

**ADDENDUM NO. 2**

**DELAWARE STATE UNIVERSITY (OWNER)  
OPTICAL SCIENCE CENTER FOR APPLIED RESEARCH**  
1220 N. DuPont Highway  
Dover, DE 19901

**THE WHITING-TURNER CONTRACTING COMPANY  
(CONSTRUCTION MANAGER)**  
131 Continental Drive, Suite 404  
Newark, DE 19713  
302-292-0676 (phone)  
302-292-0683 (fax)

**BIDS DUE: NOVEMBER 19, 2013 at 2:00 PM (NO CHANGE)**

**LOCATION: Delaware State University  
Education and Humanity Building #32, Main Theater  
1200 N. DuPont Highway  
Dover, DE 19901**

**NOTICE TO ALL BIDDERS**

**1.0 GENERAL NOTES**

- 1.1 Bidders are hereby notified that this Addendum shall be and hereby becomes part of their Contract Documents and shall be attached to the Project Manual for this project. All bidders shall acknowledge this addendum on the Bid Form.
- 1.2 The following items are intended to revise and clarify the drawings and Project Manual and shall be included by the Bidder in their proposal.
- 1.3 Bidders shall verify that their Sub-Bidders are in full receipt of the information contained herein.
- 1.4 **IMPORTANT: ALL Bidders and Sub-Bidders are to purchase a complete set of Contract Documents (Drawings, Project Manual and all Addenda) from RCI (302-328-5019). Documents obtained through the Delaware State Office of Facilities Management do NOT meet this requirement.**
- 1.5 CAD files will not be provided for bidding purposes. CAD files will be made available as requested to awarded Contractors.
- 1.6 The cost for addenda documents will be paid for by the CM from RCI as long as a full set of documents on CD has been previously purchased by interested Bidders. Addenda can also be downloaded from the State of Delaware website.
- 1.7 A consolidated set of Contract Documents will be issued post-award. All awarded Contractors will need to purchase a complete set upon award. This cost should be included in the bid.
- 1.8 RFI log included in addendum.

2.0 CHANGES TO DIVISIONS 00 & 01

- 2.1 SECTION 00450 – LISTING OF SUBCONTRACTORS **(REVISED)**
- 2.2 SECTION 01020 – GENERAL SCOPE **(REVISED)**
- 2.3 SECTION 01020 – BID PACKAGE 02A – SITEWORK AND LANDSCAPING **(REVISED)**
- 2.4 SECTION 01020 – BID PACKAGE 03A – CONCRETE **(REVISED)**
- 2.5 SECTION 01020 – BID PACKAGE 05A – STEEL AND MISCELLANEOUS METALS **(REVISED)**
- 2.6 SECTION 01020 – BID PACKAGE 06A – FINISH CARPENTRY **(REVISED)**
- 2.7 SECTION 01020 – BID PACKAGE 07A – ROOFING **(REVISED)**
- 2.8 SECTION 01020 – BID PACKAGE 07B – METAL PANELS **(REVISED)**
- 2.9 SECTION 01020 – BID PACKAGE 08A – GLASS, GLAZING AND CURTAINWALL **(REVISED)**
- 2.10 SECTION 01020 – BID PACKAGE 09A – GENERAL TRADES **(REVISED)**
- 2.11 SECTION 01020 – BID PACKAGE 09B – VCT/CARPET FLOORING **(REVISED)**
- 2.12 SECTION 01020 – BID PACKAGE 09C – CERAMIC TILE **(REVISED)**
- 2.13 SECTION 01020 – BID PACKAGE 09D – PAINTING **(REVISED)**
- 2.14 SECTION 01020 – BID PACKAGE 09E – EPOXY FLOORING **(REVISED)**
- 2.15 SECTION 01020 – BID PACKAGE 12A – LABORATORY CASEWORK **(REVISED)**
- 2.16 SECTION 01020 – BID PACKAGE 14A – ELEVATOR **(ADDED)**
- 2.17 SECTION 01020 – BID PACKAGE 15A – HVAC, PLUMBING, BAS, TAB **(REVISED)**
- 2.18 SECTION 01020 – BID PACKAGE 15B – FIRE PROTECTION **(REVISED)**
- 2.19 SECTION 01020 – BID PACKAGE 16A – ELECTRICAL **(REVISED)**
- 2.20 SECTION 01025 – PROJECT ALTERNATES **(REVISED)**

Item #	Open / Closed	Issue	Area	Document Reference	Date Sent	Question / Comment	Initiator	Response By:	Date of Response	Response	Document Mod No:
193	Closed	RFI	Structural	05120	10/30/13	Confirm that an AISC certified installer and welders are indeed required as noted in 05120, 1.03, C & E. This requirement will exclude many local contractors from bidding on the project and will result in more expensive bids.	LD	AF	11/05/13	<b>The specifications do not require an AISC certified erector or welders. The welders are required to provide AWS certificates, showing conformance with AWS testing procedures for each type of weld they will be performing on the project. These certificates are to be current within the past year. - Ballinger - Pending further review</b>	na
194	Closed	RFI	Architectural	08710	11/05/13	Confirm keying, spec 08710 section 2.5.A.1 states Owner will install all permanent cylinders and perform keying. This is usually done between DSU and CM.	TK	AT	11/05/13	<b>WT to confirm installation arrangement with DSU and verify scope- R+B</b>	na
195	Closed	RFI	Architectural	a11.8	11/05/13	Architectural drawings, specifically drawing a11.8, under Key Note #31 states and a11.9 Key Note #13, " provide drilled hole and fill interior of horizontal mullion with expansive foam insulation" . Please provide specification for "expansive spray foam insulation.		AT	11/05/13	<b>a quick curing, low pressure spray, expanding polyurethane foam commercially available under a variety of trade names. -R+B</b>	na
199	Closed	RFI	Electrical	00400	11/05/13	The subcontractors list says for the Electrical Contractor to list the Tele/Data Contractor. The specifications say the tele/data is conduits only. Please clarify.	LD/Nickle	AT	11/05/13	WT assumed this specification would be provided prior to the bid. If that is not the case, we will remove this requirement from the bid form. <b>Drawings and specification will not be provided until after bid- R+B</b>	
200	Closed	RFI	Electrical	01025	11/05/13	Please provide a list of trade specific alternates. Am I correct in assuming that the electrical is only affected by Alternate #1, and that all other alternates do not apply?	LD/Nickle	WT	11/07/13	See revised Section 01025 - Project Alternates	Add 2
201	Open	RFI	Electrical	ES1.1	11/05/13	Drawing ES1.1, notes D5 and D6 refer you to details 4 and 6 on drawing E5.2 when referencing the underground site lighting conduits. Please confirm that concrete encasement for the 1" site lighting is not required and detail #5 on drawing E5.2 should be followed for site light conduit installation.	LD/Nickle				
202	Closed	RFI	Electrical	01020	11/05/13	Items #108 and 110 of the electrical site electric scope of work seem to be conflicting. Please clarify who owns the site lighting pole bases and who is to provide the concrete for the electrical duct banks.	LD/Nickle	WT	11/07/13	Bid Package 16A has been revised.	Add 2
203	Open	RFI	Electrical	e3.0, e3.1, e3.2, e3.3, e3.4	11/05/13	We do not see panel "LP-A4" on the single line diagram. Where is this panel fed from? Please clarify.	LD/Nickle			WT Note: LP-A4 is not shown on the single line diagram but it is shown on the riser diagram (e4.2) being fed from the building substation.	

Item #	Open / Closed	Issue	Area	Document Reference	Date Sent	Question / Comment	Initiator	Response By:	Date of Response	Response	Document Mod No:
204	Open	RFI	Electrical	EP2.1	11/05/13	There seems to be some confusion about what surface mounted raceway to use please see comments from the local wiremold rep below: - Looking at the Raceway I have a question. P1 is identified on the Detail Drawing as ALA4800 Series Raceway. P2 is identified as "Any size" Raceway (which is a custom Wiremold product). Looking at drawing EP2.1, the run on the upper most north wall (just left of column line #6) they are indicating a P2 Run (Any size Raceway), with an internal corner transitioning to P1 (ALA4800 Series). I thought maybe they were indicating they wanted any size Raceway because in that run they need a 6-40R Device, however, the ALA4800 can accommodate that device as well as the 6-50R device that shows on the detail in the any size Raceway. Can you please find out why they are using any size and if it is actually needed, what are the dimensions and number of compartments required. Also, if any size Raceway is indeed required, Wiremold will not be able to prewire those P2 Runs since Any size Raceway is not UL Listed for Prewired. Please clarify what products we are to be using for surface mounted raceway.	LD/Nickle				
206	Open	RFI	Architectural	a9.0		Finish Plans call for sealed concrete (S-CONC). Please provide specification for this material	TK				
207	Open	RFI	Structural	S4.1		Please advise if the fabricator must use the brace frame details as shown on S4.1. Since the fabricator owns engineering and calcs are alternate connections allowed?	LD/RC Fab				
208	Closed	RFI	Structural	01020		The Scope of Work states that all steel is to be galvanized (item 28 in steel scope). Drawings state all steel at and below second floor to be galvanized. Please confirm which is correct.	LD/RC Fab	WT	11/07/13	Bid Package 05A has been revised.	Add 2

SECTION 00450 – LISTING OF SUBCONTRACTORS (REVISED ADDENDUM 2)

Where the Bidder intends to perform the work with his own forces, his name is listed as a subcontractor.

**This list will be updated via the pre-bid meeting.  
Check addenda and bid forms for final listing.**

Fill out the required information on the bid form:

<u>BID PACKAGE #</u>	<u>BID PACKAGE DESCRIPTION</u>	<u>SUBCONTRACTOR / SUPPLIER CATEGORY TO BE LISTED ON BID FORM</u>
02A	Sitework & Landscaping	Sitework, Landscaping
02B	Auger Cast Piles	Auger Cast Piles
03A	Concrete	Concrete
04A	Masonry	Masonry
05A	Steel & Miscellaneous Metals	Structural Steel
06A	Millwork/Casework	Millwork/Casework
07A	Roofing	Flat Roofing
07B	Metal Panels	Metal Panel Supplier, Metal Panel Installer
08A	Glass, Glazing, Curtainwall, Skylight	Glass, Aluminum, Curtainwall, Skylight, Metal Panel Supplier, Metal Panel Installer
09A	Stud, Drywall, Ceilings, D/F/H	Drywall / Ceilings / DFH (Supplier)
09B	VCT/Carpet Flooring	VCT/Carpet Flooring
09C	Ceramic Flooring	Ceramic Flooring
09D	Painting	Painting
09E	Epoxy Flooring	Epoxy Flooring
10A	Specialties	Specialties
12A	Laboratory Casework	Laboratory Casework
14A	Elevator	Elevator
15A	Mechanical, Plumbing, BAS, TAB	Sheet Metal, Building Automation System, Insulation, Plumbing, HVAC Piping, Testing & Balancing
15B	Fire Protection	Fire Protection
16A	Electrical	Electrical, <del>Telecommunications Cabling</del> , Fire Alarm (Addendum 2)

END OF SECTION 00450

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SECTION 01020 – GENERAL SCOPE (**REVISED ADDENDUM 2**)

All work is to be done in accordance with the Contract Documents, including the drawings and the specifications, this scope of work, and all addenda, if any. Each trade must comply fully with all sections of the Division 01 General Requirements.

This scope is intended as a reference to assist in the bidding process. The Contractor is responsible for all labor, material, tools, equipment, hoisting, storage, layout, incidental work, and associated services necessary to fully complete all of the work described and shown in the Contract Documents. This Contractor is responsible to review and include all items in their attached **specific scope** of work and to also review the work of other trades.

This work includes but is not limited to:

**GENERAL SCOPE ITEMS: ALL trades must abide**

1. All Contractors are responsible for the full set of drawings & specifications, addenda, bulletins, architectural supplemental instruction, etc., herein denoted as “Contract Documents”.
2. Provide a payment and performance bond.
3. Arrange for and coordinate Miss Utility and other applicable entities in the identification and locating of any existing utilities, both public and private as applicable to the work. Test pit by hand digging the locations where new utilities cross over any existing utilities.
4. The Construction Manager will provide two datum points, one grid line in the north-south direction and one grid line in the east-west direction. Provide all other engineering and layout for the work described herein.
5. All Contractors are to provide a full-time onsite superintendent to monitor and supervise work described herein. The project manager assigned to this work is required to visit the site a minimum of two times per week. When the individual is onsite he must meet with Whiting-Turner superintendent and Project Manager. If this Contractor requires any Subcontractors to be onsite, the designated full-time onsite superintendent from this Contractor must be onsite.
6. The project will be **LEED SILVER**; the specifications require certain LEED guidelines, procedures and paperwork be followed. The Contractor is responsible to include all those specific requirements, as called for in the Contract Documents.
7. Reproduction cost for Contract Documents and shop drawings are the responsibility of each Contractor. Copies will not be made by DSU or Construction Manager.
8. All Contractors shall provide Construction Manager with a complete submittal schedule listing all submittals in this Contractor’s scope of work within 10 days of award.
9. Contractors will be required to provide multiple crews and equipment so as to perform work as sequenced on the master project bid schedule.
10. This is a wage rated project. All Contractor employees will be required to sign-in each day on the jobsite.
11. After bids are received, Contractors will need to attend a scope review meeting with Construction Manager, the Owner, and the Architect. Low bidders will be contacted in approx. 1-2 days after bids are due.
12. All Subcontractors must be listed on the bid form. All Subcontractors must be State licensed and insured as well as fully meet specified installer qualifications. If a listed Subcontractor is not used,

- Title 29 Chapter 69 requirements will require Subcontractor to submit a letter of withdraw for review and approval.
13. On-site work hours are 7:00 a.m. to 3:30 p.m. only Monday - Friday. Saturday will be used as a make-up day due to lost time during the week due to weather. This includes deliveries to the site. Below represents special schedule considerations as a result of working on an active University. Bidders shall factor these dates in their bid. Any accelerations or delays as a result of these special schedules will be the sole responsibility of the Contractor.
    - A. Summer hours are from 6:00am to 4:00pm.
      - i. 2014: May 12th – August 22
    - B. Reading Days / Finals – NO EXTERIOR WORK IS ALLOWED
      - i. 2014: May 2 – May 9; December 5 – December 12
      - ii. 2015: May 1 – May 8
    - C. Commencement – NO work starting at noon on Friday through the weekend. The entire site must be cleaned up and presentable.
      - i. 2014: May 9 – May 11
      - ii. 2015: May 8 – May 10
  14. Each Contractor, upon award, is to forward budget costs for each individual item of work, in SF or LF costs for accounting only. A list will be forwarded to each sub from Construction Manager. This list will form the basis of the invoice Schedule of Values. No payments to Subcontractor will be made without first receiving this information.
  15. This Contractor will execute an AIA 132 contract with no changes. This Contractor recognizes that it is a 'Prime' Contractor.
  16. Extra Work – pricing & allowable markups must abide by Contract Documents and the pricing is due within 5 days of request.
  17. This Subcontractors is responsible for all of the existing building and/or site conditions in existence as of the bid due date. These conditions may not be identified on the drawings or in this scope of work. Examine prior to the bid.
  18. Certain Contractors (Site, Masonry and Concrete) will supply their own dumpster for this work; location must be approved by Construction Manager (see specific scope of work).
  19. There will be a tire wash station set up. All vehicles or deliveries will require the driver to hose off all tires to prevent mud or dirt from tracking off the jobsite. Failure to do so will result in the offending Contractor(s) sharing the cost of street cleaning.
  20. Jobsite security and security of materials, equipment, and tools is the responsibility of each Contractor, not Construction Manager. The builder's risk insurance policy does not cover the loss of Contractors' tools or equipment. Store materials off-site or in trailers if there is a security concern. Storage of materials in building/onsite is very limited. Contractors should rent storage trailers as needed. Construction Manager will rent trailers for storage of Owner provided items only.
  21. Where furnishing and installation of work is indicated by separate parties include:
    - a. Furnishing Party – delivery to jobsite including freight and taxes.
    - b. Installing Party – receiving, unloading, inventory, storage, handling, and installation.
  22. The term "GC" shall mean "CM" and the term "General Contractor" shall mean "Construction Manager" wherever it may be stated in the Contract Documents.
  23. The word "provide" shall be defined as furnish and install.
  24. Core drilling, cutting & patching as required to perform work. Include restoration of surfaces to original condition if required. Cutting to be performed as to minimize patching. All core drilling must be first approved by the structural engineer.

25. Each Contractor is responsible for patching of all spray fireproofing removed or damaged in the performance of their work. Failure to patch fireproofing within two (2) working days of notification by Construction Manager will result in a \$150 fine per patch.
26. Sealants, caulking, and fire stopping integral with work. MEP trades must fire stop all penetrations.
27. Permit fees, licenses, testing and inspection required for work other than the building permits are the responsibility of the Contractor. Testing for soil compaction, structural steel and concrete will be performed by Owner's testing agency and Contractors are to provide assistance as necessary. The Owner shall procure the Building Permit. Bidders must procure and pay for any other permits associated with their trade. Please contact City of Dover at 302-736-7010 to verify any costs, etc.
28. All items installed that function are to be officially commissioned, refer to specification sections 01810, 15960, 15970, 16800 and 17000. All MEP trade items will be commissioned by an independent 3<sup>rd</sup> party agency.
29. Temporary lighting, power & water as required for your work. Connection to the Owner's services is permitted, with written permission; however, it must not adversely affect the Owner's functions. Pay to install and remove all temporary services.
30. Scaffolding, lifts, cranes, and other means of hoisting or access for your own work. For bidding purposes, the elevators will not be available to move materials or trash.
31. All Contractors are responsible for all research required for shutdowns and tie-ins prior to submitting a shutdown request to the CM. All associated information must be written on the request form and submitted two (2) weeks in advance of the required shutdown. Upon receipt of approval from the Owner, shutdown/outages shall be performed on premium time between the hours of 6 P.M. and 6 A.M. and/or Saturday or Sunday unless otherwise directed in the field and shall be accomplished as part of the base bid. Outages will not require additional compensation from the CM/Owner. Premium cost for shutdowns or any other off-hour work is the responsibility of the bidder.
32. All utility piping must have ends capped or sealed off until installed and backfilled.
33. When doing utility as-builts, all utility changes in direction or elevation must be shot and converted to a GPS coordinate.
34. Any and all City of Dover water mains exposed during excavation work must be braced per City's requirements to prevent movement or failure.
35. Phasing and remobilization per the master project bid schedule and as required to properly coordinate and complete the work.
36. Field measurements and verification of existing conditions.
37. Temporary weather and dust protection for own work. De-water or muck out all excavations. Water table de-watering is anticipated. Trades doing excavation must review the soil information carefully.
38. Perform any snow removal for access to your work, beyond road areas normally maintained by the Owner.
39. Compliance with local noise restrictions.
40. Temporary sheeting, shoring & bracing as required to perform your work. Engineering calculations/PE certifications if specified.
41. Submittals and mock-ups as specified.
42. All applicable sales, use, gross receipts & excise taxes.

43. Attachment or hangers to other trade's work (floors, trusses, joists, roofing, brick, steel, etc) must abide by structural drawings & manufacture's design / warranty requirements. Violations of this will cause possible replacement costs to this Contractor. Ask prior to bid.
44. Surface preparation and inspection for proper installation of the work. Include clean-up, etching, flash patching, moisture testing, etc. as required per specification and manufacturer's instructions. Commencement of this work shall constitute acceptance of the substrate as suitable for this work.
45. Sleeves, inserts, and anchors for this work.
46. Additional reinforcement/supports for this work which is not detailed on the architectural and structural drawings.
47. Comply with all Construction Manager and Owner Quality Control Program requirements for this work, see Division 01 – Section 01400.
48. Abide by all directions of the Fire Department in matters affecting life safety and fire prevention measures.
49. This Contractor owns salvage rights to all items noted to be removed. However, items must be removed by this Contractor promptly.
50. Parking is not available on site and must be in compliance with Owner requirements. Foremen are responsible to enforce the approved plan.
51. The use of non-specified materials or unapproved materials on the project is not acceptable. Any costs due to the use or replacement of incorrect materials, and the associated impacts to other trades or the project including liquidated damages, will be the responsibility of the Contractors who used the unapproved or incorrect materials.
52. Curtainwall sills must be protected at all times once installed. Contractors must use extreme caution when working around sills.
53. **All contractors shall own dewatering for their work. (Addendum 2)**

**PROJECT MANAGER'S DUTIES, ETC.**

54. Each project manager is required to have and use an email address that they check at least once per day.
55. The project manager and foreman will need to meet with the superintendent for a "pre-start" job meeting.
56. Attendance of Progress Coordination meetings by your project manager is mandatory. Failure to do so will result in a \$100 fine per occurrence. Meetings may be recorded.
57. All change order pricing must be accompanied by a labor and material breakdown and with Subcontractors/Supplier quotes.
58. Material deliveries need to arrive on site a minimum of 2 weeks before the bid scheduled installation date. Space on site is minimal so coordination of quantities and location either on site or off is critical. Major deliveries will be scheduled for off hours.
59. All deliveries to the site must occur prior to 8 a.m. Site will not have a loading dock therefore all delivery trucks must be equipped with lift gates or Contractor receiving material must utilize other methods of offloading material (i.e.: Lull, forklift, etc.). The CM will NOT accept deliveries without the receiving Contractor on site with adequate manpower and equipment to off load the materials. All deliveries must be fully coordinated and planned. Parcel packages cannot be sent to the CM's jobsite trailer and will be rejected unless receiving Contractor is present to accept the package.
60. Manpower must be supplied to the project at numbers sufficient to meet the bid schedule's simultaneous tasks, speed, sequence, and duration.

### **FOREMEN'S DUTIES, ETC.**

61. The Contractor must have on site, at all times during own work, a supervisor or foreman responsible to coordinate the work with all other trades to meet the project schedule and perform the work to meet the Contract Documents.
62. Language Requirements – All Contractors are to provide at least one bi-lingual crew member for translations if any crew member does not speak English. At a minimum, all Foremen are required to speak English.
63. The foreman will need to meet with the superintendent for a “pre-start” job meeting.
64. Attendance to weekly foreman meetings by the supervisor or foreman is mandatory. Failure to do so will result in a \$100 fine per occurrence. Contractors are required to coordinate with other trades and with Construction Manager.
65. Each day, foreman shall report to Construction Manager jobsite office and check the sub’s clip board or mailbox for written information or direction.
66. Each foreman is required to complete daily field reports and turn them into Construction Manager daily. This report states specifically where and what work was performed.
67. All Contractors employees will meet with Construction Manager’s superintendent for a short safety orientation upon starting their work on site. All Contractors employees are required to attend this orientation.
68. All Contractors are responsible for daily cleanup and broom sweep of their debris to the jobsite dumpster. This means that no trash or left over construction materials can be left on site or in buildings at the end of the day, including scrap metals. Contractors who do not follow this rule will be warned, then back charged, including supervision.
69. Any metal debris must be put in the scrap metal dumpster.
70. At the end of each day, each trade will empty a number of trash barrels, 1 for each 5 men. Construction Manager will supply the barrels. Foreman will assign this task daily.
71. Storage space is limited on the Owner’s property. Materials and gang boxes cannot be in the way of other trades, traffic, fire lanes, Owner functions, access, etc. Review location and requirements with Construction Manager. Provide storage trailers or offsite storage when necessary. Construction Manager will rent trailers for storage of Owner-provided items only.
72. As-built drawings should be maintained on the job-site and updated on a daily basis by this Contractor for review by Construction Manager.
73. Care must be taken to not mark or damage finished surfaces. Temporarily protect the Owner’s property. Contractors will be back-charged or will need to pay for repairs to the work of others. Protect the Owner’s property.
74. The existing DSU facilities cannot be used for construction use without written approval. All deliveries need to be scheduled 2 days in advance.
75. Each foreman shall have a working cell phone and email address to be used for work purposes.

### **INDOOR AIR QUALITY**

76. All Contractors are responsible for daily cleanup and broom sweep of their debris so as to meet the indoor air requirements of the building. Refer to Division 01 – Section 01410 Indoor Air Quality Plan. This means that no trash or left over construction materials can be left on site or in buildings at the end of the day, including scrap metals. Contractors who do not follow this rule will be warned, then back-charged, including supervision.

### **SAFETY ITEMS**

77. Hangers on floors, steel, bar joists or roof trusses must comply with requirements of those vendors.
78. Lifts cannot be used on upper building floors that exceed load limits. Review the structural drawings and request clarification from the structural engineer.
79. No gasoline-powered equipment can be used at any time within buildings, use propane instead. All equipment you plan to use must be reviewed with the Superintendent for safety concerns.
80. MSDS must be forwarded prior to starting work. No chemicals can be used at any time without properly reviewing them with Construction Manager first.
81. Contractors are required to comply with all safety regulations as required by OSHA, Construction Manager, Owner and as noted in the specifications. Provide all safety devices necessary for your work including fall protection.
82. All safety, barricades, floor opening protection, etc., installed by this Contractor or by others, is the responsibility of this Contractor if moved or damaged by this Contractor.
83. The successful Contractor must forward Construction Manager a copy of their job specific safety program.
84. During this project, hot work permits will need to be obtained from Construction Manager prior to proceeding with any such work.
85. Work in existing or new manholes will need to abide by Construction Manager and Owner's confined space regulation and requirements.
86. Any and all utility trenches left open overnight will need to have temp fence panels or orange snow fence put around, anywhere, anytime. Contractor shall supply, maintain and remove the panels required for their work.

### **INVOICING, COMMISSIONING, CONTRACT CLOSE OUT, ETC.**

87. Commissioning will be performed on all installed equipment and items that function. See your specification sections for individual requirements.
88. Each Contractor must have a line item on their invoice Schedule of Values that allows 3% of the total contract amount for close-out documents (as-builts, warranties, operations and maintenance manuals, punchlists, etc.) in addition to 5% retention.
89. Invoices are due no later than 20<sup>th</sup> of each month.
90. Mobilization values must not exceed industry recognized costs to move materials in or out. The same value must also be listed for Demobilization.
91. Provide all testing, guarantees, warranties, as-built drawings, O&M manuals, commissioning tests, close-out documentation, and start-up services necessary to put all work into first class operating condition per the Contract Documents including any final cleanup required.
92. Furnish attic stock as required by the Contract Documents and/or the specific scope of work.
93. Building or site commissioning is to be performed separately from Owner's training.
94. All warranty periods begin at the final completion date of **5/1/2015**. Refer to the specific Warranty requirement in Section 01820.
95. With respect to warranties, if an object or piece of equipment needs to be replaced during the warranty period, once installed, the full warranty period will re-start for that new item.
96. Contractors must submit (6) six complete sets of close-out documents consisting of as-built drawings, electronic drawing files, operation and maintenance manuals, start-up logs, warranty letters, certificates of inspection, Owner's training video and a detailed transmittal of attic stock as

required for all work performed under contract. An electronic copy of these items must also be provided.

97. Owner's Training is required whether or not required by Contract Documents. Training sessions will be video recorded by the Construction Manager
98. Tickets for extra work authorized and directed by the Construction Manager must be submitted and signed by the Construction Manager daily. If tickets are not presented within 24 hours, contractor forfeits right to obtain payment for that work.
99. Certified Payroll must be submitted to the State of Delaware. PDF copies must be emailed to the Construction Manager Monthly to receive payments.

END OF SECTION 01020

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**SECTION 01020 – BID PACKAGE 02A – SITEWORK (REVISED ADDENDUM 2)**

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	IN ITS ENTIRETY
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SCHEDULE SPECIFIC SCOPE ITEMS**

1. All work is to be performed Monday through Friday with Saturday to be used as make-up day for weather or schedule. Include the necessary costs in the base bid.
2. Submittals for all items must be expedited. Storm water management structure submittals, especially the storm water inlet and outlet structures, must be submitted within 2 weeks after award.
3. Forward submittals of all reference standards listing in the specs such as DeIDOT, DNREC or City of Dover requirements.
4. The Sitework Contractor is required to have a minimum of two separate crews working on utility services and building pad preparation/grading at the same time. Crews & equipment must be sufficient to meet the durations in the schedule and to expedite the haul road and laydown area.
5. The Sitework Contractor is to begin the installation of all SEC measures by the end of the first weekend of January or within 7 days of "Notice to Proceed". The issuance of a building permit is predicated on the approval of SEC measures by the local jurisdiction. This is including but not limited to all silt fence, temporary berms, all temporary and permanent seeding as specified, rip rap and temporary basins.

### **GENERAL SITEWORK ITEMS**

6. Protect, avoid and maintain all survey stakes and marks.
7. Provide, maintain and remove all safety barricades, traffic controls, shoring, flagmen, etc. to comply with all safety practices required by OSHA, State of Delaware, City of Dover, Delaware State University, The Whiting-Turner Contracting Company or any agency having jurisdiction and as noted in the specifications in order to complete the work under this Contract.
8. Provide and pay for continual cleaning of project and adjacent side streets and sidewalks of debris resulting from work within this Contract. Include cost for street sweepers as needed to keep the areas clean at a minimum of one time per month for the duration of the project at the Construction Manager's discretion. The cleaning requirements during trucking operations on/off site will be required daily.
9. The Sitework Contractor is to provide and pay for any required permits and/or approvals other than the building permit required for this work including but not limited to the City of Dover, Department of Natural Resources and Environmental Control (DNREC), Delaware Department of Transportation (DELDOT), Kent Conservation District (KCD) and all appropriate state and county agencies.
10. The Sitework Contractor is required to coordinate with other trades as required.
11. The Sitework Contractor is required to provide the Mechanical Contractor with site utility as-built drawings no later than two (2) weeks after the completion of new site utility work.

### **SITEWORK SPECIFIC SCOPE ITEMS**

12. Provide one (1) sign erected on site, where directed by the CM, to identify the project. Sign shall include Project name, Owner's name, Architect's name and Construction Manager's name. Size shall be 4'x8'; colors, graphics and lettering style shall be as designed by the Architect.
13. Furnish, install and maintain all required erosion and sediment control mechanisms and devices for new work as indicated and/or specified including but not limited to inlet protection, reinforced, standard and super silt fence, sediment basins, structures and skimmers, temporary seeding and mulching for site stabilization, riprap slope stabilization and check dams, etc. The Sitework Contractor shall be responsible to maintain the S&E controls for the entire duration of the project. Inspect all S&E control devices every two (2) weeks and after every rainfall event.

14. This contractor is responsible to install all storm water management measures including but not limited to all filter strips, catch basins, ponds, trench drains, swales, outlet/inlet structures, inlet/outlet protection (temporary and permanent steel grates), tie-ins to existing, pipe ID tape where detailed, manholes, cleanouts, piping outfall riprap, etc. and roof drainage piping. Include all excavation, backfill, haul off of excess material required to furnish and complete working system to within five (5) feet of the building **(over overhang)**. **(Addendum 2)**
15. Provide, maintain and remove a stabilized construction entrance **(SCE)** and tire wash station as required to accomplish the work described herein. Include three (3) separate mobilizations when your work is not on-going. **Provide a water line with a frost-free hydrant assembly at the tire wash station at the SCE. (Addendum 2)**
16. Perform miscellaneous site demolition activities such as removal of existing curb, storm water systems, utilities, etc. that may be required. Include sawcutting where necessary. Cut and cap all services to be demolished or abandoned at the mains in accordance with the City of Dover Public Utilities Department.
17. Demolish and remove all sidewalks, trees, pump station, planter boxes, fences, signs, water service pipes, sanitary sewer services, storm drains and piping, high and low voltage electrical services, pavement and light poles as shown on the Contract Documents. Remove and return to the owner the satellite dishes and equipment, signs and flag pole as shown on the Contract Documents. Relocate one (1) tree as shown on the Contract Documents. Mark relocated tree with tape and install protection as required before and after relocating **and provide watering as necessary**. Remove any existing electrical related structures, fixtures, light poles, etc. shown to be demolished after electrical contractor has de-energized and made safe all electrical items. See sheet eds1.1. Demolish and remove the existing concrete light base for light pole as shown in note D4/eds1.1. **(Addendum 2)**  
**Deleted blank item #17 – Addendum 2**
18. Furnish all dumpsters and removal of debris for all items to be removed and demolished under this Contract.
19. Furnish all dust control until final landscaping is in place.
20. Demolition/removal of the existing building structures is by others. For the purposes of bidding, the Sitework Contractor is to assume all existing building footings shall be removed in their entirety and grades restored.
21. Recycle all asphalt and concrete as part of the LEED requirements and submit tickets to the CM.
22. The Sitework Contractor is responsible to install the site utilities (except electric) including all gas lines, domestic water systems, fire line systems, storm systems and sanitary systems to within five (5) feet of the building line **(or overhang)** unless otherwise noted. Final connections are by the building plumbing contractor if the site laterals are in place prior to building plumbing unless otherwise noted. In any instance where the Sitework Contractor is installing site laterals after the building lateral is already stubbed out of the building – the final connection is by the Sitework Contractor. If the building laterals have been put in place prior to the installation of the permanent storm laterals, this Contractor shall furnish, install, maintain and remove temporary lines run to the nearest storm water management basin. These temporary lines shall be marked and buried (to the required depth to prevent the lines from freezing). All rework of curbs, grading, pavement, sidewalks, etc. shall be the responsibility of this Contractor to remove and replace. In either case, the Sitework Contractor is responsible to have all site utility lines tested (pressure/water tested as required), cleaned and inspected and approved prior to connection to the building line. Any pressure/water testing required after the building lines are tied in are the responsibility of the Sitework Contractor. Coordinate with Chesapeake Utilities to bring the gas

lines into the building to the meter. The plumbing contractor shall connect to the gas system at the meter. **(Addendum 2)**

23. Provide sanitary sewer system including but not limited to excavation, backfill haul off of excess material, inspection and testing pipe ID tape, manholes, piping, tie-into existing, etc. required to furnish and complete working system to within five (5) feet of the building **(or overhang)**. **(Addendum 2)**
24. Any material that cannot be re-used on site shall be hauled off site and disposed of legally by this Contractor. Submit copies of disposal receipts to construction manager for record purposes.
25. Furnish and install new fire hydrants and associated piping, **excavation** and backfill; tie-in to water lines and provide test reports. **(Addendum 2)**
26. Review the plumbing drawings for sanitary and storm lines connecting to your piping. Furnish and install the necessary adapters, reducers, fittings, etc. to piping installed by the Sitework Contractor to connect to the piping installed by other trades.
27. This Contractor to perform all site clearing and grubbing and removal of all materials. Investigate the existing site and remove all materials.
28. Protect and/or avoid all existing underground utility lines to remain.
29. Protect and/or avoid all existing above ground structures shown to remain (i.e.: grease trap, trees, curbs, sidewalks, etc.)
30. Provide all site preparation, earthwork, site excavation filling and grading, including but not limited to disposal of excess material in a legal manner, borrow ~~materials~~ **select fill** from offsite location as needed to complete the work described herein. **(Addendum 2)**
31. Prepare building pad area by cutting or filling site to reference elevation minus two feet (-2'0") from top of concrete slab on grade. Proof roll building pad area. Import select fill as necessary to fill site or to replace unsuitable soils in the building pad area. Building pad area is defined as the area to the edge of the structural concrete slab on grade plus an additional five (5) feet outward from that edge. **Provide a sump and drainage at a location as determined by the CM.** This Contractor is responsible to have the building pad accepted at the above stated elevation by the owner's geotechnical engineer and complete all required work necessary to obtain acceptance. **(Addendum 2)**
32. Furnish and install select backfill at all locations as required in order to meet the schedule. On site materials may be used pending existing materials and weather conditions at the time underground utilities are installed, i.e. poor, wet, frozen soils will need to be replaced with select material as to keep pace with the schedule.
33. Coordinate a ground breaking ceremony with the CM and the Owner. Allow for four hours during the work day. Allow for photographs of the Owner with your equipment.
34. Furnish and install all grading, topsoil, landscaping and plantings for the wetland mitigation area.
35. Topsoil depth is assumed to be 5" deep **(refer to geotechnical report)**. Amounts above or below will be adjusted at the unit price. Assume that any excess topsoil can be deposited on site at areas approved by the engineer. Finish grades on the plans cannot be exceeded with approval from the civil engineer. **(Addendum 2)**
36. All finish grades between contract areas and the limits of construction need to be properly blended into to allow smooth transitions.
37. This Contractor is responsible to install any orange construction fence around the jobsite perimeter as noted on the site drawings. Also furnish and install safety fencing at all open excavations and trenches for fall protection.
38. This Contractor is responsible to review complete geotechnical report and include all costs associated with the existing site soil conditions including fill requirements and ground water impacts.

39. Provide all dewatering necessary for the installation of all work associated with this Contract. This includes all possible dewatering due to groundwater or rainwater. All dewatering shall be done through an approved filtration device.
40. Provide the backfilling of ~~the building perimeter~~ **all foundations** after the concrete and masonry foundation work (including any below grade waterproofing) is complete. **(Addendum 2)**
41. Furnish, install, maintain and remove of six (6) mil reinforced polyethylene plastic (as a minimum or as specified, whichever is more stringent) as cover over the stockpiled backfill material. This Contractor is responsible for maintaining and keeping dry any soil that they plan to reuse for fill. Extra work will not be accepted for soil that was suitable, but becomes unsuitable due to improper protection or maintenance. All top soil shall be free of sod, rocks, stiff clay, litter, etc.
42. The Sitework Contractor shall provide all site concrete from the building line outwards. This includes but is not limited to grading, **excavation, backfill** proof rolling, sub-base, expansion joints, expansion joint caulking/fillers, any required sawcutting, sidewalks, curb and gutter, parking lot islands, generator pad, generator housekeeping pad, site steps, bicycle pads, landings and stairs at all entrances and exits to the building. See details on sheets s1.1 and 13/S2.1 for generator pad and housekeeping pad. Install site concrete in strict adherence to ADA code. The Sitework Contractor is responsible to repair all ADA defects caused by faulty workmanship at no cost to the Owner. Furnish and install all rebar including dowels for masonry walls at the generator enclosure. Provide and install safety caps for the rebar. Provide an additional five percent (5%) of the safety caps to the Construction Manager for CM's use as attic stock. **(Addendum 2)**
43. Provide concrete sidewalks including but not limited to layout, grading, proof-rolling, gravel sub-base, expansion and construction control joints, formwork, reinforcement, etc.
44. The Sitework Contractor is responsible to hire a surveyor for all site layout.
45. Furnish and install all truncated domes/detectable warning system at all handicap ramps and wherever else they are called out on the Contract Documents.
46. Furnish and install bituminous concrete paving including but not limited to layout, grading, proof-rolling, sub-base, base and surface course paving, tack coat, ~~seal~~ **final** coat, surface cleaning between paving operations and saw cutting. The Sitework Contractor is to coordinate and ensure that all transition elevations between paving and sidewalks and curbs are correct and that no ponding occurs, irrelevant to indicated lines and grades. Neatly saw-cut length of existing pavement and remove existing asphalt pavement and base within the limits of the trench excavation for this work and restore to original condition. **(Addendum 2)**
47. Furnish and install all concrete unit pavers, base course, sand fill, reinforcing edges, filter fabric and associated work.
48. The Sitework Contractor is to provide all parking lot striping **and curb painting** including but not limited to handicapped striping, crosswalks, parking spots, lettering, fire lane marking, etc. **(Addendum 2)**
49. The Sitework Contractor is to furnish and install all parking bumpers as specified.
50. Furnish and install all site signage including but not limited to handicap, fire lane, parking, stop, yield, etc. signs.
51. Furnish and install bicycle racks including concrete pad, see detail sheet C-901.
52. Furnish and install all pipe bollards and associated footings and sleeves as required. The Sitework Contractor shall also be responsible to fill bollards with concrete. Bollards shall be painted by painting contractor. See detail sheet C-901.

53. Furnish and install all final landscaping and plantings including but not limited to seed, sod, mulch, shrubs, perennials, grasses and trees. Furnish all excavation and backfill for landscaping work.
54. All top soil shall be raked smooth and cleared of all debris (rocks, stones, litter, etc.). Furnish and install all required composted leaves and recycled material to bedding of all plantings as shown on the Contract Documents.
55. Furnish and install pre-emergence weed killer prior to all plantings.
56. Furnish and install the aluminum bed edging and associated stakes where shown on the Contract Documents, detail L1/Landscape Plan.
57. Trees are to be guaranteed for one full year after installation. Any replacement trees shall have an additional one year guarantee **from the date they are replaced. (Addendum 2)**
58. All plantings shall occur within the approved growing season for each type of plant.
59. Verify locations of all utilities prior to planting and maintain a minimum of ten (10) feet from all utilities.
60. Furnish and install stakes and guy wires for all plantings as shown on the Contract Documents. Remove all stakes and guy wires from trees after one year guarantee has expired.
61. Provide temporary watering as required for all newly seeded areas until they are established including but not limited to two (2) times per week after planting. Furnish, install, maintain and remove watering bags for all trees.
62. Water for this scope of work is to be either brought in by this Contractor, obtained from an existing on site source or the new water service. An existing on site water service is not guaranteed. Water cannot be obtained by hydrant connections during any phase of construction.
63. ~~Furnish two (2) new trees at the end of construction to replace the two (2) trees that will be removed for the Construction Managers trailer to be installed.~~ **(Addendum 2)**

#### ALLOWANCES

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

1. Allowance #1 – Include in your proposal the removal of unsuitable soils and replacement with select fill from offsite. Quantity allowance of 500 **(five hundred) thousand** cubic yards to remove and haul offsite and 500 **(five hundred) thousand** cubic yards to replace with import select fill. This allowance is for unforeseen unsuitable soils during the course of the project and not for the overall cut/fill requirements. **(Addendum 2)**
2. Allowance #2 – Include in your proposal a time and material allowance of \$10,000 to furnish, install and remove a temporary water service. Contractor will be responsible to coordinate with the local water company.
3. Allowance #3 – Includes a \$15,000 allowance for un-assignable site cleanup, site restoration from other trades or snow removal.
4. Allowance #4 – Include an \$8,000 allowance for SEC repairs and construction entrance repairs/rework due to damage from other trades or non-assignable repairs. Normal wear and tear due to construction activities is the responsibility of the Sitework Contractor as part of the base bid.

5. Allowance #5 – Remove and dispose of in a legal manor all spoils from the auger cast pile operation and drilling of elevator jack hole. Total quantity of 320 cubic yards. The spoils will be stockpiled onsite by the Auger Cast Pile Contractor. You will be required to remove the spoils every other day during this operation. Assume 8 days total operation for the Auger Cast Piles.

#### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

#### **UNIT PRICES**

Unit prices conform to applicable project specification or specific scope of work. Not all of the blanks spaces below may be required. The unit prices and labor rates include all charges for labor, materials, fees, layouts, supervision (field and home office), general expenses, taxes, insurance, overhead, and profit to furnish and install the item of work complete and ready for intended use, unless otherwise noted. The labor rates are calculated and include the costs as describe in Division 00 – Section 00735 – General Requirements. The contract sum shall be changed based on the quantity difference multiplied by the applicable unit price. The owner and construction manager reserve the right to reject any or all unit prices or to utilize time and material pricing in lieu of unit prices.

1. Removal of unsuitable soils (haul off site) and replacement with imported select fill. For any amount below 50 cubic yards. This unit price will be used to deduct from allowance #1 if not used; per CY.
2. Removal of unsuitable soils (haul off site) and replacement with imported select fill. For any amounts above 50 cubic yards; per CY.
3. Excavation and stockpiling of topsoil; per CY.
4. Fill placement, utilizing onsite materials; per CY
5. Fill placement, utilizing offsite materials; DelDOT select borrow, type G; per CY.
6. Broom finish concrete sidewalk including subgrade preparation, base material and reinforcing; per SF.
7. Straight curbing as detailed on the Contract Documents; per LF.
8. Curb and gutter as detailed on the Contract Documents; per LF
9. Stabilized construction entrance; each.
10. Standard silt fence; per LF.
11. Reinforced silt fence; per LF.
12. Super silt fence; per LF.
13. No. 57 stone; per CY.
14. Asphalt, type B; per Ton.
15. Asphalt, type C; per Ton.
16. Geogrid BX 1200; per SY.
17. Geotextile support fabric, Mirafi 140N; per SY.
18. Geotextile support fabric, Mirafi 700X; per SY.
19. Remove and dispose of auger cast pile spoils; per CY.

END OF SECTION 01020

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**SECTION 01020 – BID PACKAGE 03A – CONCRETE (REVISED ADDENDUM 2)**

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
02240	DEWATERING	IN ITS ENTIRETY
02300	BUILDING EARTHWORK	IN ITS ENTIRETY
02455	AUGERED PRESSURE GROUTED (APG) PILES	AS APPLICABLE
DIVISION 03	CONCRETE	IN ITS ENTIRETY
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### GENERAL CONCRETE ITEMS

1. This Contractor is to review all drawings including Structural, Architectural, Mechanical, Electrical, Plumbing and Fire Protection prior to mobilization to site to identify all items that need to be embedded in, go thru or generally coordinated with the concrete work. This Contractor will be responsible to cut in items that were overlooked.
2. This Contractor is responsible to clean the site to the satisfaction of ~~Whiting-Turner~~ **Whiting-Turner of the Construction Manager** or the Owner. If this is not performed, ~~Whiting-Turner CM~~ reserves the right to clean the site with their own forces at the expense of this Contractor. Site must be maintained and cleaned daily. **(Addendum ②)**
3. A tire wash area will be provided by the Sitework Contractor. All trucks are required to clean their tires prior to leaving the project site.
4. Furnish and install fall protection including handrail, mid-rail and toe board at any fall protection hazards created by this work including but not limited to holes, pits, etc. A hole shall be defined as any opening 6" by 6" or larger. **Furnish, install and maintain temporary handrails around elevator pit prior to and following slab on grade pour.** Protection at perimeter of slabs on deck shall be installed by the Steel Contractor. This Contractor shall install the toe board at the slab on deck perimeter. **This Contractor shall, within 24 hours of each slab pour, install OSHA-compliant toe boards at all slab openings at elevated floors including but not limited to the elevator shaft, mechanical shafts/openings, stair openings, building perimeter, etc. (Addendum ②)**
5. Furnish and install safety corrals around ladders installed by the steel contractor at every level. All fall protection shall include handrails, mid-rails and toe boards with a gate that can be latched for entry/exit.

### CONCRETE SPECIFIC SCOPE

1. ~~Provide concrete footings and foundation wall for a mockup that is yet to be designed. For bidding purposes, include the cost to furnish and install exterior wall footings of one of the triangular vertices and twelve feet (12') of wall length in each direction from the cornice.~~ **Furnish and install concrete footing including any rebar for mock up as shown on the mock up sketch (refer to SKA-01 add02). Provide all excavation, backfill and compaction for mock up footings. Install anchor bolts provided by steel contractor.** Provide labor, materials, equipment, dumpster and complete removal of the concrete from this mockup once approved to be removed by the Construction Manager. **(Addendum ②)**
2. Furnish and install stone base, expansion joints, sealants and reinforcement for this work.
3. **Provide all concrete forms required for this work. (Addendum ②)**
4. Perform all necessary excavation, backfill and haul off of site of spoils associated with the footing **and foundation wall** work. Any material that cannot be re-used on site shall be hauled off site and disposed of legally by this Contractor. Submit copies of disposal receipts to construction manager for record purposes. **(Addendum ②)**
5. Provide all formwork necessary for all concrete work including the depressed slabs. Remove the excess dirt and dispose legally off the project site.
6. Provide in writing to the Construction Manager, a concrete pour schedule giving at minimum 72 hours' notice of all pours. This will give ~~Whiting-Turner CM~~ adequate time to schedule building inspectors and the independent testing agencies. Any delays incurred by this Contractor due to inspection agencies not being present will be the responsibility of this Contractor if this pour schedule is not submitted in writing at least 72 hours prior to the scheduled pour. **(Addendum ②)**

7. Provide and pay for the engineering and shop drawings for formwork, shoring, shoring removal and reshoring. All engineering and shop drawings must be signed and sealed by a registered engineer in the State of Delaware if required by the Contract Documents.
8. Provide all concrete accessories, including but not limited to expansion joint fillers, waterstops, concrete inserts, reinforcing steel and mesh, vapor retarder, etc. required to accomplish the work described herein.
9. Provide all waterproofing associated with the structural slabs, sumps and elevator pit. This Contractor to provide all testing and inspections related to the installation of all waterproofing systems in this scope as required by the Contract Documents or the manufacturer, unless specifically noted to be provided by others.
10. Provide all seismic provisions required per the Contract Documents and local building codes.
11. Provide all cast-in-place concrete associated with the building including but not limited to footings, ~~pier~~ **pile** caps, interior concrete curbs (2/s2.1, typical; 9/s3.1, typical), piers, elevated slab on deck, slab-on-grade, retaining walls, concrete stairs, elevator pit, sumps, grade beams, stepped footings, thickened slabs, isolated slabs, etc. The auger cast piles shall be installed by the Auger Cast Pile Contractor. Refer to sheet S1.1 and detail 2/S2.2 for isolated pad detail.  
**(Addendum 2)**
12. Temporary weather protection and cold weather measures per ACI standards for concrete work are by this Contractor. This includes but is not limited to heat blankets, plastic to cover recently poured concrete if needed, hot water, admixtures as approved by the engineer, etc. No extra money will be provided for any of these items as required to complete this scope of work. All weather related items should be coordinated with the onsite inspector and Construction Manager. **Refer to Project Schedule and account for these cold weather provisions as required.**  
**(Addendum 2)**
13. All concrete slabs shall be treated with any curing compounds or sealants required by the Contract Documents. Verify that all curing compounds are compatible with floor finishes including areas to have a sealed concrete finish.
14. This Contractor is responsible to provide all power required for the work within this Contract. No power will be provided. If and when a temporary power source is provided, it will be the responsibility of this Contractor to have a backup power source in case the temporary service goes out.
15. This Contractor is responsible to furnish and install all rebar that is located in concrete, including all masonry dowels located in the footings and all slab rebar.
16. Any rebar that is shown embedded in footings and extending into masonry, is the responsibility of this contractor. Extend rebar to height shown and provide safety caps. Replace all safety caps that may go missing as soon as the condition is discovered **or notified by the CM. (Addendum 2)**
17. Provide all reinforcing and reinforcing accessories including but not limited to welded wire mesh, tie wire, splicing requirements, chairs or other approved support methods, etc. Welded wire fabric must be properly supported and will be inspected prior to slab pour.
18. Provide all concrete for inertia bases and housekeeping pads (6" thick for air handler, minimum 4" thick elsewhere as noted; detail 4/m5.2) shown on the Contract Documents or as required. Roughen area under slab and prime with epoxy prior to concrete placement. Dowel in rebar as shown. Coordinate with the Architectural, Structural, Mechanical, Electrical, Fire Protection and Plumbing drawings for the full extent of the work. Interior equipment pads include but are not limited to: hot water heater, hot water storage tank, expansion tank, water booster pumps, heating pumps, electrical gear, filters, boilers, chillers and transformers **(layout shall be by**

- others**). Generator housekeeping pad shall be by Sitework Contractor. Assume 10% larger area than shown. **(Addendum 2)**
19. Provide column diamond concrete infills at all new columns. **Recess infills ¼" in locations to receive carpet or epoxy coatings. (Addendum 2)**
  20. Install anchor bolts provided by others. Provide an anchor bolt survey plan prepared by an independent registered surveyor. This must occur within five (5) days of completing the footing work. Clean, oil and protect anchor bolts once placed in concrete.
  21. Provide grouting of column base/leveling plates. Plates will be provided by the Structural Steel Contractor.
  22. Provide and pay for all lifting, concrete pumping and hoisting as required by this Contract.
  23. Furnish and install all expansion joint systems in concrete work as required.
  24. Furnish and install joint fillers between concrete and concrete, concrete and masonry, and concrete and any other dissimilar material. Joint sealants, i.e. caulk, is by others.
  25. Install all items that are to be embedded in concrete including all Plumbing and Electrical sleeves. Install sleeves where required. Coordinate with all exact sizes and locations with ~~Whiting-Turner CM.~~ **(Addendum 2)**
  26. Slab finish must meet the flatness tolerances that are in the specifications; any areas out of tolerance will need to be re-worked. If there are flatness discrepancies within the Contract Documents, the more stringent criteria should be followed and installed. If a discrepancy arises during the project, the Concrete Contractor is required to hire and pay for an independent third party to perform an analysis of the slabs to ensure that they meet the Contract Documents.
  27. Provide all concrete finishes as shown in the Contract Documents paying close attention to areas to have a sealed concrete finish.
  28. Floor slabs are to be properly sloped to floor drains to allow for positive drainage.
  29. Maintain and repair temporary soil erosion and sediment controls including the stabilized entrance(s), disturbed as a result of the work described herein, including but not limited to repair of temporary seeding, silt fencing, inlet protection, stabilized entrance, etc. Provide for the cleaning of streets and sidewalks if dirtied by the operations described herein.
  30. This Contractor to provide any/all access, stone, temporary roads, etc within the building pad **or over any foundation/grade beam, etc.** for equipment, dump trucks or concrete trucks to access the work required by this scope. Restoration of the sub-grade and removal of temporary roads as required is by this Contractor. **(Addendum 2)**
  31. The Sitework Contractor will prepare the building pad area to a reference elevation of minus two feet (-2'-0") below finish floor slab elevation. The Concrete Contractor will be responsible for all excavation, backfill, proof rolling needed for footing and pile cap installation, all backfill and compaction within the building pad, any additional import to sub-grade, fine grading and haul off site of excess material required to accomplish the work described herein. Concrete Contractor shall be responsible to bring sub-grade up to proper elevation **using imported select fill as required**, place stone and concrete slab on grade. This work may not be continuous and may be broken into separate activities ~~to allow for steel erection prior to placement of slab on grade.~~ Allow for multiple mobilizations. **(Addendum 2)**
  32. This Contractor is responsible to complete the building pad sub-base **and place the concrete slab on grade** prior to steel erection. ~~This includes a stoned building pad prior to the delivery of steel to the site. See detailed schedule for more information. This contractor is responsible to rework any damaged sub-base areas after steel erection and prior to slab pour.~~ **(Addendum 2)**
  33. **This Contractor shall provide foundation walls that are exposed to view or interface with finish trades to a tolerance of ¼" per 10 (ten) feet with a total deviation from control of no**

**more than +/- ¼" on each side of the building. Contractor to verify with surveyor and CM prior to pouring cast-in-place foundation walls. (Addendum 2)**

34. This Contractor will be responsible to remove soils found to be saturated and or unsuitable due to excessive rain if and only if: the building pads are not stoned to sub-grade by the required dates and a weather event after the required date damages the soil.
35. This Contractor is responsible for all excavation and backfill within the building line. The backfill of the perimeter foundation walls on the exterior side is **also by others this Contractor**. All ~~other~~ excavation, backfill and haul off for any areas inside **and outside** the building line is by this Contractor. **(Addendum 2)**
36. This Contractor is aware that there are overlapping activities in the project schedule and that it will be required to work in more than one area at a time.
37. This Contractor is responsible to furnish and install all foundation wall perimeter insulation adjacent to below grade masonry and concrete walls and also beneath the concrete slab.
38. Furnish and install architectural and construction joint systems in concrete. Coordinate and ~~furnish install~~ frames (**furnished by others**) to be cast into concrete (**i.e.: 4/s2.2, 6/s2.2**). **(Addendum 2)**
39. Set frame for walk-off mat in slab on grade. Frame to be furnished by others.
40. Furnish and install two sets of temporary ramps from the existing grade outside of the building perimeter up to the slab. Ramps shall be a minimum of 36" wide, fully supported such that they do not flex, have a slope no greater than 12% and shall have hand, mid and toe rails from end to end. **Location of ramps to be determined by CM. (Addendum 2)**
41. Provide an EPA approved wash out area during construction. Maintenance of this washout station is this Contractor's responsibility during the durations ~~you are~~ **this Contractor is** present onsite. This Contractor is responsible to provide a dumpster for removal of all spoils and wash out from the site at the conclusion of the Concrete work. No waste generated by this Contractor is to be disposed of in the Construction Manager's dumpsters. **This Contractor must** provide tickets to Construction Manager from where material is removed and recycled per LEED requirements. **(Addendum 2)**
42. Provide for all dewatering of the building pad including but not limited to mucking, hoses, pumps, power, sediment control, hoses, fuel, etc. required to accomplish the work described herein.
43. This Contractor is required to provide and maintain all material and operations for temporary protection and heat during cold weather installations.
44. Saw-cut interior slabs within twenty four (24) hours of concrete pour. Have at least two saw-cut machines onsite while saw-cutting. Sealants shall be by others. The reinforcing in the structural slabs cannot be cut, so any/all penetrations need to be coordinated with reinforcing locations. Provide photo documentation of as-built reinforcing locations prior to concrete pour. All saw must be equipped with and use water to ensure dust free cutting.
45. Align sawed or expansion joints with architectural features in the floors where required.
46. Furnish and install all termite control measures as required.
47. Sidewalks, plaza areas and **site** curbs are by others. **(Addendum 2)**
48. Furnish and install concrete at all stair tread pan infills and stair landings within one (1) week of stairs being installed.

#### **BIM/VDC REQUIREMENTS**

49. This Contractor shall model in 3D, the concrete work for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in the front end documents Division 01 – Section 01315.

50. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within three (3) weeks from award of this Contract. Please note, the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
51. This Contractor shall be responsible for modeling of all concrete work within the building as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Pile caps
  - b. Spread footings
  - c. Grade Beams
  - d. Isolated and Structural Slabs (on grade and elevated)
  - e. Sleeve penetrations
  - f. Housekeeping pads
  - g. Expansion joints
  - h. Control joints
  - i. Curbs
  - j. Rebar
  - k. Modeled elements shall represent the exact size, shape, location and orientation of the represented material
    - i. Include all connection details including anchor bolts, plates, etc.

#### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

#### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

1. Allowance #1 – Provide a \$10,000 allowance for miscellaneous work related to this scope. All work related to this allowance will be tracked on tickets signed by Whiting-Turner personnel daily. Any amount not used will be credited back to the Owner.
2. Allowance #2 – Provide an allowance for the removal from site and replacement with imported select fill of 200 cubic yards of unsuitable soils as determined by the testing and inspection agency. This excludes soils that have been deemed unsuitable due to actions or lack of actions by this Contractor.
3. Allowance #3 – Provide an allowance for 160 carpenter hours for misc work as directed by the Construction Manager and \$3,000 for miscellaneous materials.
4. Allowance #4 – Provide an allowance of 160 laborer hours as directed by the Construction Manager.
5. Allowance #5 – Provide an allowance for **the fabrication and placement** of an additional one half (1/2) ton of additional reinforcement to be located at the direction of the Construction Manager. The unused portion of tonnage shall be credited to the owner at the completion of the project. **Refer to note 14/S0.1. (Addendum 2)**

**UNIT PRICES**

Unit prices conform to applicable project specification or specific scope of work. Not all of the blanks spaces below may be required. The unit prices and labor rates include all charges for labor, materials, fees, layouts, supervision (field and home office), general expenses, taxes, insurance, overhead, and profit to furnish and install the item of work complete and ready for intended use, unless otherwise noted. The labor rates are calculated and include the costs as describe in Division 00 – Section 00735 – General Requirements. The contract sum shall be changed based on the quantity difference multiplied by the applicable unit price. The owner and construction manager reserve the right to reject any or all unit prices or to utilize time and material pricing in lieu of unit prices.

1. Removal of unsuitable soils (hailed off-site – not to the spoils storage pile) and replacement with imported select fill. For amounts less than 50 CY; per CY.
2. Removal of unsuitable soils (haul offsite – not to the spoils storage pile) and replacement with imported select fill. For amounts more than 50 CY; per CY.
3. Removal of unsuitable soils (haul offsite – not to the spoils storage pile) and replacement with DE #57 stone; per CY.
4. Deliver and place DE #57 stone; per CY.
5. Deliver and place concrete; per CY.

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE 05A – STEEL AND MISCELLANEOUS METALS (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	IN ITS ENTIRETY
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **GENERAL METALS ITEMS**

1. Provide all scaffolding, hoisting and rigging where required for completion of this Contractor's scope of work. The Construction Manager will not provide a hoist or any cranes.
2. This Contractor is to review all drawings including Structural, Architectural, Mechanical, Electrical, Plumbing and Fire Protection prior to mobilization to site to identify all items that need to be embedded in, go thru or generally coordinated with the steel work. This Contractor will be responsible to cut in items that were overlooked. Web penetrations are to be shop cut and finished. Refer to detail 3/s3.2. Refer to Architectural **and MEP** drawings and verify steel is coordinated with structural drawings **through the VDC Execution Plan. (Addendum 2)**
3. It is this Contractor's responsibility to coordinate with all work trades affecting this Contractor's work to ensure proper installation of materials.
4. This Contractor is aware that they must take whatever means necessary to meet the project schedule including but not limited to overtime hours, increased manpower, shift work, etc. at no additional cost to the owner.
5. This Contractor is responsible to clean the site to the satisfaction of ~~Whiting-Turner CM~~ or the Owner. If this is not performed, ~~Whiting-Turner CM~~ reserves the right to clean the site with its own forces at the expense of this Contractor. Site must be maintained and cleaned daily. **(Addendum 2)**
6. A tire wash area will be provided by the Sitework Contractor. All trucks are required to clean their tires prior to leaving the project site.
7. Provide all necessary mobilizations as required to complete this scope of work. Multiple mobilizations may be required for miscellaneous steel work.
8. Provide additional design and installation of all connections or details not shown on the structural drawings, but which are necessary to complete the required structural integrity of the structure and the intent of the **Architect/Engineer on Record**. Special attention should be given to the requirements of all moment connections at cantilever beams. **(Addendum 2)**
9. It is the Steel Contractor's responsibility to determine the erection procedure and sequence to insure the safety of the building and its component parts during erection. This includes, but is not limited the addition of any temporary bracing and shoring that may be required. Such temporary bracing and shoring material shall be removed and shall remain the property of the Contractor after completion of the project.
10. Prior to fabrication, submit connection design calculations to architect for record, signed and sealed by a professional engineer registered in the State of Delaware.
11. Provide braced frame connections as shown on drawing s4.1. Variations to these details must have the approval of the Architect and Engineer on Record. Refer to notes on sheet s4.1.
12. This Contractor should make every possible attempt to obtain 100% of the steel on this project from mills that are within 500 miles of the jobsite. All steel shall be fabricated within 500 miles of the jobsite. This Contractor should also make every attempt to purchase the highest percentage available of post-consumer and/or post-industrial steel for this project.
13. The full access to this Contractor's fabrication shop must be made available to the Construction Manager (CM), the Owner's representative and/or the designee for any and all inspections.
14. This Contractor will provide a sequence plan and crane set plan at the time of bid review to discuss any proposed modifications for review and approval.
15. Grind welds smooth, remove grease and leave surface ready for painting for all materials furnished and/or installed.
16. Provide all equipment, power and fuel for welding.
17. This Contractor is responsible to provide all power required for the work within this Contract. No power will be provided. If and when a temporary power source is provided, it will be the

responsibility of this Contractor to have a backup power source in case the temporary service goes out. Temporary power will only consist of 110V service. If a larger service is necessary, it will be the responsibility of this Contractor.

### **STEEL SPECIFIC SCOPE ITEMS**

18. Furnish and install all structural steel including, but not limited to welding, columns, beams, composite beams, spliced beams/girts, girts, steel plates, steel decking, composite decking, shear studs, shim packs, double angle slip connections, moment connections, bolted connections, shear connections, clip angles, continuous slab edge angles, distribution angles, tube steel framing members, long angle, bent plates, stiffener plates, gusset plates, miscellaneous angles, hot-rolled shapes, pipe, nuts, bolts, washers, welding electrodes, galvanizing, primer paint, etc.
19. Furnish and install the ~~composite I-beam~~ **built-up column (h5) (See details 4/a11.8; 15/s3.3; 16/s3.3; 3/s6.1). (Addendum ②)**
20. Furnish and install all pour stops for entire perimeter, floor and roof deck openings. Install any temporary deck closures that may be necessary such as at elevator or stair shafts, etc.  
**Perimeter floor stops will be exposed (i.e.: 4/a11.2). Tolerances for perimeter pour stop will be as follows: ¼" per 10 (ten) feet with a total variation from control no greater than +/- ¼". Verify with professional surveyor and CM prior to deck pours. (Addendum ②)**
21. Provide additional framing required to support/frame all deck openings, closures, deck pans for drains, necessary supports, etc. This Contractor shall provide the deck in a manner such that no shoring is required to pour the decks. **(See note 13/s0.1) (Addendum ②)**
22. Furnish and install all frames for mechanical openings. Coordinate with the appropriate Contractors.
23. Furnish and install the steel framing roof top penthouse and screen walls including but not limited to all posts, steel tubing, angles, metal decking, supports, fasteners, etc. to provide a complete installation.
24. Furnish and install an **OSHA-compliant perimeter safety cable system, two (2) strand minimum, for all floors above level 0, 2, 3, roof levels and all floor and roof openings. The cable shall be supported a minimum of ten (10) feet on center. Furnish and install similar safety cables at all slab openings above the first floor, including but not limited to the elevator shaft, mechanical shafts/openings, stair openings, etc. Provide Eli turn buckles as required to maintain OSHA requirements. Maximum length of cable shall be one hundred (100) feet.** The cable shall be installed during the progress of steel erection and shall be ready for the start of concrete pours. Include top and middle cable and supplemental support as necessary between columns. **Provide a competent individual to walk and check safety cable handrail system on every floor at the end of every day while this Contractor is on site. Provide written documentation to the CM superintendent stating this was performed and there are no issues every day. If there is an issue, this Contractor must restore the system to its original condition prior to leaving the site on a daily basis.** Remove cable one floor at a time as the curtainwall is erected (by others). Cable support posts shall not be located in areas to receive exposed concrete as the floor finish. All posts shall be ground completely flush with the surface of the concrete or poured with Styrofoam block-outs and filled in later. **(Addendum ②)**
25. Furnish, install and maintain plywood covers over all openings in the metal deck. Plywood shall be securely fastened to the deck.
26. Furnish and install all composite deck studs **in accordance with pour schedules. Assume separate mobilizations for each floor pour. (Addendum ②)**

27. ~~Provide steel for an architectural mock-up that is yet to be designed. For bidding purposes the mock-up shall consist of one of the vertices of the triangle and twelve feet (12')~~ **Provide steel for an architectural mock-up that is yet to be designed. For bidding purposes the mock-up shall consist of one of the vertices of the triangle and twelve feet (12') of wall in each direction to a height of at least eight feet (8').** Furnish and install all steel, metal decking and baseplates for mock up panel as shown on mock up panel sketch (refer to SKA-01 add02). **Furnish anchor bolts to concrete contractor for installation.** Provide labor, materials, equipment, dumpster and complete removal of the steel from this mock-up once approved by the CM. **(Addendum 2)**
28. All steel **exposed to weather (or as otherwise noted in the Contract Documents)** shall be hot dipped galvanized (**see note 14/S0.1 and notes on S1.2, S1.4, S1.5 and 2/S4.1**). Provide field touch up of galvanized steel. It is the responsibility of this Contractor to ensure that structural steel, decking and all other materials supplied under this scope is compatible with specified finishes, i.e. sprayed fireproofing (**i.e.: see note 65/a6.1, note 25/a6.4, etc.**), concrete slab, special coatings, etc. **(Addendum 2)**
29. This Contractor shall use drawing software compatible with Navisworks 2013 for producing the required steel fabrication shop drawings. The software utilized must be able to import the structural design drawings provided by the A/E, which is provided in Navisworks 2013.
30. Furnish only anchor bolts, anchor bolt layout and 1" plywood anchor bolt templates for every column delivered to the jobsite. Installation of the templates and bolts is by the Concrete Contractor. Provide all base plates and leveling nuts.
31. Provide all welds required to secure all roof and floor decking prior to concrete pours.
32. Furnish, install, maintain and remove to OSHA standards, three (3), Type 1AA 375-LBS, fiberglass extension ladders. The ladders must extend a minimum of four (4) feet above the finish floor. The ladders will be installed as follows: (1) at 1<sup>st</sup> floor to 2<sup>nd</sup> floor, (2) at 2<sup>nd</sup> floor to 3<sup>rd</sup> floor, (3) at 3<sup>rd</sup> floor to roof. The ladders will remain in operation until such time the permanent stair towers are operational at which time two ladders will become the property of the CM.

#### MISCELLANEOUS METALS

33. Furnish and install elevator guide ~~rails~~ **supports. Guiderails shall be by the elevator contractor.** **(Addendum 2)**
34. **Install elevator hoist beam furnished by the elevator contractor. (Addendum 2)**
35. Furnish elevator sill angles to concrete contractor for installation. See detail 4/s2.2.
36. Furnish and install elevator sump pit grate, detail 6/s2.2. Furnish only pit angles to be set by concrete contractor.
37. Furnish and install all steel at the generator enclosure including all expansion bolting of steel members to CMU walls. See details 1, 2 & 3/a10.0.
38. Furnish and install all supplemental steel at the skylight. See sheet a4.0 **and corresponding details. (Addendum 2)**
39. Furnish and install the **custom bent plate (detail 14/a12.1 note 15, typical) and steel plates for sliding doors (details 8, 12 & 16/a12.0, SKA-05 add02). (Addendum 2)**
40. **Furnish and install the elevator pit ladder, detail 1/a6.0, note 62. (Addendum 2)**

#### METAL STAIRS AND RAILS

41. Furnish and install all steel for stairs including but not limited to tubes, posts, columns, rails and beams. Installation of interior stairs is to immediately follow steel erection in that area so that stairs can be used for construction traffic.
42. Furnish and install all wall rails for stairs, sheets a7.4 and a7.5 **and corresponding details. (Addendum 2)**

43. Furnish and install main stair case and rails, sheets a7.3, a13.0 and a13.1. **Furnish and install all perforated metal, HSS tubes, plates and angle at the stairs and overhangs. See details on a13.2, notes 8, 11, 12, 27, 30 and 33. (Addendum 2)**
44. Furnish and install stainless steel rails at the exterior walkway, detail 2/a6.0.

### **BIM/VDC REQUIREMENTS**

45. This Contractor shall model in 3D, the structural and miscellaneous steel for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
46. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within four (4) weeks from award of this Contract. Please note the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
47. This Contractor shall be responsible for modeling of all structural and miscellaneous steel as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Structural beams and columns
  - b. Miscellaneous support steel
  - c. Clips, gussets, plates, bent plates, tubes, HSS members, girts, brackets, stiffeners, angles and special shapes
  - d. Sleeve layout plan
  - e. Metal deck
  - f. Gratings and angles
  - g. Beam penetrations (location and size)
  - h. Baseplates and anchor bolts
  - i. Connection types/details
  - j. Modeled elements shall represent the exact size, shape, location and orientation of the represented material.

### **WORK BY OTHERS**

1. Set embed, anchor bolts
2. Grout base plates
3. Insulated metal panels
4. Toe boards for perimeter cable
5. Cold formed metal framing
6. Counter support steel

### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

1. Allowance No. 1: Include an allowance of \$7,500 for miscellaneous items as directed by the CM.  
END OF SECTION 01020

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SECTION 01020 – BID PACKAGE 06A – FINISH CARPENTRY, CABINETS, CORIAN, ETC. (REV. ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
05500	METAL FABRICATIONS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	IN ITS ENTIRETY
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

**GENERAL SCOPE ITEMS**

1. Submit to Rough Carpentry contractor, and coordinate location of all in wall blocking that they install to support this work. This must begin immediately upon award of the contract.

**SPECIFIC SCOPE ITEMS**

2. Provide casework for the following rooms/areas: Mail A330, Copy/Print A120, Lounge A216/A316, Copy/Work Alcove A217/A313
3. Provide Mail Boxes, shelving, drawers, toe kicks, wall and base cabinets ~~and glass back splash.~~  
**Glass back splash shall be provided by the 08A Glass, Glazing and Curtainwall contractor. (Addendum 2)**
4. **Provide all** miscellaneous finish hardware for the above items. **(Addendum 2)**
5. Provide wood blocking for cabinet support.
6. **Provide all** Plastic laminate and Solid Surface material. **(Addendum 2)**
7. This Contractor owns using shims all items to level and plumb the work. Cut back excess shims neatly to face of finished edge.
8. **Provide all** tube steel support framing and base plate expansion anchors for this work. See sheet a8.4 note 16 and detail 9/a16.0 note 5. **(Addendum 2)**
9. **Provide all** related caulking for all work installed in this entire bid package. **(Addendum 2)**
10. Coordinate in wall blocking for this work. Any on wall blocking is under this Contract, including wood substrate.
11. This Contractor shall cover all countertops with cardboard or construction paper upon installation. Tape into place with blue painters masking tape.
12. Caulk the Corian after the final cleaning of the rooms.
13. **Verify that finished sink height as installed in all millwork/Corian counter tops meets ADA height requirements. (Addendum 2)**

**ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

END OF SECTION 01020

**SECTION 01020 – BID PACKAGE 07A – ROOFING (REVISED ADDENDUM 2)**

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SPECIFIC ROOFING ITEMS**

1. Provide complete EPDM systems, including all accessories, but not limited to: insulation, tapered insulation, sheet flashing, roof drains (furnished by others), sealants, misc. fasteners, metal copings, walk pads, etc. The system is to be installed to meet the requirements of the Contract Documents and/or a manufacturer details whichever is more stringent.
2. This Contractor to provide thru wall flashing at Penthouse, Screen Wall and Elevator.
3. This Contractor to provide temporary weather protection to parapet by extending rubber membrane enough to provide water tight condition. Contractor will complete work once parapet has been permanently sealed per Contract Documents.
4. Provide all break metal drip edge, perimeter flashing and break metal under flashing.
5. Furnish and install the prefinished metal drip edges as shown on note 25 on 3 & 4/a11.1. Coordinate with metal panel contractor to provide matching metal.
6. Cap and parapet by metal panel contractor
7. Provide all sealants associated with the work installed herein and all sealants, caulking, etc. between the roof system and all adjacent building materials. Install as per manufacturers specifications and directions.
8. Provide all required inspections and warranties.
9. Furnish and install all flashing, both metal and membrane, associated with the roof installation. This will include, but not limited to, parapet flashing, reglet, counter flashing, gravel stops and scuppers.
10. Coordinate with all architectural, mechanical and electrical drawings and related contractors to determine the **amount of quantity and locations of all** roof penetrations and provide proper flashing. Provide and install complete all required pre-molded pipe seals. Provide all required pitch pockets at roof penetrations. **(Addendum 2)**
11. Coordinate with **appropriate electrical** contractor for the installation of the lightning protection system. **(Addendum 2)**
12. Furnish and install **any all** required walk pads. **(Addendum 2)**
13. Prepare all required materials and attend the required pre-installation conference, as required by the Contract Documents.
- ~~14. This Contractor is to temp in parapet walls prior to metal panels and glazing installation. This Contractor to temporarily enclose the outside of the parapet walls to prevent water from penetrating below the roofing system until the metal panel/curtainwall system is installed. (Addendum 2)~~
14. This Contractor is to provide **and maintain** temporary protection at skylight, prior to its installation. **(Addendum 2)**

### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

Allowance No. 1: Include the amount of \$10,000 for unspecified safety, barricade or miscellaneous work not already a part of this bid.

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE ~~08C 07B~~ – METAL PANELS (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07435	INSULATED METAL PANELS	IN ITS ENTIRETY
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
08410	ALUMINUM ENTRANCES AND STOREFRONTS	AS APPLICABLE
08800	GLAZING	AS APPLICABLE
08920	CURTAINWALL	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### GENERAL ITEMS

1. This Contractor is to review all drawings including Structural, Architectural, Mechanical, Electrical, Plumbing and Fire Protection prior to mobilization to site to identify all items that need to be coordinated with the this scope of work.
2. It is this Contractor's responsibility to coordinate with all work trades affecting this Contractor's work to ensure proper installation of materials.
3. This Contractor is aware that they must take whatever means necessary to meet the project schedule including but not limited to overtime hours, increased manpower, shift work, etc. at no additional cost to the owner.
4. Provide all necessary mobilizations as required to complete this scope of work. Multiple mobilizations may be required where roof ties in to metal panels.
5. **Enter the cost for the work within this entire Bid Package on the Bid Form under Project Alternate #8. There is no base bid for this package. Refer to Section 01025 – Project Alternates. (Addendum ②)**

### METAL PANELS SPECIFIC SCOPE ITEMS

6. ~~Furnish and install a mockup that is yet to be designed. For bidding purposes, include the cost to furnish and install panels for one of the triangular vertices and twelve feet (12') of wall length in each direction from the cornice.~~ **Furnish and install metal wall panels complete as shown on the mockup sketch (refer to SKA-01 add02).** Glass sized for this mockup shall be installed by the glass contractor. Provide labor, materials, equipment, dumpster and complete removal of the metal panels from this mockup once approved to be removed by the Construction Manager and Architect. **Furnish disposal tickets to CM for recycling requirements as required per LEED. Panels may be re-used in the construction of the building if sized accordingly. Panels for the mockup shall not be reused in the construction of the building. (Addendum ②)**
7. Furnish and install a complete aluminum/metal/composite insulated panel system at the curtainwall, penthouse and rooftop screen walls.
8. Furnish and install corrugated galvanized steel siding panels. See detail 7/a11.3, note 22.
9. ~~Provide as the base bid, a panel system in the curtain wall designed and fabricated with a 1/4" leg for installation in the curtain wall system. See details 8 and 12/a11.7, typical.~~ **Provide a fully caulked metal panel system as shown in details 7 and 11/a11.7. (Addendum ②)**
10. This Contractor is responsible to provide all "hold-to" dimensions for metal panels coordinated with the curtainwall system and other applicable trades and finishes. Features will be constructed to dimensions as provided by this Contractor. Field measuring of openings for panels will not be permitted prior to installation.
11. This Contractor is responsible for all flashing and drip edges integral with the metal panel systems.
12. Furnish and install pre-finished metal flashing caps (1/a11.1, typical; 1/a11.0, typical; 5/A11.6, typical) and pre-finished continuous flashing **and foam (see 1/a11.7 notes 12 and 30, typical).** Prefinished metal drip edges as shown on note 25 on 3 & 4/a11.1 shall be by the roofing contractor. **(Addendum ②)**
13. Furnish and install continuous metal stud runners as required to secure insulated panels to building structure. Detail 5/a11.6, note 24, typical.
14. Furnish and install any necessary steel angles or clips required to attach the panel or siding systems to the building ~~steel structure.~~ **(Addendum ②)**

15. Furnish and install closure panels (7/a11.2 note 5, typical), corner panels, aluminum plate cladding (7/a11.9, notes 30 and 32, typical), upturned edges (10/a11.9, note 32 typical) and associated fasteners as required.
16. Fit insulated panels to door frames at the penthouse. Door frame to be furnished and set by others. Coordinate with door/frame/hardware contractor as required. (details 7 and 8/a11.4, typical).
17. This Contractor is responsible for all caulking or sealants integral to the aluminum/metal/composite panel or siding systems including caulking to adjacent dissimilar materials **except the panel jambs if Alternate #8 is accepted**. See details 7 and 11/a11.7 note 32, typical. **(Addendum ②)**
18. Furnish and install the aluminum finish trim for all systems furnished under this package.
19. Furnish and install all shims, fasteners, supports, anchorage, flashing, counter flashing, drop edges, trim, gaskets, blocking, clips and other accessories associated with the ~~above~~ systems **in this Contract** to provide a complete and uniform installation of all materials. See detail 4/a11.8, note 35, typical, ~~1/a11.7, notes 38 and 39, typical details 1, 4, 7/a11.2, note 42; 7/a11.1, note 33; details 5, 10/a11.6, note 38 (may not be inclusive of all conditions)~~. **(Addendum ②)**
20. Furnish and install the mechanical louvers in the penthouse wall. Coordinate the installation of the louvers with the mechanical and electrical contractors to ensure a properly functioning product. The mechanical contractor shall make the connection of the ductwork to the louvers. This Contractor shall review the mechanical drawings to understand the extent of the active louvers required and shall provide the specified insulated blank off panels in all other areas. Furnish and install any required sealants, blank off plates, bird and insect screens. Refer to details 2/a5.0 note 21, 2/a5.2 note 13, 5/a11.4, notes **30 and 32**, typical, 5/m5.3. **(Addendum ②)**
21. Coordinate installation and layout of box-outs, cut-outs, embed, etc for other trades including but not limited to sprinklers, lighting, rails, etc. Provide reinforced edges or trim pieces as needed. This Contractor is responsible to make all of the field cuts for penetrations and shall review the architectural and MEP drawings to understand the extent of the cuts.
22. **Assume one full height section of curtainwall or metal panel to be left out for trash chute and/or material access. Assume remobilization at a later date to complete final installation (anchored/caulked/etc.) at the direction of the CM. (Addendum ②)**
23. **Furnish and install stainless steel sheets on the back side of parapet walls. (see details 1/a11.6, note 49; 5/a11.6, note 40, typical). (Addendum ②)**

#### **BIM/VDC REQUIREMENTS**

24. This Contractor shall model in 3D, the insulated and non-insulated metal panels for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
25. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within six (6) weeks from award of this Contract. Please note the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
26. This Contractor shall be responsible for modeling of all insulated and non-insulated panels as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Insulated panels
  - b. Non-insulated panels

- c. Clips, brackets, angles, miscellaneous brackets, stiffeners, spline plates
- d. Openings, penetrations, doors/frames
- e. Modeled elements shall represent the exact size, shape, location and orientation of the represented material. Include all connection details.
- f. **Louvers (Addendum 2)**

**ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

**Alternate No. 8: This alternate applies to this scope of work in its entirety. (Addendum 2)**

**ALLOWANCES**

**Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:**

- 1. Allowance #1 – Include in the bid a lump sum of \$7,500 for the purpose of temporary protection above and beyond what is stated in this scope of work to be used at the direction of the CM. To be paid for T&M using unit prices. (Addendum 2)**

END OF SECTION 01020

SECTION 01020 – BID PACKAGE 08A – GLASS, GLAZING AND CURTAINWALL (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07435	INSULATED METAL PANELS	IN ITS ENTIRETY
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
08120	INTERIOR ALUMINUM DOOR FRAMES	IN ITS ENTIRETY
08410	ALUMINUM ENTRANCES AND STOREFRONTS	IN ITS ENTIRETY
08450	ALL GLASS DOORS	IN ITS ENTIRETY
08625	METAL FRAMED SKYLIGHTS	IN ITS ENTIRETY
08710	BUILDERS HARDWARE	AS APPLICABLE
08800	GLAZING	IN ITS ENTIRETY
08840	PLASTIC GLAZING	IN ITS ENTIRETY
08920	CURTAINWALL	IN ITS ENTIRETY
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE

DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### GENERAL ITEMS

1. This Contractor is to review all drawings including Structural, Architectural, Mechanical, Electrical, Plumbing and Fire Protection prior to mobilization to site to identify all items that need to be coordinated with the this scope of work.
2. It is this Contractor's responsibility to coordinate with all work trades affecting this Contractor's work to ensure proper installation of materials.
3. This Contractor is aware that they must take whatever means necessary to meet the project schedule including but not limited to overtime hours, increased manpower, shift work, etc. at no additional cost to the owner.
4. Provide all necessary mobilizations as required to complete this scope of work.

### GLASS, GLAZING AND CURTAINWALL SPECIFIC SCOPE ITEMS

5. ~~Furnish and install a mockup that is yet to be designed. For bidding purposes, include the cost to furnish and install panels for one of the triangular vertices and twelve feet (12') of wall length in each direction from the cornice.~~ Furnish and install all aluminum framing, glass and metal wall panels complete as shown on the mockup sketch (refer to SKA-01 add02). ~~Glass is to be sized to provide a minimum of two panes with a horizontal butt joint.~~ Provide labor, materials, equipment, dumpster and complete removal of the glass and curtainwall from this mockup once approved to be removed by the Construction Manager **and Architect**. Glass may be re-used in the construction of the building if sized accordingly **and is the approved color and finish**. Provide water testing the glass and metal panels in the mockup. **(Addendum 2)**
6. Furnish and install complete all aluminum storefront systems, windows, aluminum doors, interior aluminum frame window units, window trim, hardware (sensors, mag locks, closers, etc.), pulls, shims, fasteners, accessories and aluminum pieces including but not limited to angles, plates, bent plates and extrusions. Furnish and install all interior glass and glazing, channels **(see detail 3/a12.1, note 14, typical)**, sealants, setting blocks, etc. ~~See detail 3/a12.1, note 14, typical.~~ **(Addendum 2)**
7. All aluminum windows and doors are to be furnished with glazing as specified in the Contract Documents.
8. Provide all required coordination and layout required for interior and exterior aluminum windows. Coordinate with partitions and steel contractors and any other trade as required.
9. This Contractor is responsible for furnishing and installing all glass in aluminum and hollow metal door frames, hollow metal window, hollow metal doors and wood doors including glass for all doors, doorframes, borrow lite frame, butt glazed glass, etc. Including specialty glazing for types such as obscure glass.
10. Furnish and install any necessary steel angles or clips required to attach the curtain wall or storefront systems to the building steel. This shall include anything not shown on the Contract Documents but required for this work.
11. Furnish and install all flashing under windows to ensure a watertight system.

12. This Contractor is responsible for all caulking or sealants integral to the aluminum storefront and/or window systems and caulking to adjacent dissimilar materials. Provide backer rod where required. Caulking between aluminum and metal panels shall be by this Contractor.
13. Provide all pre-finished aluminum materials as specified.
14. Window opening sizes will need to be closely coordinated with the ~~Drywall-partitions~~ **general trades** contractor. This Contractor will be required to provide the necessary layout and rough opening dimensions prior to work starting by the other trades. The ~~Drywall-partitions~~ **general trades** contractor will build the openings based on "hold-to" dimensions provided by this Contractor. No time will be allowed for field measuring openings prior to constructing the windows. **(Addendum 2)**
15. Furnish and install all aluminum drip edges as indicated or specified.
16. Furnish and install all aluminum stop beads, jamb extensions, sills, stools, in frame insulation, weather stripping, etc. as required to provide a complete and weatherproof window installation.
17. Furnish and install the aluminum finish trim for all systems furnished under this package.
18. Furnish and install all shims, fasteners and clips associated with the new windows to provide a complete and uniform installation of all window units.
19. All wood nailers, window and door blocking will be the responsibility of the ~~Drywall-partitions~~ **general trades** contractor. This Contractor is responsible for verifying that all required blocking for this packed has been installed. **(Addendum 2)**
20. Provide and pay for all hoisting, rigging, scaffolding, shoring, equipment, etc. required to accomplish the work described herein.
21. This Contractor is responsible for all fall protection and safety requirements associated with this work. When working from either lifts and harnesses or tie-offs provided by this Contractor, OSHA standards must be met and followed at all times.
22. Furnish and install all aluminum entrance doors (interior and exterior), including support structure and any integral aluminum wall panel systems.
23. Provide and install all door hardware that is to be installed on the aluminum doors and frames as per the door hardware specifications.
24. Furnish and install all interior and exterior automatic door operators, aluminum bollards, push pads, access panels, etc. Coordinate the installation of the automatic door openings with the electrical contractor to ensure a properly functioning product. This Contractor shall provide the power connection location and all electrical and control wiring beyond the main power supply. Provide access for the electrical contractor to install conduit and wiring to the appropriate location which shall be specifically designated on the shop drawings. See detail 1/a6.2, note 39; a8.0, note 12; details 2/a8.2, note 16; ~~and~~ 7/a10.0. **(Addendum 2)**
25. Provide all testing, balancing and commissioning of automatic doors at time of installation. This Contractor shall include an additional adjustment after all HVAC systems have been tested and balanced to ensure all doors are operating properly.
26. Furnish and install glass backsplash at all locations where indicated. See detail 1/a16.0, note 9, typical. **Coordinate with 06A Finish Carpentry contractor as required. (Addendum 2)**
27. Provide any supplemental framing that is required to properly support the work described herein but not shown on the Contract Documents or specifically assigned to another contractor.
28. Include the necessary multiple mobilizations to the jobsite to facilitate the work per the project schedule.
29. Furnish and pay for all engineering, testing, calculations, certifications, site visits by manufacturer representatives, etc. if required by the Contract Documents. All engineering and calculations shall be stamped by a professional engineer licensed in the State of Delaware.

30. Coordinate with and make provisions for a security system to be installed by others such as but not limited to reinforcement, raceways, cutouts, etc.
31. Provide protection of own work during installation. After completion of each area, review the area with the CM to ensure area has no damage, sub-standard installations, etc. This is not the official punchlist. Prior to leaving an area of work, the metal frames and glazing shall be cleaned by this Contractor. Provide final clean-up of each work area. **Install temporary protection on ALL window sills following installation. Protection to consist of 1/8" corrugated plastic held with painters tape to protect factory finish. (Addendum ②)**
32. Protect adjacent work from damage by this Contractor.
33. Water test windows as required by the Contract Documents.
34. Furnish and install the skylight in its entirety. This work shall include but not be limited to all flashings, counter-flashings, drip edges, anchors, sealants, etc. Coordinate with roofing and carpentry contractors for blocking and flashing details at the curb of the skylight. **Provide a water test as required by the Contract Documents. (Addendum ②)**
35. Furnish and install all metal insulated panels in the curtainwall system and all **insulated and non-insulated** metal panels at penthouse and roof screen wall. ~~Refer to Bid Package 08C Metal Panels in its entirety for full description of this scope of work.~~ **This Contractor shall own the entire scope of work under Bid Package 07B Metal Panels complete. Refer to details 8 and 12 on a/11.7 (fully glazed system). (Addendum ②)**
36. **Furnish and install aluminum plate panel as indicated on SKA-02 add01, note 41. (Addendum ②)**
37. **Assume one full height section of curtainwall or metal panel to be left out for trash chute and/or material access. Assume remobilization at a later date to complete final installation (anchored/caulked/etc.) at the direction of the CM. (Addendum ②)**

#### BIM/VDC REQUIREMENTS

38. This Contractor shall model in 3D, the curtainwall, glass and metal panels for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
39. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within six (6) weeks from award of this Contract. Please note the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
40. This Contractor shall be responsible for modeling of all curtainwall, glass, aluminum/glass doors and metal panels as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Curtainwall members and glass
  - b. Insulated and non-insulated metal wall panels
  - c. Aluminum doors
  - d. Glass and glazing
  - e. Clips, brackets, support members, accessories, raceways for automatic doors

#### ALTERNATES

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

**Alternate No. 9: Provide the deduct for all work as described in Bid Package 07B. If Alternates #8 and #9 are accepted, the Contractor awarded Bid Package 07B will install the metal panel system, but this**

**Contractor shall still provide the caulk joints at the jambs of the metal panels as shown in details 7 and 11/a11.7. (Addendum 2)**

**ALLOWANCES**

**Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:**

- 1. Allowance #1 – Include in the bid a lump sum of \$7,500 for the purpose of temporary protection above and beyond what is stated in this scope of work to be used at the direction of the CM. To be paid for T&M using unit prices. (Addendum 2)**

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE 09A – GENERAL TRADES (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
05400	COLD FORMED METAL FRAMING	IN ITS ENTIRETY
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
06100	ROUGH CARPENTRY	IN ITS ENTIRETY
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
08110	STEEL DOORS AND FRAMES	IN ITS ENTIRETY
08211	FLUSH WOOD DOORS	IN ITS ENTIRETY
08305	ACCESS DOORS	IN ITS ENTIRETY
08710	BUILDERS HARDWARE	IN ITS ENTIRETY
DIVISION 09	FINISHES	AS APPLICABLE
09220	ACRYLIC PLASTER	IN ITS ENTIRETY
09255	GYPSUM BOARD ASSEMBLIES	IN ITS ENTIRETY
09512	ACOUSTICAL PANEL CEILINGS	IN ITS ENTIRETY
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE

DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SPECIFIC ROUGH CARPENTRY ITEMS**

1. **Provide** in wall blocking for handrails, casework, lab casework, cabinets, furniture, tack boards, signs, toilet accessories, toilet partitions, curtain tracks, draperies, stairs, equipment, etc. as shown and/or specified. Fire rated lumber. **(Addendum 2)**
2. **Provide** roof blocking, parapet blocking, fascia blocking, etc. **(Addendum 2)**
3. **Provide** blocking at window and door openings, ~~window sills~~, window blinds, etc. **(Addendum 2)**
4. **Provide** shims as required to install work plumb and level. **(Addendum 2)**
5. **Provide** leveling blocking for any mechanical equipment curbs when roof is not flat. **(Addendum 2)**
6. Any item that needs wood blocking is the responsibility of this Contractor.
7. Provide temporary doors at stair towers (2), main entrance, and on west side of building. This contractor to provide hardware for these doors (hinges, handle and hasp). Include removal and disposal of all temporary doors.
8. **Furnish and install all fire rated plywood for mounting BAS, telecom and electrical panels as required. (Addendum 2)**

### **SPECIFIC DOORS, FRAMES & HARDWARE ITEMS**

9. Provide all hollow metal doors and frames, wood doors and all door hardware including louvers in doors or in frames. Receive, unload, inventory and store all doors, frames and hardware.
10. During installation, field trim doors to fit frames if required for proper working clearances. Reinstall any factory finish that has been trimmed off the door.
11. Furnish and deliver to the job all hollow metal door frames. All ~~exterior door frames and~~ door frames located within any metal panel system shall be quick shipped at no additional expense to the project. Provide expedited submittals for these frames. **(Addendum 2)**
12. Furnish and deliver to jobsite, all finish hardware.
13. Furnish and deliver to jobsite all hollow metal, solid & **pre-finished** hollow core wood doors. **(Addendum 2)**
14. Installation, unloading, and distribution of doors and hardware will be by this Contractor.
15. Coordinate fabrication of doors and frames with preparations for all finish hardware and openings including but not limited to security and power cabling as required.
16. Furnish and deliver all necessary installation hardware, special tools, accessories, and instructions for proper installation.
17. Furnish all applicable shop drawings, product data, schedules, color/finish selection charts, etc.
18. Properly label all finish hardware by set number and number all doors to align with the corresponding door number on the Contract Documents.
19. **Provide** stop beads at door lights. Glass and glazing is by others. **(Addendum 2)**
20. Provide fire ratings per Contract Documents and provide UL labels on all rated components
21. Provide raceways within doors and frames for wiring to electrical and security hardware. Coordinate raceway locations and hardware preparations with electrical & security contractors.
22. Furnish clips, temporary spacer bars, angles, fasteners and special tools as required for installation and maintenance. **Spacer bars shall not be removed until frames are fully anchored. (Addendum 2)**

23. Include all hardware items and sets described in the specifications including door stops and thresholds.
24. ~~Prefinished wood doors as specified. Stated above (Addendum 2)~~
25. Furnish and install all access panels and doors shown on drawings.
26. **Provide wood putty in all joints and sand to produce paint ready finish. (Addendum 2)**
27. Provide in-floor door closer as scheduled, coordinate installation with concrete contractor.
28. ~~Install only all louvers and sill flashing. All related caulking for the exterior louver sealant. Exterior louvers shall be furnished and installed by others. (Addendum 2)~~
29. Coordinate keying with ~~Delaware State University Owner~~ and Construction Manager. (Addendum 2)
30. **Provide grout at all door frames as required. (Addendum 2)**
31. **Provide all balancing and adjustment of door closers at time of installation. This Contractor shall include an additional adjustment after all HVAC systems have been tested and balanced to ensure all doors are operating properly. (Addendum 2)**

#### SPECIFIC GYPSUM WALL BOARD AND METAL STUD ITEMS

32. Provide all metal stud framing and drywall, walls, soffits, exterior gyp board and sheathing, Dens Glass Sheathing, moisture resistant board at toilet rooms, janitors closet, Kitchen/Servery.
33. Provide thermal fiberglass insulation, batt and acoustical insulation.
34. Provide spray foam insulation as required. Apply Spray foam insulation into steel (holes by others)
35. Provide Mirrored Acrylic Sheets, adhere to steel supports.
36. At columns, provide insulated enclosure made from single insulated metal panel.
37. Provide steel plate corner guards.
38. ~~Provide perforated metal closure at underside of stair landing. To be provided by steel contractor. (Addendum 2)~~
39. Provide metal stud infill at web space of beams.
40. Provide insulation board as shown on drawing a11.8.
41. ~~At walls with lab casework, this contractor is to provide welded steel plate at concrete slab. (Addendum 2)~~
42. Top-out and fully finish all hallway walls, above ceiling, immediately with exterior board sheathing. (Addendum 2)
43. **Provide all final finishing and acoustical treatment immediately after installation of gypsum board as required in all areas that will become inaccessible (i.e.: mechanical ceilings, chases, etc). (Addendum 2)**
44. **Furnish and install all metal framing and plywood sheathing complete as shown on the mockup sketch (refer to SKA-01 add02). Provide labor, materials, equipment, dumpster and complete removal of the framing and sheathing from this mockup once approved to be removed by the Construction Manager and Architect. (Addendum 2)**

#### SPECIFIC CEILING ITEMS

45. Provide all ceilings including: ACT, GWB, Translucent lay-in ACT Utility ceilings.
46. Provide acrylic plaster ceilings.
47. Provide acoustical sealant as required.
48. Provide movable insulated metal panel at ceiling as required.
49. Provide aluminum plate cladding at portal ceiling.
50. Furnish and install all ceiling grid and associated acoustical tile and metal panels per the reflected ceiling plans, finish schedule and all notes.

51. Coordinate ceiling grid and wall angle systems with wall types. All work must be coordinated with other trades. ~~in particular, the drywall and framing contractors.~~ **(Addendum ②)**
52. **Provide** normal repair/tile replacement for this work is included in the base bid. This includes touch-up paint on cut edges of tile. **(Addendum ②)**
53. This Contractor is responsible for all layout and field measurements as required to perform their work. ~~The Construction Manager will provide basic control lines and benchmarks only.~~ **(Addendum ②)**
54. A limited amount of onsite storage space is available to this Contractor. Contractor shall deliver materials to jobsite in quantities as per floor and as storage availability permits. Close attention must be paid to floor loading limitation for stockpiling ACT and other materials.
55. **Provide** cut tiles and metal panels for electrical, fire protection, HVAC, security and other trades. **(Addendum ②)**
56. Assume that the installation of the ceiling grid, cutting in of the perimeter tiles & metal panels, and dropping in of full tiles and metal panels are three separate activities that will not happen at the same time.
57. Verify that air and surface temperature, moisture & humidity conditions are suitable for installation of this work.
58. **Provide** expansion and control joints in ceiling construction integral to this work. **(Addendum ②)**
59. Furnish and install any metal break shapes or specialty wall angles as noted on the drawings or required for a complete installation of the acoustical and metal panel ceiling systems.
60. The floor must be protected with cardboard provided by this Contractor.

#### **BIM/VDC REQUIREMENTS**

61. This Contractor shall model in 3D, the walls, doorways, interior window openings and ceilings for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
62. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within six (6) weeks from award of this Contract. Please note the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
63. This Contractor shall be responsible for modeling of all walls, doorways, window openings and ceilings as well as all contents included in this scope of work. **Note locations of king studs and wall bracing that cannot be penetrated by MEP items.** Modeled contents shall include but not be limited to: **(Addendum ②)**
  - a. GWB walls/ceilings
  - b. Plaster walls/ceilings
  - c. ACT ceilings (with dimensions)
  - d. Acrylic and architectural ceilings

#### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

#### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit.

Any unused portion will be credited from the Contract. Any monies spent against these allowances are

to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

Allowance No. 1: Include the amount of \$7,500 for temporary hand rails.

Allowance No. 2: Include the amount of \$5000 for miscellaneous protection.

Allowance No. 3: Include the cost to provide clean up laborers, a total of 320 man hours, for unspecified cleanup work not already a part of the bid.

Allowance No. 4: Include the cost to provide carpenters, a total of 250 man hours, for unspecified carpentry work not already a part of the bid.

Allowance No. 5: Include the amount of \$20,000 for miscellaneous items to be purchased at the direction of the CM.

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE ~~09C 09B – VCT/CARPET~~ FLOORING (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
09651	RESILIENT TILE FLOORING	IN ITS ENTIRETY
09653	RESILIENT WALL BASE AND ACCESSORIES	IN ITS ENTIRETY
09690	CARPET TILE	IN ITS ENTIRETY
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SPECIFIC FLOORING ITEMS**

1. This work primarily includes but is not limited to the specification sections listed above.
2. Furnish and install new VCT, vinyl base transition strips in all areas as indicated.
3. Supply and install all carpet tile, base and transition strips in all areas as indicated.
4. Supply and install all transition strips/reducers/thresholds and miscellaneous trim pieces where needed.
5. Include floor prep necessary on all of the existing floors in order to create the proper sub floor according to the manufactures recommendations for the new flooring. Prep to include scraping, and flash patching as required, etc. Assume that 10% of the total floor area to receive carpet will require flash patching. Assume that 10% of the total floor area to receive VCT will require flash patching. **Assume diamond column infills at 1<sup>st</sup> floor to require ¼" patch. (Addendum 2)**
6. The beginning of this Contractor's installation constitutes acceptance of the floor surface. Notify the CM of any problems two weeks prior to starting the work.
7. Furnish and install 4' wide, 1/8" masonite walk path (duct taped together) in all hallways once VCT and carpet floor installation is complete. Protect the Owner's property.
8. This Contractor is responsible for hauling all of their materials to the jobsite. The CM will not provide any laborers for assistance.
9. Temporary water will be provided by others, but the location may not be near your work area.
10. Provide attic stock as indicated.
11. Base building temporary heat is by others, but this Contractor is responsible to supply a portable heater in the area they are working if temperature conditions are not adequate.
12. Coordinate work with electrical, mechanical, and plumbing devices in the floor.
13. Verify that air and surface temperature, moisture, & humidity conditions are suitable for installation of this work.
14. Conduct moisture/bond tests on surfaces to receive new materials and notify the CM of any related problems at least 2 weeks prior to installation.
15. All VCT, carpet tile, and base seams must be inconspicuous, flat, unpuckered edges, and free from adhesive.
16. Provide Walk-Off Surface Mat "WKM", recessed walk off grate.
17. Provide recessed grate prior to pouring slab on grade to concrete contractor. If not delivered in time, this contractor is to install per manufactures recommendation.
18. ~~This Contractor is to disc sand all floors prior to installation of all flooring.~~ (Addendum 2)
19. **This Contractor to provide flooring in the elevators, including prep of cab floor. (Addendum 2)**

### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by the CM via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

Allowance No. 1: Contractor shall provide an allowance of \$3,000.00 (three thousand dollars) for miscellaneous touch-up throughout the project and warranty period. Allowance will be used at the discretion of the CM.

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE ~~09D~~ 09C – CERAMIC TILE

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
09300	CERAMIC TILE	IN ITS ENTIRETY
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

**SPECIFIC SCOPE ITEMS**

1. This work primarily includes but is not limited to the specification sections listed above.
2. Furnish and install all: ceramic tile (wall & floor), porcelain tile, marble thresholds/transition in all areas indicated.
3. Supply and install all special shapes, base tile and all other miscellaneous trim pieces where needed.
4. Furnish and install any caulk for sealing of expansion, contraction, control and isolation joints.
5. Include floor prep necessary on all of the existing floors in order to create the proper sub floor according to the manufacturer's recommendations for the new flooring. Prep to include scraping, and flash patching as required, etc. Assume that 10% of the total floor area to receive ceramic and porcelain tile will require flash patching and include this in the bid price. **Assume diamond column infills at 1<sup>st</sup> floor to require ¼" patch. (Addendum 2)**
6. The beginning of this Contractor's installation constitutes acceptance of the floor surface. Notify the CM of any problems two weeks prior to starting the work.
7. Furnish and install 1/8" masonite floor protection (duct taped together) over all tile areas after installation is complete. Also, provide temporary barricades and/or caution tape to cordon off areas while mortar and grout are setting.
8. This Contractor is responsible for hauling all of their materials to the jobsite and hauling out all debris and excess material to the job site dumpster. The CM will not provide any laborers for assistance.
9. Temporary water will be provided by others, but the location may not be near your work area.
10. Provide attic stock as indicated in the Contract Documents.
11. Base building temporary heat is by others, but this Contractor is responsible to supply a portable heater in the area they are working if temperature conditions are not adequate.
12. Coordinate work with electrical, mechanical, and plumbing devices in the walls & floor.
13. Verify that air and surface temperature, moisture, & humidity conditions are suitable for installation of this work.
14. Conduct moisture/bond tests on surfaces to receive new materials and notify the CM of any related problems at least 2 weeks prior to installation.

**ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

END OF SECTION 01020

SECTION 01020 – BID PACKAGE ~~09E~~ 09D – PAINTING (**REVISED ADDENDUM 2**)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
09900	PAINTING	IN ITS ENTIRETY
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **PAINTING SCOPE ITEMS**

1. This work primarily includes, but is not limited to the specification sections listed above as well as related work specified or shown elsewhere in the Contract Documents. This includes but is not limited to furnishing and installing block filler, primers, paint, and high performance coatings at both the interior and exterior of the building.
2. Perform surface prep as necessary on new and existing surfaces. This may include miscellaneous caulking, patching, sanding, scraping, or light cleaning or dusting. Scrape any loose paint prior to painting.
3. New wood doors will be factory finished. Touch-up any nicks during construction.
4. Paint all door frames in the construction spaces, exterior doors and service yard. This includes louvered doors. Do not remove door hardware.
5. ~~Stain and finish any new wood as specified. This includes but is not limited to wood windowsills and trim. (Addendum 2)~~
6. Clean, prime, and paint exposed sprinkler pipe. Do not paint valves, sprinkler heads, devices, etc.
7. Caulk in all door frames, wood trim, etc. Putty all nail holes prior to painting.
8. Paint all drywall ceilings and soffits – review the reflected ceiling plans for locations of drywall ceilings.
9. Cover all floors while painting – this includes finished and unfinished floors. Flooring materials need to bond to bare concrete in order for their warranty to be accepted. This Contractor will be responsible to remove any overspray from the floors.
10. Perform exterior painting of metal items scheduled to receive paint **including but not limited to bollards. (Addendum 2)**
11. Include in your price masking of finish products that may be installed prior to your painting.
12. Include in your price cost to perform punchlist touch-ups at the end of the project prior to owner move-in.
13. Verify that air and surface temperature, moisture, and humidity conditions are suitable for installation of this work.
14. Include priming of all surfaces prior to application of paint.
15. Fire rating labels shall not be painted over.
16. Provide minor prep work to wood trim and gypsum walls prior to installation. This is to include but is not limited to: sanding, scraping, puttying, dusting, etc.
17. Coordinate with the ~~drywall~~ **general trades** contractor related to patching and prep for finishes. The Painting Contractor shall not proceed with final coats of paint until the ~~drywall~~ **general trades** contractor has completed the touch up of any imperfections in his work. The Painting Contractor shall survey all existing conditions prior to commencement of work in a given area and report to the CM any discrepancies or deviations in the work of other trades which detrimentally affect this work. Commencement of work in a given area of the project, without notifying the CM of such discrepancies or deviations, constitutes acceptance of the existing conditions and obligates the Painting Contractor to bear the cost to correct any deficiencies found in that given area. Notification of discrepancies shall be reported to the CM in sufficient time so that corrective action can be taken. **(Addendum 2)**
18. Coordinate with the ~~drywall~~ **general trades** contractor related to patching and prep for finishes as follows:
  - a. ~~Drywall~~ **General trades** contractor will complete final sanding of drywall and ceilings.
  - b. Painting Contractor to apply the prime coat
  - c. The CM, ~~drywall~~ **general trades contractor** and Painting Contractors to walk the entire area and review drywall quality. Imperfections will be identified and circled in pencil.

- d. ~~Drywall~~ **General trades** contractor will repair all circled imperfections, walls and ceilings.
- e. Painter will spot prime repairs, walls and ceilings.
- f. Painter will proceed with application of the first coat (method of application to be coordinated with the CM).
- g. Items c, d, and e will be repeated, corrected any remaining imperfections. Balance of work completed (ie. millwork, flooring, etc.)
- h. Painter will complete final coat by means of rolling and/or brushing over finished floors.

**(Addendum 2)**

19. Seal concrete floors to remain exposed per the drawings.
20. Cleaning of overspray as required. Scrape paint off all glass surfaces and any finished product. Pay the cost to replace any item that cannot be cleaned back to its original condition.
21. Touch-up paint as required upon substantial completion. Protect the finished work by other trades, including but not limited to carpeting.
22. **Provide** all spray fire-proofing, spray applied fire resistant material. **(Addendum 2)**
23. Caulk around all windows and doorframes.
24. Provide all paint including Epoxy paint, PEG-4, metal paint.
25. **Provide** all HM doors, frames steel stairs, perforated metal closure at underside of stairs, and exposed steel (UNO). **(Addendum 2)**

**ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

Allowance No. 1: Contractor shall provide an allowance of \$7,500.00 (seven thousand five hundred dollars) for unspecified miscellaneous point-up and patching work not specified on the Contract Documents. This is not to be used for your punchlist.

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE ~~09B~~ 09E – EPOXY FLOORING (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
09671	RESINOUS FLOORING	IN ITS ENTIRETY
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

**SPECIFIC RESINOUS FLOORING ITEMS**

1. Contractor shall furnish and install high performance fluid applied resinous flooring at the stairs, classrooms, storage rooms and labs. This is to include but is not limited to resinous flooring, reinforcing membrane, patching and fill material, joint sealant, integral cove base, and sealing or finishing coats.
2. Contractor shall review Division 3 specifications for concrete substrates to receive resinous flooring.
3. Contractor shall furnish and install a field sample in an area selected by the architect. Sample shall be at least (48) square inches and demonstrates the texture, color, thickness, chemical resistance, cleanability, and other features of each resinous flooring system required. Simulate finished lighting conditions for review of in-place field samples.
4. Shot blast surfaces prior to installation.
5. Contractor shall furnish proper colors as specified
6. Provide epoxy base 4", termination bar by this Contractor.
7. **Assume diamond column infills at 1<sup>st</sup> floor to require ¼" patch. (Addendum ②)**

**ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

END OF SECTION 01020

SECTION 01020 – BID PACKAGE 12A – LABORATORY CASEWORK (REVISED ADDENDUM **2**)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

SECTION	DESCRIPTION	RESPONSIBILITY
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	<del>IN ITS ENTIRETY</del> AS APPLICABLE <b>2</b>
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
11610	LABORATORY FUME HOODS	IN ITS ENTIRETY
DIVISION 12	FURNISHINGS	AS APPLICABLE
12310	LABORATORY SINKS AND FITTINGS	IN ITS ENTIRETY
12345	LAB CASEWORK	IN ITS ENTIRETY
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

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### **SPECIFIC LAB CASEWORK AND FUME HOOD ITEMS**

The scope below has been separated into sub-sections for clarity, but each line applies to this scope of work in its entirety. Furnish and install all required labor, equipment and materials to complete this project including, but not necessarily limited to, the following:

1. This Contractor is to furnish and install all laboratory casework and other furnishings as per ~~specification section 12345~~ **the Contract Documents**, including all associated accessories for a full and complete installation. Provide design of casework to meet the performance requirements specified in the Contract Documents. **(Addendum 2)**
2. Provide base/upper cabinets, mobile pedestal, countertops (epoxy & Trespa Top lab Eco-Fibre), glass door inserts, back splashes, peg boards, epoxy sinks, snorkel exhaust extractor, gas safety cabinet, adjustable legs, leveling glides, valves, faucets, fittings and pipe enclosures.
3. This Contractor is to coordinate with MEP contractors to be sure rough-in is correct.
4. This Contractor is to furnish and install all laboratory emergency plumbing fixtures including but not limited to safety shower/eye wash systems.
5. This Contractor is to furnish and install laboratory sinks integral to casework systems, fume hoods and other air containment units.
6. Provide complete Equipment Shelves as shown on drawing a15.0. Coordinate with ceiling installation Include: uni-strut, all-thread, fiberglass grating, clear polycarbonate panels. Hanger rods for these shelves shall be installed to just below the ceilings with couplers to allow for future modifications.
7. This Contractor is to furnish and install all cabinet hardware including keying of locks.
8. This Contractor is to furnish and install all laboratory countertops and backsplashes.
9. This Contractor is responsible to coordinate sizes and locations of framing, blocking, furring, reinforcement, etc. to ensure casework can be supported and installed as specified.
10. This Contractor is responsible to comply with all specified tolerances.
11. This Contractor is to furnish and install all glass and glazing required at casework items.
12. This Contractor is responsible to verify that air and surface temperature, moisture and humidity conditions are suitable for installation of this work.
13. The temporary building heat will be by others. This Contractor is to provide any supplemental heating, if required, to properly install this scope of work.
14. This Contractor is to furnish and install all sealants required for a complete installation of items included in this scope of work. Seal all casework as required between casework and any adjacent material.
15. This Contractor is to furnish and install protection on all casework surfaces until substantial completion of the project.
16. This Contractor is to furnish and install all grommets and escutcheons integral to this scope of work.
17. This Contractor is to remove all stickers and protective film at a time designated by the CM.
18. This Contractor is responsible for factory testing and field testing (including Chemical Spot Test), required by the Contract Documents.
19. This Contractor is to furnish and install all laboratory utility space framing including but not limited to pipe drop enclosures. Phased installation to be fully coordinated with the Mechanical / Electrical contractor. Steel is to be painted by this Contractor.
20. Provide necessary and complete structural support for snorkel.

21. Provide complete cylinder restraints including all uni-strut.
22. This Contractor is to furnish and install all steel framing and vertical & horizontal uni-strut necessary to support piping and conduit both above and below countertops and inside pipe chases/enclosures. **Furnish and install welded steel plates, channels and angles as noted in detail 3/lab1.1, typical.** Coordinate these supports with the Mechanical / Electrical contractors. **(Addendum 2)**
23. Furnish and install all accessories and connection necessary for complete installation of work. These include, but are not limited to aprons, curbs, filler pieces, panels, supports, channels, and brackets.
24. Provide factory installed cut-outs in all countertops and pipe chases coordinated with Mechanical / Electrical drawings and contractors. Field cut any openings not properly coordinated.
25. This Contractor is to furnish and install all laboratory fume hoods, shroud and other air containment units.
26. This Contractor is responsible to coordinate connection points with MEP drawings.

### **BIM/VDC REQUIREMENTS**

27. This Contractor shall model in 3D, the laboratory casework and fume hoods for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
28. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within six (6) weeks from award of this Contract. Please note the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
29. This Contractor shall be responsible for modeling of all laboratory casework and fume hoods as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Base cabinets
  - b. Wall cabinets
  - c. Islands
  - d. Pipe chases
  - e. Snorkels
  - f. Fume hoods
  - g. **In wall blocking and in wall supports (Addendum 2)**

### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

Allowance No. 1: Include the amount of \$7,500 for miscellaneous protection above what is specified in your scope.

END OF SECTION 01020

**SECTION 01020 – BID PACKAGE 14A – ELEVATOR (ADDED ADDENDUM 2)**

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	IN ITS ENTIRETY
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	IN ITS ENTIRETY
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SPECIFIC ELEVATOR ITEMS**

The scope below has been separated into sub-sections for clarity, but each line applies to this scope of work in its entirety. Furnish and install all required labor, equipment and materials to complete this project including, but not necessarily limited to, the following:

1. Provide hydraulic elevator complete, including rails, guides, cabs, enclosure, platform, doors, frames, hoist way entrances, pumps, equipment wiring, piping, controls, and accessories for complete function assembly.
2. Mobilize early to drill and install jack hole.
3. Furnish the elevator hoist beam to the steel contractor for installation.
4. Provide and install elevator door sill angles. Include grouting of sill angles.
5. Coordinate installation of work with mechanical, fire protection and electrical contractors.
6. Prior to commencement of work, elevator contractor shall inspect hoist way, hoist way openings, pit and machine room to verify dimension and supporting structures. Elevator contractor shall notify the CM of any dimension discrepancies.
7. Provide safety barricades and/or cables in and around the hoist way.
8. Provide all permits and fees required. City of Dover building permit shall be provided by the CM. Provide final inspections and licensing.
9. Provide all permits and inspections required for temporary use.
10. Provide all required elevator signage.
11. Provide hoist way access on top of cab for work required by other contractors and final inspection.
12. Provide 5 days of operator time to allow mechanical, fire protection and electrical contractors into hoist way to complete their work.
13. Provide 5 days of operator time for allow the general trades contractor to complete all work required in hoist way to complete their work.
14. Provide warranty and maintenance service as specified.
15. Elevator shall be turned over to the Construction Manager for construction use and will be operated by the Construction Manager.
16. Remobilize for final adjustments, remove all temporary controls and receive final Inspection.
17. Provide blankets to protect walls of cab.

### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

#### **Allowance No. 1:**

1. NONE.

END OF SECTION 01020

SECTION 01020 – BID PACKAGE 15A – HVAC, PLUMBING, BAS AND TAB **(REVISED ADDENDUM 2)**

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
02240	DEWATERING	IN ITS ENTIRETY
02510	WATER DISTRIBUTION	IN ITS ENTIRETY
02530	SANITARY SEWERAGE	IN ITS ENTIRETY
02630	STORM DRAINAGE	IN ITS ENTIRETY
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
05500	METAL FABRICATIONS	IN ITS ENTIRETY
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
06402	INTERIOR ARCHITECTURAL WOODWORK	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
11610	LABORATORY FUME HOODS	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
12310	LABORATORY SINKS AND FITTINGS	AS APPLICABLE
12345	LAB CASEWORK	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE

DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	IN ITS ENTIRETY
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	IN ITS ENTIRETY
APPENDICES		IN ITS ENTIRETY

#### **SPECIFIC PERFORMANCE REQUIREMENT ITEMS**

1. It is up to this Contractor's discretion to determine how many days and/or shifts, off-hours, etc. to work to maintain the project schedule and sequencing of work around a fully operating university campus.
2. This Contractor will need to closely coordinate with all trades onsite for a successful installation of this scope.
3. The CM reserves the right to modify the schedule as deemed necessary.
4. The preliminary bid schedule is attached. Any deviations from this schedule shall be addressed immediately. Any delays in the schedule caused by this Contractor **or its Subcontractors** must be made up at its own expense. **(Addendum 2)**
5. This Contractor shall coordinate the installation of the work described herein with, but not limited to, the Steel, Concrete, **General Trades**, Electrical, Plumbing, Elevator and Fire Protection contractors. **(Addendum 2)**
6. Provide multiple crews as necessary to complete work per the bid schedule and logistics plan located in the Contract Documents. This will require simultaneous work at various elevations and floors.

#### **SPECIFIC SCOPE ITEMS**

The scope below has been separated into sub-sections for clarity but each line applies to this scope of work in its entirety. Furnish and install all required labor, equipment and materials to complete this project including but not necessarily limited to the following:

#### **GENERAL HVAC, PLUMBING, BAS AND TAB ITEMS**

1. Include all overtime and premium expenses to meet the schedule including but not limited to long days, double shifts, weekend work, expediting material submittals (ESPECIALLY PLUMBING EQUIPMENT, SLEEVES AND LOG LEAD ITEMS), fabrication and deliveries.
2. This Contractor is required to thoroughly review the Duffield Associates soils report provided and include all costs associated with the existing site soil conditions including fill requirements and ground water impacts.
3. NO EXCAVATED SOILS WILL BE STOCKPILED ONSITE.
4. Protect and/or avoid all existing underground utility lines.
5. All trenches/excavations created by this Contractor will require continuous barricades installed on all sides of the trench/excavation EVERY NIGHT at the completion of your work. It does NOT matter that there is a fence around the entire site.
6. Provide any mucking and dewatering for excavations as required.
7. Layout for work included in this scope based off of control points provided by others.
8. This Contractor shall be responsible to maintain full access to the entire site including but not limited to all roads in and around the site. Work affecting this traffic flow must be coordinated and approved in advance by the CM and/or Owner.

9. Provide, maintain and remove all safety barricades, traffic controls, shoring, flagmen, etc. to comply with all safety practices required by OSHA, the State of Delaware, the CM, City of Dover and any agency having jurisdiction and as noted in the Contract Documents.
10. A seven (7) day advanced notice to the CM is required for any road closure and is subject to Owner approval.
11. Field modifications due to lack of coordination will be done at no cost to CM (uncoordinated items between trades does not entitle compensation for rework). There shall be no upcharge to re-route piping, duct or wiring, etc. of any kind (during the coordination stage) to accommodate the work of others.
12. This Contractor shall provide all coordination, layout, cutting, core-drilling and temporary protection of all wall, floor and roof penetrations required to complete this scope of work. Core-drilling and cutting of concrete shall be avoided at all costs (~~no core drilling through slabs~~). Provide all sleeves, patching and structural support systems that may be required around holes created by this Contractor. All coring or cutting of existing concrete must be approved by the structural engineer of record prior to commencing. If rebar is hit during core drilling, core drilling must stop and this Contractor shall properly remediate the bad core and move to a new location. **(Addendum ②)**
13. Center all pipe in pipe sleeves through walls, floors and ceilings.
14. This Contractor shall provide coordination with ~~Drywall~~ **general trades** contractor for wall penetrations. This Contractor must layout corridor and rated wall penetrations with the ~~Drywall~~ **general trades** contractor who will frame the walls. These trades should work together during wall framing to layout and frame all piping penetrations prior to hanging drywall. Any drywall "blowouts" as a result of not laying out penetrations with the Drywall contractor will be back charged to the respective contractor (inclusive of fire and/or acoustical caulking work).
15. The CM requires a five (5) day notice in writing prior to any testing.
16. Multiple mobilizations shall be required for this scope of work.
17. ~~This Contractor is required to coordinate with other trades where required.~~ **Stated above (Addendum ②)**
18. Prior to the start of work, verify existing conditions and elevations and report any discrepancies with the Contract Documents to the CM. Start of work shall constitute acceptance of such conditions.
19. The exact positions of plumbing devices shall be approved by the Architect, Engineer, and the Owner before installation of any rough-in.
20. It is the responsibility of this Contractor to provide its own access to areas of work. Scaffolding, ladders, and/or lifts will not be provided to you by the CM or others. Additionally, if this Contractor needs to work on top of any structure, this Contractor is required to confirm the structure is adequate to support the intended dead and live loads. Any damage caused by this Contractor will be the sole responsibility of this Contractor to remediate.
21. This Contractor is responsible for any crane picks and/or hoisting of material required to perform the work in this scope of work.
22. This Contractor shall be required to submit to the CM a detailed rigging plan for all equipment hoisting ~~over 2,000 lbs.~~ at least two (2) weeks prior to hoisting the equipment. This Contractor is responsible for their equipment and ALL lifting and rigging. **(Addendum ②)**
23. Provide all submittals including product data, material data sheets, shop drawings, samples and qualification statements as indicated in the Contract Documents.
24. Attached to the shop drawings, this Contractor is responsible for submitting a written outline of the proposed Sequence of Construction specifically outlining material delivery dates,

- mobilization dates, lay-down areas, means of motorized equipment egress, spoils management, projected starting point, projected finish dates, methods of flushing and testing.
25. This Contractor owns all flexible connections, fittings, additional supports, etc. to traverse all building expansion joints whether shown or not.
  26. This Contractor owns all trim plates, escutcheons, etc. to cover up any and all penetrations that will be seen through Architectural finishes.
  27. This Contractor and its Subcontractors are responsible to follow, at all times, the Indoor Air Quality Plan (Division 01 – Section 01410), system shut-down, safety orientation training and any other policies that the CM and/or Owner requires for a safe job.
  28. This Contractor owns delegated design for all seismic requirements associated with this scope of work. Refer to the Contract Documents for specific details.
  29. Testing and certification of mechanical and plumbing systems will be by this Contractor. Provide the CM with copies of all test reports and certifications. Make sure CM and Owner witness ALL tests.
  30. The date of commencement of ALL warranties will be the date of Substantial Completion regardless if the system has been started or utilized during construction.
  31. This Contractor shall be responsible to correct all defective work or work found not to be in accordance with the Contract Documents for a period of one (1) year after the date of Substantial Completion, or greater, depending on Contract Document requirements.
  32. This Contractor is responsible to provide all power required for the work within this Contract. If and when a temporary power source is provided, it will be the responsibility of this Contractor to have a backup power source in case the temporary service goes out.
  33. This Contractor shall provide daily cleanup of debris to the dumpster resulting from the work described herein.
  34. This Contractor is responsible to layout all housekeeping pads. Housekeeping pads will be formed and poured by the concrete contractor.
  35. This Contractor owns all sleeves for plumbing piping that enters or leaves the building. This Contractor also owns all details for structural support, waterproofing, link seal, etc. required by the Contract Documents at each location. **Provide to and assist concrete contractor in the installation of sleeves through all concrete. (Addendum 2)**
  36. Furnish and install all firestopping or sealing at all penetrations in floors, ceilings and walls for this scope of work as required by the Contract Documents and code, whichever is more stringent. ALL FIRE RATED PENETRATIONS MUST BE NUMBERED, DOCUMENTED, LOGGED AND ACCOMPANIED BY A 'UL' LABEL.
  37. This Contractor owns identification devices including labels, tags, etc. as required by the Contract Documents, local code and/or the Owner. A valve chart is required to be completed and turned over to the Owner at the end of the project.
  38. All piping, ductwork, equipment, etc. shall be shipped clean and stored with all open ends covered with plastic. At the end of EVERY DAY all items must be resealed so there is no open ends. This will be closely monitored by the CM. If the system or any duct is delivered without protection or protection is damaged and/or is found to be dirty it will be the Mechanical Contractor's responsibility to clean the duct at no additional cost to the project.
  39. This Contractor shall utilize welding blankets and shielding for all welding. **Provide a dedicated fire watch individual for all welding. (Addendum 2)**
  40. This Contractor shall store all materials off site and only stock what is needed for a one week duration.
  41. Weekly MEP "spotlight" meetings shall be required to be attended by the project manager in addition to site coordination meetings.

42. A full mock-up of the equipment mechanical ~~chase ceiling as shown in detail 5/a14.1~~ shall be required by this Contractor. All piping shall be installed 100% functional and shall be firm representation of the quality and craftsmanship that can be expected for the entire project inclusive of hangers, welds, insulation and fire caulk. Access shall be provided to the electrical and fire protection trades to install their work within the chase. Mock-up may be used in the final construction if possible. **(Addendum 2)**
43. This Contractor shall be responsible for providing a complete and operational system even if the Contract Documents are missing components or details.
44. VERY IMPORTANT: This Contractor shall review ALL Contract Documents for their scope of work. Specifically Mechanical, Plumbing, Electrical, Structural, Architectural, Furniture and Laboratory.
45. This Contractor shall submit a list of Subcontractors with the submission of the bid.
46. This Contractor shall submit in writing, within one (1) week of award of bid, delivery dates of all long lead items and their associated work. This Contractor shall review the Project Schedule and notify the CM immediately of any material long lead time conflicts that may occur. "Long Lead" is defined herein as any material requiring more than four (4) weeks to obtain after approved submittals. This Contractor to notify the CM, in writing, of any equipment, material, submittal or construction issues that may affect the Project Schedule.
47. Furnish, install, maintain and remove one (1) temporary mop sink on EACH level.
48. Furnish, install, maintain and remove one (1) temporary hose bibs on EACH level.
49. For general site cleanup, provide the services of one (1) laborer for 160 hours. The CM will supervise their daily tasks. The CM requests that the amount included in the bid be broken out and stated at time of scope review. The CM plans to convert this to a lump sum and track it as an allowance to be billed at the discretion of the CM on a T&M basis. See Allowance #1.
50. This Contractor shall furnish and install a complete plumbing system as shown on the Contract Documents. All items noted to be installed by this Contractor shall be furnished and installed completely including but not limited to domestic water piping, booster pumps. Sanitary waste, vent piping, sewage pumps, sump pumps, storm piping, plumbing fixtures, water coolers and insulation as required. Any parts or pieces required for each item shall be provided by this Contractor.
51. All draining or filling of piping systems is to be strictly coordinated with the CM. No draining or filling of systems will be allowed until approved by the CM.
52. This Contractor shall furnish and install all insulation required by the Contract Documents and governing energy codes. This includes all plumbing pipe and equipment provided under this scope of work. Insulation shall be fully adhered to all pipe, pumps, duct, etc. Provide rigid insulation capable of supporting the weight of the pipe when it is completely filled at all pipe supports and saddles. Do not use wood or plastic dowels to support the pipe. All insulation shall be continuous without penetrations or gaps. Seal ends of insulation. Tape or seal all insulation joints.
53. All equipment must be located and installed in accordance with the Contract Documents and all code requirements. Locate access doors for any equipment or valve that will require maintenance. Access doors for work performed under this scope of work shall be furnished by this Contractor and installed by others.
54. This Contractor shall furnish and install support members required for hanging pipes, fixtures, etc. This Contractor shall be responsible for above ceiling pipe hangers, anchors, racks, etc. Coordinate all in-wall blocking (installed by others) required to support items associated with this work. Any blocking that is installed after wall close-in will be the responsibility of this Contractor. This Contractor shall install all hangers PRIOR to fireproofing and spray insulation

- being applied. Any excessive damage to fireproofing by this Contractor will be patched and back charged to this Contractor in full.
55. All sanitary and storm piping shall be installed at a minimum slope required by code unless otherwise specified.
  56. This Contractor shall submit to the CM, monthly manpower and incident reports by the 5<sup>th</sup> of the following month. This Contractor shall submit these on behalf of their tiered Subcontractors as well.
  57. This Contractor shall furnish and install all condensate piping. Tie-in to the storm system is by this Contractor.
  58. This Contractor shall be responsible for all supports and final terminations of both end of each condensate line.
  59. Any area where proper fall on a condensate line cannot be achieved, it is the sole responsibility of this Contractor to install pumping and/or local alarms to pump the condensate to the nearest drain. All condensate routing must be coordinated thoroughly with other trades and shown on the BIM model.
  60. This Contractor shall furnish and install drip pans for all piping (installed under this scope) that is located over any equipment. This Contractor shall be responsible for this item whether identified on the drawings or not. All drip pans are to be piped by this Contractor to drains.
  61. This Contractor owns all trucking, tolls, fees, temporary storage, temporary protection and rigging necessary to install each piece of equipment. This also includes receiving and unloading, removal of all crating, blocking and packaging, protecting and installation of all material to make this equipment operate properly and installed per code (for example, if a pump requires low voltage wiring installed in the field, this Contractor is responsible to furnish and install this wiring).
  62. All equipment shall be shipped to the site well protected from the elements. It is this Contractor's sole responsibility to protect all equipment temporarily during construction.
  63. This Contractor shall furnish and rough set starters and VFD's with harmonic filters for equipment being furnished under this Contract. These will be wired by the electrician unless factory installed with the equipment.
  64. This Contractor shall own all means and methods to procure this equipment in order to meet the schedule. This includes any shipping splits, misc. connections etc. require to install the equipment.
  - ~~65. This Contractor shall provide the manufacturer's recommended maintenance on all equipment for one (1) full year from the date of Substantial Completion (except where specifically noted to the contrary). Coordinate with Owner to provide this maintenance as required. (Addendum 2)~~
  66. Review equipment suppliers "recommended installation procedures" to assure that design complies with manufacturer's space clearances and clearances established by the local authorities and the Owner for maintenance and service. Locate access doors at any equipment that will require maintenance.
  67. This Contractor shall touch-up all damaged to factory applied finishes.
  68. This Contractor shall own all field caulking of equipment **installed under this Contract** as required. **(Addendum 2)**
  69. This Contractor shall own all field testing as required by the Contract Documents.
  70. This Contractor shall assume that in tight areas, equipment will need to be installed temporarily in order for other trades to complete their work behind the equipment. This may require wood infill between housekeeping pads.

71. If this Contractor deviates from the basis of design, any additional costs (hidden or otherwise) will be the sole responsibility of this Contractor regardless if the deviation is approved by the Architect, Engineer or Owner. This includes but is not limited to increased electrical feeders and/or raceways, increased breakers and/or electrical panels, increased structural requirements, additional heating/cooling loads, added concrete, added BAS points, additional coordination, relocation of non-coordinated utilities, additional insulation, added testing, etc.
72. This Contractor owns all specification requirements for field and/or factory start-up/testing. All representative testing data shall be from a test performed within the past five (5) years if historical data is acceptable per the Contract Documents.
73. ALL supporting devices must be modeled in the BIM model.
74. All connections, permanent or temporary, shall be the responsibility of this Contractor.
75. This Contractor is responsible for maintaining the cleanliness of all mechanical spaces **and inside access compartments of the air handler**. This includes but is not limited to clear walkways and work areas, area broom swept twice daily, any and all water cleaned up daily and continual consolidation of materials per the direction of the CM. **(Addendum 2)**
76. Remove all stickers on materials furnished under this Contract.
77. It shall not be considered extra work to have to relocate this Contractor's or its Subcontractor's trailers or storage containers to make way for the progress of work. Jobsite trailers and offices must be maintained in a neat, orderly, respectful, professional and safe fashion both inside and out. The CM is not responsible for the security of this Contractor's equipment, trailers, materials, etc.
78. The full access to this Contractor's fabrication shop must be made available to the Construction Manager (CM), the Owner's representative and/or the designee for any and all inspections.

#### **MECHANICAL ITEMS**

79. This Contractor's scope of work shall include hydronic piping, all pumps (including freeze protection pumps), air handler, energy recovery wheels, fans, laboratory exhaust fans, boilers, heat exchangers, chiller, fan coil units, blower coil units, expansion tanks, buffer tank, air & dirt separators, air cooled condensing unit, split system air conditioning unit, electric unit heater, convection heaters, fin tube radiators, chilled beams, air volume control units, air terminal units, grilles, registers, diffusers, all metal and non-metal ductwork, flex duct plenums, dampers, back draft dampers, fire dampers, transfers, smoke dampers, combination fire/smoke dampers, duct silencers, transitions, turning vanes, duct reinforcement, connections, access doors, all insulation, supports for all work described herein and any other specialty equipment or hardware for this scope of work.
80. Furnish and install boiler flues, boiler intakes (with birdscreens).
81. Furnish and install welded galvanized duct for exhaust fans. Provide roof penetration curbs to roofing contractor to install in roof. Furnish and install any guy wires, anchors, sleeves, etc. for the exhaust fan stacks if required whether shown or not. Provide any adjustments as required after installation of fan stacks and roof. Coordinate with roofing contractor for all roof penetrations.
82. Furnish and install all refrigerant piping including but not limited to pipe, fittings, valves, test/fill ports, insulation, etc. Purge, dry and fill all refrigerant systems. Provide all refrigerant.
83. Furnish and install all inertia bases and springs. Adjust and level springs after system has been filled with water or glycol. Concrete to be placed by concrete contractor.
84. Furnish and install all spring and neoprene isolators as shown **on the Contract Documents** or required by the manufacturer of each piece of equipment. Adjust and level as necessary. **(Addendum 2)**

85. Verify that chiller control panel can communicate with the building BAS system via BACnet open protocol. Furnish and install any cards or adapters from the chiller manufacturer to allow seamless communication between the BAS and the chiller.
86. This Contractor shall furnish and install all airflow monitoring stations.
87. This Contractor owns all pre-filters, construction filters, end suction diffusers, temporary filter media, etc. Assume with the bid that the AHU will all need three sets of temporary filters.
88. This Contractor owns all final filters for all equipment supplied by this Contractor.
89. This Contractor will be responsible for all filters to be changed and units cleaned prior to turning over to the Owner or as required when using during the construction period. This Contractor shall be responsible for all temporary filter media to open ended ducts while AHU is running. These filters shall comply with the MERV ratings indicated on the Contract Documents and will be required to be changed frequently.
90. This Contractor shall provide and document field alignment and vibration readings for all pumps. This Contractor must comply with all scope specific vibration and acoustic requirements as detailed in the Contract Documents.
91. This Contractor shall be responsible for all supports necessary to complete this scope of work. This includes but is not limited to duct straps, back to back angle, beam clamps, shaft support steel, roof drain support steel, uni-strut, all-thread, in-wall blocking, curbs, etc. Furnish and install the equipment rails for the chiller. **These must be expedited for installation prior to the start of roofing work. (Addendum ②)**
92. This Contractor shall be responsible for above slab pipe hangers, anchors, steel supports and racks for all piping.
93. This Contractor shall furnish and install all support steel, etc. in the mechanical shafts to allow proper support of this scope of work. If other trades share the same shaft, this Contractor shall design their support system to be utilized by the electrical contractor and any other contractor that requires access to this space.
94. All support steel shall be painted and touched up at cuts and nicks in the field to avoid rust.
95. Any and all additional steel required for large piping in mechanical rooms is by this Contractor and must be coordinated with other trades and meet the Contract Documents and all manufacturer's recommendations for that complete system, i.e. flex connectors, pipe, equipment, seismic restraints, seismic connectors, etc.
96. This Contractor shall furnish and install a complete heating hot water and chilled water system.
97. This Contractor is required to have an adequate team of certified welders on site to maintain the project schedule.
98. This Contractor shall furnish and install all insulation for these systems as required by the Contract Documents. This includes ALL mechanical pipe and equipment as identified.
99. This Contractor shall furnish all testing, flushing and treatment of systems.
100. This Contractor shall furnish and install a complete HVAC water treatment system including coupon rack. System shall be flushed no less than five (5) times. Clean or replace pump strainers and filters after each complete flushing. Verify that bypass valve at chiller is open at all times during flushing to prevent flushing through chiller. Visually read gauges must be installed on all suction and discharge piping to all pumps prior to the start of flushing. Cycle through all pumps to provide even run time during flushing. Coordinate with Owner's water treatment contractor.
101. This Contractor shall be responsible for all valves and fittings. These items must be closely coordinated for location and maintenance access.
102. Provide all glycol for the mechanical system.

103. It can be expected that additional valves may be required to meet local code, design intent, and Owner design standards or maintenance requirements. Valves such as these are the responsibility of this Contractor.
104. This Contractor shall be responsible for all radiant heating. This Contractor shall field measure as early as possible to install these items. All radiant panels and/or finned tube must be protected from debris and damage after installation by this Contractor. All access panels (fire rated and non-fire rated), boiler drains, valves, insulation, etc. must be closely coordinated with the Owner and the Engineer for proper installation.
105. This Contractor shall be responsible for all sheet metal flashing at oversized duct penetrations.
106. The exact positions of duct and mechanical devices shall be approved by the architect, engineer, CM and Owner prior to installation of any rough-ins by this Contractor.
107. This Contractor shall furnish and install all final connections to laboratory exhaust fans.
108. This Contractor shall calibrate and program all laboratory exhaust fans and integrate into the BAS system. This Contractor shall be responsible for all Phoenix valves and associated controllers.
109. This Contractor shall be responsible for all duct cleaning as required by the Contract Documents.
110. This Contractor shall own all identification of duct per the Contract Documents.
111. This Contractor must comply with SMACNA and NAIMA for duct installations.
112. This Contractor shall install all smoke detectors furnished by the electrical contractor.
113. This Contractor shall be responsible for creating a temporary heating/condition plan. It will be the responsibility of this Contractor to provide temporary air conditioning to maintain the minimum temperature and humidity requirements for building finishes from October 2014 until March 2015. This plan cannot utilize the new air handling unit unless specifically authorized to do so by the CM and the engineer.
114. If temporary heating and air conditioning units are used, they must be set up so that a fire watch is not necessary. If a fire watch is necessary, it will be the responsibility of this Contractor.
115. Provide alternate cost as required for Alternate #10. There may also be other alternates that affect this Contractor's bid.

#### **DOMESTIC WATER ITEMS**

116. The sitework contractor owns installing the incoming domestic water service to within five (5') feet of the building footprint (or overhang). This Contractor owns installing all piping for the domestic water system from this point inward.
117. This Contractor owns all excavation, sleeves, core drilling and patching, waterproofing, link seal, thrust block, piping, flushing and testing and backfill for the incoming service.
118. This Contractor shall furnish and install all fixtures including but not limited to: water closets, urinals, lavatories, counter-top sinks, showers, emergency showers, eye-wash stations, mop receptors and drinking fountains.
119. Laboratory and solid surface sinks (integrated bowls) shall be furnished and installed by others. This Contractor shall furnish to the casework contractor a template and a sample of the approved fixture to be installed in each application. This must happen prior to fabrication of all integrated bowl sinks. This sample will be in addition to the quantity required to be installed in the field.
120. This Contractor is responsible for caulking around all plumbing fixtures.
121. This Contractor shall furnish and install all hose bibs and wall hydrants as shown on the Contract Documents.
122. Furnish and install water purification system including but not limited to piping, fittings, valves, manifolds, storage tanks, washer distribution kits, etc.

123. Furnish and install water lines to refrigerator ice machine, dishwasher and coffee maker. Appliances to be furnished and installed by Owner. Coordinate for proper layout, size and connections. See detail 3/p5.0.

#### **SANITARY & STORM ITEMS**

124. This Contractor shall furnish and install the storm and sanitary piping system within the building including piping, cleanouts and fittings within five (5') feet of the building footprint (or overhang). The sitework contractor shall install these systems beyond this point. Coordinate with others as required.
125. Furnish, install, maintain and remove temporary storm drains until permanent drains have been installed and tied into the system.
126. This Contractor shall furnish and install all floor drains and floor sinks whether required for the sanitary or storm system tie-in.
127. This Contractor shall set all floor drains, floor sinks, trench drains, cleanouts, etc. to the proper elevation prior to every slab pour and allow for future adjustment. This Contractor shall also furnish a foreman to witness all slab pours to ensure the proper elevation of each item is maintained during the pour or for potential adjustment necessary during the slab pour. Provide protection of all fixtures to prevent concrete stains and residue. Remove and clean temporary protection including any residues from tape **to a like-new finish. (Addendum 2)**
128. This Contractor shall furnish and install all roof drains (primary and overflow) including but not limited to support steel, bolts, roof caps, etc. Coordinate roof penetrations with the roofing, concrete and steel contractors. **This Contractor shall complete the RWC piping/riser installation, including tie-in to site storm system prior to completion of roof. If piping system is not complete, this Contractor shall furnish and install temporary means of transmitting rain water from roof to site storm system. (Addendum 2)**
129. This Contractor shall furnish and install the downspout boot and cast iron cover box as well as interior storm piping, Exterior mounted gutters and downspouts are furnished and installed by the roofing contractor.
130. This Contractor shall furnish and install all trap priming piping and trap priming panels.
131. Furnish and install neutralization tanks including but not limited to tanks, piping, fittings, valves, manifolds, etc. All piping shall be acid resistant.

#### **NATURAL AND LABORATORY GAS ITEMS**

132. This Contractor shall furnish and install all gas piping. Gas installation by this Contractor will be begin at the service meter which will be installed by the gas utility company. This Contractor shall furnish and install all components including but not limited to piping, hangers, valves, meters (other than outside gas meter), reducing valves, etc.
133. Furnish and install all natural gas including but not limited to piping, drops, fittings, valves, manifolds, etc. to the laboratories. Coordinate with lab equipment contractor for proper layout and locations.
134. Furnish and install all nitrogen lines including but not limited to piping, drops, fittings, valves, manifolds, etc. to the laboratories. Coordinate with lab equipment contractor for proper layout and locations.
135. Furnish and install all hydrogen, oxygen, carbon, nitrogen and argon cylinder tank utility boxes and dispensing stations. Tanks and gas shall be provided by the Owner's selected vendor.
136. Furnish and install all vacuum piping including but not limited to piping, drops, fittings, valves, manifolds, etc. to the laboratories.

**PLUMBING EQUIPMENT ITEMS**

137. This Contractor shall furnish and install plumbing equipment including but not limited to the following:
- a. Domestic water booster pump
  - b. Sump pump
  - c. Gas water heater
  - d. Hot water circulating pump
  - e. Backflow preventers
  - f. Mixing valves

**BUILDING AUTOMATION SYSTEM (BAS)**

138. This Contractor shall be responsible to furnish and install all new DDC (with electric actuation) BAS components and devices to provide for a complete, integrated and fully functional control system as described in the Contract Documents. This shall include all shop drawings, submittals, materials, equipment and labor required to provide a complete and operating system including but not limited to: controllers, sensors, electronic analog sensors, pressure sensors, static pressure analog sensors, differential pressure analog sensors, dew point and relative humidity sensors, condensation sensors, thermostats, pressure controllers, electric pressure switches, **relays**, dampers, automatic valves, electric actuators, flow sensors, occupancy sensors, CO2 sensors, airflow measurement systems (airflow monitors), BTU meters, AHU ventilation reset controls, automatic (water) valves, air flow measuring stations, dampers, water flow meters, temperature wells, raceways and wiring, control panels and cabinets, system diagrams and identification for automatic control systems. Low voltage wiring above drop-in tile ceilings shall be installed exposed and as a plenum-rated cable. Wiring in mechanical rooms or that would be exposed shall be installed in EMT type conduit. All outdoor wiring shall be installed in rigid type conduit. All new DDC automatic control systems work shall interface with the existing campus-wide Energy Management Control System (EMCS). This EMCS is a web-based system with an open-protocol communication platform. All major mechanical equipment (chiller, boilers, AHU, pumps, etc.) as well as all air terminal units, fans, etc. within the building shall be capable of being controlled and/or monitored locally at the building as well as through the campus-wide EMCS. **(Addendum 2)**
139. This Contractor shall review and verify that the Contract Documents accurately represent the HVAC, plumbing, electrical and lighting systems with respect to location, quantity, size, etc. Ensure that all automatic control system components to be supplied under this scope of work are complete in every respect for complete operation of the new system.
140. Coordinate with other trades for the location of all BAS components and devices within mechanical rooms and above ceilings, including interfacing with BIM documents. Any conflicts must be resolved prior to the start of work. All components and devices must be located in accordance with the Contract Documents and code requirements. All BAS control panels shall be shown on the BIM model with block-outs for access areas.
141. Furnish and install conduit and conductors to generator control panel for BAS control and monitoring. Coordinate with electrical contractor. It is suggested these be installed in the same duct bank for power to the generator. See e3.2.
142. Coordinate with and provide timely access for Testing and Balancing contractor (under this Contract) to make required BAS readings, measurements and adjustments for the proper HVAC system operation.
143. Identification, tagging, signage, etc. for the BAS shall be provided as specified and/or per the requirements of the local inspector.

144. Furnish access doors as required for the BAS work, to be installed by others. Identify locations for these doors.
145. Furnish and install all miscellaneous metal or **fire rated** lumber support framing or **plywood** for the BAS components. **(Addendum 2)**
146. Perform inspections and tests as required by the Contract Documents and/or local authorities and obtain the necessary sign-offs to allow for ceiling and wall close-ups and Project Substantial Completion. This shall include fire alarm interface testing.
147. Furnish spare BAS components as may be required by the Contract Documents.
148. Furnish and install all BAS workstations and printers.
149. Create and provide graphics for all systems tied into, controlled by or that interact with the BAS system.
150. Provide all end switches, dry contacts, soft and hard wired interlocks. This shall be irrespective of whether or not equipment was furnished with the required devices for monitoring and controlling.
151. Furnish all labor and equipment to tie into and program the lighting control panel. Panel to be furnished and installed by the electrical contractor. Coordinate with lighting control panel manufacturer through the electrical contractor as required.
152. Tie into electric meter and provide all monitoring through BAS. See e3.1.
153. Furnish and install all field mounted devices as required for a fully functioning BAS system as detailed in the Contract Documents.
154. Fire alarm addressable relays shall be furnished and installed by the electrical contractor as indicated on the Contract Documents.
155. Provide all programming for a fully functioning BAS system. Note that BACnet (chiller, pumps, air handler, lab airflow control system, lighting control panels) and MODbus (boilers, electrical power) protocols must be used as indicated on the Contract Documents.
156. Furnish, install and program the boiler plant master control panel. Furnish and install the boiler kill switch(es). Coordinate with the fire marshal to ensure location and quantity are sufficient. All wiring and conduit between kill switch(es) and boiler master control panel are by this Contractor.

#### **TESTING AND BALANCING (TAB)**

157. This Contractor shall provide all Testing and Balancing of all MEP systems.
158. TAB scope shall include but not be limited to mechanical submittal review, progress inspections, warranty, vibration measurement, smoke control testing, indoor air quality measurement, witnessing of duct leakage tests and reporting.
159. This Contractor is to perform all work related to specification Section 15950 Testing, Adjusting and Balancing for HVAC:
  - a. Perform a pre-construction review of the sheet metal shop drawings to review the location of balancing dampers. This review will have to occur concurrently with the BIM/VDC coordination.
  - b. Perform all work as designed by the mechanical engineer.
  - c. Change sheaves and belts as required. Include six sheave changes (labor and material) in the base bid.
  - d. Adjust dampers, VAV/VSC boxes, leak testing, etc.
  - e. Submit testing and balancing reports two weeks after completion of the work.
160. In wall or above ceiling insulation must be reinstalled and/or replaced by this Contractor when disturbed during the installation of work associated with this Contract.
161. Provide five (5) days' notice prior to shutdown of any system on site or within the building.

162. Penetrations through walls that have already been constructed and/or finished will be the responsibility of this Contractor to repair.
163. If this work is subcontracted out, provide all coordination between mechanical, plumbing and electrical trades as required to complete this scope of work.
164. Incorporate the electrical scope of work and Specification Division 16 as a secondary requirement for general scope, basic materials and coordination.
165. All of the building's equipment will be utilized during construction. All guarantees and warranties must be extended as needed so as not to diminish those required by the Contract Documents for the Owner at final acceptance.

#### **BIM/VDC REQUIREMENTS**

166. This Contractor shall model in 3D, the mechanical and plumbing systems for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in the front end documents Division 01 – Section 01315.
167. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within seven (7) weeks from award of this Contract. Please note the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
168. This Contractor shall be responsible for modeling of a complete mechanical and plumbing system as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Foundation sleeve and slab rough-in
  - b. Above grade slab and wall penetrations/sleeves
  - c. Overhead, in-wall, in-slab and under-slab piping including cleanouts, valves, etc.
  - d. Ductwork
  - e. Piping and ductwork support including hangers, racks and rods, **in wall blocking (Addendum ②)**
  - f. All access areas required for maintenance must be modeled as a solid
  - g. **Access panels (Addendum ②)**
  - h. Miscellaneous support steel to be installed by this Contractor.
  - i. Equipment room layout
  - j. Mechanical and plumbing equipment (including means and methods for installation)
    - i. All equipment to be installed under this Contract shall be accurately inserted in the model. It is preferred that this Contractor contact the manufacturer for a model of the exact piece of the equipment. If a model is not available, this Contractor shall model the equipment accurately showing the important parts including access, connection points, etc.
  - k. Plumbing fixtures, drains, floor sinks, trenches, roof drains, etc.
  - l. Shaft and riser drawings
  - m. Modeled elements shall represent the exact size, shape, location and orientation of the represented material.
    - i. Include all connection details including anchor bolts, plates, etc.
169. This Contractor shall be responsible for coordinating, compiling, creating and printing/plotting in color the Trade Coordination Drawings (TCD's) for submission to the design team. This includes creating a project specific title block with all coordination files overlaid to be shown on each sheet. Each sheet will show a certain area of the building that is agreed by all parties to be

coordinated and ready for sign-off. Refer to section 11 for the VDC Project Execution Plan Division 01 – Section 01315.

- a. Coordination drawings will include but not be limited to:
  - i. Structural concrete
  - ii. Structural steel
  - iii. Miscellaneous metals
  - iv. Foundation sleeve and slab rough-in
  - v. Elevated slabs on deck
  - vi. Above grade slab and wall penetration/sleeves
  - vii. Overhead plumbing
  - viii. Overhead mechanical and fire protection piping
  - ix. RCP – finish ceiling heights and types
  - x. Duct work
  - xi. Equipment room layout
  - xii. Shaft and riser drawings
  - xiii. In-slab and below grade piping
  - xiv. Laboratory equipment and casework

#### **COMMISSIONING (Cx) COORDINATION**

170. Provide start-up, testing and commissioning of all mechanical and plumbing equipment by factory representatives who is **NOT** a field labor supervisor (i.e. not a foreman, general foreman or superintendent). Notify the CM in writing a minimum of ten (10) days prior to any start-up, testing and commissioning operations. This applies to all equipment under this scope of work.
171. Start-up – The following sequence shall be followed for the startup of every system controlled by this scope of work. The CM will generate a schedule for all Cx activities with input from the Engineer and Owner which shall be issued at a later date during construction.
  - a. Checklists shall be completed by the Contractor and verified by the CM.
  - b. Pre-functional Acceptance Tests shall be completed by this Contractor and verified by the CM (FAT's without client).
  - c. Functional Acceptance Test with client shall be performed. The FAT document details all the tests to be performed dated **TBD** is part of this agreement.
172. This Contractor shall keep a three ring binder with tabs for each piece of equipment. This binder shall include all start-up reports, inspections and FAT documents. A copy will be required for the CM. Copies of documents to be inserted will be provided to the CM as they are completed. This is in addition to the electronic copies required in the Cx specifications.
173. This Contractor shall be responsible for requirements in the Cx specifications. The Owner will provide a separate Cx agent that this Contractor will work with during the Cx process. This Contractor will assist the Cx Agents with ladders, keys, tools, etc.
174. This Contractor will meet with the Cx Agent for a kick-off meeting prior to starting work onsite. Commissioning meetings will be held on a monthly basis and require this Contractor's attendance. These meetings may happen more frequently if necessary.

#### **CLOSEOUT DOCUMENTS**

175. Cooperate fully with CM as a Completion List is generated and completed. This is NOT a punch list, but will be used to generate the Punch List if all items have not been completed. Contractor is to dutifully work to complete all items on the Completion List in a timely manner.
176. All closeout documentation including completion of Punch Lists, As-Built Drawings, Operation and Maintenance Manuals, Final Releases and Guarantees and Warranties must be submitted

within fifteen (15) calendar days of completion of this scope of work or date of Substantial Completion (whichever date is earlier). Failure to submit all documentation within this time frame will result in penalties of \$500/calendar day until all documentation is received.

177. This Contractor shall provide all documentation required by the Owner.
178. This Contractor shall comply with the Contract Documents with respect to Owner training. Include all costs for a factory representative as required and time to have the training.
179. **Provide a valve chart. (Addendum ②)**
180. Labeling of grid at all above ceiling equipment, ACV's, exhaust fans, valves, access doors, etc.

#### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work

#### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

1. Allowance #1 – Include in the bid a quantity of 160 hours of one (1) laborer. CM may request additional laborers. To be paid for T&M using unit prices.
2. Allowance #2 – Include in the bid a lump sum of \$20,000 for the purpose of temporary heating and cooling to be dictated by the CM. To be paid for T&M using unit prices.

END OF SECTION 01020

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SECTION 01020 – BID PACKAGE 15B – FIRE PROTECTION (REVISED ADDENDUM 2)

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
02240	DEWATERING	IN ITS ENTIRETY
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
05500	METAL FABRICATIONS	IN ITS ENTIRETY
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
15141	MECHANICAL SUPPORTING DEVICES – PLUMBING	IN ITS ENTIRETY
15303	AUTOMATIC WET-PIPE SPRINKLER SYSTEM	IN ITS ENTIRETY
15322	ELECTRIC MOTOR DRIVEN CENTRIFUGAL FIRE PUMPS	IN ITS ENTIRETY
DIVISION 16	ELECTRICAL	AS APPLICABLE
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SPECIFIC PERFORMANCE REQUIREMENT ITEMS**

1. It is up to this Contractor's discretion to determine how many days and/or shifts, off-hours, etc. to work to maintain the project schedule and sequencing of work around a fully operating university campus.
2. This Contractor will need to closely coordinate with all trades onsite for a successful installation of this scope.
3. The CM reserves the right to modify the schedule as deemed necessary.
4. The preliminary bid schedule is attached. Any deviations from this schedule shall be addressed immediately. Any delays in the schedule caused by this Contractor **or its Subcontractors** must be made up at its own expense. **(Addendum 2)**
5. This Contractor shall coordinate the installation of the work described herein with, but not limited to, the Steel, Concrete, **General Trades**, Mechanical, Electrical, Plumbing and Elevator contractors. **(Addendum 2)**
6. Provide multiple crews as necessary to complete work per the bid schedule and logistics plan located in the Contract Documents. This will require simultaneous work at various elevations and floors. Certain areas of the building may require work to be accomplished in an urgent pace and will be the responsibility of this Contractor to provide materials and labor for those areas as needed.

### **SPECIFIC FIRE PROTECTION SCOPE**

The scope below has been separated into sub-sections for clarity but each line applies to this scope of work in its entirety. Furnish and install all required labor, equipment and materials to complete this project including but not necessarily limited to the following:

### **GENERAL ITEMS**

1. Include all overtime and premium expenses to meet the schedule including but not limited to long days, double shifts, weekend work, expediting material submittals (ESPECIALLY FIRE PUMP AND LONG LEAD ITEMS), fabrication and deliveries.
2. This Contractor is required to thoroughly review the Duffield Associates soils report provided and include all costs associated with the existing site soil conditions including fill requirements and ground water impacts.
3. NO EXCAVATED SOILS WILL BE STOCKPILED ONSITE.
4. Protect and/or avoid all existing underground utility lines.
5. All trenches/excavations created by this Contractor will require continuous barricades installed on all sides of the trench/excavation EVERY NIGHT at the completion of your work. It does NOT matter that there is a fence around the entire site.
6. Layout for work included in this scope based off of control points provided by others.
7. This Contractor shall be responsible to maintain full access to the entire site including but not limited to all roads in and around the site. Work affecting this traffic flow must be coordinated and approved in advance by the CM and/or Owner.
8. Provide, maintain and remove all safety barricades, traffic controls, shoring, flagmen, etc. to comply with all safety practices required by OSHA, the State of Delaware, the CM, City of Dover and any agency having jurisdiction and as noted in the Contract Documents.
9. A seven (7) day advanced notice to the CM is required for any road closure and is subject to Owner approval.
10. Field modifications due to lack of coordination will be done at no cost to CM/Owner (uncoordinated items between trades does not entitle compensation for rework). There shall be

- no upcharge to re-route piping, duct or wiring, etc. of any kind (during the coordination stage) to accommodate the work of others.
11. This Contractor shall provide all coordination, layout, cutting, core-drilling and temporary protection of all wall, floor and roof penetrations required to complete this scope of work. Core-drilling and cutting of concrete shall be avoided at all costs (~~no core drilling through slabs~~). Provide all sleeves, patching and structural support systems that may be required around holes created by this Contractor. All coring or cutting of existing concrete must be approved by the structural engineer of record prior to commencing. If rebar is hit during core drilling, core drilling must stop and this Contractor shall properly remediate the bad core and move to a new location. **(Addendum 2)**
  12. Plywood covered floor penetrations must be fastened to the slab.
  13. Center all pipe in pipe sleeves through walls, floors and ceilings. **Assume all heads to be centered within 2'x2' tiles unless noted otherwise in the Contract Documents. (Addendum 2)**
  14. This Contractor shall provide coordination with ~~Drywall~~ **general trades** contractor for wall penetrations. This Contractor must layout corridor and rated wall penetrations with the ~~Drywall~~ **general trades** contractor who will frame the walls. These trades should work together during wall framing to layout and frame all piping penetrations prior to hanging drywall. Any drywall "blowouts" as a result of not laying out penetrations with the ~~Drywall~~ **general trades** contractor will be back charged to the respective contractor (inclusive of fire and/or acoustical caulking work). **(Addendum 2)**
  15. The CM requires a five (5) day notice in writing prior to any testing.
  16. Multiple mobilizations shall be required for this scope of work.
  17. This Contractor is required to coordinate with other trades where required.
  18. Prior to the start of work, verify existing conditions and elevations and report any discrepancies with the Contract Documents to the CM. Start of work shall constitute acceptance of such conditions.
  19. The exact positions the fire pump, main risers, horizontal mains and sprinkler drops shall be approved by the Architect, Engineer, and the Owner before installation of any rough-in.
  20. It is the responsibility of this Contractor to provide its own access to areas of work. Scaffolding, ladders, and/or lifts will not be provided to you by the CM or others. Additionally, if this Contractor needs to work on top of any structure, this Contractor is required to confirm the structure is adequate to support the intended dead and live loads. Any damage caused by this Contractor will be the sole responsibility of this Contractor to remediate.
  21. This Contractor is responsible for any crane picks and/or hoisting of material required to perform the work in this scope of work.
  22. This Contractor shall be required to submit to the CM a detailed rigging plan for all equipment hoisting over 2,000 lbs. at least two (2) weeks prior to hoisting the equipment. This Contractor is responsible for their equipment and ALL lifting and rigging.
  23. Provide all submittals including product data, material data sheets, shop drawings, samples and qualification statements as indicated in the Contract Documents.
  24. Attached to the shop drawings, this Contractor is responsible for submitting a written outline of the proposed Sequence of Construction specifically outlining material delivery dates, mobilization dates, lay-down areas, means of motorized equipment egress, spoils management, projected starting point, projected finish dates, methods of testing.
  25. This Contractor owns all flexible connections, fittings, additional supports, etc. to traverse all building expansion joints whether shown or not.

26. This Contractor owns all trim plates, escutcheons, etc. to cover up any and all penetrations that will be seen through Architectural finishes.
27. This Contractor and its Subcontractors are responsible to follow, at all times, the Indoor Air Quality Control Plan (**see Section 01410**), system shut-down, safety orientation training and any other policies that the CM and/or Owner requires for a safe job. (**Addendum 2**)
28. This Contractor is responsible for all research required for shutdowns and tie-ins prior to submitting a shutdown request to the CM. All associated information must be written on the request form and submitted two (2) weeks in advance of the required shutdown. Upon receipt of approval from the Owner, shutdowns/outages shall be performed on premium time between the hours of 6 P.M. and 6 A.M. and/or Saturday or Sunday unless otherwise directed in the field and shall be accomplished as part of the base bid. Outages will not require additional compensation from the CM.
29. This Contractor owns delegated design for all seismic requirements associated with this scope of work. Refer to the Contract Documents for specific details. All hangers and supports must meet the seismic requirements of the project.
30. Testing and certification of fire protection system will be by this Contractor. Provide the CM with copies of all test reports and certifications. Make sure CM and Owner witness ALL tests. Perform any engineering/PE certifications as specified or required.
31. The date of commencement of ALL warranties will be the date of Substantial Completion regardless if the system has been started or utilized during construction.
32. This Contractor shall be responsible to correct all defective work or work found not to be in accordance with the Contract Documents for a period of one (1) year after the date of Substantial Completion, or greater, depending on Contract Document requirements.
33. This Contractor is responsible to provide all power required for the work within this Contract. If and when a temporary power source is provided, it will be the responsibility of this Contractor to have a backup power source in case the temporary service goes out.
34. This Contractor shall provide daily cleanup of debris to the dumpster resulting from the work described herein.
35. This Contractor is responsible to layout all housekeeping pads. Housekeeping pads will be formed and poured by the concrete contractor.
36. This Contractor owns all sleeves for fire protection piping that enters or leaves the building. This Contractor also owns all details for structural support, waterproofing, link seal, etc. required by the Contract Documents at each location.
37. Furnish and install all firestopping or sealing at all penetrations in floors, ceilings and walls for this scope of work as required by the Contract Documents and code, whichever is more stringent. ALL FIRE RATED PENETRATIONS MUST BE NUMBERED, DOCUMENTED, LOGGED AND ACCOMPANIED BY A 'UL' LABEL.
38. This Contractor owns identification devices including labels, tags, etc. as required by the Contract Documents, local code and/or the Owner. Provide and install labels on any ceiling identifying above ceiling concealed devices. A valve chart is required to be completed and turned over to the Owner at the end of the project.
39. This Contractor shall store all materials off site and only stock what is needed for a one week duration.
40. Weekly MEP "spotlight" meetings shall be required to be attended by the project manager in addition to site coordination meetings.
41. A full mock-up of the equipment mechanical ~~chase ceiling as shown in detail 5/a~~**14.1** shall be built by the mechanical contractor. This contractor will need to coordinate with mechanical contractor and any other applicable party to install sprinkler pipe mains, branches and sprinkler

- drops. This work may occur off site at a location determined by the mechanical contractor. All work shall be installed 100% functional and shall be firm representation of the quality and craftsmanship that can be expected for the entire project inclusive of hangers and fire caulk. Mock-up may be used in the final construction if possible. **(Addendum 2)**
42. This Contractor shall be responsible for providing a complete and operational system even if the Contract Documents are missing components or details.
  43. VERY IMPORTANT: This Contractor shall review ALL Contract Documents for their scope of work. Specifically Mechanical, Plumbing, Electrical, Structural, Architectural, Furniture and Laboratory.
  44. Incorporate the mechanical, plumbing and electric scope of work and specification division 15 and 16 as a secondary requirement for general scope, basic materials and coordination.
  45. This Contractor shall submit a list of Subcontractors with the submission of the bid.
  46. This Contractor shall submit in writing, within one (1) week of award of bid, delivery dates of all long lead items and their associated work. This Contractor shall review the Project Schedule and notify the CM immediately of any material long lead time conflicts that may occur or that may affect the Project Schedule. "Long Lead" is defined herein as any material requiring more than four (4) weeks to obtain after approved submittals.
  47. This Contractor shall furnish and install support members required for hanging equipment, mains and branches, etc. This Contractor shall be responsible for above ceiling pipe hangers, anchors, racks, etc. Coordinate all in-wall blocking (installed by others) required to support items associated with this work. Any blocking that is installed after wall close-in will be the responsibility of this Contractor. This Contractor shall install all hangers PRIOR to fireproofing and spray insulation being applied. Any excessive damage to fireproofing by this Contractor will be patched and back charged to this Contractor in full.
  48. This Contractor shall submit to the CM, monthly manpower and incident reports by the 5<sup>th</sup> of the following month. This Contractor shall submit these on behalf of their tiered Subcontractors as well.
  49. This Contractor owns all trucking, tolls, fees, temporary storage, temporary protection and rigging necessary to install each piece of equipment. This also includes receiving and unloading, removal of all crating, blocking and packaging, protecting and installation of all material to make this equipment operate properly and installed per code (for example, if a pump requires low voltage wiring installed in the field, this Contractor is responsible to furnish and install this wiring).
  50. All pipe, equipment, devices, etc. shall be shipped to the site well protected from the elements. It is this Contractor's sole responsibility to protect all equipment temporarily during construction.
  51. This Contractor shall own all means and methods to procure this equipment in order to meet the schedule. This includes any shipping splits, misc. connections etc. require to install the equipment.
  - ~~52. This Contractor shall provide the manufacturer's recommended maintenance on all equipment for one (1) full year from the date of Substantial Completion (except where specifically noted to the contrary). Coordinate with Owner prior to performing any maintenance. (Addendum 2)~~
  53. Review equipment suppliers "recommended installation procedures" to assure that design complies with manufacturer's space clearances and clearances established by the local authorities and the Owner for maintenance and service. Locate access doors at any equipment that will require maintenance.
  54. This Contractor shall touch-up all damaged to factory applied finishes.
  55. This Contractor shall own all field caulking of equipment as required.

56. This Contractor shall own all field testing as required by the Contract Documents and any Authority Having Jurisdiction.
57. This Contractor shall assume that in tight areas, equipment will need to be installed temporarily in order for other trades to complete their work behind the equipment. This may require wood infill between housekeeping pads.
58. If this Contractor deviates from the basis of design, any additional costs (hidden or otherwise) will be the sole responsibility of this Contractor regardless if the deviation is approved by the Architect, Engineer or Owner. This includes but is not limited to increased branch lines, increased mains, hard pipe in lieu of flex lines, increased structural requirements, added concrete, additional coordination, relocation of non-coordinated utilities, added testing, etc.
59. This Contractor owns all specification requirements for field and/or factory start-up/testing. All representative testing data shall be from a test performed within the past five (5) years if historical data is acceptable per the Contract Documents.
60. ALL supporting devices must be modeled in the BIM model.
61. All connections, permanent or temporary, shall be the responsibility of this Contractor.
62. This Contractor is responsible for maintaining the cleanliness of all mechanical and electrical spaces. This includes but is not limited to clear walkways and work areas, area broom swept twice daily, any and all water cleaned up daily and continual consolidation of materials per the direction of the CM.
63. Remove all stickers on work installed under this Contract.
64. Provide final cleaning of work installed under this Contract.
65. Furnish and install one wall mounted sprinkler head cabinet to store two of each type of sprinkler head used including wrench.
66. It shall not be considered extra work to have to relocate this Contractor's or its Subcontractor's trailers or storage containers to make way for the progress of work. Jobsite trailers and offices must be maintained in a neat, orderly, respectful, professional and safe fashion both inside and out. The CM is not responsible for the security of this Contractor's equipment, trailers, materials, etc.
67. Contractor shall have inspections by local jurisdictions and authorities scheduled as to meet the project schedule.
68. Contractor shall provide the CM with any and all schedules needed to perform said Contractor's work. Detail of the schedule will be that of the discretion of the CM.
69. This Contractor shall provide all engineering, design, calculations and drafting required to provide a complete operating fire protection system in accordance with Contract Documents, local governing authorities and the Owner's insurance carrier. The entire design must be stamped and approved by the fire marshal/authority having jurisdiction/FM Global.
70. This Contractor shall make sure all sprinkler pipe is prepared to receive paint in areas without a ceiling. Make sure that all exposed piping marred or damaged during installation is brought back to the original factory finish for the painting contractor. Completely clean grease and/or cutting oils off all pipe to be painted. Painting of pipe shall be by others.
71. This Contractor shall coordinate with and provide the electrical contractor a list of each sprinkler valve tag number and label installed by this Contractor. Coordinate the installation and wiring of flow switches and tampers with the electrical contractor.
72. This Contractor shall provide all contacts required by the fire alarm contractor for both hardwired as well as remote monitoring.
73. Furnish a single point of electrical connection for all new equipment.
74. Protect all surfaces when threading and cutting pipe. Surfaces to be protected include concrete floors.

75. Provide and install sprinkler protection caps for all sprinkler heads to guard against damage and paint.
76. This Contractor shall furnish and install a new fire pump with controller and automatic transfer switch.
77. Furnish and install a dry system in the overhang (noted D-1, f1.1).
78. Furnish and install a complete fire protection system including but not limited to all pipe (mains and branches), fittings, valves, FDC connections, stand pipes, tampers, flow switches, flow indicating devices, drains, check valves, backflow preventers, flex pipe, sprinkler drops and sprinklers.
79. Provide disconnects, starters and/or VFD's for equipment being furnished by this Contractor. Coordinate with specifications and electrical scope. This Contractor shall rough set starters and VFD's which shall be powered by the electrical contractor.
80. Perform a new flow test. Report results to CM, Engineer and/or Authority Having Jurisdiction.
81. This Contractor shall provide and document field alignment and vibration readings for all pumps. This Contractor must comply with all scope specific vibration and acoustic requirements as detailed in the Contract Documents.
82. The sitework contractor shall install the fire service line to within five (5) feet of the building (**or overhang**). This Contractor shall install all piping for the fire protection system from this point inward. **(Addendum 2)**
83. This Contractor owns all excavation, sleeves, core drilling and patching, waterproofing, link seal, thrust block, piping, flushing and testing and backfill for the incoming service.
84. This Contractor shall be responsible for all supports necessary to complete this scope of work. This includes but is not limited to duct straps, back to back angle, beam clamps, shaft support steel, roof drain support steel, uni-strut, all-thread, in-wall blocking, curbs, etc.
85. Any and all additional steel required for large piping is the responsibility of this Contractor and must be coordinated with other trades. All additional supports must meet the requirements of the Contract Documents and all manufacturer's recommendations for that complete system (i.e.: flex connectors, pipe, equipment, seismic restraints, etc.).
86. ~~ALL supporting devices must be modeled in the BIM model.~~ **Duplicate (Addendum 2)**
87. All draining or filling of piping systems is to be strictly coordinated with the CM. No draining or filling of systems will be allowed until approved by the CM.
88. This Contractor owns all testing, flushing and treatment of systems installed under this scope of work.
89. All valving and fittings must be closely coordinated for location and maintenance access.
90. This Contractor shall furnish and install all fire hose valves where indicated including all signage and labeling as necessary.
91. It can be expected that additional valves may be required to meet local code, design intent and Owner design standards or maintenance requirements. These valves are the responsibility of this Contractor.
92. This Contractor shall furnish and install drip pans for piping located over any equipment. This Contractor shall be responsible for this item whether or not identified on the drawings. All drip pans must be piped to the nearest drain.
93. This Contractor shall provide a ball drip valve at each check valve for the FDC.
94. This Contractor shall provide all stainless steel hose and valve box covers, hose bib cabinets, sprinkler cabinets and all other fire protection cabinets as shown on the architectural plans and details.
95. This Contractor shall provide sprinkler heads at the top and bottom of the elevator shaft.

96. This Contractor shall provide sprinkler heads at the skylight as required. **Assume piping at skylight to be run in a concealed fashion or aligned with mullions/structural members of the skylight. Verify piping with Architect prior to fabrication of this piping. (Addendum 2)**
97. This Contractor shall furnish and install lines for draining the system as shown on the Contract Documents.
98. This Contractor shall protect all landscaping and hardscaping from testing and draining of the sprinkler system.

#### **BIM/VDC REQUIREMENTS**

99. This Contractor shall model in 3D, the fire protection systems for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
100. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within seven (7) weeks from award of this Contract. Please note, the modeler onsite is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
101. This Contractor shall be responsible for modeling of a complete fire protection system as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Foundation sleeve and slab rough-in
  - b. Above grade slab and wall penetrations/sleeves
  - c. Overhead, in-wall, in-slab and under-slab piping including valves, etc.
  - d. Fire protection including heads, hangers, racks and rods, **in wall blocking (Addendum 2)**
  - e. All access areas required for maintenance must be modeled as a solid
  - f. **Access panels (Addendum 2)**
  - g. Miscellaneous support steel to be installed by this Contractor
  - h. Fire pump room layout
  - i. Fire protection equipment (including means and methods for installation)
    - i. All equipment to be installed under this Contract shall be accurately inserted into the model. It is preferred that this Contractor contact the manufacturer for a model of the exact piece of equipment. If a model is not available, this Contractor shall model the equipment accurately showing the important parts including access, connection points, etc.
  - j. Shaft and riser drawings
  - k. Modeled elements shall represent the exact size, shape, location and orientation of the represented material.
    - i. Including all connection details including anchor bolts, plates, etc.
102. Coordination drawings will include but not be limited to:
  - ii. Structural concrete
  - iii. Structural steel
  - iv. Miscellaneous metals
  - v. Foundation sleeve and slab rough-in
  - vi. Elevated slabs on deck
  - vii. Above grade slab and wall penetration/sleeves
  - viii. Overhead plumbing
  - ix. Overhead mechanical and fire protection piping
  - x. RCP – finish ceiling heights and types

- xi. Duct work
- xii. Equipment room layout
- xiii. Shaft and riser drawings
- xiv. In-slab and below grade piping
- xv. Laboratory equipment and casework

#### **COMMISSIONING (Cx) COORDINATION**

1. Provide start-up, testing and commissioning of all electrical equipment by a factory representative who is **NOT** a field labor supervisor (i.e. not a foreman, general foreman or superintendent). Notify the CM in writing a minimum of ten (10) days prior to any start-up, testing and commissioning operations. This applies to all equipment under this scope of work.
2. Start-up – The following sequence shall be followed for the startup of every system controlled by this scope of work. The CM will generate a schedule for all Cx activities with input from the Engineer and Owner which shall be issued at a later date during construction.
  - a. Checklists shall be completed by the Contractor and verified by the CM.
  - b. Pre-functional Acceptance Tests shall be completed by this Contractor and verified by the CM (FAT's without client).
  - c. Functional Acceptance Test with client shall be performed. The FAT document details all the tests to be performed dated **TBD** is part of this agreement.
3. This Contractor shall keep a three ring binder with tabs for each piece of equipment. This binder shall include all start-up reports, inspections and FAT documents. A copy will be required for the CM. Copies of documents to be inserted will be provided to the CM as they are completed. This is in addition to the electronic copies required in the Cx specifications.
4. This Contractor shall be responsible for requirements in the Cx specifications. The Owner will provide a separate Cx agent that this Contractor will work with during the Cx process. This Contractor will assist the Cx Agents with ladders, keys, tools, etc.
5. This Contractor will meet with the Cx Agent for a kick-off meeting prior to starting work onsite. Commissioning meetings will be held on a monthly basis and require this Contractor's attendance. These meetings may happen more frequently if necessary.

#### **CLOSEOUT DOCUMENTS**

6. Cooperate fully with CM as a Completion List is generated and completed. This is **NOT** a punch list, but will be used to generate the Punch List if all items have not been completed. Contractor is to dutifully work to complete all items on the Completion List in a timely manner.
7. All closeout documentation including completion of Punch Lists, As-Built Drawings, Operation and Maintenance Manuals, Final Releases and Guarantees and Warranties must be submitted within fifteen (15) calendar days of completion of this scope of work or date of Substantial Completion (whichever date is earlier). Failure to submit all documentation within this time frame will result in penalties of \$500/calendar day until all documentation is received.
8. This Contractor shall provide all documentation required by the Owner.
9. This Contractor shall comply with the Contract Documents with respect to Owner training. Include all costs for a factory representative as required and time to have the training.
10. **Provide all valve charts. (Addendum 2)**

#### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

END OF SECTION 01020

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**SECTION 01020 – BID PACKAGE 16A – ELECTRICAL (REVISED ADDENDUM 2)**

- A. The provisions outlined in the General Scope of Work shall apply to all items of this section. All work shall be in accordance with the schedule.
- B. This work shall include all labor, supervision, material, tools, equipment, shop drawings, submittals, layout, unloading, scaffolding, ladders, hoisting, transportation, taxes, permits, engineering, support functions, insurance, bonds and any other items or services necessary for and reasonably incidental to the proper execution and completion of the work, whether temporary or permanent, in accordance with all drawings, specifications, addenda, general conditions, requirements and other related documents as indicated herein. The scope of work shall include but not be limited to the following specific scope of work: (All work shall be furnished and installed unless noted otherwise herein.)

**SPECIFICATION SECTIONS**

The Contractor is fully responsible for all of the information contained in all sections of the technical specification manual as it applies to their trade. For specifications listed below as “In Its Entirety”, it is this trades full responsibility for all work included in that section. For sections listed below “As Applicable”, other units of work, as defined by the Scope, may also have some responsibility for that particular section. Bidding Requirements, Contract Requirements and Supplementary Conditions apply to all of the Individual Units of Work.

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>RESPONSIBILITY</b>
DIVISION 00	CONTRACT REQUIREMENTS	IN ITS ENTIRETY
DIVISION 01	GENERAL REQUIREMENTS	IN ITS ENTIRETY
DIVISION 02	SITE CONSTRUCTION	AS APPLICABLE
02240	DEWATERING	IN ITS ENTIRETY
DIVISION 03	CONCRETE	AS APPLICABLE
DIVISION 04	MASONRY	AS APPLICABLE
DIVISION 05	METALS	AS APPLICABLE
05500	METAL FABRICATIONS	IN ITS ENTIRETY
DIVISION 06	WOOD AND PLASTICS	AS APPLICABLE
06402	INTERIOR ARCHITECTURAL WOODWORK	AS APPLICABLE
DIVISION 07	THERMAL AND MOISTURE PROTECTION	AS APPLICABLE
07901	JOINT SEALANTS	IN ITS ENTIRETY
DIVISION 08	DOORS AND WINDOWS	AS APPLICABLE
DIVISION 09	FINISHES	AS APPLICABLE
DIVISION 10	SPECIALTIES	AS APPLICABLE
DIVISION 11	EQUIPMENT	AS APPLICABLE
11610	LABORATORY FUME HOODS	AS APPLICABLE
DIVISION 12	FURNISHINGS	AS APPLICABLE
12345	LAB CASEWORK	AS APPLICABLE
DIVISION 14	CONVEYING SYSTEMS	AS APPLICABLE
DIVISION 15	HEATING, VENTILATION, AIR CONDITIONING, PLUMBING	AS APPLICABLE
DIVISION 16	ELECTRICAL	IN ITS ENTIRETY
DIVISION 17	INSTRUMENTATION AND CONTROL FOR HVAC	AS APPLICABLE
APPENDICES		IN ITS ENTIRETY

### **SPECIFIC PERFORMANCE REQUIREMENT ITEMS**

1. It is up to this Contractor's discretion to determine how many days and/or shifts, off-hours, etc. to work to maintain the project schedule and sequencing of work around a fully operating university campus.
2. This Contractor will need to closely coordinate with all trades onsite for a successful installation of this scope.
3. The CM reserves the right to modify the schedule as deemed necessary.
4. The preliminary bid schedule is attached. Any deviations from this schedule shall be addressed immediately. Any delays in the schedule caused by this Contractor **or its Subcontractors** must be made up at its own expense. **(Addendum 2)**
5. This Contractor shall coordinate the installation of the work described herein with, but not limited to, the Steel, Concrete, **General Trades**, Mechanical, Plumbing, Elevator and Fire Protection contractors. **(Addendum 2)**
6. Provide multiple crews as necessary to complete work per the bid schedule and logistics plan located in the Contract Documents. This will require simultaneous work at various elevations and floors. Certain areas of the building may require work to be accomplished in an urgent pace and will be the responsibility of this Contractor to provide materials and labor for those areas as needed.

### **SPECIFIC ELECTRICAL SCOPE ITEMS**

The scope below has been separated into sub-sections for clarity but each line applies to this scope of work in its entirety. Furnish and install all required labor, equipment and materials to complete this project including but not necessarily limited to the following:

### **GENERAL ITEMS**

1. Include all overtime and premium expenses to meet the schedule including but not limited to long days, double shifts, weekend work, expediting material submittals (ESPECIALLY ELECTRICAL EQUIPMENT/GEAR, EMERGENCY GENERATOR, SWITCHGEAR, MAIN TRANSFORMER, SLEEVES AND LOG LEAD ITEMS), fabrication and deliveries.
2. This Contractor is required to thoroughly review the Duffield Associates soils report provided and include all costs associated with the existing site soil conditions including fill requirements and ground water impacts.
3. NO EXCAVATED SOILS WILL BE STOCKPILED ONSITE.
4. Protect and/or avoid all existing underground utility lines.
5. Coordinate incoming service with the electric company.
6. All trenches/excavations created by this Contractor will require continuous barricades installed on all sides of the trench/excavation EVERY NIGHT at the completion of your work. It does NOT matter that there is a fence around the entire site.
7. Layout for work included in this scope based off of control points provided by others.
8. This Contractor shall be responsible to maintain full access to the entire site including but not limited to all roads in and around the site. Work affecting this traffic flow must be coordinated and approved in advance by the CM and/or Owner.
9. Provide, maintain and remove all safety barricades, traffic controls, shoring, flagmen, etc. to comply with all safety practices required by OSHA, the State of Delaware, the CM, City of Dover and any agency having jurisdiction and as noted in the Contract Documents.
10. A seven (7) day advanced notice to the CM is required for any road closure and is subject to Owner approval.

11. Field modifications due to lack of coordination will be done at no cost to CM (uncoordinated items between trades does not entitle compensation for rework). There shall be no upcharge to re-route piping, duct or wiring, etc. of any kind (during the coordination stage) to accommodate the work of others.
12. This Contractor shall provide all coordination, layout, cutting, core-drilling and temporary protection of all wall, floor and roof penetrations required to complete this scope of work. Core-drilling and cutting of concrete shall be avoided at all costs (~~no core drilling through slabs~~). Provide all sleeves, patching and structural support systems that may be required around holes created by this Contractor. All coring or cutting of existing concrete must be approved by the structural engineer of record prior to commencing. If rebar is hit during core drilling, core drilling must stop and this Contractor shall properly remediate the bad core and move to a new location. **(Addendum 2)**
13. This Contractor shall provide coordination with ~~Drywall~~ **general trades** contractor for wall penetrations. This Contractor must layout corridor and rated wall penetrations with the ~~Drywall~~ **general trades** contractor who will frame the walls. These trades should work together during wall framing to layout and frame all piping penetrations prior to hanging drywall. Any drywall "blowouts" as a result of not laying out penetrations with the ~~Drywall~~ **general trades** contractor will be back charged to the respective contractor (inclusive of fire and/or acoustical caulking work). **(Addendum 2)**
14. The CM requires a five (5) day notice in writing prior to any testing.
15. Multiple mobilizations shall be required for this scope of work.
16. This Contractor is required to coordinate with other trades where required.
17. Prior to the start of work, verify existing conditions and elevations and report any discrepancies with the Contract Documents to the CM. Start of work shall constitute acceptance of such conditions.
18. The exact positions of electrical gear, devices, rough-in and lighting shall be approved by the Architect, Engineer, and the Owner before installation of any rough-in.
19. It is the responsibility of this Contractor to provide its own access to areas of work. Scaffolding, ladders, and/or lifts will not be provided to you by the CM or others. Additionally, if this Contractor needs to work on top of any structure, this Contractor is required to confirm the structure is adequate to support the intended dead and live loads. Any damage caused by this Contractor will be the sole responsibility of this Contractor to remediate.
20. This Contractor is responsible for any crane picks and/or hoisting of material required to perform the work in this scope of work.
21. This Contractor shall be required to submit to the CM a detailed rigging plan for all equipment hoisting ~~over 2,000 lbs.~~ at least two (2) weeks prior to hoisting the equipment. This Contractor is responsible for their equipment and ALL lifting and rigging. **(Addendum 2)**
22. Provide all submittals including product data, material data sheets, shop drawings, samples and qualification statements as indicated in the Contract Documents.
23. Attached to the shop drawings, this Contractor is responsible for submitting a written outline of the proposed Sequence of Construction specifically outlining material delivery dates, mobilization dates, lay-down areas, means of motorized equipment egress, spoils management, projected starting point, projected finish dates, methods of testing.
24. This Contractor owns all flexible connections, fittings, additional supports, etc. to traverse all building expansion joints whether shown or not.
25. This Contractor owns all trim plates, escutcheons, etc. to cover up any and all penetrations that will be seen through Architectural finishes.

26. This Contractor and its Subcontractors are responsible to follow, at all times, the Indoor Air Quality Control Plan (**see Section 01410**), system shut-down, safety orientation training and any other policies that the CM and/or Owner requires for a safe job. (**Addendum 2**)
27. This Contractor is responsible for all research required for shutdowns and tie-ins prior to submitting a shutdown request to the CM. All associated information must be written on the request form and submitted two (2) weeks in advance of the required shutdown. Upon receipt of approval from the Owner, shutdowns/outages shall be performed on premium time between the hours of 6 P.M. and 6 A.M. and/or Saturday or Sunday unless otherwise directed in the field and shall be accomplished as part of the base bid. Outages will not require additional compensation from the CM.
28. This Contractor owns delegated design for all seismic requirements associated with this scope of work. Refer to the Contract Documents for specific details.
29. Testing and certification of electrical, lighting and fire alarm will be by this Contractor. Provide the CM with copies of all test reports and certifications. Make sure CM and Owner witness ALL tests. Perform any engineering/PE certifications as specified or required.
30. The date of commencement of ALL warranties will be the date of Substantial Completion regardless if the system has been started or utilized during construction.
31. This Contractor shall be responsible to correct all defective work or work found not to be in accordance with the Contract Documents for a period of one (1) year after the date of Substantial Completion, or greater, depending on Contract Document requirements.
32. This Contractor is responsible to provide all power required for the work within this Contract. If and when a temporary power source is provided, it will be the responsibility of this Contractor to have a backup power source in case the temporary service goes out.
33. This Contractor shall provide daily cleanup of debris to the dumpster resulting from the work described herein.
34. This Contractor is responsible to layout all housekeeping pads. Housekeeping pads will be formed and poured by the concrete contractor.
35. This Contractor owns all sleeves for electrical, low voltage and lighting conduit that enters or leaves the building. This Contractor also owns all details for structural support, waterproofing, link seal, etc. required by the Contract Documents at each location.
36. Furnish and install all firestopping or sealing at all penetrations in floors, ceilings and walls for this scope of work as required by the Contract Documents and code, whichever is more stringent. ALL FIRE RATED PENETRATIONS MUST BE NUMBERED, DOCUMENTED, LOGGED AND ACCOMPANIED BY A 'UL' LABEL.
37. This Contractor owns identification devices including labels, tags, etc. as required by the Contract Documents, local code and/or the Owner. Provide and install labels on any ceiling identifying above ceiling concealed devices. A panel chart for each electrical panel is required to be completed and turned over to the Owner at the end of the project. See section 16075.
38. This Contractor shall store all materials off site and only stock what is needed for a one week duration.
39. Weekly MEP "spotlight" meetings shall be required to be attended by the project manager in addition to site coordination meetings.
40. A full mock-up of the equipment mechanical chase ceiling as shown in detail 5/a14.1 shall be built by the mechanical contractor. This contractor will need to coordinate with mechanical contractor and any other applicable party to install conduit and devices. This work may occur off site at a location determined by the mechanical contractor. All work shall be installed 100% functional and shall be firm representation of the quality and craftsmanship that can be

expected for the entire project inclusive of hangers and fire caulk. Mock-up may be used in the final construction if possible. **(Addendum 2)**

41. This Contractor shall be responsible for providing a complete and operational system even if the Contract Documents are missing components or details.
42. Testing and balancing shall be by others however, this Contractor shall assist as necessary.
43. VERY IMPORTANT: This Contractor shall review ALL Contract Documents for their scope of work. Specifically Mechanical, Plumbing, Electrical, Structural, Architectural, Furniture and Laboratory.
44. This Contractor shall submit a list of Subcontractors with the submission of the bid.
45. This Contractor shall submit in writing, within one (1) week of award of bid, delivery dates of all long lead items and their associated work. This Contractor shall review the Project Schedule and notify the CM immediately of any material long lead time conflicts that may occur or that may affect the Project Schedule. "Long Lead" is defined herein as any material requiring more than four (4) weeks to obtain after approved submittals.
46. This Contractor's scope of work shall include all power, electrical gear, grounding and bonding, lightning protection, emergency generator, automatic transfer switches, auto switching capacitor bank, lighting (interior and exterior), fire alarm (in its entirety), security (raceway system, section 16700), communications (raceway system, section 16700), broad band RF (raceway system, section 16700), electrical connections to mechanical equipment, underground duct banks (in their entirety) and lighting control system. Furnish and install all access doors/panels (fire rated and non-fire rated), trim/cover plates and supports for all work described herein and any other specialty equipment or hardware for this scope of work.
47. Provide all coordination with Owner's security, communications and broad band RF contractors as required in order to install all raceways, junction boxes, stub-ups, pull boxes and ceiling and wall boxes as required.
48. All equipment must be located and installed in accordance with the Contract Documents and all code requirements. Locate access doors for any equipment or valve that will require maintenance. Access doors for work performed under this scope of work shall be furnished by this Contractor and installed by others.
49. This Contractor shall furnish and install support members required for hanging conduit, equipment, fixtures, etc. This Contractor shall be responsible for above ceiling pipe hangers, anchors, racks, etc. Coordinate all in-wall blocking (installed by others) required to support items associated with this work. Any blocking that is installed after wall close-in will be the responsibility of this Contractor. This Contractor shall install all hangers PRIOR to fireproofing and spray insulation being applied. Any excessive damage to fireproofing by this Contractor will be patched and back charged to this Contractor in full.
50. This Contractor shall submit to the CM, monthly manpower and incident reports by the 5<sup>th</sup> of the following month. This Contractor shall submit these on behalf of their tiered Subcontractors as well.
51. This Contractor owns all trucking, tolls, fees, temporary storage, temporary protection and rigging necessary to install each piece of equipment. This also includes receiving and unloading, removal of all crating, blocking and packaging and protection.
52. This Contractor shall be responsible for all low voltage wiring to be installed on equipment in order for that equipment to function properly (i.e.: if a pump requires low voltage wiring installed in the field, this Contractor is responsible to furnish and install this wiring).
53. All conduit, lighting, equipment, gear, etc. shall be shipped to the site well protected from the elements. It is this Contractor's sole responsibility to protect all equipment temporarily during construction.

54. This Contractor shall own all means and methods to procure this equipment in order to meet the schedule. This includes any shipping splits, misc. connections etc. require to install the equipment.
55. ~~This Contractor shall provide the manufacturer's recommended maintenance on all equipment for one (1) full year from the date of Substantial Completion (except where specifically noted to the contrary). This shall include all bulbs and ballasts.~~ Contractor shall replace bulbs and/or ballasts as necessary in the one (1) year maintenance period. Coordinate with Owner prior to performing any maintenance. (Addendum 2)
56. Review equipment suppliers "recommended installation procedures" to assure that design complies with manufacturer's space clearances and clearances established by the local authorities and the Owner for maintenance and service. Locate access doors at any equipment that will require maintenance.
57. This Contractor shall touch-up all damaged to factory applied finishes.
58. This Contractor shall own all field caulking of equipment as required.
59. This Contractor shall own all field testing as required by the Contract Documents.
60. This Contractor shall assume that in tight areas, equipment will need to be installed temporarily in order for other trades to complete their work behind the equipment. This may require wood infill between housekeeping pads.
61. If this Contractor deviates from the basis of design, any additional costs (hidden or otherwise) will be the sole responsibility of this Contractor regardless if the deviation is approved by the Architect, Engineer or Owner. This includes but is not limited to increased electrical feeders and/or raceways, increased breakers and/or electrical panels, increased structural requirements, added concrete, additional coordination, relocation of non-coordinated utilities, added testing, etc.
62. This Contractor owns all specification requirements for field and/or factory start-up/testing. All representative testing data shall be from a test performed within the past five (5) years if historical data is acceptable per the Contract Documents.
63. ALL supporting devices must be modeled in the BIM model.
64. All connections, permanent or temporary, shall be the responsibility of this Contractor.
65. This Contractor is responsible for maintaining the cleanliness of all mechanical and electrical spaces. This includes but is not limited to clear walkways and work areas, area broom swept twice daily, any and all water cleaned up daily and continual consolidation of materials per the direction of the CM.
66. Remove all stickers.
67. It shall not be considered extra work to have to relocate this Contractor's or its Subcontractor's trailers or storage containers to make way for the progress of work. Jobsite trailers and offices must be maintained in a neat, orderly, respectful, professional and safe fashion both inside and out. The CM is not responsible for the security of this Contractor's equipment, trailers, materials, etc.
68. Provide five (5) heavy duty 12/3 outdoor rated extensions cords (Grainger model #1FD57), five (5) inline GFCI cord sets (Grainger model #5YL47) and three (3) 1000W light stands (Grainger model 4VM75) delivered to CM to be used at the discretion of the CM.
69. For general site cleanup, provide the services of one (1) laborer for 160 hours. The CM will supervise their daily tasks. The CM requests that the amount included in the bid be broken out and stated at time of scope review. The CM plans to convert this to a lump sum and track it as an allowance to be billed at the discretion of the CM on a T&M basis. See Allowance #1
70. Provide all labor to "bump" equipment to verify proper rotation. This work shall be sequenced and follow the construction schedule. Provide all labor required to correct rotation as necessary.

71. **Provide** all empty conduit raceways ~~will with~~ required pull strings. **(Addendum 2)**
72. Contractor shall have inspections by local jurisdictions and authorities scheduled as to meet the project schedule.
73. Contractor shall provide the CM with any and all schedules needed to perform said Contractor's work. Detail of the schedule will be that of the discretion of the CM.
74. The full access to this Contractor's fabrication shop must be made available to the Construction Manager (CM), the Owner's representative and/or the designee for any and all inspections.

#### **ELECTRICAL/TESTING**

75. The Electrical Contractor shall furnish and install complete building electrical systems including all electrical, site work, lightning protection, security/telecom/broad band RF raceway systems, fire alarm and grounding. Comply with all local and national codes.
76. Include time to perform a preliminary fire marshal inspection prior to the actual fire marshal inspection.
77. The Electrical Contractor shall provide all testing including but not limited to Hipot testing, NETA testing, megger testing, programming, etc.
78. Furnish and install disconnects for any equipment requiring power that does not come with a pre-installed disconnect.
79. The Electrical Contractor shall furnish and install a grounding system as specified by the Contract Documents.
80. The Electrical Contractor shall furnish and install equipment connections for all HVAC and plumbing equipment.
81. The Electrical Contractor shall provide power and make interlock connections of motor operated dampers installed by others.
82. This Contractor shall provide power to all furniture, including raceways and connections and will be coordinated by this Contractor.
83. Furnish and install all wiremold, wiring, devices, cover plates, etc.
84. Coordinate power requirements of Owner furnished equipment in the laboratory spaces and provide adequate size and quantity of outlets.
85. This Contractor shall provide all painting and identification as required by code and the Owner standards for all systems installed under this scope of work.
86. This Contractor shall provide all interconnecting bus-way and flexible bus connections as shown, listed or specified.
87. This Contractor shall provide 120 volt power for all security devices as indicated on the security and electrical drawings.
88. This Contractor shall provide 120 volt circuits to all BAS system panels. These circuits may not be indicated on the Contract Documents.
89. This Contractor shall wire all tamper switches, flow switches and air compressor and installed by the fire protection contractor.
90. Galvanized rigid conduit shall be used in areas subject to physical damage.
91. Not all electrical requirements are on the electrical drawings or division 16 requirements. This Contractor will be responsible for all electrical requirements as indicated on all drawings and in all specifications.
92. This Contractor shall furnish and install all conduit, raceways, low voltage cabling and 120V power to all powered door hardware for a complete door operating system. Review door schedule and specifications; this Contractor shall coordinate all installations with the aluminum door and ~~drywall~~ **general trades** contractors for this installation. Complete all wiring of any such door hardware, even if raceways or electrical hardware is shown or not. The following items are

some examples that are required by this Contractor (this list is not comprehensive): **(Addendum**

**2)**

- a. Card reader raceway and pull strings
  - b. Raceways and wiring to electrified strike, hinge, panic bar and handicapped push buttons. Final connection is by this Contractor. Push button to be furnished by the installer of the controlled door.
  - c. Raceways and wiring to automatic door operators.
  - d. Raceways, drilling and wiring for door contacts.
  - e. Raceways and wiring to removable mullions with removable in-line harness on wiring.
  - f. Raceways, pull string and junction boxes for security system
93. Although the Contract Documents may indicate a junction box for some mechanical equipment, final connections will be by this Contractor to the equipment.
94. This Contractor shall review all drawings for proper coordination and to assure complete counts and placement of lights, receptacles and data outlet placement.
95. This Contractor shall install Variable Speed Drives supplied by the mechanical contractor. Perform all wiring, connections and supports.
96. All exposed ceiling areas must have very neatly routed conduit and hangers. No wiring, low voltage or otherwise, can be run in these areas without a conduit.
97. All conduit in exposed areas is to be prepared and able to receive paint; labeling will then be furnished and installed by this Contractor.

#### **EQUIPMENT/GEAR**

98. This Contractor shall furnish and install all electrical equipment/gear including but not limited to the following:
- a. Emergency Generator
  - b. Automatic Transfer Switches
  - c. Switchgear
  - d. Transformers
  - e. Lighting Control Devices
  - f. Modular Dimming Controls
  - g. Network Lighting Controls
  - h. Medium-Voltage Transformers
  - i. Low-Voltage Transformers
  - j. Switchboards
  - k. Panelboards
  - l. Enclosed Switches and Circuit Breakers
  - m. Enclosed Controllers
99. This Contractor shall furnish and install the emergency generator, water proof enclosure, acoustic treatment, mufflers, automatic transfer switches (with bypass), manual switches, remove annunciator/start, batteries (charge and holder), block heater and all other equipment associated with the generator as shown, listed or specified.
100. Provide starters and VFD's for equipment being furnished by this Contractor. Coordinate with specifications and electrical scope.
101. This Contractor shall be responsible for all wiring of the starters and VFD's and provide final connections. VFD's listed in the mechanical schedules and specifications shall be furnished and rough set by the mechanical contractor. This Contractor shall be present for VFD start-up and testing.

102. This Contractor shall provide and document field alignment and vibration readings for all equipment. This Contractor must comply with all scope specific vibration and acoustic requirements as detailed in the Contract Documents.
103. Furnish and install a digital electric meter on the incoming service as noted on sheet e3.1. Coordinate with mechanical contractor for proper integration into the BAS system.
104. Program automatic transfer switch delays as noted on e3.2.

#### **SITE ELECTRIC**

105. De-energize and make safe all existing electrical and telecom devices and feeders including but not limited to duct bank, feeders, conduit, concrete light pole bases, light poles, satellite transformer and associated feeders and conduit (see note D1/ed3.0) as shown on the Contract Documents. Conduit shall be cut, capped and abandoned in place as noted. Feeders shall be removed back to their source.
106. Reroute service to devices to remain in place to maintain their operation.
107. Remove and relocate light pole as noted (note D4/eds1.1). Sitework contractor shall demolish the concrete base and conduit.
108. Furnish and install all site lighting and bases including, but not limited to, all concrete, rebar, anchor bolts, grounding, conduit, wire, etc. for a complete system.
109. Contractor shall be responsible for any boxes and conduit required in poured walls, floors or ceilings and will coordinate work appropriately.
- ~~110. Provide all dimensions and locations needed for concrete work (light pole bases, duct bank, etc.). This Contractor shall provide and install all anchor bolts that may be needed. See item #108. (Addendum 2)~~
111. The Electrical Contractor shall excavate, backfill, compact and remove spoils off-site as required for demolition and installation of new underground electrical, telecom and site lighting.
112. This Contractor shall provide sheeting, shoring and bracing for this work as required.
113. Neatly saw-cut length of existing pavement and remove existing asphalt pavement and base within the limits of the trench excavation for this work and restore to original condition.
114. Provide any mucking and dewatering for excavations as required.
115. All existing paint marking adjacent to the site which have become faded or obscured due to the construction activity related to this work shall be repainted/restored.
116. This Contractor shall be responsible for replacing matching materials of any pavement, driveway, walk, curbs, landscaping, etc. that may be cut or that are damaged during construction of this work.
117. Furnish and install all duct banks, conduit, feeders, concrete, hand holes, manholes, splice boxes, splices, brackets to secure conduit, any select fill required, marking tape, etc. for a complete duct bank installation for all new electrical service, generator power and site lighting.
118. Furnish and install Elastite or other water proof seal at all conduit to manhole penetrations. See detail 9/e5.2.
119. This Contractor shall provide concrete encased high voltage duct banks to the electric rooms and related structures (manholes, hand holes, etc.)
120. Furnish and install outlets and light fixtures in masonry walls of generator pad and outlets on generator enclosure. Coordinate with masonry contractor as required. See detail 2/ep2.5.
121. Furnish and install pull string in all spare or empty conduit.
122. Furnish and install all lighted bollards including but not limited to conduit, conductors, bollards, fixtures, lamps, excavation, backfill, compacting, rebar and concrete. Note D7/es1.1.
123. Provide coordination with sitework and landscaping contractors for all site lighting and power work.

### **SUPPORTS**

124. This Contractor shall furnish and install all supports necessary to complete this scope of work. This includes but is not limited to back to back angle, beam clamps, shaft support steel, uni-strut, all-thread, in-wall blocking, curbs, above slab hangers, anchors, conduit racks, etc.
125. All support steel shall be painted and touched up at cuts and nicks in the field to avoid rust.
126. All hangers must be installed prior to installation of fireproofing. Any excessive damage to fireproofing by this Contractor will be patched and back charged to this Contractor in full.
127. This Contractor will provide support members required for hanging conduit, junction boxes, fixtures, etc. This includes in-wall blocking required to support items associated with this work. Coordinate all in wall blocking with appropriate trades prior to wall close-in. Any blocking that is installed after wall close-in will be the responsibility of this Contractor.
128. All hangers and supports must meet the seismic requirements of the project.
129. Any and all additional steel required for large conduit in electrical rooms is by this Contractor and must be coordinated with other trades and meet the project documents and all manufacturers recommendations for that complete system, i.e. flex connectors, pipe, equipment, seismic restraints, etc.
130. ALL supporting devices must be modeled in the BIM model.

### **ELEVATOR POWER**

131. This Contractor shall provide power to the elevator and controllers as supplied and installed by the elevator contractor.
132. This Contractor shall be responsible for a fused disconnect at the elevator with 3 phase 480V power. Temporary power must be brought to the elevator until permanent power is available. This Contractor shall furnish and install 3 phase 480V power, in conduit, from the disconnect to the elevator controls/starter. Furnish and install the elevator disconnect.
133. This Contractor shall interface with all life safety devices as supplied and installed by the elevator contractor.
134. This Contractor shall be responsible for all lighting (including switches as required), smoke/heat detectors, power to the sump pump, etc. in the elevator shaft. All installation in the shaft shall be to the local code, i.e. explosion proof, waterproof, etc.
135. This Contractor shall receive, install and connect the sump control panel. The mechanical contractor shall install the float.

### **FIRE ALARM**

136. This Contractor shall furnish and install a complete building fire alarm system including all wiring, conduit, devices, remote annunciators, batteries, power extension panels, testing, connections to equipment, etc. Comply with local and national codes.
137. Furnish and install all tamper and flow switches installed by the fire protection contractor. Test and commission all tamper and flow monitoring devices.
138. Provide labor, standby mechanics and equipment for all testing and startup (fire alarm, elevators, smoke control, etc.).
139. All fire alarm work shall be coordinated with the fire protection, mechanical and fire alarm drawings and specifications.
140. This Contractor shall furnish the smoke detectors in the HVAC system with sampling tubes to the mechanical contractor for installation as required or indicated on the Contract Documents. This Contractor is to work hand-in-hand with the mechanical contractor to assure proper installation. This Contractor shall be responsible for the wiring and control of these devices.

141. This Contractor shall allow time for a pre-walk through with the fire marshal prior to final inspection.
142. Furnish and install any required smoke detectors at the top and bottom of all electrical/mechanical shafts that may be required.

#### **LIGHTNING PROTECTION**

143. This Contractor shall furnish and install a complete building lightning protection system including all wiring, conduit, ground rods, devices, welding, braising, testing, connections to equipment, etc. Comply with local and national codes.
144. Furnish and install any drilling and digging associated with the installation of the lightning protection counterpoise work. See sheet eg1.0 and detail 1/e5.3.
145. Furnish and install the counterpoise grounding test well complete. See detail 2/e5.3.
146. Grounding system shall including grounding of the generator, generator enclosure gates and surrounding area. See detail 2/ep2.5.
147. Bond underground cables to copper risers, metal pipe, building footing rebar and steel columns as necessary to get to the roof. Furnish all required excavation, backfill and compacting to bond grounding to buried piping.
148. Coordinate with metal wall panel and roofing contractors for any and all penetrations.
149. Clearly mark the ground around the building, for the counterpoise buried cable for minimal interference.
150. Roof penetrations and fasteners must be coordinated with the roofer.
151. Unless otherwise noted, all lightning protection conductors must be routed concealed below the roof in the ceiling space below. The roof conductors cannot be routed on the metal decking under the finished roof. Conductors shall be secured to the steel frame.

#### **LIGHTING**

152. This Contractor shall furnish and install all lighting and lamping on the project. Include all attic stock lamps required by the Contract Documents and an allowance to re-lamp permanent fixtures used during construction.
153. This Contractor shall furnish and install the Lutron system complete.

#### **TEMPORARY FACILITIES**

154. Provide "nearly new" equipment for all temporary devices.
155. This Contractor shall furnish, install, maintain and remove temporary power and lighting for the building. Lighting to be installed in accordance with anticipated partition layout to provide lighting per OSHA requirements, but not less than 5 foot-candles at any location in the building. All temporary power is to be in accordance with OSHA requirements (ground fault) and is to be placed so that no extension cord greater than 100 ft. will be required. Coordinate locations of temporary power poles with the CM.
156. Provide and install temporary high pressure sodium lights for temporary lighting and use string lights to supplement the lighting in order to meet the 5 foot-candle requirement. If string lights are used, the compact florescent high efficiency bulbs must be used. Rework lighting as necessary as the job progresses.
157. All temporary lighting used during construction shall be removed as soon as permanent power is available to the new light fixtures. Absolutely no temporary lighting or wire is to be left in the ceilings or the building.
158. Provide one 20-amp quadplex GFI receptacle on each interior column line on all floors for use by other trades. Provide two 20-amp quadplex GFI receptacles on the roof. Provide two 20-amp

- quadplex GFI receptacles mounted outside on all three sides of the building on 4"x4" posts located near the entrances. A maximum of two receptacles can be fed from a single 20-amp breaker. Provide a temporary panel box for all temporary power circuits in a location yet to be determined.
159. Furnish and install three (3) 400W metal halide lights and temporary poles (or 4"x4" pressure treated timbers) for lighting to the site. Coordinate locations with the CM.
  160. Furnish and install all electrical and tel/data for the Construction Manager's jobsite trailer(s). This shall include but not be limited to conduit, conductors, wiring, outlets, jacks, transformer, panels, breakers, support poles, warning tape, excavation, backfill, etc. required for a complete and functioning system. Refer to logistics plan for location of trailers. This work is occur prior to the start of construction. **Power is to be pulled from an existing manhole, duct bank or panel near the project site. The exact source is yet to be determined, but will be shown on the logistics plan in a future addendum. (Addendum 2)**
  161. This Contractor shall be responsible for purchasing temporary duct detectors for the early start-up of the air handler. Furnish, install and tie-in the safety circuit to the corresponding VFD.
  162. Furnish, install, maintain and remove heat trace on the temporary water service. Refer to mechanical contractor scope for quantities and locations.
  163. Provide temporary 3 phase 480V power to the elevator.
  164. Furnish and install an electrical connection to the elevator sump pump for use of the elevator during construction.

#### **BIM/VDC REQUIREMENTS**

165. This Contractor shall model in 3D, the electrical system for coordination with all MEP, structure, laboratory and architectural trades. This model will be delivered to the CM in accordance with the VDC Execution Plan in Division 01 – Section 01315.
166. Provide an onsite modeler a minimum of two (2) days per week to model this Contractor's work. Model must be complete within six (6) weeks from award of this Contract. Please note the modeler on site is to help bring coordination with other trades to an expeditious conclusion. This Contractor is still responsible to include whatever it takes to complete a fully coordinated model.
167. This Contractor shall be responsible for modeling of a complete electrical system as well as all contents included in this scope of work. Modeled contents shall include but not be limited to:
  - a. Foundation sleeve and slab rough-in
  - b. Above grade slab and wall penetrations/sleeves
  - c. Overhead, in-wall, in-slab and under-slab raceways including junction boxes and/or pull boxes.
  - d. Conduit support including hangers, racks and rods, **in wall blocking (Addendum 2)**
  - e. All access areas required for maintenance must be modeled as a solid
  - f. **Access panels (Addendum 2)**
  - g. Miscellaneous support steel to be installed by this Contractor
  - h. Equipment room layout
  - i. Electrical equipment (including means and methods for installation)
    - i. All equipment to be installed under this contract shall be accurately inserted into the model. It is preferred that this Contractor contact the manufacturer for a model of the exact piece of equipment. If a model is not available, this Contractor shall model the equipment accurately showing the important parts including access, connection points, etc.
  - j. Shaft and riser drawings

- k. In-slab and below grade conduit
  - l. Modeled elements shall represent the exact size, shape, location and orientation of the represented material.
    - i. Include all connection details including anchor bolts, plates, etc.
168. Coordination drawings will include but not be limited to:
- a. Structural concrete
  - b. Structural steel
  - c. Miscellaneous metals
  - d. Foundation sleeve and slab rough-in
  - e. Elevated slabs on deck
  - f. Above grade slab and wall penetration/sleeves
  - g. Overhead plumbing
  - h. Overhead mechanical and fire protection piping
  - i. RCP – finish ceiling heights and types
  - j. Duct work
  - k. Equipment room layout
  - l. Shaft and riser drawings
  - m. In-slab and below grade piping
  - n. Laboratory equipment and casework

#### **COMMISSIONING (Cx) COORDINATION**

169. Provide start-up, testing and commissioning of all electrical equipment by a factory representative who is NOT a field labor supervisor (i.e. not a foreman, general foreman or superintendent). Notify the CM in writing a minimum of ten (10) days prior to any start-up, testing and commissioning operations. This applies to all equipment under this scope of work.
170. Start-up – The following sequence shall be followed for the startup of every system controlled by this scope of work. The CM will generate a schedule for all Cx activities with input from the Engineer and Owner which shall be issued at a later date during construction.
- a. Checklists shall be completed by the Contractor and verified by the CM.
  - b. Pre-functional Acceptance Tests shall be completed by this Contractor and verified by the CM (FAT's without client).
  - c. Functional Acceptance Test with client shall be performed. The FAT document details all the tests to be performed dated **TBD** is part of this agreement.
171. This Contractor shall keep a three ring binder with tabs for each piece of equipment. This binder shall include all start-up reports, inspections and FAT documents. A copy will be required for the CM. Copies of documents to be inserted will be provided to the CM as they are completed. This is in addition to the electronic copies required in the Cx specifications.
172. This Contractor shall be responsible for requirements in the Cx specifications. The Owner will provide a separate Cx agent that this Contractor will work with during the Cx process. This Contractor will assist the Cx Agents with ladders, keys, tools, etc.
173. This Contractor will meet with the Cx Agent for a kick-off meeting prior to starting work onsite. Commissioning meetings will be held on a monthly basis and require this Contractor's attendance. These meetings may happen more frequently if necessary.

#### **CLOSEOUT DOCUMENTS**

174. Cooperate fully with CM as a Completion List is generated and completed. This is NOT a punch list, but will be used to generate the Punch List if all items have not been completed. Contractor is to dutifully work to complete all items on the Completion List in a timely manner.

175. All closeout documentation including completion of Punch Lists, As-Built Drawings, Operation and Maintenance Manuals, Final Releases and Guarantees and Warranties must be submitted within fifteen (15) calendar days of completion of this scope of work or date of Substantial Completion (whichever date is earlier). Failure to submit all documentation within this time frame will result in penalties of \$500/calendar day until all documentation is received.
176. This Contractor shall provide all documentation required by the Owner.
177. This Contractor shall comply with the Contract Documents with respect to Owner training. Include all costs for a factory representative as required and time to have the training.
178. **Provide all panel schedules. (Addendum 2)**

#### **ALTERNATES**

See Division 01 – Section 01025 for list of alternates that may or may not apply to this scope of work.

#### **ALLOWANCES**

Add to the base bid price, the following ALLOWANCES. Overhead and profit should not be included on top of these allowances in the base bid cost. They will be billed against on a time and material basis during the project with labor rates and unit prices that will include the allowable overhead and profit. Any unused portion will be credited from the Contract. Any monies spent against these allowances are to be approved by WT via signed extra work tickets. The allowances can be used for another purpose at the discretion of the CM at any time:

1. Allowance #1 – Include in the bid a quantity of 160 hours of one (1) laborer. CM may request additional laborers. To be paid for T&M using unit prices.
2. Allowance #2 – Include in the bid a lump sum of \$5,000 for additional temporary electrical not already called out. To be paid for T&M using unit prices.
3. Allowance #3 – Include in the bid a lump sum of \$10,000 for the purpose of temporary heating and cooling to be dictated by the CM. To be paid for T&M using unit prices.
4. Allowance #4 – Include in the base bid a lump sum of \$7,500 for the additional access control items not already included in the specific scope of work. To be paid for T&M using unit prices.

END OF SECTION 01020

SECTION 01025 – PROJECT ALTERNATES (REVISED ADDENDUM 2)

Insert the following alternate prices into the spaces provided on the bid form.

**ALTERNATE No. 1: This Alternate applies to Bid Packages 06A, 09A, 09E, 14A, 15A and 16A. Fit up of Lab #238 (Khan) as shown on the drawings. (Addendum 2)**

Base bid shall consist of the following:

- Gypsum board walls
- Door and hardware as scheduled
- Lay-in ceiling as specified
- Epoxy floor and wall base as specified
- Purchase light fixtures and install minimum required for life safety (others to be stored)
- No raceway; minimum power (wall outlets) as required by code
- Rough-in for door access control
- Stub in lab piping above ceiling and cap inside lab
- Rough-in only for safety shower/floor drain/sink
- Stub in lab plumbing and HVAC piping above ceiling and cap inside lab
- Provide chilled beams for future installation (stored by owner)
- No building automation controls required
- No data rough-in required

**ALTERNATE No. 2: This Alternate applies to Bid Packages 06A, 09A, 09D and 15A. Casework and sink at lounge #318 as shown on the drawings. (Addendum 2)**

Base bid shall consist of the following:

- No casework
- Painted gypsum wall board
- Rough-in only for sink supply and waste

**ALTERNATE No. 3: This Alternate applies to Bid Packages 06A, 09A and 09D. Casework at copy alcove at ground floor (Hallway A120) and copy alcove (A217) as shown on the drawings. (Addendum 2)**

Base bid shall consist of the following:

- No casework
- Painted gypsum wall board

**ALTERNATE No. 4: This Alternate only applies to Bid Package 15A. Free cooling module for chiller (as specified). See Mechanical drawings. (Addendum 2)**

Base bid shall consist of the chiller without the free cooling module.

**ALTERNATE No. 5: This Alternate only applies to Bid Package 15A. Separate HVAC controls for each office as shown on the Mechanical drawings. (Addendum 2)**

Base bid shall consist of the following:

- Pipe and control groups of two (2) offices as one (1) control zone.
- One thermostat, one hot water control valve and one chilled beam water control valve per two (2) offices on levels 1 thru 3.

**ALTERNATE No. 6:** This Alternate only applies to Bid Package 02A. Furnish a temporary SWM pond away from the building pad to allow for general construction activities. See logistics plan provided by the Construction Manager for location. Provide all labor and material to relocate the SWM pond to the permanent location according to the schedule and survey the new SWM pond as soon as it is complete. Expedite this survey as it is a critical path activity. (Addendum ②)

**ALTERNATE No. 7:** This Alternate only applies to Bid Package 02A. Furnish a stabilized construction road over the area delineated by the permanent SWM pond to allow for construction vehicle and lift access close to the south west side of the building. Remove and restore all grades, surfaces and the SWM pond after exterior construction on this side of the building is complete. Maintain full functionality of the SWM pond during this entire period. (Addendum ②)

**ALTERNATE No. 8:** This Alternate only applies to Bid Package 07B. Provide an insulated metal panel system ~~without the 1/2" legs complete~~. Panels are to be mounted in the curtainwall system and fully caulked. Coordinate with the glass and curtainwall contractor as required to ensure all details are accepted by the manufacturer of the metal panel system and that systems maintain the integrity of the building envelope and provide for adequate water drainage. Maintain all warranties as required by the Contract Documents. **This is a caulked system as shown in details 7 and 11/a11.7, but caulking of the panel jambs shall be provided by the Contractor who is awarded Bid Package 08B.** (Addendum ②)

**ALTERNATE No. 9:** This Alternate only applies to Bid Package 08A. Provide the deduct cost for all ~~insulated metal panel system~~ work associated with Bid Package 07B. This shall be based on the ~~base system~~ fully glazed system as shown in details 8 and 12/a11.7 as ~~shown on the Contract Documents~~. Should this Alternate be accepted, the Contractor who is awarded Bid Package 08B shall still be required to furnish and install the caulk at the jambs of the panels as described in Alternate No. 8. (Addendum ②)

**ALTERNATE No. 10:** This Alternate only applies to Bid Package 15A. Provide the cost for the CM (assume 2 people from Delaware), the Owner (assume 2 people from Delaware), the architect (assume 1 person from Phoenix, Arizona), Cx Agent (assume 1 person from New Jersey) and engineer (assume 1 person from Philadelphia) for factory witness testing of the air handling unit. This will include travel, lodging and meals. Four (4) weeks' notice will be required. The cost for the each party shall include travel from their home office to the factory where the air handler is being assembled and/or tested. (Addendum ②)

END OF SECTION 01025

**Addendum Number: 02**

**Delaware State University  
Optical Sciences Center for Applied Research  
Date: November 07, 2013**

The following revisions and clarifications to the plans and specifications shall become part of the above referenced contract documents.

**GENERAL:**

**ATTACHMENTS:**

**Project Information: None**

**Specifications: None**

**Drawings:**

New Sheets: **None**

Re-issued sheets: **None**

Sketches:

- **Civil: SKC-008, SKC-009**
- **Landscape: None**
- **Architectural: SKA-01add2 – through SKA-07add2**
- **Structural: None**
- **Mechanical: None**
- **Plumbing: None**
- **Electrical: None**

**Cut Sheets: None**

**PRIOR APPROVALS:**

**Approved: None**

**Approval pending: None**

**Rejected: None**

**REVISIONS / CLARIFICATIONS to Addendum 01**

**ARCHITECTURAL**

- Sheet a8.3- item 3- **delete change to drawing title 2s/a8.3- DRAWING TITLE IS CORRECT AS SHOWN**

**REVISIONS / CLARIFICATIONS- Addendum 02**

**Specifications – New: None**

**Specifications – Revised:**

- **Section 08710 – Door hardware**
  1. 08710- hardware set #15
    - – replace “1 latch set – Schlage- L0172” with “ 12” straight pull (each side of door) – CRL-SST12X12BS”
    - Add “recessed door guide- Stanley - #40-3532”

**Drawings:**

**CIVIL**

- **Sheet C-201**
  1. **SKC008 Issued** to indicate and specify truncated domes at accessible parking
- **Sheet C-901**
  1. **SKC009 Issued** to indicate and specify truncated domes at curb ramps

**LANDSCAPE**

-Sheet “ landscape plan”

1. Add sheet indicator **L1.0**

**ARCHITECTURAL**

**General**

- **Design for mock-up of exterior wall assembly issued per SKA-01add02 pages 1 and 2**
- **Sheet a2.2**
  1. Revise interior elevation reference at hallway A301 from 4/a8.2 to “**3/a8.2**”
- **Sheets a2.3 and a4.0**
  1. Revise # of support curbs at chiller from 5 to 4 (in coordination with addendum 01)
  2. A2.3 keynote 21- revise to read “.....(**typ. of 4**).....” (from typ. of 5)
- **Sheet a2.5**
  1. **Add head detail 11/a12.0 for sliding doors A124b through A124h**
- **Sheet a5.2**
  1. 2/a5.2 – add detail reference for panel end at roof level per **SKA-06add2 page1**
  2. 3n/a5.2- add detail reference for panel end at roof level per **SKA-06add2 page1**
- **Sheet a6.1**
  1. Graphically revise back of parapet at gridline “h” to reflect cold formed metal stud framing i.l.o.insulated metal panels as shown.
  2. Delete keynote 2 at this location.
- **Sheet a6.3**
  1. Revise keynote 37 to read” **not used**”
- **Sheet a7.3**
  1. 1b/a7.3- revise detail reference at stair landing connection to steel column from 6/a13.0 to **8/a14.2** – see **SKA-02add2**

- 2. 1c/a7.3- add detail reference per **SKA-02add**
- **Sheet a8.2**
  - 1. 4/a8.2- revise keynote 11 at right side of elevation to read “**9**”
- **Sheet a8.3**
  - 1. 1/a8.3 – revise elevation per **SKA-07add2** to clarify extents of dry erase wall paint .
  - 2. 3/A8.3- revise dwg title to read “**3 lounge A218, A318**” (from a216,A316) to correct room number reference
- **Sheet a9.0 – a9.3**
  - 1. Finish legend –
    - Add product information for PFT-1 to read:

<b>PFT-1</b>	
<b>MFR:</b>	<b>Dunn Edwards</b>
<b>COLOR:</b>	<b>IGLOO DEW379</b>
<b>FINISH:</b>	<b>FLAT</b>
    - Add product information for PEG-4 to read:

<b>PEG-4</b>	
<b>MFR:</b>	<b>Sherwin Williams – Water base –Tile Clad –epoxy finish</b>
<b>COLOR:</b>	<b>WHITE</b>
<b>FINISH:</b>	<b>GLOSS</b>
- **Sheet a11.1**
  - 1. 1/a11.1 (upper right corner) – correct detail number and title to read “ **1 roof at elevator shaft- end wall**  
**scale: 3”=1’-0”** “
  - 2. Revise detail 7/a11.1 per **SKA-03add2**-
    - Add roofing expansion joint at juncture between penthouse and breezeway roofs
    - Revise lower portion of detail to reflect door head condition
- **Sheet a11.3**
  - 1. Add detail 11/a11.3 per **SKA-06add02 page2**
- **Sheet a11.7**
  - 1. 7 and 11/a11.7
    - delete keynote 34 and replace with text to read” **shim-as required**”
    - Add keynote 30 to gap between metal panel and curtain wall mullion. Add subtext to read ” **between shims**”
- **Sheet a11.9**
  - 1. 2/a11.9 – delete keynote “**kn**” at lower portion of dwg.
- **Sheet a12.0**
- details 8, 12, and 16/a12.0- revise per **SKA-05add2 pages 1 and 2**
- Add sliding door head detail **11/a12.0 per SKA-11add2 page 1**
- **Sheet a13.0**
  - 1. 9/a13.0 – to boxed note at bottom of dwg add “ **..... (center circulation stair – see a7.3)**”
- **Sheet a13.1**
  - 1. 9/a13.1- identify radius at nosing to be 1/4"
  - 2. 8/a13.1-
    - change keynote 2 to “**29**”

- identify steel plate fin extending from column with keynote "24"

- **Sheet a14.2**

1. Add detail 8/a14.2 per **SKA-04add2**

**STRUCTURAL**

None

**MECHANICAL**

None

**PLUMBING**

None

**ELECTRICAL**

- **Sheet e6.0 fixture schedule**

1. **SF3**

**Description:** SURFACE MOUNTED FIXED AND SLIDING ADJUSTABLE STAGGERED STRIP LUMIANIRE WITH DIEFORMED HEAVY DUTY 20 GUAGE STEEL -SILVER POWER COAT FINISH.

**Catalog Number:**

SLIDING:WP-T5-2STSAS-4-CUP(SILVER)-277-EB

FIXED:WP-T5-2ST3-4-CUP(SILVER)-277-EB

**Remarks:** FOR EACH CONTINUOUS RUN OF STRIP FIXTURE AS SHOWN ON PLAN; PROVIDE CONTINUOUS ILLUMINATION ACROSS ENTIRE ROW BY USING A COMBINATION OF FIXED AND SLIDING STAGGERED FIXTURES. PROVIDE 2 SLIDING 4' FIXTURES PER RUN, THE REMAINING LENGTH SHALL USE THE FIXED VERSION.

2. **SL1**

**Description:** SURFACE MOUNTED 4' T5 UNDERCABINET LUMINAIRE WITH LOCAL ON/OFF ROCKER SWITCH- COLOR TO BE SELECTED BY ARCHITECT PER LOCATION USED FROM MANF. STANDARD COLOR SELECTIONS.

**Catalog Number:** HUC2-46-277-T5-S1

**Lamp Type:** 28W T5 Linear Fluorescent, 4100K, 85+ CRI 2900 Initial Lumens, 2600 Mean Lumens 42,000 hours rated life @ 12 hours start. Sylvania FP28/841XPS/ECO3 or equal

3. **SL1A**

**Catalog Number:** HUC2-46-277-T5-S1

**Lamp Type:** 14W T5 Linear Fluorescent, 4100K, 85+ CRI 1350 Initial Lumens, 1200 Mean Lumens 20,000 hours rated life @ 3 hours start. Sylvania FP28/841XPS/ECO or equal

4. **SL1B**

**Catalog Number:** HUC2-23-277-T5-S1

**Lamp Type:** 28W T5 Linear Fluorescent, 4100K, 85+ CRI 2900 Initial Lumens, 2600 Mean Lumens 42,000 hours rated life @ 12 hours start. Sylvania FP28/841XPS/ECO3 or equal

5. **SL1C**

**Catalog Number:** HUC2-46-277-T5-S1-CC(BLACK)

**Lamp Type:** 14W T5 Linear Fluorescent, 4100K, 85+ CRI 1350 Initial Lumens, 1200 Mean Lumens 20,000 hours rated life @ 3 hours start. Sylvania FP28/841XPS/ECO or equal

6. **SL1D**

**Catalog Number:** HUC2-46-277-T5-S1-CC(SILVER)

**Lamp Type:** 28W T5 Linear Fluorescent, 4100K, 85+ CRI 2900 Initial Lumens, 2600 Mean Lumens 42,000 hours rated life @ 12 hours start. Sylvania FP28/841XPS/ECO3 or equal

7. **SL1E**

**Catalog Number:** HUC2-23-277-T5-S1-CC(SILVER)

**Lamp Type:** 14W T5 Linear Fluorescent, 4100K, 85+ CRI 1350 Initial Lumens, 1200 Mean Lumens 20,000 hours rated life @ 3 hours start. Sylvania FP28/841XPS/ECO or equal

8. **SL2(STANDARD LED)**

**Description:** SURFACE MOUNTED LED UPLIGHT LUMINAIRE WITH WIDE FLOOD DISTRIBUTION AND SOFT FOCUS LENS. PROVIDE XICATO LED LIGHT ENGINE WITH 0-10V DRIVER CAPABLE OF 1% LIGHT OUTPUT ON MINIMUM SETTING.

**Remarks:** PROVIDE ARTIST SERIES XSM 1300LUMEN (NOMINAL FLUX) XICATO LED LIGHT ENGINE WITH STANDARD 0-10V DIMMING DRIVER OUTPUT TO 1%.

**FIRE PROTECTION**

**None**

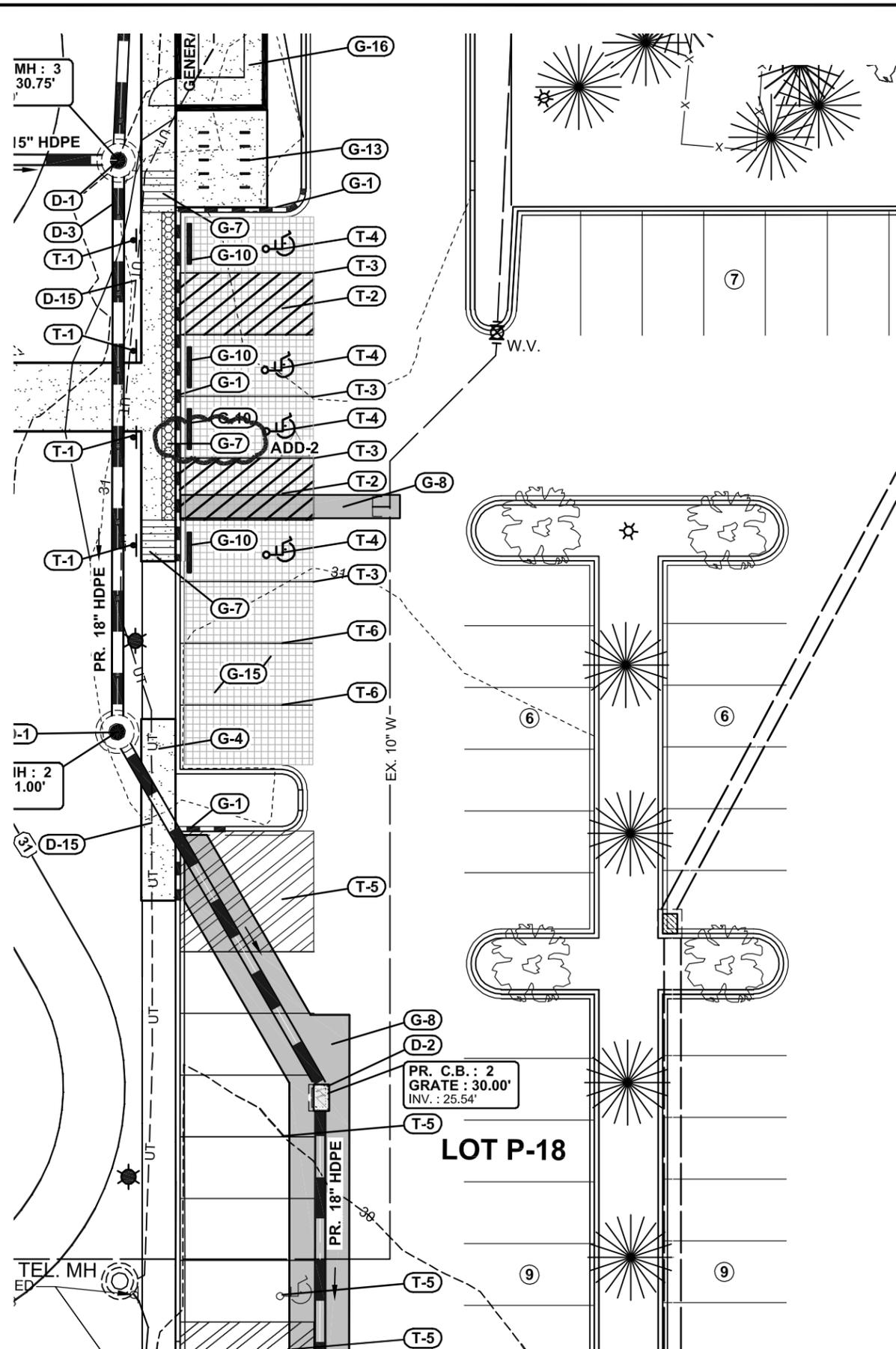
**QUESTIONS FROM BIDDERS**

1. **Architectural drawings, specifically drawing a11.8, under Key Note #31 states and a11.9 Key Note #13, " provide drilled hole and fill interior of horizontal mullion with expansive foam insulation" . Please provide specification for "expansive spray foam insulation.**

**Response:** a quick curing, low pressure spray, expanding polyurethane foam commercially available under a variety of trade names.

**End of Addendum Number: 02**

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### GENERAL CONSTRUCTION NOTES

- G-1** INSTALL INTEGRAL P.C.C. CURB & GUTTER (DELDOT - TYPE 3-8), DEPRESS CURB AT HANDICAPPED RAMPS. SEE DETAIL, SHEET C-901.
- G-2** INSTALL INTEGRAL P.C.C. CURB & GUTTER (DELDOT - TYPE 2) . SEE DETAIL, SHEET C-901.
- G-3** CONTRACTOR SHALL TRANSITION SEGMENT OF INTEGRAL P.C.C. CURB & GUTTER -TYPE 2 BACK INTO INTEGRAL P.C.C. CURB & GUTTER - TYPE 3-8.
- G-4** INSTALL 4" THICK CONCRETE SIDEWALK. SEE DETAIL, SHEET C-901 AND ARCH. PLANS FOR GRID/JOINT LAYOUT.
- G-5** INSTALL 8" THICK CONCRETE FIRE LANE. SEE DETAIL, SHEET C-901 ARCH. PLANS FOR GRID/JOINT LAYOUT.
- G-6** INSTALL 4" THICK CONCRETE BUILDING APRON. SEE DETAIL, SHEET C-901 AND ARCH. PLANS FOR GRID/JOINT LAYOUT. **ADD-2**
- G-7** CONSTRUCT HANDICAPPED CURB RAMP (12.4% MAXIMUM SLOPE), SEE DETAILS, SHEET C-901. DETECTABLE WARNING TRUNCATED DOMES TO BE EAST JORDAN, DURALAST CAST IRON DETECTABLE WARNING PLATES (NATURAL FINISH) OR EQ.
- G-8** INSTALL BITUMINOUS PAVEMENT PATCHING. SEE DETAIL, SHEET C-901.
- G-9** INSTALL "MAXIFORCE" MODEL NO. MCSP-SS1-S-PC COLLAPSIBLE BOLLARDS AT 6'-0" O.C. (5 REQUIRED). SEE DETAIL, SHEET C-901. COLOR TO BE RED. FINISH TO BE POWDER COAT.
- G-10** INSTALL PRECAST CONCRETE PARKING BUMPER. SEE DETAIL, SHEET C-901.
- G-11** MASONRY GENERATOR ENCLOSURE WITH STEEL GATES. SEE ARCHITECTURAL PLANS FOR DETAILS.
- G-12** INSTALL HANDRAIL BOTH SIDES OF WALK. SEE ARCHITECTURAL PLANS FOR DETAILS.
- G-13** INSTALL 12 BICYCLE RACKS (24 BICYCLE PARKING SPACES) ON 4" THICK CONCRETE PAD. SEE DETAIL, SHEET C-901.
- G-14** NEW SITE LIGHTING (TYP.), SEE ELECTRICAL SITE PLANS FOR DETAILS.
- G-15** APPLY BITUMINOUS SEAL COAT TO SURFACE IN PREPARATION FOR RESTRIPIING PARKING SPACES.
- G-16** INSTALL CONCRETE GENERATOR PAD. SEE STRUCTURAL PLANS FOR DETAIL.
- G-17** INSTALL 4" THICK CONCRETE SIDEWALK/RAMP WITH THICKENED EDGE. SEE WEST ENTRY RAMP CONCRETE SIDEWALK DETAIL, SHEET C-901 AND ARCH. PLANS FOR GRID/JOINT LAYOUT.
- G-18** INSTALL 6" DIA. STEEL PIPE BOLLARD. FILL SOLID WITH CONCRETE. SEE DETAIL, SHEET C-901.

### STRIPING & SIGNAGE CONSTRUCTION NOTES

- T-1** PROPOSED HANDICAPPED PARKING SIGN. SEE DETAIL, SHEET C-901
- T-2** PROPOSED PAINTED CROSS HATCH STRIPING - 4" WIDE SOLID HANDICAPPED BLUE LINES, 4' SPACING BETWEEN LINES (TYP.).
- T-3** PROPOSED PAINTED STRIPING - 4" WIDE HANDICAPPED BLUE LINE (TYP. FOR HANDICAPPED SPACES).
- T-4** PROPOSED PAINTED HANDICAPPED SYMBOL - HANDICAPPED BLUE (TYP). SEE DETAIL, SHEET C-901.
- T-5** REPLACE PAINTED STRIPING IN KIND AFTER PAVEMENT PATCHING. (TYP. ALL STRIPING IN PATCH AREA)
- T-6** PROPOSED PAINTED STRIPING - 4" WIDE SOLID WHITE LINE.

### SANITARY SEWER CONSTRUCTION NOTES

- S-1** INSTALL SANITARY SEWER MANHOLE WITH FRAME AND COVER AT THE LOCATION SHOWN HEREON. CONTRACTOR TO VERIFY EXISTING INVERT AT PROPOSED MANHOLE LOCATION. SEE DETAILS, SHEET C-902. \*\*\*CONTRACTOR SHALL TEST PIT EXISTING SEWER TO VERIFY LOCATION AND INVERT PRIOR TO START OF CONSTRUCTION/ ORDERING OF ANY MATERIALS. CONTRACTOR SHALL REPORT THE INFORMATION TO THE ENGINEER FOR VERIFICATION OF THE DESIGN.
- S-2** INSTALL 6" DIA. PVC SDR 35 SANITARY SEWER LATERAL AT 0.0104 FT./FT. SLOPE.
- S-3** INSTALL SANITARY SEWER CLEANOUT WITH FRAME AND COVER 3' OUTSIDE OF BUILDING. SEE DETAIL, SHEET C-902. SEE SHEET C-902 FOR CITY OF DOVER UTILITY CONSTRUCTION GENERAL NOTES.

### DOMESTIC WATER SYSTEM CONSTRUCTION NOTES

- W-1** TAP EXISTING 10" WATER MAIN WITH A 10"x10"x8 POWERSEAL 3490AS TAPPING SLEEVE AND TAPPING VALVE.
- W-2** INSTALL 8" GATE VALVE WITH VALVE BOX (1 REQUIRED). SEE DETAIL, SHEET C-902.
- W-3** INSTALL 8" DUCTILE IRON PIPE CLASS 52, CEMENT LINED WATER MAIN. (48" MINIMUM COVER).

REFERENCE SHEET C-201

BMG: 2012001.01  
 SCALE: 1" = 20'  
 DATE: 11-7-13  
 DRAWN BY: M.J.H.

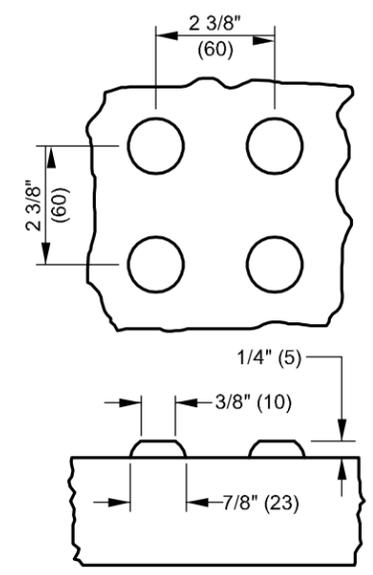
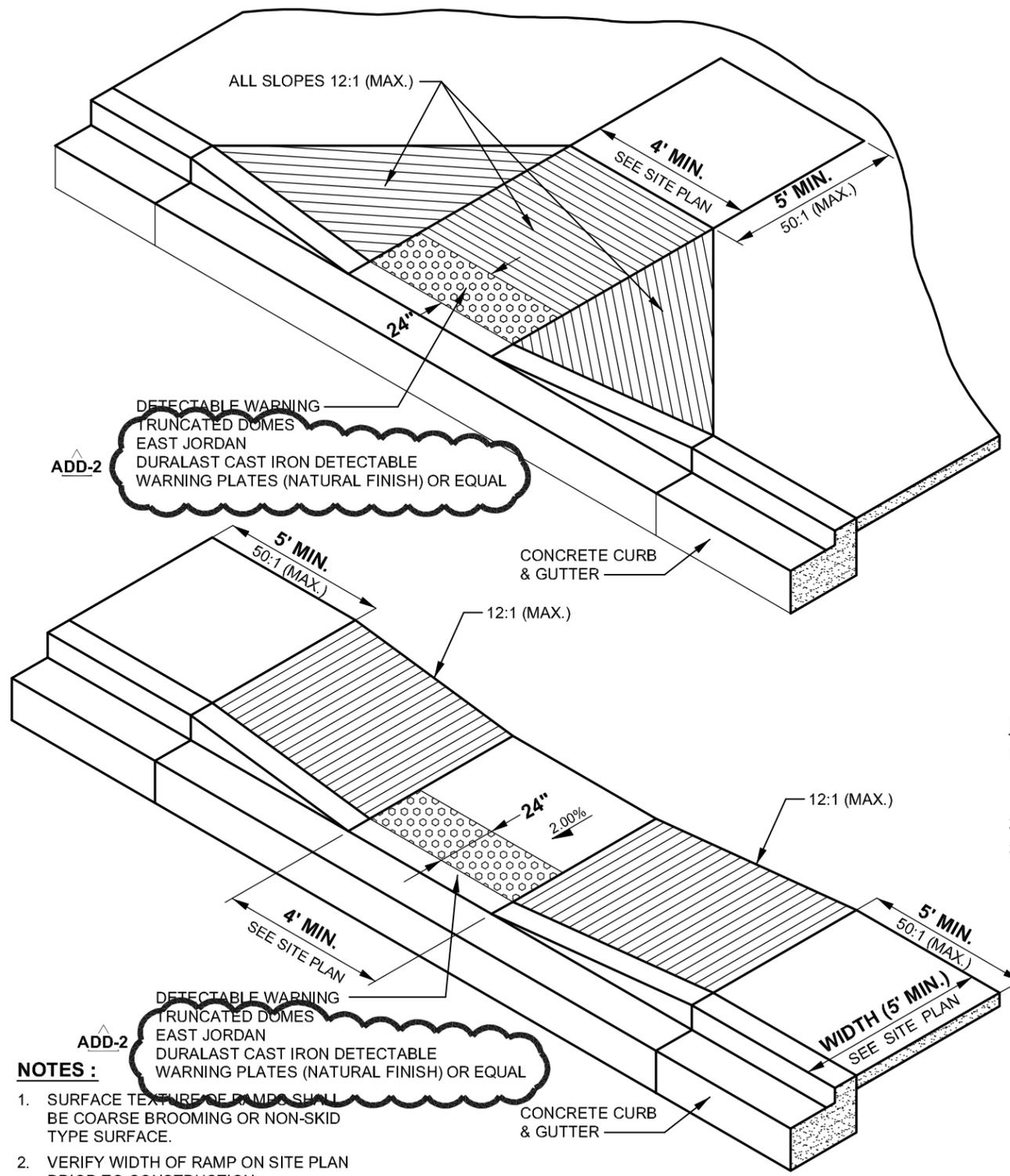
ARCHITECTURE  
 ENGINEERING  
**Dover, DE**  
 309 S. Governors Ave.  
 Dover, DE 19904  
 Ph. 302.734.7950  
 Fax 302.734.7965

**BECKER  
 MORGAN  
 GROUP**

**ADD-2**

**BIDDING - ADDENDUM 02  
 DSU - APPLIED OPTICS  
 RESEARCH BUILDING**  
 CITY OF DOVER  
 KENT COUNTY, DELAWARE

**SKC008**



**DETECTABLE WARNINGS - TRUNCATED DOME**

NOTE: PRIOR TO INSTALLATION VERIFY MATERIALS AND COLORS WITH DELDOT AND/OR LOCAL AGENCIES.

ADD-2 EAST JORDAN, DURALAST CAST IRON DETECTABLE WARNING PLATES (NATURAL FINISH) OR EQUAL

**NOTES :**

PER CURRENT ADAAG:

1. DETECTABLE WARNINGS MUST HAVE A LIGHT-TO-DARK CONTRAST WITH THE SIDEWALK MATERIAL.
2. LIGHT REFLECTANCE VALUE CONTRAST MUST BE AT LEAST 70%.
3. THE COLOR OF DETECTABLE WARNINGS TO BE USED FOR VARIOUS SIDEWALK MATERIALS ARE AS FOLLOWS:

<u>SIDEWALK / CURB RAMP MATERIAL</u>	<u>DETECTABLE WARNING SYSTEM COLOR</u>
CONCRETE	BROWN CONCRETE, DARK GRAY, BRIGHT RED, ORANGE (BRICK) RED OR BLACK
HOT-MIX	WHITE, LIGHT GRAY, WHITE CONCRETE, FEDERAL YELLOW OR PALE YELLOW
RED BRICK	WHITE, WHITE CONCRETE, FEDERAL YELLOW OR PALE YELLOW

\*\* IF USING A DIFFERENT SIDEWALK MATERIAL THAN SHOWN ABOVE OR IF THE SIDEWALK MATERIAL IS A DIFFERENT COLOR THAN NORMAL (I.E., CONCRETE OR HOT-MIX WITH A PIGMENT SO THAT IT IS NOT THE "NATURAL" OFF-WHITE OR BLACK RESPECTIVELY), CONTACT DELDOT CONSISTENCY CONTROL, QUALITY PROGRAM MANAGER AT (302) 760-2342 FOR COLOR CHOICES.

**NOTES :**

1. SURFACE TEXTURE OF RAMPS SHALL BE COARSE BROOMING OR NON-SKID TYPE SURFACE.
2. VERIFY WIDTH OF RAMP ON SITE PLAN PRIOR TO CONSTRUCTION.

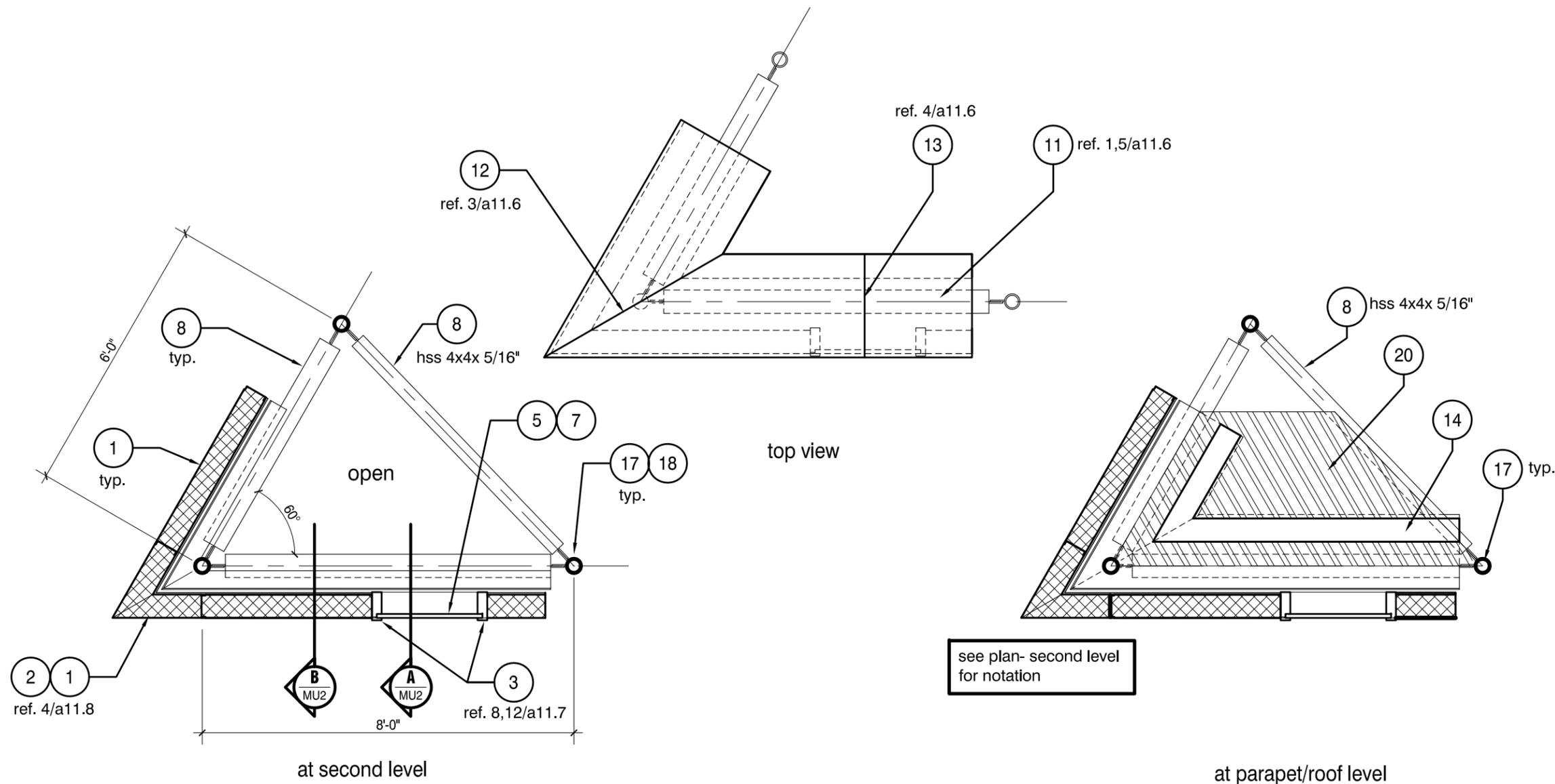
**ACCESSIBLE RAMP DETAIL**

NO SCALE

BMG NO. : SW-4A

# gen. notes SKA-01

1. see 100% construction documents for other issued revisions and for additional information not shown or duplicated in this sketch.
2. location of mock-up on site to be coordinated with CM.
3. removal of mock-up is to be coordinated with CM.
4. the mock-up is to be constructed and reviewed as part of the submittal process for insulated metal panels and curtain wall assemblies and related detailing. It is to be built and reviewed prior to installation of these systems and remain in place for reference for the duration of their installation on the building.
5. all structural steel components of mock-up excluding deck are to be factory primed (gray)- and painted white.
6. for mock-up only, finish for metal panels, flashings, copings etc.. may be painted (white or alternate color to be approved by architect) or galvanized ilo polished stainless steel as specified in construction documents. Painted finish to be consistent color for all components.
7. the mock-up is intended to represent the details and components as referenced per the 100% construction documents, any subsequent revisions, and in conjunction with approved shop drawings. All are to be executed as they will be installed in the actual construction of the building



## MU1 exterior wall mock-up - plans

# keyed notes SKA-11

see SKA-02add2 page 2

SCALE: 3/8"=1'-0"  
FILE: 0411-MOCK-UP

### Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

Reference: x / Axx.x - addendum-02

SKA- 01 add02

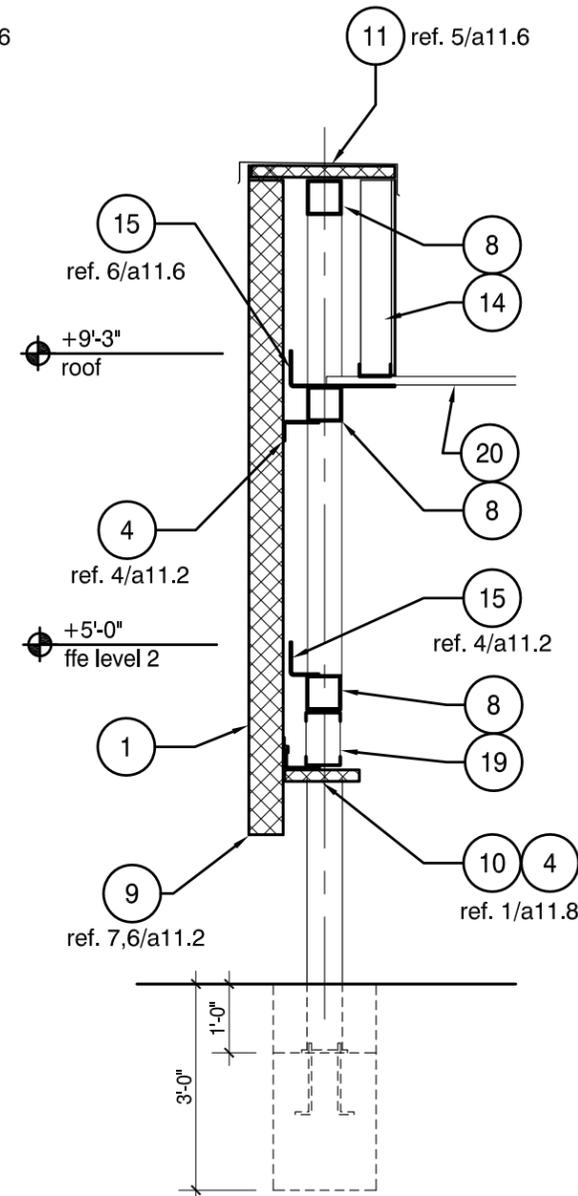
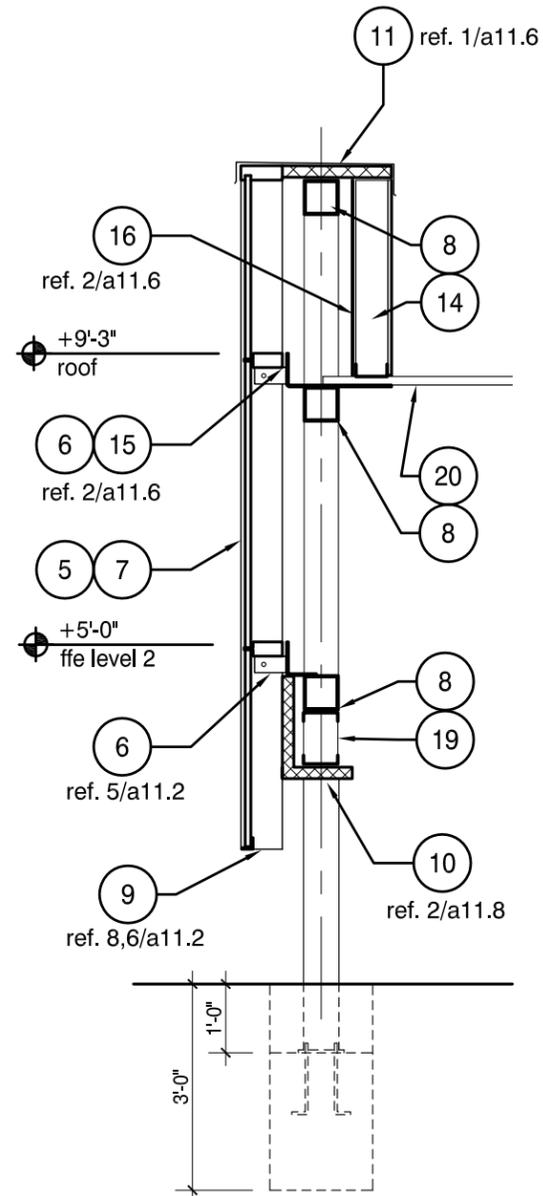
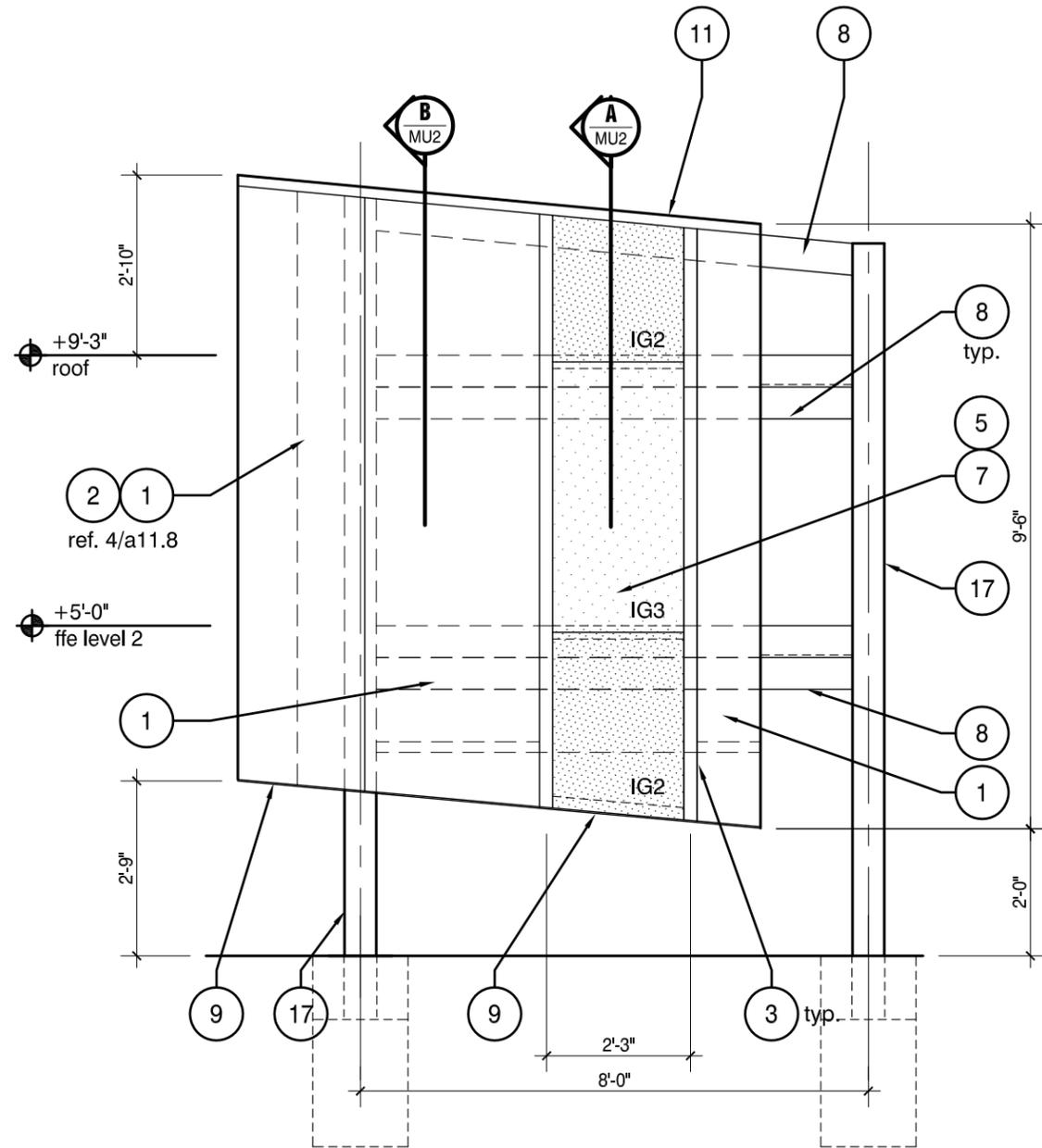
page 1

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# gen. notes SKA-01

see SKA-01add2 page 1

# keyed notes SKA-01



A- section at curtain wall

B- section at insulated metal panel

1. insulated metal panel 6" thk.
2. one-piece corner panel
3. insulated metal panel juncture at curtain wall vertical mullion ( M and F panel edges)
4. insulated metal panel connection at floor /roof level
5. aluminum curtain wall
6. horizontal mullion with silicone sealed glazing joint and curtain wall attachment at floor/roof level
7. insulated glass - see glazing sched on a5.0
8. hss 6x6x 5/16" beam- 5/16" cap plate welded all around to the end of HSS, with a 3/8" single shear plate welded to cap plate. The shear tab frames to a 3/8" shear tab welded to the face of the post via (2)-3/4" dia. A325 bolts
9. skirt condition at base of curtain wall/ metal panel
10. insulated enclosure at structural steel member
11. parapet top panel and sheet metal parapet cap
12. parapet cap- corner piece- finish to match panels
13. typical joint at parapet cap
14. metal stud framed parapet wall w/ plywood sheathing
15. bent steel plate at edge of slab/roof condition
16. polished ss cladding
17. 4" dia. standard steel pipe column
18. column base/foundation- 1/2" thick x 8" square base plate on 1/2" non-shrink grout, with (4)-1/2" diameter x 12" long Grade F1554 anchor rods. Bottom of base plate should be 12" below grade, and bearing on an 18" diameter Sonotube foundation reinforced with (6)-#4 vertical bars and #3@8" o/c ties, founded 3' below grade. Once installed, encase the base of the post assembly in concrete up to grade level (the vertical rebar in the lower foundation should extend up to 3" below grade and hook, to tie the two assemblies together.)
19. metal stud framed build out of hss beam to make 16" deep overall
20. 1 1/2" galv. metal roof deck

## MU2 exterior wall mock-up - elevation/ sections

SCALE: 3/8"=1'-0"  
FILE: 0411-MOCK-UP19

### Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research

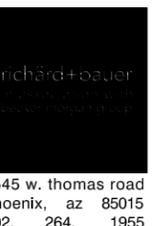
Project Number: 0411

Date: 11/07/13

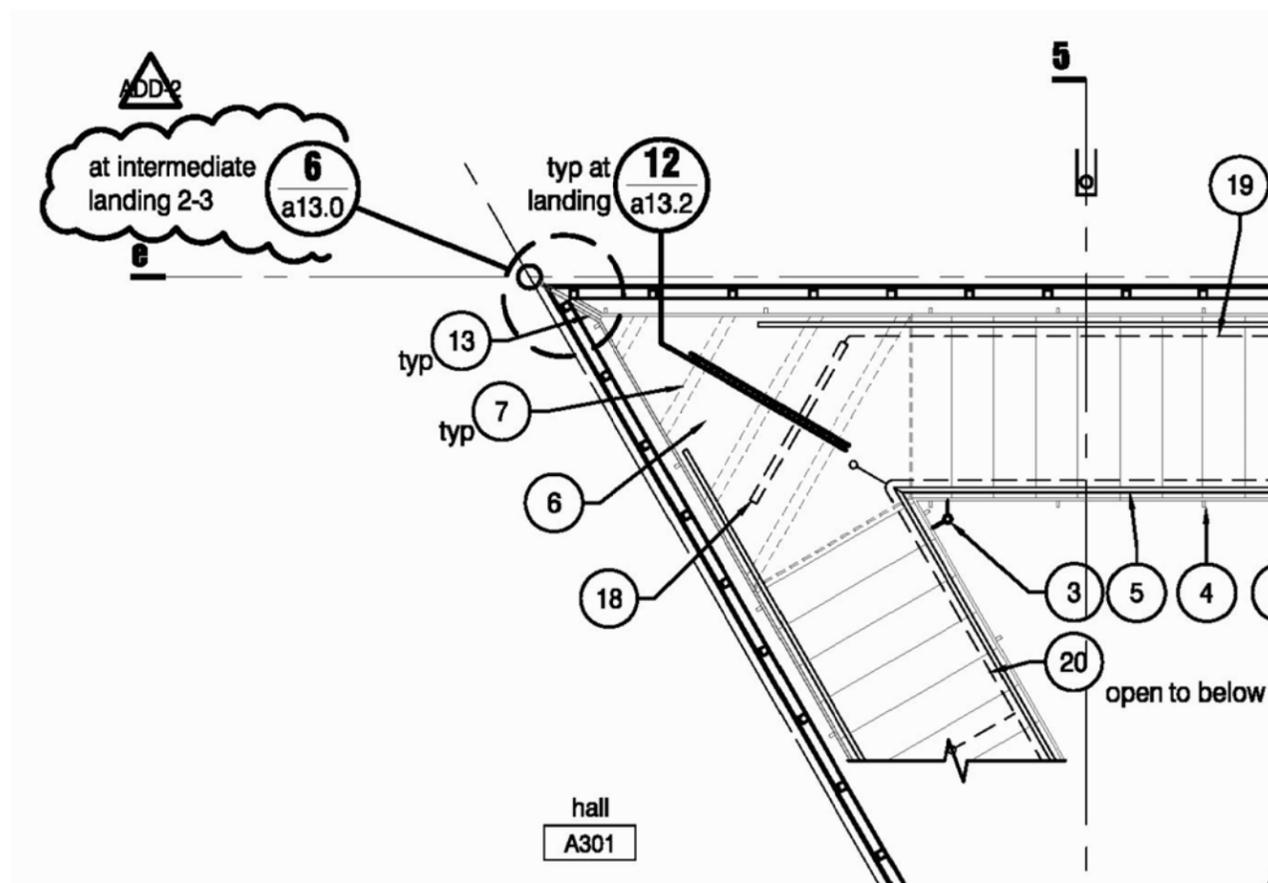
Reference: x / Axx.x - addendum-02

SKA- 01 add02

page 2

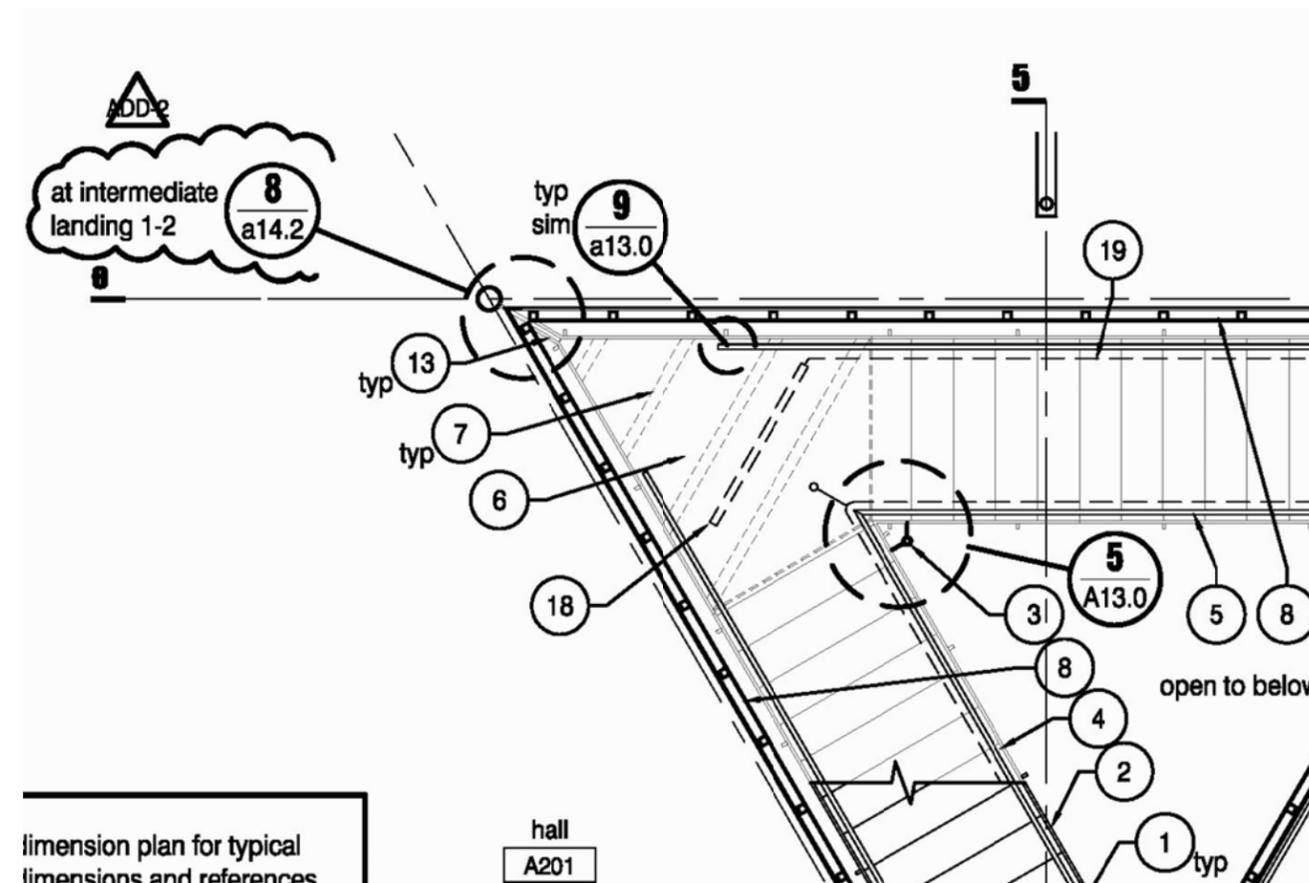


2.8



1c stair plan

2.8



1b stair plan

Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

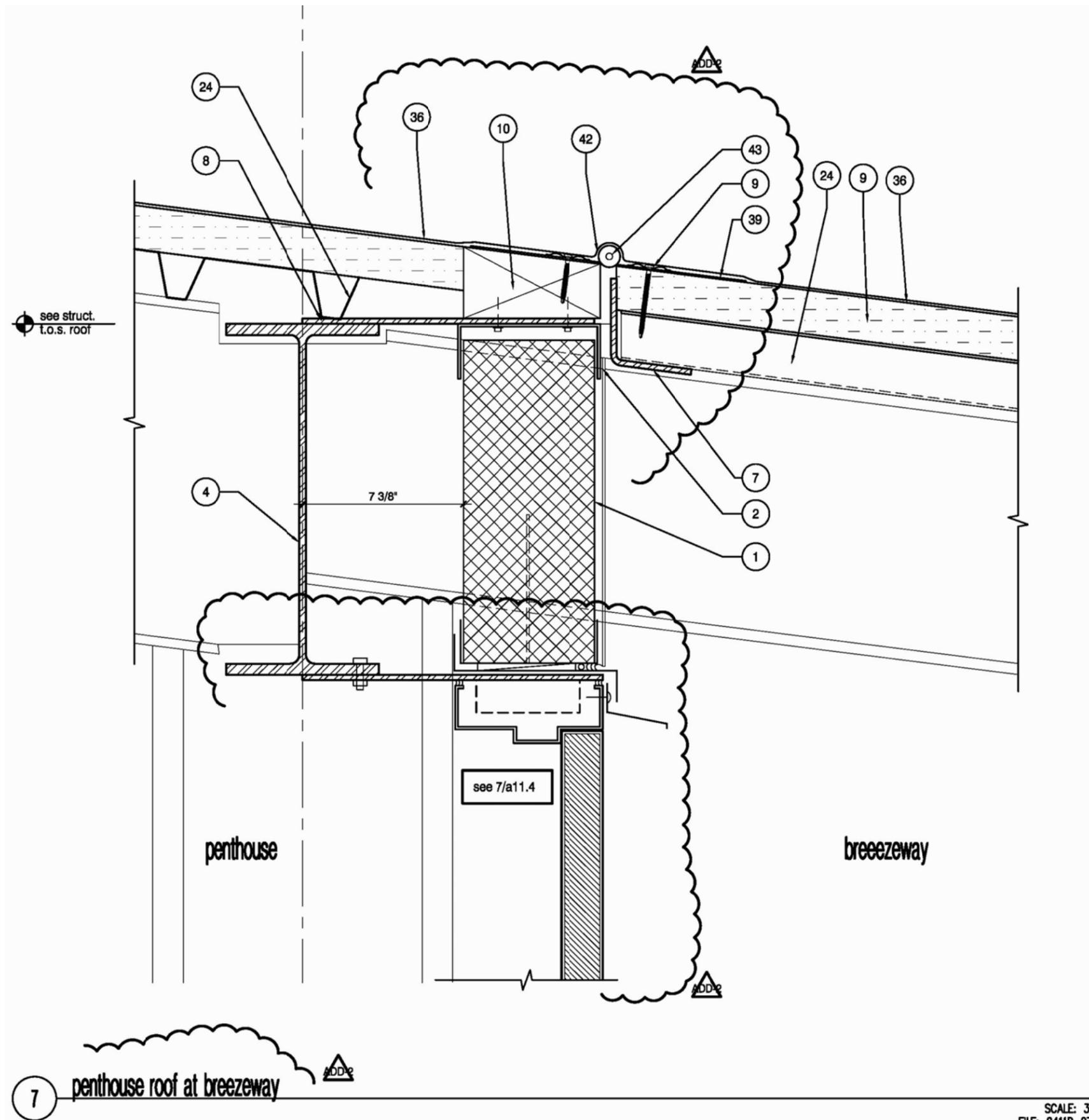
Reference: 1/a7.3 - addendum-02

SKA- 02 add02



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1. see 100% construction documents for other issued revisions and for additional information not shown or duplicated in this sketch.



**keyed notes** #

- 42. roofing expansion joint allowing 1/2" movement - EPDM membrane is cont. and wraps over tubing
- 43. 1" diameter flexible tubing per manf. roofing system components
- 44. 2" wide metal retaining bar- fastened to substrate at 12" o.c.

7 penthouse roof at breezeway

sketch is n.t.s.

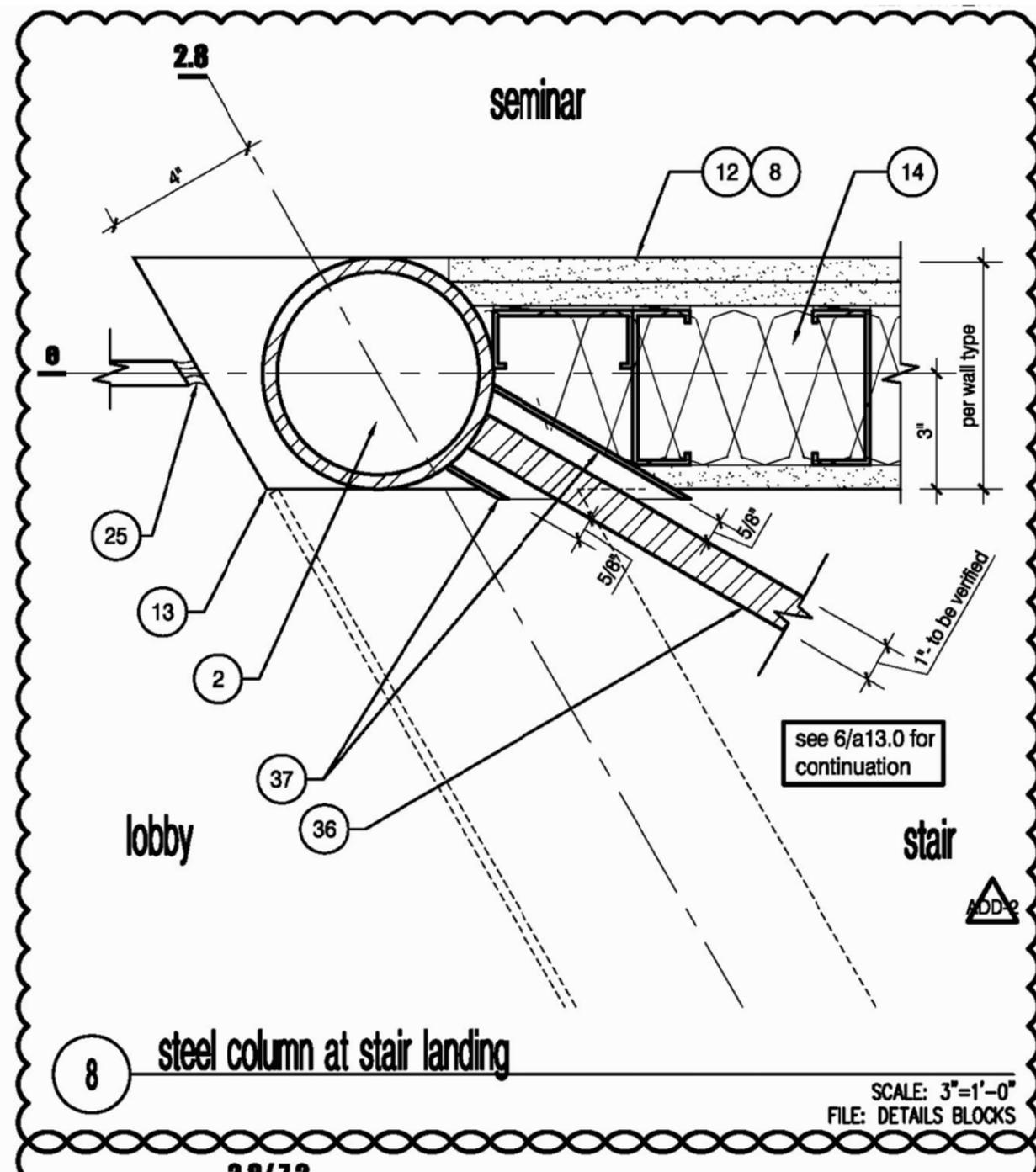
SCALE: 3"=1'  
FILE: 0411D 070

Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research  
 Project Number: 0411  
 Date: 11/07/13  
 Reference: 7/a11.1 - addendum-02

SKA- 03 add02

1. see 100% construction documents for other issued revisions and for additional information not shown or duplicated in this sketch.



### keyed notes #

36. steel plate- stair landing connection to column

37. 1/8" thk. steel plate pocket, 4- sided with reveal as dimensioned at all sides of stair landing connection plate- weld to steel column.

ADD-2

### Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

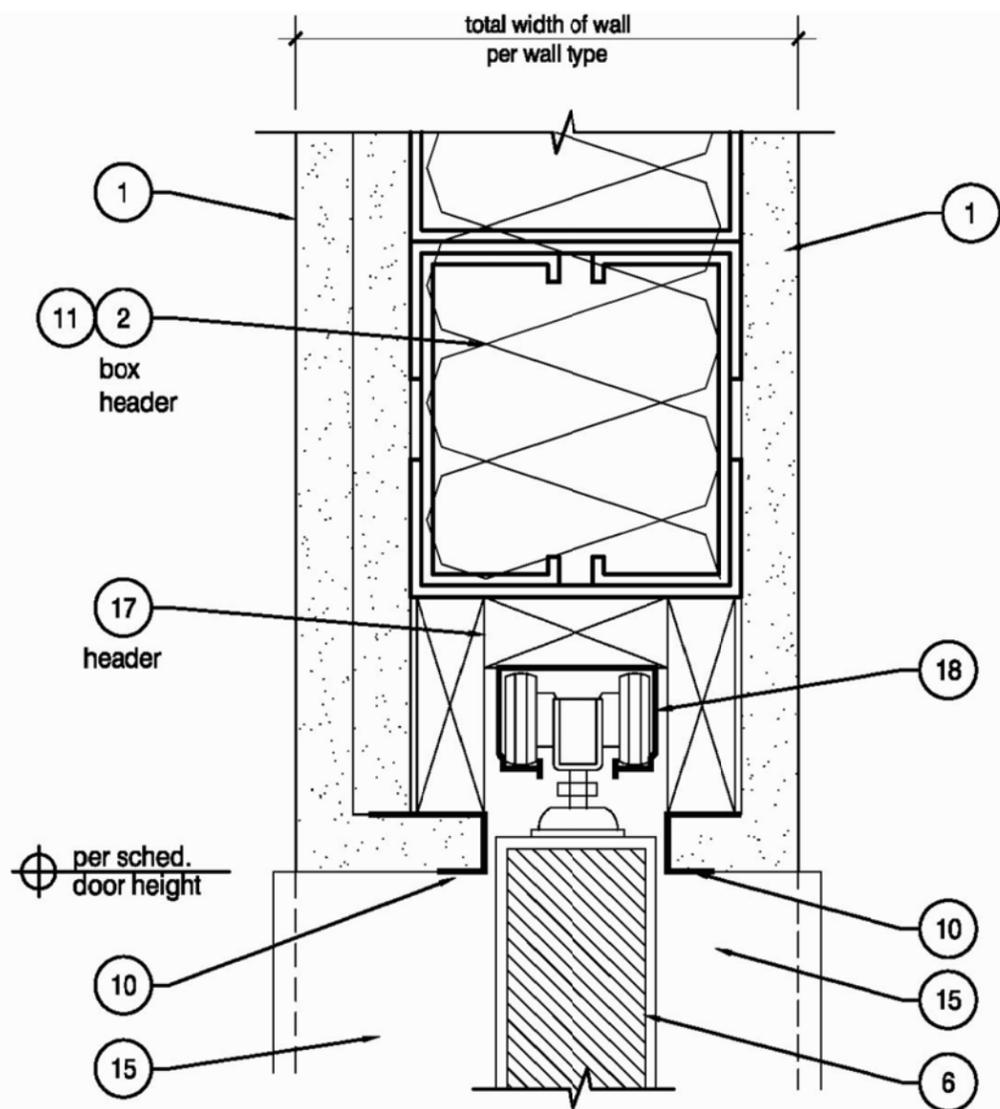
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SKA- 04 add02



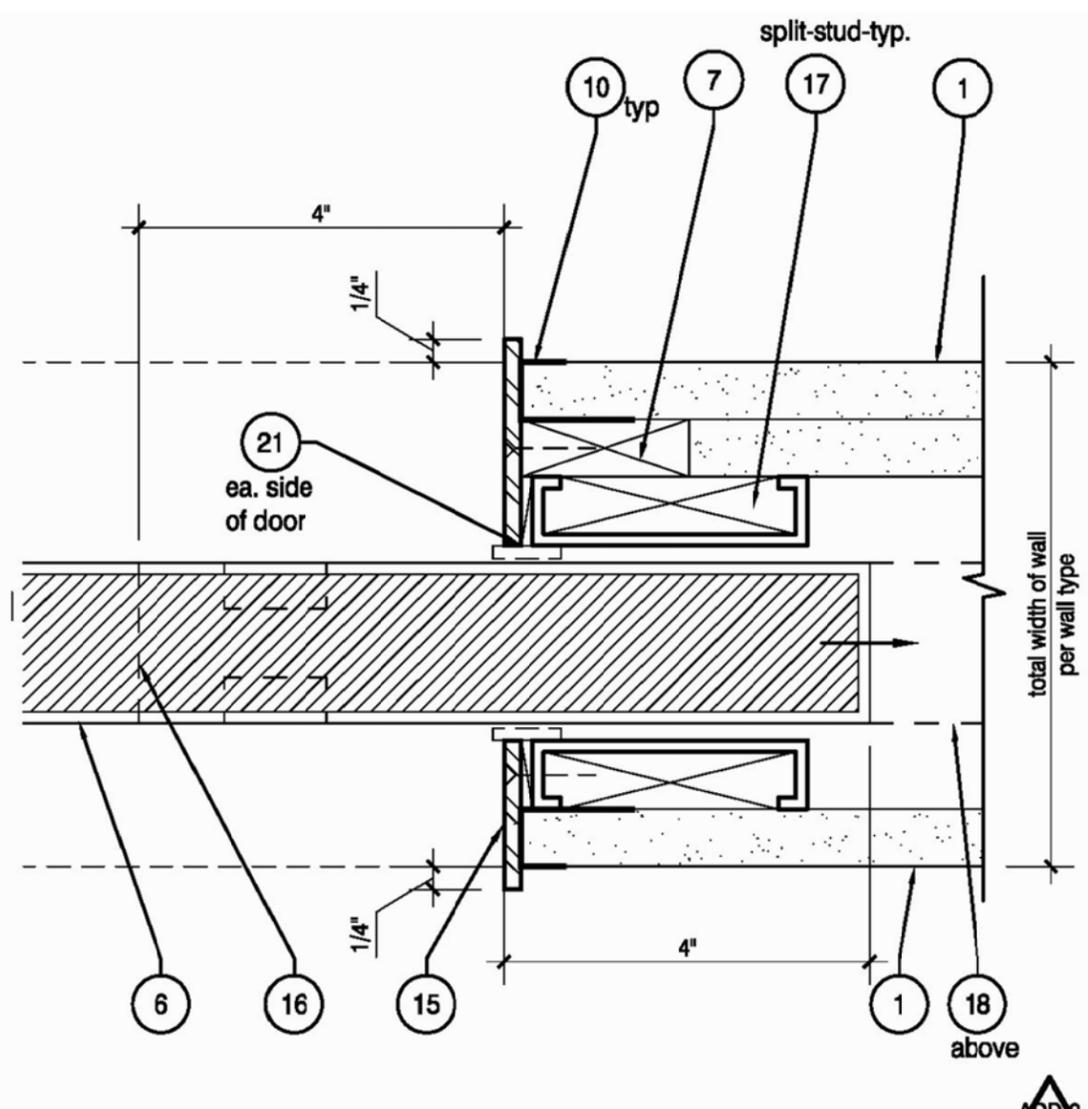
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11 sliding door- head

SCALE: 6"=1'-0"-0"  
FILE: 0411D\_0800 300



8 sliding door jamb

SCALE: 6"=1'-0"  
FILE: 0411D\_0800

keyed notes #

14. sealant

15. 3/16" thk. aluminum plate- clear anodized finish- adhered and fasten to face of gyp board with #10 countersunk ss screws- square drive at locations shown and 12" o.c. vertically. provide cut slot for door latch engagement - coordinate with specified / approved hardware.

18. sliding door track

19. door handle as specified mount at +48" aff to center

20. deadbolt as specified mount at +36" aff to center - below and centered under handle

21. recessed door guide at base of door jamb- shim jamb plate above guide

Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

Reference: 8,11/a12.0 - addendum-02

SKA- 05 add02

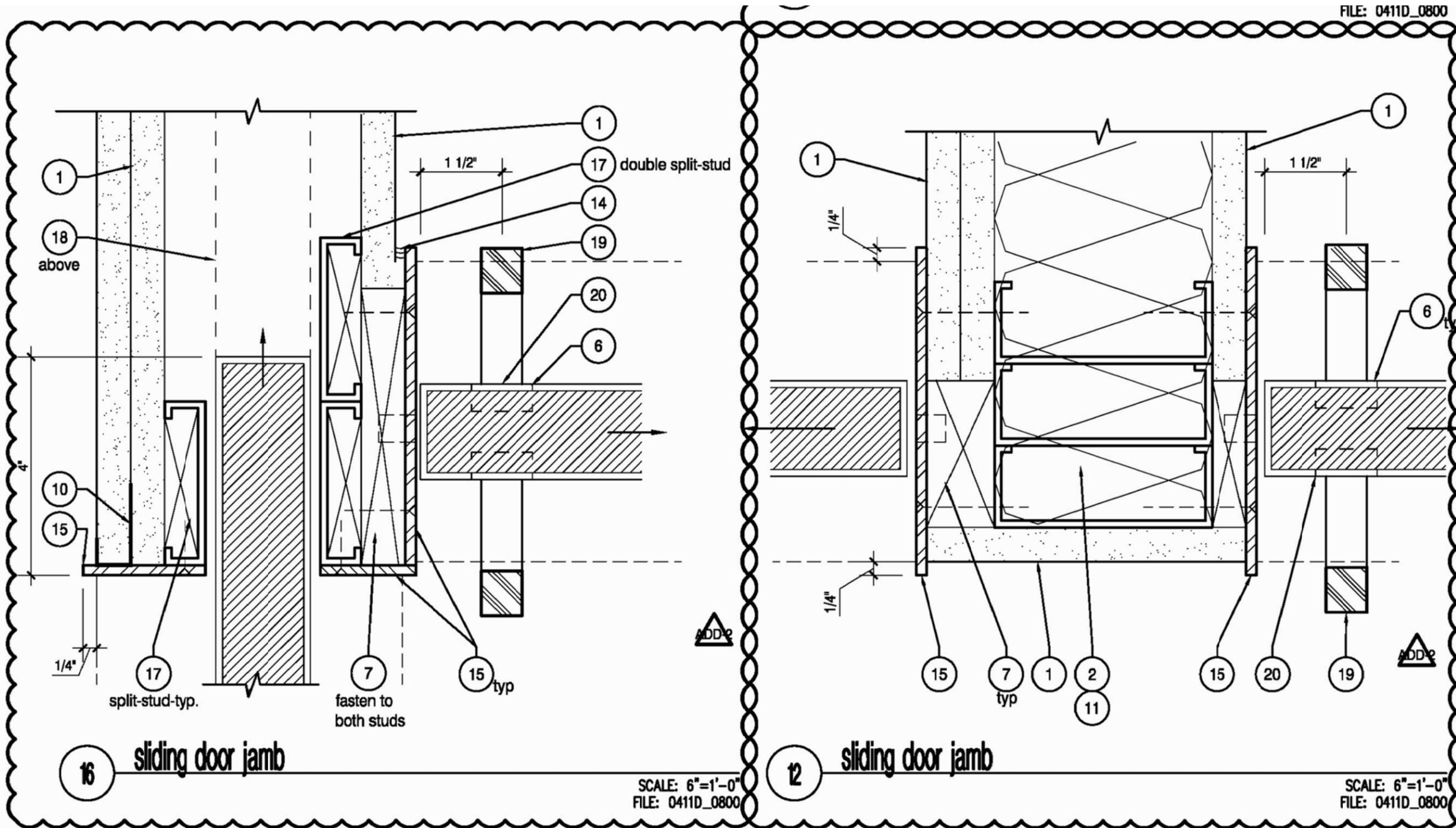
page1



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**gen. notes SKA-05**

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2. see SKA-05 add2 page 1 for keyed notes



**Sketch Sheet**

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

Reference: 12,16/a12.0 - addendum-02

**SKA- 05 add02**

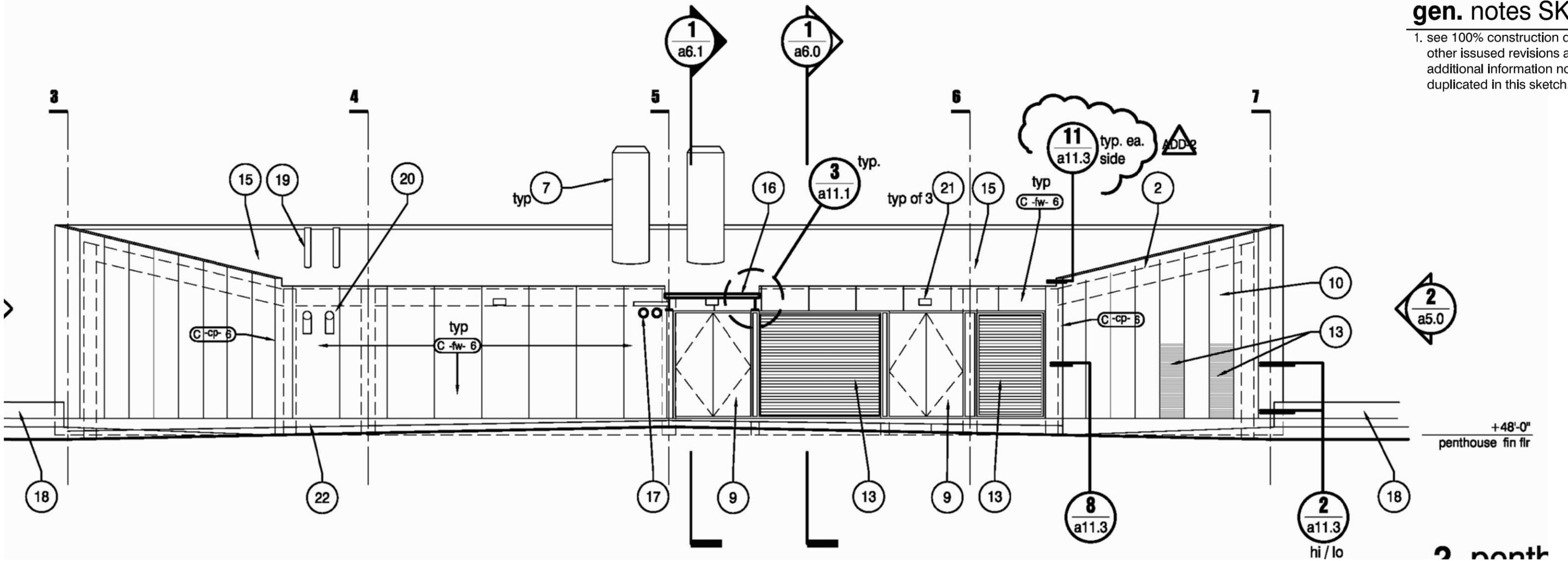
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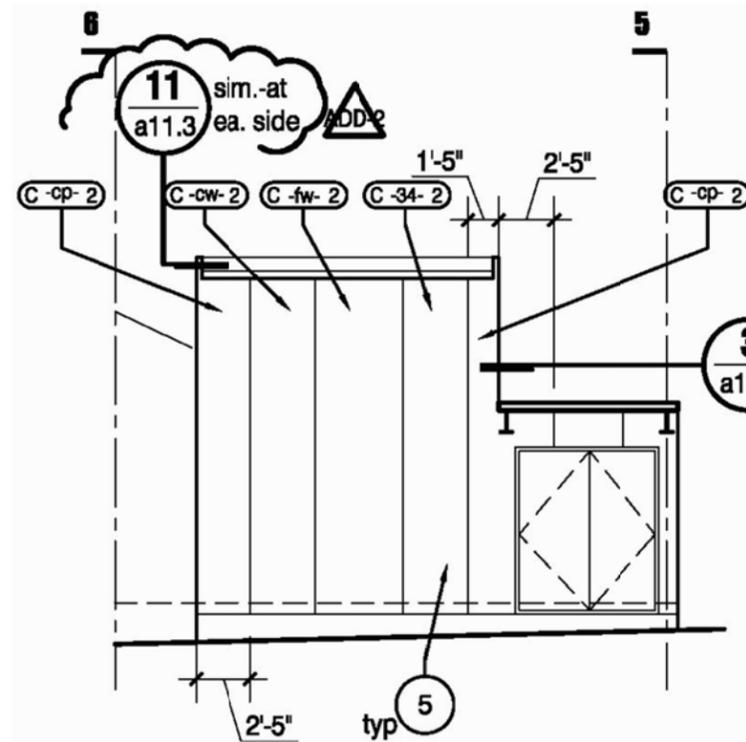
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**gen. notes SKA-06**

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**2 penthouse elevation - south**



**3n elevator elevation**

**Sketch Sheet**

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

Reference: 2,3n/a5.2 - addendum-02

**SKA- 06 add02**

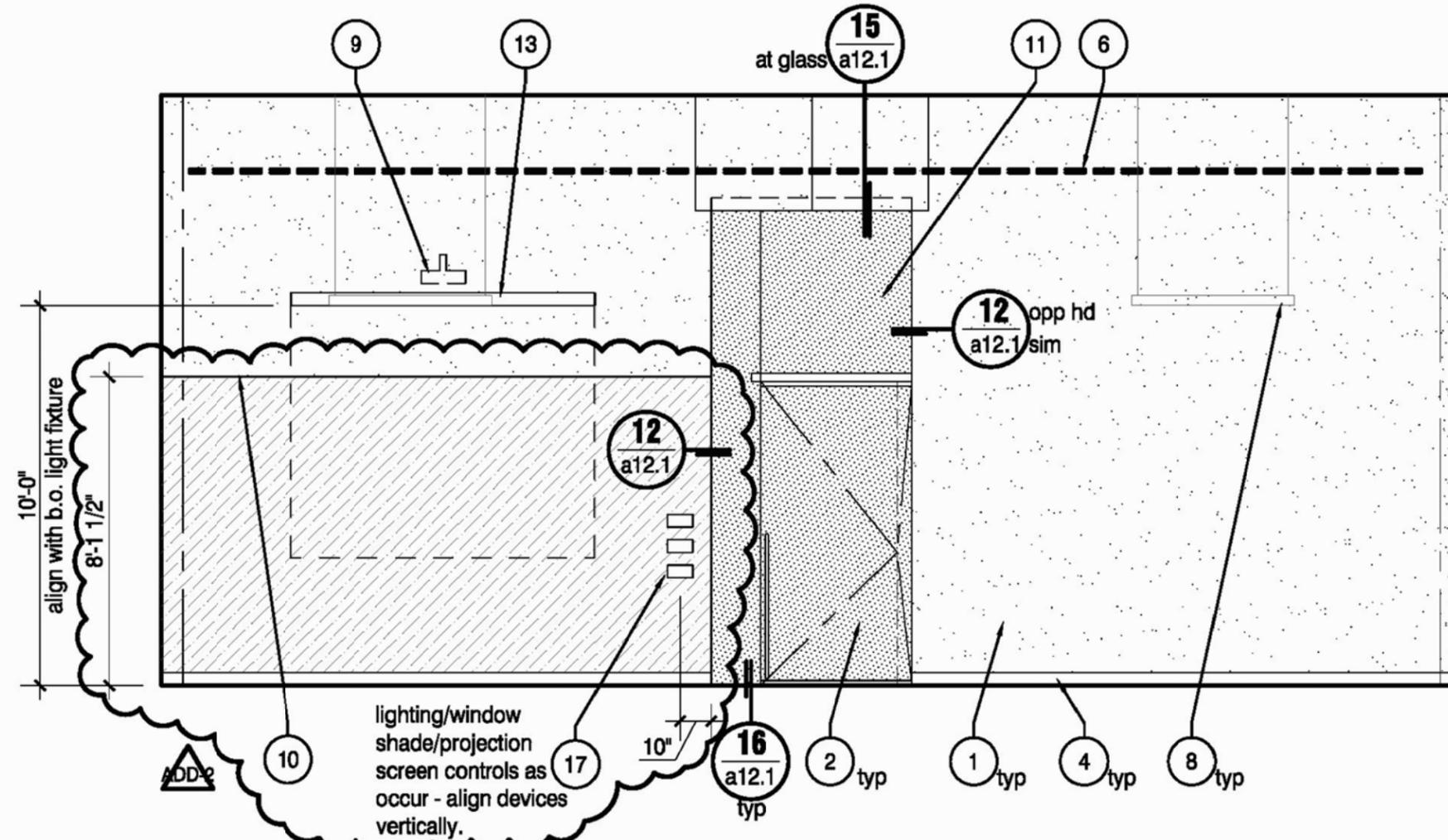
page1



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**1 conference / reading room A202 / admin. conference room A302**

Sketch Sheet

Project Name: DSU- Optical Sciences Center for Applied Research

Project Number: 0411

Date: 11/07/13

Reference: 1/a8.3 - addendum-02

SKA- 07 add02



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