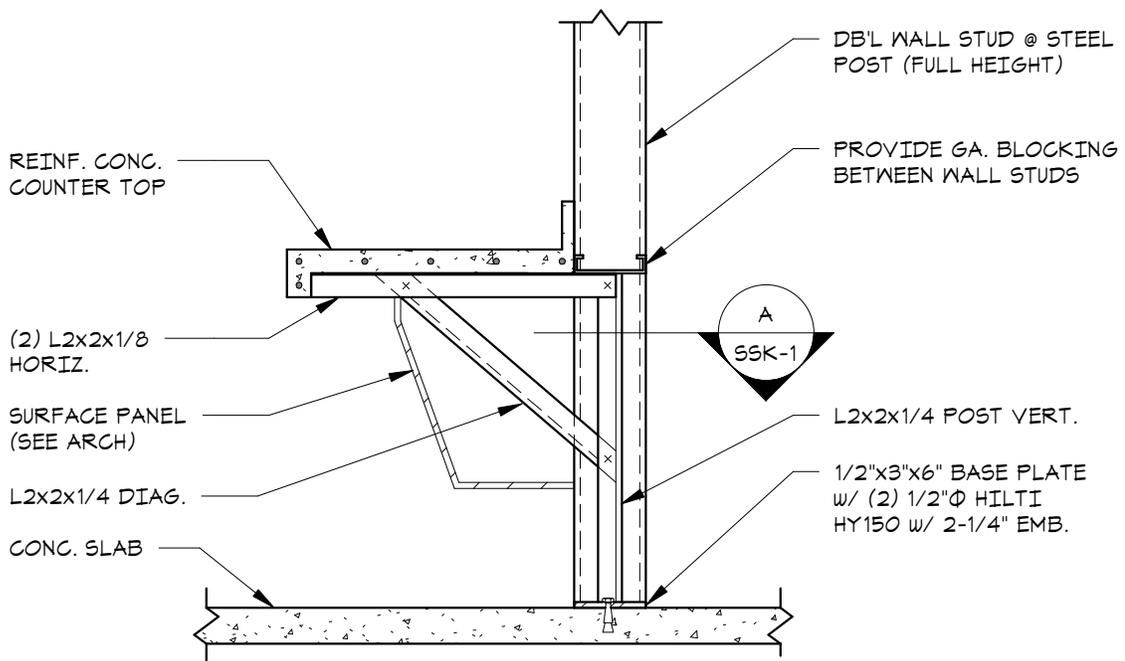
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BRICK SIDEPATH

NO SCALE



Detail A
SSK-1



Detail @ Restroom Concrete Counter Tops

NOTES:

- 1) SPACE ANGLE FRAME SUPPORTS @ 3'-0" o/c MAX.

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Date Issued:	1/30/2013
Scale:	3/4" = 1'-0"
Project No.:	102.313

**ADDENDUM #5 -
COUNTER TOPS
DETAIL**

Reference:	S503	Sheet:	SSK-1
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Second Floor Framing Notes

SCALE: 1/8" = 1'-0"

- NOTES:
1. TOP OF SLAB EL. = (13'-0") ABOVE DATUM EL.
 2. TOP OF STEEL EL. = (6'-1/4") BELOW TOP OF SLAB ELEVATION UNLESS NOTED OTHERWISE THUS (...).
 3.  INDICATES 3-1/4" LN CONCRETE ON 3", 20GA. COMPOSITE FLOOR DECK (GALVANIZED) (3" VLI20 BY VULCRAFT) w/ 6x6-1.4x1.4 WWF (TOTAL SLAB THICKNESS = 6-1/4").
 4.  INDICATES 1", 26GA. FORM DECK (PAINTED) (1.0C26, CSV CONFORM BY VULCRAFT).
 5. ALL STEEL FOR WF MEMBERS SHALL BE ASTM A992.
 6. 'CANT. LE' INDICATES CANTILEVER LEFT END.
 7. ~~'CANT. RB' INDICATES CANTILEVER RIGHT END.~~
 8.  INDICATES BEAM TO BEAM OR BEAM TO COLUMN CONNECTION TO DEVELOP THE FULL MOMENT CAPACITY OF THE BEAM FLANGE IN ADDITION TO THE STANDARD FULL DEPTH CONNECTION.
 9. [...] INDICATES QUANTITY OF 3/4" DIA. x 5-1/4" LONG HEADED STUDS.
 10. '...k' INDICATES BEAM REACTION IN KIPS BASED ON ALLOWABLE STRESS DESIGN.
 11. 'c' INDICATES AMOUNT OF BEAM CAMBER IN INCHES.
 12.  INDICATES WIND MOMENT CONNECTION. SEE TYPICAL DETAIL ON DRAWING S503.
 13. 'L' INDICATES 13x3x1/4 KICKER BRACE @ 10'-0" O/C (MAX.).
 14. 'L_' INDICATES LINTEL. SEE SCHEDULE ON S601 FOR ADDITIONAL INFORMATION.
 15. CURTAINWALL MANUFACTURER TO DESIGN MULLION TO SUPPORT 2-STORY SPANS AS SHOWN.
 16. 'NBL' INDICATES NON-BEARING LINTEL. SEE SCHEDULE ON DRAWING S601.
 17. '*' INDICATES HSS 8x4x1/4 BEAM LOCATED IN ELEV. SHAFT AS REQ'D FOR ELEV. RAIL SUPPORT. COORD. LOCATION w/ ELEV. MANUF.
 18. 'W8' INDICATES W8x18 BEAM FOR MECHANICAL UNIT SUPPORT. COORD. LOCATION w/ MEP.
 19. 'BP_' INDICATES 5/8"x7"x1'-0" LONG BEARING PLATE w/ (2) FLAT BAR ANCHORS.

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ADDENDUM #5 - FLOOR FRAMING NOTES

Reference:	S102	Sheet:	SSK-2
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Roof Framing Plan Notes

SCALE: 1/8" = 1'-0"

NOTES:

1. TOP OF JOIST/ DECK BR'G EL. = (25'-8") ABOVE DATUM EL. U.N.O. THUS (...).
2.  INDICATES 1 1/2" 20 GA. TYPE B WIDE RIB METAL ROOF DECK (PAINTED).
3.  INDICATES WIND MOMENT CONNECTION. SEE TYPICAL DETAIL ON DRAWING S503.
4.  INDICATES BEAM TO BEAM OR BEAM TO COLUMN CONNECTION TO DEVELOP THE FULL MOMENT CAPACITY OF THE BEAM FLANGE IN ADDITION TO THE STANDARD FULL DEPTH CONNECTION.
5. COORDINATE ROOFTOP UNIT LOCATIONS AND DUCT PENETRATIONS W/ ARCHITECTURAL/ MECHANICAL DRAWINGS. SEE TYPICAL DETAILS ON DRAWING S-502 FOR ADDITIONAL INFORMATION.
6. ALL STEEL FOR WF MEMBERS SHALL BE ASTM A992.
7. '(MK1)' INDICATES JOIST DESIGN TO INCLUDE CHORD FORCES. SEE SCHEDULE ON DRAWING S-601 FOR ADDITIONAL INFORMATION.
8. 'H.B.' INDICATES ELEVATOR HOIST BEAM.
9. TOP OF JOIST EL. = (2'-1/2") ABOVE TOP OF STEEL ELEVATION UNLESS NOTED OTHERWISE THUS (...).
10. 'L_' INDICATES LINTEL. SEE SCHEDULE ON DWG. S601 FOR ADDITIONAL INFORMATION.
11. 'BP_' INDICATES 3/8"x7"x1'-0" LONG BEARING PLATE W/ (2) FLAT BAR ANCHORS.
12. 'PU-1' INDICATES HSS 5x5x5/16 POST UP FOR MECH'L SCREENWALL. SEE DRAWING S201.
13. '*' INDICATES HSS 8x4x1/4 BEAM LOCATED IN ELEV. SHAFT AS REQ'D FOR ELEV. RAIL SUPPORT. COORD. LOCATION W/ ELEV. MANUF.
14. 'L' INDICATES L4x4x3/4 MECH'L ROOF CURB/ DUCT OPENING SUPPORT.
15. NEW ROOFTOP OPENING FOR RTU-3 (ALT. #3). PROVIDE FRAMING IN BASE BID. SEE 'TYPICAL DETAIL @ FUTURE MECH'L OPENING' ON DRAWING S201.

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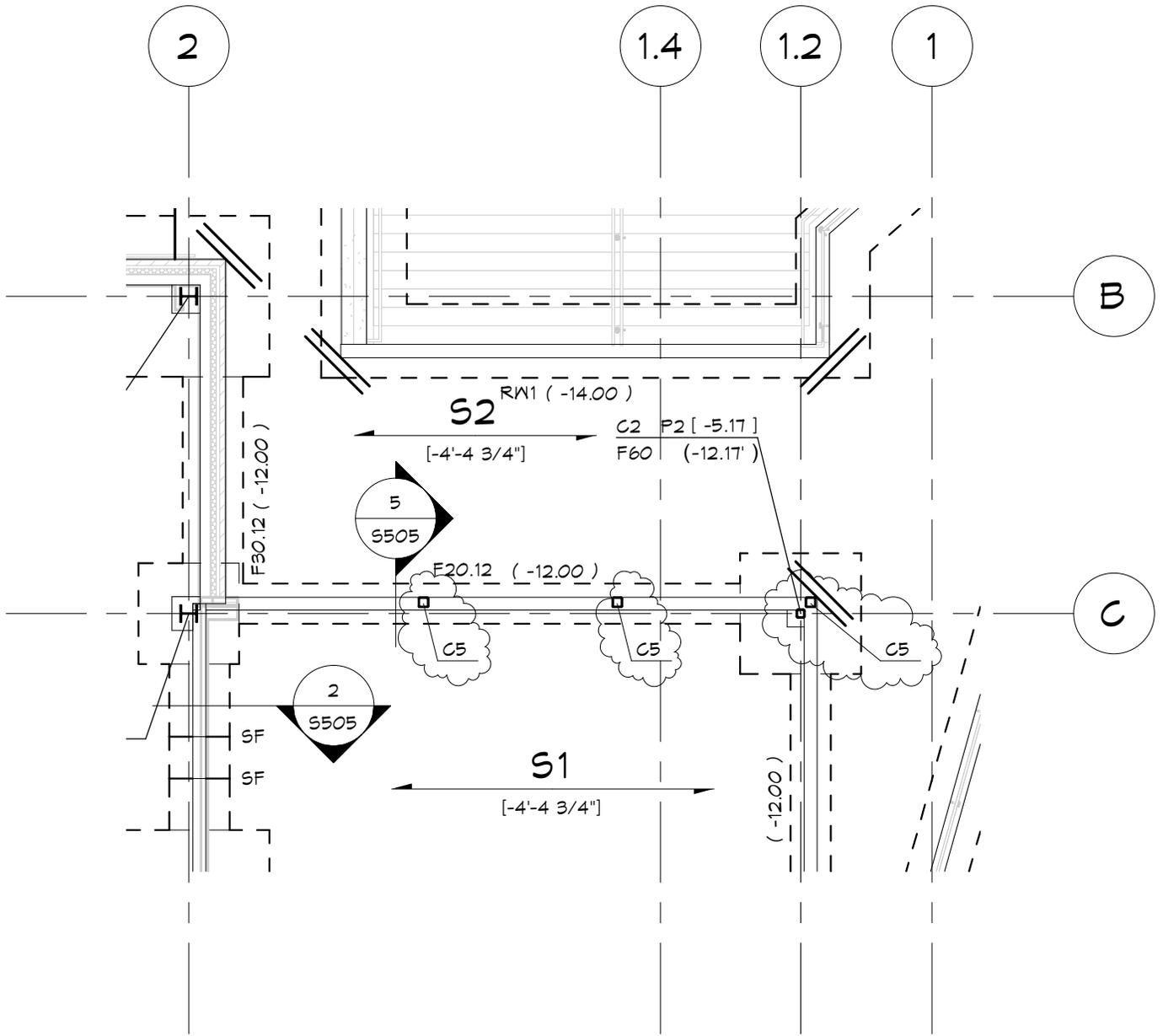
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ADDENDUM #5 - ROOF FRAMING NOTES

Reference:	S103	Sheet:	SSK-3
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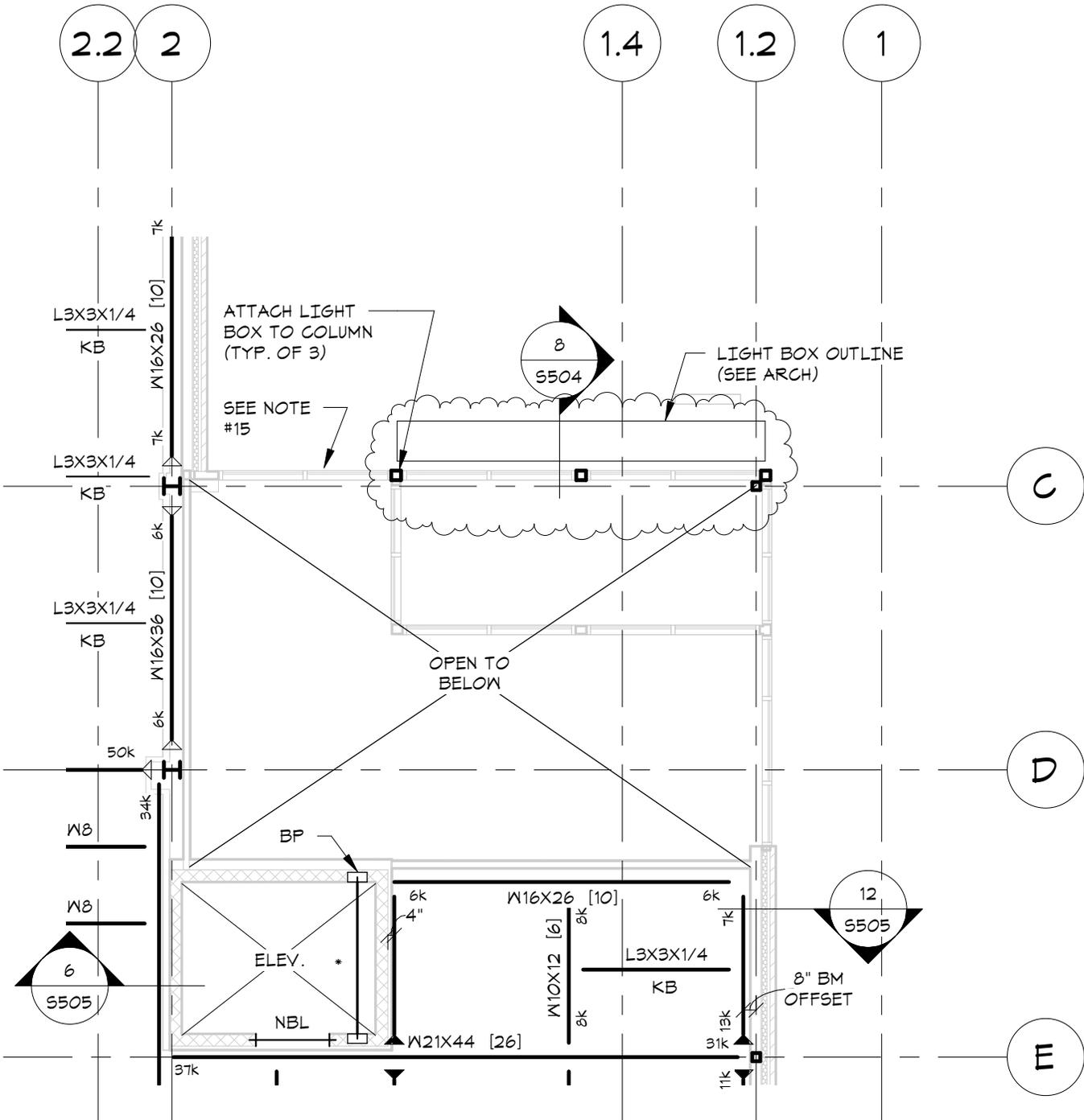
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**ADDENDUM #5 -
FOUNDATION PLAN**

Reference:	S101	Sheet:	SSK-4
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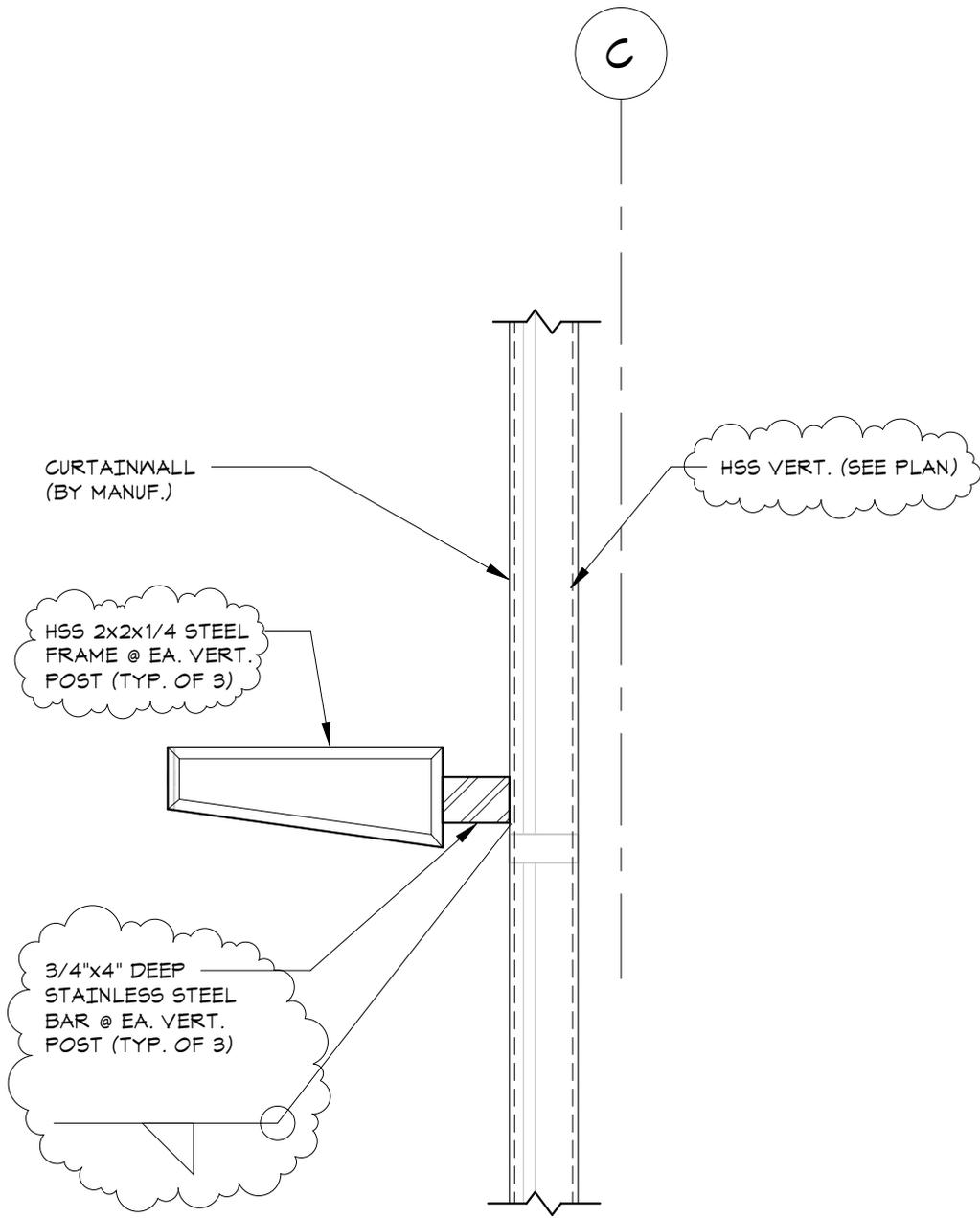
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**ADDENDUM #5 -
 SECOND FLOOR
 FRAMING PLAN**

Reference:	S102	Sheet:	SSK-5
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SECTION 8/S504

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**ADDENDUM #5 -
SECTION 8/S504**

Reference:	S504	Sheet:	SSK-6
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STEEL COLUMN SCHEDULE

MARK	SIZE	BASE PLATES AND ANCHOR BOLTS		REMARKS
		BASE PLATE SIZE	ANCHOR BOLTS	
C1	W10X54	3/4" x 16" x 1'-4"	(4) 3/4"Φ	
C2	HSS5X5X1/2	3/4" x 11" x 0'-11"	(4) 3/4"Φ	
C3	HSS8X8X5/16		(4) 3/4"Φ	
C4	HSS10X10X3/8	1" x 22" x 1'-10"	(4) 3/4"Φ	
C5	HSS6X6X1/2	3/4" x 6" x 1'-0"	(2) 3/4"Φ HILTI HY150 w/ 6-5/8" EMB.	
PU-1	HSS5X5X5/16	SEE DETAIL	SEE DETAIL	

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**ADDENDUM #5 -
 STEEL COLUMN
 SCHEDULE**

Reference:	S601	Sheet:	SSK-7
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