

**EAST HARTFORD-GLASTONBURY
ELEMENTARY MAGNET SCHOOL PHASE 2
GLASTONBURY, CONNECTICUT
STATE PROJECT NOS. 054-0095 MAG/N/PS & 054-0096 MAG/N/PS
GLASTONBURY BID NO. GL-2011-04**

The following changes to the Drawings and Project Manual shall become a part of the Contract Documents superseding previously issued Drawings and Specifications to the extent modified by this Addendum No. 4. Bidders shall ensure this addendum is acknowledged in the appropriate space provided on the Bid Form when submitting their bid.

NOTICE TO ALL PLAN HOLDERS:

If you received this Addendum No. 4 electronically you may not change it in any way except to format it to print on your printer.

CHANGES TO THE DRAWINGS

A. DRAWING NO. A-000.2 - LOWER LEVEL DEMOLITION PLAN-PART B:

- 1) On the Lower Level Demolition Plan-Part B, DELETE removal of concrete floor at the three (3) column locations shown on the No. 11 column grid line. Refer to Numbered Note #6.
- 2) On the Lower Level Demolition Plan-Part B, DELETE removal of concrete floor at the two (2) column locations shown on the No. 10.1 column grid line. Refer to Numbered Note #6.

B. DRAWING NO. A-100.2 - FIRST FLOOR DEMOLITION PLAN-PART B:

- 1) On the First Floor Demolition Plan-Part B, DELETE infill of the concrete floor slab at the three (3) column locations shown on the No. 11 column grid line. Refer to Numbered Note #34.
- 2) On the First Floor Demolition Plan-Part B, DELETE infill of the concrete floor slab at the two (2) column locations shown on the No. 10.1 column grid line. Refer to Numbered Note #34.

C. DRAWING NO. P-000 - PLUMBING NOTES AND SYMBOLS:

- 1) On the Plumbing Fixture Schedule, at Fixtures Type P-1A and P-1B, DELETE reference to EL-154 120/24v remote mounted transformer.
- 2) On the Plumbing Fixture Schedule, ADD Fixture Type P-4B located in Art Room/C-111. Sink: Elkay Model STCR3322 double compartment stainless steel sink with strainers, tailpieces, P-trap and supplies with same faucet as for Sink Type P-4A.

D. DRAWING NO. P-001 - PLUMBING SITE PLAN:

- 1) On the Plumbing Site Plan, ADD cold water make up to ACCH-1 as indicated on Sketch SKP-001-1 dated 2/21/11 (copy attached).

- 2) In the title block on the right hand side of the drawing, REVISE the scale to read 1" = 20'-0".
- E. DRAWING NO. P-100.1 - LOWER LEVEL PLUMBING PLAN-PART A:
- 1) On the Lower Level Plumbing Plan-Part A, ADD cold water and drain to ACCH-1 as indicated on Sketch SKP-100.1-1 dated 2/21/11 (copy attached).
- F. DRAWING NO. P-100.2 - LOWER LEVEL PLUMBING PLAN-PART B:
- 1) On the Lower Level Plumbing Plan-Part B, REVISE storm and sanitary lines as indicated on Sketch SKP-100.2-2 dated 2/21/11 (copy attached).
- G. DRAWING NO. P-101.2 - FIRST FLOOR PLUMBING PLAN-PART B:
- 1) On the First Floor Plumbing Plan-Part B, REVISE storm and sanitary lines as indicated on Sketch SKP-101.2-1 dated 2/21/11 (copy attached).
- H. DRAWING NO. P-203 - UNDERSLAB SANITARY PIPING PART PLAN:
- 1) On the Underslab Sanitary Piping Part Plan, ADD drain for ACCH-1 as indicated on Sketch SKP-203-1 dated 2/21/11 (copy attached).

CHANGES TO THE PROJECT MANUAL

- A. SECTION 00 01 10 – TABLE OF CONTENTS:
- 1) In Volumes 1, 2, and 3, on Page 00 01 10-1, under Division 01-GENERAL REQUIREMENTS, ADD new section to read as follows:
- "01 24 00 - Allowances"
- 2) In Volumes 1, 2, and 3, on Page 00 01 10-3, under Division 07-THERMAL AND MOISTURE PROTECTION, ADD new section to read as follows:
- "07 42 16 - Insulated-Core Metal Wall Panels"
- 3) In Volumes 1, 2, and 3, on Page 00 01 10-3, under Division 08-OPENINGS, ADD new section to read as follows:
- "08 41 23 - Fire-Rated Glass and Framing Systems"
- 4) In Volumes 1, 2, and 3, on Page 00 01 10-6, under Division 23-HVAC, ADD new Section to read as follows:
- "23 82 19 - Fan Coil Units"
- B. SECTION 00 11 16 – INVITATION TO BIDDERS/LEGAL NOTICE:
- 1) On Page 00 11 16-1, under the list of Bid Packages, CORRECT the description of the following bid packages:
- "GL-2011-04 BP-115* Plumbing"
- "GL-2011-04 BP-116* Mechanical / HVAC / Sheet Metal"

C. SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS:

- 1) On Page 00 21 13-4, in Article 2.2, ADD Paragraph C to read as follows:

"C. Photos of the existing site conditions are available for viewing on The Pike Company FTP website. Photos include pictures of the site showing the prior building structure, including pictures of the site after the demolition of the prior building structure. All Bidders can access The Pike Company FTP website, reference the following link and type in the key search word: Glastonbury.
<http://www.pikeco.com/vendor/drawings-specifications>."

D. SECTION 00 24 19 – SPECIAL INSTRUCTIONS AND PROPOSAL REQUIREMENTS:

- 1) Under Bid Package BP-110 - Glazing, Windows & Aluminum Entrances, Item #6, Contractor shall be responsible for the work for the following sections as described: ADD Section 08 41 23 - Fire Rated Glass and Framing Systems - Complete.
- 2) Under Bid Package BP-109 - Roofing, Flashing & Metal Panels, Item #6, Contractor shall be responsible for the work for the following sections as described: ADD Section 07 42 16 - Insulated-Core Metal Wall Panels - Complete.
- 3) Under Bid Package BP-111 - General Trades, Item #6, Contractor shall be responsible for the work for the following sections as described: ADD Section 09 64 00 - Wood Flooring - Complete.
- 4) Under Bid Package BP-115 - Plumbing, Item #6, Contractor shall be responsible for the work for the following sections as described: ADD Section 22 34 00 - Fuel-fired, Domestic-water Heaters - Complete.
- 5) Under Bid Package BP-116 - Mechanical / HVAC, Item #6, Contractor shall be responsible for the work for the following sections as described: ADD Section 23 82 19 - Fan Coil Units - Complete.

E. SECTION 01 11 00 – CONSTRUCTION SCHEDULE:

- 1) DELETE the existing Bid Schedule dated January 13, 2011 from the end of the section and INSERT the new Bid Schedule dated February 18, 2011 in its place (copy attached).

F. SECTION 01 24 00 – ALLOWANCES:

- 1) In Volume 1 of the Project Manual, INSERT new Section 01 24 00 (copy attached) consisting of four (4) pages inclusive following Section 01 23 00.

G. SECTION 07 42 16 – INSULATED-CORE METAL WALL PANELS:

- 1) In Volume 2 of the Project Manual, INSERT new Section 07 42 16 (copy attached) consisting of 14 pages inclusive following Section 07 27 36.

H. SECTION 08 41 23 – FIRE-RATED GLASS AND FRAMING SYSTEMS:

- 1) In Volume 2 of the Project Manual, INSERT new Section 08 41 23 (copy attached) consisting of eight (8) pages inclusive following Section 08 41 13.

I. SECTION 11 40 00 – FOODSERVICE EQUIPMENT:

- 1) CLARIFICATION: See attached memo from Food Service Design clarifying Item Nos. 30, 31, and 35 dated 2/18/11 consisting of two (2) pages inclusive.

J. SECTION 22 40 00 – PLUMBING FIXTURES:

- 1) On Page 22 40 00-5, in Article 2.2, Paragraph A, Subparagraph 1, REVISE the list of manufacturers to read as follows:
 1. American Standard.
 2. Hydrotek International, Inc.
 3. Sloan Valve Company.
- 2) On Page 22 40 00-6, in Article 2.6, Paragraph A, Subparagraph 1, REVISE the list of manufacturers to read as follows:
 1. American Standard.
 2. Kohler.
 3. Sloan Valve Company.

K. SECTION 22 45 00 – EMERGENCY PLUMBING FIXTURES:

- 1) On Page 22 45 00-3, in Article 2.2, Paragraph A, Subparagraph 3, Sub-subparagraph a, DELETE the words: ", and corrosion-resistant enclosure":

L. SECTION 23 51 00 – BREECHINGS, CHIMNEYS AND STACKS:

- 1) In Volume 3 of the Project Manual, DELETE existing Section 23 51 00 and INSERT revised Section 23 51 00 (copy attached) consisting of six (6) pages inclusive in lieu thereof.

M. SECTION 23 82 19 – FAN COIL UNITS:

- 1) In Volume 3 of the Project Manual, INSERT new Section 23 82 19 (copy attached) consisting of 10 pages inclusive following Section 23 82 16.

RESPONSES TO BID RFIS

BID RFI No. B-015 (Dated 1/28/2011)

QUESTION: Please provide a specification for fire-rated insulated glass shown as Type H.

RESPONSE: See Section 08 41 23 - Fire-Rated Glass and Framing Systems issued as part of Addendum No. 4.

BID RFI No. B-020 (Dated 1/28/2011)

QUESTIONS:

1. Columns shown on Dwg S100.1 & grids C.7 & B.3/3 are shown as WF. Dwg S410, Col. Schedule list C.7 at these grids, which is a TS8x8.
2. Please size T.S. col. shown on S101 along grid 11.2 between K & L not used on schedule, also K.1 – 11.3 on schedule is mislabeled, it should be K.1 – 11.1.
3. On Schedule (S410) please verify label C1 at E.2-2 should be E-7.

4. C2 is listed as a W 8x24 at grids A.8-9 and D. 7-9, D.7-10 show a T.S. Please clarify C3 is similar shown as T.S., listed as WF.
5. C10 is listed in schedule at C-12.2, D-12.2 & E-12.2, but is shown at B.7 – 12.2, D12.2 & E.2 – 12.2 (verify)
6. C11 is listed as W8 but shown on plan as T.S. schedule lists C at P.7-11 plan shows nothing at that grid.
7. C12 is listed as W8 but shown on plans as T.S.
8. C13, C16, C17 & C21 same as C12.

RESPONSES:

1. Use column sizes shown on S410.
2. K.1-11.2 shown on S410 is K.1-11.3, C8.
3. Yes, E.2-2 on S410 is E-2.
4. Use column sizes shown on S410.
5. C-12.2 on S410 is B.7-12.2.
6. D.7-11 is not shown on S410.
7. Use column sizes shown on S410.
8. Not sure of your question? I think you are asking whether to use HSS or W? Use column sizes shown on 410.

BID RFI No. B-044 (Dated 2/1/2011)

QUESTION: At areaways # 1 & 2. Neither drawings shows the necessary structural framing required to support the hinged grating panel on the hinged in. Please provide framing sketch showing member sizes and fastenings details.

RESPONSE: Use C6x8.2 at hatch locations. See attached Sketch SSK-3.

BID RFI No. B-045 (Dated 2/1/2011)

QUESTION: Drawing A-102.2 at the immersive theater shows two wall ladders to the inner dome and two wall ladders to the outer dome. Thus, there are 4 ladders and 4 hinged sections in the checkered plate catwalk. Drawing S120 only shows framing for 2 hinged sections. Which drawing is correct?

RESPONSE: The architectural drawings are correct and there should be 4 ladders in the Immersive Theater.

BID RFI No. B-063 (Dated 2/2/2011)

QUESTION: Note 3 on sheet S101 says all top of footings to be -4'0" UNO. When you look at the column schedule sheet S401, most or all of the columns that show up S101.3 have a base plate elevation of -1'0". To accomplish this piers and or pilasters will be required, but none are shown. Please provide pier and or pilaster requirements.

RESPONSE: See typical Detail 1/S401.1 for pier details. All "P1" piers called out on plan shall be 24" square.

BID RFI No. B-083 (Dated 2/2/2011)

QUESTION: The scope of work for this bid pkg list spec sections 06 20 23 and 12 32 00 to be provided complete. However neither are in the issued spec books. Please clarify. Issue missing spec sections.

RESPONSE: In Bid Package BP-108 Millwork & Casework, under Item #6 DELETE it its entirety reference to spec Section 06 20 23 and Section 12 32 00.

BID RFI No. B-098 (Dated 2/2/2011)

QUESTION: On Sheet S100.1 there is a note stating all BFE are to be at -4'0". Detail 1/S201 indicates something below – 11'7", with no dimension. What is the elevation of the footings in the areaways. Detail 4/S312 indicates the top of footing in the stair to be at about -12'0". What is the elevation of that footing?

RESPONSE: The note on S100.1 calls out bottom/ftg elevations as [-4'-0"] U.O.N. (unless otherwise noted, see abbreviations on dwg S401). Bottom of footing elevations in Sections 1/S201 and 4/S312 are to match existing and be verified in field. For bidding purposes, assume bottom of footing for all existing basement foundations is [-12'-7"]. Per drawing S401, General Notes, Note #10, do not scale drawings.

BID RFI No. B-108 (Dated 2/4/2011)

QUESTIONS: Please size column shown on S101.1 & S102.1 along grid line E North of grid line # 6.

RESPONSE: Column is shown incorrectly and should be eliminated. Changes to S102.1: DELETE column shown along grid line E approximately 7'-3" north of column line 6. Changes to S101.1: DELETE column shown along grid line E approximately 7'-3" north of column line 6. DELETE W21x50 that spans from E to D.7 approx. 7'-3" north of column line 6. CHANGE W24x55 on that spans from E to C.7 on column line 6 to W27x94.

BID RFI No. B-110 (Dated 2/4/2011)

QUESTIONS: 1) Please size column shown on Dwg S102.2 along grid 11 between C.4 & C.7. 2) Schedule S410 notes C10 at grids C12.2 & E12.2 verify they should be B.7, 12.2 and C.2 12.2. Also schedule list size grid E.79, shouldn't this be E.6 8.9. 3) Schedule S410 Note C17 at grid K.5 10.4 verify this should be K.5 11. 4) In my RFI # 5, #2 I mislabeled grids on K.1. It should read K.1 11.2 should be K.1 11.3. 5) Schedule S410 notes C12 & grid E.7.9, should this be E.6 8.9.

RESPONSES: 1. See 10/S301. 2. Yes, change S410 to show column C-2.2 as B.7-12.2, column E-12.2 as E.2-12.2, and column E.7-9 as E.6-8.9. 3. Column K.5-10.4 is shown correctly on S410, and should be on those grids on S101.3 & S102.3. Column K.5-11 is shown incorrectly on S102.3 and should be K.6-11. K.6-11 is a C13 on S410. Column K.6-11.2 is shown incorrectly on S410 and should be K.7-11.2, still a C13. 4. I don't have a way to identify your RFI #2. Please restate the question. 5. See answer #2.

BID RFI No. B-112 (Dated 2/4/2011)

QUESTION: At the elevated platform area there are two CMU walls running north and south. Is the CMU to sit in the footing, or is there to be CIP wall under CMU?

RESPONSE: CMU walls sit on CIP wall as shown in attached Sketch SSK-4.

BID RFI No. B-114 (Dated 2/4/2011)

QUESTION: Bid package No. 105 Concrete, special instruction No. 33 Bid package No. 104 Site Work, special instruction No. 30. Both bid packages are instructed to furnish and install under slab vapor retarder. Please clarify.

RESPONSE: SAME AS RFI B-074.

The Concrete Contractor shall be responsible for the Vapor Barrier.

NOTE: BP-104 Site Work & Site Improvements, Special Instructions, DELETE in its entirety Item #30.

BID RFI No. B-115 (Dated 2/4/2011)

QUESTION: Drawing S100.2, Section 6/S201. Who is responsible for the underpinning?

RESPONSE: Bid Package BP-104 Concrete is responsible for the underpinning.

BID RFI No. B-116 (Dated 2/4/2011)

QUESTION: We do not find a pier schedule. Many foundation bearing columns do not designate a pier type (some indicate P-1 but most do not). Detail 1/S401.1 details pier reinforcing and sizes, but does not indicate which pier types.

RESPONSE: See typical detail 1/S401.1 for pier details. All piers shall be 24" square.

BID RFI No. B-118 (Dated 2/4/2011)

QUESTION: It appears the datum is established as 0'-0" from the 1st floor. Yet on drawing S100.1 a note indicates that "all bottom of footings elevations @ interior are [-2'-10"]", which is from the lower floor level that is actually elevation -11'-7", which should make the interior footings at elevation - 14'5". Also on drawing S100.0 at "areaway # 1" there is a note indicating that exterior bottom of footing elevations are [4'-0"] from finish grade. This is confusing and cause for costly errors. Please establish a consistent reference for elevations.

RESPONSE: See Plan Notes, Note 1 on S100 and S101. Top of finished floor is given for each level, and elevations given in brackets are to be added or subtracted from that elevation. The note on S100.0 calls out bottom of footing elevations U.O.N. (unless otherwise noted, see abbreviations on drawing S401). Footing elevations for the areaway are shown in section 1/S201, which are to match existing and be verified in field. If you have a specific location where you are confused, please submit an RFI.

BID RFI No. B-119 (Dated 2/4/2011)

QUESTION: Please provide an elevation reference for the bottom of the existing wall footing. There is nothing listed on the drawings. Areaway #1, section 1/S201 tells us to match the bottom of the exiting footing with the new areaway wall footing. The section indicates that the existing footing is some distance well below the existing lower level slab. Yet there are other sections that indicate these existing footing are just below the existing lower level slab. This question also pertains to areaway #2 as well as new stair #2.

RESPONSE: Bottom of existing footing is unknown and must be verified in the field. For bidding purposes, all bidders may estimate [-12'-7"].

BID RFI No. B-123 (Dated 2/4/2011)

QUESTION: BP-104 Item 30 states that site contractor provides vapor retarder. BP 104 item 33 states that concrete contractor provides vapor retarder. Please clarify which bid package carries vapor retarder.

RESPONSE: Same as RFI B-074. The Concrete Contractor shall be responsible for the vapor Barrier. NOTE: BP-104 Site Work & Site Improvements, Special Instructions, DELETE in its entirety Item # 30.

BID RFI No. B-135 (Dated 2/7/2011)

QUESTION: Building expansion at the media center (curved wall). There are no footing elevations. Will the footings be at -4'0" from finish grade, or step to meet existing footings?

RESPONSE: Top of footing at Media Center (curved wall) shall match top of existing basement footing on column line E.

BID RFI No. B-136 (Dated 2/7/2011)

QUESTION: Drawing A000.1 indicates we are to remove several areas of existing construction. A site visit has revealed a couple of areas of potential concern. There is an insulation material between the wythes of the masonry wall that is to have openings cut into. What is the material and has it been tested? The material is also on the west wall. Has the paint been tested for lead, and what are the results of the testing?

RESPONSE: The mastic material and the closed cell insulation was tested and determined to be non-ACM. Each of the items raised are addressed in Hazardous Materials Report which was attached to the Phase 1 bid documents.

BID RFI No. B-137 (Dated 2/7/2011)

QUESTIONS: THE BUILDING EXTENSION AT THE SCIENCE CLASSROOMS B118 & B119 NEEDS ADDITIONAL INFORMATION.

- 1) THE DEPTH OF THE EXTENSION IS NOT GIVEN, BASED ON DIM'S FROM A-101.2, IS 2'-11 1/8" CORRECT?
- 2) IF THIS IS CORRECT, THE FOOTING WIDTH IN SECTION 3A/S201 ENCROACHES INTO THE EXIST. FOOTING
IF THE EXIST. FOOTING IS SHOWN CORRECTLY.
- 3) THE F4.0 COLUMN FOOTINGS ENCROACH INTO THE EXIST. FOOTING.

- RESPONSE:**
- 1) See S100.2: Dimensions shown to corner of foundation wall at approximately B.7-12.2.
 - 2) Verify existing footings in the field. If new footing encroaches on existing footing, use dowels as shown in attached Sketch SSK-1.
 - 3) See answer to #2.

BID RFI No. B-141 (Dated 2/7/2011)

QUESTION: Drawing A101.2, near door B125A: What does the letter in the circle denote?

RESPONSE: Refer to Drawing G-001 General Information, Symbol List: The letter in the circle indicates the directional signage type found on A-920.

BID RFI No. B-143 (Dated 2/7/2011)

QUESTION: Drawing A910, Room C103, Misc. column: What does STG-1 denote?

RESPONSE: STG-1 Refers to the stage curtain or platform curtain. Please refer to specification Section 11 61 46. Basis of Design Product is Rose Brand Encore - inherently flame resistant in color provincial.

BID RFI No. B-146 (Dated 2/7/2011)

QUESTION: Detail 6/A802: What does TB-X denote?

RESPONSE: TB-1 per Drawing A910. Please refer to 09 06 00 for more information.

BID RFI No. B-152 (Dated 2/7/2011)

QUESTION: Drawing A910: Room C103 notes base WB-1. We do not find this base type in Spec 09 06 00. Please clarify intended base finish. Spec 090600, page 23: Where do we find SNG on the drawings? Please clarify.

RESPONSE: WB-1 IS WOOD BASE TO MATCH WOOD WALL PANELS ON BACK OF PLATFORM PER DWG 2/A813 & SPECIFICATION SECTION 09 71 13 MAPLE WITH MAHOGANY STAIN. SNG REFERS TO SIGNAGE " LOCATION SPECIFIES DWG A920 FOR WALL PLACEMENT. FOR TYPES AND LOCATIONS REFER TO GENERAL NOTE 7 REFER TO DOOR SCHEDULE. FOR ADDITIONAL INFORMATION SEE SPECIFICATION SECTION 10 14 00.

BID RFI No. B-153 (Dated 2/7/2011)

QUESTIONS: Enlarged plan view 4/A602 notes a 6" x 4" solid wood curb on the stage along the ramp. A. Please confirm this is maple species. B. Please clarify the finish of the (assumed maple) curb.

RESPONSE: Yes please use maple species in Mahogany stain to match wood panels. See specification Section 09 71 13.

BID RFI No. B-156 (Dated 2/7/2011)

QUESTION: Fire Extinguishers: We do not find any on the first or second floors. Confirm Kitchen is the only one on these floors.

RESPONSE: Yes, that is correct. The kitchen is the only room that will receive a fire extinguisher.

BID RFI No. B-159 (Dated 2/7/2011)

QUESTION: Spec 115423 Para 2.2I specified K-13 insulation for the outer dome. Section 17/A306 shows batt insulation for the outer dome and under the catwalk. Please clarify the insulation.

RESPONSE: Delete reference to the symbol texture of the dome and catwalk insulation as shown on 17/A306. The notes for the insulation on 17/A306 direct the Contractor to provide the same insulation and vapor barrier across the bottom of the access platform as is specified for the outer dome therefore provide the same insulation and vapor barrier across the bottom of the access platform as is specified for the outer dome.

BID RFI No. B-161 (Dated 2/7/2011)

QUESTION: Drawing A910 Note 20: We do not find WDT-1 in Finish Schedule 09 06 00. Please clarify.

RESPONSE: NOTE 20 on drawing A910 is a typo. The note is referring to WT-1 on 09 06 00. "All windows are to receive WT-1 unless otherwise noted (See finish Schedule) verify all sizes in field prior to ordering.

BID RFI No. B-162 (Dated 2/7/2011)

QUESTIONS: Spec 12 24 13 Para 2.6B lists a WT-3 window treatment. Confirm there are none. Drawing A910, room C101: Scheduled for a window treatment WT-5. Provide specification for this.

RESPONSE: Please refer to specification Section 09 06 00 "Location" and use WT-3 in science rooms B118 & B118A and use WT-4 in Gymnasium.

BID RFI No. B-165 (Dated 2/7/2011)

QUESTION: Do the jackhammer restrictions in note 7 pertain only to the elevated slab or to all of the existing structure?

RESPONSE: Jackhammers and reciprocating equipment are prohibited for all demolition of the existing structure in Phase 2.

BID RFI No. B-167 (Dated 2/7/2011)

QUESTIONS: Note 6 tells us to locate the existing rebar, with care taken not to over cut or damage the existing rebar. The location of the new columns and the MEP openings will necessitate cutting substantial sections of rebar. Is it the intent to not cut rebar or just to minimize the cutting? Will we be required to mark out the rebar and consult the EOR before doing any cutting?

RESPONSE: Note 6 on S101.0 should be changed to read, "...locate reinforcing steel in the NEW slab..." and refers to any core drilling after the new slab is poured. If you cut the new slab, you will be required to mark the rebar and notify EOR.

BID RFI No. B-168 (Dated 2/7/2011)

QUESTIONS: Detail 2/S301 shows new beams installed tightly to the existing structure. Since 100% contact is unlikely, will these beams need to be grouted? If they are grouted, which BP will do the work?

RESPONSE: Response Part 2: If grouting is required, this scope of work shall be part of Bid Package BP-105 Concrete.

BID RFI No. B-171 (Dated 2/9/2011)

QUESTIONS: Please provide connection details for the cont. angle to beams shown in details 2, 3 & 4A/S313. Please provide clip angle length required in details 1/S403.1 (notes say angle clips continuous)?

RESPONSE: Provide 1/4" fillet weld from angle to W beam, stitched 2" at 12" o.c. Angles are continuous.

BID RFI No. B-172 (Dated 2/9/2011)

QUESTION: Should we include light pole bases?

RESPONSE: Reference Section 00 24 19 under Item # 14 d. Sitework Contractor shall be responsible for the concrete light pole bases. Under bid package BP-104 Sitework, Item # 65 at the end of the sentence before the word etc.: "including cast-in-place concrete site light pole bases." Also see Drawing E-001.

BID RFI No. B-179 (Dated 2/9/2011)

QUESTION: Special Instructions Note 24: Please verify the quantity of the access doors for MEP trades. We believe we should have the installation only for the drywall areas.

RESPONSE: No quantities will be provided. Refer to Section 00 24 19 – Proposal Requirements & Special Instructions for who is responsible for installation of access panels based on wall type.

BID RFI No. B-181 (Dated 2/9/2011)

QUESTION: Please consider moving the sole responsibility of the IAQ reports to the mechanical contractor.

RESPONSE: Discussions were had regarding the responsibility for the IAQ reporting and the documents will stand as written. Please read the documents carefully as it relates to BP-103 Testing and Inspections, BP-111 General Trades & BP-115 Mech/HVAC.

BID RFI No. B-188 (Dated 2/9/2011)

QUESTION: Section # 06 20 23 is listed under Bid Package Scope 108 section is not in the spec book. Please advise.

RESPONSE: Same As RFI B-083 – In Bid Package BP-108 Millwork & Casework, under Item # 6 DELETE it its entirety reference to Spec Section 06 20 23 and Section 12 32 00.

BID RFI No. B-189 (Dated 2/9/2011)

QUESTION: Section # 12 32 00 manufactured wood casework is listed under bid package # 108. Section is not in the spec book. Please advise.

RESPONSE: Same as RFI B-083. In BP-108 Millwork & Casework, under Item #6 DELETE it its entirety reference to Spec Section 06 20 23 and Section 12 32 00.

BID RFI No. B-191 (Dated 2/9/2011)

QUESTION: Section 12 56 51 calls out to supply study carrels and table in the library. NOTE: There is no furniture shown on the drawings. Please advise.

RESPONSE: The study carrels and table are shown on drawing A102.2. See attached Sketch SK-101.2.

BID RFI No. B-193 (Dated 2/8/2011)

QUESTIONS: Interior elevation 4 on drawing A811 shows flat metal wall panels to match curtainwall. Similarly A701.2 shows metal soffit under the aforementioned elevation. In what bid package do these panels belong? Can the pertinent spec section be identified? Are there any sections or details relative to this construction?

RESPONSE: Part – 1 - BP-111 General Trades will be responsible to provide the Metal Panels (WP-1) and Wall Panel System WP-2 at the Soffit located in the Gallery B-106, reference A910 Walls WP-2 and Ceiling WP-1.

RESPONSE: Part – 2 - Refer to Section 07 42 16 issued as part of Addendum No. 4.

BID RFI No. B-195 (Dated 2/8/2011)

QUESTION: We are bidding the GL-2011-04 BP-110 bid package Glass & Glazing, Windows etc. We will be filling out the Bidders questionnaire Section 00 45 13 - but I am not sure how to fill out Section 00 45 13.13 (page # 00 45 13. 13-1).

RESPONSE: Section 00 45 13.13 - Bidder's Qualifications - Immersive Theater Equipment and Domes shall be completed by the Immersive Theater/Planetarium Subcontractor and submitted to the General Trades Contractor to submit with their Bid Proposal. **NOTE: Bid Package BP-111 will be the ONLY Bid Package required to include (Section 00 45 13.13) with their Bid Proposal.

BID RFI No. B-198 (Dated 2/8/2011)

QUESTIONS:

1. Verify size of rolled beams unsized in Plan 4/S120.
2. Verify what "(C)" represents noted on W24x146 & TS12x6x5/16 in plan 4/S120
3. Verify column size for DD/10.1. Schedule notes A: W8x24 on S410 plans show a round section similar to other columns on grid 10.1 which are HSS16x3/8.

RESPONSES:

1. Curved beams without sizes are HSS12x6x5/16 (C), typical.
2. As shown on plan notes on S110, referred to in 4/S120, "(C) indicated curved beam on plan."
3. There is no column on DD/10.1? Please clarify which column and which drawing you are asking about.

BID RFI No. B-200 (Dated 2/8/2011)

QUESTION: Detail 3/S101.0 tells us to drill and epoxy bars into the existing wall, size to match horizontal bars in the slab. Are these supposed to be the #7 or #4 bars? If they are the #7 bars, what is the spacing supposed to be?

RESPONSE: Section 3/S101.0 refers to the #4 @ 10"o.c. top bars shown in the Level 1 Concrete Slab Plan at all sides of the plan. This detail also refers to the #6 and #7 top bars at Column Line 12 only, match spacing of top bars.

BID RFI No. B-203 (Dated 2/8/2011)

QUESTION: Metal Fabrications BP-111 spec section 05 50 00 does this pertain to only the supports for the operable partition? Please clarify to what extent BP -111 is responsible for metal fabrications.

RESPONSE: Yes, unless otherwise noted.

BID RFI No. B-206 (Dated 2/9/2011)

QUESTION: There are no sections for the new shear walls on the new 12" topping slab. Please provide sections and details. Will the detail be similar to 3/S403?

RESPONSE: Typical detail is shown in 3/S403.1 "Masonry Typical Details"

BID RFI No. B-207 (Dated 2/9/2011)

QUESTION: The hatched area at column A-3 has section 6/S313. The section appears to be cut in the wrong direction. Is this the only existing opening to be filled in?

RESPONSE: You are correct, the section should be cut in the other direction. Fill in existing opening as shown on the drawing, one location only.

BID RFI No. B-208 (Dated 2/9/2011)

QUESTION: Please clarify which BP is responsible for the excavation & backfill of new footings and MEP trenches within the existing building.

RESPONSE: BP-104 Sitework is responsible for Excavation and Backfill of the new footings and MEP Trenches within the existing building.

BID RFI No. B-209 (Dated 2/9/2011)

QUESTION: Which bid package owns the vapor retarder beneath the SOGs? See bid package 104 item # 30 & Bid package 105 item # 33.

RESPONSE: Same as RFI B-074. The concrete contractor shall be responsible for the Vapor Barrier.
NOTE: BP-104 Site Work & Site Improvements, Special Instructions, DELETE in its entirety Item # 30.

BID RFI No. B-210 (Dated 2/9/2011)

QUESTION: Column line 9 from G.3 to F appears to be a shear wall, but is not labeled. Partial plan 4/S100.4 does label this as a F4.0x55.0. This F4.0x55.0 does not appear on the "Shear Wall Footing Schedule" on drawing S101.

RESPONSE: Shear wall at the location is labeled on 4/S100.4 as "SW" left of C.L. F.1, and on S101. For footing F4.0x55.0, size is 4'-0" x 55'-0" x 1'-4" deep. Use same reinforcing as F4.0x57.0 in "Footing Schedule" on S101.

BID RFI No. B-211 (Dated 2/9/2011)

QUESTION: Column line 12 from F to E.2 indicates a shear wall footing F4.0x30.0. This appears to be incorrect, as the length of this wall is only approx. 19'-6".

RESPONSE: You are correct. This footing should read "F4.0x22.0".

BID RFI No. B-212 (Dated 2/9/2011)

QUESTION: Please verify which beam is required at grid line 11 between K.5 & K both a w24x55 and w14x34 are shown. Please clarify which beam size is required for all w21x48's on S110.1 & S110.2. There is no such beam.

RESPONSE: W24x55 at that location is not required. See AISC Steel Construction Manual, 13th edition.

BID RFI No. B-213 (Dated 2/9/2011)

QUESTIONS: With regard to the shoring called out in the notes, please provide the following information: Will the SOG handle the point loading of post shores, or will cribbing be required? Will the 10" suspended slab handle similar requirements as above? Will stamped drawings be required for the shoring? Should we assume to carry the loads of the existing slab as well as the new slab?

RESPONSES: The existing SOG is an 8" unreinforced slab. Allowable bearing pressure is 3000 psf as shown on S401. As long as the post shores are designed not to punch through the existing SOG, they may be used. Post shoring requires continuous support at the existing slab above.

Please submit signed/sealed shoring drawings for Owner/Architect record only.

Shoring shall be designed to include all "Shoring Loads" shown in Notes on S101.0, including 125 psf for existing slab.

Note that loads given do not include wet concrete load or equipment, as shown in Notes. support at the existing slab above.

BID RFI No. B-217 (Dated 2/9/2011)

QUESTION: 2.4 – H "ssprinkler shall be # S2001. Drawing # IR -1 Large Heads # TR70XTP, which head will be required?

RESPONSE: Delete reference to #S2001 in the specification. Use TR70XTP.

BID RFI No. B-219 (Dated 2/9/2011)

QUESTION: 2.16 A "Enclosure". What does it enclose? (controller, pump station, backflow) What is the model #?

RESPONSE: Section 32 84 00, 2.16A references the enclosure for the Controller. Use enclosure model #SB-24SS.

BID RFI No. B-220 (Dated 2/9/2011)

QUESTION: 2.13 A Rain Sensor....shall be wired into any new controller. Drawing # IR-1 Toro Wireless Rain Sensor. Is it wired in or wireless?

RESPONSE: The rain sensor is wireless.

BID RFI No. B-221 (Dated 2/9/2011)

QUESTION: 2.15 – Complete Pro Series Monroe Pump. Drawing # IR-1 Have to verify P.S.I.- How do we know we need a 2HP pump if we don't know P.S.I. @ P.O.C.? 2.13 A Rain Sensor....shall be wired into any new controller. Drawing # IR-1 Toro Wireless Rain Sensor. Is it wired in or wireless?

RESPONSE: All bidders to carry a 2 HP pump in their bid. P.S.I. TBD at a later date.

BID RFI No. B-222 (Dated 2/9/2011)

QUESTION: Please clarify finish for Room B131.

RESPONSE: PLEASE REFER TO GENERAL FINISH NOTE 17 ON A910. SEE ATTACHED FOR UPDATED FINISH SCHEDULE.

BID RFI No. B-223 (Dated 2/9/2011)

QUESTION: Please clarify finish for accent strip at terrazzo floor.

RESPONSE: Please refer to finish schedule 09 06 00 TES-1 in satin finish.

BID RFI No. B-224 (Dated 2/9/2011)

QUESTION: Please clarify the wet wall tile detail. Is tile on the actual wet ONLY or is the tile on adjacent walls as well? Also, please clarify detail 4 on drawing A-502/tile shower. There is a tile shower.

RESPONSE: Tile is to be installed on wet walls only unless otherwise noted in drawing A910. Material change for B130. See attached updated finish schedule. Flooring to be CFT-M1 and wall tile to be CWT-2 on all walls full height. Refer to 09 06 00 for more information on finishes.

BID RFI No. B-229 (Dated 2/9/2011)

QUESTION: Who owns the riser and nosing on the platform? Also, please clarify the finish on the ramps from the gym floor to the platform.

RESPONSE: RAMPS TO RECEIVE SPTF. SEE DRAWING A910 FINISH SCHEDULE - PLATFORM-COMMENTS.

BID RFI No. B-260 (Dated 2/10/2011)

QUESTION: Financial information on bidder qualifications – our corporate policy prohibits distribution of our financial statements to anyone other than our banks and bonding company. An exception might be made pending contract award. Could financial statement be submitted for review at that time?

RESPONSE: YES, Contractors shall NOT be required to provide the financial information on the Bidder Qualification Form. The Owner reserves the rights to request the information after bids have been received and prior to awarding contracts.

BID RFI No. B-263 (Dated 2/10/2011)

QUESTION: Note 6 indicated to provide the draper scissor lifts. Please confirm that the electrical contractor is to carry this in their bid.

RESPONSE: The Draper scissor lift shall be the responsibility of BP – 117 Electrical.

BID RFI No. B-278 (Dated 2/11/2011)

QUESTIONS: BP-103 there are only unit rates being requested (no lump sum) – Will a bid bond & surety requirement be waived for this package?
Regarding prevailing wage – the State does not list for our inspectors or technicians. This should be waived for our bid package. Please let us know.

RESPONSES: Under Bid Package BP-103 Testing & Inspections note the following clarifications: 1. There is no Lump Sum Base Bid Amount, ONLY Unit Rates with some lump sum values. 2. Bid Package BP-103 will not be required to provide a Bid Bond and Surety Requirements. 3. Prevailing Wages DO NOT apply to Bid Package BP-103 Testing and Inspections.

BID RFI No. B-281 (Dated 2/11/2011)

QUESTION: Reassigning gym game lines to BP – 112.

RESPONSE: Upon further review of Bid Packages BP-111 General Trades and BP-112 Flooring:
1. Reference Bid RFI No. B-151 VOID Response in its entirety and replace with the following.
2. Under BP-111 General Trades - DELETE Item #117 in its entirety.
3. Under BP-112 Flooring - ADD New Item #27 to READ: Contractor shall be responsible to clean, prep, prime and finish paint interior Gymnasium Floor Line Painting as specified per Section 09 67 66, Para 3.5 Game Lines and Markers, Reference Drawing A-841.

BID RFI No. B-305 (Dated 2/10/2011)

QUESTION: Do we own the vapor retarder/vapor barrier or the concrete contractor?

RESPONSE: SAME AS RFI B-074. The concrete Contractor shall be responsible for the Vapor Barrier. NOTE: BP-104 Site Work & Site Improvements, Special Instruction, DELETE in its entirety Item # 30.

BID RFI No. B-313 (Dated 2/14/2011)

QUESTION: Reference Special Instruction Part E Unit Prices for daily rate to use elevator using dollars per (CY) Cubic Yard. This doesn't make sense.

RESPONSE: Under Bid Package BP-111 General Trades 00 24 19-14, E. Unit Prices: **CHANGE** the Units from (CY) Cubic Yards to **READ:** Daily Rate.

BID RFI No. B-314 (Dated 2/14/2011)

QUESTIONS: 1. Reference Special Instructions Part F Allowances. Specification 01 24 00 Allowances is not included in the specifications, please advise. 2. Allowances 1 & 3 are not clear on type & sizes of product to include. Please advise.

RESPONSES:

1. ADD Spec Section 01 24 00 - Allowances to the Project Manual, included in Addendum No.4.

2. Roller Window Shades:

Allowance 1A - Classroom Roller Shades - WT-1, 4'-2" x 7'-4" - Window Type "W-4"

Allowance 1B - Science Classroom Roller Shades - WT-3, 4'-0" x 7'-4" - Window Type "W-12"

Allowance 1C - Café / Media Center - WT-2, 6'-0" x 12'-0" - Window Type "W-22"

Allowance 1D - Gym - WT-4, 5'-6" x 5'-4" - Window Type "W-25"

Visual Display Surfaces:

Allowance 3A - Marker Boards - 5'-0" x 4'-0" (Floor Plan note #3)

Allowance 3B - Tack Boards - 5'-0" x 4'-0" (Floor Plan note #5)

3. Under BP-111 General Trades, 00 24 19-16, F - No. 5 Allowance - Final Cleaning - **CHANGE** the Units from (EACH) to **READ:** "Unit Rate per HOUR.

BID RFI No. B-315 (Dated 2/14/2011)

QUESTION: Reference Special Instructions 36 Project Lift. Do you mean Projector Lift? If yes, please provide specification and attachment detail.

RESPONSE: Yes, it should read Projector Lift. In addition, see Bid RFI No. B-042 Response regarding BP-111 Item #36. Refer to Addendum No. 5 for specification section and details for projector lift.

BID RFI No. B-316 (Dated 2/14/2011)

QUESTION: The reference Spec Section (01 74 19) is not included in the manual.

RESPONSE: Spec Section 01 74 19 - Construction Waste Management and Disposal is part of ADDENDUM NO. 1, dated January 27, 2011.

BID RFI No. B-317 (Dated 2/14/2011)

QUESTION: Reference Bid Form section on proposed Major vendors/Suppliers/Manufacturers and Subcontractors and Instruction to Bidders 00 21 13 Part 6.0.D. Please provide the criteria that the Owner, Architect and CM will use to determine the qualifications of the Bidder based on the vendors named in the bid. Since the Bidder has the right to substitute one of these vendors should the Owner not approve, why make it a requirement of all bidders? It should be, and is, a requirement of the successful apparent low bidder. Please define what constitutes "Major".

RESPONSES: In reference Section 00 41 16 - BID FORM, the part on proposed "Major" Vendors, Suppliers and Subcontractors the work "Major" refers to: - All Subcontractors in which the Prime Contractor will hire to perform work under the Prime Contractors Contract with the Owner. - All Vendors or Suppliers providing any substantial piece of operating equipment; (i.e.: AHU's, Boilers, Switchgear, Generator, etc.), or primary building component; (i.e.: Windows, Metal Panels, Roofing, etc.).

BID RFI No. B-318 (Dated 2/14/2011)

QUESTION: Reference Section 00 45 13.13 Bidder's Qualifications for Immersive Theater. Since there are less than a half-dozen subcontractors in the country that specialize and are qualified in Immersive Theater, and because that subcontractor must be named, please advise why the Qualifications for this subcontractor can't be submitted by the apparent low bidder(s) after the bids are opened. This added bid requirement is an unnecessary burden on the bidders. Make as a condition precedent to Award, not the bid.

RESPONSE: In Reference to Section 00 45 13.13 Bidder Qualifications for Immersive Theater, we feel it is important that the Subcontractor for the General Trades Contractor complete this form at the time of the bid to ensure the General Trade Contractor and Owner that the Bid Proposal for BP-111 is complete and complies with the requirements for this specialty scope of work. There should be no burden on the General Trades Contractor's part except to do their due diligence to make sure the bid quote they use is from a qualified Immersive Theater Subcontractor as outlined in Section 00 45 13.13.

BID RFI No. B-319 (Dated 2/14/2011)

QUESTION: Which bid package owns the concrete shown in detail 4/M-405?

RESPONSE: There is no concrete shown on Detail 4/M-405, BUT there is Concrete shown on Details (7/M-405) Radon Suction Pit Type No.3 and 11/M-405 Underground Duct Installation). In reference to both these details, the concrete work is part of the scope of work under by BP-105 Concrete.

BID RFI No. B-320 (Dated 2/14/2011)

QUESTION: With regard to Detail 7/M-405, we assume the concrete pad will be by the contractor and the angles and decking will be by one of metals contractor. Is this correct?

RESPONSE: In Detail 7/M-405 - Radon Suction Pit Type No.3, the Concrete will be by BP-105 Concrete and the Misc Metals and Decking is part of BP-107 (Steel & Misc Metals). The Contractors will be responsible to coordinate the work with the BP-104 Sitework Contractor for the excavation and backfill. Also, reference BID RFI B-319.

BID RFI No. B-322 (Dated 2/14/2011)

QUESTION: Reference BP #111 item 117 and BP #112 item 6. BP #112 notes section 09 67 66 as being provided "complete" however the line striping has been assigned to the General Trades. This specification is not listed in item 6 in BP #111. If we do not know at the time of bid who the manufacturer of the flooring is, how can we determine what product to carry for the paint, reference specification 096766.2.2.B. Assign this to Bid Package 112 as specified by the Architect.

RESPONSE: Refer to BID RFI No. B-151 & RFI B-281: 1. Reference Bid RFI No. B-151 VOID Response in its entirety and replace with the following. 2. Under BP-111 General Trades - DELETE

Item #117 in its entirety. 3. Under BP-112 Flooring - ADD New Item #27 to READ: Contractor shall be responsible to clean, prep, prime and finish paint interior Gymnasium Floor Line Painting as specified per Section 09 67 66, Para 3.5 Game Lines and Markers, Reference Drawing A-841.

BID RFI No. B-323 (Dated 2/14/2011)

QUESTION: Reference BP 116 item 6 08 90 00 Louvers and Vents and item 26. It is clear that the Mechanical/HVAC contractor is responsible for this work. Please advise what work "pertains" to the General Trades package listed under item 6 of BP 111.

RESPONSE: Refer to Spec Section 00 24 19 Proposal Requirements and Special Instructions, Item #20 Louvers / Dampers for Contractor Responsibilities related to Louvers. Also, see related BID RFI No. B-011 issued in ADDENDUM No. 1.

BID RFI No. B-328 (Dated 2/16/2011)

QUESTION: Filling storage tank with fuel. Is this by owner or contractor?

RESPONSE: The Owner will pay for the fuel to fill the Fuel Storage Tank. Contractor shall be responsible to schedule to have the tank filled.

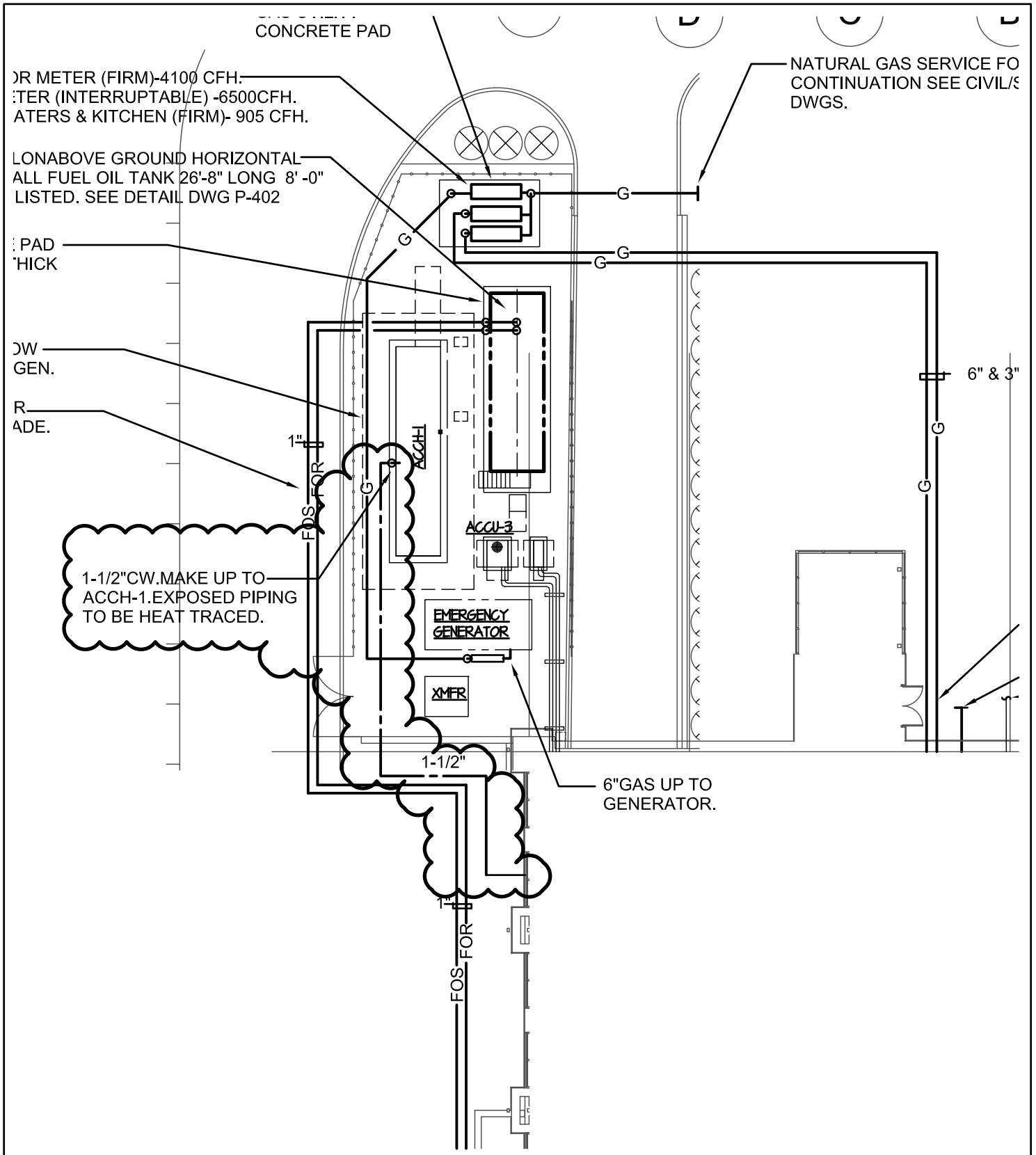
BID RFI No. B-331 (Dated 2/16/2011)

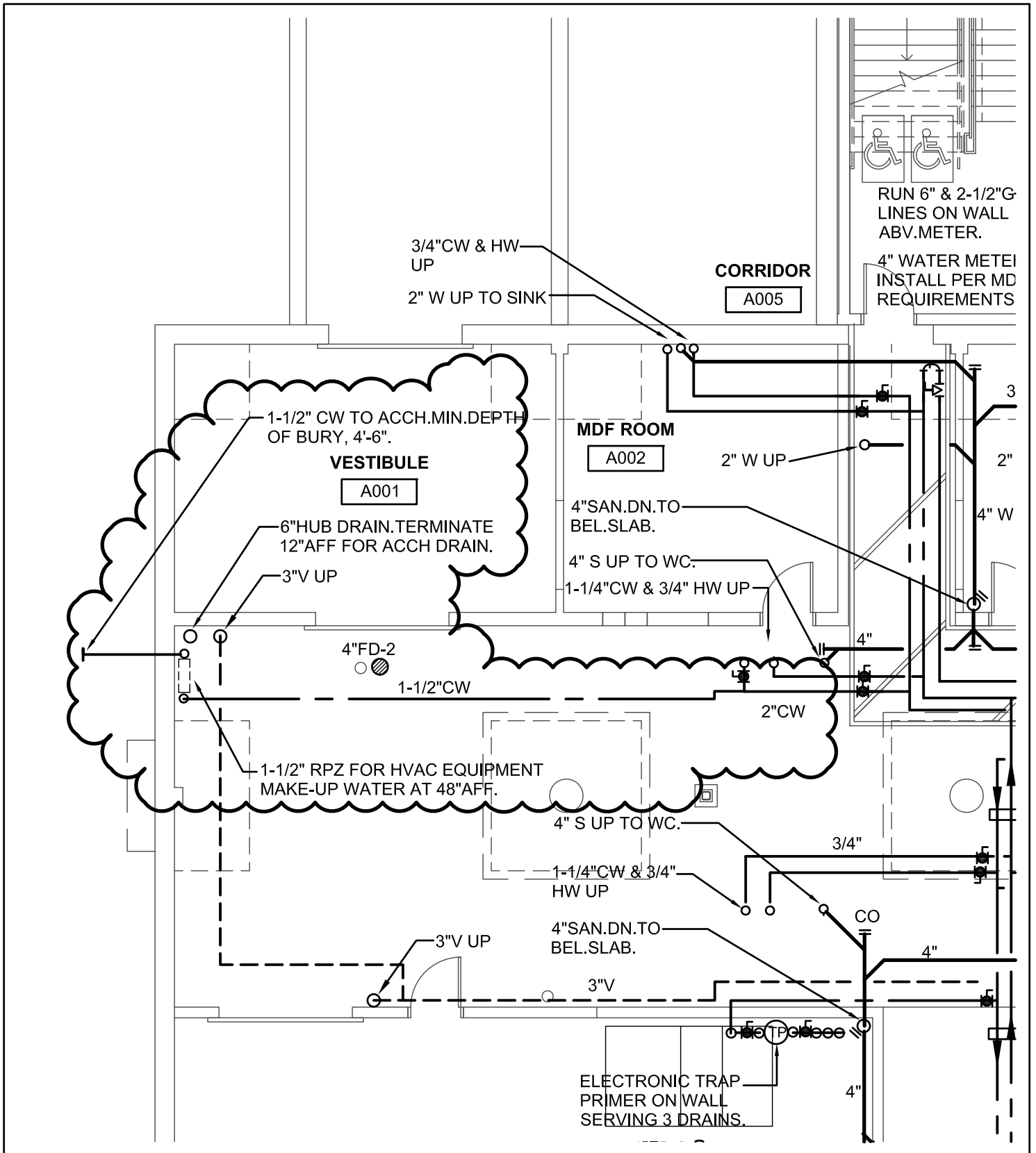
QUESTION: All radon is shown on HVAC Drawings M000, M100-1, M100-2, M-405 Detail 8 Bid Pkg #115 Line Item #29 indicates to be by Plumbing Contractor. Should this not be by HVAC Contractor since all work is shown on HVAC Drawings?

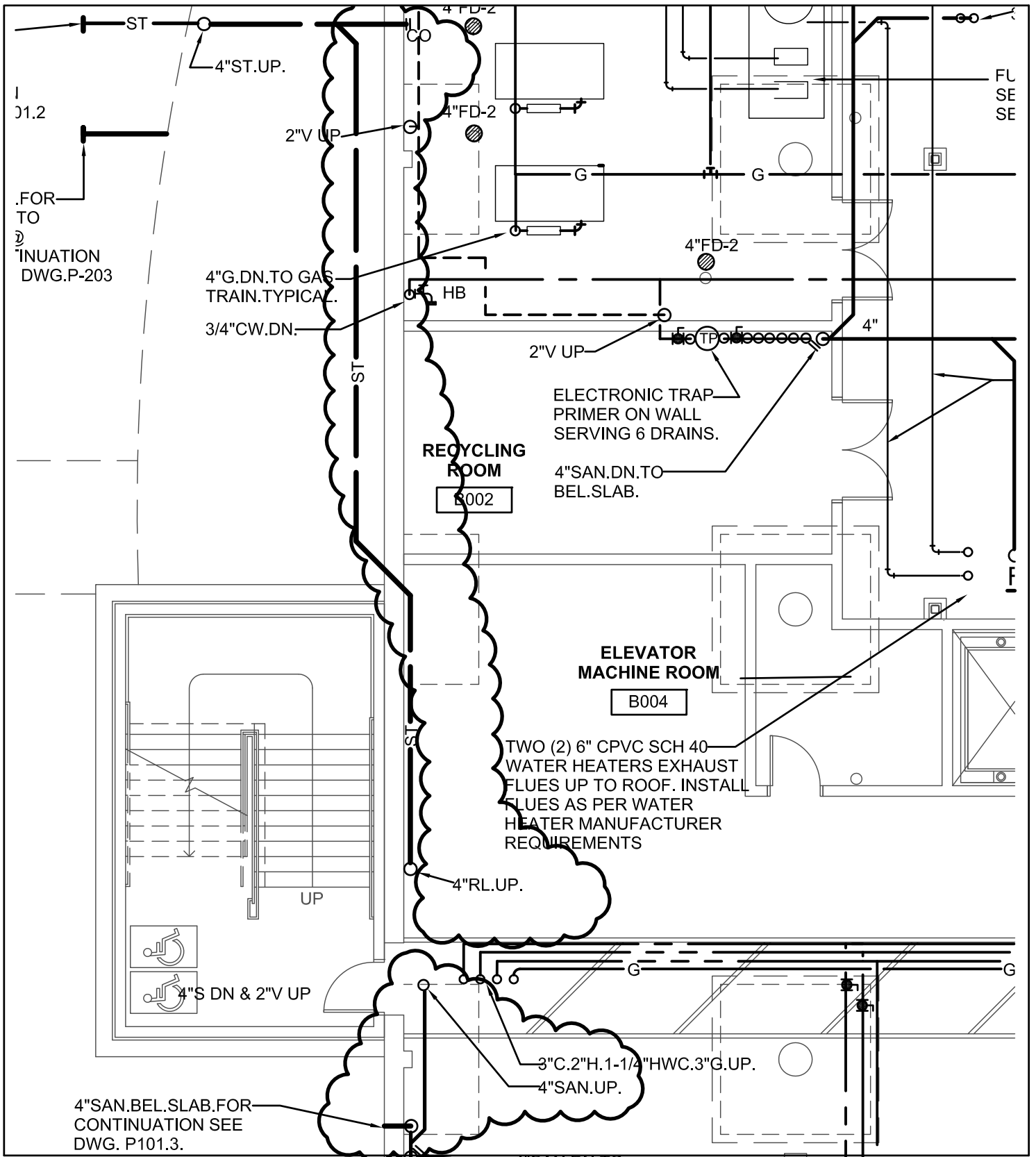
RESPONSE: Leave scope of work under BP-115 Plumbing. Also, refer to Radon Piping shown on Drawing MP-100.1& Drawing MP-100.2.

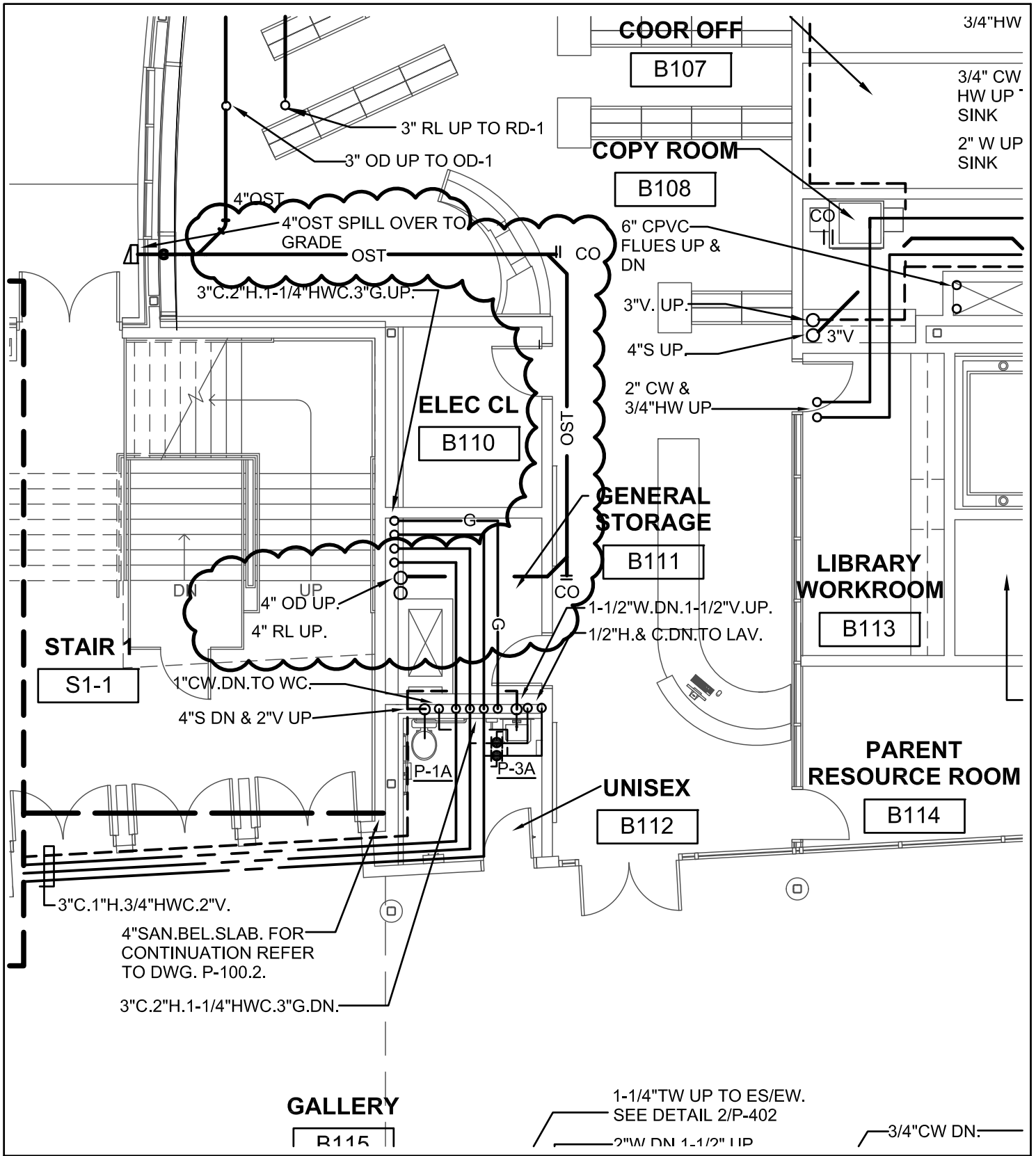
END OF ADDENDUM NO. 4

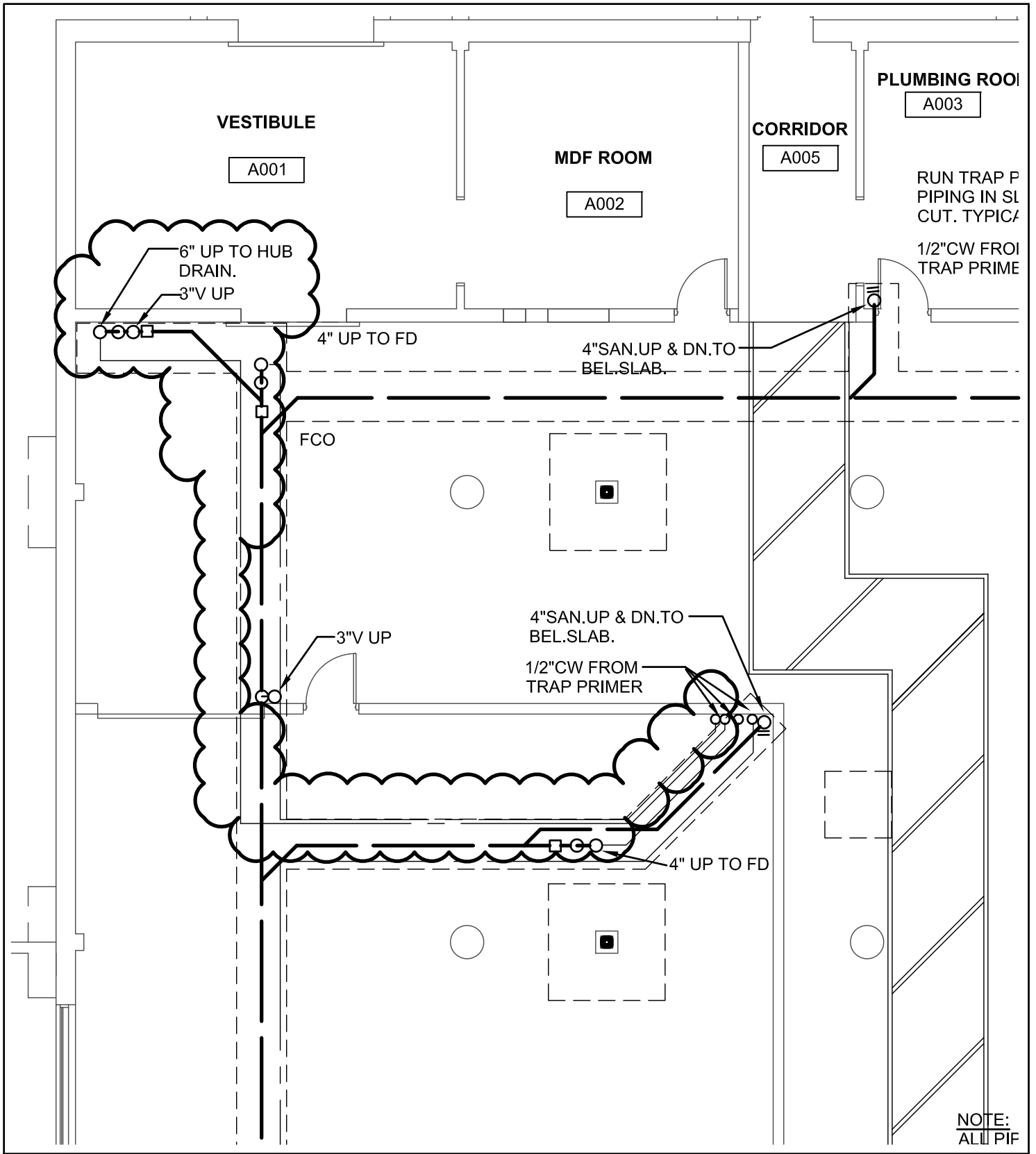
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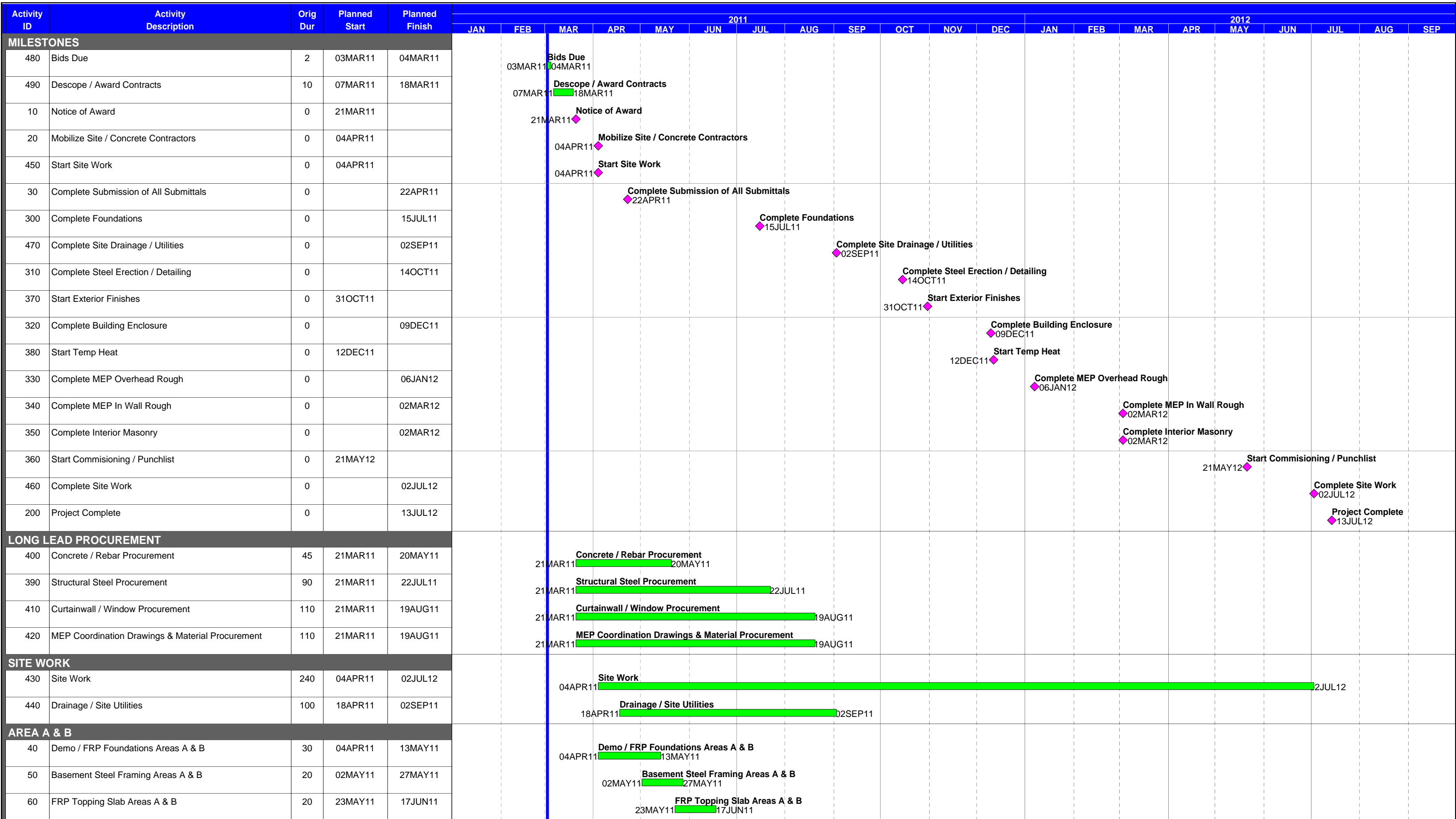











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Start Date	31JAN11		Early Bar	MS03	Glastonbury - East Hartford	Sheet 1 of 2	ICC - Construction Manager	Date	Revision	Checked	Approved
Finish Date	13JUL12		Progress Bar					18FEB11	Bid Schedule		
Data Date	03MAR11		Critical Activity								

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Activity ID	Activity Description	Orig Dur	Planned Start	Planned Finish	2011												2012						
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
100	MEP Equipment / Overhead Rough Areas A & B	145	20JUN11	06JAN12																			
70	Steel Erection / Detailing Areas A & B	40	25JUL11	16SEP11																			
80	FRP SOD Areas A & B	30	19SEP11	28OCT11																			
90	Dry-in Roof Areas A & B	30	19SEP11	28OCT11																			
110	Exterior Masonry Areas A & B	80	19SEP11	06JAN12																			
250	Exterior Finishes Areas A & B	80	31OCT11	18JUN12																			
120	Interior Masonry Areas A & B	60	12DEC11	02MAR12																			
150	MEP In Wall Rough Areas A & B	60	12DEC11	02MAR12																			
130	Interior Finishes Areas A & B	120	30JAN12	13JUL12																			
260	Commisioning / Punchlist Areas A & B	40	21MAY12	13JUL12																			
AREA C & PLANETARIUM																							
140	FRP Foundations Area C	40	23MAY11	15JUL11																			
170	Underground MEP Area C	20	18JUL11	12AUG11																			
180	FRP SOG Area C	25	15AUG11	16SEP11																			
160	Steel Erection / Detailing Area C	20	19SEP11	14OCT11																			
190	Dry-in Roof Area C	20	17OCT11	11NOV11																			
210	MEP Equipment / Overhead Rough Area C	60	17OCT11	06JAN12																			
270	Exterior Masonry Area C	60	17OCT11	06JAN12																			
280	Exterior Finishes Area C	80	31OCT11	18JUN12																			
220	Interior Masonry Area C	40	12DEC11	03FEB12																			
230	MEP In Wall Rough Area C	40	12DEC11	03FEB12																			
240	Interior Finishes Area C	140	02JAN12	13JUL12																			
290	Commisioning / Punchlist Area C	40	21MAY12	13JUL12																			

ALLOWANCES

SECTION 01 24 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Administrative and procedural requirements for alternates.

1.3 RELATED SECTIONS

- A. Division 00 – Procurement and Contracting Requirements
- B. Division 01 – General Requirements
- C. All Divisions – As Pertains to Each Bid Package Scope of Work

1.4 DEFINITIONS

- A. The definitions below expands the definition in AIA Document A701, "Instructions to Bidders," and assumes the normal bidding situation applies, with contractors stating alternate amounts requested on the Bid Form.
- B. Allowances are defined scopes of work as stated in each Bid Package as applicable to that bid package scope of work.
- C. The Contractor shall include the cost for all Allowances as part of the Contractor's Total Lump Sum Amount of the Base Bid for each Bid Package Proposal.
- D. Allowances shall include the cost for labor, materials, equipment, supervision, and/or services, including the cost for deliveries, unloading, applicable taxes, insurances, bonds, and allowable overhead and profit for the increase or decrease to the contract amount accordingly.
- E. Allowances shall be considered an all inclusive cost, including all costs required to make alterations and/or adjustments to the original contract work necessary to complete the allowance defined scope of work, as either an add or deduct in work.
- F. Allowances may be added to or deducted from the Contract Sum by appropriate modification through an approved change order. The Owner shall have the authority to decide to accept a corresponding change in either add or deduct in the amount of

construction to be completed or in the estimated quantities of work required by the contract documents to be increased or decreased as directed by the Construction Manager or Owner.

- G. Allowances shall be listed as part of the Owner/Contractor Contract Agreement and shall fall under the same conditions as other work of the Contract.

1.5 PROCEDURES

- A. Allowance item shall be listed as separate line items on the Contractor's schedule of values.
- B. All work under Allowances shall be tracked by the Contractor on Daily Tickets and shall be signed off by the Construction Manager.
- C. Allowances with unit rate prices shall be tracked on Daily Tickets for the quantity installed and shall be billed at the unit rate times the quantity installed.
- D. Allowances bid as lump sum amounts as defined by the Owner in the bid package scope of work, shall be tracked on Daily Tickets by labor, material, equipment and subcontract costs, and shall be signed off by the Construction Manager for verification.
- E. The Contractor shall submit to the Construction Manager copies of the signed daily tickets and as applicable, including the labor rate sheets, material and equipment quotes/invoices as required to justify the costs expended under such an allowance. The Owner will issue a no cost change order to reconcile the remaining balance of the Allowance. Upon receipt of an approved reconciled no cost change order the Contractor can then bill under the schedule of values allowance line item for the work as performed.

1.6 COORDINATION

- A. Modify or adjust affected adjacent work as necessary to completely integrate work of the allowance into the project.
 - 1. Include as part of each allowance unit rate the miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of the allowance scope of work.
 - 2. Related Specification Sections as referenced above contain requirements for materials necessary to achieve the work described under each allowance.
 - 3. Allowances shall be part of the original schedule durations as outlined under the base bid scope of work. No additional time shall be granted to the contractor for work under allowances. Retain first paragraph below for most projects. Failure to require notification could create problems later.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Schedule of Allowances is listed under each Bid Package, as applicable to that bid package scope of work.

END OF SECTION

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.2 SECTION INCLUDES

- A. Foamed in place factory insulated-core metal wall and soffit panels.

1.3 RELATED SECTIONS

- A. Section 05 40 00 - Cold-Formed Metal Framing: Cold-formed metal framing supporting metal wall panels.
- B. Section 07 92 00 - Joint Sealants: Sealing of panel joints.

1.4 DEFINITIONS

- A. Metal Wall and Soffit Panel Assembly: Insulated-core metal wall panels, attachment system components, miscellaneous metal framing, and accessories necessary for a complete weathertight wall system.

1.5 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal wall and soffit panel assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Delegated Design: Design metal wall and soffit panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Air Infiltration: Air leakage through assembly of not more than 0.06 cfm/sq ft of wall area when tested according to ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq ft.
- D. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq ft.

- E. Water Penetration under Dynamic Pressure: No evidence of water leakage when tested according to AAMA 501.1 under dynamic pressure equal to 20 percent of inward-acting, wind-load design pressure of not less than 6.24 lbf/sq ft and not more than 12 lbf/sq ft.
 - 1. Water Leakage: Uncontrolled water infiltrating the system or appearing on system's normally exposed interior surfaces from sources other than condensation. Water controlled by flashing and gutters that is drained back to the exterior and cannot damage adjacent materials or finishes is not water leakage.
- F. Structural Performance: Provide metal wall and soffit panel assemblies capable of withstanding the effects the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E1592:
 - 1. Wind Loads: Determine loads in compliance with current state and local building codes.
 - 2. Deflection Limits: Metal wall and soffit panel assemblies shall withstand wind loads with horizontal deflections no greater than 1/180 of the span.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 degrees F, ambient; 180 degrees F, material surfaces.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of wall panel and accessory.
- C. LEED Submittals:
 - 1. Product Data for Credit MR 4.1: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Credit EQ 4.1: For sealants and sealant primers used inside the weatherproofing system, including printed statement of VOC content.

- D. Shop Drawings: Show fabrication and installation layouts of metal wall and soffit panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish between factory-, shop- and field-assembled work.
1. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches:
 - a. Flashing and trim.
 - b. Anchorage systems.
- E. Samples for Verification: For each type of exposed finish required, prepared on samples of size indicated below.
1. Metal Wall and Soffit Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal wall and soffit panel accessories.
 2. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.
 3. Accessories: 12-inch long samples for each type of accessory.
- F. Delegated-Design Submittal: For metal wall and soffit panel assembly indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- G. Coordination Drawings: Exterior elevations drawn to scale and coordinating penetrations and wall-mounted items. Show the following:
1. Wall panels and attachments.
 2. Soffit panels and attachments.
 3. Girts or Stud framing.
 4. Wall-mounted items including doors, windows, louvers, and lighting fixtures.
 5. Penetrations of wall by pipes and utilities.
- H. Qualification Data: For professional engineer.
- I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- J. Maintenance Data: For metal wall and soffit panels to include in maintenance manuals.
- K. Warranties: Sample of special warranties.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.

- C. Source Limitations: Obtain each type of metal wall and soffit panel from single source from single manufacturer.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall and soffit area including corner panel as shown on Drawings; approximately one (1) bay wide by one (1) story high by full thickness, including insulation, supports, attachments, and accessories.
 - 2. Conduct water spray test of mockup of metal wall panel assembly, testing for water penetration according to AAMA 501.2.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Preinstallation Conference: Conduct conference at project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, metal wall panel installer, metal wall panel manufacturer's representative, structural-support installer, and installers whose work interfaces with or affects metal wall panels, including installers of doors, windows, and louvers.
 - 2. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review methods and procedures related to metal wall panel installation, including manufacturer's written instructions.
 - 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
 - 5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver components, sheets, metal wall panels, and other manufactured items so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.
- B. Unload, store, and erect metal wall panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal wall and soffit panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal wall panels to ensure dryness, with positive slope for drainage of water. Do not store metal wall panels in contact with other materials that might cause staining, denting, or other surface damage.

- D. Retain strippable protective covering on metal wall and soffit panels for period of panel installation.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal wall and soffit panels to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before metal wall and soffit panel fabrication, and indicate measurements on shop drawings.

1.10 COORDINATION

- A. Coordinate metal wall and soffit panel assemblies with rain drainage work, flashing, trim, and construction of girts and studs, and other adjoining work to provide a leakproof, secure, and non-corrosive installation.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal wall and soffit panel assemblies that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two (2) years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal wall and soffit panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than five (5) Hunter units when tested according to ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MATERIALS

- A. Recycled Content: Provide metal wall and soffit panels with recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of 30 percent by weight.
- B. Metallic-Coated Steel Sheet: Restricted flatness steel sheet metallic coated by the hot dip process and prepainted by the coil-coating process to comply with ASTM A755.
 - 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653, G90 coating designation; structural quality.
 - 2. Surface: Smooth, flat finish.
 - 3. Exposed Coil-Coated Finishes:
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 0.8 mil primer coat, not less than 70 percent PVDF resin by weight 0.8 mil color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 4. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
- C. Panel Sealants:
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape 1/2-inch wide and 1/8-inch thick.
 - 2. Joint Sealant: ASTM C920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal wall panels and remain weathertight; and as recommended in writing by metal wall panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.2 INSULATION FOR PANEL CORES

- A. Polyisocyanurate Insulation: Foamed-in-place type; closed cell, modified polyisocyanurate foam using a non-CFC blowing agent, with maximum flame-spread index of 25 and smoke-developed index of 450.
 - 1. Closed-Cell Content: 90 percent when tested according to ASTM D2856.

2.3 MISCELLANEOUS METAL FRAMING

- A. Miscellaneous Metal Framing, General: ASTM C645, cold-formed metallic-coated steel sheet, ASTM A653, G60 hot-dip galvanized or coating with equivalent corrosion resistance unless otherwise indicated.
- B. Subgirts: Manufacturer's standard C- or Z-shaped sections, 0.064-inch nominal thickness.
- C. Zee Clips: 0.079-inch nominal thickness.
- D. Base or Sill Angles or Channels: 0.079-inch nominal thickness.
- E. Hat-Shaped, Rigid Furring Channels:
 - 1. Nominal Thickness: As required to meet performance requirements.
 - 2. Depth: As indicated.
- F. Cold-Rolled Furring Channels: Minimum 1/2-inch wide flange.
 - 1. Nominal Thickness: As required to meet performance requirements.
 - 2. Depth: As indicated.
 - 3. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with 0.040-inch nominal thickness.
 - 4. Tie Wire: ASTM A641, Class 1 zinc coating, soft temper, 0.062-inch diameter wire, or double strand of 0.048-inch diameter wire.
- G. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8-inch, and depth required to fit insulation thickness indicated.
 - 1. Nominal Thickness: As required to meet performance requirements.
- H. Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.

2.4 MISCELLANEOUS MATERIALS

- A. Panel Fasteners: Self-tapping screws; bolts and nuts; self-locking rivets and bolts; end-welded studs; and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal wall and soffit panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

2.5 INSULATED-CORE METAL WALL PANELS

- A. General: Provide factory-formed and -assembled metal wall and soffit panels fabricated from two (2) metal facing sheets and core material laminated or otherwise securely bonded to facing sheets during fabrication without use of contact adhesives,

and with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.

1. Panel Performance:

- a. Flatwise Tensile Strength: 27 psi when tested according to ASTM C297.
- b. Humid Aging: Volume increase not greater than 6.0 percent and no delamination or metal corrosion when tested for seven (7) days at 140 degrees F and 100 percent relative humidity according to ASTM D2126.
- c. Heat Aging: Volume increase not greater than 2.0 percent and no delamination, surface blistering, or permanent bowing when tested for seven (7) days at 200 degrees F according to ASTM D2126.
- d. Cold Aging: Volume decrease not more than 1.0 percent and no delamination, surface blistering, or permanent bowing when tested for seven (7) days at minus 20 degrees F according to ASTM D2126.
- e. Fatigue: No evidence of delamination, core cracking, or permanent bowing when tested to a 20-lbf/sq ft positive and negative wind load and with deflection of L/180 for two (2) million cycles.
- f. Autoclave: No delamination when exposed to 2-psi pressure at a temperature of 212 degrees F for 2-1/2 hours.

2. Polyisocyanurate Insulation-Core Performance:

- a. Density: 1.8 to 2.3 lb/cu ft when tested according to ASTM D1622.
- b. Compressive Strength: Minimum 20 psi when tested according to ASTM D1621.
- c. Shear Strength: 24 psi when tested according to ASTM C273.

B. Shiplap-Edge, Insulation-Core Metal Wall and Soffit Panels: Formed with flush exterior panel facing and with shiplap edges; designed for sequential installation by mechanically attaching panels to supports using concealed clips and fasteners; with factory-applied gaskets in side laps.

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated or a comparable product acceptable to the Architect:

- a. Basis of Design Product: CENTRIA Architectural Systems; Formawall Dimension Series; two (2) inches thick; run in horizontal and vertical pattern as indicated on Drawings.
- b. Substitutions under provisions of Section 01 25 00.

2. Exterior Facing:

- a. Material: Zinc-coated (galvanized) steel sheet, 22 gage nominal thickness.
- b. Surface: Smooth, flat.
- c. Finish: DuraGuard Two-Coat Fluoropolymer.

- 1) Color: As selected by Architect from manufacturer's standard range of colors.

3. Interior Facing:

- a. Material: Zinc-coated (galvanized) steel sheet, 24 gage nominal thickness.
 - b. Finish: Manufacturer's standard primer or white polyester.
4. Core Material: Polyisocyanurate board insulation.
 5. Clips: Manufacturer's standard one (1) piece, formed from zinc-coated (galvanized) steel.
 6. Sealant: Manufacturer's standard silicone.
 7. Panel Thickness: 2.0 inches.

2.6 ACCESSORIES

- A. Wall and Soffit Panel Accessories: Provide components required for a complete metal wall panel assembly including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
 1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal wall panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch thick, flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- B. Flashing and Trim: Formed from 0.018-inch minimum thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal wall panels.

2.7 FABRICATION

- A. General: Fabricate and finish metal wall and soffit panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Fabricate metal wall and soffit panels in a manner that eliminates condensation on interior side of panel and with joints between panels designed to form weathertight seals.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

- D. Fabricate metal wall and soffit panel joints with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will minimize noise from movements within panel assembly.
- E. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
 - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-corrosive metal recommended by metal wall panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.8 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, metal wall panel supports, and other conditions affecting performance of work.

1. Examine wall and soffit framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
 2. Examine wall and soffit sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
- B. Examine roughing-in for components and systems penetrating metal wall and soffit panels to verify actual locations of penetrations relative to seam locations of metal wall and soffit panels before metal wall and soffit panel installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other miscellaneous wall panel support members and anchorages according to ASTM C754 and metal wall panel manufacturer's written recommendations.

3.3 METAL WALL AND SOFFIT PANEL INSTALLATION, GENERAL

- A. General: Install metal wall and soffit panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts and subgirts unless otherwise indicated. Anchor metal wall and soffit panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Commence metal wall and soffit panel installation and install minimum of 300 sq ft in presence of factory-authorized representative.
 2. Shim or otherwise plumb substrates receiving metal wall panels.
 3. Flash and seal metal wall and soffit panels with weather closures at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until weather barrier and flashings that will be concealed by metal wall panels are installed.
 4. Install screw fasteners in predrilled holes.
 5. Locate and space fastenings in uniform vertical and horizontal alignment.
 6. Install flashing and trim as metal wall and soffit panel work proceeds.
 7. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 8. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated or, if not indicated, as necessary for waterproofing.
 9. Align bottom of metal wall and soffit panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 10. Provide weathertight escutcheons for pipe and conduit penetrating exterior walls.
- B. Fasteners:

1. Wall and Soffit Panels: Use aluminum or stainless steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized steel fasteners for surfaces exposed to the interior.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal wall panel manufacturer.
- D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weathertight performance of metal wall panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal wall panel manufacturer.
 1. Seal metal wall and soffit panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal panel manufacturer.
 2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00.

3.4 INSULATED-CORE METAL WALL AND SOFFIT PANEL INSTALLATION

- A. General: Apply continuous ribbon of sealant to panel joint on concealed side of insulated-core metal wall and soffit panels as vapor seal; apply sealant to panel joint on exposed side of panels for weather seal.
 1. Fasten insulated-core metal wall and soffit panels to supports with fasteners at each lapped joint at location and spacing and with fasteners recommended by manufacturer.
 2. Lap ribbed or fluted sheets one (1) full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
 3. Provide metal-backed washers under heads of exposed fasteners on weather side of insulated metal wall panels.
 4. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
 5. Provide sealant tape at lapped joints of insulated metal wall panels and between panels and protruding equipment, vents, and accessories.
 6. Apply a continuous ribbon of sealant tape to panel side laps and elsewhere as needed to make panels weathertight.
- B. Foamed-Insulation-Core Metal Wall Panels: Fasten metal wall panels to supports with concealed clips at each joint at location and spacing and with fasteners recommended by manufacturer. Fully engage tongue and groove of adjacent panels.
 1. Install clips to supports with self-tapping fasteners.

3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than one (1) inch deep, filled with mastic sealant (concealed within joints).

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Water-Spray Test: After completing the installation of 75-foot- by-2-story minimum area of metal wall panel assembly, test assembly for water penetration according to AAMA 501.2 in a 2-bay area directed by Architect.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect and test completed metal panel installation, including accessories.
- D. Remove and replace metal panels where tests and inspections indicate that they do not comply with specified requirements.
- E. Additional tests and inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.7 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed unless otherwise indicated in manufacturer's written installation

instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

- B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

FIRE RATED GLASS AND FRAMING SYSTEMS

SECTION 08 41 23

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.2 SECTION INCLUDES

- A. Fire rated door and framing systems for installation as full vision fire rated doors.

1.3 RELATED SECTION

- A. Section 08 11 13 - Hollow Metal Doors and Frames: Standard hollow metal doors and frames.
- B. Section 08 71 00 - Door Hardware: Door hardware for fire-rated doors and frames.
- C. Section 08 80 00 - Glazing: Glazed lites in steel doors and frames.
- D. Sections 09 91 23 - Interior Painting: Field painting hollow metal doors and frames.

1.4 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings.
- B. ASTM International (ASTM):
 - 1. ASTM E2074 - Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
 - 2. ASTM E2010 - Test Method for Positive Pressure Fire Tests of Window Assemblies.
- C. Consumer Product Safety Commission (CPSC):
 - 1. CPSC 16 CFR 1201 Categories I and II - Safety Standard for Architectural Glazing Materials.
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 80 - Standard for Fire Doors and Fire Windows.

2. NFPA 251 - Standard Methods of Tests of Fire Endurance of Building Construction and Materials.
3. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
4. NFPA 257 - Standard on Fire Test for Window and Glass Block Assemblies.

E. Underwriters Laboratories, Inc. (UL):

1. UL 9 - Fire Tests of Window Assemblies.
2. UL 10B - Fire Tests of Door Assemblies.
3. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
4. UL 263 - Fire tests of Building Construction and Materials

1.5 PERFORMANCE REQUIREMENTS

A. Duration -- Doors: Capable of providing a fire rating for 45 minutes.

B. Design Requirements:

1. Dimensions – Door and Framing:
 - a. Door Framing Face Dimension: 1-15/16-inch.
 - b. Depth of Door Framing: 1-15/16-inch.
 - c. Door Style Face Dimension: 3-1/8-inch.
 - d. Door Cross Rail Face: 3-9/16-inch.
 - e. Depth of Stile, Header, Sill and Cross Rail: 1-15/16-inch
2. Construction: Roll formed and profiled steel tubes, factory-welded or complete with mechanical joints for simplified installation or shipped spliced for assembly at the building site or for fitting through available building openings.
 - a. Knock down frames are not permitted.

1.6 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, and finishes.

C. LEED Submittal:

1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

D. Shop Drawings: Show doors, frames, hardware and steel frame components as shown on Drawings and schedules. Detail any need for on-site fabrication on shop drawings.

- E. Samples for Initial Color Selection: For steel doors and frames with factory-applied powder coat color finishes.
 - 1. Duplicate copies of manufacturer's powder coating color charts showing the full range of colors available.
- F. Samples: For following products:
 - 1. Two (2) 8-inch by 10-inch samples for glass.
 - 2. Verification sample of selected finish on steel frame piece
- G. Glazing Schedule: Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- H. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
 - 1. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for project and whose work has resulted in construction with a record of successful in-service performance.
- B. Source Limitations for Glazing Accessories: Obtain framing system, glazing and glazing accessories from one (1) source for each product and installation method indicated.
- C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by UL, for fire ratings indicated, based on testing according to NFPA 252. Assemblies must be factory-welded or come complete with factory-installed mechanical joints and must not require job site fabrication.
- D. Listings and Labels - Fire Rated Assemblies: Under current follow-up service by Underwriter Laboratory maintaining a current listing or certification. Label assemblies accordance with limits of manufacturer's listing.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle under provisions specified by manufacturer.
- B. Deliver materials to specified destination in manufacturer or distributor's packaging undamaged.

- C. Store off ground, under cover, protected from weather and construction activities.

1.9 PROJECT CONDITIONS

- A. Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.
 - 1. Note whether field or planned dimensions were used in the creation of the shop drawings.
- B. Coordinate the work of this section with others affected including but not limited to other interior components and door hardware beyond that provided by this section.

1.10 WARRANTY

- A. Provide the manufacturer's five (5) year warranty dated from substantial completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS - FIRE RATED DOOR ASSEMBLY

- A. Basis-of-Design Glass Material: FireLite Plus[®] IGU fire-rated insulated glazing as fabricated and distributed by Technical Glass Products (TGP), 8107 Bracken Place SE, Snoqualmie, WA 98065, Telephone: 800-426-0279, Web Site <http://www.fireglass.com>.
- B. Basis-of-Design Frame System: "Fireframes[®] Designer Series" fire-rated steel frame system as manufactured and supplied by Technical Glass Products (TGP).
- C. Substitutions: Substitutions will be processed under provisions of Section 01 25 00.

2.2 MATERIALS - GLASS

- A. Fire Rated Glazing Type H: ASTM C1036 and ASTM C1048; composed of insulated ceramic glazing material.
- B. Thickness of Glazing Material: FireLite[®] One (1) Inch Insulated Glass Unit (IGU).
- C. Approximate Visible Transmission: Varies with thickness (approximate range 88 percent).
- D. Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacture, testing laboratory (UL[®] only), fire rating period, safety glazing standards, and date of manufacture.

- E. Performance: Glass must be rated to stop fire from either direction and must meet all testing requirements including the required hose-stream test (where fire-rating exceeds 20 minutes).

2.3 MATERIALS – STEEL FRAMES AND DOORS

- A. Steel framing system including 45-minute rated doors.
 - 1. Steel: Profiled steel tubing formed using cold drawn and profiled steel tubing.
 - 2. Fasteners: As recommended by manufacturer
 - 3. Glazing Accessories: calcium silicate setting blocks.
 - 4. Glazing Compounds:
 - a. Insulating Glass Unit (IGU): Approved closed cell PVC tape.

2.4 FABRICATION

- A. Furnish frame assemblies pre-welded.
 - 1. When necessary, splice frames too large for shop fabrication or shipping or to fit in available building openings.
 - 2. Fit with suitable fasteners.
 - 3. Knock-down frames are not permitted.
- B. Field glaze door and frame assemblies.
- C. Factory prepare steel door assemblies for field mounting of hardware.
- D. Fabrication Dimensions: Fabricate to field dimensions.

2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish frames after assembly.
- C. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

2.6 DOOR HARDWARE

- A. Furnish hardware with 45-minute fire door by the manufacturer.

- B. Select hardware from door manufacturer's standard recommended and approved hardware groups as specified in Section 08 71 00.

2.7 ACCESSORY MATERIALS

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and members to which the work of this section attaches or adjoins prior to frame installation.
- B. Provide openings plumb, square and within allowable tolerances.
 - 1. Provide 3/8-inch shim space at all walls.
- C. Notify Architect of any conditions which jeopardize the integrity of the proposed fire wall / door system.
- D. Do not proceed until such conditions are corrected.

3.2 INSTALLATION

- A. Install fire doors by a specialty contractor with appropriate experience qualifications; and in strict accordance with the reviewed shop drawings.
- B. Install fire safing / fire stopping at edges of system.
- C. Install glazing in strict accordance with fire resistant glazing material manufacturer's specifications.
 - 1. Field cutting or tampering is not permissible.
- D. Do not install damaged frames or chipped glassing units.
- E. Install plumb and true. Limit out of plumb or true to 1/8-inch in 10'-0" in any dimension.

3.3 REPAIR AND TOUCH UP

- A. Limited to minor repair of small scratches. Use only manufacturer's recommended products.
 - 1. Such repairs shall match original finish for quality or material and view.

- B. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

3.4 ADJUSTING

- A. Adjust door function and hardware for smooth operation. Coordinate with other hardware suppliers for function and use of any other attached hardware.

3.5 PROTECTION AND CLEANING

- A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

- 1. Do not clean with astringent cleaners. Use a clean "grit free" cloth and a small amount of mild soap and water or mild detergent.
- 2. Do not use any of the following:

- a. Steam jets;
- b. Abrasives;
- c. Strong acidic or alkaline detergents, or surface-reactive agents;
- d. Detergents not recommended in writing by the manufacturer;
- e. Do not use any detergent above 77 degrees F;
- f. Organic solvents including but not limited to those containing ester, ketones, alcohols, aromatic compounds, glycol ether, or halogenated hydrocarbons;
- g. Metal or hard parts of cleaning equipment must not touch the glass surface.

- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

- C. Wash glass on both exposed surfaces in each area of project not more than four (4) days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION

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FOOD SERVICE DESIGN, INC.

HOSPITALITY CONJOINED FACILITIES. PRIVATE.INSTITUTIONAL.PUBLIC
174 WALLENS STREET C5, WINSTED, CONNECTICUT 860.379.3603 rtrauth@fsdc.net

MEMO

Date: 2.18.11 **To:** FTAE **Attn:** Curt K **Re:** EHGMS Memo Revised RFI 054 2.14.11
BY, Andre Warren, Pike Co.

Please accept this memo as our response to the subject Memo

The items in question #30, 31, AND 35 should be as shown below.
The Dwg Schedule should read as (QTY-2) for #30 & #31.
The Display units (2) #31 is included in #30 specs

The Spec's should be as follows:

#31	DISPLAY STAND UNIT	QTY-2
#30	COLD PAN UNIT	QTY-2
#35	COLD PAN UNIT	QTY-1

This is the way our documents are shown at this time. They were probably revised since issue.

ITEM NO. 30	COLD PAN UNIT	QTY-2
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Piper Products

(1) Model 2-ST-(Custom) Elite Utility Serving Counter, Approx. 25"L x 32"W x **30"High**, modular design w/interlocking mech., 14 ga. s/s top, 20 ga. s/s front & end panels, 18 ga. s/s undershelf, Stainless legs, **Constructed to NSF 7 standards. 28" Tray rail height**

(1) Model 3-ST-(Custom) Elite Utility Serving Counter, Approx. 66"L x 32"W x 30"H, mobile modular design w/interlocking mech., 14 ga. s/s top, 20 ga. s/s front & end panels, 18 ga. s/s undershelf, Stainless legs, **28" Tray rail height, Constructed to NSF 7 standards.**

1 ea. 1 year warranty parts and labor from date of purchase

1 ea. Model INSTALL PACKAGE Install package to include cut out in the counter top, install for the drop in, electrical hook up, reinforced top, and louvered panels if required.

1 ea. Model 2-SHEETPAN-FT Drop-In Frost Top, custom sized to hold two 18" x 26" sheet pans 26" dim front to back, self-contained refrigeration, I 20v/60/1 -ph.

1 ea. Model 3-SHEETPAN-FT Drop-In Frost Top, custom sized to hold three 18" x 26" sheet pans 26" dim front to back, self-contained refrigeration, I 20v/60/1 -ph.

1 ea. Model SRTS-36 Trayslide for Elite System, 12" solid ribbed, heavy gauge stainless steel, for six opening – 36" W (fold down type)

1 ea. Model SRTS-66 Trayslide for Elite System, 12" solid ribbed, heavy gauge stainless steel, for six opening – 66" W (fold down type)

1 ea. Model CDDL-45 Double Display Protector Guard w/Lights (Cafeteria Style) for Elite System, for custom

(2) 18" x 26" opening 45"W

1 ea. Model CDDL-66 Double Display Protector Guard w/Lights (Cafeteria Style) for Elite System, for custom

(3) 18" x 26" opening 45"W

2 pr. Model CEG End Guard (pr.) - (Cafeteria Style) for Elite System

1 ea. Model S INTERLOCKS Special location interlocks for T- lines and other modified configurations

ITEM NO. 31

DISPLAY STAND UNIT

QTY-2

INCLUDED IN #30

ITEM NO. 35

COLD PAN UNIT

QTY-1

Piper Products Model 7-ST-(Custom) Elite Utility Serving Counter, Approx. 89"L x 32"W x **30"H**, mobile modular design w/interlocking mech., 14 ga. s/s top, 20 ga. s/s front & end panels, 18 ga. s/s undershelf, Stainless legs, **Constructed to NSF 7 standards, 28" Tray rail height**

1 ea. 1 year warranty parts and labor from date of purchase

1 ea. Model INSTALL PACKAGE Install package to include cut out in the counter top, install for the drop in, electrical hook up, reinforced top, and louvered panels if required.

1 ea. Model 4-SHEETPAN-FT Drop-In Frost Top, custom sized to hold FOUR 18" x 26" sheet pans 26" dim front to back, self-contained refrigeration, I 20v/60/1 -ph.

1 ea. Model SRTS-89 Trayslide for Elite System, 12" solid ribbed, heavy gauge stainless steel, for six opening – 89" W (fold down type), 28" HIGH AFF

1 ea. Model CDDL-89 Double Display Protector Guard w/Lights (Cafeteria Style) for Elite System, for custom

(4) 18" x 26" opening 60"W

1 pr. Model CEG End Guard (pr.) - (Cafeteria Style) for Elite System

1 ea. Model S INTERLOCKS Special location interlocks for T- lines and other modified configurations

ITEM NO. 36

DISPLAY STAND UNIT

QTY-1

INCLUDED IN #35

If you have any questions, please call.

Dick Trauth

Principal

Food Service Design, Inc.

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.2 SECTION INCLUDES

- A. Listed double-wall breeching, chimneys and stacks.
- B. Listed grease and dishwasher ducts.

1.3 RELATED SECTIONS

- A. Section 23 51 13 - Draft Control Devices: Induced-draft and mechanical fans and for motorized and barometric dampers.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For the following:
 - 1. Building-heating-appliance breeching, stacks and chimneys.
 - 2. Guy wires and connectors.
- C. Shop Drawings: For vents, breechings, chimneys, and stacks. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, methods of field assembly, components, hangers and seismic restraints, and location and size of each field connection.
 - 2. For installed products indicated to comply with design loads, include calculations required for selecting seismic restraints and structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- D. Welding certificates.
- E. Manufacturer Seismic Qualification Certification: Submit certification that factory-fabricated breeching, chimneys, and stacks; accessories; and components will withstand seismic forces defined in Section 23 05 48. Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
2. Dimensioned Outline Drawings of Breeching, Chimneys, and Stacks: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of anchorage devices on which the certification is based and their installation requirements.

F. Warranty: Special warranty specified in this section.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain listed system components through one (1) source from a single manufacturer.
- B. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," for hangers and supports and AWS D9.1, "Sheet Metal Welding Code," for shop and field welding of joints and seams in vents, breechings, and stacks.
- C. Certified Sizing Calculations: Manufacturer shall certify venting system sizing calculations.

1.6 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Section 07 72 00.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of venting system that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, structural failures caused by expansion and contraction.

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

PART 2 - PRODUCTS

2.1 LISTED BUILDING-HEATING-APPLIANCE BREECHINGS, STACKS AND CHIMNEYS

- A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
1. American Metal Products; MASCO Corporation.
 2. Cleaver-Brooks; Div. of Aqua-Chem Inc.
 3. FAMCO.
 4. Hart & Cooley, Inc.
 5. Heat-Fab, Inc.
 6. Industrial Chimney Company.
 7. LSP Products Group, Inc.
 8. Metal-Fab, Inc.
 9. Schebler Co. (The).
 10. Selkirk Inc.; Selkirk Metalbestos and Air Mate.
 11. Simpson Dura-Vent Co., Inc.; Subsidiary of Simpson Manufacturing Co.
 12. Tru-Flex Metal Hose Corp.
 13. Van-Packer Company, Inc.
- B. Description: Double-wall metal vents tested according to UL 103 and UL 959 and rated for 1400 degrees F continuously, or 1800 degrees F for 10 minutes; with positive or negative flue pressure complying with NFPA 211. Installation shall be made in accordance with the Manufacturer's recommendation and in compliance with the Underwriters Laboratory, Inc. listing. Product shall be listed for 2" clearance to combustibles.
- C. Construction:
1. Non-condensing Boilers: Inner shell and outer jacket separated by at least a 2-inch annular space filled with high-temperature, ceramic-fiber insulation.
 2. Condensing Boilers: Inner shell and outer jacket separated by at least a 1-inch annular space filled with high-temperature, ceramic-fiber insulation.
- D. Inner Shell:
1. Non-condensing Boilers: ASTM A666, Type 304 stainless steel.
 2. Condensing Boilers: Type AL29-4C stainless steel.
- E. Outer Jacket: Aluminized steel.
- F. Accessories: Adjustable length expansion joints, Tees, elbows, increasers, draft-hood connectors, terminations, adjustable roof flashings, storm collars, support assemblies, thimbles, firestop spacers, and fasteners; fabricated from similar materials and designs as vent-pipe straight sections; all listed for same assembly.
1. Termination: Round chimney top designed to exclude minimum 98 percent of rainfall.

2.2 GUYING AND BRACING MATERIALS

- A. Cable: Three (3) galvanized, stranded wires of the following thickness:
 - 1. For ID Sizes 4 to 15 Inches: 5/16-inch.
 - 2. For ID Sizes 18 to 24 Inches: 3/8-inch.
 - 3. For ID Sizes 27 to 30 Inches: 7/16-inch.
 - 4. For ID Sizes 33 to 36 Inches: 1/2-inch.
 - 5. For ID Sizes 39 to 48 Inches: 9/16-inch.
 - 6. For ID Sizes 51 to 60 Inches: 5/8-inch.
- B. Pipe: Three (3) galvanized steel, NPS 1-1/4.
- C. Angle Iron: Three (3) galvanized steel, 2 by 2 by 0.25 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATION

- A. Listed Building-Heating-Appliance Chimneys: Dual-fuel and gas-fired boilers
- B. Listed Grease Ducts: Type I commercial kitchen hoods.

3.3 INSTALLATION OF LISTED VENTS, BREECHINGS, STACKS AND CHIMNEYS

- A. Locate to comply with minimum clearances from combustibles and minimum termination heights according to product listing or NFPA 211, whichever is most stringent.
- B. Seal between sections of positive-pressure vents and grease exhaust ducts according to manufacturer's written installation instructions, using sealants recommended by manufacturer.
- C. Support vents at intervals recommended by manufacturer to support weight of vents and all accessories, without exceeding appliance loading.
- D. Slope breechings down in direction of appliance, with condensate drain connection at lowest point piped to nearest drain.

- E. Lap joints in direction of flow.

3.4 CLEANING

- A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finishes.
- B. Clean breechings internally, during and after installation, to remove dust and debris. Clean external surfaces to remove welding slag and mill film. Grind welds smooth and apply touchup finish to match factory or shop finish.
- C. Provide temporary closures at ends of breechings, chimneys, and stacks that are not completed or connected to equipment.

END OF SECTION

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.2 SECTION INCLUDES

- A. Fan-coil units and accessories.

1.3 RELATED SECTIONS

- A. Section 01 25 00 - Substitution Procedures.
- B. Section 01 26 16 - Contractor's Request for Information: Procedure for submitting a "Request for Information" (RFI), where any discrepancies or questions arise, related to this section or other Division 23 sections and contract documents.
- C. Section 01 91 13 - General Commissioning Requirements.
- D. Section 23 08 00 - Commissioning of HVAC.
- E. Section 23 09 00 - Instrumentation and Control for HVAC: Control equipment and devices and for submittal requirements.
- F. Section 23 09 93 - Sequence of Operations for HVAC Controls: Requirements that relate to this section.
- G. Section 26 29 13 - Enclosed Controllers.

1.4 DEFINITIONS

- A. BAS: Building automation system.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories.

- C. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 1. Wiring Diagrams: Power, signal, and control wiring.
- D. Coordination Drawings: Floor plans, reflected ceiling plans, and other details, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Ceiling suspension components.
 - 2. Structural members to which fan-coil units will be attached.
 - 3. Method of attaching hangers to building structure.
 - 4. Size and location of initial access modules for acoustical tile.
 - 5. Items penetrating finished ceiling, including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Access panels.
- E. Samples for Initial Selection: For units with factory-applied color finishes.
- F. Delegated-Design Submittal:
 - 1. Materials, fabrication, assembly, and spacing of hangers and supports.
 - 2. Design Calculations: Calculations, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation for selecting hangers and supports and seismic restraints.
- G. Manufacturer Seismic Qualification Certification: Submit certification that fan-coil units, accessories, and components will withstand seismic forces. Include the following:
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- H. Field quality-control test reports.
- I. Operation and Maintenance Data: For fan-coil units to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Maintenance schedules and repair part lists for motors, coils, integral controls, and filters.

J. Warranty: Special warranty specified in this section.

1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."
- C. ASHRAE/IESNA 90.1-2004 Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6 - "Heating, Ventilating, and Air-Conditioning."

1.7 COORDINATION

- A. Coordinate layout and installation of fan-coil units and suspension system components with other construction that penetrates or is supported by ceilings, including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.
- B. Coordinate size and location of wall sleeves for outdoor-air intake.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fan-Coil-Unit Filters: Furnish one (1) spare filters for each filter installed.
 2. Fan Belts: Furnish one (1) spare fan belts for each unit installed.

PART 2 - PRODUCTS

2.1 FAN-COIL UNITS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one (1) of the following:
 1. Carrier Corporation.
 2. Engineered Air Ltd.
 3. Environmental Technologies, Inc.
 4. First Co.

5. International Environmental Corporation.
 6. Marlo Coil; Subsidiary of Engineered Support Systems, Inc.
 7. Marshall Engineered Products Co., LLC (MEPCO); Dunham-Bush, Inc.
 8. McQuay International.
 9. Rosemex.
 10. Trane.
 11. USA Coil & Air.
 12. YORK International Corporation.
- B. Description: Factory-packaged and -tested units rated according to ARI 440, ASHRAE 33, and UL 1995.
- C. Coil Section Insulation: 1/2-inch thick foil-faced glass fiber complying with ASTM C1071 and attached with adhesive complying with ASTM C916.
1. Fire-Hazard Classification: Insulation and adhesive shall have a combined maximum flame-spread index of 25 and smoke-developed index of 50 when tested according to ASTM E84.
 2. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.
- D. Drain Pans: Insulated galvanized steel with plastic liner. Fabricate pans and drain connections to comply with ASHRAE 62.1-2004. Main and auxiliary discharge drain pans with connections per IMC 307.2.3.
- E. Chassis: Galvanized steel where exposed to moisture, with baked-enamel finish and removable access panels. Floor-mounting units shall have leveling screws.
- F. Cabinet: Steel with baked-enamel finish in manufacturer's standard paint color as selected by Architect.
1. Vertical Unit Front Panels: Removable, steel, with steel discharge grille and channel-formed edges, cam fasteners, and insulation on back of panel.
 2. Horizontal Unit Bottom Panels: Fastened to unit with cam fasteners and hinge and attached with safety chain; with cast-aluminum discharge grilles.
 3. Steel recessing flanges for recessing fan-coil units into ceiling or wall.
- G. Filters: Minimum arrestance according to ASHRAE 52.1, and a minimum efficiency reporting value (MERV) according to ASHRAE 52.2.
1. All types: 13 MERV.
- H. Hydronic Coils: Copper tube, with mechanically bonded aluminum fins spaced no closer than 0.1-inch, rated for a minimum working pressure of 200 psig and a maximum entering-water temperature of 220 degrees F. Include manual air vent and drain.
- I. Direct-Driven Fans: Double width, forward curved, centrifugal; with permanently lubricated, multispeed motor resiliently mounted in the fan inlet. Aluminum or painted-steel wheels, and painted-steel or galvanized-steel fan scrolls

- J. Belt-Driven Fans: Double width, forward curved, centrifugal; with permanently lubricated, single-speed motor installed on an adjustable fan base resiliently mounted in the cabinet. Aluminum or painted-steel wheels, and painted-steel or galvanized steel fan scrolls.
1. Motors: Comply with requirements in Section 23 05 13.
- K. Factory, Hydronic Piping Package: ASTM B88, Type M copper tube with wrought-copper fittings and brazed joints. Label piping to indicate service, inlet, and outlet.
1. Two-way, modulating control valve for chilled-water coil.
 2. Hose Kits: Minimum 400-psig working pressure, and operating temperatures from 33 to 211 degrees F. Tag hose kits to equipment designations.
 - a. Length: 24 inches.
 - b. Minimum Diameter: Equal to fan-coil-unit connection size.
 3. Two-Piece Ball Valves: Bronze body with full-port, chrome-plated bronze ball; PTFE or TFE seats; and 600-psig minimum CWP rating and blowout-proof stem.
 4. Calibrated-Orifice Balancing Valves: Bronze body, ball type; 125-psig working pressure, 250 degrees F maximum operating temperature; with calibrated orifice or venturi, connections for portable differential pressure meter with integral seals, threaded ends, and equipped with a memory stop to retain set position.
 5. Y-Pattern Hydronic Strainers: Cast-iron body (ASTM A126, Class B); 125-psig working pressure, with threaded connections, bolted cover, perforated stainless steel basket, and bottom drain connection. Include minimum NPS 1/2 hose-end, full-port, ball-type blowdown valve in drain connection.
 6. Wrought-Copper Unions: ASME B16.22.
- L. Basic Unit Controls: All controls shall be provided by the BMCS Contractor and sent to the fan-coil manufacturer for factory installation. The BMCS Contractor shall coordinate all components, devices, etc... with Division 23 09 00 and Division 23 09 93 to achieve the sequences of operation indicated herein. Fan-coils shall be provided with the following, as a minimum:
1. Control voltage transformer.
 2. Wall-mounting thermostat with the following features:
 - a. Heat-cool-off switch.
 - b. Fan on-auto switch.
 - c. Fan-speed switch.
 - d. Automatic changeover.
 - e. Adjustable deadband.
 - f. Concealed set point.
 - g. Exposed indication.
 - h. Degree F indication.
 3. Unoccupied-period-override push button.
 4. Data entry and access port.

- a. Input data includes room temperature, and occupied and unoccupied periods.
- b. Output data includes room temperature, supply-air temperature, entering-water temperature, operating mode, and status.

M. BMCS Interface Requirements:

1. Coordinate with Division 23 09 00 & 23 09 93 for full control and integration requirements with the fancoil units to achieve the sequence of operation

N. Electrical Connection: Factory wire motors and controls for a single electrical connection.

O. Capacities and Characteristics:

1. See Equipment Schedules on drawings.

2.2 HANGERS AND SUPPORTS

A. Hanger Rods for Non-corrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Steel Cables: Galvanized steel complying with ASTM A603.

D. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

E. Air Terminal Unit Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

F. Trapeze and Riser Supports: Steel shapes and plates for units with steel casings; aluminum for units with aluminum casings.

2.3 SEISMIC-RESTRAINT DEVICES

A. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by an evaluation service member of the ICC Evaluation Service.

1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four (4) times the maximum seismic forces to which they will be subjected.

B. Channel Support System: Shop- or field-fabricated support assembly made of slotted steel channels rated in tension, compression, and torsion forces and with accessories

for attachment to braced component at one end and to building structure at the other end. Include matching components and corrosion-resistant coating.

- C. Restraint Cables: ASTM A603 galvanized steel cables with end connections made of cadmium-plated steel assemblies with brackets, swivel, and bolts designed for restraining cable service; with an automatic-locking and clamping device or double-cable clips.
- D. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections or reinforcing steel angle clamped to hanger rod.
- E. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type. Select anchor bolts with strength required for anchor and as tested according to ASTM E488.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive fan-coil units for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for piping and electrical connections to verify actual locations before fan-coil-unit installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install fan-coil units level and plumb.
- B. Install fan-coil units to comply with NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems."
- C. Suspend fan-coil units from structure with galv. threaded steel rods and spring type hangers. Vibration isolators are specified in Section 15074.
- D. Install new filters in each fan-coil unit within two (2) weeks after Substantial Completion.

3.3 HANGER AND SUPPORT INSTALLATION

- A. Building Attachments: Concrete inserts, or structural steel fasteners appropriate for construction materials to which hangers are being attached.
 - 1. Where practical, install concrete inserts before placing concrete.
- B. Hangers Exposed to View: Threaded rod and angle or channel supports.

- C. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.4 SEISMIC-RESTRAINT-DEVICE INSTALLATION

- A. Install hangers and braces designed to support the air terminal units and to restrain against seismic forces required by applicable building codes. Comply with SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems."
- B. Select seismic-restraint devices with capacities adequate to carry present and future static and seismic loads.
- C. Install cables so they do not bend across edges of adjacent equipment or building structure.
- D. Install cable restraints on units that are suspended with vibration isolators.
- E. Install seismic-restraint devices using methods approved by an evaluation service member of the ICC Evaluation Service.
- F. Attachment to Structure: If specific attachment is not indicated, anchor bracing and restraints to structure, to flanges of beams, to upper truss chords of bar joists, or to concrete members.
- G. Drilling for and Setting Anchors:
 - 1. Identify position of reinforcing steel and other embedded items before drilling holes for anchors. Do not damage existing reinforcement or embedded items during drilling. Notify the Architect if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
 - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
 - 3. Wedge Anchors: Protect threads from damage during anchor installation. Install heavy-duty sleeve anchors with sleeve fully engaged in the structural element to which anchor is to be fastened.
 - 4. Set anchors to manufacturer's recommended torque, using a torque wrench.
 - 5. Install zinc-coated steel anchors for interior applications and stainless-steel anchors for applications exposed to weather.

3.5 CONNECTIONS

- A. Piping installation requirements are specified in other Division 23 sections. Drawings indicate general arrangement of piping, fittings, and specialties. Specific connection requirements are as follows:
 - 1. Install piping adjacent to machine to allow service and maintenance.

2. Connect piping to fan-coil-unit factory hydronic piping package. Install piping package if shipped loose.
3. Connect condensate drain to indirect waste.
 - a. Install condensate trap of adequate depth to seal against the pressure of fan. Pitch piping 1/8" per 10ft, in direction of flow.
 - b. Where condensate cannot drain by gravity, furnish and install a condensate pump in the fan-coil unit enclosure or in an accessible area adjacent to the unit it serves. Pipe to nearest condensate main or indirect waste. Pitch piping 1/8" per 10ft, in direction of flow. Provide a shutoff valve on the pump discharge for isolation and pump servicing.
 - c. Install cleanouts in piping at changes of direction. Coordinate cleanout locations to be accessible. Provide access doors in all finished surfaces where the cleanouts are inaccessible. Coordinate with the work by other Division.
- B. For ducted units: Connect supply and return ducts to fan-coil units with flexible duct connectors specified in Sections 23 31 13, 23 31 16 and 23 33 00. Comply with safety requirements in UL 1995 for duct connections.
- C. Ground equipment according to Section 26 05 26.
- D. Connect wiring according to Division 26.

3.6 IDENTIFICATION

- A. Label each unit with plan number. Comply with requirements in Section 23 05 53 for equipment labels and warning signs and labels.

3.7 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
 1. After installing units and after electrical circuitry has been energized, test for compliance with requirements.
 2. Leak Test: After installation, fill water coils and test for leaks. Repair leaks and retest until no leaks exist.
 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Remove and replace malfunctioning units and retest as specified above.

3.8 ADJUSTING

- A. Adjust initial temperature set points.
- B. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other than normal occupancy hours for this purpose.

3.9 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify that piping connections are as recommended by unit manufacturer to achieve proper performance.
 - 3. Verify that controls and control enclosure are accessible.
 - 4. Verify that control connections are complete.
 - 5. Verify that nameplate and identification tag are visible.
 - 6. Verify that controls respond to inputs as specified.

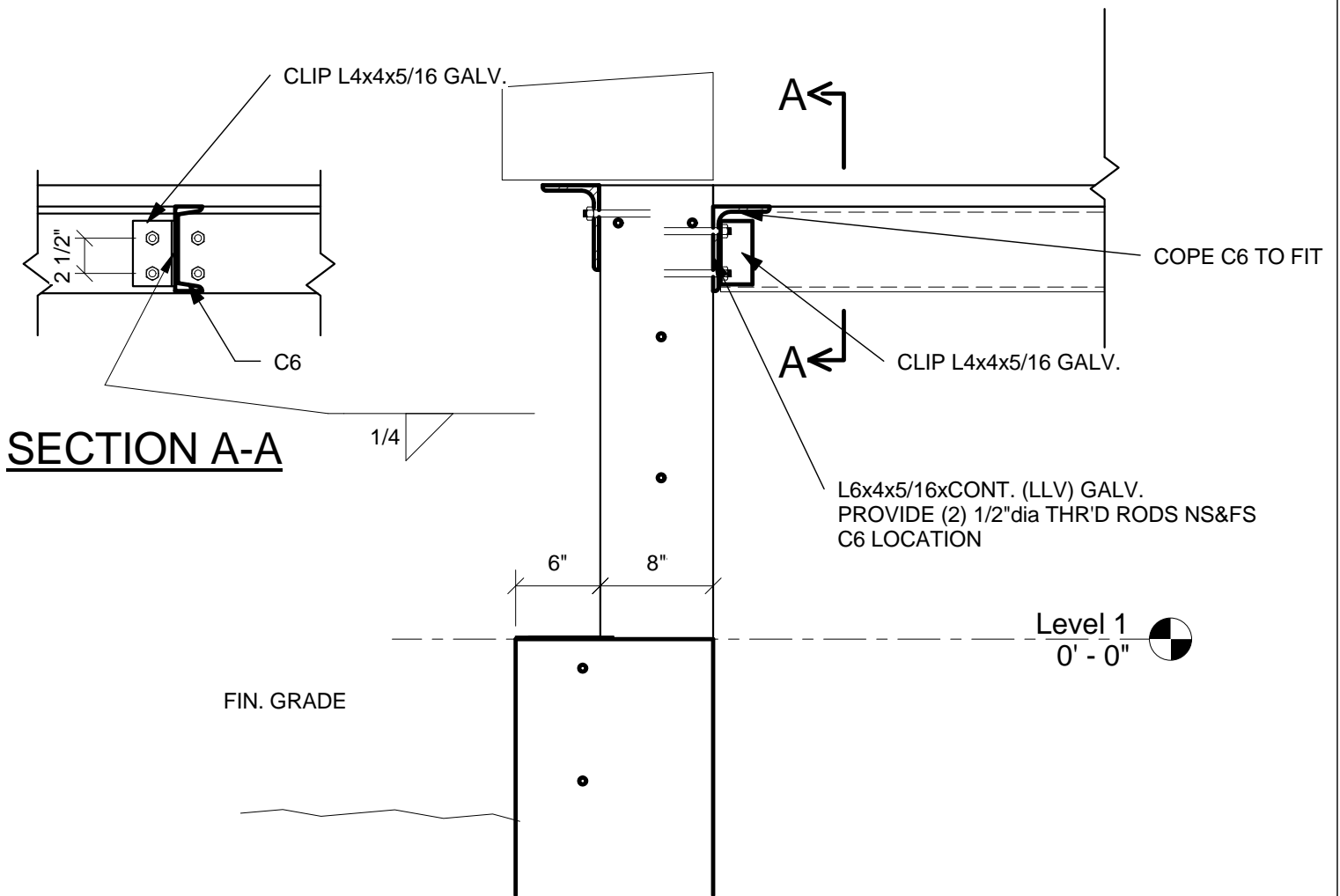
3.10 COMMISSIONING

- A. Engage a factory-authorized service representative, to perform startup service as per functional test sheets and requirements of commissioning Section 01 91 13.
- B. Verify that equipment is installed in accordance with Section 01 91 13 and manufacturer's written instructions.
- C. Complete installation and startup checks and functional tests in accordance with Section 01 91 13 and manufacturer's written instructions.
- D. Operational Test: After electrical system has been energized, start units to confirm proper unit operation. Rectify malfunctions, replace defective parts with new one and repeat the start up procedure.
- E. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

3.11 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fan-coil units.

END OF SECTION



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 NAPLES, FLORIDA 239 - 687 - 1220
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GLASTONBURY
ELEMENTARY MAGNET
SCHOOL

SECTION 3/S314

Project number H090230

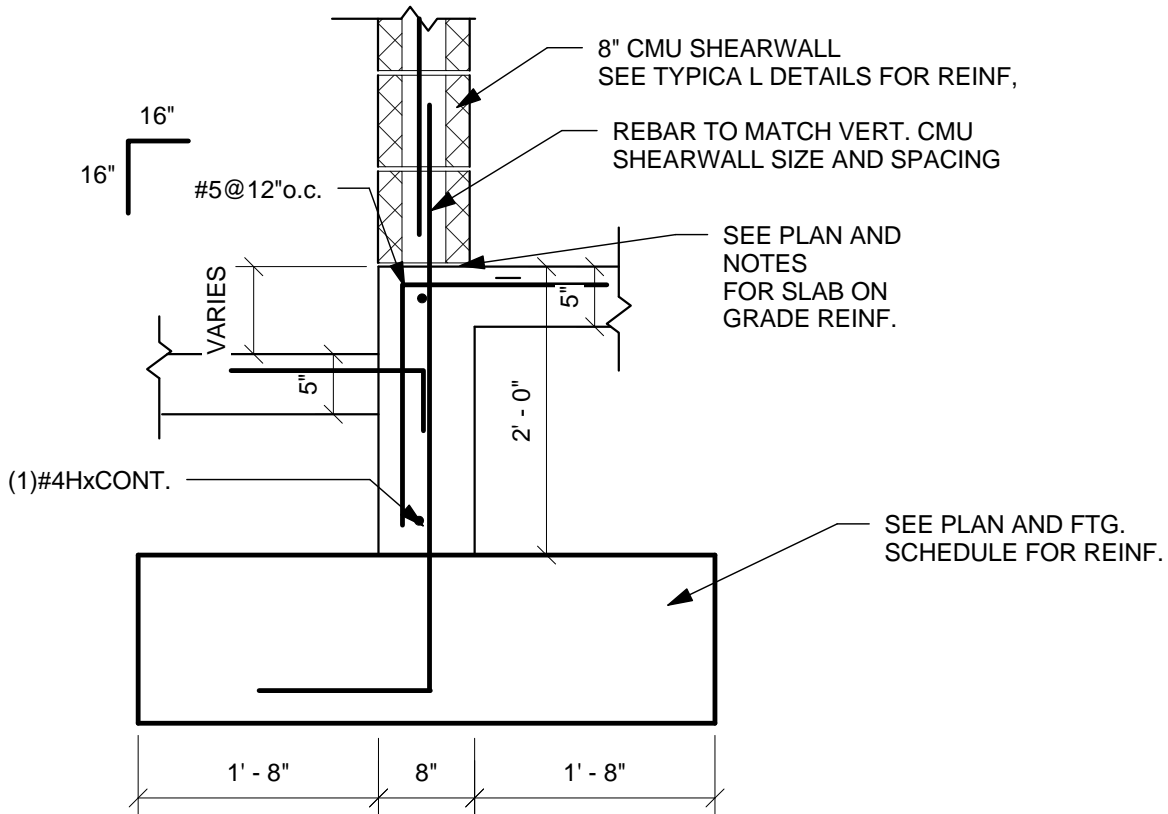
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SECTION 5B/S201

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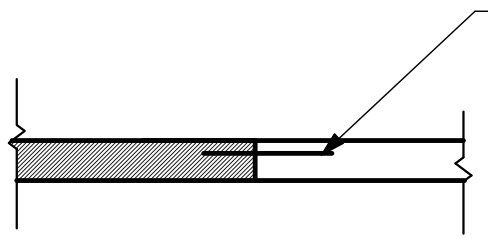
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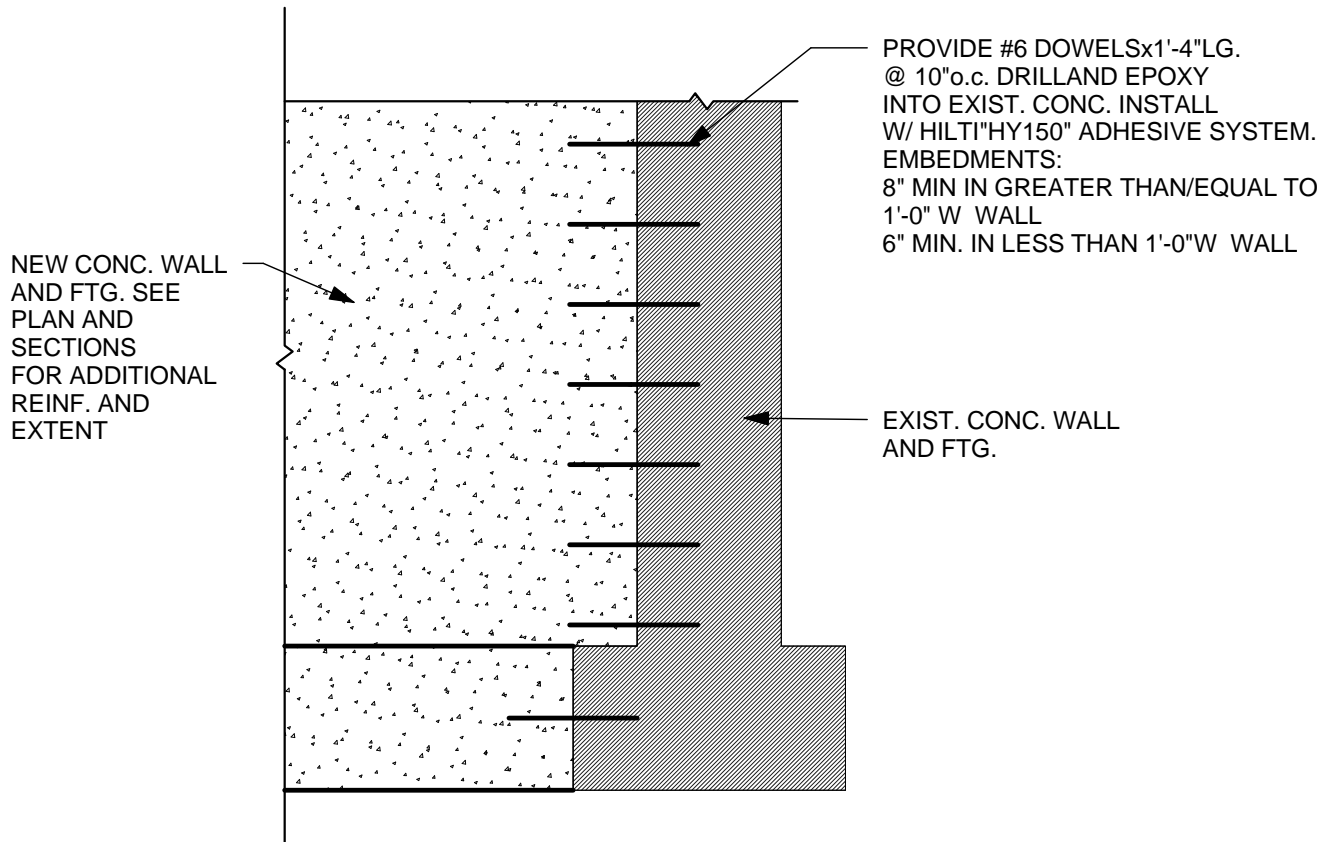
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Scale



PROVIDE #6 DOWELSx1'-4"LG.
@ 10"o.c. DRILLAND EPOXY
INTO EXIST. CONC. INSTALL
W/ HILTI"HY150" ADHESIVE SYSTEM.
EMBEDMENT 6" MIN..

NEW CONCRETE SLAB TO EXIST. CONCRETE SLAB DETAIL



NEW CONC. WALL
AND FTG. SEE
PLAN AND
SECTIONS
FOR ADDITIONAL
REINF. AND
EXTENT

PROVIDE #6 DOWELSx1'-4"LG.
@ 10"o.c. DRILLAND EPOXY
INTO EXIST. CONC. INSTALL
W/ HILTI"HY150" ADHESIVE SYSTEM.
EMBEDMENTS:
8" MIN IN GREATER THAN/EQUAL TO
1'-0" W WALL
6" MIN. IN LESS THAN 1'-0"W WALL

EXIST. CONC. WALL
AND FTG.

NEW CONCRETE WALL TO EXIST. CONCRETE WALL DETAIL

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TYPICAL DETAILS

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