Dull Olson Weekes - IBI Group Architects, Inc.
907 SW Stark Street
Portland OR 97205 USA

tel 503 226 6950
fax 503 273 9192

Project: **River Road Elementary School – Building and Site Construction**

Title: **Addendum No. 3**

Contract No: **CIP 410 307 001**

Date: March 11, 2016

From: John Stapleton, PIVOT Architecture

To: Interested Bidders

This Addendum is available at http://www.4j.lane.edu/bids/ and modifies the Project Manual, Specifications, and Drawings in accordance with the Invitation to Bid and the Instructions to Bidders as follows:

General Information

1. Addendum #2 noted the following: Drawing changes Items 30, 31, 32 noting changes to Sheets T120, T121, and T122, "Relocate ceiling AV enclosures to casework" is incorrect. DELETE that comment from Addendum #2. AV enclosures will be placed in the ceiling as shown on the documents.
2. NOTE: Bidder questions and answers are included for reference only with this Addendum.
3. CHANGE Bid Date to Wednesday, 16 March.

Changes to the Project Manual

1. Section 013100 Project Management and Coordination. ADD Section 3.01 and 3.02 as follows:

3.01 CONTRACT DOCUMENTS MANAGEMENT SERVICE

A. Contractor is required to initiate an account and pay for "Skysite" (https://www.skysite.com/) and Hyperlinking (http://www.e-arc.com/cdim/hyperlinking-services/) construction document management services. Skysite with hyperlinking will be the primary form of construction document record keeping to track RFIs, CCDs, ASIs, and other record document revisions. Hyperlinking to include navigation buttons throughout the documents for use within Skysite.

B. Contractor shall be responsible for issuing documents to Skysight and keeping the living record set current for access to Owner, Contractor, Subcontractors, Architect, and Engineers.

C. Skysite User Requirements:

1. Users with upload and general admin control:
    a. Owner: 2
    b. Architects: 3
    c. General Contractor: 5 min.
    d. Unlimited access for read-only use.

D. Service may be terminated 30 days after the date of Final Completion and Closeout and Final Payment is made to Contractor. Notify Owner and Architect 10 days prior to final service termination. Contractor to provide the Owner with CD/Thumb drive of final hyperlinked documents. Final documents to include:

1. All original contract documents.
2. All project submittals, RFIs, and other documented changes throughout the project.
3. As-builts, O&Ms and Warranty information.
4. Contractor, Subcontractor and Vendor contact information lists.

E. Contractor's responsibility for cost of Skysite service to include:

1. Cost for setup, monthly fees and closeout documentation.
2. Costs for posting document changes during the course of the project will be paid by the Owner through the Change Order process.

3.02 COORDINATION DOCUMENTS

A. Prior to construction, prepare and submit coordinated layout drawings (composite drawings), to coordinate installation and location of ductwork, grilles, diffusers, piping, fire sprinklers, fire alarm, plumbing, cable trays, lights, and electrical services. Composite Drawings show services on single sheet. Key Drawings to structural column identification system. Prior to completion of Drawings, coordinate proposed installation with architectural and structural requirements, and other trades (including plumbing, HVAC, electrical, fire alarm ceiling suspension and tile systems, etc.), and provide maintenance access requirements. Coordinate with submitted architectural systems (i.e. roofing, ceiling and finishes) and structural systems as submitted, including footings and foundation. Identify zone of influence from footings and ensure systems are not routed within the zone of influence. Unless otherwise required by Division 00, Procurement and Contracting Requirements and/or Division 01, General Requirements, Division 23, HVAC to combine information furnished by other trades onto master coordination documents.

B. Prepare Drawings as follows:

1. Provide drawings in Revit Model or other 3D modeling tool. Revit Model release equal to design documents. Drawings to be same sheet size and scale as Contract Drawings and indicate location, size and elevation above finished floor of equipment and distribution systems. 3D modelling program to be used for layout, coordination, clash detection, locations of maintenance pathways and best use of ceiling space while accommodating future work paths. 3D model will include elements listed in Items 3-9 below.
2. Review and revise, as necessary, Section cuts in Contract Drawings after verification of field conditions.
3. Provide plans of above ground work with a colored overlay of all trades including, but not limited to, HVAC piping, HVAC equipment, plumbing piping and equipment, sprinklers, lighting, lighting controls, cable tray, fire alarm devices, electrical power conduit, and ceiling system.
4. Provide plans of below ground work with a colored overlay of all trades including, but not limited to, structural footings and foundation, HVAC piping, civil piping, plumbing piping, and power.
5. Provide beam penetration drawings indicating beam penetrations meeting the requirements indicated on the floor plans and on the structural drawings, slab penetration drawings of HVAC, plumbing, sprinklers, lighting and electrical, fabrication drawings of radiant ceiling panels, architectural metal ceiling, including panel penetrations for lighting, sprinkler heads, fire alarm devices, and any other penetrations.
6. Indicate fire protection system piping including fittings, hangers, access panels, valves, and bottom of pipe elevations above finished floor.

7. Indicate inverts and provision for piping that must be graded to have right-of-way over more flexible Item. Drawings also to indicate proposed ceiling grid and lighting layout as shown on electrical drawings, architectural reflected ceiling drawings and HVAC equipment, ductwork and piping. Drawings to indicate proposed and identified structural members to which hangers and sway braces will be attached as shown on structural drawings.
8. Incorporate Addenda Item and change orders.
9. Provide additional coordination as requested by other trades.

C. Advise Architect in event conflict occurs in location or connection of equipment. Bear costs resulting from failure to properly coordinate installation or failure to advise Architect of conflict.
D. Verify in field exact size, location, invert, and clearances regarding existing material, equipment and apparatus, and advise Architect of discrepancies between that indicated on Drawings and that existing in field prior to installation related thereto.
E. Submit final Coordination Drawings with changes as Record Drawings at completion of project.

2. Section 08800 Glazing. Delete Solargray at Types A B C. Starphire clear tint. Interspace Content of IGUs to be argon gas. DELETE frameless glass sections. DELETE low-E coating at interior glazing in Room B100.
3. Clarification Section 22 21 13 ABS/PVC is NOT ALLOWED in mechanical plenums. Those areas must be plumbed in cast iron.
4. Section 116623 Gym Equipment, Sub Section 2.03A REPLACE Line 1a with Arizona Courlines Model GN-64, FBB-ST-P Heavy Duty. Sub section 2.05A DELETE climbing ropes.
5. Section 27 41 16 DELETE projector and mounts OFOI
6. Section xxx ADD projector lift at Media Center.
7. Section 087111 Door hardware schedule. Revised schedule.
8. Section 083513 23 ADD Specification section to project manual.
9. Section 11 400 Equipment
   Item 30 20-Gallon Tilting Kettle: Change A4 to read – Basket insert with liner and retaining liner ring.
   Item 33 Double Stack Combi-Oven Steamers: Change A5 to read – Two (2) Single Point Removable Probes.
   Item 43 Mobile Pot & Pan Shelving: Change model to the following-
   Mobile Pot and Pan Shelving unit: 4 tiers, 63” posts with casters and 2” shelf ledges stacked on 3 sides of each tier to prevent items from falling of shelves:
   1. (4) MX2448G
   2. (4) MX63UP
   3. (2) 5MPX
   4. (2) 5MPBX
   5. (8) MXL48-2S
   6. (16) MXL24-2S
10. Section 22 0553 Identification for Plumbing Piping and Equipment
    1. Add Article 2.01 C. to read the following: Do not include tags on equipment isolation valves that are located within six feet of the equipment it is serving.
    2. Add Article 2.04 to read the following:
    3.04 CONCEALED EQUIPMENT IDENTIFICATION
    3.05 A. Acceptable Manufacturers:
    1. W.H. Brady, Seton
    2. Other Manufacturers: Submit substitution request.

B. Adhesive Laminated Tape:
1. 3/4-inch width transparent clear tape with black lettering.
2. Lettering in ALL CAPS Helvetica font 24 point.
3. Add Article 3.04 to read the following:

3.04 CONCEALED EQUIPMENT IDENTIFICATION

A. Where valves or equipment are located above ceilings or behind walls provide adhesive tape indicating the item (valve tag, equipment tag, etc.) at the access location (T-bar ceiling grid, access door, etc.).
B. Applicable equipment includes, but is not limited to, the following:
1. Isolation Valves

11. Section 22 2113 Pipe and Pipe Fittings Plumbing
1. Revise Article 2.08 D. to read the following: Service: Sanitary waste and vent, except not allowed in air plenums (Sector A and B Mechanical Platforms), and below grade.
2. Revise Article 2.10 D. to read the following: Service: Domestic cold and hot water. Trap priming lines.

12. Section 22 4000 Plumbing Fixtures
1. Revise Article 2.03 A.1. to read the following: Kohler Kingston, vitreous china, wall hung, elongated bowl, siphon jet action, 1-1/2-inch top spud, white color finish. Complete with Sloan Royal 113-1.28 SMO battery-operated flushometer.
2. Revise Article 2.03 B.1. to read the following: Kohler Kingston, vitreous china, wall hung, elongated bowl, siphon jet action, 1-1/2-inch top spud, white color finish. Complete with Sloan Royal 113-1.28 SMO battery-operated flushometer.
3. Revise Article 2.03 C.1. to read the following: Kohler Bardon, vitreous china, wall mounted wash down urinal with 3/4-inch top spud, white color finish. Complete with Sloan Royal 186-0.5 SMO battery-operated flushometer, 0.5 GPF.
4. Add Article 2.04 X. to read the following: HB-2 Hose Bibb: Chicago 956 series, chrome-plated, 3/4-inch hose thread, integral vacuum breaker.

13. Section 23 0553 Identification for HVAC Piping Equipment
1. Add Article 2.01 C. to read the following: Do not include tags on equipment isolation valves that are located within six feet of the equipment it is serving.

14. Section 23 2123 Pumps for HVAC Systems
1. Add Article 1.02 A.2. to read the following: Condensate Pumps
2. Add Article 2.02 to read the following:

2.02 CONDENSATE PUMPS

A. Acceptable Manufacturers:
1. Little Giant
2. Other Manufacturers: Submit substitution request.

B. Description:
1. Pump for removal of evaporator condensate, complete with integral float switch, receiver, power cord, safety switch, and check valve.
2. Factory piped, wired, assembled and tested.
3. Capacity, head and power requirements as shown on Drawings.

C. Components:
1. Integral Float Switch

2. Receiver
3. Power Cord
4. Safety switch
5. Discharge check valve.

15. Section 142010 Passenger Elevators, Sub section 2,08A. Elevator doors and frames in hoistway are to be one (1) hour rated assemblies.
16. Section 062000 Finish Carpentry. Wood Slats are allowed to have an 8% moisture content.
17. Section 115213 Projector Screens. ADD Subsection 2.05 Credenza Projector Lift. Provide project lift in Media Center presenter station per Architectural drawings. Basis of design is Draper Credenza Projector Lift, with manual lift.

Changes to the Drawings

1. A131 Room A301 ADD note indicating that there is a metal roof access ladder in this location as shown by the drawing symbol. Reference Specification Section 05500 2.04 Metal Ladders for more information.
2. A113 Sector C Floor Plan. Delete climbing ropes. No drawing issued for this change.
3. A502. CHANGE Door Schedule. Doors A208A and A212A CHANGE to Hardware Group 2A. No drawing issued for this change.
4. FS102 Food Service Mechanical Plan – Change to Sheet FS1.3. Change Walk-in Cooler/Freezer floor depression depth to 5.75". Note: GC to delete topping slab and finished floor material inside walk-in cooler/freezer. Existing walk-ins have factory finish insulated floor. No drawing issued for this change.
5. FS201 Food Service Walk-in Details - Change Walk-in Cooler/Freezer floor depression depth to 5.75". Note: GC to delete topping slab and finished floor material inside walk-in cooler/freezer. Existing walk-ins have factory finish insulated floor. No drawing issued for this change.
6. Sheet T701 Add detail 4.
7. Sheets A151, A152, A153, A161, A162, A163 Sector RCPs. "No piping, conduit, ductwork, or other building system components are allowed to pass through the skylight wells. Only Code required surface mounted items, such as sprinkler heads and fire alarm devices are allowed." Updated locations of some MEP ceiling elements.
8. Sheet S112, S122: Revised Media Center stair framing per architectural revisions (Revised sheets are included).
9. Sheet S113: Deleted F3 columns at music platform partition columns (Revised sheet is included).
10. Sheet S709: Revised Media Stair Stringer Detail 16 per revisions of item S-3-1 above. (Revised sheet is included).
11. Sheet S901: Revise header schedule opening widths to add double header at the wondoor at the top of the Media Center Stairs.
12. Sheet M601 Relocated temperature sensor.
13. Sheet P002. 1. Revised Plumbing Fixture Schedule to include HB-1, and HB-2.
14. 2. Revised Plumbing Equipment Schedule to include GPM and Head design requirements for the Rain Water Skid.
15. Drawings P111, P115, P123. Added HB-2 to Janitor's Closet.

Substitution Requests

Substitution requests listed below have been approved or approved as noted. All other requests not listed below have either been not approved or are pending review. NOTE: All approved substitute materials and service providers are responsible for supplying materials/services that are equal or better than specified items. Any design changes or project alterations needed to integrate substituted products are the sole responsibility of the Contractor and supplier.

SUMMARY OF ALL APPROVED SUBSTITUTIONS

1. Section 23 0593 Testing Adjusting and Balancing. Precision Test and Balance, 300 S. Redwood St. Ste. 130, Canby, OR 97013 is APPROVED as an acceptable TAB firm.
2. Section 08 4413 Glazed Aluminum Curtain Walls, 2.03 Components, D Sunscreens and Light Shelves. Hendrick Architectural + Kawneer Sun Screens and Light Shelves provided by ASCA, Inc. is APPROVED as a substitute. NOTE: Any alterations or design changes needed to adapt this system to the project are the responsibility of the supplier/Contractor.
3. Section 089100 Louvers Greenheck EHH-601D, EVH 601D APPROVED.
4. Section 22400 Murdock Model A132400s Drinking Fountain APPROVED
5. Section 230523 Nutech model 2SAS Piping Package APPROVED
6. Section 232014 Rehall Pre-Insulated Pex Pipe APPROVED
7. Section 233319 Price Industries Rectangular Silencer APPROVED
8. Section 016023 Luxaire Split System Air Conditioning Unit APPROVED
9. Section 238200 Williams LH-F Fan Coil Unit APPROVED
10. Section 064100 Fixture Logic is APPROVED as a casework provider.
11. Section 083223 Security Grilles. Overhead Door model 671 Coiling grille, and Mobilflex S126 Side folding grilles are APPROVED.
12. Section 07210 Thermal Insulation. Johns-Manville Corbond III Closed cell Spray foam is APPROVED. Johns-Manville Mineral Wool Sound Attenuation Fire Batt insulation is APPROVED.
13. Section 074113 Metal Roof Panels. Metal Sales Man. Corp. Magna Loc 180 Panel is APPROVED. NOTE: Substituted panels MUST color match the basis of design product.
14. Section 074113 Metal Soffit Panels. Metal Sales Man. Corp. Magna TLC-1 Panel is APPROVED. NOTE: Substituted panels MUST color match the basis of design product.
15. Section 074213 Metal Wall Panels. Metal Sales Man. Corp – Vertical Seam product is APPROVED.
16. Section 072500 Weather Barriers. Sto-Guard Systems Emerald Coat fluid applied product is APPROVED.
17. Section 074264 Metal Composite Material Wall Panels. ACM panels by Alucoil are APPROVED. NOTE: Substituted panels MUST color match the basis of design product. Colors not included in substitution request.
18. Section 086300 Metal Framed Skylights. Skyworks Solarview Slope Glaze 3” and 5” tubular skylight framing product is APPROVED.
19. Section 08630 Metal Framed Skylights. Crystal Structures Single Slope curb mount skylights are APPROVED.
20. Section 087111 Door Hardware. Select Hinge SL11 HD and SL24HD are APPROVED.
21. Section 102226 Operable Partitions. Advanced Equipment Corp Sigma #2 paired panel partitions are APPROVED.
22. Section 129313 Bicycle Racks. Huntco Site Furnishings outdoor bicycle racks are APPROVED.

23. Section 221415 Reclaimed Water Treatment and Delivery Package. Quantum Flo Rainwater Treatment System – Complete is APPROVED.

End of Addendum # 3

PIVOT ARCHITECTURE

dowa

Dull Olson Weekes - IBI Group Architects, Inc.
907 SW Stark Street
Portland OR 97205 USA

tel 503 226 6950
fax 503 273 9192

Project: **River Road Elementary School – Building and Site Construction**

Title: **Addendum No. 3 Bidder Question Summary**

Contract No: **CIP 410 307 001**

Date: March 11, 2016

From: John Stapleton, PIVOT Architecture

To: Interested Bidders

This is a complete list of Bidder questions and answers. For reference only.

1. Sheet A601 lists (22) Type B signs for the classrooms but Sheets IG619-IG620 only show (21) types of graphics for Type B signs.
    a. The icon for Signage Panel **B22**, classroom A212 has not be designed. Account for signage panel with full color icon.
2. On Sheet A611, sign Type B shows a typical classroom sign for the base bid, does Alternate #8 delete the classroom icon & historical photo? If so, does the sign size still remain 1'6" x 4'0"?
    a. The classroom icon remains. The Historical photo is part of the alternate. Size stays the same.
3. On Sheet IG612-IG613 it is a little confusing as to what goes on the glass. For example, DFM14 on Sheet IG612 says Willow and Oak, are each one of the dots shown supposed to be a Willow and Oak symbol shown on Sheet IG620? If so which sections of glass get Willow and which sections of glass get Oak?
    a. Decorative Film Material (DFM) is intended to run the entire length and width of glazing. Decorative Film Material is representative, final artwork for glazing is being completed by Info graphic consultant.
    b. **See- General Note:** Artwork is representative contractor to coordinate with architect to receive finalized digital files.
4. What are the dimensions of the symbols shown on Sheets IG619-IG620?
    a. Icons will be located in a 14" wide by 12" high zone. Exact dimension of each icon will very slightly
5. Specification 12 93 00 calls for site waste receptacles, there are none shown on the plans, how many are we to include in our bid?
    a. There are no site waste receptacles in the project.
6. Specification 11 66 23, 2.01 lists manufactures for scoreboards but there are no additional specifications for the scoreboards and the plans do not show a location for a scoreboard.
    a. There are no scoreboards in the project.

7. On plan page S112 between GL's D & E on GL 13.9 shows a column with no footing, should you this also be an F4 spread footing?
    a. There is no column in that location, and no footing.
8. On plan page S112 between GL's C & D and GL's 10.3 & 11 shows an elevated slab with a seating area at the stairs. Please provide a detail for the concrete at the seating portion of the elevated slabs.
    a. Refer to sheet A362 for seating stair details. Revised in Addendum 2.
9. Plan S113 shows an F3 footing which is not on the schedule, should this be an F4 footing? See Gridline 15.3 @ G.1 and H.6 for F3 footing callout.
    a. The F3 footing can be deleted. The HSS column can be supported on the continuous thickened slab wall footing per 13/S502 with a base plate per 6/S707.
10. Detail 10/S705 refers you to see detail 14/S704 for heavy hex nuts, should this read detail 14/S705?
    a. Detail 14/S705 is correct.
11. Second Floor Plan Symbol S/HDX denote you to the Holddown schedule and refers you to see details 9 & 13/S902 but detail 13 is missing?
    a. Reference to detail 13/S902 should be deleted
12. Please confirm location of Curbs and curb height per 7/S501
    a. As noted on A104, A105, A106 Slab Plans
13. Please confirm height of housekeeping slabs located on A/104 and 7/S501
    a. All pads should be bid at 6" thick. Actual thicknesses will be confirmed during the shop drawing review process.
14. Please provide more details on the walk in cooler foundation and slabs on FS201 details A and B. I see on the architectural plans that it shows contraction joints on the slab on metal deck, this is not a common practice on slabs on metal decks so can you please confirm if this is correct?
    a. The current slab plans do not show contraction joints. The Finish Plans show sawcut joints for crack relief. Those are in the project and should be bid.
15. The notes on the landscaping plans regarding Alternate #1 appear to show it as an additive alternate, not deductive (see notes on Sheet L402).
    a. All alternates are deductive
16. The notes on the electrical plans regarding Alternate #6 appear to show it as an additive alternate, not deductive (see notes on Sheet E411).
    a. All alternates are deductive
17. Please verify that all costs of testing & inspections are by the Owner.
    a. Owner pays for Special Inspection of Structural, compaction testing. All other required test are by Contractor. Note that re-inspections can be charged to the Contractor.
18. 32 1200 Flexible Paving Section 2.02 lists broadband limits for the HMAC but there are no limits listed for the 3/8" mix. Also, I believe that all of the local suppliers produce RAP that is screened on a ½" size and therefore we would not be able to use RAP in the 3/8 mix with 100% passing the 3/8" screen. The sieve sizes used in the broadband are not the same as is currently specified by ODOT. I would like to recommend that section 2.02 A. be deleted and use the references to ODOT as the specification for HMAC. Maybe the specifications are lacking enough with respect to "broadband limits" for the 3/8" mix that it would not need an addendum to clarify.

19. Reference Specification Section 03 4500 Precast Architectural Concrete, Item 1.01.A – lists precast stair treads and landings. The intermediate landings are shown on the structural drawings as Deck Type D% which is 2 1/2" concrete over 1 ½" metal deck. Which is correct?
    a. Stairs are precast, landing are cast in place.
20. Reference Sheet A111 @ Hallway A111 At approx. grid lines 5 and 7 there appears to be two Fire extinguisher cabinets shown but not called out. The elevation 5/A431 shows these two missing Fire Extinguisher Cabinets. Does the plan or the elevation take precedence?
    a. There should be 2 fire extinguishers.
21. Reference Specification Section 01 1100 1.09 lists items that are to Owner Furnished Contractor Installed. There are additional items in the Keynote Legend on various sheets that list for example Stacking washer & Dryer Room 111, Under counter refrigerator Room 115 and Refrigerator Room 119 as Owner Furnished Contractor Installed. Is there another specification section that lists all items?
    a. Items are listed in the individual sections.
22. Reference Specification Section 06 2000, 2.02.A that specifies the Wood Slats as having a moisture content of 6%. I have contacted several suppliers of finish trim and the maximum available is 8% to 9%. Some have indicated that to reduce the moisture content below those marks damages the appearance of the wood. Please verify the moisture content.
    a. 8% Moisture content is acceptable.
23. Reference Sheet A501 and A 502 Door Schedules for the First and Second Floors. Please compare the two schedules. There is door width information shown on A501 and not shown on A502.
    a. Door Schedule was revised in Addendum 2 to include a door width column.
24. Reference Sheet A501 and A 502 Door Schedules for the First and Second Floors. Door Type A is listed as both a HM Door and a Wood Door. Is this correct?
    a. Door type A is a wood door.
25. Reference Sheet L102 and details for the ballfield on l703. Sheet L102 shows a concrete pad at the end of the Backstop legs. Details do show these two pads. Are they real or imaginary? If real please provide additional information.
    a. Review Sheet L201 for sizes and configurations of concrete paving. See detail 1/L702.
26. Reference Details 10 & 11/L702. What is the spacing of the skate stoppers shown? Typical at all seating walls and retaining walls?
    a. Install skate stoppers at 4' OC at all seating walls and retaining wall.
27. Reference Specifications Section 01 3000 – Requirement for the General to purchase and pay fees associated with the Skysite system. We are currently providing this service on the Roosevelt Middle School but because we have no control over the extent of the use the School District is paying for this thru the change order process.
    a. See Addendum #3 for detailed information about the Skysite service requirements.
28. In section 230700-3.04 there is an applied insulation chart. Please ask if 1" liner can be used in lieu of 1 ½" within this chart. 1 ½" internal liner for round and square duct is close to double in cost due to many insulation manufacturers not stocking this item as it is not used frequently.
    a. R-5 insulation is required. Manufacturers do not appear to offer an R-5 rating in a 1" material. Proceed with the 1-1/2" material.

29. In section 230700-3.04 there is an applied insulation chart. Please ask if 1" liner can be used in lieu of 1 ½" within this chart. 1 ½" internal liner for round and square duct is close to double in cost due to many insulation manufacturers not stocking this item as it is not used frequently.
    a. R-5 insulation is required. Manufacturers do not appear to offer an R-5 rating in a 1" material. Proceed with the 1-1/2" material.
30. Please confirm that any exposed ducts showing internal liner do not need double-wall sheet metal fabrication, there is a note 2 in the same chart as above referencing to section 233102.
    a. Confirmed. Double walled duct is not needed in this application. See Addendum 3.
31. See 1/A311 on the 2nd floor does the drywall go to structure or is like shown in 1/A350?
    a. Gypboard goes to structure
32. Does the drywall at a nonrated condition continue to the structure above where there is a drywall ceiling, such as in the toilets etc.?
    a. Yes, gypboard goes to structure.
33. Is there drywall on the walls in mech. 300?
    a. No gypboard on the CMU walls. Metal stud walls will receive gypboard.
34. Spec. 092116,3.03, B says studs @ 16" o.c. but 2/S901 indicates 24" o.c. please advise stud spacing? Also what gauge & flange size is required?
    a. Use 16" OC spacing. Gauge per specs.
35. 7&3/S901 shows 54 mil. Material is this correct? And does this apply at all interior framing?
36. 5/A457 shows a closure piece what spec. section covers this scope?
37. See room c109 do the walls go to structure or just above ceiling?
    a. Walls go to structure.
38. There is no section thru B207 area what is the height to the structure? Sim question at the hall etc.?
39. I have only had a chance to review addendum # 2 briefly but I did notice that the stair shown and detailed on Sheet A362 has changed adding cast-in place steps including cheek walls. No details provided for the cheek walls Thickness, reinforcement etc. Finish of the exposed surfaces I would assume is a rubbed finish and the treads and risers are polished concrete. Are we to use geofoam fill under the steps?
    a. Concrete to be a rubbed finish, treads and riser to match precast tread finish to extent possible. Geofoam fills to be used as shown on 12/S501
40. Vestibule B100 has frames X28 and an interior X13 that are detailed as insulated glass. Can we delete the low 'E' coating on these?
    a. Delete low –E coating in this location.
41. How should the concrete stair in Hallway B118 attach to the structural slab?
    a. The stairs will be attached to the structural slab with #4 bar hooks at 16" OC around the perimeter, similar to those shown on Detail 12/S501.

SECTION 08 35 13.23 – ACCORDION FOLDING FIRE DOORS

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. Division 0 and 1, as indexed, apply to this section.

B. Furnish and install all horizontal sliding, accordion folding fire doors shown on the drawings and specified herein.

1.02 RELATED SECTIONS

A. All headers, support structures, fire protection of support structures, surrounding insulation, jambs, storage pockets, blocking and trim shall be furnished and installed by other sections.

B. All electrical wire, wiring, conduit and electrical boxes shall be furnished and installed by electrical section including connections to smoke detectors and building fire alarm panels.

C. Drilling/placement of anchorage points into pre or post tensioned decks, welding/punching/drilling steel members and all drywall work.

D. All track, soffit, chain guide and wall mounted striker pieces and integrated pocket cover door surface shall be painted by Section 09900. Color shall be selected by the architect.

E. Wiring for Individual LCD Door Status Display at fire door-One (1) USOC RJ14-6POS 4 wire jack shall be supplied at the back of the storage pocket and shall be tied to the 4 square junction box adjacent to the door with CAT 5 twisted 2 pair cable. The junction box, RJ14 jack and wire shall be furnished and installed by the electrical section. Termination to the LCD panel shall be by punch down block and shall be by the electrical section as per the manufacturer's instructions.

F. Interface to the fire doors shall be accomplished using a MODBUS gateway (by others) configured for RS485 communications. Use 18-gauge single twisted pair communication wire from the MODBUS gateway and daisy chain connections to each fire door (maximum of 32 doors per gateway). Terminate the end-of-line with a load resistor as specified by the MODBUS gateway manufacturer.

Communication lines are daisy chained from the MODBUS gateway to each fire door. The communications line is connected to a USOC RJ11, 6 Position, 4 Contact wall plate at each door. The [COM+]/[COM-] wires are connected to the center pins (Red and Green wires respectively). The plate is then mounted to a j-box centrally located on the back wall of the fire door pocket. All wiring, conduit, j-boxes and wall plates are provided by the Electrical Contractor. Connection from the wall plate to the fire door controller is accomplished by a modular plug data cable provided by the manufacturer.

1.03 QUALITY ASSURANCE

A. Installation shall be performed by factory trained and certified installers with a minimum of three years' experience installing electrically operated accordion folding fire doors.

B. Fire doors shall be listed by Underwriters Laboratories for ratings as indicated, when tested in accordance with the requirements of UL 10B NFPA 252.

C. Automatic closing system shall be listed by Underwriters Laboratories in accordance with the requirements of UL 864 and be listed for use with the assembly in compliance with NFPA 80, Chapter 9.

D. Fire doors used for smoke and draft control shall bear the "S" mark on the fire door label and shall have an air leakage of less than 3 ft^3/ft^2 at 0.1 inch of water column pressure when tested in accordance with UL 1784 with an artificial bottom seal.

E. Fire doors used at the point of access to an elevator shall bear the "SE" mark on the fire door label and shall have an air leakage of less than 3 ft^3/ft^2 at 0.1 inch of water column pressure when tested in accordance with UL 1784 without an artificial bottom seal.

F. Fire Doors shall be capable of resisting an air pressure differential up to 0.05 inches of water column. Optional air pressure resistance to 0.1 inches of water column available. (See Section 2.03 J)

1.04 SUBMITTALS

A. See Section 01 30 00 – Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's technical literature, include UL listing data.

C. Shop Drawings: Indicate construction and installation details and dimensions, including layout, electrical requirements, required stack depth, height of header above finished floor, and requirements for anchorage and support of each door.

D. Operation and Maintenance Data: Operating procedures, troubleshooting and repair methods, and wiring diagrams.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver to the job site in manufacturer's original, unopened package, labeled to show name, brand and type.

A. Store products in a protected dry location. Replace damaged materials on-site at no cost to owner.

1.06 COORDINATION BY GENERAL CONTRACTOR

A. Coordinate with the following:

1. Fire Alarm system.
2. Electrical.
3. Pocket cover doors (if required).
4. Floor and ceiling finish.

B. Assure accurate installation of header, jamb, and trim. Provide "As-Built" dimensions for opening and storage pocket. Supervise unloading and handling of materials.

C. Store boxes flat (not more than three high) in a protected dry area. Replace damaged materials at no cost to owner.

D. Permanent power shall be in-place and ready for final connection when fire doors are installed. Assure access to and proper clearance for motor operators.

E. After testing the fire alarm system, automatic-closing fire doors shall be re-set to the original position.

1.07 WARRANTY

A. Materials and installation shall be warranted against defects in workmanship for a period of one (1) year from the date of substantial completion.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Horizontal sliding accordion folding fire doors shall be Won-Door FireGuard Cross-corridor/Compressed Stack model FG-CC/CS 20 number designates minutes of fire rating) as manufactured by Won-Door Corporation, Salt Lake City, UT.

B. No substitutions allowed.

2.02 ACCORDION FIRE DOORS – GENERAL

A. Provide electrically powered self-closing fire doors of configurations indicated on the drawings.

1. Fire rating as required.

B. Fire Rating – Fire doors shall be listed by Underwriters Laboratory as special purpose fire doors having a 20 minute fire protection rating in accordance with the requirements of UL 10B and NFPA 252.

C. Closing and Opening Operation: Automatic Closing System including motor operator and releasing devices shall be a Microprocessor-based system rated to UL864 (Releasing Device Control Unit) and shall commence closing upon activation by fire alarm system and/or by low battery charge.

1. Obstruction Detection: Contact with an obstruction shall cause the door to stop, reverse enough to remove pressure on the leading edge, pause, and then re-close when in an alarm condition.

2. While the door is opening under motor power, constant pressure to the leading edge in the direction of opening shall cause the door to continue to open until the leading edge is released. This is termed motor-assisted opening.

3. Constant pressure to the leading edge while not under motor power shall prevent motor operation and allow the door to be opened manually.

D. Exit Hardware Operation: Provide fire exit hardware on one side of door.

1. In emergency mode, a slight pressure on the hardware will cause the door to open a minimum of 32 inches, pause for 3 seconds, and then automatically close.
2. The open distance shall be field programmable, up to the entire opening width.
3. The pause before re-close shall be field programmable up to 30 seconds.
4. The exit hardware shall have the ability when not in the emergency (fire) mode to be used to open the door and move it back into the storage pocket.

2.03 COMPONENTS

A. Door Construction: Two parallel, accordion-type walls independently suspended with no floor tracks, pantographs, or interconnections.
   1. Panels: 24 gauge steel, V-grooved; modular in design; capable of in-place repair.
   2. Perimeter Seals**:** shall consist of continuous extruded vinyl sweeps attached to the top and bottom of the fire door to form a smoke and draft seal.
   3. Hanging Weight: 5.5 pounds per sq. ft. when extended across opening.
   4. Finish: All steel parts factory-applied enamel.
   5. Color: Manufacturer's standard platinum.

B. Suspension System: Two tracks, on 8 inch centers, attached to overhead structural support.
   1. Tracks: .125 aluminum or 14 gauge cold rolled steel.
   2. Panel Hangers: Every other panel is suspended by a steel hanger pin and ball bearing roller.
   3. Lead Post Hangers: 16-gauge steel structural tube frame with 18-gauge steel preformed cover. The lead post shall function as an integrated cover panel over the storage pocket opening when the fire door is in the open position.

C. Power Supply: 120 volt power source to power supply for main power. On loss of AC power, the 12v/24v battery back-up system shall provide full operation capability.

D. Automatic Closing System shall be listed to UL864 including capability to send and receive signals from the Fire Control Panel, and shall consist of the following:
   1. Microprocessor based Electronic Control box with the ability to:
      a. Monitor dual power sources continually for peak performance including:
         1) Detect a missing battery, bad battery, or low battery condition.
         2) Detect if the charging circuit is bad.
         3) Detect fuse failures.
         4) Detect high or low AC conditions.
      b. Monitor the health of the drive train.

c. Monitor inputs including: sticky door block, exit hardware, patron hardware, and key switches.

d. Run a "watch dog" monitoring circuit which will force a software restart in the event the software hangs, including tracking the number of resets that occur for diagnostic purposes.

e. Withstand voltages up to 120 volts AC on the fire alarm input circuit without damage including the ability to indicate that the alarm circuit has not been wired as a dry contact, "no voltage" circuit when errant voltages are applied to the circuit.

f. Communicate with other microprocessors on the system via an internal buss system.

g. Indicate faults or supervised information both locally and at a remote location.

2. Motor Operator Assembly including a DC gear-motor, drive sprocket, clutch, and position sensors. The motor shall drive the fire door by means of a chain attached to a stabilizer bar trolley. The motor shall be rated for continuous use with unlimited cycle duty.

3. If optional key switch *(Section 2.03 G)* is NOT used, A door control momentary rocker switch shall be mounted on one side of the door and shall function as follows:

   a. Pressing the upper portion shall close the door and/or clear fault conditions.

   b. Pressing the lower portion of the switch shall open the door and/or temporarily mute the local horn.

4. Leading Edge Obstruction Detector shall be pressure sensitive such that contact with an obstruction shall cause the door to stop, pause for 3 seconds, then re-close when in alarm mode. The obstruction detection system shall be fully functional at all times.

5. Exit Hardware will be located on both sides of each fire door.

E. The header shall be provided as an integrated part of the door assembly. It shall Include integrated self-supporting track, threaded rods and mechanical attachment hardware.

F. Vision Panel consisting of a frame and clear glass assembly with listings from Underwriters Laboratory up to 90 minutes.

G. A Key Switch shall be provided, located as directed by the Architect. *(Note: required with door equipped with Access Control option)*

H. Access Control: Shall inactivate Fire Exit Hardware and sound an audible alarm in an attempt is made to manually operate the door assembly. A key switch shall be provided for authorized operation of the door assembly. A signal from the smoke detector or fire alarm will automatically override the access control feature. *(Note: at least one key-switch required.)*

I. An Individual LCD Door Status Display panel shall be provided adjacent to the door to indicate in the English language the status of the door, i.e. door position and trouble conditions. It shall have a port that allows easy access to a diagnostic tool for the purposes of field programming the door to customized settings.

J. Remote Operation and Monitoring. Fire doors shall be remotely monitored and controlled through a building monitoring system (BMS) and interface with the BMS using MODBUS communication.

MODBUS Door Controls shall Include: Open, Close, Set Fire Mode for Testing, Reset, Lock (with Access Control Option), Unlock (with Access Control Option).

MODBUS Monitor Status: Door position across opening width, Door Status (OPEN, CLOSED, OPENING, CLOSING), Errors, Battery Voltage, AC Voltage.

L. An infrared light beam shall be provided on non-curved doors to monitor the opening path. In the event that an object is placed in the path of the door for more than 4 minutes, the beam shall cause the door to sound an alarm indicating a path obstruction

2.04 RELATED CONSTRUCTION

A. Track Support Construction: Provide supports attached to structure and mounting surface for track including drilling/placement of anchorage points into pre or post tensioned decks, welding/punching/drilling steel members, and all drywall work; comply with door manufacturer's instructions and recommendations.

A. Pocket Construction: Provide pocket for concealment of accordion door when open; comply with door manufacturer's instructions and recommendations.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that adjacent construction is suitable for installation of door.

A. Verify that electrical utilities have been installed and are accessible.

B. Verify that door opening is plumb and header is level and of correct dimensions.

C. Notify Architect of any unacceptable conditions or varying dimensions.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions, shop drawings and NFPA 80.

A. Install fire doors plumb and level.

3.03 ADJUSTING

A. Adjust door installation to provide uniform clearances and smooth, quiet, non-binding operation.

A. Test that all operations are functional and meet the requirements of local codes.

3.04 CLEANING

A. Clean surfaces using manufacturer's recommended means and methods.

3.05 PROTECTION

A. Protect installed work from damage.

3.06 STORAGE OF WASTE AND RECYCLING

A. Store and recycle waste in accordance with Section 01 74 19 Construction Waste Management and Disposal.

END OF SECTION

SECTION 08 7111
DOOR HARDWARE SCHEDULE

MANUFACTURERS SPECIFIED:

PRODUCT SPECIFIED	MANUFACTURER NAME	SYMBOL SPECIFIED	APPROVED EQUAL
BUTTS	IVES	I	STANLEY, MCKINNEY
CONTINOUS HINGES	SELECT	S	NONE
CYLINDERS	SCHLAGE	SCH	NONE
CLOSERS	LCN	LCN	NONE
RIM PANICS	VON DUPRIN	VD	NONE
VR PANICS	PRECISION	PHI	NONE
MULLIONS	VON DUPRIN	VD	NONE
POWER TRANSFERS	VON DUPRIN	VD	NONE
POWER SUPPLIES	VON DUPRIN	VD	NONE
KICKPLATES	IVES	I	NONE
WALL MAGS	LCN	LCN	NONE
STOPS	IVES	IVES	NONE
OVERHEAD STOPS	GLYNN JOHNSON	GJ	NONE
THRESHOLDS	PEMKO	P	ZERO
SEALS	STEELCRAFT	STE	PEMKO
MAG HOLDS	RIXSON	RIX	NONE

KEYING: PROVIDE CONSTRUCTION CORES. FINAL KEYING AS DIRECTED BY ARCHITECT AND OWNER.

HARDWARE GROUPS:

Group # 1A

4	EA	POWER SUPPLY PS 914 900 4RL BB KL	N/F

PLEASE NOTE: LOCATIONS OF POWER SUPPLIES NOTED ON LOW VOLTAGE DRAWINGS

Group # 1

1	EA	BUTTS 5BB1HW 4.5 X	4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO		626	SCH
1	EA	WALLSTOPWS407CCV		630	I
1	EA	KICKPLATE 8400 24X34 DOOR B203A		630	I
1	EA	KICKPLATE 8400 10 X 34		630	I
1	SET	GASKET PS074 1@32@7		BLACK	STE

Group # 2A

6	EA	BUTTS 5BB1HW 4.5 X	4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO		626	SCH
1	EA	WALLSTOPWS407CCV		630	I
1	EA	FLUSHBOLT FB458-12-MD		626	I
1	EA	DUSTPROOF STRK DP2		626	I
1	EA	THRESHOLD 276A 72 IN		ALUM	P
1	EA	SEALS BY ALUM DOOR SUPPLIER			

Group # 2

1	EA	CONT HINGE SL11HD EPT 83IN ACTIVE LEAF	628	S
1	EA	CONT HINGE SL11HD 83IN	US28	I
1	EA	HOUSING L/CORE 26-094	626	SCH
1	EA	PANIC EL98NL 990NL 3FT	626	VD
1	EA	PANIC LD98EO 990EO 3FT	626	VD
1	EA	CYLINDER 20-079	626	SCH
2	EA	CORE 23-030	626	SCH
1	EA	POWER TRANSFER EPT-10 (TEN 24 GAUGE WIRE)	SP28	VD
1	EA	MULLION KR4954 7FT 6IN	SP28	VD
1	EA	CLOSER 4111 SPRING CUSH W MS	ALUM	LCN
1	EA	CLOSER 4111 SPRING CUSH W MS	ALUM	LCN
1	EA	SHOE SUPPORT 4110-30 WMS	ALUM	LCN
1	EA	DROP PLATE 4110-18 WMS IF REQUIRED	ALUM	LCN
1	EA	BLADE SPACER 4110-61 WMS	ALUM	LCN
1	EA	THRESHOLD 276A 72IN	ALUM	P
2	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
1	EA	DOOR SHOE BY DOOR SUPPLIER	N/F	O
1	SET	SEALS BY DOOR SUPPLIER	N/F	O

PLEASE NOTE: CARD READER, WIRING AND INSTALLATION BY OTHERS.

Group # 3

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET L9456P 06A L283-722 L583-363	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@32@7	BLACK	STE

Group # 4

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
2	EA	KICKPLATE 8400 24 X 34 CUSTODIAL ROOMS ONLY	630	I

Group # 5

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH
1	EA	CLOSER 4111 EDA DA WMS	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@32@7	BLACK	STE

Group # 6

6	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC CD2201 SNB LBR 1701 EO	626	VD
1	EA	PANIC CD2203 SNB LBR 1703A	626	VD
1	EA	HOUSING L/CORE 26-094	626	SCH
1	EA	CYLINDER 20-079	626	SCH
1	EA	CORE 23-030	626	SCH
2	EA	MORT CYLINDER 26-094 XQ11-948	626	SCH
1	EA	CLOSER 4111 SPRING H-CUSH WMS	ALUM	LCN
1	EA	CLOSER 4111 SPRING H-CUSH WMS	ALUM	LCNO
1	EA	THRESHOLD 276A 72IN	ALUM	P
2	EA	DOOR CONTACTS GE 1078CW BY OTHERS	N/F	O
2	SET	SEALS BY PS074 22FT	BLACK	STE
2	EA	MAG HOLD OPENS FM 999	AWM	RIX

Group # 7

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 24 X 34 DOOR B115A	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group # 8

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group # 9

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKET ND96PD	626	VD
1	EA	CLOSER 4111 EDA DA RH W MS	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

NO CLOSER OR KICKPLATE ON DOOR B202A

Group # 10

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC LD98NL 990NL 3FT	626	VD
1	EA	CYLINDER 20-079	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
1	EA	DROP PLATE 4110-18 CUSH IF REQUIRED	ALUM	LCN
1	EA	BLADE SPACER 4110-61 WMS	ALUM	LCN
1	EA	SHOE SUPPORT 4110-30 WMS	ALUM	LCN
1	EA	ELEC STRIKE 9600 12/24	630	HES
1	EA	POWER REGULATOR 2005M3 SMART PAC 3	N/F	HES
1	EA	THRESHOLD 276A 36IN	ALUM	P
1	EA	DOOR SHOE BY DOOR SUPPLIER	N/F	O
1	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
1	EA	SEALS BY DOOR SUPPLIER	N/F	O

CARD READER, POWER, WIRING AND INSTALLATION BY OTHERS.

Group # 11

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC CD98NL 990NL 3FT	626	VD
1	EA	CYLINDER 20-079	626	SCH
2	EA	CORE 23-030	626	SCH
1	EA	MORT CYLINDER 26-094 XQ11-948	626	SCH
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
1	EA	BLADE SPACER 4110-61 WMS	ALUM	LCN
1	EA	SHOE SUPPORT 4110-30 WMS	ALUM	LCN
1	EA	DROP PLATE 4110-18 CUSH IF REQUIRED	ALUM	LCN
1	EA	THRESHOLD 276A 36IN	ALUM	P
1	SET	SEAL BY DOOR SUPPLIER	N/F	O

Group # 12

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96 PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 24 X 34 DOOR B120B	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group # 13

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET L9456P 06A L283-722 L583-363	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10X34	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group # 14

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	OVERHEAD STOP 9OS	630	GJ
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group # 15

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	SET	GASKET PS074 1@3 2@7	BLACK	STE
1	EA	KICKPLATE 8400 24 X 34 DOOR B117A	630	I
1	EA	WALLSTOPWS407CCV	630	I

Group # 16

2	EA	CONT HINGE SL11HD 83IN	628	S
1	EA	PANIC CD98NL 990NL 3FT	626	VD
1	EA	PANIC CD98EO 990EO 3FT	626	VD
1	EA	HOUSING L/CORE 26-094	626	SCH
1	EA	CYLINDER 20-079	626	SCH
4	EA	CORE 23-030	626	SCH
2	EA	MORT CYLINDER 26-094 XQ11-948	626	SCH
1	EA	MULLION KR4954 7FT 6IN	SP28	VD
1	EA	CLOSER 4111 SPRING H-CUSH RH W MS	ALUM	LCN
1	EA	CLOSER 4111 SPRING H-CUSH LH W MS	ALUM	LCN
1	EA	THRESHOLD 276A 72IN	ALUM	P
2	SET	SEALS BY PS074	BLACK	STE

Group 17

2	EA	CONT HINGE 224HD 23IN	628	S
2	EA	DEADBOLT B660P INTO HEAD	626	SCH
2	EA	WALLSTOPWS407CCV	630	I

Group 18

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	CLOSER 4111 SPRING H-CUSH W MS DOOR C103A	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	EA	KICKPLATE 8400 24 X 34 DOOR C103A, C115A	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group 19

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I

1	EA	KICKPLATE 8400 10 X 34	630	I
1	EA	KICKPLATE 8400 24 X 34 DOOR C106A	630	I
1	SET	GASKET PS074 1@32@7	BLACK	STE

Group 20

6	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
2	EA	MORT CYLINDER 26-094 XQ11-948	626	SCH
1	EA	PANIC CD98NL 990NL 3FT	626	VD
1	EA	PANIC CD98EO 990EO 3FT	626	VD
1	EA	CYLINDER 20-079	626	SCH
2	EA	CORE 23-030	626	SCH
1	EA	HOUSING L/CORE 26-094	626	SCH
1	EA	MULLION KR4954 7FT 6IN	SP28	VD
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
2	EA	WALLSTOPWS407CCV	630	I
2	EA	KICKPLATE 8400 10 X 28	630	I
1	SET	SEAL PS074 1 @ 5FT 4 @ 7FT	BLACK	STE

Group 21

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC CD98L BE RHR 3FT	626	VD
1	EA	MORT CYLINDER 26-094 XQ11-948	626	SCH
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@32@7	BLACK	STE

Group 22

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	HOUSING L/CORE 26-094	626	SCH
1	EA	PANIC LD98EO 990EO 3FT	626	VD
1	EA	PANIC EL98NL 990NL 3FT	626	VD
1	EA	CYLINDER 20-079	626	SCH
2	EA	CORE 23-030	626	SCH

1	EA	POWER TRANSFER EPT-10 (TEN 24 GAUGE W IRE)	SP28	VD
1	EA	MULLION KR4954 7FT 6IN	SP28	VD
1	EA	CLOSER 4111 SPRING CUSH LH W MS	ALUM	LCN
1	EA	CLOSER 4111 SPRING CUSH RH W MS	ALUM	LCN
1	EA	THRESHOLD 276A 36IN	ALUM	P
2	EA	DOOR BOTTOM 216AV 36IN	ALUM	P
2	EA	DOOR CONTACTS GE 1078CW BY OTHERS	N/F	O
1	SET	SEAL PS074 1 @ 6FT 4 @ 7FT	BLACK	STE

PLEASE NOTE: CARD READER, WIRING AND INSTALLATION BY OTHERS.

Group 23

1	EA	CONT HINGE SL11HD EPT 83IN ACTIVE LEAF	628	S
1	EA	CONT HINGE SL11HD 83IN	628	S
1	EA	LOCKSET ND96PDEU RHO	626	SCH
1	EA	POWER TRANSFER EPT-10 (TEN 24 GAUGE W IRE)	SP28	VD
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
2	EA	FLUSHBOLT FB458-12-MD	626	I
1	EA	DUSTPROOF STRK DP2	626	I
2	EA	KICKPLATE 8400 10 X 34	630	I
1	EA	THRESHOLD 276A 72IN	ALUM	P
2	EA	DOOR CONTACTS GE 1078CW BY OTHERS	N/F	O
2	EA	DOOR BOTTOM 216AV 36IN	ALUM	P
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

PLEASE NOTE: CARD READER, POWER, WIRING AND INSTALLATION BY OTHERS.

Group 24

6	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH
2	EA	WALLSTOPWS407CCV	630	I
1	EA	FLUSHBOLT FB458-12-MD – TOP BOLT ONLY	626	I
1	EA	DUSTPROOF STRK DP2	626	I
2	EA	KICKPLATE 8400 10 X 34	630	I
2	EA	KICKPLATE 8400 24 X 34 DOOR C112A, C112B	630	I
1	EA	THRESHOLD 276A 72IN	ALUM	P
2	EA	DOOR BOTTOM 216AV 36IN	ALUM	P
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

REMOVE THRESHOLD AND DOOR BOTTOM DOOR C112A, C112B

Group 25

1	EA	CONT HINGE 112HD 95IN	ALUM	I

1	EA	LOCKSET ND96PD RHO	626	SCH
1	EA	CLOSER 4111 SPRING H-CUSH W MS	ALUM	LCN
1	EA	SHOE SUPPORT 4110-30 WMS	ALUM	LCN
1	EA	BLADE SPACER 4110-61 WMS	ALUM	LCN
1	EA	DROP PLATE 4110-18 WMS IF REQUIRED	ALUM	LCN
1	EA	POWER REGULATOR 2005M3 SMART PAC 3	N/F	HES
1	EA	ELEC STRIKE 8000C 12/24	630	HES
1	EA	THRESHOLD 276A	ALUM	P
1	EA	OVERHEAD STOP 90-S DOOR B102B ONLY		GYN
1	EA	DOOR BOTTOM BY DOOR SUPPLIER	ALUM	P
1	EA	KICKPLATE 8400 24 X 34 DOOR B109A	630	I
1	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
1	SET	SEAL PS074 1 @ 4FT 2 @ 8FT	BLACK	P

PLEASE NOTE: CARD READER, POWER, WIRING, AND INSTALLATION BY OTHERS.

Group 26

6	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH
1	EA	CLOSER 4111 SPRING W MS	ALUM	LCN
2	EA	WALLSTOPWS407CCV	630	I
2	EA	FLUSHBOLT FB458-12-MD	626	I
1	EA	DUSTPROOF STRK DP2	626	I
2	EA	KICKPLATE 8400 10 X 34	630	I
1	EA	THRESHOLD 276A 72IN	ALUM	P
2	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
2	EA	DOOR BOTTOM 216AV 36IN	ALUM	P
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

Group 27

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@3 2@7	BLACK	STE

Group 28

1		ALL HARDWARE BY DOOR MFG		O
2		CAMDEN CONTROL REQUEST TO EXIT BUTTONS		

Group 29

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH

1	EA	CLOSER 4111 S-CUSH W MS	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I

Group 30 Exterior Gate

1	EA	PANIC LD98NL 990NL 3FT	626	VD
1	EA	CYLINDER 20-079	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	ELEC STRIKE 9600 12/24	630	HES
1	EA	SMART PAK 2005M3 X SPIII	N/F	HES

PLEASE NOTE: ALL OTHER HARDWARE BY GATE MANUFACTURER.
CARD READER, WIRING & INSTALLATION BY OTHERS.

Group 31

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH
1	EA	CLOSER 4111 S-CUSH W MS	ALUM	LCN
1	EA	ELEC STRIKE 8000C 12/24	630	HES
1	EA	POWER REGULATOR 2005M3 SMART PAC 3	N/F	HES
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 24 X 34 DOOR B102A	630	I
1	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

PLEASE NOTE: CARD READER, POWER, WIRING, AND INSTALLATION BY OTHERS.

Group 32

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	ELEC LOCKSET ND96PD RHO	626	SCH
1	EA	POWER TRANSFER EPT-10	SP28	VD
1	EA	CLOSER 4111 SH-CUSH WMS	ALUM	LCN
1	EA	THRESHHOLD 276A	ALUM	P
1	EA	DOOR BOTTOM 216AV	ALUM	P
1	EA	KICKPLATE 8400 24 X 34 DOOR C103B	630	I
1	EA	RAINDRIP 345A	ALUM	P
1	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

PLEASE NOTE: CARD READER, POWER, WIRING, AND INSTALLATION BY OTHERS.

Group 33

6	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC 98EO 99OEO	626	VD
1	EA	PANIC 98EO 99OEO	626	VD
1	EA	MORT CYLINDER 26-094	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	MULLION KR4954	SP28	VD
1	EA	CLOSER 4111 SH-CUSH	ALUM	LCN
1	EA	CLOSER 4111 SH-CUSH	ALUM	LCN
1	EA	THRESHHOLD 276A	ALUM	P
2	EA	DOOR BOTTOM 216AV	ALUM	P
1	EA	RAINDRIP 345A	ALUM	P
2	SET	SEAL PS074	BLACK	STE

Group 34

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	ELECTRIC STRIKE 8000C 12/24 DOOR C118A	63	HES
1	EA	LOCKSET ND82PD RHO	626	SCH
1	EA	LOCK GUARD LG12	626	I
1	EA	CLOSER 4111 EDA	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 24 X 34 DOOR C118A	630	I
1	EA	THRESHHOLD 276A	ALUM	P
1	EA	RAINDRIP 345A	ALUM	P
1	SET	SEAL PS074	BLACK	STE

PLEASE NOTE: CARD READER, WIRING & INSTALLATION BY OTHERS.

Group 35

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND96PD RHO	626	SCH
1	EA	LOCK GUARD LG12	626	I
1	EA	CLOSER 4111 EDA	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	THRESHHOLD 276A	ALUM	P
1	EA	RAINDRIP 345A	ALUM	P
1	SET	SEAL PS074	BLACK	STE

Group 36 **not used**

Group 37 **not used**

Group 38

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	LOCKSET ND93PD RHO	626	SCH
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@32@7	BLACK	STE
1	EA	CLOSER 4011 REG	ALUM	LCN

Group 39

1	EA	PANIC LD98NL 990NL 3FT	626	VD
1	EA	CONT HINGE 224HD	ALUM	I
1	EA	CYLINDER 20-079	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	ELEC STRIKE 9600 12/24	630	HES
1	EA	SMART PAK 2005M3 X SPIII	N/F	HES
1	EA	CLOSER 4111 SH-CUSH WMS	ALUM	LCN
1	EA	THRESHHOLD 276A	ALUM	P
1	EA	DOOR BOTTOM 216AV	ALUM	P
1	EA	RAINDRIP 345A	ALUM	P
1	EA	DOOR CONTACT GE 1078CW BY OTHERS	N/F	O
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

PLEASE NOTE: CARD READER, WIRING & INSTALLATION BY OTHERS.

Group 40

1	EA	PANIC LD98NL 990NL 3FT	626	VD
1	EA	CONT HINGE 224HD	ALUM	I
1	EA	CYLINDER 20-079	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	CLOSER 4111 SH-CUSH WMS	ALUM	LCN
1	EA	THRESHHOLD 276A	ALUM	P
1	EA	DOOR BOTTOM 216AV	ALUM	P

1	EA	RAINDRIP 345A	ALUM	P
1	SET	SEAL PS074 1 @ 6FT 2 @ 7FT	BLACK	STE

Group # 41

3	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC CD98NL 990NL 3FT	626	VD
1	EA	MORTISE CYLINDER 26-094	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	CYLINDER 20-079	626	SCH
1	EA	CLOSER 4111 EDA H-CUSH WMS	ALUM	LCN
1	EA	WALLSTOPWS407CCV	630	I
1	EA	KICKPLATE 8400 10 X 34	630	I
1	SET	GASKET PS074 1@32@7	BLACK	STE

Group # 42

6	EA	BUTTS 5BB1HW 4.5 X 4.5 NRP	652	I
1	EA	PANIC 2203 SNB LBR 1703A 4FT X 7FT	630	PRE
1	EA	PANIC 2201 SNB LBR 1701 EO 4FT X 7FT	630	PRE
1	EA	HOUSING L/CORE 20-079	626	SCH
1	EA	CORE 23-030	626	SCH
1	EA	CLOSER 4111 EDA WMS	ALUM	LCN
1	EA	CLOSER 4111 EDA WMS	ALUM	LCN
2	EA	MAG HOLD OPEN SEM7850 TRI-VOLTAGE	ALUM	LCN
2	EA	KICKPLATE 8400 10 X 46	630	I
1	SET	SEAL PS074 1 @ 8FT 2 @ 7FT	BLACK	STE

WALL MAGNETS TIED INTO FIRE ALARM SYSTEM BY OTHERS.

END OF SECTION

SECTION 22 0553

IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. The provisions of Section 22 0500, Common Work Results for Plumbing apply to work specified in this Section.

1.02 SUMMARY

A. This Section includes: Identify valves, piping and equipment components of the mechanical systems to indicate their function and system served.

1.03 SUBMITTALS

A. Submit the following:

1. Valve Tag Directory: Submit for approval prior to fabrication of valve tags.
2. Equipment Nameplate Directory: Submit for approval prior to fabrication.
3. Operating and Maintenance Data: Include a copy of valve tag and equipment nameplate directories in each set of Operating and Maintenance manuals.

PART 2 PRODUCTS

2.01 VALVE IDENTIFICATION

A. Valve Tags:

1. General: Identify valves with metal tags, legends to be stamped or embossed. It shall indicate the function of the valve and its normal operating position; i.e.,

56 HW	(NUMBER AND CONTENT OF PIPE)
ISOLATION	(VALVE FUNCTION)
NO	(NORMAL OPERATION POSITION)

2. Size: Valve tags 2-inch diameter with 1/4-inch high letters.
3. Material: Use 0.050 or 0.064-inch brass tags.
4. Automatic Valves and Regulating Valves: Use 1/16-inch thick laminated 3-ply plastic, center ply white, outer ply red, “lamicoid” or equal. Form letters by exposing center ply.

B. Valve Tag Directory: Include tag number, location, exposed or concealed, service, valve size, valve manufacturer, valve model number, and normal operating position of valve.

C. Do not include tags on equipment isolation valves that are located within six feet of the equipment it is serving.

ADD 3

2.02 PIPING MARKERS

A. Acceptable Manufacturers:

1. W.H. Brady, Seton, Marking Systems, Inc. (MSI).
2. Other Manufacturers: Submit Substitution Request.

B. Pipes shall be labeled with all-vinyl, self-sticking labels or letters. For pipe covering sizes up to and including 3/4-inch outside diameter, select labels with 1/2-inch letters. For sizes from 3/4 to 2-inch outside diameter, 3/4-inch letters; above 2-inches outside diameter, 2-inch letters. The pipe markers shall be identified and color coded as follows with black directional arrows.

PLUMBING SERVICE	BACKGROUND PIPE MARKER*	COLOR
COLD WATER	DOMESTIC COLD WATER	GREEN
HOT WATER	DOMESTIC HOT WATER SUPPLY	YELLOW
	DOM. HOT WATER RECIRC	YELLOW OR GREEN
SANITARY WASTE	SANITARY WASTE	GREEN
STORM DRAIN	STORM DRAIN	GREEN
OVERFLOW DRAIN	OVERFLOW DRAIN	GREEN
VENT	VENT	GREEN
NATURAL GAS	NATURAL GAS	YELLOW
NATURAL GAS VENT	NATURAL GAS VENT	YELLOW
RECLAIMED WATER	CAUTION: RECLAIMED WATER, DO NOT DRINK	PURPLE
* Directional arrow applied adjacent to pipe marker indicating direction of flow.		
** Provide custom marker labels for all piping for which no standard manufactured marker is available. Submit sample for approval.		

C. Reclaimed Water:

1. All reclaimed water pipe and fittings shall be continuously wrapped with purple-colored Mylar tape over insulation, with the words CAUTION: RECLAIMED WATER, DO NOT DRINK. Imprint lettering in two parallel lines, such that after wrapping the pipe with 1/2 width overlap, one full line of text shall be visible.
2. Wrapping tape is not required for buried PVC pipe manufactured with purple color integral to the plastic and marked on opposite sides to read CAUTION: RECLAIMED WATER, DO NOT DRINK in intervals not to exceed 3-feet,
3. Outlets and fixtures served with harvester rainwater shall be easily recognizable by color or symbol for non-potable water.
4. Reference local ruling for additional requirements.

2.03 EQUIPMENT IDENTIFICATION

A. Nameplates:

1. Tag all pumps, and miscellaneous items of mechanical equipment with engraved nameplates. Nameplates shall be 1/16-inch thick, 3-inch by x5-inch laminated 3-ply plastic, center ply white, outer ply black. Form letters by exposing center ply.
2. Identify unit with code number as shown on Drawings and area served.

B. Equipment Nameplate Directory: List pumps, and other equipment nameplates. Include Owner and Contractor furnished equipment. List nameplate designation, manufacturer's model number, location of equipment, area served or function, disconnect location, and normal position of HOA switch.

2.04 CONCEALED EQUIPMENT IDENTIFICATION

A. Acceptable Manufacturers:

1. W.H. Brady, Seton
2. Other Manufacturers: Submit substitution request.

B. Adhesive Laminated Tape:

1. 3/4-inch width transparent clear tape with black lettering.
2. Lettering in ALL CAPS Helvetica font 24 point.

ADD 3

PART 3 EXECUTION

3.01 VALVE IDENTIFICATION

A. Valve Tags:

1. Attach to valve with a brass chain.
2. Valve tag numbers shall be continuous throughout the building for each system. Contractor shall obtain a list for each system involved from the Owner.

B. Valve Tag Directory: Post final copy in Operation and Maintenance Manual.

3.02 PIPING MARKERS

A. Unless recommendations of ANSI A13.1, 1981 are more stringent, apply labels or letters after completion of pipe cleaning, insulation, painting, or other similar work, as follows:

1. Every 20-feet along continuous exposed lines.
2. Every 10-feet along continuous concealed lines.
3. Adjacent to each valve and stubout for future.
4. Where pipe passes through a wall, into and out of concealed spaces.
5. On each riser.
6. On each leg of a T.
7. Locate conspicuously where visible.
8. Provide pipe identification (over insulation) for all reclaimed water systems in accordance with current local codes and rulings.

B. Further, apply labels or letters to lower quarters of the pipe on horizontal runs where view is not obstructed, or on the upper quarters when pipe is normally viewed from above. Apply arrow labels indicating direction of flow. Arrows to be the same color and sizes as identification labels.

3.03 EQUIPMENT IDENTIFICATION

A. Nameplates: Attach to prominent area of equipment, either with sheet metal screws, brass chain, or contact cement as applicable.

B. Nameplate Directory: Post final copy in Operation and Maintenance Manual.

3.04 CONCEALED EQUIPMENT IDENTIFICATION

A. Where valves or equipment are located above ceilings or behind walls provide adhesive tape indicating the item (valve tag, equipment tag, etc.) at the access location (T-bar ceiling grid, access door, etc.).

B. Applicable equipment includes, but is not limited to, the following:

1. Isolation Valves
2. Control Valves

ADD 3

END OF SECTION

SECTION 22 2113

PIPE AND PIPE FITTINGS PLUMBING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. The provisions of Section 22 0500, Common Work Results for Plumbing apply to work specified in this Section.

1.02 SUMMARY

A. This Section includes: Furnish piping, pipe fittings, and incidental related items as required for complete piping systems.

B. Related Sections Include:

1. Section 22 2500, Plumbing Water Treatment

1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Piping material and installation to meet requirements of the local plumbing, fire, and building codes and serving utility requirements.
2. Provide chlorination of domestic cold and hot water piping in accordance with County and State health requirements.

B. All grooved joint couplings and fittings shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.

1. All castings used for coupling housings, fittings, valve bodies, etc., shall be date stamped for quality assurance and traceability.

C. Pipe Cleaning: Should any pipe be plugged or should foaming of water systems occur, disconnect piping, reclean, and reconnect without additional expense to the Owner.

D. Correct any damage to the building or systems resulting from failure to properly clean the system without additional expense to the Owner.

E. All products with a wetted surface installed in potable water systems shall be UL classified in accordance with ANSI / NSF-61 for potable water service, and shall be certified to the low lead requirements of NSF-372.

1.04 SUBMITTALS

A. Submit the Following:

1. List of piping materials indicating the service it is being used for. (Do not submit piping product data).
2. Product data on mechanical couplings and related components, double wall fuel oil pipe and fittings, and polypropylene waste and vent pipe.

B. Test Reports and Certificates: Submit certificates of inspections and pipe tests to Owner.

C. Other: Make certified welders' certificates available.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. As indicated.

2.02 CAST IRON SOIL PIPE, SERVICE WEIGHT (NO-HUB)

A. General: A code approved hubless system conforming to Cast Iron Soil Pipe Institute Standard 301.

B. Pipe and Fittings: Service weight hubless cast iron conforming to ASTM A 74, marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI) and listed by NSF International. Tyler, AB&I, or Charlotte.

C. Gaskets: Compression type conforming to ASTM C 564.

D. Couplings:

1. Above Grade: Band type coupling in conformance with Cast Iron Soil Pipe Institute (CISPI) 310-90, consisting of stainless steel clamp and corrugated shield assemblies with a neoprene sealing sleeve ANSI A21.6, ANSI A21.10 Fittings.

2. Buried: Husky 28 gauge 304 stainless steel hubless type clamp and orange corrugated shield assemblies (80-inch pound torque) with neoprene sealing gaskets (ASTM-C-564), or Clamp-All (125-inch pound torque), 24 gauge 304 stainless steel hubless type clamp, and shield assemblies with neoprene sealing gaskets (ASTM-C-564).

E. Service:

1. Sanitary, storm, and overflow drain.

2. Vent piping 2 inches and above.

2.03 DUCTILE IRON WATER PIPE

A. Pipe: Ductile iron pipe conforming to ANSI A21.51.

B. Fittings: Below grade, Class 150 “Boltite” mechanical joint type complete with gaskets, bolts, and nuts, or “Tyton” for joints employing a single gasket for the joint seal with bell-and-spigot pipe. Above grade, mechanical couplings and fittings as specified herein. Provide interior pipe coating per ANSI Regulation listed.

C. Service:

1. Below grade, incoming domestic water main, 4 inches and over.

2.04 BLACK STEEL PIPE, SCHEDULE 40

A. General: Fittings and joints must be UL listed for use with pipe chosen for use. Listing restrictions and installation procedures per state and local authorities must be followed.

B. Pipe: Schedule 40 conforming to ASTM A 135 or A 53.

C. Fittings: 150 pound screwed malleable iron on 2 inches and below, Schedule 40 welding fittings conforming to ASTM A 234 for 2-1/2 inches and above or mechanical couplings on select piping as herein specified. Fittings below grade shall be welding fittings. All elbows on pumped systems shall be long radius type. Short radius elbows not acceptable for use except as approved on a case by case basis.

D. Service:

1. Natural gas piping and vent lines. Piping within the building shall be socket welded.

2. Propane piping and vent lines.

2.05 GALVANIZED STEEL PIPE

A. Pipe: Schedule 40 conforming to ASTM A 135 or A 53.

B. Fittings: 150 lb. screwed galvanized malleable iron on 2-inch and below, Victaulic, Gruvlok, Gustin-Bacon, or Mech Line full flow galvanized, grooved end on 2-1/2-inch and above. Provide grooved type gasketed couplings and fittings for pipe 2-1/2-inch and above.

C. Service:

1. Miscellaneous indirect waste piping.

2. At Contractor’s option, waste and vent piping 1-1/2 inches and under, above grade.

3. Pumped waste (above grade only).

2.06 COPPER PIPE

A. Pipe: Hard drawn copper tubing, Class L or K, ASTM B 88.

B. Fittings: Wrought copper, 150 psi; ANSI B16.22 for soldered joints, ANSI B16.50 for brazed joints; Chase, Revere, Mueller or approved equal. At contractor's option, a system using mechanically extracted collars in main with branch line inserted to not obstruct flow may be used on domestic water piping above ground, similar to T-drill.

C. Service:

1. Domestic hot and cold water piping below ground (Type K, hard drawn) on piping 3 inches and smaller.
2. Domestic hot and cold water piping above ground (Type L, hard drawn) on piping 4 inches and smaller.
3. Trap priming lines (Type L, annealed).
4. Pumped waste (DWV).
5. Miscellaneous drains and overflows.

2.07 POLYETHYLENE PIPE

A. Pipe: Polyethylene pipe and tube PE 3406 conforming to ASTM D2513-80a.

B. Fittings: Provide copper alloy, PE 3306, PE 3406, stainless steel or other listed materials. Mechanical connectors for PE pipe and tubing and for transition fittings shall be approved compression type couplings or other special listed joints. Provide anodeless riser as required by Code.

C. Storage: Do not store unprotected pipe in direct sunlight. Store in a way to protect it from mechanical damage.

D. Service: Buried natural gas piping.

2.08 PVC PIPE (DWV)

A. Pipe: PVC, wall thickness equal to Schedule 40 standard steel pipe, conforming to ASTM D2665-85a.

B. Fittings: PVC building drain, waste, and vent fittings conforming to ASTM D2665-85 and ASTM D3311-82.

C. Solvent Cement: For PVC pipe conforming to ASTM D2564-80.

D. Service: Sanitary waste and vent, except not allowed in air plenums (Sector A and B Mechanical Platforms), and below grade.

ADD 3

2.09 ABS PIPE (DWV)

A. Pipe: ABS, wall thickness equal to schedule 40 standard steel pipe, conforming to ASTM D2661-85a.

B. Fittings: ABS waste and vent fittings conforming to ASTM D2661-85a and ASTM D3311-82.

C. Solvent Cement: For ABS pipe conforming to the requirement of ASTM D2235-81.

D. Service: Sanitary waste and vent, storm and overflow, except not allowed in air plenums.

2.10 POLYPROPYLENE PIPING - POTABLE

A. Approved Manufacturer: Aquatherm Green Pipe MF.

B. Description: Pipe shall be manufactured from a PP-R resin (Fusiolen) meeting the short-term properties and long-term strength requirements of ASTM F 2389. The pipe shall contain no rework or recycled materials except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. All pipe shall be made in an extrusion process. Domestic hot water shall contain a fiber layer (faser) to restrict thermal expansion. All pipe shall comply with the rated pressure requirements of ASTM F 2389. All pipe shall be certified by NSF International as complying with NSF 14, NSF 61, and ASTM F 2389 or CSA B137.11.

C. Fittings: Same material as piping.

D. Service: Domestic cold and hot water. Trap priming lines.

ADD 3

2.11 POLYPROPYLENE PIPING - NONPOTABLE

A. Approved Manufacturer: Aquatherm Lilac Pipe.

B. Description: Pipe shall be manufactured from a PP-R resin (Fusiolen) meeting the short-term properties and long-term strength requirements of ASTM F 2389 or CSA B137.11. The pipe shall contain no rework or recycled materials except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. All pipe shall comply with the rated pressure requirements of ASTM F 2389 or CSA B137.11. All pipe shall be certified by NSF International as complying with NSF 14, and ASTM F 2389 or CSA B137.11.

C. Fittings: Same material as used for potable piping. Aquatherm Green Pipe.

D. Service: Non-potable water.

2.12 PEX POTABLE WATER TUBING

A. Acceptable Manufacturers:

1. Wirsbro, Uponor.
2. Other Manufacturers: Submit Substitution Request.

B. Regulatory Listings: Submit appropriate NSF International, UL, Warnock Hesey or CSA listings as proof of compliance with local building and plumbing codes.

C. PEX tubing and components shall be installed in full compliance with all local jurisdictional codes, standards, and requirements.

D. Submit listings that indicated that the PEX tubing system has been certified to ANSI/NSF Standards 14 and 61.

E. Quality Assurance:

1. Installer Qualifications: Installer experienced in performing work of this Section who has specialized in installation of work similar to that required for this project.
2. Installer shall provide in writing to the Owner that the PEX tubing and components furnished under this Section conforms to the material and mechanical requirements specified herein.

F. Materials:

1. Tube Materials: Tube shall be cross-linked polyethylene (PEX) manufactured by PEX-A or peroxide method. Provide “blue” colored PEX for cold water systems and “red” colored PEX for hot water systems.
2. Tubing Type: PEX tubing shall be manufactured in accordance with ASTM F876, ASTM F877 and CAN/CDA-B137.5. The tube shall be listed to ASTM by an independent third party agency.
    a. PEX tubing shall have Standard Grade hydrostatic design and pressure ratings of 200 degres F at 80 psi and 180 degrees F at 100 psi. Temperature and pressure ratings shall be issued by the Plastic Pipe Institute (PPI).
    b. Minimum bend radius for cold bending of the PEX tubing shall not be less than 6 times the outside diameter. Bends with the radius less than stated shall require the use of a bend support as supplied by tube manufacturer.
3. Manifold Type: Wirsbro Type L Q-Series copper manifold with integral valves.
4. Fittings: Fittings shall be brass. Fittings shall be PEX-A cold expansion type fitting. Wirsbro ProPEX fittings.
    a. Fittings shall be supplied by the PEX tubing manufacturer.
    b. PEX fittings shall be manufactured in accordance with ASTM F1960. The fittings shall be listed to ASTM by an independent third party agency.
    c. PEX-A cold expansion type fittings shall be an assembly consisting of insert and PEX-A cold expansion ring.

G. Accessories:

1. Wall Penetration Brackets: Brackets designed for wall membrane penetrations shall be supplied by PEX tubing manufacturer; Wirsbro Drop Ear Bend Support.
2. Concrete Tube Support Brackets: Brackets to hold PEX tubing in place in structural concrete slabs shall be of rigid PVC construction and be designed for that purpose.
3. Wirsbro “Stand-Up” bracket.
4. Service: Domestic cold and hot water supply drops to individual lavatories, sinks, tank type toilets and to the shower mixing valves. PEX tubing shall not serve any fixtures with fast closing valves (flush valves, solenoid valves, etc.) and shall not be used downstream of the shower mixing valve. Domestic water piping distribution systems serving PEX manifolds shall be copper.

2.13 FLANGED JOINTS

A. Flanged Joints: Flanges shall be cast iron or steel for screwed piping and forged steel welding neck for welded line sizes. Pressure rating and drilling shall match the apparatus, valve, or fitting to which they are attached. Flanges shall be in accordance with ANSI B16.1; 150 lb. for system pressures to 150 psig; 300 lb. for system pressures 150 psig to 400 psig. Gaskets for all flanged services, except steam and pumped condensate, shall be Garlock 3700 or equal, 1/8-inch thick, non-metallic type. Gaskets for steam and pumped condensate shall be Flexitaulic Style CG or equal, 1/8-inch thick, semi-metallic type. Make joint using American Standard hexagon head bolts, lock washers, and nuts (per ASTM A307 GR.B) for service pressures to 150 psig; alloy steel stud bolts, lock washer, and American Standard hexagon head nuts (per ASTM A307 GR.B) for service pressures 150 psig to 400 psig. Use length of bolt required for full nut engagement. Provide electro-cad plated bolts and nuts on cold and chilled water lines.

2.14 UNIONS

A. 150 psi malleable iron, brass to iron seat, ground joint, black or galvanized to match pipe. 200 psi WOG bronze, ground joint, solder type for copper tubing.

1. Unions or flanges for servicing or disconnect are not required in installations using grooved mechanical joint couplings. (The couplings shall serve as disconnect points.)

B. Dielectric fittings shall be nationally listed, have a dielectric thermoplastic interior lining, and meet requirements of ASTM F-492. Fittings shall be suitable for the pressure and temperature to be encountered.

2.15 SOLDER AND BRAZING

A. Brazed Joints:

1. Wrought Copper Piping Fittings: Westinghouse Phos-Copper or Dyna-Flow by J.W. Harris Co., Inc.
2. Applied locations:
   a. Below grade piping.
   b. Above grade piping larger than 2-inches for the following services: Industrial cold water, domestic hot and cold water, and pumped waste.
   c. Joints in Domestic Hot and Cold Water Piping: Use mechanically extracted collars. Braze in accordance with Copper Development Association Copper Tube Handbook using BCUP series filler material.

B. Soldered Joints:

1. Wrought Copper Pipe Fittings: All-State 430 with Duzall Flux, Engelhard Silvabrite with Engelhard General Purpose Flux or J.W. Harris Co.
2. Valves, Cast Fittings or Bronze Fittings: Harris Stay-Silv-15 or Handy & Harmon Sil-Fos.
3. Applied locations: Above grade piping 2-inch and smaller for the following services: Industrial cold water, domestic hot and cold water, pumped waste, trap priming lines.

2.16 UTILITY MARKERS

A. Provide plastic tape utility markers over all buried piping. Provide identification on tape.

B. Material to be Brady Identoline plastic tape, 6-inch, Seton, or as approved.

2.17 PIPE WRAPPING

A. For all below ground steel piping and fittings, provide complete covering of Scotchrap 51, 20 mil thickness, protective tape applied over Scotchrap pipe primer applied at 1 gal/800 SF of pipe surface.

B. At Contractor's option as approved, pipe may be furnished with factory applied jacket of "X-tru-coat" with Scotchrap as previously specified for field joints.

2.18 PREPARATION

A. Measurements, Lines and Levels:

1. Check dimension at the building site and establish lines and levels for work specified in this Section.
2. Establish all inverts, slopes, and manhole elevations by instrument, working from an established datum point. Provide elevation markers for use in determining slopes and elevations in accordance with Drawings and Specifications.
3. Use established grid and area lines for locating trenches in relation to building and boundaries.

2.19 EXCAVATION AND BACKFILL

A. General: Perform all necessary excavation and backfill required for the installation of mechanical work in accord with Division 31. Repair pipelines or other work damaged during excavation and backfilling.

B. Excavation: Excavate trenches to the necessary depth and width, removing rocks, roots, and stumps. Include additional excavation to facilitate utility crossovers, additional offsets, etc. Excavation material is unclassified. Width of trench shall be adequate for proper installation of piping. The trench shall be widened, if not wide enough for a proper installation.

C. Bedding: All cast iron, steel, and copper piping shall be full bedded on sand. Place a minimum 4-inch deep layer on the leveled trench bottom for this purpose. Remove the sand to the necessary depth for piping bells and couplings to maintain contact of the pipe on the sand for its entire length. Lay all other piping on a smooth level trench bottom so that contact is made for its entire length.

D. Backfill: Place in layers not exceeding 8 inches deep, and compact to 95 percent of standard proctor maximum density at optimum moisture content. Earth backfill shall be free of rocks over 2 inches in diameter and foreign matter. Disposal of excess material as directed.

1. Interior: All backfill under interior slabs shall be compactible.
2. Exterior: Excavated material may be used outside of buildings at the Contractor's option. The first 4 inches shall be sand, and final 12-inch layer course shall be soil in any event.

2.20 PIPING INSTALLATION

A. Install unions in all non-flanged piping connections to apparatus and adjacent to all screwed control valves, traps, and appurtenances requiring removal for servicing so located that piping may be disconnected without disturbing the general system.

B. Mechanical Pipe Couplings and Fittings:

1. All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.
2. Flexible couplings to be used only when expansion, contraction, deflection or noise and vibration is to be dampened, as detailed or specified.
3. On systems using galvanized pipe and fittings, fittings shall be galvanized at factory.

4. Before assembly of couplings, lightly coat pipe ends and outside of gaskets with approved lubricant.
5. Pipe grooving in accordance with manufacturer's specifications contained in latest published literature.
6. Gaskets shall be molded and produced by the coupling manufacturer, and shall be suitable for the intended service.
7. The coupling manufacturer's factory trained representative shall provide on-site training for the contractor's field personnel in the use of grooving tools and installation of grooved joint products. The representative shall periodically visit the project site to ensure best practices in grooved installation are being followed. (A distributor's representative is not considered qualified to conduct the training or field visits.)

C. Install all piping as to vent and drain. Install according to manufacturer's recommendations.

D. Support all piping independently at apparatus so that its weight shall not be carried by the equipment.

E. Run piping clear of tube cleaning or removal/replacement access area on heat exchangers, water heaters, etc.

F. Utility Marking: Installed over the entire length of the underground piping utilities. Install plastic tape along both sides and the center line of the trenches at the elevation of approximately 12 inches above the top of utility.

G. Underground Water System: Prior to testing pipe provide concrete thrust blocks at changes in direction. Block size as required for types of fittings involved.

H. Dielectric Fittings: Provide dielectric couplings, unions, or flanges between dissimilar metals. In addition, provide dielectric couplings as required to isolate cathodically protected piping and equipment.

I. No-Hub Couplings: Install per manufacturer's instructions.

2.21 PIPING JOINTS

A. Pipe and fittings shall be joined using methods and materials recommended by manufacturer in conformance with standard practice and applicable codes. Cleaning, cutting, reaming, grooving, etc. shall be done with proper tools and equipment. Hacksaw pipe cutting prohibited. Peening of welds to stop leaks not permitted.

B. Copper Piping: Pipe cut evenly with cutter, ream to full inside diameter; end of pipe and inside of fitting thoroughly cleaned and polished. Joint shall be uniformly heated, and capillary space completely filled with solder or braze material, leaving full bead around entire circumference.

C. No couplings installed in floor or wall sleeves.

D. Steel Piping:

1. Screwed Joints: Pipes cut evenly with pipe cutter reamed to full inside diameter with all burrs and cuttings removed. Joints made up with Teflon liquid dope or Teflon tape applied to male threads only, leaving two threads bare. Joints tightened so that not more than two threads are left showing. Junctions between galvanized steel waste pipe and bell of cast iron pipe shall be made with tapped spigot or half coupling on steel pipe to form spigot end and caulked.
2. Flanged Joints: Pressure rating of flanges shall match valve or fitting joined. Joint gaskets shall be coated with graphite and oil.

E. Welded Joints:

1. Preparation for Welding: Bevel piping on both ends before welding:
   a. Use following weld spacing on all buttwelds:

Nominal Pipe Wall Thickness	Spacing	Bevel
1/4-inch or less	1/8-inch	37-1/2
Over 1/4-inch, less than 3/4-inch	3/16-inch	27-1/2

b. Before welding, remove all corrosion products and foreign material from surfaces.

2. Welded Joints: Joints shall be made by the “arc-welding” process using certified welders. Port openings of fittings must match the inside diameter of the pipe to which they are welded. Use full radius welding elbows for all turns, use welding tees for all tees. Reducing fittings must be used for size reduction. “Weldolets” may be used for branches up through one-half the pipe size of the main to which they are attached. Nipples are not allowed.

3. Welding Operation:

a. After deposition, clean each layer of weld metal to remove slag and scale by wire brushing or grinding. Chip where necessary to prepare for proper deposition of next layer.

b. Weld reinforcement no less than 1/16-inch not more than 1/8-inch above normal surface of jointed sections. Reinforcement crowned at center and taper on each side to surfaces being joined. Exposed surface of weld shall present professional appearance and be free of depressions below surface of jointed members.

c. No welding shall be done when temperature of base metal is lower than 0°F. Material to be welded during freezing temperatures shall be made warm and dry before welding is started. Metal shall be “warm to the hand” or approximately 60°F.

F. Polypropylene joints: Fusion welding per manufacturer’s requirements.

2.22 ADJUSTING AND CLEANING

A. General:

1. Clean interior of all piping before installation.

2. Flush sediment out of all piping systems after installation before connecting plumbing fixtures to the piping.

3. When placing the water systems in service during construction, each system shall be cleaned by circulating a solution with 1000 ppm (1#20 gallon) of trisodium phosphate for 24 hours, then drained, flushed and placed in service.

4. Clean all strainers prior to placing in service.

2.23 INSTALLATION, NATURAL GAS PIPING

A. Install piping where shown on Drawings.

B. Black Steel Pipe:

1. Welded joints shall be made by the “arc-welding” process by certified welders as outlined above.

2. On piping below grade install protective pipe wrap after testing and prior to backfilling in accordance with the manufacturer’s recommendations. Overlap one-half spiral lap for double thickness.

3. Piping installed under building floor slabs in vented sleeve per code.

C. Polyethylene Pipe:

1. Thermal Expansion:

a. Snaking: The pipe and tubing to be “snaked” in the trench bottom with enough slack to provide for thermal expansion and contraction before stabilizing. The normal slack created by residual coiling is generally sufficient for this purpose.

b. If, however, the pipe has been allowed to straighten before it is placed in the trench, 6 inches per 100 feet of pipe length shall be allowed for this purpose.

c. Stabilizing:

1) Pipe and tubing temperature to be stabilized by backfilling and leaving all joints exposed so they can be examined during the pressure test.

2) Allow to stand overnight.

2. Joints:
   a. Heat Fused Joints: Heat fused joints to be made as recommended by the manufacturer.
   b. Mechanical Joints: Mechanical joints to be made in an approved manner with tools recommended by the joint manufacturer. Mechanical joints shall be made with listed compression type couplings, or other listed special fittings.
   c. Joints to Other Materials: Listed plastic to steel transition fittings to be installed on each end of the plastic piping system. Transition fittings to be installed outside of building walls with metallic piping extending into the building a sufficient distance to permit the use of backup wrenches.
   d. Threaded joints or joints made with adhesives or solvent are prohibited.
3. Pipe temperatures to be stabilized before testing.
4. Pipe and tubing shall be installed only outside the foundation of any building or structure or parts thereof.
5. Provide 18 gauge bare copper tracer wire over entire length of pipe.
6. Installation shall be acceptable to the serving gas supplier.

END OF SECTION

SECTION 22 4000
PLUMBING FIXTURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. The provisions of Section 22 0500, Common Work Results for Plumbing HVAC apply to work specified in this Section.

1.02 SUMMARY

A. This Section includes:

1. Plumbing Fixtures
2. Fixture Trim
3. Drainage Products
4. Miscellaneous Plumbing Items

1.03 QUALITY ASSURANCE

A. Water closets shall have Maximum Performance (MaP) score of no less than 800.

B. Faucets certified NSF/ANSI 61.

1.04 SUBMITTALS

A. Submit the following:

1. Product data for each item specified.
2. Operating and Maintenance Data:
    a. Sensor operated flush valves.
3. Mounting heights for all fixtures.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturers are stated for each fixture specified. The following manufacturers are also acceptable, except when indicated only.

B. Drainage Products and Carrier Products: J.R. Smith, Josam, Sioux Chief, Zurn, Wade, Watts Drainage, Woodford, Mifab.

C. Fixtures: American Standard, Kohler, Sloan, Toto.

D. Seats: Olsonite, Church, Beneke, Bemis.

E. Mixing Valves: Powers, Leonard, Symmons, Chicago, Acorn Controls.

F. Stainless Steel Products: Elkay, Just, Franke.

G. Mop Sinks: Fiat, Williams, Mustee, Acorn.

H. Faucets: Chicago, Delta Commercial, Kohler, Moen Commercial.

I. Shower Controls: Delta Commercial, Acorn.

J. Shower Enclosure: Aquatic Bath, Fiber-Fab, Maax.

K. Shock Arrestors: PPP, J.R. Smith.

L. Trap Primer Stations: PPP.

M. Exposed Waste and Supply Piping Insulation Kits: Truebro, McGuire.

N. Other Manufacturers: Submit Substitution Request.

2.02 FIXTURE TRIM

A. Supply Stops: Chicago cast brass rigid riser supplies with loose key angle stops, wall flanges, NPT female inlet, all chrome plate finish; equivalent NPT McGuire (LK series), Brasscraft (SCR series) or NPT stops by fixture supplier.

B. Traps:

1. For floor drains, provide coated cast iron P-trap; recessed, screw jointed or bell and spigot.
2. For other fixtures, provide 17 gauge, chrome plated cast brass P-Traps with solder bushings, and clean-out.

C. Support Rims: Hudee stainless steel rims, if sink not furnished with integral rim.

D. Vacuum Breakers: Chicago Faucet, A.W. Cash or Febco chrome plated.

2.03 PLUMBING FIXTURES

A. WC-1 Water Closet (Child ADA):

ADD 3

1. Kohler Kingston, vitreous china, wall hung, elongated bowl, siphon jet action, 1-1/2-inch top spud, white color finish. Complete with Sloan Royal 113-1.28 SMO battery-operated flushometer.
2. Bemis 1600 series white open-front seat, less cover with external check hinge including 300 series stainless steel post and pintles to stop seat at 11 degrees beyond vertical.
3. J.R. Smith Series 200 chair carrier.

B. WC-2 Water Closet (Adult ADA):

ADD 3

1. Kohler Kingston, vitreous china, wall hung, elongated bowl, siphon jet action, 1-1/2-inch top spud, white color finish. Complete with Sloan Royal 113-1.28 SMO battery-operated flushometer.
2. Bemis 1600 series white open-front seat, less cover with external check hinge including 300 series stainless steel post and pintles to stop seat at 11 degrees beyond vertical.
3. J.R. Smith Series 200 chair carrier.

C. U-1 Urinal:

ADD 3

1. Kohler Bardon, vitreous china, wall mounted wash down urinal with 3/4-inch top spud, white color finish. Complete with Sloan Sloan Royal 186-0.5 SMO battery-operated flushometer, 0.5 GPF.
2. J. R. Smith Series 600 floor mounted urinal support.

D. L-1 Lavatory :

1. Kohler Kingston 21-1/4-inch by 18-1/8-inch, vitreous china, self-draining deck, backsplash, 4-inch centers, wall hung, concealed arm support, grid drain, white color finish.
2. Chicago 802 series faucet with polished chrome plated solid brass body construction, 4-inch spout, vandal proof metering push handle, 1/2 gpm pressure compensating aerator, adjustable cycle time closure cartridge, vandal resistant complete.

E. WS-1 Wash Station (ADA):

1. Bradley, Model MG series, 2 station, wall-hung, equipped with Chicago MVP 3500 faucet, 0.5 gpm, manual push button metering faucet with single supply for tempered water service, and Chicago ECAST thermostatic mixing valve.

F. WS-2 Wash Station (ADA):

1. Bradley, Model MG series,3 station, wall-hung, equipped with Chicago MVP 3500 faucet, 0.5 gpm, manual push button metering faucet with single supply for tempered water service, and Chicago ECAST thermostatic mixing valve.

G. S-1 Sink:

1. Elkay CDKAD-251765, 25-inch by 17-inch by 6-1/2-inch, single compartment, 18 gauge, Type 302, 1-hole center, self-rimming, stainless steel sink; LK-18 grid strainer. Additional hole provided for bubbler valve on opposite end.
2. Chicago 748 series deck mounted, single hole drinking fountain chrome plated solid brass body construction, vandal proof metering push handle, anti-microbial flexible mouth guard.
3. Chicago 50 series deck mounted, single hole mixing sink faucet, 5-1/4-inch rigid gooseneck spout, 4-inch wristblade handle, 1.5 gpm pressure compensating laminar flow outlet, vandal resistant complete.

H. S-2 Sink:

1. Elkay LR series, 15-inch by 17-inch by 7-1/2-inch single compartment 18 gauge, Type 302, 3-hole, self-rimming stainless steel sink, nickel plated brass grid strainer.
2. Chicago 1100 series faucet with polished chrome plated solid brass body construction, single lever mixing valve,8-inch cast brass spout, high temperature limit stop, 2.2 gpm pressure compensating laminar flow outlet, vandal resistant complete.

I. S-3 Sink:

1. Elkay LR series, 17-inch by 20-inch by 7-1/2-inch single compartment 18 gauge, Type 302, 3-hole, self-rimming stainless steel sink, nickel plated brass grid strainer
2. Chicago 1100 series faucet with polished chrome plated solid brass body construction, single lever mixing valve, 8-inch cast brass spout, high temperature limit stop, , 2.2 gpm pressure compensating laminar flow outlet, vandal resistant complete.

J. MS-1 Mop Sink:

1. Fiat TSB series, 28-inch by 28-inch by 12-inch molded stone mop basin, wall bracket, 5-foot hose, bumper guards and wall guards (two sides).
2. Chicago 540 series wall mounted service faucet with polished chrome plated solid brass body construction, lever handles, pail hook, wall brace, vacuum breaker, check stops and hose thread outlet.

K. SH-1 Shower (ADA):

1. Delta TEK series shower valve assembly with polished chrome finish, pressure balance mixing valve, high temperature limit stop, lever handle, 1.5 gpm hand held shower with two integral check valves and 70-inch hose, 24-inch ADA wall/grab bar and R10000 series rough in kit. Shower Enclosure: Fiberglass shower stall for the handicapped with 3-inch grid strainer outlet, grab bars, fold-up seat and curtain rod. FiberFab 60 H1 with curtain rod.
2. J.R. Smith 200 series floor drain with nickel bronze grate.

L. Master Mixing Valve Assembly: Leonard Type TM New Generation High Low, exposed, factory tested and assembled mixing valve assembly consisting of but not limited to: large and small rough bronze finish thermostatic mixing valves, high temperature limit stops, angle check stops, outlet ball valve shutoffs, built-in spring check valve with pressure gauges, thermometer, inlet piping manifolds with unions. Unit to control discharge temperature to ±1 percent. Unit shall be mounted in locking stainless steel cabinet. See schedule on drawings for capacities.

M. DF-1 Drinking Fountain (ADA): Elkay EZWS dual height wall hung drinking fountain with integral bottle filler.

1. Surface mounted fountain.
2. Contoured basins.
3. Push pad operated bubblers.
4. Vandal resistant bubbler guards.
5. Surface mounting plate.

6. 1.5 gpm Bottle Filler.

N. Exposed Waste and Supply Piping Insulation Kits: McGuire Prowrap insulation kit for exposed supplies and waste piping below ADA lavatories and ADA sinks.

O. SB-1 Supply Box: Sioux Chief Series 696 washing machine supply box with bottom valve supplies, integral shock arrestors and 2-inch drain outlet.

P. SB-2 Supply Box: Sioux Chief 696 ice maker supply box with bottom valve supply and shock arrestor.

2.04 DRAINAGE PRODUCTS

A. HB-1 Hose Bibb: Chicago 952, chrome-plated, removable key, 3/4-inch hose thread, integral vacuum breaker.

B. WH-1 Wall Hydrant: J.R. Smith 5609QT, bronze finish, loose key, 3/4-inch hose thread, integral vacuum breaker, freeze proof.

C. WH-2 Hot and Cold Water Hose Bibb: J.R. Smith 5500, bronze finish, hot and cold water control box, 3/4-inch hose thread, integral vacuum breaker, removable key handle, freeze proof.

D. WSCB-1 Water Supply Control Box (for Garbage Can Wash): J.R. Smith 3380 series, recessed water supply control box in Type 304 stainless steel with a No. 4 satin finish, cylinder type key lock, cold and hot water screwdriver stops, flow control valve, and atmospheric vacuum breaker.

E. RD-1 Roof Drain (Small Area): J.R. Smith1330, 8-1/2-inch low profile diameter dome, cast iron body with combined flashing clamp and gravel stop, no-hub outlet and under deck clamp.

F. OD-1 Overflow Roof Drain (Small Area Overflow): J.R. Smith 1330, 8-1/2-inch low profile diameter dome, 2-inch high solid water dam, cast iron body with combined flashing clamp and gravel stop, no-hub outlet and under deck clamp.

G. FD-1 Floor Drain: J.R. Smith 2005, round nickel bronze vandal resistant grate, cast iron body with flashing collar and adjustable strainer head and no-hub outlet.

H. FD-2 Floor Drain (Unfinished Areas): J.R. Smith 2110, round cast iron grate, cast iron body, no-hub outlet, sediment bucket.

I. FD-3 Floor Drain (Finished Areas - Kitchens): J.R. Smith 2010, vandal-proof, square nickel bronze hinged grate, sediment bucket, cast iron body with flashing collar, adjustable strainer head and no-hub outlet

J. FD-4 Floor Drain (Garbage Can Wash Drain): J.R. Smith 3370, acid resisting coated interior, nickel bronze grate, free standing sediment bucket lined with 1/4-inch stainless steel mesh screen, no-hub outlet and bronze adjustable nozzle assembly

K. FS-1 Floor Sink (Finished Areas - Kitchens): J.R. Smith 3101-12, acid resistant coated floor sink, vandal-proof 8-1/2-inch by 8-1/2-inch nickel bronze 1/2 grate and sediment bucket, no-hub outlet and flashing collar.

L. FS-2 Floor Sink (Finished Areas - Kitchens): J.R. Smith 3101-12, acid resistant coated floor sink, vandal-proof 8-1/2-inch by 8-1/2-inch nickel bronze 3/4 grate and sediment bucket, no-hub outlet and flashing collar.

M. FS-3 Floor Sink (Finished Areas - Kitchens): J.R. Smith 3101-12, acid resistant coated floor sink, vandal-proof 8-1/2-inch by 8-1/2-inch nickel bronze and sediment bucket, no-hub outlet and flashing collar.

N. FS-4 Floor Sink (mechanical room indirect waste): J.R. Smith 3041 floor sink with 8-inch deep receptor, basket strainer, 1/2 cast iron grate, no-hub outlet and flashing collar.

O. FS-5 Floor Sink (Finished Areas - Kitchens):): J.R. Smith 3101-12, acid resistant coated floor sink, vandal-proof 8-1/2-inch by 8-1/2-inch nickel bronze full grate with center hole and sediment bucket, no-hub outlet and flashing collar.

P. WCO Wall Cleanout: J.R. Smith 4530, round stainless steel vandal resistant cover and screw.

Q. FCO Floor Cleanout: J.R. Smith 4020, round vandal resistant, nickel bronze top.

R. CTG Cleanout to Grade: J.R. Smith 4220, round, extra heavy duty cast iron top set in 12-inch by 12-inch by 4-inch deep concrete pad, vandal resistant.

S. DSB-1 Downspout Boot: J.R. Smith 1787, 4-inch round downspout connection.

T. DSB-2 Downspout Boot: J.R. Smith 1785, 4-inch by 3-inch rectangular downspout connection.

U. Trap Priming Valves: Precision Plumbing Products Prime-time electronic trap priming manifold including but not limited to: atmospheric vacuum breaker, pre-set 24 hour clock, manual over ride, 120V solenoid valve, calibrated manifold for equal water distribution, 3/4-inch water hammer arrestor. Components pre-installed in recessed steel cabinet with SS access door.

V. Water Hammer Arrester: Precision Plumbing Products Model SC (Maintenance-Free).

W. DSN-1 Downspout Nozzle: J.R. Smith 1770 series in nickel bronze.

ADD 3

X. HB-2 Hose Bibb: Chicago 956 series, chrome-plated, 3/4-inch hose thread, integral vacuum breaker.

PART 3 EXECUTION

3.01 FIXTURE TRIM

A. Provide plumbing fixture trim where applicable on fixtures, including but not limited to supply stops, traps, support rims, flush valve, and vacuum breakers.

B. Provide rough-in and final piping connection to fixtures. Carefully review all construction documents to assure that all fixtures are provided with necessary services for a complete operating system.

C. Rigidly secure rough-in piping, carriers and supports, and other service piping to structure.

3.02 PLUMBING FIXTURES

A. Americans with Disabilities Act:

1. Comply with and be installed in accordance with Americans with Disabilities Act Guidelines (ADAAG). Where applicable building code requirements are more stringent than ADAAG guidelines, building code requirements shall be followed.
2. Water Closets:
   a. Mounting height of ADA water closet shall be 17 to 19-inches from floor to top of the toilet seat.
   b. Mount flush valve for ADA water closets on wide side of enclosure.
3. Lavatories:
   a. Mounting height of ADA lavatories shall be at a maximum height of 34-inches from floor to rim.
   b. Provide insulation kits on exposed hot water and waste piping beneath ADA lavatories.
4. Sinks: Provide insulation kits on exposed hot water and waste piping beneath ADA sinks.
5. Urinals:
   a. Mounting height of ADA water closet shall be at a maximum height of 17-inches from floor to rim.

B. Fixture Mounting Heights: All fixtures standard rough-in catalogued heights unless shown otherwise on the Architectural Drawings.

C. Showers:

1. Piping from shower mixing valve to shower head shall be rigid pipe. PEX piping not allowed.
2. Shower Head Mounting Heights: Mount so that face of head is at 6-feet-6-inches above finished floor and shall not conflict with shower enclosure.

D. Water Supplies: When both hot and cold water to a fixture is required, connect the hot on the left and the cold on the right.

E. Lavatories:

1. Public toilet room lavatories shall have grid strainers.
2. Those lavatories indicated as ADA are ADA compatible. Coordinate with Architect to verify if all wall hung lavatories are to be installed at ADA height.

F. Floor Drain and Floor Sinks:

1. Set top flush with finished floor.
2. Provide flashing clamp for all drain bodies installed in floors provided with waterproof membranes.

G. Cleanout:

1. Where shown or required.
2. Cover set flush with finished surface.

H. Roof and Area Drains: Provide sump receivers for all drains except poured in place installations. Provide extension section as required to compensate for the specified insulation thickness above the roof slab or deck.

I. Water Hammer Arresters: Provide where shown and where recommended by Plumbing Drainage Institute (PDI).

J. Water Coolers and Drinking Fountains:

1. All water-bearing materials shall comply with the Safe Drinking Water Act of 1986 and the Lead Contamination Control Act of 1988. The waterway system of the unit shall be manufactured of copper components and other completely lead-free materials.
2. All water cooler refrigerants will be non-CFC.
3. Provide fixture manufacturer's wall mounting plate or floor mounted support for all wall-hung water coolers or drinking fountains.

K. Mixing Valves: Provide piping connections per manufacturer's installation instructions.

L. Wall hung lavatories with pop-up waste assemblies: Contractor shall verify there is no vertical pull rod assembly conflict with lavatory backsplash prior to submitting product data.

3.03 PRIMING VALVES

A. All floor drains, floor sinks, and similar traps shall be primed. Use minimum 3/8-inch type K annealed copper tubing. Primer line to be continuous and without joints.

B. Where priming valves are installed in finished rooms, conceal in wall and provide access panel.

C. Coordinate locations of electronic trap primer stations with electrical contractor for 120V service.

3.04 KITCHEN EQUIPMENT

A. General: Kitchen equipment is supplied and set in place by Kitchen Supplier, installed in construction contract. Obtain drawings before any rough-in is started. Complete installation and furnish all equipment required or scheduled below to give complete working installation. Symbol numbers are indicated by oval symbol with number inside. See "PLUMBING FIXTURES" for supply types and traps.

END OF SECTION

SECTION 23 0553

IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. The provisions of Section 23 0500, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

A. This Section includes: Identify valves, piping, and equipment components of the mechanical systems to indicate their function and system served.

1.03 SUBMITTALS

A. Submit the following:

1. Valve Tag Directory: Submit for approval prior to fabrication of valve tags.
2. Equipment Nameplate Directory: Submit for approval prior to fabrication.
3. Operating and Maintenance Data: Include a copy of valve tag and equipment nameplate directories in each set of Operating and Maintenance manuals.

PART 2 PRODUCTS

2.01 VALVE IDENTIFICATION

A. Valve Tags:

1. General: Identify valves with metal tags, legends to be stamped or embossed. It shall indicate the function of the valve and its normal operating position; i.e.,

56 HW	(NUMBER AND CONTENT OF PIPE)
ISOLATION	(VALVE FUNCTION)
NO	(NORMAL OPERATION POSITION)

2. Size: Valve tags 2-inch diameter with 1/4-inch high letters.
3. Material: Use 0.050 or 0.064-inch brass tags.
4. Automatic Valves and Regulating Valves: Use 1/16-inch thick laminated 3-ply plastic, center ply white, outer ply red, “lamicoid” or equal. Form letters by exposing center ply.

B. Valve Tag Directory: Include tag number, location, exposed or concealed, service, valve size, valve manufacturer, valve model number, and normal operating position of valve.

C. Do not include tags on equipment isolation valves that are located within six feet of the equipment it is serving.

ADD 3

2.02 PIPING MARKERS

A. Acceptable Manufacturers:

1. W.H. Brady, Seton, Marking Systems, Inc. (MSI).
2. Other Manufacturers: Submit Substitution Request.

B. Pipes shall be labeled with all-vinyl, self-sticking labels or letters. For pipe covering sizes up to and including 3/4-inch outside diameter, select labels with 1/2-inch letters. For sizes from 3/4 to 2-inch outside diameter, 3/4-inch letters; above 2-inches outside diameter, 2-inch letters. The pipe markers shall be identified and color coded as follows with black directional arrows.

HVAC SERVICE	BACKGROUND PIPE MARKER*	COLOR
HEATING WATER	HEATING WATER SUPPLY	GREEN
	HEATING WATER RETURN	GREEN
CHILLED WATER	CHILLED WATER SUPPLY	GREEN
	CHILLED WATER RETURN	GREEN
DUAL TEMPERATURE WATER	DUAL TEMP WATER SUPPLY	GREEN
	DUAL TEMP WATER RETURN	GREEN
REFRIGERANT SUCTION	REFRIGERANT SUCTION	YELLOW
REFRIGERANT LIQUID	REFRIGERANT LIQUID	GREEN
* Directional arrow applied adjacent to pipe marker indicating direction of flow.		

2.03 EQUIPMENT IDENTIFICATION

A. Nameplates:

1. Tag all pumps, air handling supply units, fans, terminal units, and miscellaneous items of mechanical equipment with engraved nameplates. Nameplates shall be 1/16-inch thick, 3-inch by 5-inch laminated 3-ply plastic, center ply white, outer ply black. Form letters by exposing center ply.
2. Identify unit with equipment tag as shown on Drawings and area served.
3. Access points to fire dampers, smoke dampers, and combination fire and smoke dampers shall be permanently identified on the exterior of the duct by a label with letters 1/2-inch in height reading: Fire Damper, Smoke Damper, or Fire/Smoke Damper, as appropriate. Label constructed from same material as equipment nameplates.

B. Equipment Nameplate Directory: List pumps, air handlers, terminal units, and other equipment nameplates. Include Owner and Contractor furnished equipment. List nameplate designation, manufacturer's model number, location of equipment, area served or function, disconnect location, and normal position of HOA switch.

2.04 CONCEALED EQUIPMENT IDENTIFICATION

A. Acceptable Manufacturers:

1. W.H. Brady, Seton
2. Other Manufacturers: Submit substitution request.

B. Adhesive Laminated Tape:

1. 3/4-inch width transparent clear tape with black lettering.
2. Lettering in ALL CAPS Helvetica font 24 point.

PART 3 EXECUTION

3.01 VALVE IDENTIFICATION

A. Valve Tags:

1. Attach to valve with a brass chain.
2. Valve tag numbers shall be continuous throughout the building for each system.

B. Valve Tag Directory: Post final copy in Operation and Maintenance Manual.

3.02 PIPING MARKERS

A. Unless recommendations of ANSI A13.1, 1981 are more stringent, apply labels or letters after completion of pipe cleaning, insulation, painting, or other similar work, as follows:

1. Every 20-feet along continuous exposed lines.
2. Every 10-feet along continuous concealed lines.

3. Adjacent to each valve and stubout for future.
4. Where pipe passes through a wall, into and out of concealed spaces.
5. On each riser.
6. On each leg of a T.
7. Locate conspicuously where visible.

B. Further, apply labels or letters to lower quarters of the pipe on horizontal runs where view is not obstructed or on the upper quarters when pipe is normally viewed from above. Apply arrow labels indicating direction of flow. Arrows to be the same color and sizes as identification labels.

3.03 EQUIPMENT IDENTIFICATION

A. Nameplates: Attach to prominent area of equipment, either with sheet metal screws, brass chain, or contact cement as applicable.

B. Nameplate Directory: Post final copy in Operation and Maintenance Manual.

3.04 CONCEALED EQUIPMENT IDENTIFICATION

A. Where valves or equipment are located above ceilings or behind walls provide adhesive tape indicating the item at the access location.

B. Applicable equipment includes, but is not limited to, the following:

1. Terminal Units
2. Fan Coil Units
3. Fans
4. Isolation Valves
5. Fire Smoke Dampers
6. Pumps
7. Control Valves

END OF SECTION

SECTION 23 0700
INSULATION FOR HVAC

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. The provisions of Section 23 0500, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

A. This Section includes: Insulation for piping, ductwork (external), ductwork (internal), and equipment.

B. Related Sections include:

1. Section 23 0529, Hangers, Supports and Anchors for HVAC
2. Section 23 3101, HVAC Ducts and Casing – Low Pressure

1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. All insulating products shall comply with the Oregon Revised Statute (ORS) 453.005(7)(e) prohibiting pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products within this specification contain these banned substances, provide complying products from approved manufacturers with equal performance characteristics.
2. Flame and Smoke Ratings: Installed composite flame spread not to exceed 25 and smoke developed not to exceed 50 as tested by UL 723.
3. Energy Codes: Local Building and Energy Codes shall govern where insulation performance requirements for thickness exceeds thickness specified.

B. Protection: Protect against dirt, water, chemical, or mechanical damage before, during, and after installation. Repair or replace damaged insulation at no additional cost.

C. Source Quality Control:

1. Service: Use insulation specifically manufactured for service specified.
2. Labeling: Insulation labeled or stamped with brand name and number.
3. Insulation and Accessories: Do not provide any nutritional or bodily use to fungi, bacteria, insects, rats, mice, or other vermin. Not to react corrosively with equipment, piping, or ductwork, and shall be asbestos free.

1.04 SUBMITTALS

A. Submit the following.

1. Product Data: For each type including density, conductivity, thickness, jacket, vapor barrier, and flame spread and smoke developed indices.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Equivalent products by Johns Manville, Knauf, Owens Corning, and CertainTeed are acceptable.

B. Use only one manufacturer.

C. Other Manufacturers: Submit substitution request.

2.02 PIPE INSULATION

A. Fiberglass: Split sectional or snap-on type with 0.23-inch maximum thermal conductivity (K-factor) at 75 degrees F mean temperature, 850 degrees F maximum service rating and white, vapor barrier jacket with pressure sensitive closure system. Johns Manville Microlok HP.

B. Elastomeric: Expanded closed cell, 0.27-inch maximum K-factor at 75 degrees F mean temperature, 220 degrees F maximum service rating with fitting covers and paintable surface. ArmacellAP Armaflex, Rubatex.

C. Polyolefin: Semi-rigid polyolefin form snap-on or slip over type with 0.24-inch maximum thermal conductivity (K-factor) at 75 degrees F mean temperature -165 degrees F to 210 degrees F service factor and paintable surface. End joints in insulation on piping with fluid temperatures normally below 65 degrees F fuse sealed in accordance with the manufacturer's instructions. Joints longitudinal joints and other end joints made with manufacturer's approval contact adhesive in accordance with the manufacturer's instructions. Joints may be pre-glued or pre-coated with adhesive where applicable.

2.03 DUCTWORK BLANKET INSULATION

A. Fiberglass: 1.0 pcf nominal density, 0.25-inch maximum K-factor at 75 degrees F mean temperature, 250 degrees F minimum operating temperature limit. Johns Manville Microlite Type 100 with facing as follows:

1. Exposed: FSK facing (foil scrim Kraft) or vinyl - white appearance.
2. Concealed with Vapor Barrier: FSK reinforced foil and paper.
3. Concealed without Vapor Barrier: Facing not required.

B. Semi-Rigid Fiberglass: 2.5 pcf nominal density, 0.24-inch maximum K-factor, at 75 degrees F mean temperature, 250 degrees F minimum operating temperature limit. Johns Manville Micro-Flex with facing as follows:

1. Exposed: FSK facing (foil scrim kraft) or vinyl-white appearance.
2. Concealed with Vapor Barrier: FSK reinforced foil and paper.
3. Concealed without Vapor Barrier: Facing not required.

2.04 DUCT INSULATION, INTERNAL

A. Description: Fiberglass with airstream surface protected with a glass mat facing that contains an EPA registered anti-microbial agent proven to resist microbial growth as determined by ASTM G21 and G22, 1-inch thick unless indicated otherwise. 2-inch thick insulation shall have 0.24 per inch maximum K-Factor at 75 degrees F mean temperature. Johns Manville Duct Liner PM for rectangular ductwork.

B. Acoustical Absorption Coefficients: With minimum NRC of 0.70 for 1-inch and 0.90 for 2-inch as tested in accordance with ASTM C-423-90, Type A mounting.

C. Liner must meet ASTM C1071.

2.05 DUCT ENCLOSURE, FIRE RATED

A. Firemaster:

1. Material: Thermal Ceramics "Firemaster" duct wrap ceramic fiber blanket, minimum 3-inch total thickness, ASTM E2336, 2-hour rated assembly.

B. Fyrewrap:

1. Material: Unifrax "Fyrewrap" duct wrap fiberglass blanket, 1-1/2-inch thickness for 1-hour rated assembly, 3-inch thickness for 2-hour rated assembly. ASTM E2336.

2.06 ACCESSORIES FOR PIPING

A. Adhesives:

1. Fiberglass: Zeston Z-Glu
2. Elastomeric: Armacell 520

3. Polyolefin: As approved by the insulation manufacturer.

B. Cements:

1. Insulating: Ryder
2. Heat Transfer: Zeston Z-20

C. Wire Mesh: 1-inch mesh with 20 gauge annealed steel wire.

D. Pipe Fitting Covers: One piece PVC insulated pipe fitting covers. Zeston, Ceel-Co.

E. Grooved Coupling Insulation: One piece PVC insulated fitting cover. Zeston, Ceel-Co.

F. Metal Pipe Jacket: 0.016-inch thick aluminum jacket with formed fitting covers, aluminum snap straps and sealant.

G. Cloth Facing: Presized fiberglass cloth.

H. Tapes: Pressure sensitive, weather resistant, and for temperatures up to 150 degrees F. Zeston Z-tape.

I. Paint: Ultraviolet resistant latex paint with special adherence capabilities to the PVC fitting covers, elastomeric, aluminum facing, Kraft paper, tapes, and adhesives.

2.07 ACCESSORIES FOR DUCTWORK

A. Adhesives:

1. Fiberglass: Zeston Z-Glu.
2. Duct Insulation, Internal: Benjamin Foster 85-20

B. Weld Pins: Duro-Dyne with NC-1 nylon stop clips.

C. Cements:

1. Insulating: Ryder
2. Heat Transfer: Zeston Z-20

D. Wire Mesh: 1-inch mesh with 20 gauge annealed steel wire.

E. Mastic: Chicago Mastic:

1. Vapor Barrier: 17-475
2. Outdoor Mastic: 16-110 white

F. Cloth Facing: Presized fiberglass cloth.

G. Tapes: Pressure sensitive, weather resistant, and for temperatures up to 150°F. Zeston Z-tape.

H. Paint: Ultraviolet resistant latex paint with special adherence capabilities to the PVC fitting covers, elastomeric, aluminum facing, Kraft paper, tapes, and adhesives.

PART 3 EXECUTION

3.01 GENERAL

A. Workmanship:

1. Installation: Insulation installed in first class, neat professional manner.
2. Applicators: Applicators shall be employed by firm that specializes in insulation work.

B. Preparation: Surfaces of piping, ductwork, and equipment clean, free of oil or dirt, and dry before insulation is applied.

C. Stamps: ASME stamps, UL labels, and similar stamps and labels shall not be covered.

3.02 HVAC PIPE AND EQUIPMENT INSULATION APPLIED LOCATIONS

A. Insulation Applied Locations – HVAC Piping:

System	Pipe Size	Insulation Type	Insulation Thickness	Notes
Heating Water (to 250°F)	1-1/4-inch and smaller	Fiberglass	2-inch	Note 1
	1-1/2-inch to 6-inch	Fiberglass	2 1/2-inch	Note 1
Chilled Water	1-1/4-inch to 6-inch	Fiberglass	1 1/2-inch	Note 1
Dual Temp Water	1-1/4-inch and smaller	Fiberglass	2-inch	Note 1
	1 1/2-inch to 6-inch.	Fiberglass	2 ½-inch	Note 1
Refrigerant Suction, Hot Gas	All	Elastomeric or Polyolefin	1 1/2-inch	Note 2
Air Separators	All	Fiberglass	3 1/2-inch	
		Elastomeric or Polyolefin	3 1/2-inch	Note 2
Note 1: Cover with metal pipe jacket where exposed to weather and over heat trace cable. Note 2: Elastomeric or Polyolefin insulation not allowed over heat trace cable.				

B. Insulation shall include all fittings, unions, flanges, mechanical couplings, valve bodies, valve bonnets, piping through sleeves.

1. Hot water heating inside building.

C. Piping insulation is not required between the control valve and coil on run-outs when the control valve is located within 4 feet of the coils and the pipe size is 1-inch or less.

D. Valves and Irregular Fittings:

1. Insulated with section of pipe insulation and insulating cement, securely fastened, and finished with 6 oz. canvas and Foster 30-36 lagging adhesive.

2. Option on flanges, valves, strainers, not requiring a vapor barrier to insulate with removable replaceable pads fabricated of 1-inch layer of Pittsburgh Corning Temp Mat sandwiched between inner and outer layer of 8 ounce glass cloth held together with stainless staples with sufficient stainless lacing hooks to hold pad firmly to flange or valve with minimum 3-inch overlap onto adjacent pipe insulation using 18 gauge S.S. lacing wire.

E. Expansion Joints and Flexible Connectors: Pipe insulation or block of same material and thickness as adjacent piping.

3.03 PIPING INSTALLATION

A. General:

1. Joints: Coat both sides of complete joining area with applicable adhesive.

a. Longitudinal Joints: Make joints on top or back of pipe to minimize visibility. Except foam plastic, seal with closure system or 3-inch wide tape.

b. Butt Joints: Butt lightly together and, except for foam plastic, seal with 3-inch wide tape or butt straps.

c. Multiple Layered Insulation: Joints staggered.

2. Access: Strainer and other items requiring service or maintenance with easily removable and replaceable section of insulation to provide access.

3. Voids: Fill all voids, chipped corners and other openings with insulating cement or material compatible with insulating material. In insulation with Heat Tracing: Where piping is shown or specified to be heat traced, bed heat tape into heat transfer cement with insulation over heat tape and cement.
4. Seal joints, seams, and fittings of metal watertight jackets at exterior locations.

B. Fiberglass Insulation: Exterior insulation encased in metal jacket.

C. Elastomeric and Polyolefin Insulation:
1. Slit full length and snap around pipe.
2. Make cuts perpendicular to insulating surface leaving no cut section exposed.
3. Do not stretch insulation to cover joints or fittings.
4. Seal joints in elastomeric insulation with adhesive.
5. Seal joints in polyolefin as specified hereinbefore.
6. Exterior insulation painted with two coats of specified paint in accordance with the manufacturer's instructions and encase in metal jacket.
7. Sealing joints with tape will not be allowed.

D. Fittings: Insulation specified with continuous vapor barrier, the vapor barrier must not be violated.
1. On Elastomeric and Polyolefin Insulation: Fittings covered with covers made up of mitered sections of insulation or with formed pipe fitting covers.
2. In Other Insulation: Fittings covered with insulation to the same level of the adjoining insulation or fill with insulating cement. Finish with pipe fitting covers or cloth facing and tape.

E. Unions, Mechanical Joints, Valves, etc.:
1. General:
a. As specified for fittings.
b. Minimum thickness same as specified for piping.
2. Unions: Build up insulation at least 1/2-inch beyond adjoining insulation.
3. Flanges: With square corners. Where flanges are not insulated, terminate adjacent insulation so flange bolts can be removed.
4. Flanged Valves: Insulation with square corners.

F. Vapor Barrier Insulation:
1. Refer to Section 23 0529, Hangers, Supports, and Anchors for HVAC for support requirements.
2. Piping which requires vapor barrier protection shall have a continuous vapor barrier, which may not be pierced or broken. The following piping systems require vapor barrier protection:
a. Chilled water.
b. Refrigerant suction.
c. All other piping systems with a nominal operating temperature below 65 degrees F, including dual temperature piping.
3. Vapor Barrier Insulation.
a. Insulation for pipe requiring vapor barrier protection 1-1/4-inch or smaller, insulation continuous through pipe hangers and rollers.
b. For pipe 1-1/2-inch and larger, 18-inch section of calcium silicate, same thickness as pipe insulation with continuous vapor barrier jacket at each hanger or roller. Provide pipe shield specified in Section 23 0529, Hangers, Supports, and Anchors for HVAC.

G. Non-Vapor Barrier Insulation:

1. Refer to Section 23 0529, Hangers, Supports, and Anchors for HVAC for support requirements.
2. At contractor's option, insulation may be interrupted at supports. Butt insulation tight to support.
3. If contractor elects to continue insulation at supports, installation as specified for piping systems with vapor barrier installation.
4. Void between saddle and pipe filled with insulation.

3.04 DUCT INSULATION APPLIED LOCATIONS

A. General:

1. All external insulation with continuous vapor barriers unless specifically noted otherwise.
2. Internally lined shall be lined completely to grille or diffuser or to indicated terminal points. Dimension shown are net inside of liner.
3. Internally lined ductwork need not be externally insulated.
4. In addition to locations described in specification, internally line medium, low, return and exhaust air ductwork where shown on drawings.

B. Insulation Applied Location – HVAC Ductwork, per table below and as follows where more stringent:

1. Air handling systems for classrooms: Line, 1-inch liner, supply and return duct from the air handler to a minimum of 20 feet from the unit plus one elbow.
2. AH-MEDIA system: Line (1-inch liner) supply and return air duct from the air handler to a minimum of 15' from the unit. Provide duct silencers as indicated and specified in Section 23 3319, Duct Silencers.
3. AH-GYM: Line (1-inch liner) supply duct from air handler to a minimum distance of 25 feet. Line, 1-inch liner, return plenum behind return grille and line, 2-inch liner, return duct from air handler to a minimum of 15-feet. Provide duct silencers as indicated and specified in Section 23 3319, Duct Silencers.
4. AH-CAFÉ: Line (1-inch liner) supply duct from air handler to a minimum of 20 feet. Line, 1-inch liner return plenum behind return grille and line, 2-inch liner, return duct from air handler to a minimum of 10-foot. Provide duct silencers as indicated and specified in Section 23 3319, Duct Silencers.
5. AH-MUSIC:Line supply and return ducts a minimum distance of 30-feet plus one elbow.

ADD 3

System	Location	Duct Type	Insulation Type	Thickness	Notes
Low Pressure Supply*	Exposed or Visible (including above a cloud ceiling)	Rectangular	Internally Lined	1-inch	
		Round	Internally Lined	1-inch	
	Concealed or in mechanical rooms, or unconditioned spaces	All	Fiberglass Blanket	1 1/2-inch	
	Exposed Outside Building Envelope	All	Internally Lined	3-inch	
	15-feet upstream and downstream of fans	All	Internally Lined	1-inch unless otherwise indicated	

ADD 3

System	Location	Duct Type	Insulation Type	Thickness	Notes
Return Air* (not insulated except:)	Concealed Outside Building Envelope	All	Externally insulated without vapor barrier	2-inch	
	Exposed Outside Building Envelope	All	Internally Lined	2-inch	
	15-feet upstream and downstream of fans	All	Internally Lined	1-inch unless otherwise indicated	
Exhaust Air* (not insulated except:)	15-feet upstream and downstream of fans	All	Internally Lined	1-inch unless otherwise indicated	
	In Toilet Rooms, 10-feet downstream of exhaust grilles	All	Internally Lined	1-inch	
Outside Air (untempered)	Exposed or Visible (Including above a cloud ceiling)	Rectangular	Internally Lined	2-inch	
		Round	Internally Lined	2-inch	
	Concealed or in mechanical rooms	All	Fiberglass Blanket	2-inch	
Supply and Return Plenums	All	All	Internally Lined	1-inch	Note 1
Grease Hood Exhaust	All	All	Duct Enclosure, Fire Rated	As Indicated	
Transfer Air	All	All	Internally Lined	1-inch	
OSA and Relief Plenums at Louvers	All	All	Fiberglass Blanket or Board	2-inch	Note 4

* In addition to applied locations listed in this table, provide internally lined ductwork where indicated on drawings.

Note 1: Insulation not required on factory fabricated insulated housings and plenums (AHP).

Note 4: Plenums at louvers shall be insulated where extending beyond control damper.

ADD 3

ADD 3

ADD 3

3.05 DUCTWORK INSTALLATION

A. General:

1. Install in accordance with manufacturer's instruction.
2. The vapor barrier shall be continuous. Tears, holes, staples, etc. shall be coated with vapor barrier mastic and patch with facing or tape. Joints between insulation and access with vapor barrier mastic.
3. Insulation at access panels to be removable or attached to panel with edges of panel and opening reinforced with metal beading.

B. External Blanket Insulation:
   1. Insulation secured to ductwork with 20-gauge snap wires 24-inches on center and at all joints.
   2. Joints and seams lapped a minimum of 3-inches and sealed with jacket tape.

C. Internal Duct Liner:
   1. The coated surface shall face air stream.
   2. Weld pins spaced maximum of 15-inch on center in both directions and within 2 inches of all corners and joints. Weld pins flush with liner surface.
   3. Complete duct surface coated with adhesive and insulation pressed tightly thereto.
   4. Edges at terminal points shall be provided with metal beading and heavily coated with adhesive.
   5. All joints and corners shall be heavily coated with adhesive.
   6. Damaged areas replaced or heavily coated with adhesive.

D. Duct Enclosure - Fire Rated:
   1. Installation: Per manufacturer's instructions.
   2. Joints:
      a. Attached boards shall be cemented and attached to one another. Mating surfaces shall be "buttered" with a 1/8-inch layer adhesive.
      b. Secure fiberglass type material with stainless steel banding, Type 304.
   3. Support: The duct enclosure may be hung from a conventional "trapeze" arrangement. Adequate support shall be provided at the bottom of vertical runs. On multi-story vertical runs, the Firetemp enclosure shall be supported at each story penetration with an angle iron collar attached to the Firetemp.
   4. Expansion: Adequate clearance shall be provided at the end of all straight runs to allow for expansion of the metal duct inside the enclosure.

E. Plenums: Insulation on floors protected by wire mesh.

F. Blank Off Panels: Insulation, enclosed with sheet metal on all sides.
   1. Joints: Vapor barrier mastic and taped.

G. Volume Dampers: Where volume dampers do not allow for continuous insulation, terminate insulation clear of handle sweep, and finish edges to maintain vapor barrier and to prevent damage to the insulation.

H. Field Test: All systems shall be tested and approved prior to installation of insulation.

END OF SECTION

SECTION 23 2123

PUMPS FOR HVAC SYSTEMS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. The provisions of Section 23 0500, Common Work Results for HVAC apply to work specified in this Section.

1.02 SUMMARY

A. This Section includes:

1. Base Mounted Centrifugal Pumps
2. Condensate Pumps

ADD 3

1.03 QUALITY ASSURANCE

A. Select pump impellers such that impellers shall not be greater than minimum impeller size plus 90 percent of the difference between the maximum and minimum impeller size for pump selected.

B. Select motor to be non-overloading under all operating conditions.

C. Select pump with a minimum efficiency as listed in schedule.

D. Provide couplings and seals suitable for application (including temperature, pH, glycol solution concentration, and loads over full range of pump operation).

E. Pumps and motors with flexible couplers shall be factory aligned, and realigned by manufacturer's representative after installation.

1.04 SUBMITTALS

A. Submit the following:

1. Product data for each pump including performance curves, pump efficiency, motor data, operating weights, and pressure ratings. Submit control information and wiring diagrams for packaged equipment.
2. Operating and maintenance data for each product specified under this Section.

PART 2 PRODUCTS

2.01 BASE MOUNTED CENTRIFUGAL PUMPS

A. Acceptable Manufacturers:

1. Paco, Peerless, Bell and Gossett, Goulds, Armstrong, Taco, Thrush, Aurora.
2. Other Manufacturers: Submit Substitution Request.

B. Description: End suction centrifugal pump, motor, flexible coupling drive mounted on a common steel baseplate.

C. Components:

1. Vertical split case construction, cast iron volute, bronze fitted.
2. 175 psig working pressure unless otherwise noted.
3. Enclosed type, single stage, bronze impeller.
4. Mechanical shaft seal, regreasable ball bearings.
5. Motor: 1750 RPM maximum speed.
6. Coupling drive and guard.
7. Steel baseplate with open grouting area.
8. Pump internals capable of being serviced without disturbing piping.

ADD 3

9. Capacity head and power requirements as scheduled on Drawings.

2.02 CONDENSATE PUMPS

A. Acceptable Manufacturers:
   1. Little Giant
   2. Other Manufacturers: Submit Substitution Request.

B. Description:
   1. Pump for removal of evaporator condensate, complete with integral float switch, receiver, power cord, safety switch, and check valve.
   2. Factory piped, wired, assembled and tested.
   3. Capacity, head and power requirements as shown on Drawings.

C. Components:
   1. Integral Float Switch
   2. Receiver
   3. Power Cord
   4. Safety Switch
   5. Discharge Check Valve

PART 3 EXECUTION

3.01 BASE MOUNTED CENTRIFUGAL PUMP INSTALLATION

A. Install pump in location shown in accordance with manufacturer's written installation instructions.

B. Install on inertia base where located on floor.

C. Provide flexible connections, strainers, check valves and shutoff valves on suction and discharge as shown on Drawings.

D. Lubricate in accordance with manufacturer's instructions before operation.

E. Support interconnecting piping independently of pump and inertia base to prevent stresses from being transmitted to the casings.

END OF SECTION

GENERAL NOTES - RCP

A. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
B. SLOPED SURFACES WILL APPEAR LESS THAN TRUE LENGTH. SEE SECTIONS AND DETAILS FOR ACTURAL DIMENSIONS
C. ALL CEILING HEIGHTS ARE FORM FINISHED FLOOR UNLESS NOTED OTHERWISE
D. ALL DIMENSIONS FROM FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
E. ALL OPEN TO STRUCTURE CEILINGS TO BE PAINTED P-1, U.N.O.
F. IN CASES OF OPEN TO STRUCTURE CEILINGS WITH SUSPENDED CEILING CLOUDS, PAINT TO EXTEND ABOVE ENTIRE AREAS OF CEILING CLOUDS.
G SOME ELEMENTS NOT SHOWN IN OVERALL PLANS. SEE ENLARGED PLANS FOR COORDINATION OF CEILING ELEMENTS.
H. NO PIPING, CONDUIT, DUCTWORK OR OTHER BUILDING SYSTEM COMPONENTS ARE ALLOWED TO PASS THROUGH THE SKYLIGHT WELLS. ONLY CODE REQUIRED SURFACE MOUNTED ITEMS SUCH AS SPRINKLER HEADS AND FIRE ALARM DEVICES ARE ALLOWED.

KEYNOTE LEGEND - SPECIFICATIONS

08 4414-B	ALUMINUM EXTERIOR SUNSHADES
09 5100-C	ACOUSTICAL CEILING TRIM
09 9000-E	ACCENT PAINT COLOR, SEE FINISH PLANS FOR COLOR
12 2400-A	ROLLER SHADES TYPE A - LENGTH 11'-9"
12 2400-B	ROLLER SHADES TYPE B - LENGTH 11'-5"
12 2400-C	ROLLER SHADES TYPE C - LENGTH 12'-6"
12 2400-D	ROLLER SHADES TYPE D - LENGTH 10'-4"
12 2400-E	ROLLER SHADES TYPE E - LENGTH 10'-0"
12 2400-F	ROLLER SHADES TYPE F - LENGTH 4'-0"
12 2400-J	ROLLER SHADES TYPE J - LENGTH 11'-4"

CEILING MATERIAL LEGEND

ACT - 1: 2 x 4 LAY-IN ACOUSTIC TILE

ACT - 2: 2 x 4 LAY-IN VINYL ACOUSTIC TILE

GYPSUM BOARD CEILING. PAINT U.O.N.

METAL SOFFIT PANELS (EXTERIOR)

EXPOSED ACOUSTIC DECK WITH EXPOSED STEEL STRUCTURE PAINT . U.O.N.

WOOD CEILING (LOBBY)

ACOUSTIC CEILING PANEL
(A) 2' x 8' (D) 4' x 4'
(B) 4' x 8' (E) 2' x 6'
(C) 2' x 4'

PAINT CEILING ACCENT COLOR

WP-1, WOOD PANEL TYPE - 1

CEILING SYMBOLS

- SEE MECHANICAL
- x' - x" — CEILING ELEVATION
- OTS — OPEN TO STRUCTURE
- P-X — PAINT COLOR OF CEILING. SEE A401 ROOM FINISH LEGEND.
- WP-1 — WOOD PANELS TYPE - 1. SEE A401 ROOM FINISH LEGEND.
- S — SPEAKER , SEE LOW VOLTAGE AND AV DRAWINGS
- AV — AV ENCLOSURE, SEE LOW VOLTAGE AND AV DRAWINGS
- W — WIRELESS POINT - SEE T DRAWINGS
- PE — PHOTO CELL - SEE ELECTRICAL
- OS — OCCUPANCY SENSOR - SEE ELECTRICAL
- CA — CAMERA - SEE T DRAWINGS
- EX — EXIT - SEE ELECTRICAL
- IR — IR DOME - SEE T DRAWINGS
- M — MOTION DETECTOR - SEE T DRAWINGS
- LIGHT FIXTURES, SEE ELECTRICAL

1 SECTOR A RCP - FIRST FLOOR
1/8" = 1'-0"

KEY PLAN

PIVOT ARCHITECTURE

REGISTERED ARCHITECT
CURTIS M. WILSON
EUGENE, OREGON
3543
STATE OF OREGON

IBI GROUP

dowa

BID SET

4J

EUGENE SCHOOL DISTRICT 4J
200 WEST HILLYARD AVENUE, EUGENE, OREGON 97404

RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR A RCP - FIRST FLOOR

PROJECT #	1337.00
ISSUE DATE:	02.12.2016
REVISIONS:	ADD 03 - 03.11.2016

A151

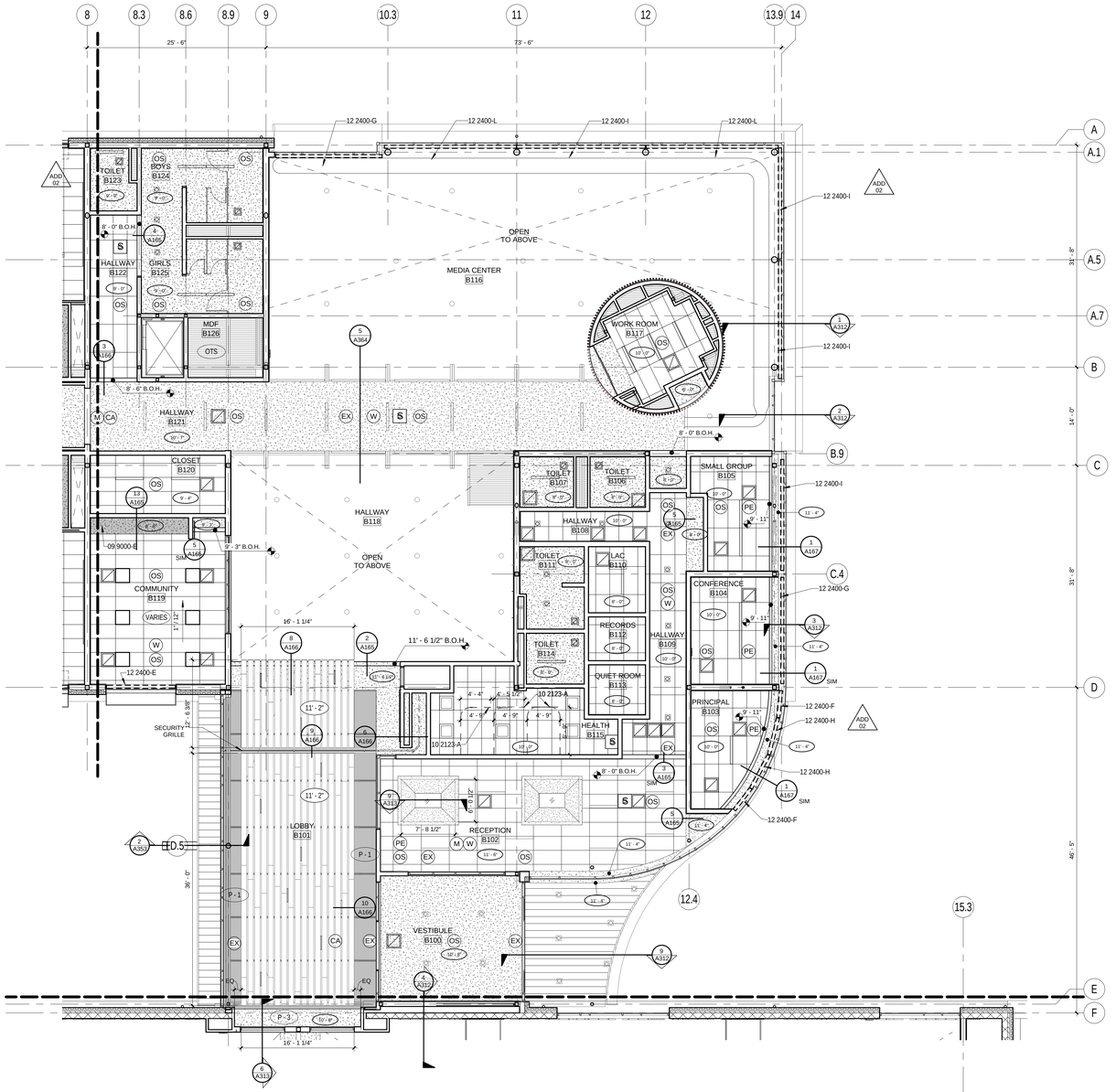
PRINTED ON: 3/11/2016 2:43:05 PM FROM FILE: C:\Pivot_Architecture\Revit_2015\1337 RRES_Arch_Bldg_15_stapleton.rvt

GENERAL NOTES - RCP

A. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
B. SLOPED SURFACES WILL APPEAR LESS THAN TRUE LENGTH. SEE SECTIONS AND DETAILS FOR ACTURAL DIMENSIONS
C. ALL CEILING HEIGHTS ARE FORM FINISHED FLOOR UNLESS NOTED OTHERWISE
D. ALL DIMENSIONS FROM FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
E. ALL OPEN TO STRUCTURE CEILINGS TO BE PAINTED P-1, U.N.O.
F. IN CASES OF OPEN TO STRUCTURE CEILINGS WITH SUSPENDED CEILING CLOUDS, PAINT TO EXTEND ABOVE ENTIRE AREAS OF CEILING CLOUDS.
G SOME ELEMENTS NOT SHOWN IN OVERALL PLANS. SEE ENLARGED PLANS FOR COORDINATION OF CEILING ELEMENTS.
H. NO PIPING, CONDUIT, DUCTWORK OR OTHER BUILDING SYSTEM COMPONENTS ARE ALLOWED TO PASS THROUGH THE SKYLIGHT WELLS. ONLY CODE REQUIRED SURFACE MOUNTED ITEMS SUCH AS SPRINKLER HEADS AND FIRE ALARM DEVICES ARE ALLOWED.

KEYNOTE LEGEND - SPECIFICATIONS

09 9000-E	ACCENT PAINT COLOR, SEE FINISH PLANS FOR COLOR
10 2123-A	CUBICLE TRACK
12 2400-E	ROLLER SHADES TYPE E - LENGTH 10'-0"
12 2400-F	ROLLER SHADES TYPE F - LENGTH 4'-0"
12 2400-G	ROLLER SHADES TYPE G - LENGTH 15'-4"
12 2400-H	ROLLER SHADES TYPE H - LENGTH 1'-7"
12 2400-I	ROLLER SHADES TYPE I - LENGTH 16'-0"
12 2400-L	ROLLER SHADES TYPE J - LENGTH 19'-0"



1 SECTOR B RCP - FIRST FLOOR

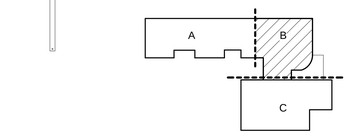
1/8" = 1'-0"

CEILING MATERIAL LEGEND

- ACT - 1: 2 x 4 LAY-IN ACOUSTIC TILE
- ACT - 2: 2 x 4 LAY-IN VINYL ACOUSTIC TILE
- GYPSUM BOARD CEILING. PAINT U.O.N.
- METAL SOFFIT PANELS (EXTERIOR)
- EXPOSED ACOUSTIC DECK WITH EXPOSED STEEL STRUCTURE PAINT . U.O.N.
- WOOD CEILING (LOBBY)
- ACOUSTIC CEILING PANEL
  - (A) 2' x 8'
  - (B) 4' x 8'
  - (C) 2' x 4'
  - (D) 4' x 4'
  - (E) 2' x 6'
- PAINT CEILING ACCENT COLOR
- WP-1, WOOD PANEL TYPE - 1

CEILING SYMBOLS

- SEE MECHANICAL
- x' - x" — CEILING ELEVATION
- OTS — OPEN TO STRUCTURE
- P-X — PAINT COLOR OF CEILING. SEE A401 ROOM FINISH LEGEND.
- WP-1 — WOOD PANELS TYPE - 1. SEE A401 ROOM FINISH LEGEND.
- S — SPEAKER , SEE LOW VOLTAGE AND AV DRAWINGS
- AV — AV ENCLOSURE, SEE LOW VOLTAGE AND AV DRAWINGS
- W — WIRELESS POINT - SEE T DRAWINGS
- PE — PHOTO CELL - SEE ELECTRICAL
- OS — OCCUPANCY SENSOR - SEE ELECTRICAL
- CA — CAMERA - SEE T DRAWINGS
- EX — EXIT - SEE ELECTRICAL
- IR — IR DOME - SEE T DRAWINGS
- M — MOTION DETECTOR - SEE T DRAWINGS
- LIGHT FIXTURES, SEE ELECTRICAL



KEY PLAN

PIVOT ARCHITECTURE

REGISTERED ARCHITECT
CURTIS M. WILSON
EUGENE, OREGON
3543
STATE OF OREGON

IBI GROUP

dowa

BID SET

EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE, OREGON 97404

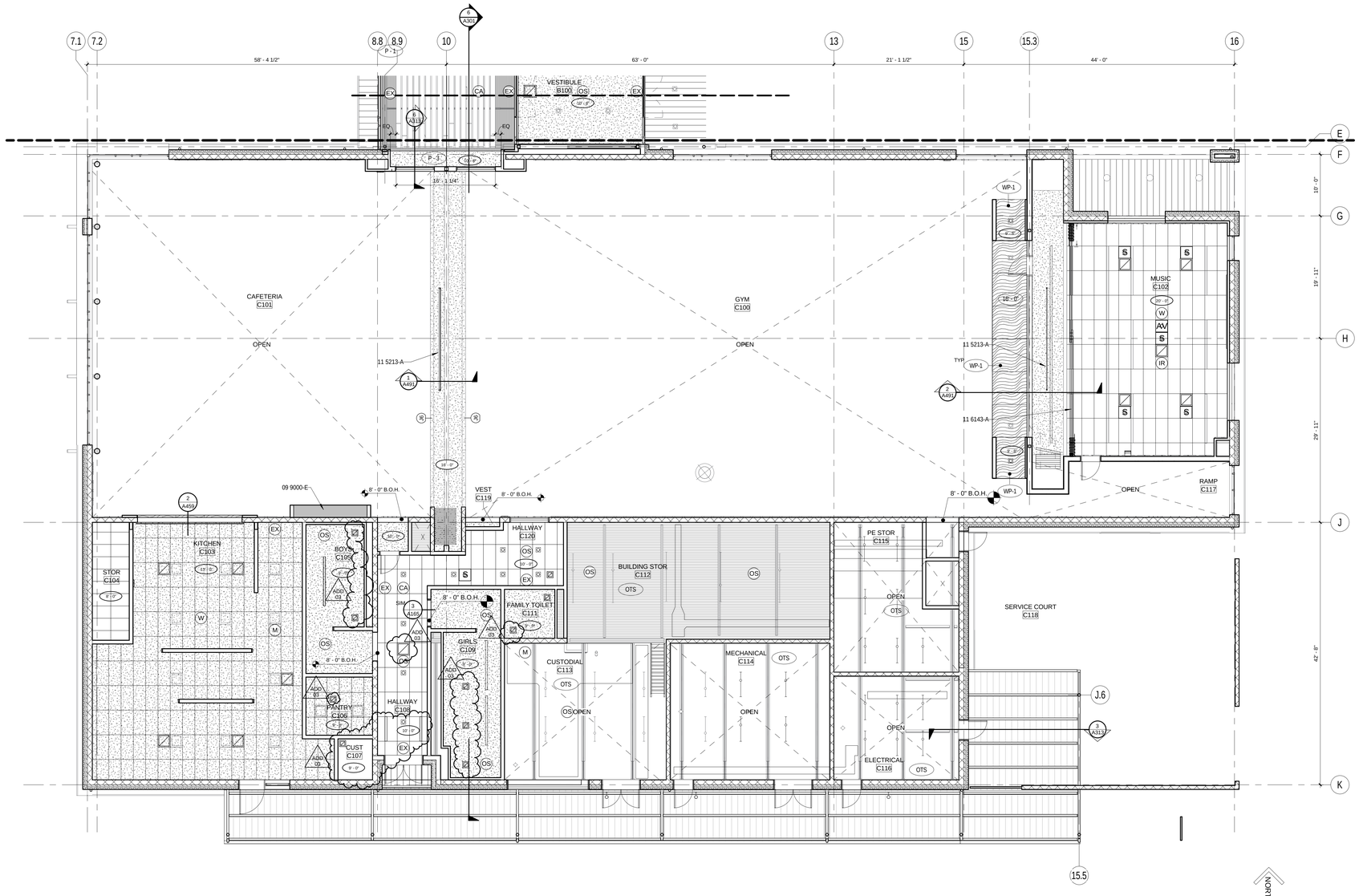
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR B RCP - FIRST FLOOR

PROJECT #	1337.00
ISSUE DATE:	02.12.2016
REVISIONS:	ADD 02 - 03.09.2016

A152

PRINTED ON: 3/11/2016 2:43:20 PM FROM FILE: C:\Pivot_Architecture\Revit_2015\1337_RRES_Arch_Bldg_15_stadleton.rvt



1 SECTOR C RCP - FIRST FLOOR
1/8" = 1'-0"

GENERAL NOTES - RCP

A. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
B. SLOPED SURFACES WILL APPEAR LESS THAN TRUE LENGTH. SEE SECTIONS AND DETAILS FOR ACTURAL DIMENSIONS
C. ALL CEILING HEIGHTS ARE FORM FINISHED FLOOR UNLESS NOTED OTHERWISE
D. ALL DIMENSIONS FROM FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
E. ALL OPEN TO STRUCTURE CEILINGS TO BE PAINTED P-1, U.N.O.
F. IN CASES OF OPEN TO STRUCTURE CEILINGS WITH SUSPENDED CEILING CLOUDS, PAINT TO EXTEND ABOVE ENTIRE AREAS OF CEILING CLOUDS.
G SOME ELEMENTS NOT SHOWN IN OVERALL PLANS, SEE ENLARGED PLANS FOR COORDINATION OF CEILING ELEMENTS.
H. NO PIPING, CONDUIT, DUCTWORK OR OTHER BUILDING SYSTEM COMPONENTS ARE ALLOWED TO PASS THROUGH THE SKYLIGHT WELLS. ONLY CODE REQUIRED SURFACE MOUNTED ITEMS SUCH AS SPRINKLER HEADS AND FIRE ALARM DEVICES ARE ALLOWED.

KEYNOTE LEGEND - SPECIFICATIONS

09 9000-E	ACCENT PAINT COLOR, SEE FINISH PLANS FOR COLOR
11 5213-A	PROJECTOR SCREEN, FRONT PROJECTION
11 6143-A	FRONT SETTING CURTAIN

CEILING MATERIAL LEGEND

ACT - 1: 2 x 4 LAY-IN ACOUSTIC TILE

ACT - 2: 2 x 4 LAY-IN VINYL ACOUSTIC TILE

GYPSUM BOARD CEILING. PAINT U.O.N.

METAL SOFFIT PANELS (EXTERIOR)

EXPOSED ACOUSTIC DECK WITH EXPOSED STEEL STRUCTURE PAINT . U.O.N.

WOOD CEILING (LOBBY)

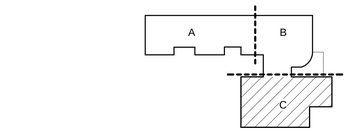
ACOUSTIC CEILING PANEL
A 2' x 8' D 4' x 4'
B 4' x 8' E 2' x 6'
C 2' x 4'

PAINT CEILING ACCENT COLOR

WP-1, WOOD PANEL TYPE - 1

CEILING SYMBOLS

- SEE MECHANICAL
- X' - X" — CEILING ELEVATION
- OTS — OPEN TO STRUCTURE
- P-X — PAINT COLOR OF CEILING. SEE A401 ROOM FINISH LEGEND.
- WP-1 — WOOD PANELS TYPE - 1. SEE A401 ROOM FINISH LEGEND.
- S — SPEAKER , SEE LOW VOLTAGE AND AV DRAWINGS
- AV — AV ENCLOSURE, SEE LOW VOLTAGE AND AV DRAWINGS
- W — WIRELESS POINT - SEE T DRAWINGS
- PE — PHOTO CELL - SEE ELECTRICAL
- OS — OCCUPANCY SENSOR - SEE ELECTRICAL
- CA — CAMERA - SEE T DRAWINGS
- EX — EXIT - SEE ELECTRICAL
- IR — IR DOME - SEE T DRAWINGS
- M — MOTION DETECTOR - SEE T DRAWINGS
- LIGHT FIXTURES, SEE ELECTRICAL



KEY PLAN

PVOT ARCHITECTURE

REGISTERED ARCHITECT
CURTIS M. WILSON
EUGENE, OREGON
3543
STATE OF OREGON

IBI GROUP

dowa

BID SET

4J
EUGENE SCHOOL DISTRICT 4J
120 WEST HILLARD AVENUE, EUGENE, OREGON 97404

RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR C RCP - FIRST FLOOR

PROJECT #:	1337.00
ISSUE DATE:	02.12.2016
REVISIONS:	ADD 03 - 03.11.2016

A153

PRINTED ON: 3/11/2016 2:43:33 PM FROM FILE: C:\Pivot Architecture\Revit_2015\1337_RRES Arch Bldg_15 jstapleton.rvt

GENERAL NOTES - RCP

A. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
B. SLOPED SURFACES WILL APPEAR LESS THAN TRUE LENGTH. SEE SECTIONS AND DETAILS FOR ACTURAL DIMENSIONS
C. ALL CEILING HEIGHTS ARE FORM FINISHED FLOOR UNLESS NOTED OTHERWISE
D. ALL DIMENSIONS FROM FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
E. ALL OPEN TO STRUCTURE CEILINGS TO BE PAINTED P-1, U.N.O.
F. IN CASES OF OPEN TO STRUCTURE CEILINGS WITH SUSPENDED CEILING CLOUDS, PAINT TO EXTEND ABOVE ENTIRE AREAS OF CEILING CLOUDS.
G SOME ELEMENTS NOT SHOWN IN OVERALL PLANS. SEE ENLARGED PLANS FOR COORDINATION OF CEILING ELEMENTS.
H. NO PIPING, CONDUIT, DUCTWORK OR OTHER BUILDING SYSTEM COMPONENTS ARE ALLOWED TO PASS THROUGH THE SKYLIGHT WELLS. ONLY CODE REQUIRED SURFACE MOUNTED ITEMS SUCH AS SPRINKLER HEADS AND FIRE ALARM DEVICES ARE ALLOWED.

KEYNOTE LEGEND - SPECIFICATIONS

08 4414-B	ALUMINUM EXTERIOR SUNSHADES
08 6300-A	METAL-FRAMED SKYLIGHTS 4'X4', TYP.
09 5100-C	ACOUSTICAL CEILING TRIM
09 9000-E	ACCENT PAINT COLOR, SEE FINISH PLANS FOR COLOR
12 2400-A	ROLLER SHADES TYPE A - LENGTH 11'-9"
12 2400-C	ROLLER SHADES TYPE C - LENGTH 12'-6"
12 2400-D	ROLLER SHADES TYPE D - LENGTH 10'-4"
12 2400-E	ROLLER SHADES TYPE E - LENGTH 10'-0"
12 2400-F	ROLLER SHADES TYPE F - LENGTH 4'-0"

CEILING MATERIAL LEGEND

ACT - 1: 2 x 4 LAY-IN ACOUSTIC TILE

ACT - 2: 2 x 4 LAY-IN VINYL ACOUSTIC TILE

GYPSUM BOARD CEILING. PAINT U.O.N.

METAL SOFFIT PANELS (EXTERIOR)

EXPOSED ACOUSTIC DECK WITH EXPOSED STEEL STRUCTURE PAINT . U.O.N.

WOOD CEILING (LOBBY)

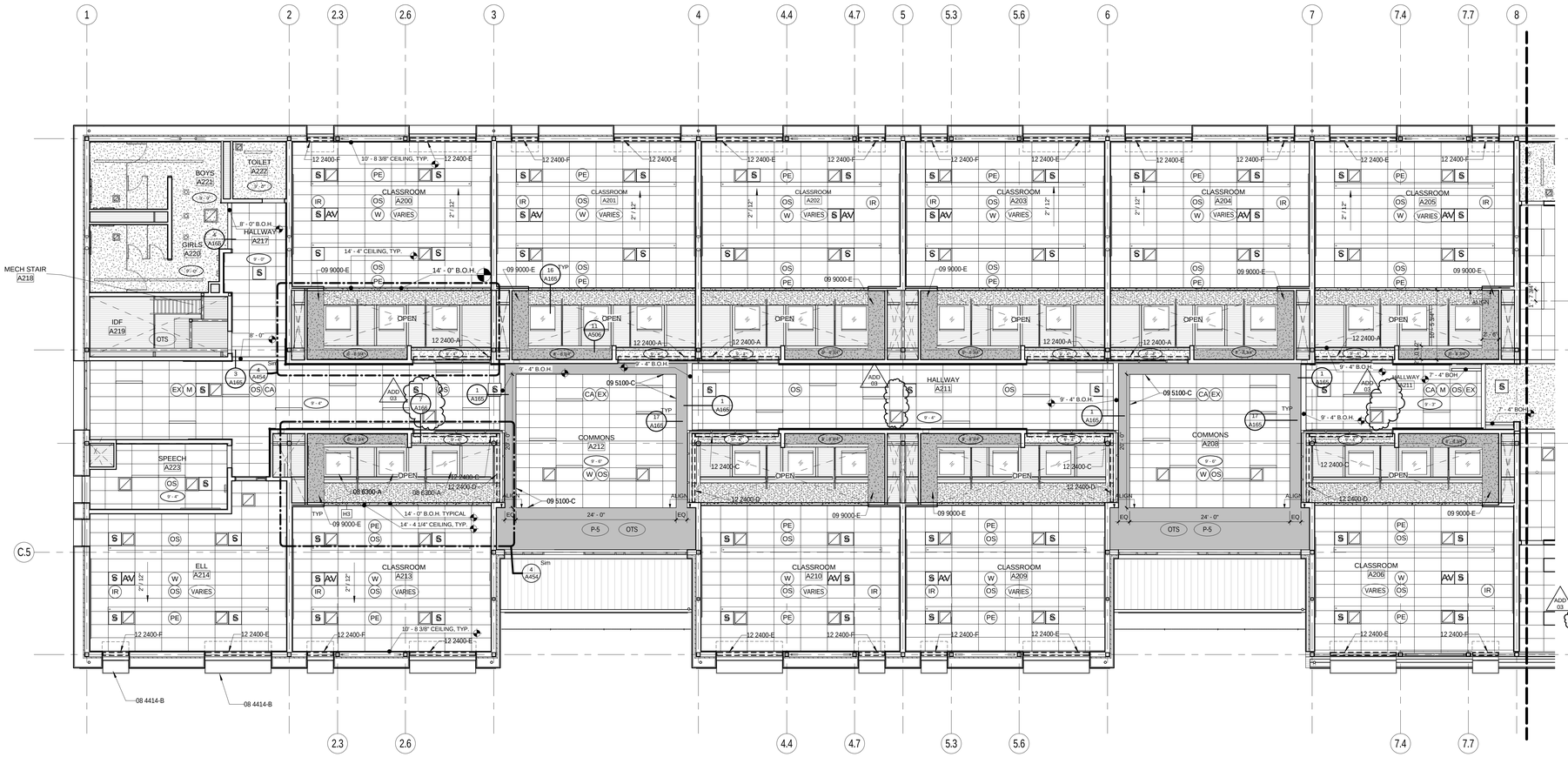
ACOUSTIC CEILING PANEL
A 2' x 8' D 4' x 4'
B 4' x 8' E 2' x 6'
C 2' x 4'

PAINT CEILING ACCENT COLOR

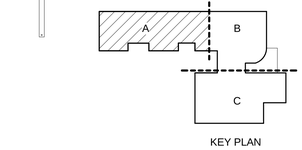
WP-1, WOOD PANEL TYPE - 1

CEILING SYMBOLS

- SEE MECHANICAL
- X' - X" — CEILING ELEVATION
- OTS — OPEN TO STRUCTURE
- P-X — PAINT COLOR OF CEILING. SEE A401 ROOM FINISH LEGEND.
- WP-1 — WOOD PANELS TYPE - 1. SEE A401 ROOM FINISH LEGEND.
- S — SPEAKER , SEE LOW VOLTAGE AND AV DRAWINGS
- AV — AV ENCLOSURE, SEE LOW VOLTAGE AND AV DRAWINGS
- W — WIRELESS POINT - SEE T DRAWINGS
- PE — PHOTO CELL - SEE ELECTRICAL
- OS — OCCUPANCY SENSOR - SEE ELECTRICAL
- CA — CAMERA - SEE T DRAWINGS
- EX — EXIT - SEE ELECTRICAL
- IR — IR DOME - SEE T DRAWINGS
- M — MOTION DETECTOR - SEE T DRAWINGS
- LIGHT FIXTURES, SEE ELECTRICAL



1 SECTOR A RCP - SECOND FLOOR
1/8" = 1'-0"



KEY PLAN

PIVOT ARCHITECTURE

REGISTERED ARCHITECT
CURTIS N. WILSON
EUGENE, OREGON
3543
STATE OF OREGON

IBI GROUP

dowa

BID SET

EUGENE SCHOOL DISTRICT 4J
120 WEST HILLARD AVENUE, EUGENE, OREGON 97404

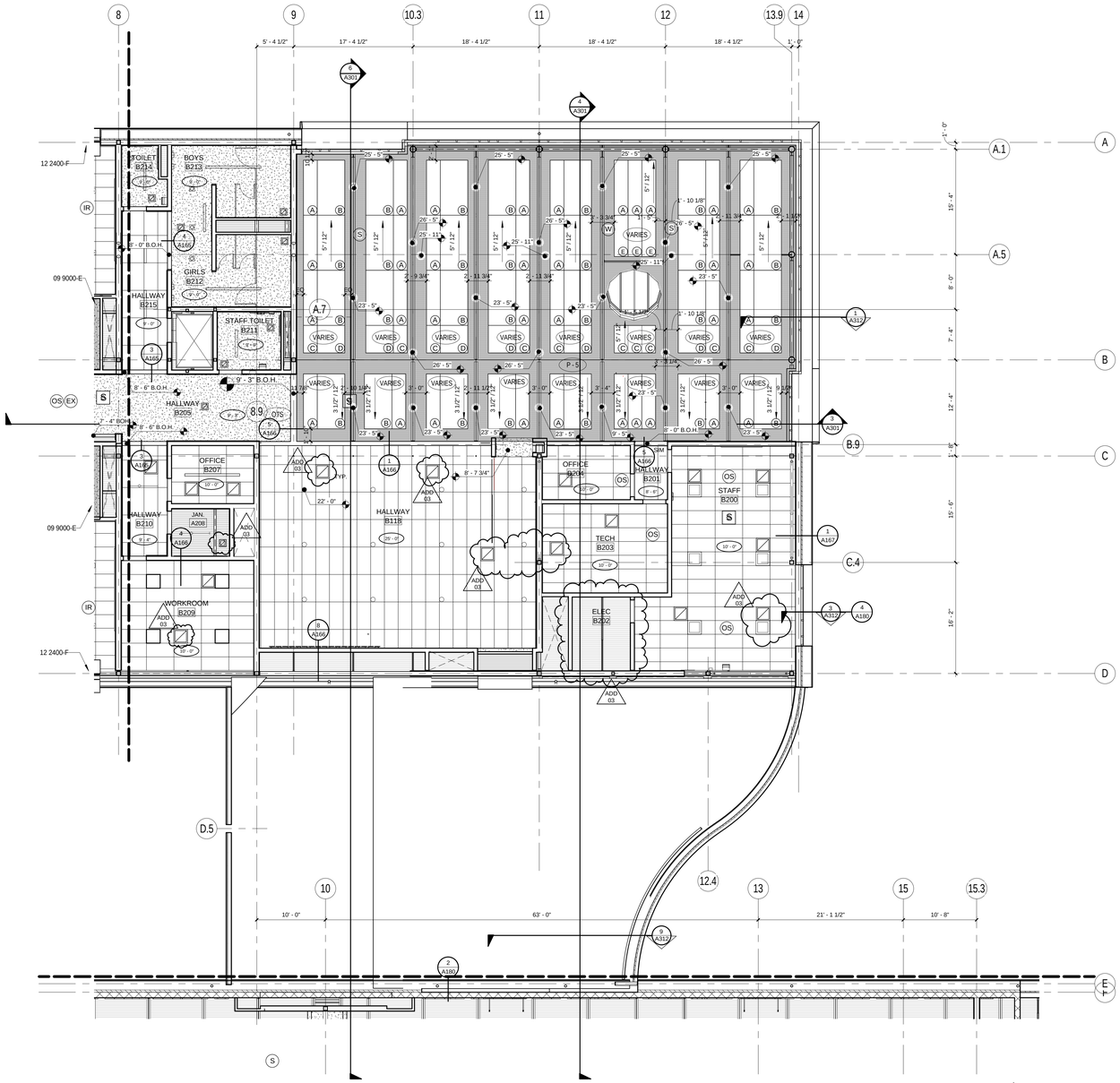
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR A RCP - SECOND FLOOR

PROJECT #	1337.00
ISSUE DATE:	02.12.2016
REVISIONS:	ADD 03 - 03.11.2016

A161

PRINTED ON: 3/11/2016 2:43:51 PM FROM FILE: C:\Pivot_Architecture\Revit_2015\1337_RRES_Arch Bldg_15_stapleton.rvt



1 SECTOR B RCP - SECOND FLOOR
1/8" = 1'-0"

GENERAL NOTES - RCP

A. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
B. SLOPED SURFACES WILL APPEAR LESS THAN TRUE LENGTH. SEE SECTIONS AND DETAILS FOR ACTURAL DIMENSIONS
C. ALL CEILING HEIGHTS ARE FORM FINISHED FLOOR UNLESS NOTED OTHERWISE
D. ALL DIMENSIONS FROM FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
E. ALL OPEN TO STRUCTURE CEILINGS TO BE PAINTED P-1, U.N.O.
F. IN CASES OF OPEN TO STRUCTURE CEILINGS WITH SUSPENDED CEILING CLOUDS, PAINT TO EXTEND ABOVE ENTIRE AREAS OF CEILING CLOUDS.
G SOME ELEMENTS NOT SHOWN IN OVERALL PLANS. SEE ENLARGED PLANS FOR COORDINATION OF CEILING ELEMENTS.
H. NO PIPING, CONDUIT, DUCTWORK OR OTHER BUILDING SYSTEM COMPONENTS ARE ALLOWED TO PASS THROUGH THE SKYLIGHT WELLS. ONLY CODE REQUIRED SURFACE MOUNTED ITEMS SUCH AS SPRINKLER HEADS AND FIRE ALARM DEVICES ARE ALLOWED.

KEYNOTE LEGEND - SPECIFICATIONS

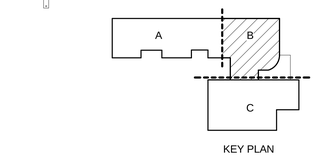
09 9000-E	ACCENT PAINT COLOR, SEE FINISH PLANS FOR COLOR
12 2400-F	ROLLER SHADES TYPE F - LENGTH 4'-0"

CEILING MATERIAL LEGEND

- ACT - 1: 2 x 4 LAY-IN ACOUSTIC TILE
- ACT - 2: 2 x 4 LAY-IN VINYL ACOUSTIC TILE
- GYPSUM BOARD CEILING. PAINT U.O.N.
- METAL SOFFIT PANELS (EXTERIOR)
- EXPOSED ACOUSTIC DECK WITH EXPOSED STEEL STRUCTURE PAINT . U.O.N.
- WOOD CEILING (LOBBY)
- ACOUSTIC CEILING PANEL
  - (A) 2' x 8'
  - (B) 4' x 8'
  - (C) 2' x 4'
  - (D) 4' x 4'
  - (E) 2' x 6'
- PAINT CEILING ACCENT COLOR
- WP-1, WOOD PANEL TYPE - 1

CEILING SYMBOLS

- SEE MECHANICAL
- X' - X" — CEILING ELEVATION
- OTS — OPEN TO STRUCTURE
- P-X — PAINT COLOR OF CEILING. SEE A401 ROOM FINISH LEGEND.
- WP-1 — WOOD PANELS TYPE - 1. SEE A401 ROOM FINISH LEGEND.
- S — SPEAKER , SEE LOW VOLTAGE AND AV DRAWINGS
- AV — AV ENCLOSURE, SEE LOW VOLTAGE AND AV DRAWINGS
- W — WIRELESS POINT - SEE T DRAWINGS
- PE — PHOTO CELL - SEE ELECTRICAL
- OS — OCCUPANCY SENSOR - SEE ELECTRICAL
- CA — CAMERA - SEE T DRAWINGS
- EX — EXIT - SEE ELECTRICAL
- IR — IR DOME - SEE T DRAWINGS
- M — MOTION DETECTOR - SEE T DRAWINGS
- LIGHT FIXTURES, SEE ELECTRICAL



KEY PLAN

PIVOT ARCHITECTURE

REGISTERED ARCHITECT
CURTIS W. WILSON
EUGENE, OREGON
3543
STATE OF OREGON

IBI GROUP

dowa

BID SET

4J EUGENE SCHOOL DISTRICT 4J
120 WEST HILLARD AVENUE, EUGENE, OREGON 97404

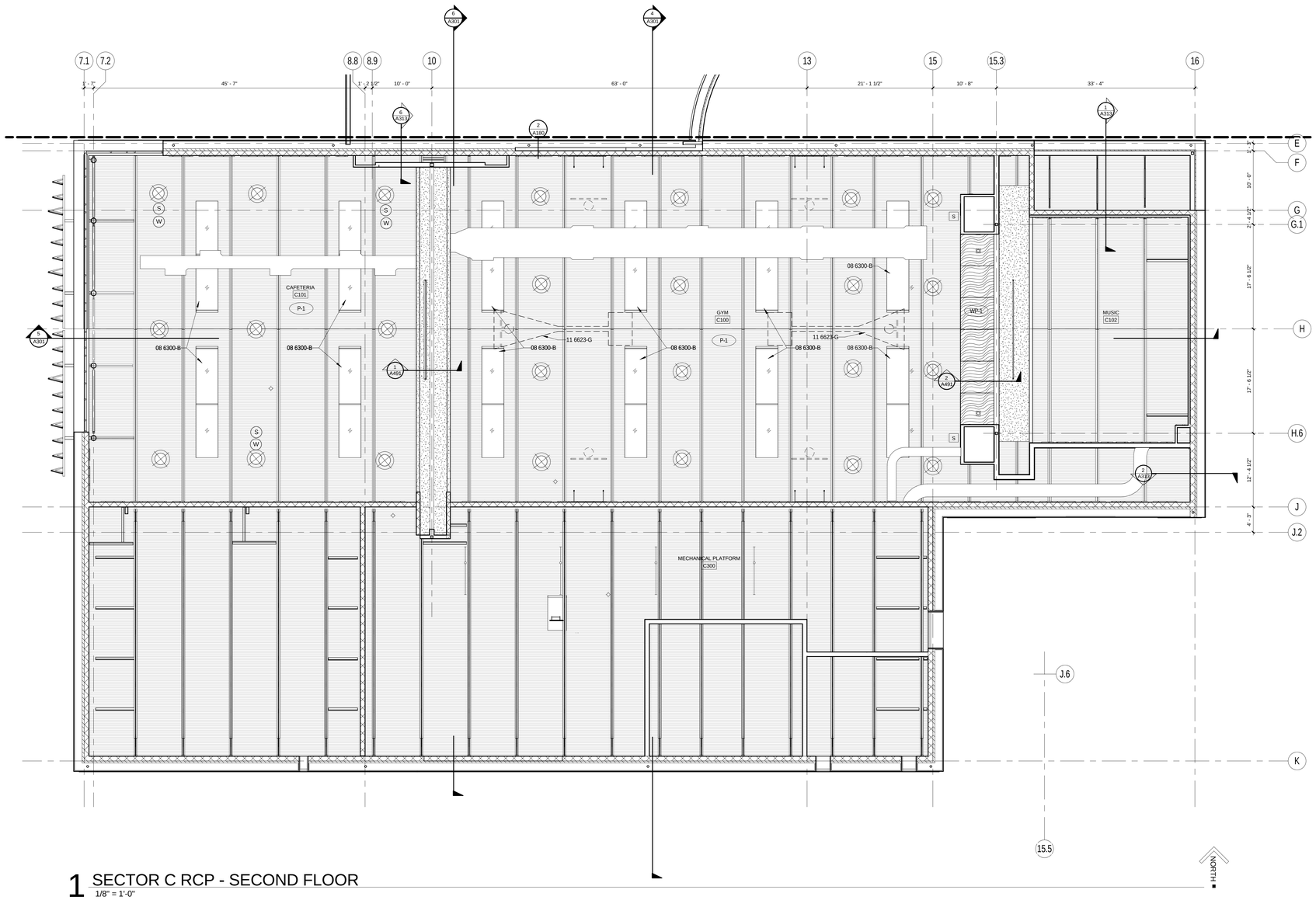
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR B RCP - SECOND FLOOR

PROJECT #	1337.00
ISSUE DATE:	02.12.2016
REVISIONS:	ADD 03 - 03.11.2016

A162

PRINTED ON: 3/11/2016 2:44:06 PM FROM FILE: C:\Pivot_Architecture\Revit_2015\1337_RRES_Arch_Bldg_15_jstapleton.rvt



1 SECTOR C RCP - SECOND FLOOR
1/8" = 1'-0"

GENERAL NOTES - RCP

A. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
B. SLOPED SURFACES WILL APPEAR LESS THAN TRUE LENGTH. SEE SECTIONS AND DETAILS FOR ACTURAL DIMENSIONS
C. ALL CEILING HEIGHTS ARE FORM FINISHED FLOOR UNLESS NOTED OTHERWISE
D. ALL DIMENSIONS FROM FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
E. ALL OPEN TO STRUCTURE CEILINGS TO BE PAINTED P-1, U.N.O.
F. IN CASES OF OPEN TO STRUCTURE CEILINGS WITH SUSPENDED CEILING CLOUDS, PAINT TO EXTEND ABOVE ENTIRE AREAS OF CEILING CLOUDS.
G SOME ELEMENTS NOT SHOWN IN OVERALL PLANS. SEE ENLARGED PLANS FOR COORDINATION OF CEILING ELEMENTS.
H. NO PIPING, CONDUIT, DUCTWORK OR OTHER BUILDING SYSTEM COMPONENTS ARE ALLOWED TO PASS THROUGH THE SKYLIGHT WELLS. ONLY CODE REQUIRED SURFACE MOUNTED ITEMS SUCH AS SPRINKLER HEADS AND FIRE ALARM DEVICES ARE ALLOWED.

KEYNOTE LEGEND - SPECIFICATIONS

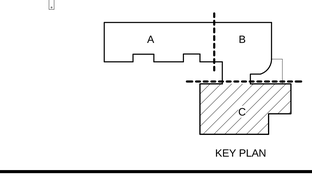
08 6300-B	METAL-FRAMED SKYLIGHTS 4'X20'
11 6623-G	MOTORIZED FORWARD FOLD BACKSTOP

CEILING MATERIAL LEGEND

- ACT - 1: 2 x 4 LAY-IN ACOUSTIC TILE
- ACT - 2: 2 x 4 LAY-IN VINYL ACOUSTIC TILE
- GYPSUM BOARD CEILING. PAINT U.O.N.
- METAL SOFFIT PANELS (EXTERIOR)
- EXPOSED ACOUSTIC DECK WITH EXPOSED STEEL STRUCTURE PAINT . U.O.N.
- WOOD CEILING (LOBBY)
- ACOUSTIC CEILING PANEL
  - A 2' x 8'
  - B 4' x 8'
  - C 2' x 4'
  - D 4' x 4'
  - E 2' x 6'
- PAINT CEILING ACCENT COLOR
- WP-1, WOOD PANEL TYPE - 1

CEILING SYMBOLS

- SEE MECHANICAL
- x' - x" — CEILING ELEVATION
- OTS — OPEN TO STRUCTURE
- P-X — PAINT COLOR OF CEILING. SEE A401 ROOM FINISH LEGEND.
- WP-1 — WOOD PANELS TYPE - 1. SEE A401 ROOM FINISH LEGEND.
- S — SPEAKER , SEE LOW VOLTAGE AND AV DRAWINGS
- AV — AV ENCLOSURE, SEE LOW VOLTAGE AND AV DRAWINGS
- W — WIRELESS POINT - SEE T DRAWINGS
- PE — PHOTO CELL - SEE ELECTRICAL
- OS — OCCUPANCY SENSOR - SEE ELECTRICAL
- CA — CAMERA - SEE T DRAWINGS
- EX — EXIT - SEE ELECTRICAL
- IR — IR DOME - SEE T DRAWINGS
- M — MOTION DETECTOR - SEE T DRAWINGS
- LIGHT FIXTURES, SEE ELECTRICAL



KEY PLAN

PIVOT ARCHITECTURE

REGISTERED ARCHITECT
CURTIS N. WILSON
EUGENE, OREGON
3543
STATE OF OREGON

IBI GROUP

dowa

BID SET

4J
EUGENE SCHOOL DISTRICT 4J
120 WEST HILLYARD AVENUE, EUGENE, OREGON 97404

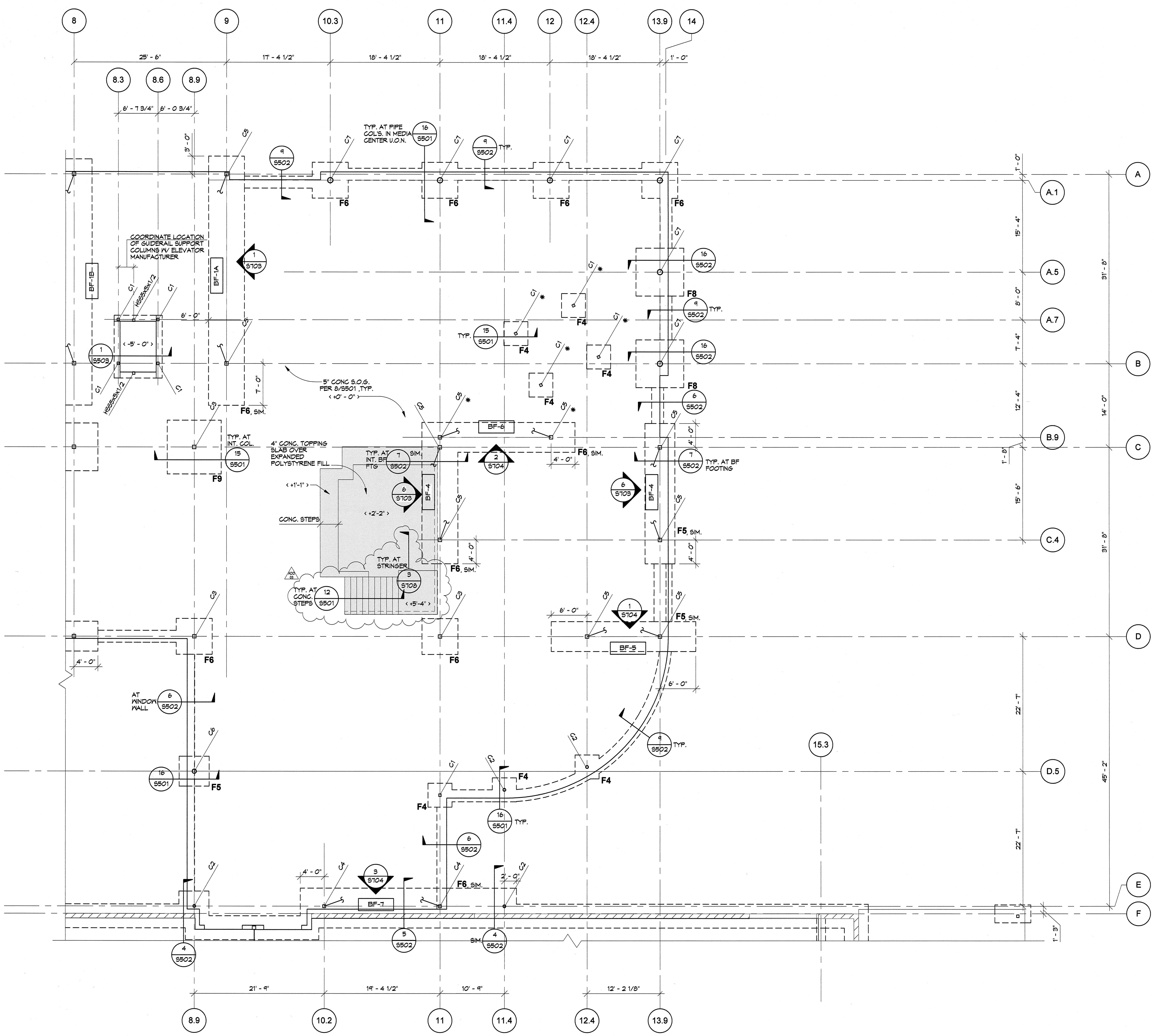
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR C RCP - SECOND FLOOR

PROJECT #:	1337.00
ISSUE DATE:	02.12.2016
REVISIONS:	

A163

PRINTED ON: 3/11/2016 2:44:18 PM FROM FILE: C:\Pivot_Architecture\Revit_2015\1337_RRES_Arch_Bldg_15_sttapleton.rvt



1 SECTOR B - FOUNDATION PLAN
1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ALL INTERIOR DIMENSIONS, WALLS, WALL OPENINGS, DIMENSIONS NOT PROVIDED AND MISC. ARCHITECTURAL FEATURES.
2. SEE S001 FOR GENERAL STRUCTURAL NOTES AND SYMBOLS.
3. SEE CIVIL DRAWINGS FOR TOP OF FINISHED FLOOR DATUM ELEV= TOP OF FINISHED FLOOR SLAB REL. ELEV. = 0'-0"
4. REL. ELEV. OF TOP OF FOOTING = -1'-4", TYP. U.O.N. THUS: T.O. FTG -2'-0"
5. SEE SHEET S501 FOR TYPICAL CONCRETE DETAILS.

FOUNDATION PLAN SYMBOLS

DENOTES CONT. SPREAD FOOTING

DENOTES ISOLATED FOOTING

FX DENOTES FOOTING PER SCHEDULE BELOW

BF-X DENOTES SPECIAL CONCENTRIC BRACED FRAME, SEE ELEVATIONS ON SHEET S703 AND S704

CX * DENOTES HSS COLUMN BELOW SECOND FLOOR ONLY, SEE COLUMN SCHEDULE BELOW

CX CX DENOTES HSS COLUMN FULL HEIGHT TO ROOF, SEE COLUMN SCHEDULE BELOW

C.J. DENOTES SLAB CONSTRUCTION (POUR) PER 5/S501, SEE ARCHITECTURAL SLAB PLANS FOR BLOCK-OUTS AND OTHER C.J. INFORMATION

DENOTES SLAB RECESS OR DEPRESSION, SEE ARCHITECTURAL SLAB PLANS FOR DEPTH, SIZES AND LOCATIONS

FOOTING SCHEDULE

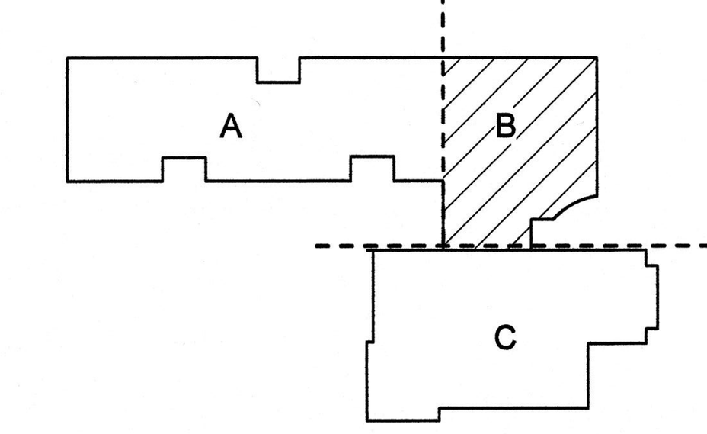
MARK	SIZE WIDTH x LENGTH x DEPTH	LONGIT. REINF. (*)	TRANS. REINF. (*)
F4	4'-0" x 4'-0" x 1'-6"	4-#5	4-#5
F5	5'-0" x 5'-0" x 1'-6"	5-#5	5-#5
F5 SIM.	5'-0" x 'L' x 2'-6"	8-#6 TOP & BTM	SEE DETAIL 7/S502
F6	6'-0" x 6'-0" x 1'-6"	6-#5	6-#5
F6 SIM.	6'-0" x 'L' x 2'-6"	8-#6 TOP & BTM	SEE DETAIL 7/S502
F8	8'-0" x 8'-0" x 2'-0"	8-#6	8-#6
F9	9'-0" x 9'-0" x 2'-0"	8-#7	8-#7

(*) BOTTOM BARS ONLY UNLESS OTHERWISE NOTED
(L) DENOTES LENGTH SHOWN ON PLAN

COLUMN SCHEDULE

ID	COLUMN SIZE	BASE PL DETAIL
C1	HSS 5x5x1/4	10/S701
C2	5" STD STL PIPE	10/S701
C3	HSS 7x7x3/8	10/S701
C4	HSS 6x6x1/2	6/S705
C5	HSS 7x7x5/8	6/S705
C6	8" X-STRONG STL PIPE	10/S701
C7	10" X-STRONG STL PIPE	(*)

(*) SEE DETAIL CALL-OUT ON PLAN



KEY PLAN

PIVOT ARCHITECTURE

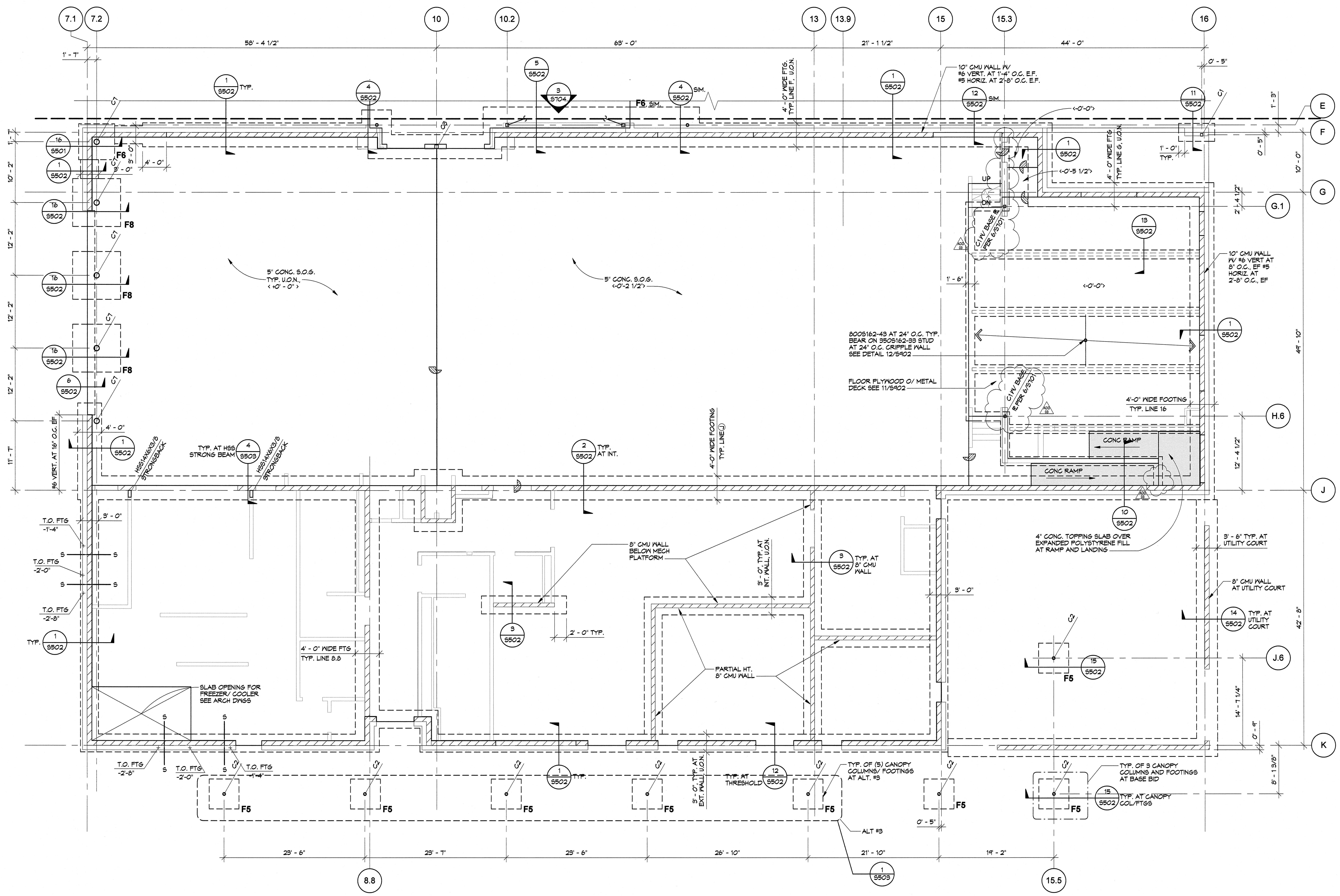
BID DOCUMNET SET
EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE OREGON 97404
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR B - FOUNDATION PLAN

PROJECT #: 1337
ISSUE DATE: 10.22.2015
DRAWN: JPA
CHECKED: VHB
REVISIONS: ADD 03 - 03.11.2016

S112

PRINTED ON: 3/11/2016 11:02:51 AM FROM FILE: C:\Users\arias\Documents\9547.2_RS2015_arias.rvt



1 SECTOR C - FOUNDATION PLAN
1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ALL INTERIOR DIMENSIONS, WALLS, WALL OPENINGS, DIMENSIONS NOT PROVIDED AND MISC. ARCHITECTURAL FEATURES.
2. SEE S001 FOR GENERAL STRUCTURAL NOTES AND SYMBOLS.
3. SEE CIVIL DRAWINGS FOR TOP OF FINISHED FLOOR DATUM ELEV= TOP OF FINISHED FLOOR SLAB REL. ELEV. = 0'-0"
4. REL. ELEV. OF TOP OF FOOTING = -1'-4", TYP. U.O.N. THUS: T.O. FTG -2'-0"
5. SEE SHEET S501 FOR TYPICAL CONCRETE DETAILS.

FOUNDATION PLAN SYMBOLS

DENOTES 10" NOMINAL CMU WALL, 8" CMU WALL WHERE NOTED ON PLAN REINFORCING PER 2/S601, U.O.N.

DENOTES CONT. SPREAD FOOTING

DENOTES ISOLATED FOOTING

FX — DENOTES FOOTING PER SCHEDULE BELOW

CX* — DENOTES HSS COLUMN BELOW SECOND FLOOR ONLY PER PLAN, SEE COLUMN SCHEDULE BELOW

CX CX — DENOTES HSS COLUMN FULL HEIGHT TO ROOF, SEE COLUMN SCHEDULE BELOW

HSS STRONGBACK — DENOTES HSS "STRONGBACK" COLUMN FULL HEIGHT TO ROOF, SIZE PER PLAN SEE DETAIL -/S- FOR BASE CONNECTION

C.J. — DENOTES SLAB CONSTRUCTION (POUR) PER 5/S501, SEE ARCHITECTURAL SLAB PLANS FOR BLOCK-OUTS AND OTHER C.J. INFORMATION

DENOTES SLAB RECESS OR DEPRESSION, SEE ARCHITECTURAL SLAB PLANS FOR DEPTH, SIZES AND LOCATIONS

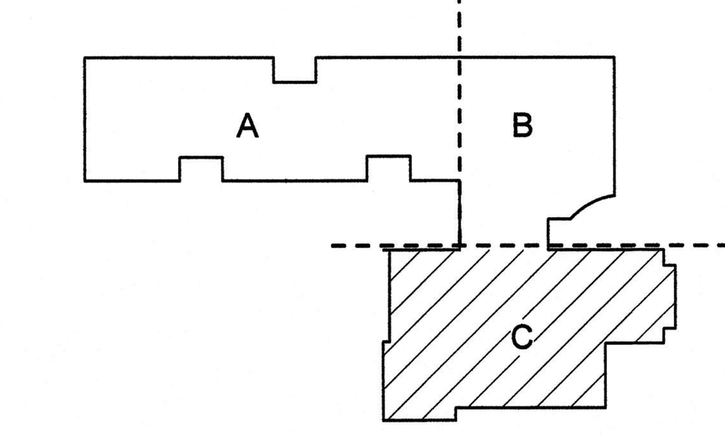
S — S DENOTES STEP IN FOOTING, SEE DETAIL 11/S501

FOOTING SCHEDULE			
MARK	SIZE WIDTH x LENGTH x DEPTH	LONGIT. REINF. (**)	TRANS. REINF. (**)
F4	4'-0" x 4'-0" x 1'-6"	4-#5	4-#5
F5	5'-0" x 5'-0" x 1'-6"	5-#5	5-#5
F6	6'-0" x 6'-0" x 1'-6"	6-#5	6-#5
F6 SIM.	6'-0" x 'L' x 2'-6"	8-#6 TOP & BTM	SEE DETAIL 7/S502
F8	8'-0" x 8'-0" x 2'-0"	8-#6 TOP & BTM	8-#6 TOP & BTM

(*) INDICATES LENGTH PER PLAN
(**) BOTTOM BARS ONLY UNLESS OTHERWISE NOTED

COLUMN SCHEDULE		
ID	COLUMN SIZE	BASE PL DETAIL
C1	HSS 5x5x1/4	10/S701
C2	5" STD STL PIPE	10/S701
C7	10" X-STRONG STL PIPE	(*)

(*) SEE DETAIL CALL-OUT ON PLAN



KEY PLAN

PIVOT ARCHITECTURE

HOHBACH-LEWIN, INC.
STRUCTURAL ENGINEERS
296 East 5th Ave. Suite 302
Eugene, OR 97401
(541) 349-1701, Fax (541) 349-1702

BID DOCUMNET SET
EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE OREGON 97404
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

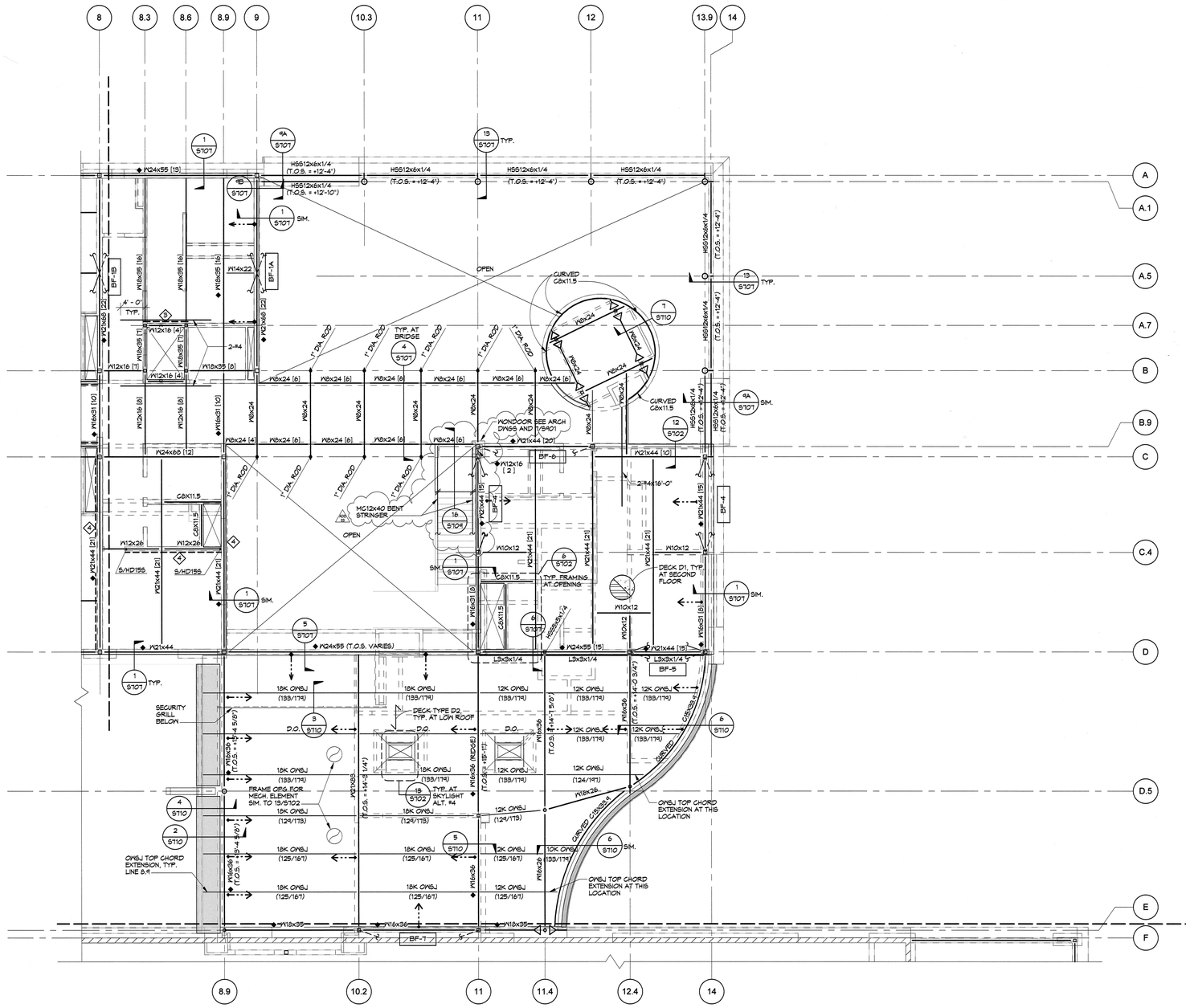
SECTOR C - FOUNDATION PLAN

PROJECT #:	1337	REVISIONS:
ISSUE DATE:	10.22.2015	
DRAWN:	JPA	ADD 03 - 03.11.2016
CHECKED:	VHB	

S113

HOHBACH-LEWIN #9547.2

PRINTED ON: 3/11/2016 11:02:52 AM FROM FILE: C:\Users\arias\Documents\9547.2_RS2015_arias.rvt



1 SECTOR B - SECOND FLOOR AND LOW ROOF FRAMING PLAN

1/8" = 1'-0"

SECOND FLOOR PLAN NOTES

1. SEE S001 FOR GENERAL STRUCTURAL NOTES AND SYMBOLS.
2. T.O. CONCRETE = 14'-0" U.O.N.
3. T.O. STEEL = BOTTOM OF METAL DECK ELEVATION = +13'-8" TYPICAL U.O.N. ON PLAN.
4. FLOOR BEAMS ARE EQUALLY SPACED BETWEEN GRIDS UNLESS OTHERWISE NOTED.
5. SEE ARCH DRAWINGS FOR ALL FLOOR OPENINGS, INCLUDING STAIRS AND ELEVATOR.
6. SEE DETAILS 142/S101 FOR TYPICAL WF BEAM TO WF BEAM CONNECTION.
7. SEE DETAIL 546/S101 FOR TYPICAL WF BEAM TO HSS COLUMN CONNECTION.
8. SEE 1/S102 FOR STEEL FLOOR DECK ATTACHMENT.
9. SEE SHEETS S101 AND S102 FOR TYPICAL STEEL DETAILS NOT NOTED.
10. PROVIDE 2-#4 CONT. CHORD BARS IN CONCRETE OVER METAL DECK AT PERIMETER, STAIR OPENINGS, RE-ENTRANT CORNERS, BALCONIES, ETC.

SECOND FLOOR PLAN SYMBOLS

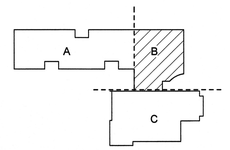
- WALLS BELOW FLOOR
- WALLS ABOVE FLOOR
- 4 — FIRE-TREATED PLYWOOD SHEATHED LIGHT GAUGE METAL STUD SHEARWALL ABOVE THIS LEVEL, SEE SCHEDULE, DETAIL 1/S402
- DENOTES CONCRETE FILL O/ METAL DECK PER SCHEDULE, DETAIL 1/S102
- DENOTES BEAM BOTTOM FLANGE BRACING PER DETAIL 8/S102
- ◆ #x — DENOTES A MEMBER OF THE SEISMIC LOAD RESISTANCE SYSTEM. SEE DETAIL 2/S105 FOR REQUIREMENTS.
- [x] — DENOTES NUMBER OF SHEAR STUDS, SEE DETAIL 4/S102
- S/HDx — DENOTES HOLDOWN PER SCHEDULE, SEE DETAILS 9 & 13/S402
- DENOTES NON-SEISMIC MOMENT RESISTING CONNECTIONS

ROOF FRAMING NOTES

1. SEE SHEET S001 FOR GENERAL STRUCTURAL NOTES AND SYMBOLS.
2. SEE ARCHITECTURAL DRAWINGS FOR T.O. STEEL, ELEVATIONS NOT NOTED, ROOF SLOPES, ETC.
3. JOISTS ARE EQUALLY SPACED BETWEEN GRID LINES U.O.N.
4. SEE 1/S102 FOR ROOF DECK ATTACHMENT.
5. STEEL DETAILS 13/14/S102 FOR FRAMING AT DECK OPENINGS FOR SKYLIGHTS.
6. SEE DETAILS 142/S101 FOR TYPICAL WF BEAM TO WF BEAM CONNECTION.
7. SEE DETAIL 5/S101 FOR TYPICAL WF BEAM TO HSS COLUMN CONNECTION.
8. SEE SHEETS S101 AND S102 FOR TYPICAL STEEL DETAILS NOT NOTED.
9. ALL ROOF BEAMS REQUIRE BOTTOM FLANGE BRACING AT 12'-0" O.C., MAX; SEE DETAIL 8/S102.

ROOF FRAMING SYMBOLS

- DENOTES WALL BELOW ROOF
- DENOTES PARAPET WALL
- DX — DENOTES DIRECTION OF METAL ROOF DECK SPAN AND DECK TYPE, SEE 1/S102
- ◆ #x — DENOTES A MEMBER OF THE SEISMIC LOAD RESISTANCE SYSTEM. SEE DETAIL 2/S105 FOR REQUIREMENTS.
- DENOTES BEAM BOTTOM FLANGE BRACING PER DETAIL 8/S102
- 24KOWSJ — DENOTES OPEN WEB STEEL JOIST (24=DEPTH BY SJI); "K"="SERIES" AS DESIGNATED BY SJI. SEE 2/S106 FOR OWJ NOTES AND LOADING INFORMATION.
- (XX/XX) — DENOTES UNFACTORED UNIFORMLY DISTRIBUTED DEAD LOAD/SNOW LOAD IN POUNDS PER LINEAR FOOT (PLF)
- P_{AXIAL} ±66k — DENOTES STRENGTH LEVEL OWJ DESIGN AXIAL FORCE (WIND/SEISMIC). SEE NOTE 9 IN DETAIL 2/S105 FOR TYPICAL OWJ AXIAL LOAD WHEN NOT NOTED ON PLAN.
- (T.O.S. = +X'-X") — DENOTES TOP OF STEEL/ BOTTOM OF ROOF



KEY PLAN

PIVOT ARCHITECTURE

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 65387PE Vikki Bawn OREGON JAN. 23, 2002 VIKKI H. BOUNCHER Expires: 12-31-17

IBI GROUP

HOHBACH-LEWIN, INC. STRUCTURAL ENGINEERS 736 East 13th Ave. Eugene, Oregon 97401 Suite 202 (541) 344-1701 Fax (541) 344-1702

BID DOCUMNET SET

EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE OREGON 97404

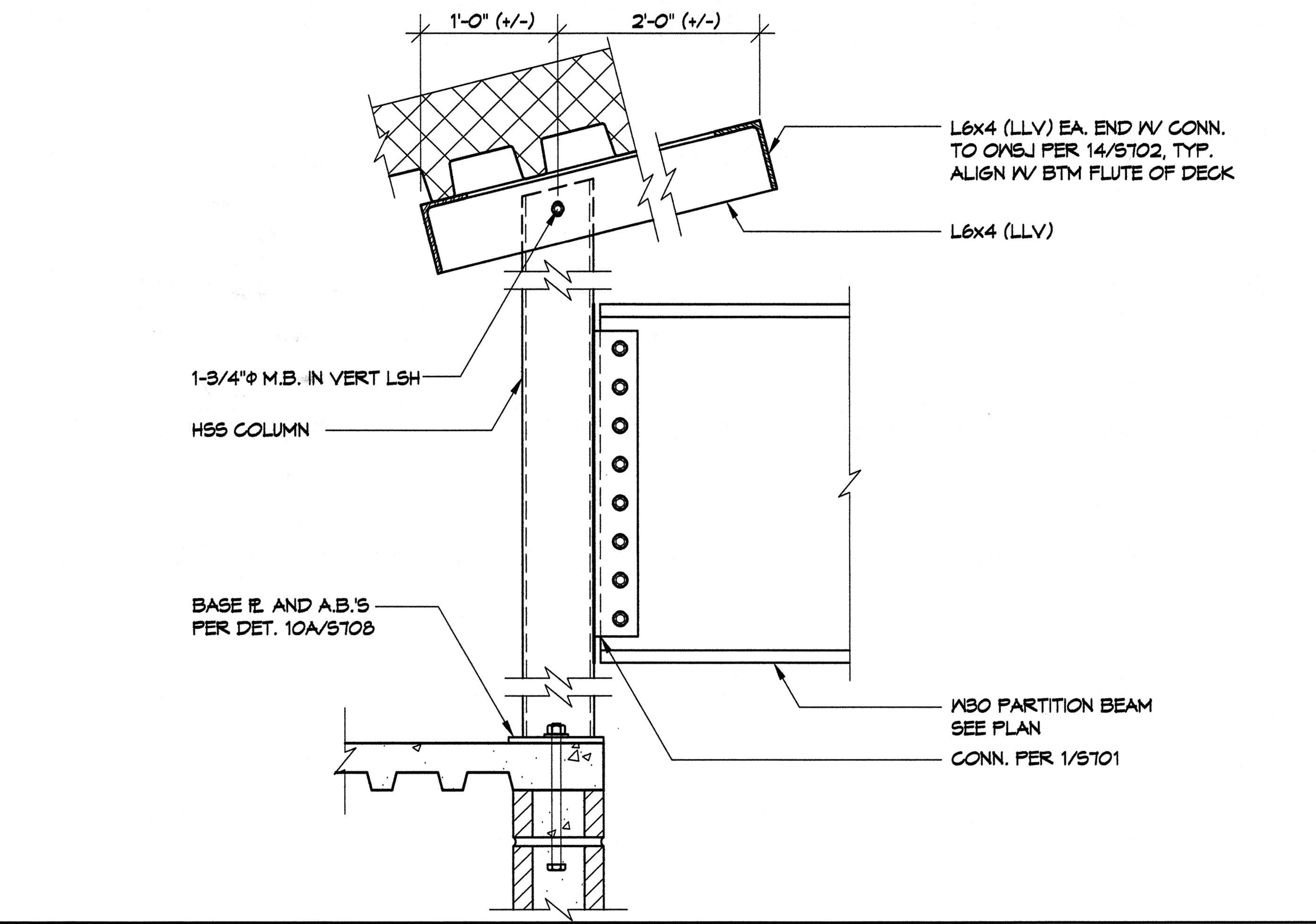
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR B - SECOND FLOOR AND LOW ROOF FRAMING PLAN

PROJECT #:	1337
ISSUE DATE:	10.22.2015
DRAWN:	JPA
CHECKED:	VHB
REVISIONS:	ADD 03 - 03.11.2016

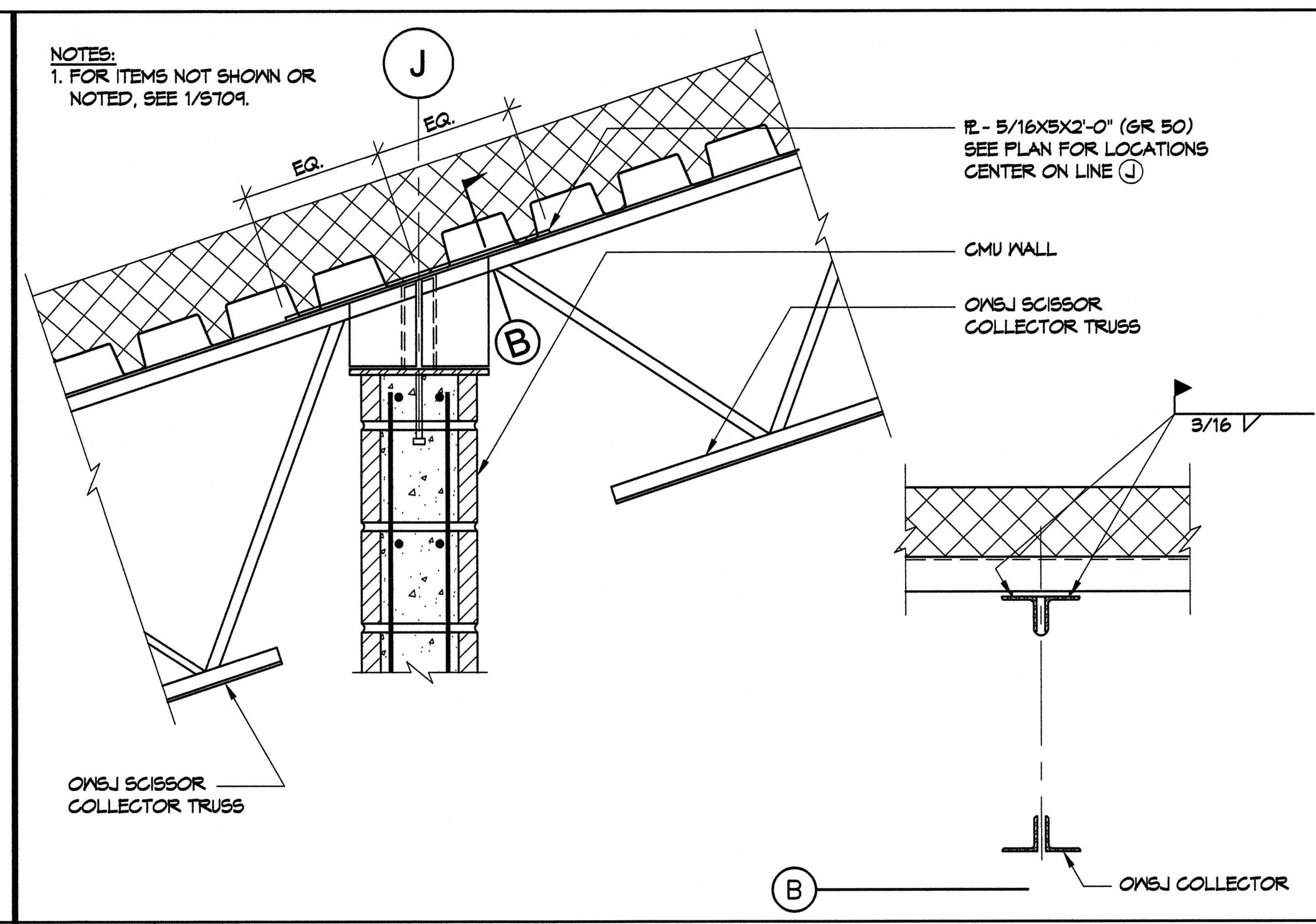
S122

HOHBACH-LEWIN #9547.2



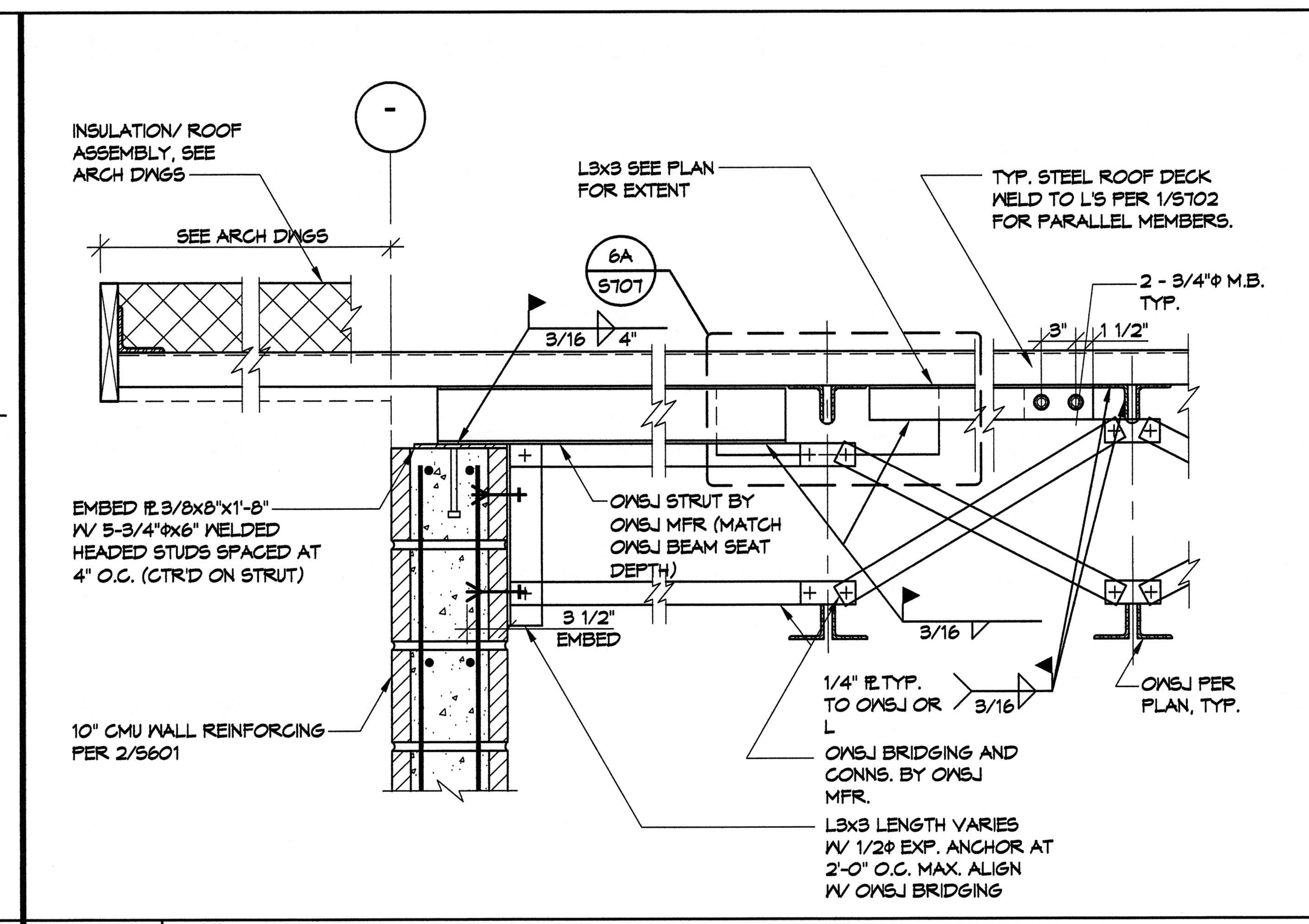
13 PARTITION BEAM CONNECTION TO HSS COLUMN

1"=1'0"



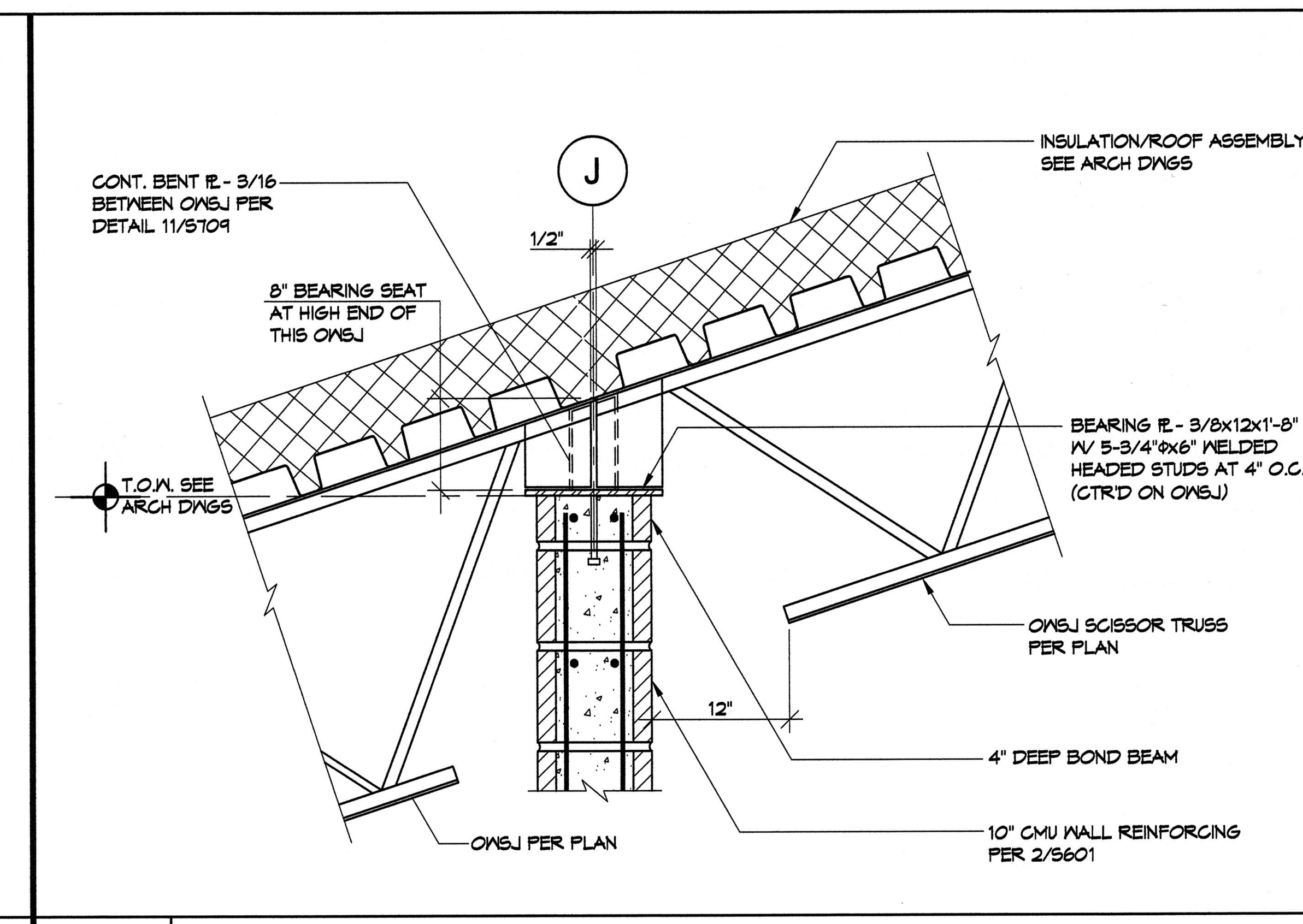
9 OWSJ COLLECTOR SPLICE AT CMU WALL

1"=1'0"



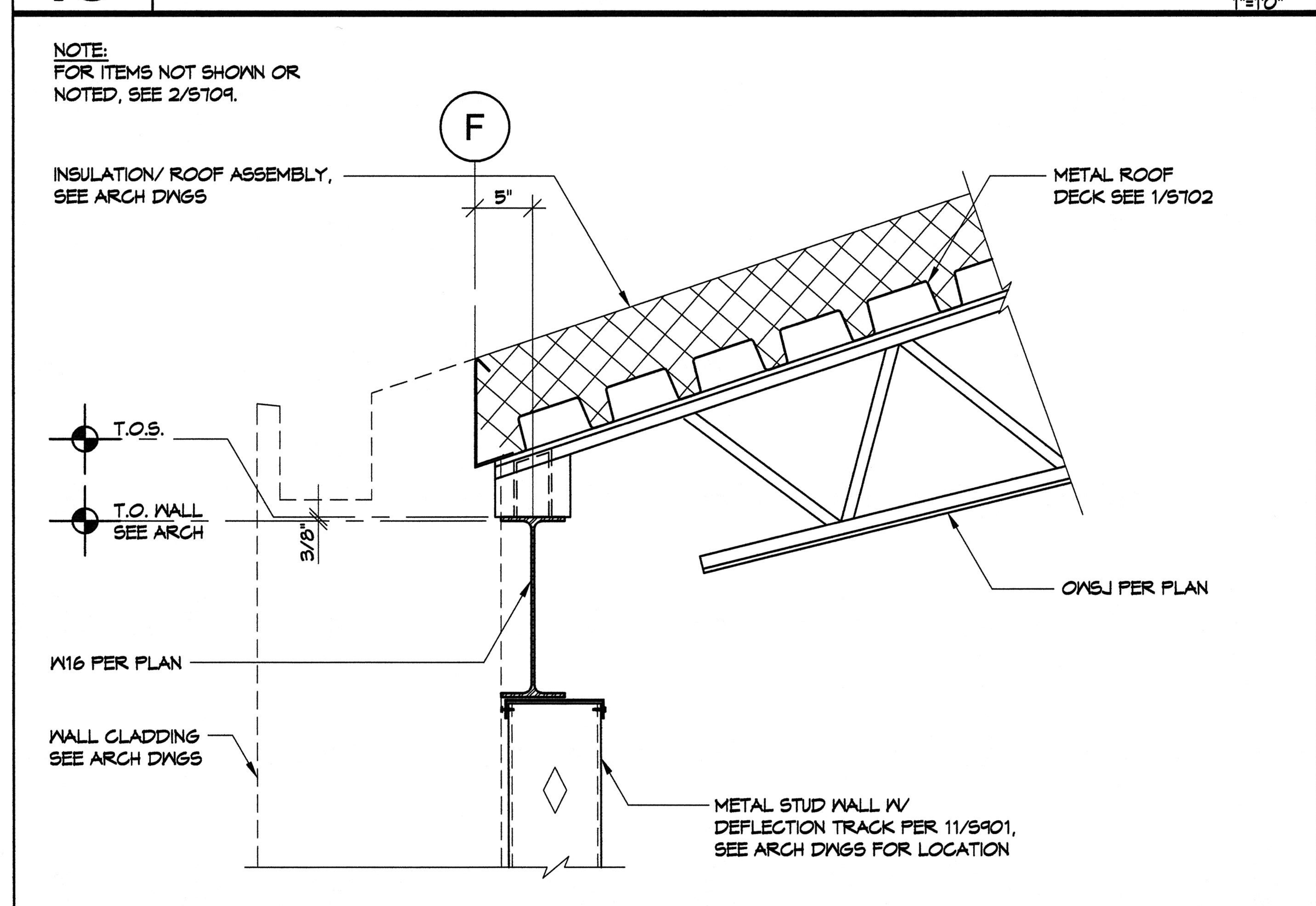
5 ROOF AT GABLED END - SECTOR C

1"=1'-0"



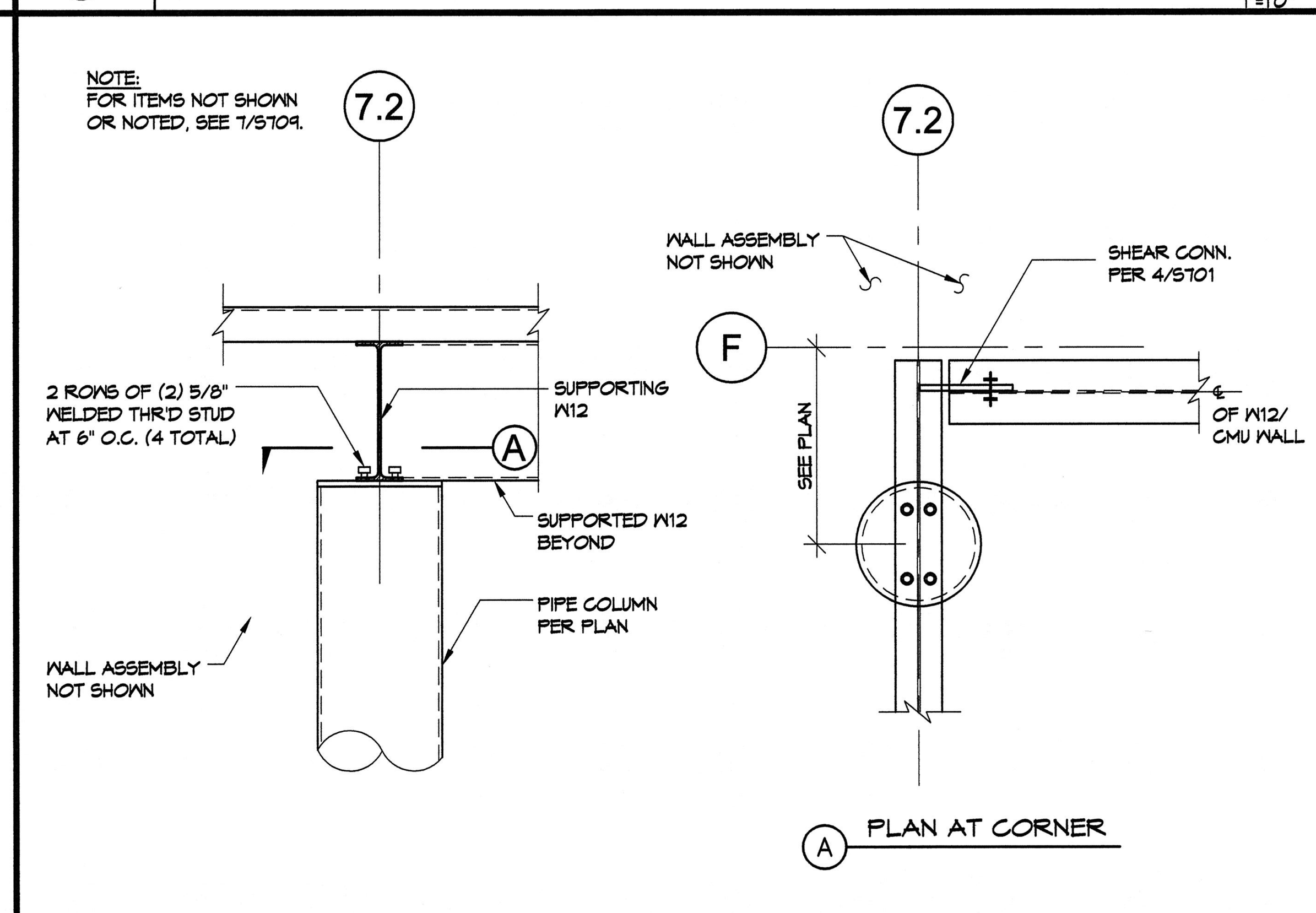
1 OWSJ TO INTERIOR CMU WALL - SECTOR C

1"=1'-0"



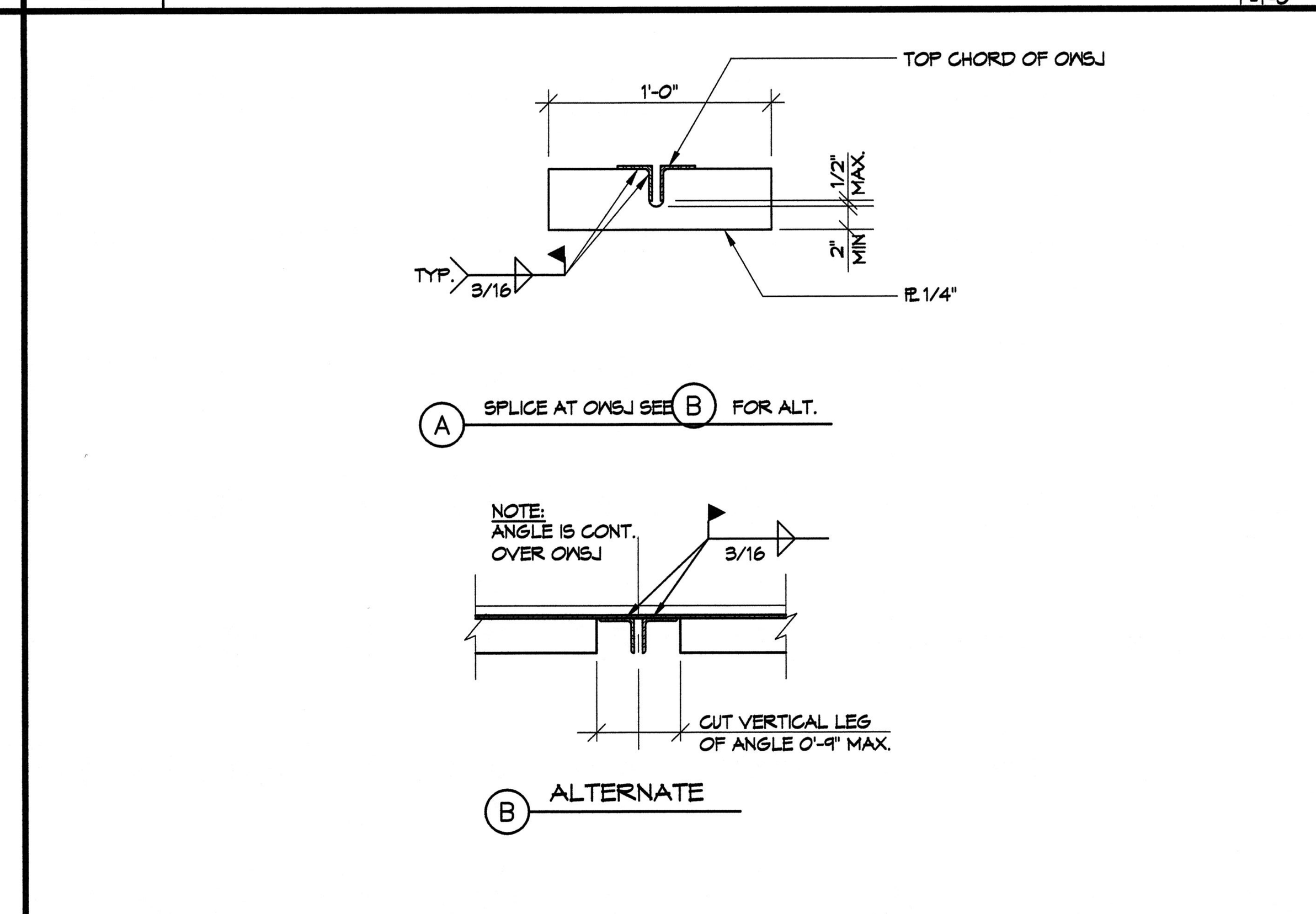
14 OWSJ CONN. AT VESTIBULE - SECTOR C

1"=1'-0"



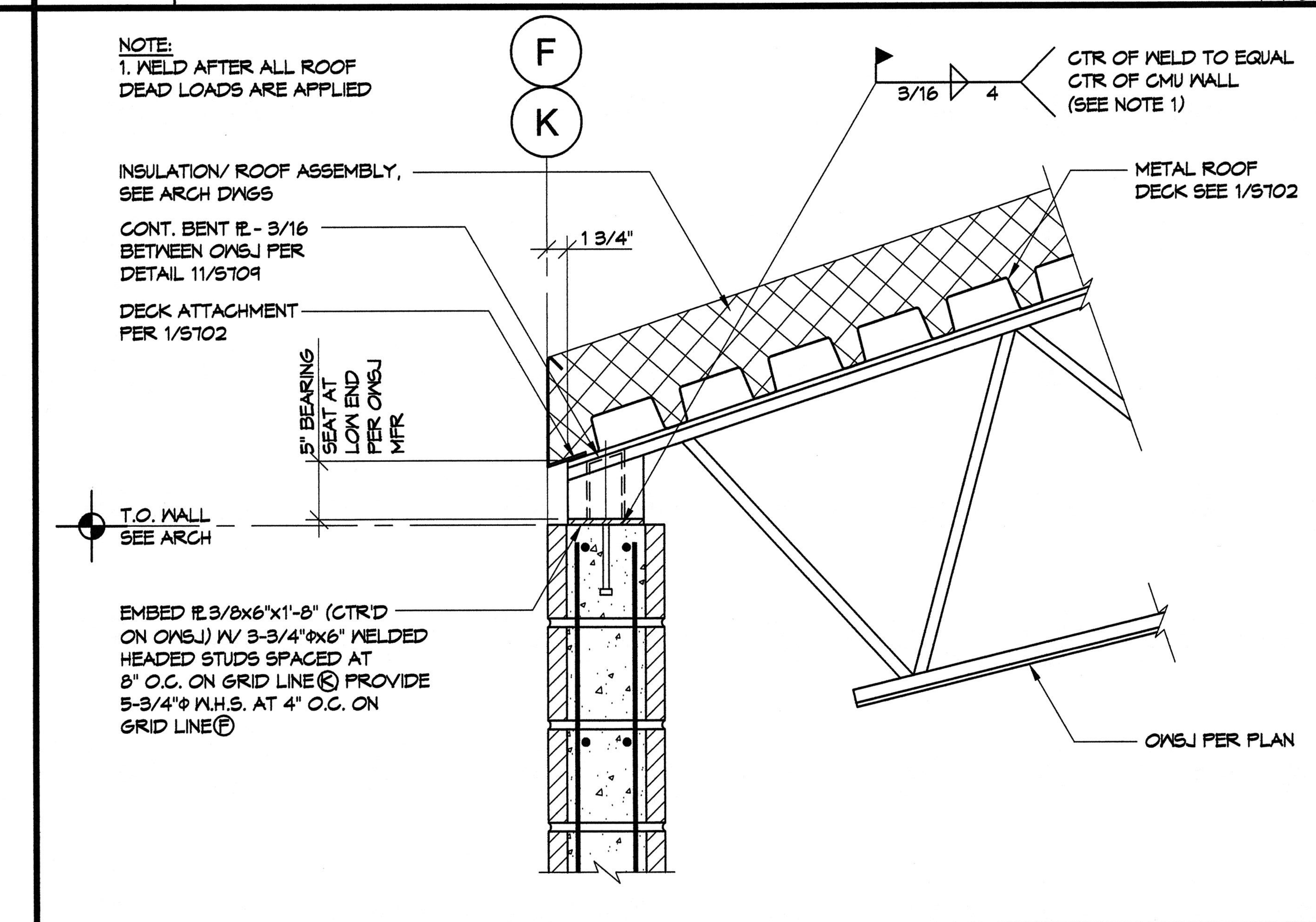
10 NORTHWEST CORNER COLUMN IN CAFETERIA

1"=1'0"



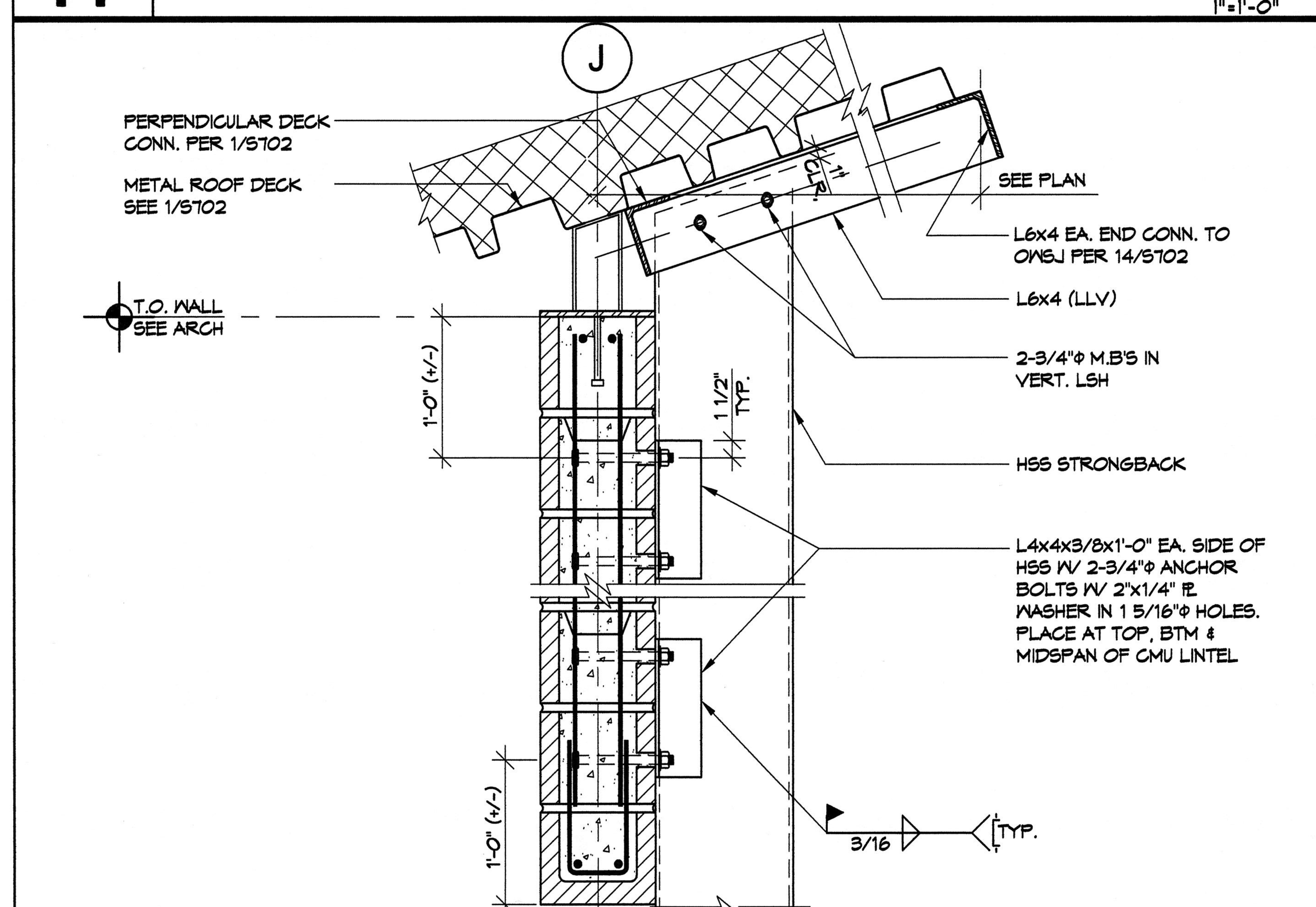
6 STRUT/ANGLE SPLICE AT OWSJ

1"=1'-0"



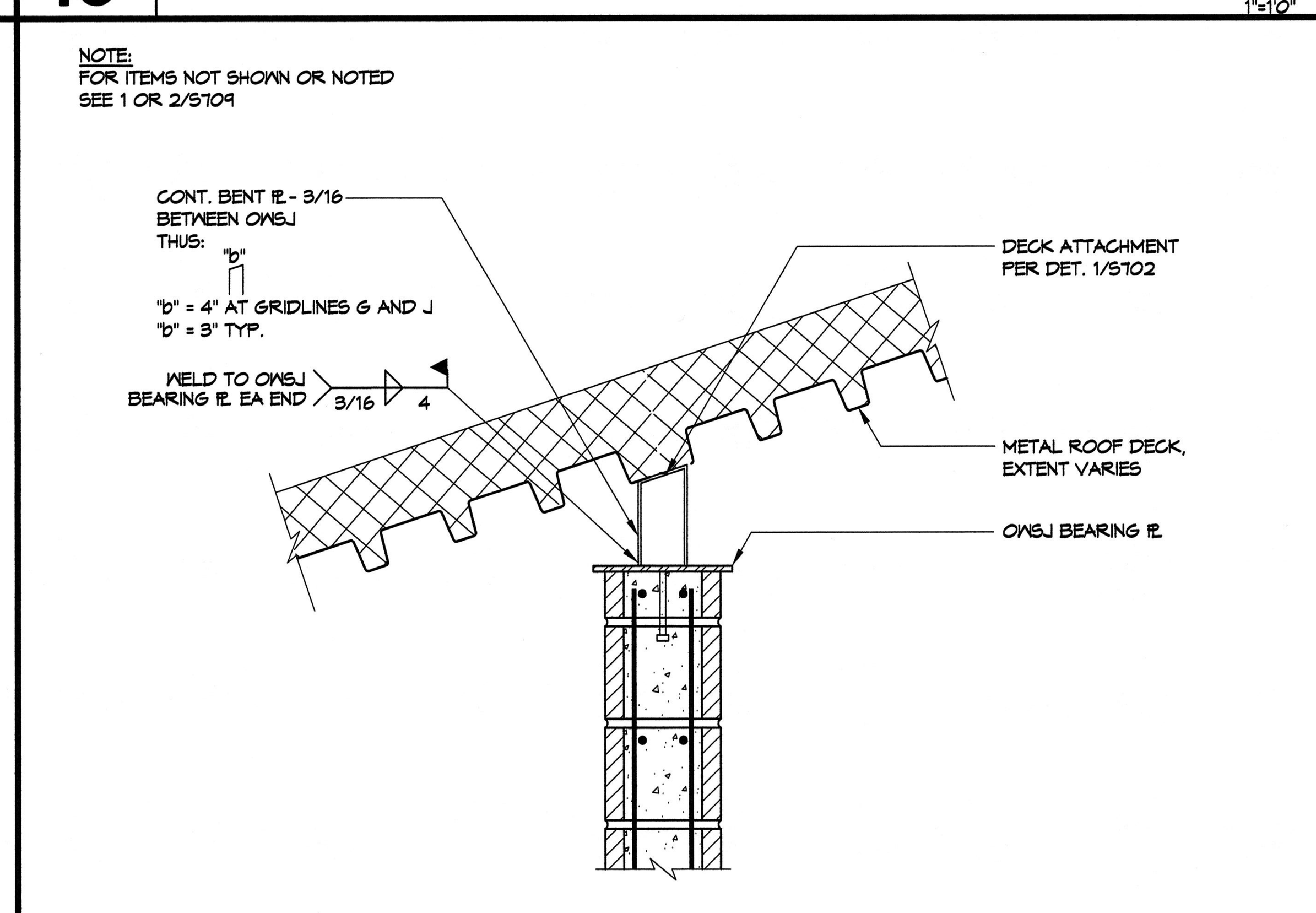
2 OWSJ CONN. AT CMU WALL - SECTOR C

1"=1'-0"



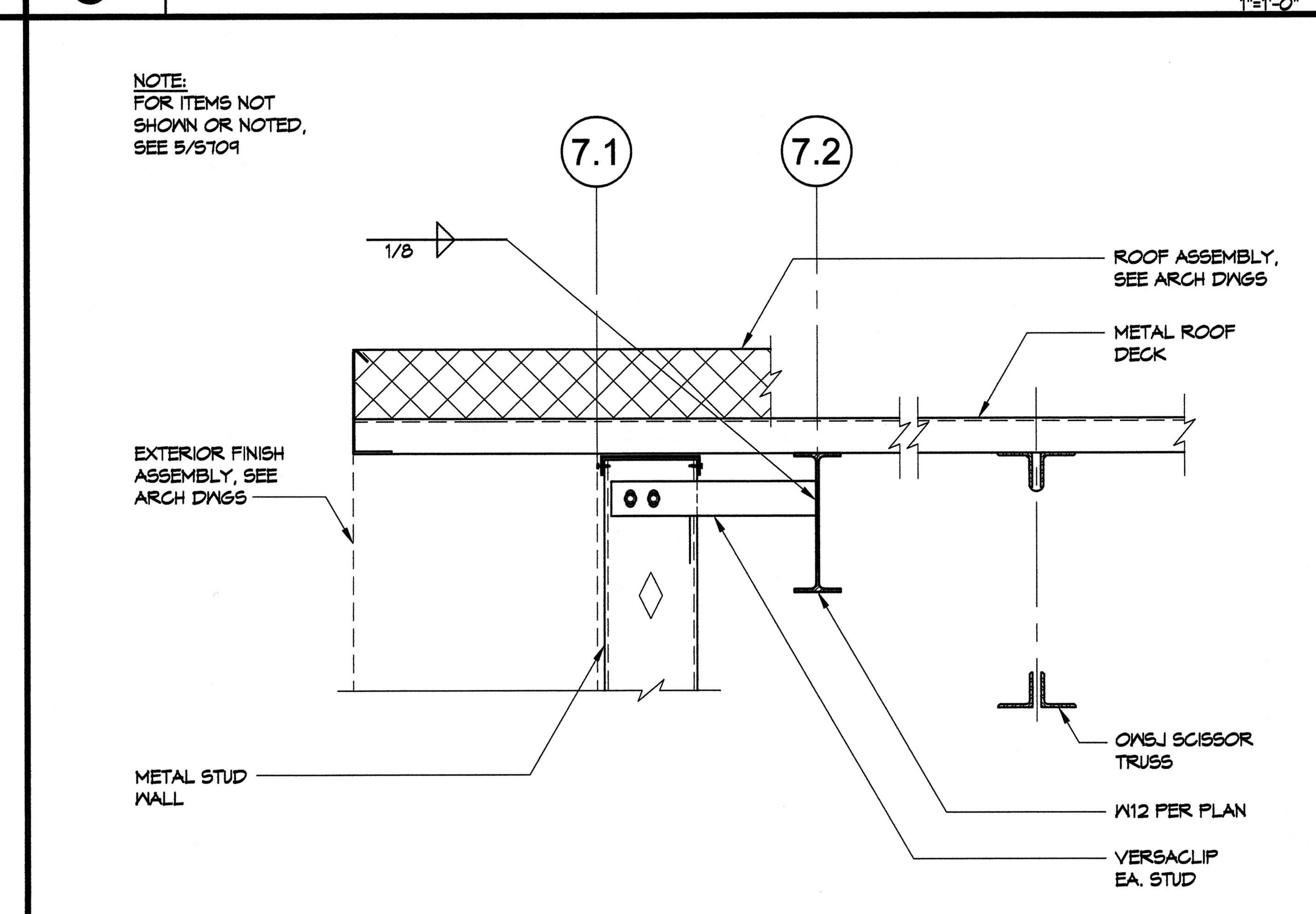
15 HSS STRONG-BACK CONN. AT ROOF

1"=1'-0"



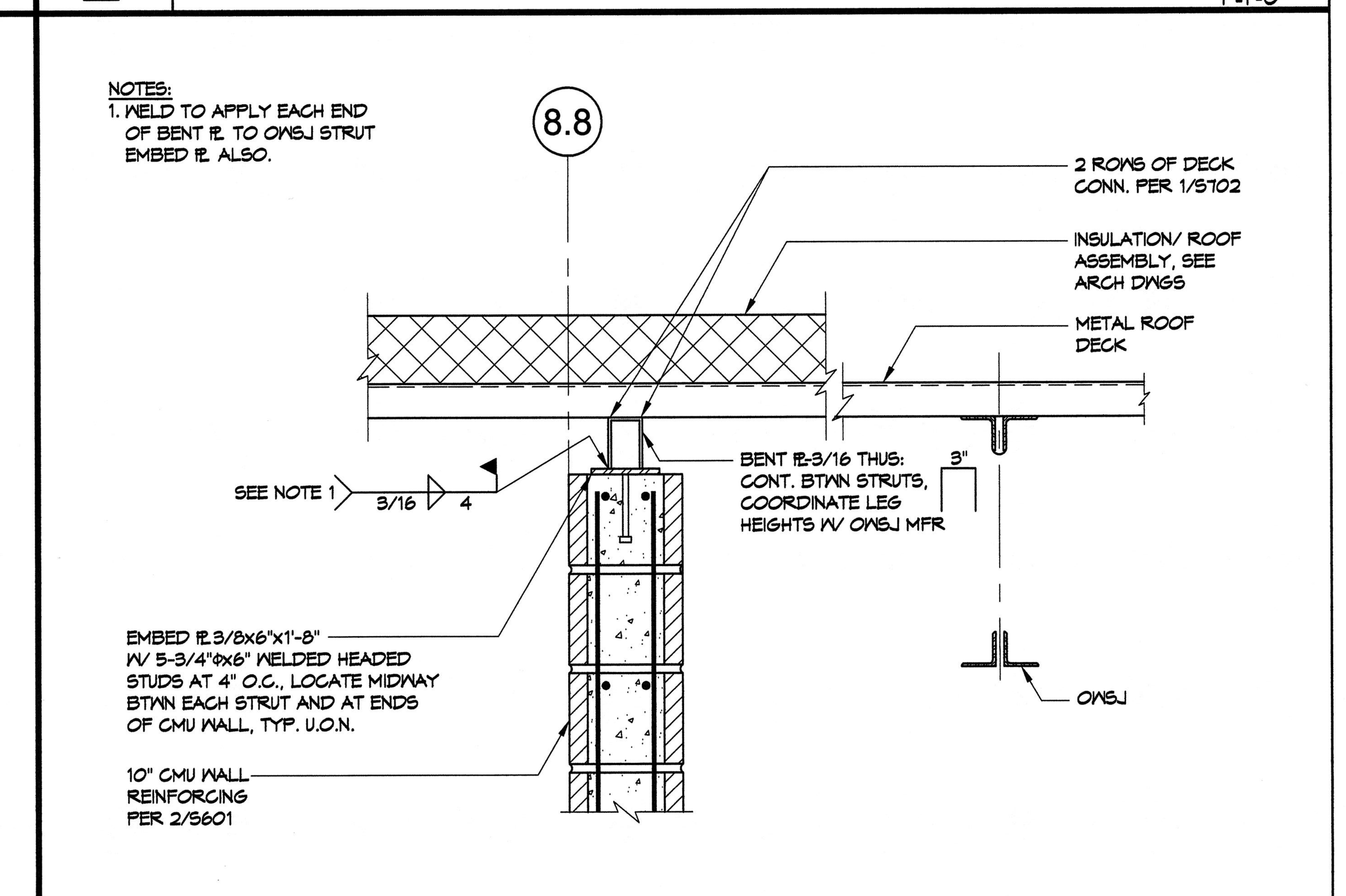
11 BLOCKING BETWEEN OWSJ - SECTOR C

1"=1'-0"



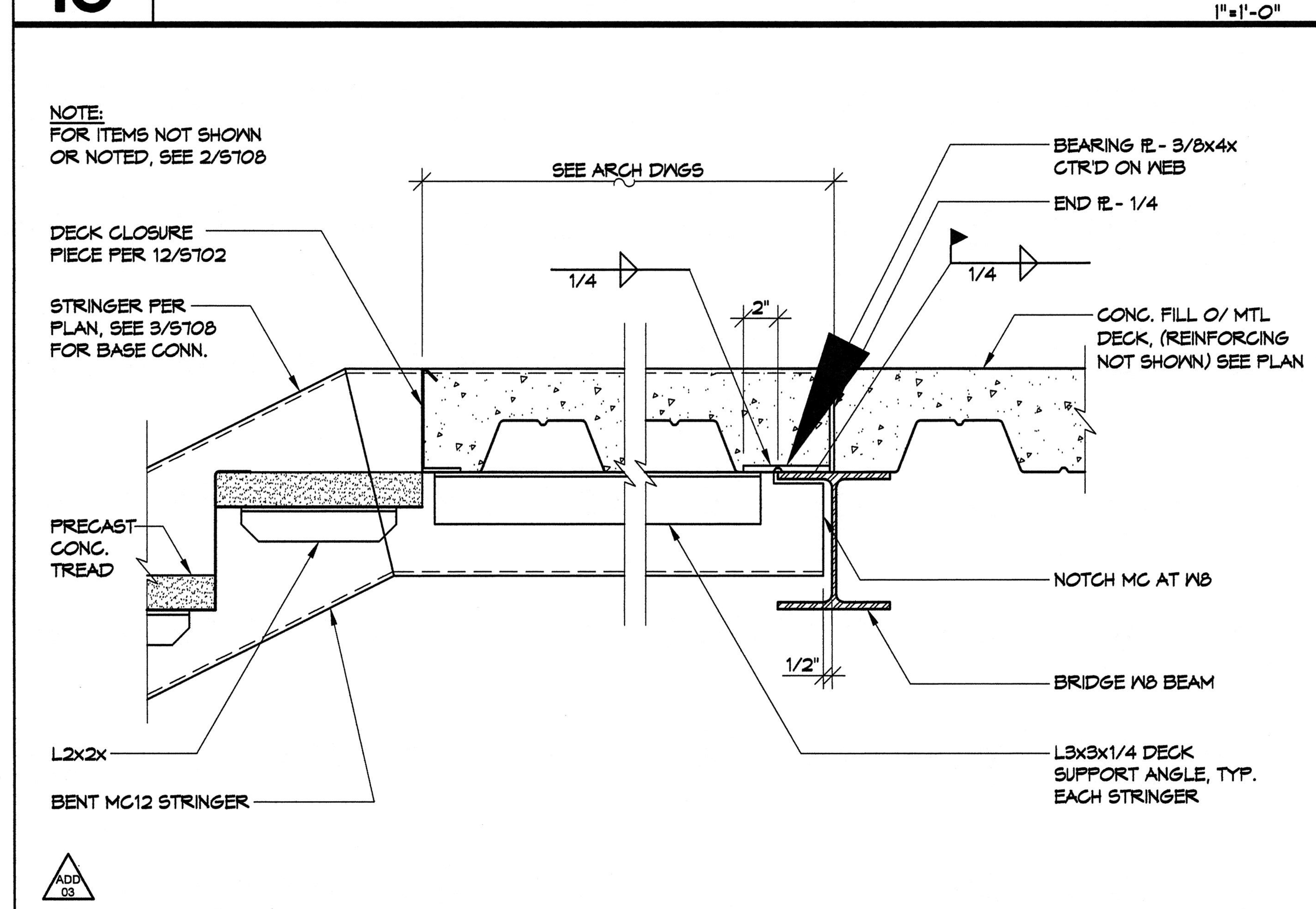
7 ROOF SECTION AT CAFETERIA WEST WALL

1"=1'-0"



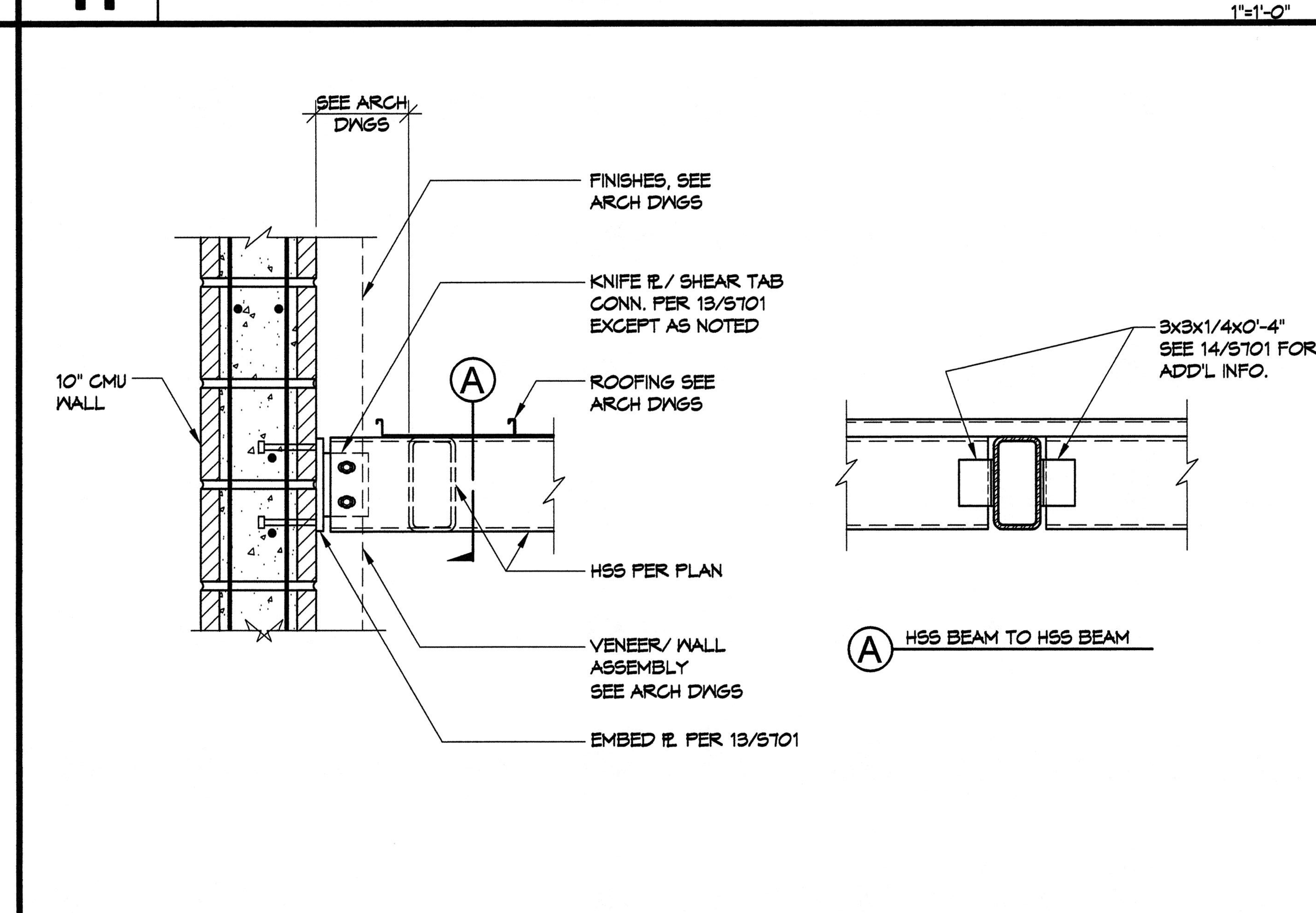
3 TOP OF CMU WALL CONN. AT LINE 8.8

1"=1'-0"



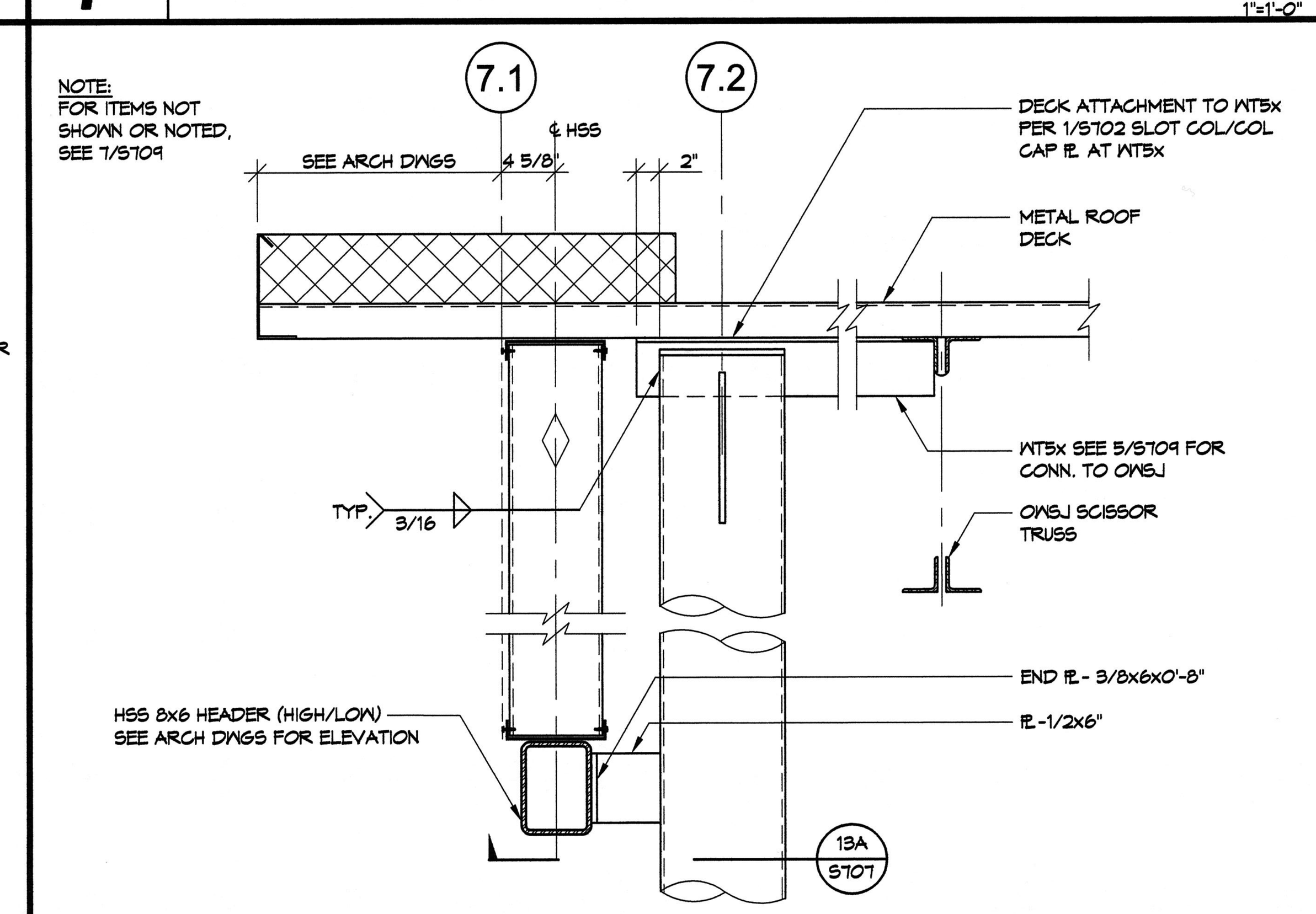
16 DOWN STAIR STRINGER ATTACHMENT AT MEDIA CENTER

1 1/2"=1'-0"



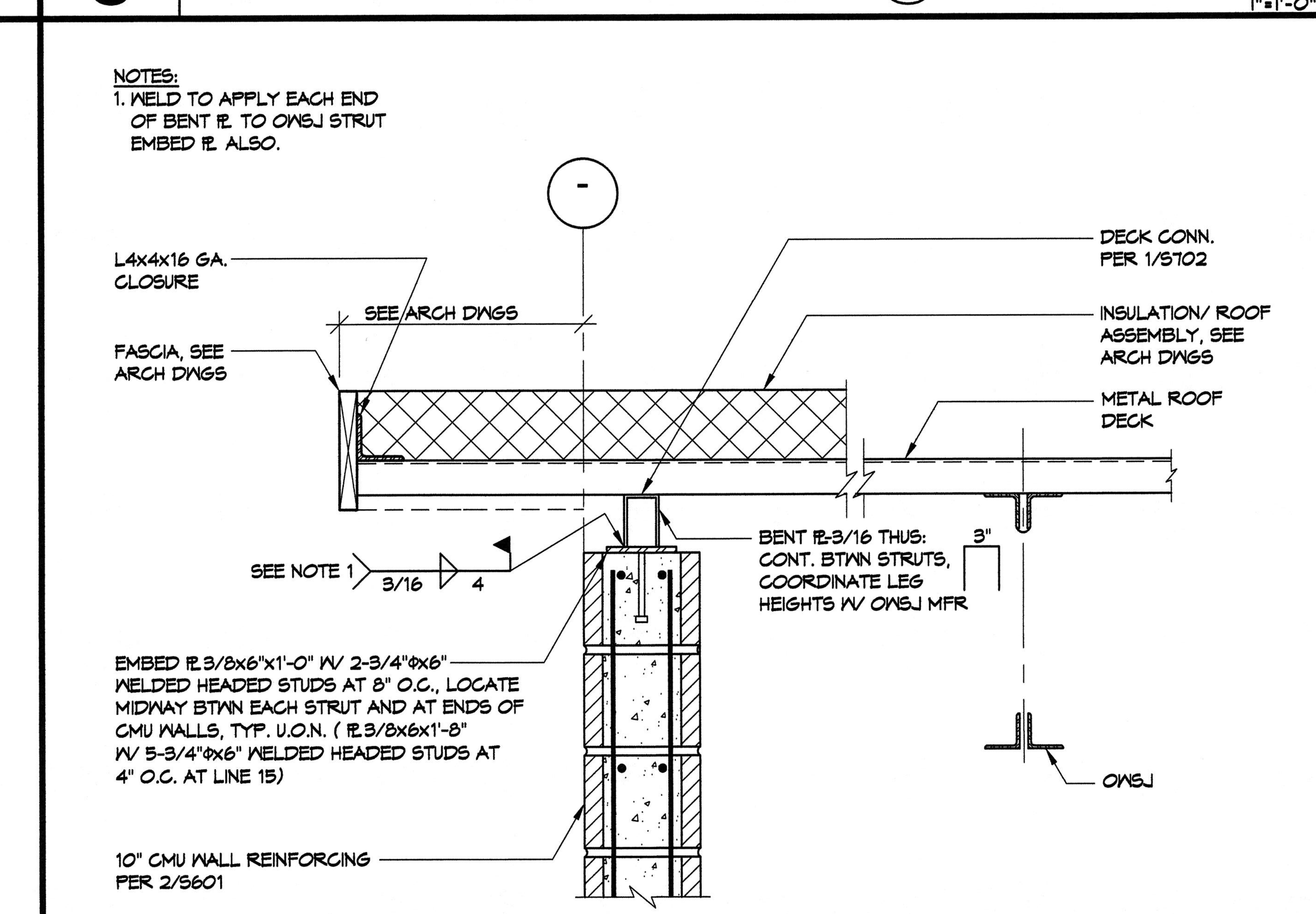
12 SECTOR C SOUTH CANOPY CONNECTION AT BUILDING

1"=1'-0"



8 SECTION AT PIPE COLUMN - CAFETERIA WEST WALL

1"=1'-0"



4 ROOF AT GABLED END - SECTOR C

1"=1'-0"

PIVOT ARCHITECTURE

Expires: 12-31-17

IBI GROUP

HOHBACH-LEWIN, INC.
STRUCTURAL ENGINEERS
296 East 5th Ave. Suite 302
Eugene, OR 97401
(541) 349-1701 Fax (541) 349-1702

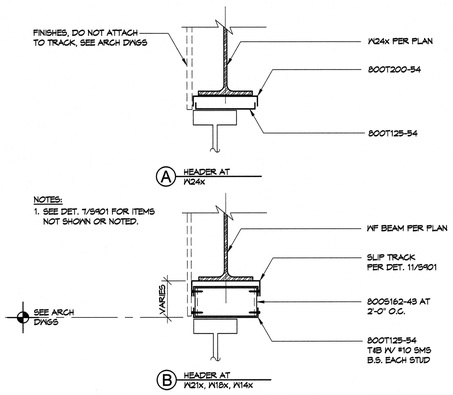
4J BID DOCUMENT SET
EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE OREGON 97404
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

STEEL DETAILS SECTOR C

PROJECT #:	1337
ISSUE DATE:	02.12.2016
DRAWN:	AMA
CHECKED:	VHB
REVISIONS:	ADD 03 - 03.11.2016

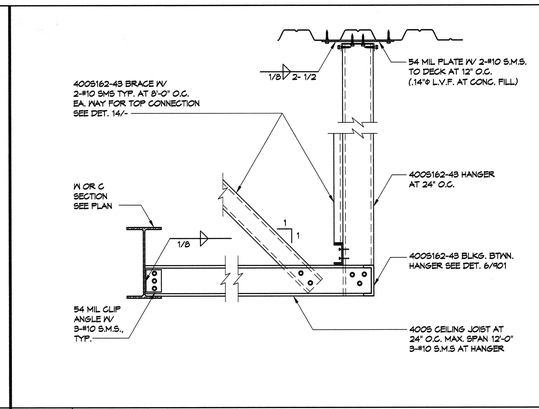
S709

H-L #9547.2



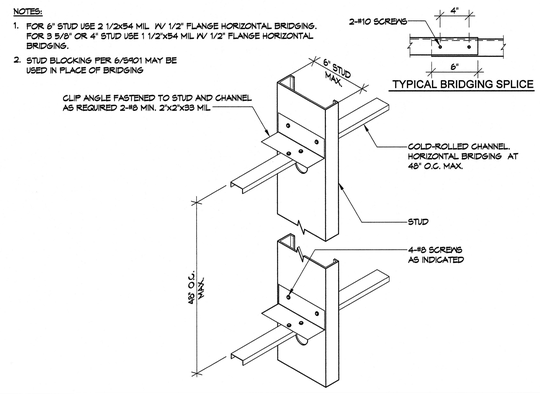
13 HEADERS AT 2ND FLOOR WF BEAM

1 1/2"=1'-0"



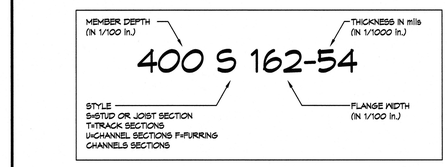
9 METAL STUD SOFFIT FRAMING TYPICAL EXTERNAL BEARING WALL

1"=1'-0"



5 TYPICAL BRIDGING

N.T.S.



MINIMUM DELIVERABLE THICKNESS (MILS)	GAUGE	DESIGN THICKNESS (INCHES)
18	25	.0188
27	22	.0283
33	20	.0346
43	18	.0451
54	16	.0566
68	14	.0713
97	12	.1017

1 TYPICAL LIGHT GAUGE STUD DESIGNATIONS

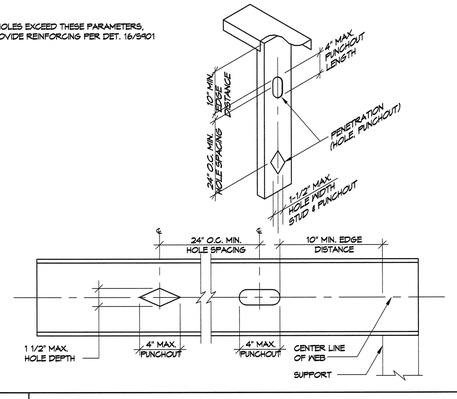
NOTES:
1. STUDS SHOWN IN THE TABLES ABOVE ARE MINIMUM REQUIRED (SEE NOTE 2 FOR EXCEPTION). SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
2. AT STRUCTURAL SHEARWALLS, PROVIDE 800S162-54 STUDS AT 24" O.C. OR 600S162-54 STUDS AT 24" O.C. WHEN SHOWN ON THE ARCHITECTURAL DRAWINGS AS A 6" WALL.
3. SEE DETAILS 8/5902 AND 9/5902 FOR WALL STUDS AT BRACED FRAMES IN EXTERIOR WALLS.
4. STUS AT 16" O.C. AT GMU VENEER, SEE ARCH DRAWINGS.
5. AT FIRST FLOOR WALLS ONLY, CONTRACTORS OPTION TO USE ¼"ø EXPANSINO ANCHORS W/ 2 1/2" EMBEDMENT AT 4'-0" O.C.

EXTERIOR WALL STUD - NON BEARING PARTITION

WALL HEIGHT	STUD SECTION (3)	SPACING	1/4"ø TITEN HD BASE (5) TRACK ANCHOR SPACING
∠ 14'	800S162-43	24" O.C. (4)	24" O.C.
14'-20'	800S162-54	24" O.C.	24" O.C.
∠ 26'	800S162-68	16" O.C.	16" O.C.

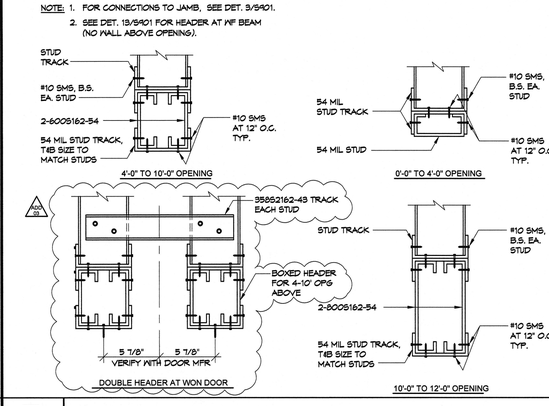
INTERIOR WALL STUD - NON BEARING PARTITION (2)

WALL HEIGHT	STUD SECTION	SPACING	L.V.F. BASE TRACK ANCHOR SPACING
∠ 14'	362S162-33 600S162-33 800S162-43	24" O.C. 24" O.C. 24" O.C.	24" O.C. 24" O.C. 24" O.C.
14' - 20'	600S162-33 800S162-43	24" O.C. 24" O.C.	16" O.C. 16" O.C.
20' - 26'	600S162-33 800S162-43	16" O.C. 24" O.C.	12" O.C. 12" O.C.



14 TYPICAL PARTITION BRACE

1"=1'-0"

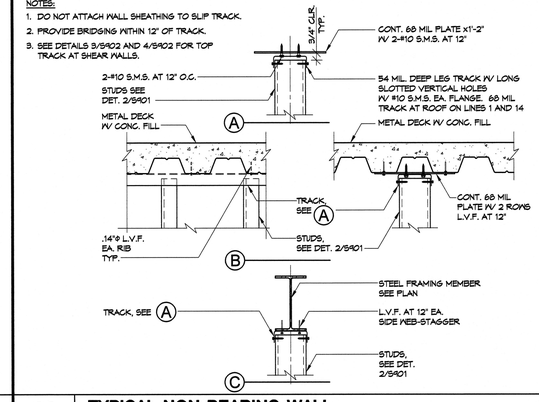


6 TYPICAL STUD BLOCKING

1 1/2"=1'-0"

15 TYPICAL ALLOWABLE HOLES IN STUD WEB

N.T.S.



11 TYPICAL NON-BEARING WALL TOP CONNECTION

N.T.S.

7 TYPICAL HEADER SCHEDULE

N.T.S.

16 TYPICAL JOIST AND STUD WEB HOLES REINFORCING

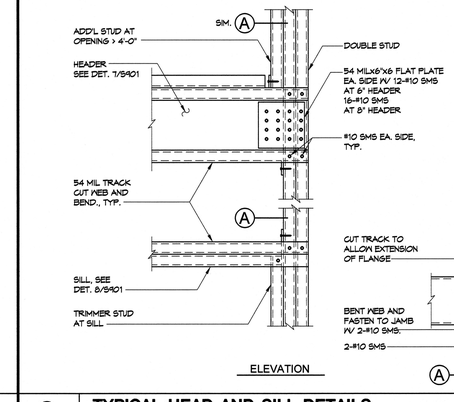
N.T.S.

12 TYPICAL DOUBLE STUD JAMB BASE SIMILAR AT TOP

N.T.S.

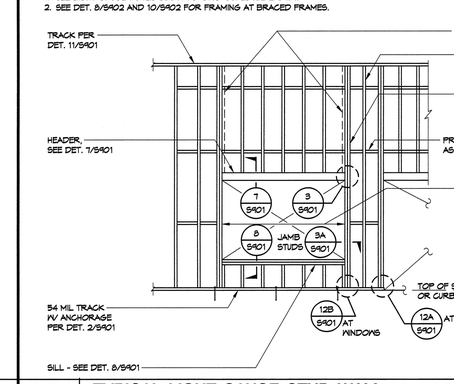
8 TYPICAL SILL SCHEDULE

N.T.S.



3 TYPICAL HEAD AND SILL DETAILS AT JAMB NON BEARING WALL

1 1/2"=1'-0"



4 TYPICAL LIGHT GAUGE STUD WALL FRAMING - NON BEARING WALL

N.T.S.

PIVOT ARCHITECTURE
STRUCTURAL ENGINEER OREGON 86387PE Expires: 12-31-17
IBI GROUP
HOHBACH-LEWIN, INC. 257 East 10th Ave. Suite 202 Eugene, OR 97401 (541) 349-1700, Fax (541) 349-1702

BID DOCUMENT SET

EUGENE SCHOOL DISTRICT 4J
120 WEST HILLARD AVENUE, EUGENE OREGON 97404

RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

LIGHT GAUGE FRAMING DETAILS

PROJECT #:	1337	REVISIONS:
ISSUE DATE:	02.12.2016	ADD 03 - 03.11.2016
DRAWN:	AMA	
CHECKED:	VHB	

S901

H-L #9547.2

GENERAL NOTES:

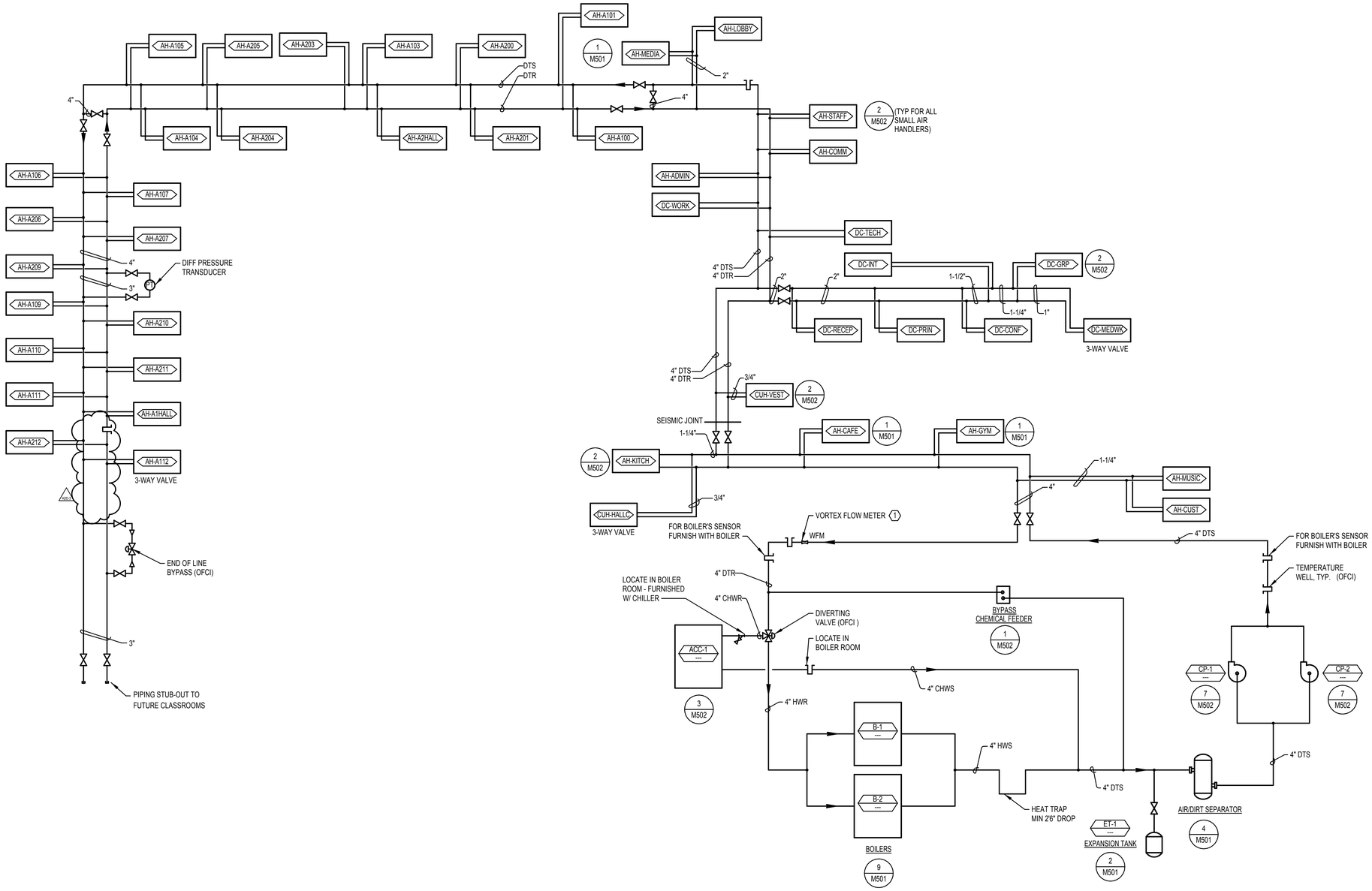
A. FOR RUNOUT SIZES TO AIR HANDLER COILS, SEE AIR HANDLER SCHEDULE.

B. FOR RUNOUT SIZES TO DUCT-MOUNTED COILS, SEE DUCT COIL SCHEDULE.

C. SEE PLANS FOR ADDITIONAL ISOLATION VALVES.

NOTES:

1. PROVIDE STRAIGHT PIPE UPSTREAM AND DOWNSTREAM PER MANUFACTURER'S REQUIREMENTS



1 DUAL TEMPERATURE WATER SYSTEM DIAGRAM

NONE

PIVOT ARCHITECTURE

REGISTERED PROFESSIONAL ENGINEER
10/20/2015
OREGON
DOUGLAS P. COLLINS
EXPIRES: 12-31-15
3.9.2016

IBI GROUP

PAE
Portland | San Francisco | Seattle
pae-eng@pae.com

BID SET

EUGENE SCHOOL DISTRICT 4J
120 WEST HILLEARD AVENUE, EUGENE, OREGON 97404

RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

FLOW DIAGRAMS - MECHANICAL

PROJECT #:	1537.00
ISSUE DATE:	2.12.2016
DRAWN:	SC
CHECKED:	PIC

REVISIONS: ADD-3 - 03/11/2016

M601

WASTE PIPING SIZING SCHEDULE

SIZE	MAXIUM DFU COUNT	
	HORIZONTAL	VERTICAL
1-1/4"	UP TO 1 DFU	UP TO 1 DFU
1-1/2"	UP TO 2 DFU	UP TO 2 DFU
2"	UP TO 8 DFU	UP TO 16 DFU
2-1/2"	UP TO 14 DFU	UP TO 32 DFU
3"	UP TO 48 DFU	UP TO 48 DFU
4"	UP TO 216 DFU	UP TO 256 DFU
6"	UP TO 720 DFU	UP TO 1,380 DFU

NOTES:
BASIS OF DESIGN: 2014 OREGON PLUMBING SPECIALTY CODE, CHAPTER 7 "SANITARY DRAINAGE". ALL WASTE PIPING SIZED AT ...1/4"/FT UNLESS OTHERWISE NOTED.

DOMESTIC PIPING SIZING SCHEDULE

SIZE	MAXIUM DFU COUNT	
	FLUSH TANK	FLUSH VALVE
1/2"	UP TO 1 FU	- -
3/4"	UP TO 4 FU	- -
1"	UP TO 12 FU	- -
1-1/4"	UP TO 26 FU	- -
1-1/2"	UP TO 42 FU	- -
2"	UP TO 151 FU	- -
2-1/2"	UP TO 205 FU	- -
3"	UP TO 275 FU	- -

NOTES:
BASIS OF DESIGN: 2014 OREGON PLUMBING SPECIALTY CODE, APPENDIX A "RECOMMENDED RULES FOR SIZING THE WATER SUPPLY SYSTEM". PIPING SIZED ON 4 PSI/100 FT. DROP, INCOMING WATER PRESSURE OF 88 PSI AND VELOCITIES NOT TO EXCEED 8 FT/SEC. (COLD WATER) AND NOT TO EXCEED 5 FT/SEC. (HOT WATER).

NON-POTABLE PIPING SIZING SCHEDULE

SIZE	MAXIUM DFU COUNT	
	NON-FLUSH VALVE	FLUSH VALVE
1/2"	- -	- -
3/4"	- -	- -
1"	- -	- -
1-1/4"	- -	UP TO 1 FU
1-1/2"	- -	UP TO 13 FU
2"	- -	UP TO 95 FU
2-1/2"	- -	UP TO 365 FU
3"	- -	UP TO 559 FU

ADD-3

NOTES:
BASIS OF DESIGN: 2014 OREGON PLUMBING SPECIALTY CODE, APPENDIX A "RECOMMENDED RULES FOR SIZING THE WATER SUPPLY SYSTEM". PIPING SIZED ON 6 PSI/100 FT. DROP, VELOCITIES NOT TO EXCEED 8 FT/SEC. (NON-POTABLE WATER)

PLUMBING FIXTURE SCHEDULE

ITEM	DESCRIPTION	ROUGH-IN SIZE (INCHES)					NOTES
		W	V	NPW	CW	HW	
WC-1	WATER CLOSET	4	2	1-1/4	-	-	WALL HUNG, SUPPLIED BY RAIN WATER 1.28 GPF, CHILDREN ADA
WC-2	WATER CLOSET	4	2	1-1/4	-	-	WALL HUNG, SUPPLIED BY RAIN WATER 1.28 GPF, ADULT ADA
U-1	URINAL	2	1-1/2	1	-	-	WALL HUNG, SUPPLIED BY RAIN WATER 0.5 GPM, ADA
L-1	LAVATORY	2	1-1/2	-	1/2	1/2	TEMPERATURE SELECTION/METERING WALL HUNG, 20"x19", ADA
WS-1	WASH STATION	2	1-1/2	-	1/2	1/2	WALL HUNG,SINGLE BOWL WITH 2 LAV 0.5 GPM, ADA
WS-2	WASH STATION	2	1-1/2	-	1/2	1/2	WALL HUNG,SINGLE BOWL WITH 3 LAV 0.5 GPM, ADA
S-1	SINK	2	1-1/2	-	1/2	1/2	STAINLESS STEEL COUNTER MOUNT, BUBBLER,
S-2	SINK	2	1-1/2	-	1/2	1/2	STAINLESS STEEL COUNTER MOUNT
S-3	SINK	2	1-1/2	-	1/2	1/2	STAINLESS STEEL, DOUBLE BOWL, COUNTER MOUNT
DF-1	DRINKING FOUNTAIN	2	1-1/2	-	1/2	-	DAUL HEIGHT, STAINLESS STEEL WALL MOUNTED
SH-1	SHOWER	2	1-1/2	-	3/4	3/4	FIBERGLASS ENCLOSURE, PRESSURE BALANCE MIXING VALVE, 1.5GPM SHOWER HEAD
MS-1	MOP SINK	3	2	-	3/4	3/4	FLOOR/CORNER MOUNTED, WALL MOUNTED FAUCET W/VACUUM BREAKER & HOSE THREAD OUTLET
WH-1	WALL HYDRANT	-	-	-	3/4	-	REMOVABLE HANDLE, FREEZE PROOF, W/VACUUM BREAKER
WH-2	WALL HYDRANT	-	-	-	1/2	1/2	DUAL TEMPERATURE, FREEZE PROOF, W/VACUUM BREAKER
SB-1	SUPPLY BOX	2	1-1/2	-	1/2	1/2	RECESSED, BOTTOM SUPPLIES, INTEGRAL SHOCK ARRESTOR
SB-2	SUPPLY BOX	2	1-1/2	-	1/2	-	RECESSED, BOTTOM SUPPLIES, INTEGRAL SHOCK ARRESTOR
WSCB-1	WATER SUPPLY CONTROL BOX	-	-	-	1/2	1/2	RECESSED, BOTTOM SUPPLIES, INTEGRAL SHOCK ARRESTOR
HB-1	HOSE BIB	-	-	-	1/2	-	REMOVABLE HANDLE, VACUUM BREAKER
HB-2	HOSE BIB	-	-	-	1/2	1/2	MOUNTED ABOVE MOP SINK, W/VACUUM BREAKER, FOR CHEMICAL STATIONS

KITCHEN EQUIPMENT CONNECTION SCHEDULE

ITEM	DESCRIPTION	ROUGH-IN SIZE (INCHES)				NOTES
		W	CW	HW	G	
19	CUBE ICE MACHINE	-	1/2	-	-	3
20	HAND WASHING SINK	1-1/2	1/2	1/2		2
22	PREP SINK	1-1/2	1/2	1/2		1
30	KETTLE PANTRY FAUCET	-	1/2	1/2	-	
31	CONVECTION STEAMER	-	-	-	-	1 3
33	DOUBLE STACK COMBI-OVEN STEAMERS	2	4(3/4)	-	-	
44	TRIPLE COMPARTMENT SINK	(3) 2	1/2	1/2	-	
46	WAREWASHER WITH BOOSTER HEATER	2	-	1/2	-	
47	HOSE REEL WITH RECESSED CONTROL	-	1/2	1/2	-	
48	WASTE COLLECTOR	2	3/4	3/4	-	1

NOTES:

1. PROVIDE INDIRECT WASTE TO FLOOR SINK.
2. ALL KITCHEN FIXTURES PROVIDED WITH 140°F HOT WATER. PROVIDE SYMMONS 410-B MIXING VALVE AT CW & HW SUPPLIES TO TEMPER OUTLET WATER TO 100 F AT HAND WASH LOCATIONS. SEE KITCHEN PLUMBING PLAN FOR LOCATIONS.
3. PROVIDE BACKFLOW PROTECTION AS REQUIRED BY CODE. ROUTE INDIRECT WASTE TO NEAREST FLOOR SINK.

PLUMBING EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	ELECTRICAL
GWH-101 GWH-102 (DOMESTIC SYSTEM)	GAS WATER HEATER 199 CFH INPUT, 90 GALLON STORAGE 233 GPH RECOVERY @ 100°F RISE BASED ON: LOCHINVAR SHIELD	120 V, 1 PH
DET-101 (DOMESTIC SYSTEM)	DOMESTIC WATER EXPANSION TANK 11 GALLONS ACCEPTANCE VOLUME 18 GALLONS TANK VOLUME BASED ON: iTT WTA SERIES	-
MMV-101 (DOMESTIC SYSTEM)	MASTER MIXING VALVE 23 GPM FLOW RATE, WITH 5 PSI LOSS 140 F INLET TEMPERATURE 120 F OUTLET TEMPERATURE BASED ON: LEONARD NEW GENERATION MIXING VALVE	-
RHWP-101 (DOMESTIC SYSTEM)	RECIRCULATING HOT WATER PUMP IN-LINE CENTRIFUGAL PUMP 4 GPM @ 35 FT HEAD BASED ON: BELL & GOSSETT PL SERIES	2/5 HP 120 V, 1 PH
RHTWP-101 (KITCHEN SYSTEM)	RECIRCULATING HOT WATER PUMP IN-LINE CENTRIFUGAL PUMP 1.1 GPM @ 20 FT HEAD BASED ON: BELL & GOSSETT PL SERIES	1/12 HP 120 V, 1 PH
TP-101 THRU TP-301	ELECTRONIC TRAP PRIMER 1-20 OPENING MANIFOLD CALIBRATED FOR EQUAL WATER DISTRIBUTION, 1/2" OUTLET CONNECTION, TIME CLOCK, SOLENOID VALVE AND VACUUM BREAKER, RECESSED STAINLESS STEEL ENCLOSURE WITH DOOR. BASED ON: PRECISION PLUMBING PRODUCTS PRIMETIME ELECTRONIC TRAP PRIMER, PTS SERIES	120 V, 1 PH
RPBA-1 HVAC MAKE UP)	REDUCED PRESSURE BACKFLOW ASSEMBLY 10 GPM @ 14 PSIG LOSS BASED ON: FEBCO 860 (1")	
RPBA-2 (RWS SYSTEM)	REDUCED PRESSURE BACKFLOW ASSEMBLY 160 GPM @ 12 PSIG LOSS BASED ON: FEBCO 860 (2-1/2")	-
RWTS-101 (RAINWATER SYSTEM SKID)	RAINWATER PUMP/FILTER SKID SYSTEM: PREPACKAGED SKID BASED ON FLOW THERM MODEL FTSS-RW-CL SINGLE POINT ELECTRICAL CONNECTION 110 GPM @ 140FT ADD-3	480 V, 3 PH
	RAIN WATER RECLAMATION DAY TANK (INCLUDED ON RWTS-101 SKID) 540 GALLON CAPACITY 48"DIAMETER x 86-1/2"TALL, 17"DIAMETER ACCESS WAY BASED ON: POLYPROCESSING	-
	RAIN WATER HYPO TREATMENT: (INCLUDED ON RWTS-101 SKID) DUPLEX CHEMICAL FEED PUMPS SIMPLEX MAGNETIC DRIVE RECIRCULATION PUMP WITH NEMA 4 PANEL. ORP CONTROLLER. BASIS OF DESIGN: WATER CONTROL CORP. DISINFECTIONS SYSTEM	(2) 5 HP 480 V, 3 PH
SP-101	SUMP PUMP 50 GPM @ 12 FT HEAD BASED ON: GRUNDFOS	1/2 HP 120 V, 1 PH
RWCTP-101	RAIN WATER CISTERN TRANSFER PUMP 50 GPM @ 18 FT HEAD BASED ON: WEIL	1/2 HP 120 V, 1 PH

PLUMBING DESIGN CRITERIA

DOMESTIC WATER PIPING SYSTEM
BASIS OF DESIGN: 2014 OREGON PLUMBING SPECIALTY CODE, APPENDIX A "RECOMMENDED RULES FOR SIZING THE WATER SUPPLY SYSTEM". PIPING SIZED ON 3 PSI/100 FT. DROP, VELOCITIES NOT TO EXCEED 8 FT/SEC. (COLD WATER) AND NOT TO EXCEED 5 FT/SEC. (HOT WATER).

WASTE AND VENT PIPING SYSTEM
BASIS OF DESIGN: 2014 OREGON PLUMBING SPECIALTY CODE, CHAPTER 7 "SANITARY DRAINAGE". ALL WASTE PIPING SIZED AT %%1331/4"/FT UNLESS OTHERWISE NOTED.

ROOF DRAIN/STORM DRAIN PIPING SYSTEMS
BASIS OF DESIGN: 2014 OREGON PLUMBING SPECIALTY CODE, CHAPTER 11 "STORM DRAINAGE". STORM DRAIN PIPING SIZED AT 1/8" PER FT SLOPE UNLESS OTHERWISE NOTED AND A RAINFALL RATE OF 1.3" / HR.

NATURAL GAS SYSTEM
BASIS OF DESIGN: 2014 OREGON MECHANICAL SPECIALTY CODE, APPENDIX C, "FUEL GAS", SECTION C402 "PIPE SIZING". EQUIVALENT LENGTH OF PIPE: 400 FT (MPG), 50 FT (G)

PIVOT ARCHITECTURE

REGISTERED PROFESSIONAL ENGINEER 18329PE OREGON NICHOLAS P. COLLINS
EXPIRES 12-31-17

BID SET
EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE, OREGON 97404
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

EQUIPMENT SCHEDULES - PLUMBING

PROJECT #: 1337.00
ISSUE DATE: 2.12.2016
DRAWN: SC
CHECKED: PIC
REVISIONS: ADD-3 - 03/11/2016

P002

PRINTED ON: 3/11/2016 8:23:19 AM FROM FILE: C:\Revit Local Files\13-1533 MEP15\13-1533 MEP15_Travis.lewis.rvt

GENERAL NOTES:

A. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPE.

B. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF FIXTURES.

C. INSTALL FLOOR DRAINS, FLOOR SINKS, AND FLOOR CLEANOUTS FLUSH WITH FINISHED FLOOR.

D. ALL FLUSH FIXTURES TO BE SERVED WITH NON-POTABLE WATER.

E. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL B PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

F. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

G. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO CORDINATE THE WORK WITH THAT OF ALL OTHER TRADES, INCLUDING BUT NOT LIMITED TO: ELECTRICAL, SPRINKLER, HVAC, STRUCTURAL AND GENERAL ARCHITECTURE.

H. REFER TO RISER DIAGRAM FOR COMPLETE SIZES, SHUT-OFF VALVE AND WATER HAMMER ARRESTER LOCATIONS.

I. PROVIDE TRAP PRIMER LINES TO FIXTURES AS REQUIRED.

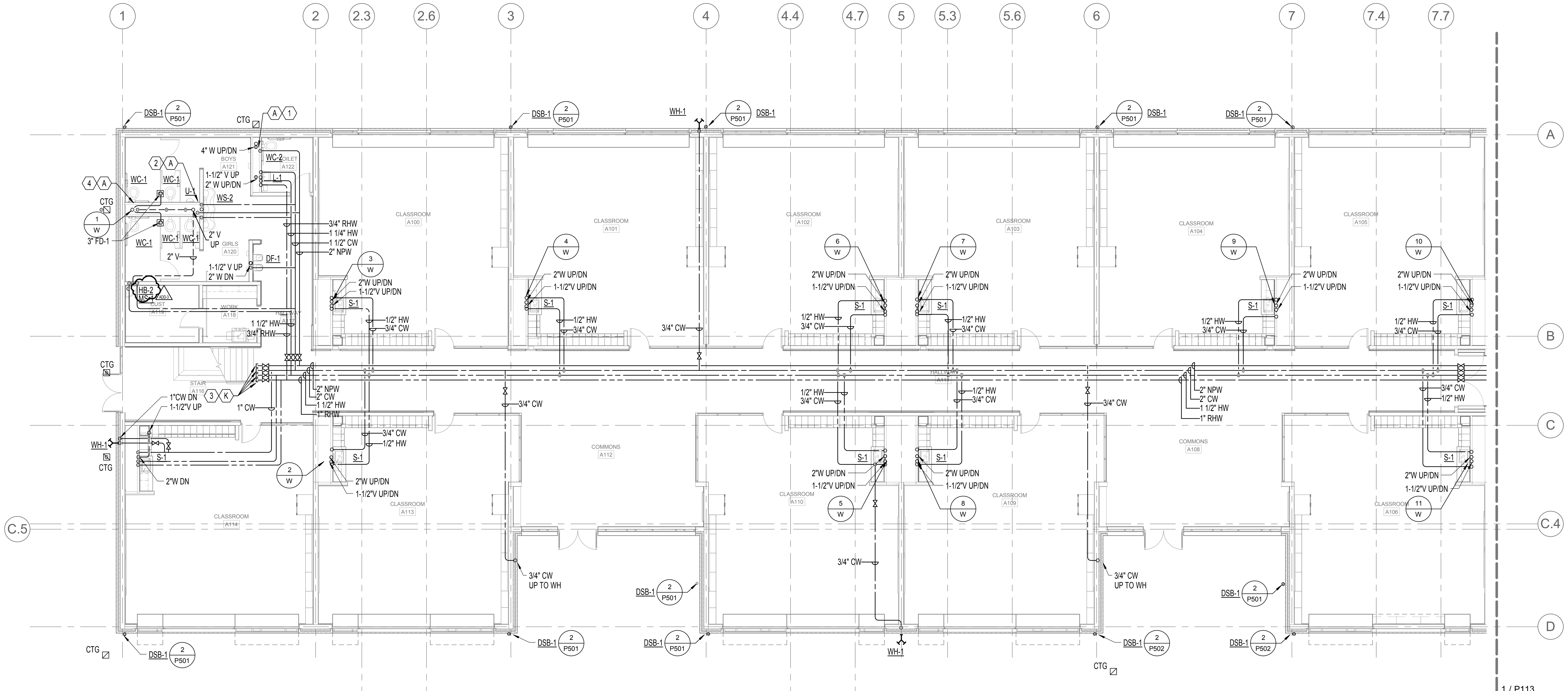
NOTES:

1. PROVIDE WATER HAMMER ARRESTOR & SHUT OFF VALVES BEHIND ACCESS PANEL. COORDINATE ACCESS PANEL LOCATION AND FINISH WITH ARCHITECT.

2. PROVIDE SHUT OFF VALVE BEHIND ACCESS PANEL. COORDINATE ACCESS PANEL LOCATION AND FINISH WITH ARCHITECT.

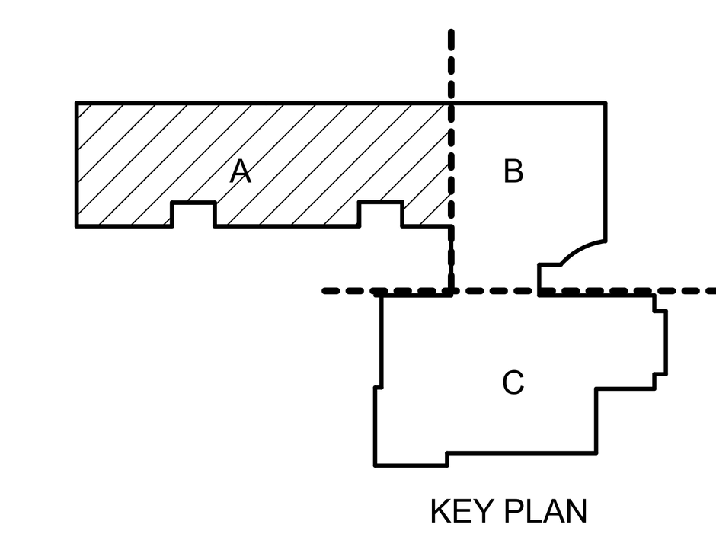
3. CAPPED 1-1/2" CW, 1-1/4" HW, 1" RHW AND 2" NPW FOR FUTURE CONNECTION. VALVES TO BE N.C.

4. PROVIDE WATER HAMMER ARRESTOR BEHIND ACCESS PANEL. COORDINATE ACCESS PANEL LOCATION AND FINISH WITH ARCHITECT.



1 FIRST FLOOR - SECTOR A - PLUMBING

1/8" = 1'-0"



KEY PLAN

P.VOT ARCHITECTURE

REGISTERED PROFESSIONAL ENGINEER 18329PE NICHOLAS P. COLLINS, JR. EXPIRES 12-31-17

IBI GROUP

dowa

PAE Portland | San Francisco | Seattle pae-engineers.com

BID SET

EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIEARD AVENUE, EUGENE, OREGON 97404

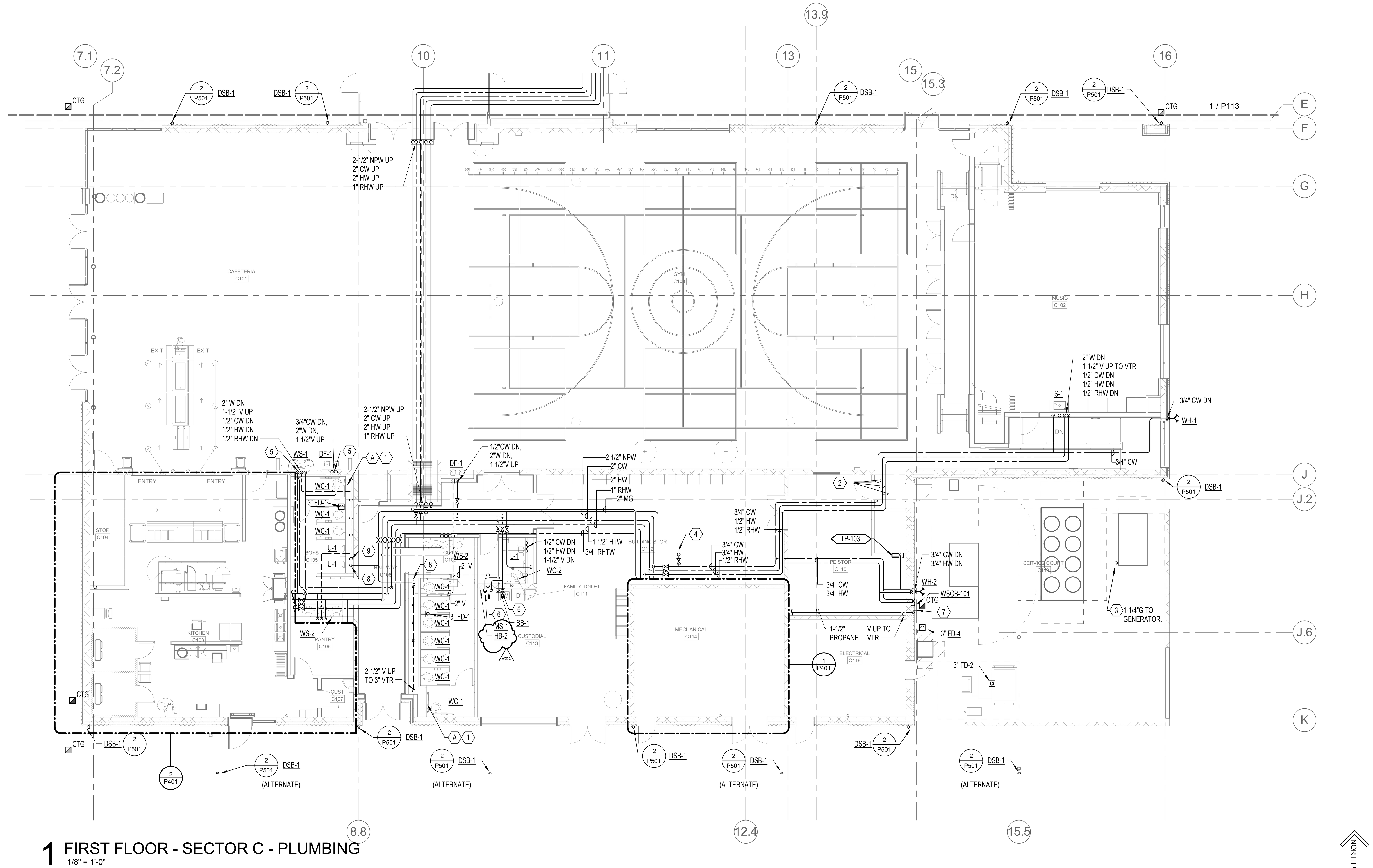
RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR A PLUMBING PLAN - FIRST FLOOR

PROJECT #:	1337.00	REVISIONS:
ISSUE DATE:	2.12.2016	ADD-3 - 03/11/2016
DRAWN:	SC	
CHECKED:	PIC	

P111

PRINTED ON: 3/11/2016 10:42:28 AM FROM FILE: C:\Revit Local Files\13-1533 MEP15\13-1533 MEP15_Travis.lewis.rvt



1 FIRST FLOOR - SECTOR C - PLUMBING

1/8" = 1'-0"

GENERAL NOTES:

A. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPE.

B. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF FIXTURES.

C. INSTALL FLOOR DRAINS, FLOOR SINKS, AND FLOOR CLEANOUTS FLUSH WITH FINISHED FLOOR.

D. ALL FLUSH FIXTURES TO BE SERVED WITH NON-POTABLE WATER.

E. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL B PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

F. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

G. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO CORDINATE THE WORK WITH THAT OF ALL OTHER TRADES, INCLUDING BUT NOT LIMITED TO: ELECTRICAL, SPRINKLER, HVAC, STRUCTURAL AND GENERAL ARCHITECTURE.

H. REFER TO RISER DIAGRAM FOR COMPLETE SIZES, SHUT-OFF VALVE AND WATER HAMMER ARRESTER LOCATIONS.

I. PROVIDE TRAP PRIMER LINES TO FIXTURES AS REQUIRED.

NOTES:

1. PROVIDE WATER HAMMER ARRESTOR LOCATED BEHIND ACCESS PANEL. COORDINATE ACCESS PANEL LOCATION AND FINISH WITH ARCHITECT.

2. ROUTE PIPING IN JOIST SPACE, TIGHT TO STRUCTURE.

3. PROVIDE ANODLESS RISER WHERE TRANSITIONS FROM STEEL TO POLY PIPE OCCUR.

4. 3/4" CW UP TO HOSE BIB IN MECHANICAL PLATFORM. COORDINATE LOCATION WITH ALL TRADES.

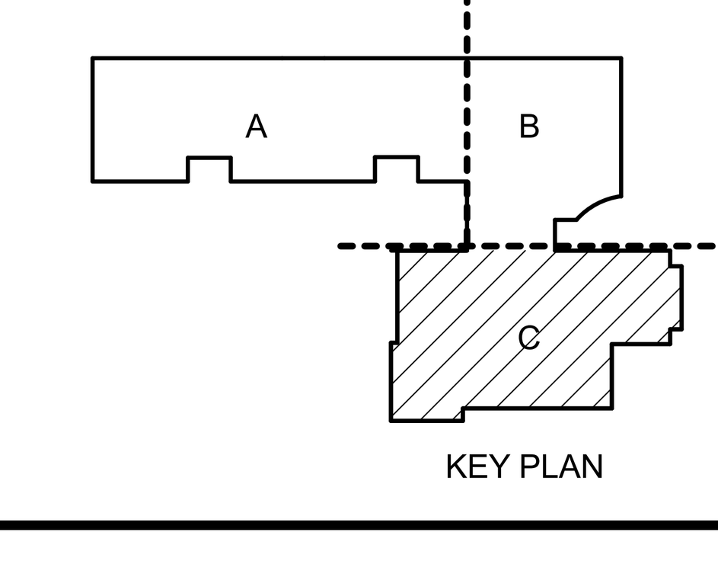
5. ROUTE PIPING IN FURRED WALL. COORDINATE WITH ARCHITECT.

6. PIPING TO BE SURFACE MOUNTED ON CMU WALL.

7. PROPANE TANK CONNECTION. COORDINATE LOCATIONS WITH ALL TRADES.

8. 2" NPW DN

9. 2-1/2" V UP TO 3" VTR.



PIVOT ARCHITECTURE

REGISTERED PROFESSIONAL ENGINEER 18329PE NICHOLAS P. COLLINS, JR. EXPIRES 12-31-17

IBI GROUP

PAE Portland | San Francisco | Seattle pae-engineers.com

BID SET

EUGENE SCHOOL DISTRICT 4J

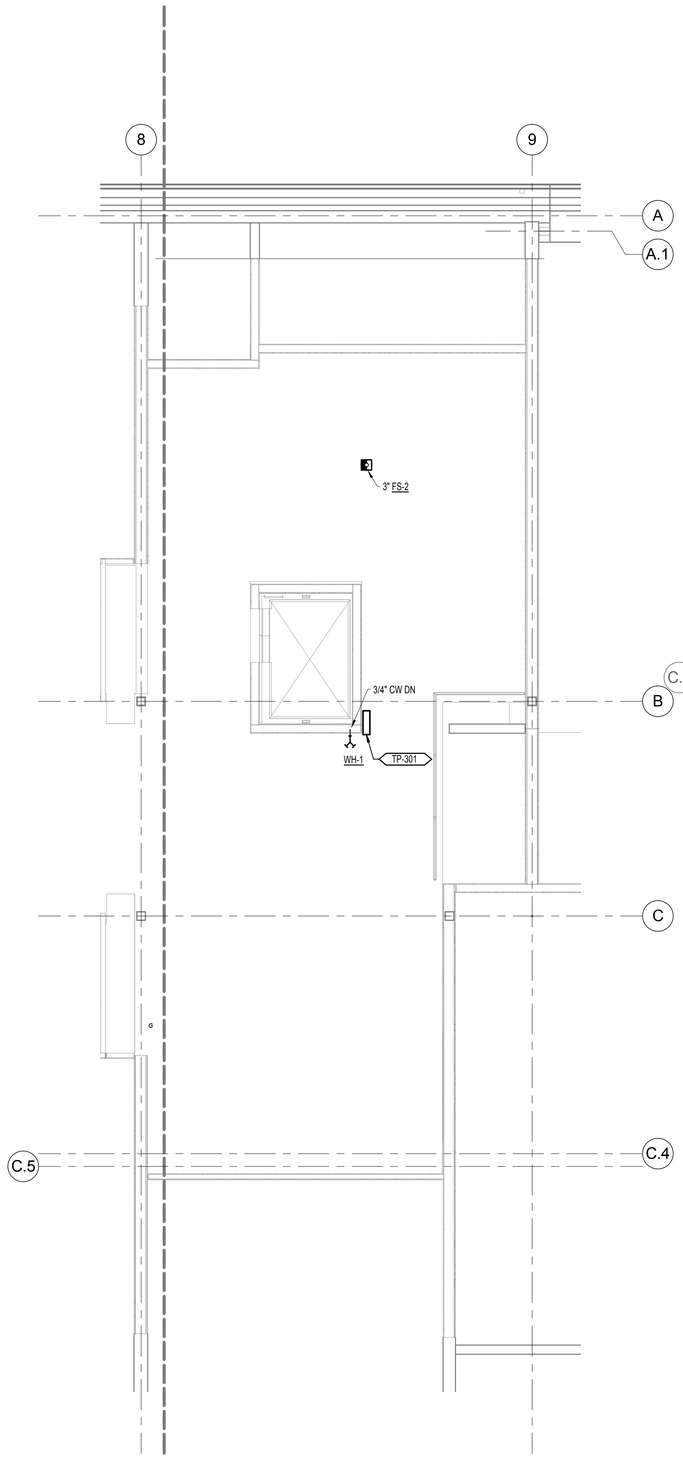
120 WEST HILYARD AVENUE, EUGENE, OREGON 97404

RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

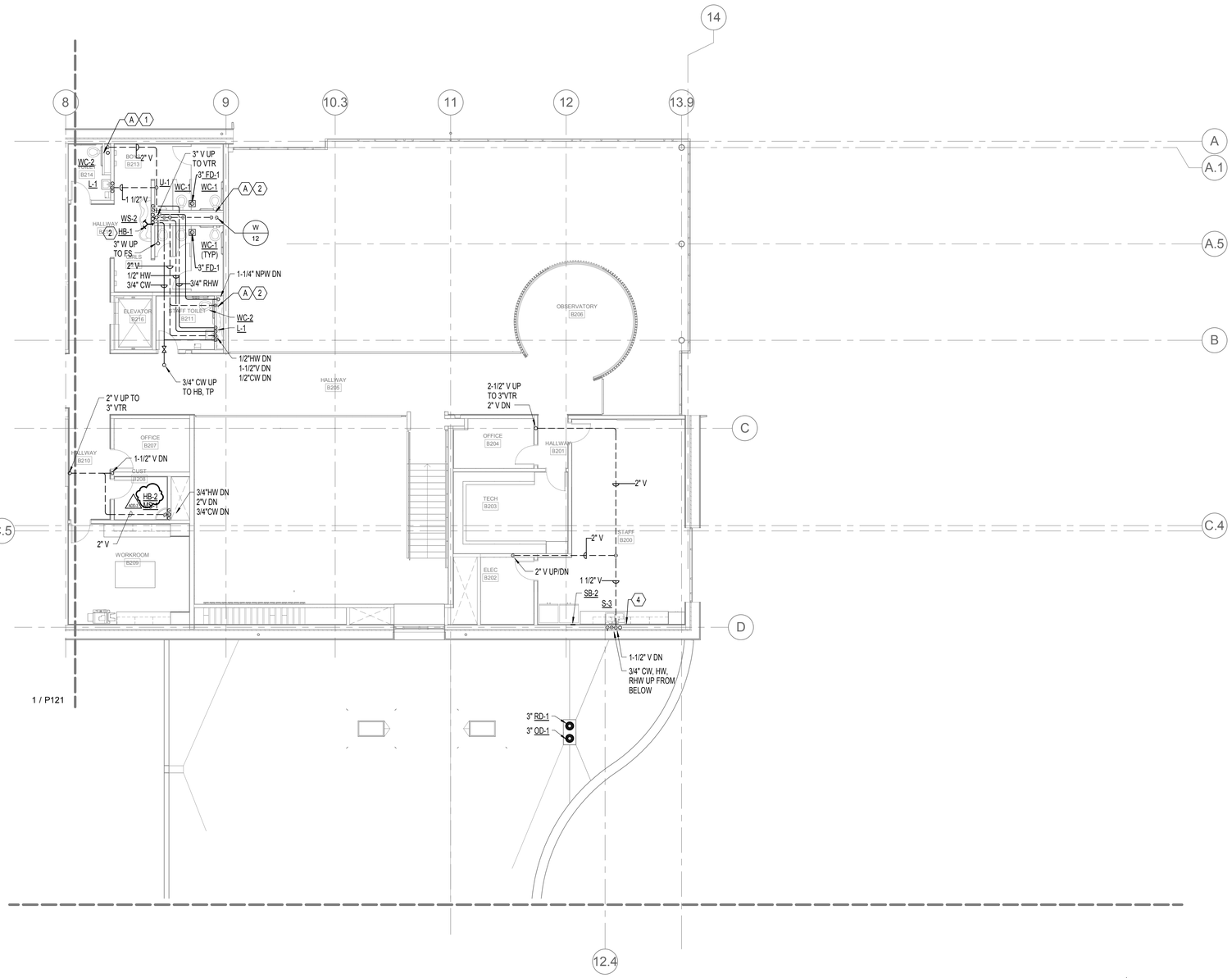
SECTOR C PLUMBING PLAN - FIRST FLOOR

PROJECT #	1337.00	REVISIONS:
ISSUE DATE:	2-12-2016	ADD-3 - 03/11/2016
DRAWN:	SC	
CHECKED:	PIC	

P115



2 SECTOR B MECHANICAL PLATFORM - Plumb
1/4" = 1'-0"



1 SECOND FLOOR - SECTOR B - PLUMBING
1/8" = 1'-0"

NORTH

GENERAL NOTES:

A. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPE.

B. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF FIXTURES.

C. INSTALL FLOOR DRAINS, FLOOR SINKS, AND FLOOR CLEANOUTS FLUSH WITH FINISHED FLOOR.

D. ALL FLUSH FIXTURES TO BE SERVED WITH NON-POTABLE WATER.

E. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL B PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

F. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

G. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO CORDINATE THE WORK WITH THAT OF ALL OTHER TRADES, INCLUDING BUT NOT LIMITED TO: ELECTRICAL, SPRINKLER, HVAC, STRUCTURAL AND GENERAL ARCHITECTURE.

H. REFER TO RISER DIAGRAM FOR COMPLETE SIZES, SHUT-OFF VALVE AND WATER HAMMER ARRESTER LOCATIONS.

I. PROVIDE TRAP PRIMER LINES TO FIXTURES AS REQUIRED.

⬡ NOTES:

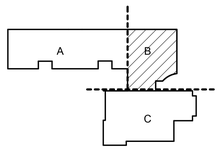
1. PROVIDE WATER HAMMER ARRESTOR & SHUT OFF VALVES BEHIND ACCESS PANEL. COORDINATE ACCESS PANEL LOCATION AND FINISH WITH ARCHITECT.

2. PROVIDE WATER HAMMER ARRESTOR LOCATED BEHIND ACCESS PANEL. COORDINATE ACCESS PANEL LOCATION AND FINISH WITH ARCHITECT.

3. 3/4" CW UP TO HOSE BIB IN MECHANICAL PLATFORM. COORDINATE LOCATION WITH ALL TRADES.

4. PROVIDE 1/2" HW TO ADJACENT DISHWASHER. ROUTE WASTE FROM DISHWASHER TO TAILPIECE OF SINK.

5. HOSE BIB MOUNTED UNDER WASH STATION.



KEY PLAN

PIVOT ARCHITECTURE

REGISTERED PROFESSIONAL ENGINEER 18329PE OREGON JULY 19, 1996 DOUGLAS P. COLLINS 3/11/2016 EXPIRES: 12-31-17

IBI GROUP

tova

PAE Portland | San Francisco | Seattle pae-eng@pae.com

BID SET

4J EUGENE SCHOOL DISTRICT 4J
120 WEST HILLIARD AVENUE, EUGENE, OREGON 97404

RIVER ROAD / EL CAMINO DEL RIO ELEMENTARY SCHOOL

SECTOR B PLUMBING PLAN - SECOND FLOOR

PROJECT #	13710	REVISIONS:
ISSUE DATE:	2.12.2016	ADD-3 - 03/11/2016
DRAWN:	SC	
CHECKED:	PMC	

P123