

**Sampson Construction Co., Inc.**  
**3730 South 14<sup>th</sup> Street**  
**Lincoln, NE 68502**  
**Phone: (402) 434-5450**  
**FAX: (402) 434-5466**

**Bid Bulletin #01**

PROJECT: Gateway Early Childhood Center  
Bid Package #4  
Omaha, NE

DATE: November 25, 2014

This Bid Bulletin includes item 1-1 through 1-7. Each item shall be fully incorporated into the Bidding/Contract Documents and have the same force and effect as though originally included. Bidders shall acknowledge receipt of this Bid Bulletin on their bid.

- Item 1-1 The Gateway Early Childhood Center project is a tax exempt project.
- Item 1-2 Special attention is called to specification section 012300- Alternates. There are several alternates identified for this project and bidders shall submit pricing for all alternates that apply to their scope of work.
- Item 1-3 The general conditions of the project and contract are based upon the AIA A201-2007.
- Item 1-4 A project schedule is attached for review by bidders.
- Item 1-5 As a point of clarification, bid package #4 includes non-structural concrete outside of the building (paving, sidewalks, planters, benches). All building foundations, site CIP retaining walls, and building slabs were bid in a previous bid package.
- Item 1-6 Bids for Division 26, 27, and 28 shall be submitted independently and directly to Sampson Construction.
- Item 1-7 Attached is Addendum D dated 11/24/14 from RDG Planning & Design.

END OF BID BULLETIN #01



November 24, 2014

ADDENDUM D

TO DRAWINGS AND SPECIFICATIONS FOR:

Gateway Early Childhood Center  
Omaha, Nebraska  
RDG Project No. 2014.129.00, File 35.1

RDG Planning & Design  
900 Farnam on the Mall, Suite 100  
Omaha, NE 68102-5089  
(402) 392-0133

NOTICE TO BIDDERS

This Addendum modifies the original Contract Documents and Project Manual dated November 13, 2014. Bidders must acknowledge receipt of the Addendum on the Bid Form.

The following separate packages have been/will be issued:

Site Grading and Demolition Package ..... July 23, 2104  
Structural Package ..... September 4, 2014  
Site Utilities Package ..... September 11, 2014  
Final Construction Documents ..... November 13, 2014

Corresponding addenda:

Addendum A ..... August 7, 2014 ..... Site Grading and Demolition Package  
Addendum B ..... September 17, 2014 ..... Structural Package  
Addendum C (Post Bid) ..... September 26, 2014 ..... Site Utilities Package  
Addendum D ..... November 24, 2014 ..... Final Construction Documents

Unless otherwise shown, the work described herein shall comply with, and be equal in all respect to, the original Contract Specifications and Drawings. Include all incidental work required to properly complete the work whether stated herein or not.

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ADDENDA TO THE PROJECT MANUAL

Civil Specification Items

No items this addendum.

Landscape Specification Items

No items this addendum.

Architectural Specification Items

DGS-1 Section 01 10 00 – Summary, Page 01 10 00-2, Paragraph 1.4, Subparagraph A, Item 1: Revise Sub-Item d to read:

- d. Kitchen equipment will be supplied and installed by the Owner; any utilities connections shall be made under this contract.**

DGS-2 Section 01 23 00 – Alternates, Page 01 23 00-5: Add new alternate as follows:

**P. Alternate No. 19 – Stepped Brick:**

- 1. Base Bid: Provide brick colors and blends as shown on brick banding elevations (Elevations A2, B2, C4, and D4 / A05.03).**
- 2. Add Alternate: Under this alternate, provide stepped brick as shown per Detail B1 / A05.03 in addition to providing brick colors and blends per the base bid.**

DGS-3 Section 05 40 00 – Cold-Formed Metal Framing, Page 05 40 00-2, Paragraph 2.1, Subparagraph A: Add the following approved manufacturer:

A. Revise Item 3 to read:

- 3. MBA Metal Framing.**

B. Add new Item 4 to read:

- 4. Approved equal.**

DGS-4 Section 07 21 00 – Thermal Insulation, Page 07 21 00-2, Paragraph 2.2, Subparagraph A: Add the following approved manufacturer:

- 4. Knauf Insulation.**

DGS-5 Section 07 27 26 – Fluid Applied Membrane Air Barriers, Page 07 27 26-2, Paragraph 2.3, Subparagraph A, Item 1:

A. Sub-Item a: Add the following approved manufacturer:

- 5) Dow Corning: DefendAir 200.**

B. Sub-Item b: Add the following approved manufacturer:

- 7) Dow Corning: DefendAir 200.**

DGS-6 Section 07 54 23 – Thermoplastic Polyolefin (TPO) Roofing:

A. Page 07 54 23-3, Paragraph 2.1, Subparagraph A: Add the following approved manufacturer:

- 6. Versico LLC.**

B. Page 07 54 23-4, Paragraph 2.5: Add new Subparagraph I:

- I. Drainage Composite: 0.30-inch polypropylene composite sheets (at south balcony only). Basis of Design: Firestone SkyDrain Sheet.**

DGS-7 Section 07 72 00 – Roof Accessories:

A. Page 07 72 00-2, Paragraph 2.2, Subparagraph A, Item 1: Add the following approved manufacturer:

- d. SafePro.**

B. Page 07 72 00-3, Paragraph 2.2: Delete Subparagraph G and associated subparagraphs and replace with the following:

- G. Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23 requirements and authorities having jurisdiction.**

DGS-8

Section 08 41 13 – Aluminum-Framed Entrances and Storefronts:

A. Page 08 41 13-5, Paragraph 2.1, Subparagraph A: Add the following sub-items:

- 1. Approved Manufacturers and Products:**
  - a. Kawneer:**
    - 1) Exterior 451T VG Front Plane (2" x 4-1/2").
    - 2) Interior 450 (1-3/4" x 4-1/2").
  - b. Manko:**
    - 1) Exterior 2450FS (2" x 4-1/2").
    - 2) Interior 1450 (2" x 4-1/2").
  - c. Oldcastle:**
    - 1) Exterior Series 3000 Multi-Plane Front Set (2" x 4-1/2").
    - 2) Interior Series 2000 (1-3/4" x 4-1/2").

B. Page 08 41 13-6, Paragraph 2.5, Subparagraph A, Item 2: Add the following sub-items:

- b. Approved Manufacturers and Products:**
  - 1) Kawneer 500 wide stile door:
  - 2) Manko 150 wide stile door.
  - 3) Oldcastle WS 500 wide stile door.

DGS-9

Section 08 44 13 – Glazed Aluminum Curtain Walls, Page 08 44 13-4, Paragraph 2.1, Subparagraph A: Add the following sub-items:

- 1. Approved Manufacturers and Products:**
  - a. Kawneer, 1600UT System I (2-1/2").**
  - b. Manko, 250xpt Outside Glaze Curtain Wall (2-1/2").**
  - c. Oldcastle, Reliance Curtain Wall (2-1/2").**

DGS-10

Section 08 80 00 – Glazing:

A. Page 08 80 00-8, Paragraph 2.15:

1. Subparagraph A, Item 3: Replace text in parenthesis to read, **“(PPG Solarban 60, clear, or AGC Energy Select 40 clear).”**
2. Subparagraph B, Item 3: Replace text in parenthesis to read, **“(PPG Solarban 60, clear, or AGC Energy Select 40 clear).”**
3. Subparagraph C, Item 2: Replace text in parenthesis to read, **“(PPG Solarban 60, clear, or AGC Energy Select 40 clear).”**

Structural Specification Items

No items this addendum.

Mechanical Specification Items

DMS-1 Section 22 10 05 – Plumbing Piping, Page 22 10 05-5, Paragraph 1.6, Subparagraph H: Delete second sentence in its entirety. (All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and listed by NSF International.)

DMS-2 Section 23 09 13.53 – Variable-Frequency Motor Controllers for HVAC: Add new section. See attached Pages 23 09 13.53-1 through 23 09 13.53-5.

DMS-3 Section 23 33 00 – Air Duct Accessories:

A. Page 23 33 00-4, Paragraph 2.4, Paragraph A: Add the following approved manufacturer:

**11. Leader Ind.**

B. Page 23 33 00-6, Paragraph 2.7, Paragraph A: Add the following approved manufacturer:

**17. Leader Ind.**

DMS-4 Section 23 34 23 – HVAC Power Ventilators, Page 23 34 23-2, Paragraph 2.1: Add the following approved manufacturer:

**H. Captivaire.**

DMS-5 Section 23 81 01 – Terminal Heat Transfer Units: Add new section. See attached Pages 23 81 01-1 through 23 81 01-2.

DMS-6 Section 23 81 27 – Small Split System Heating and Cooling, Page 23 81 27-2, Paragraph 2.1: Add the following approved manufacturer:

**H. LG.**

Electrical Specification Items

No items this addendum.

ADDENDA TO THE DRAWINGS

Civil Drawing Items

No items this addendum.

Landscape Drawing Items

No items this addendum.

Architectural Drawing Items

DGD-1 Sheet A01.01 – Floor Plan Level One:

A. Floor Plan Level One: (See attached Supplemental Drawing SDA-001.)

1. Enlarge HP Closets 132A and 140A.
2. Modify wall type north of Door 145 to create pocket for door.
3. Revise enlarged plan callout at stair to refer to new Enlarged Plan B2/A02.03.
4. Add plan callout reference at vestibule bench

B. Add Enlarged Plan D5/A01.01. HP Closed 122A modified to provide pocket for Door 145 as shown on attached Supplemental Drawing SDA-001.

DGD-2

Sheet A01.02 – Floor Plan Level Two:

- A. Add Enlarged Plan D1/A01.02 for entrance canopy layout and steel beam location clarification as shown on attached Supplemental Drawing SDA-007.
- B. Floor Plan Level Two:
  - 1. Add Enlarged Plan Reference B1/A01.02 and Detail Reference B2/A10.05 as shown on attached Supplemental Drawing SDA-008.
  - 2. Enlarge HP Closets 232A and 240A as shown on attached Supplemental Drawing SDA-008.

DGD-3

Sheet A02.03 – Enlarged Plans:

- A. Add Drawings B2 and B3 as shown on attached Supplemental Drawing SDA-009. New play stage and ramp added.
- B. Add Drawings B4, B5, and A4 as shown on attached Supplemental Drawing SDA-012. New vestibule bench and flush wood paneling added.

DGD-4

Sheet A04.01 – Roof Plan: Change note at roof hatch to read: ***“ROOF HATCH: 30” x 36”.*”**

DGD-5

Sheet A05.03 – Brick Banding Elevations:

- A. Reissue sheet in its entirety. Revise Drawings A2, B2, C4 and D4 to show brick banding.
- B. Add Detail B1; reference stepped brick rules (Alternate No. 19).
- C. Details D1, D2, and D3: Revise text note to read:

***MAINTAIN ALIGNMENT W/ BRICK COURSING “BANDING” DATUM LINES.***

DGD-6

Sheet A08.01 – Enlarged Stair Plan and Sections: Add slab edge coordinates to A4/A08.01, Enlarged Stair Plan, as shown in attached Supplemental Drawing SDA-011.

DGD-7

Sheet A10.01 – Door/Window Schedule/Types: Revise Window Elevation “W2” to accommodate new vestibule bench (see B4/A02.03) as shown on attached Supplemental Drawing SDA-014.

DGD-8

Sheet A10.02 – Door/Window Details: At Frame Type W19, change Detail Reference D5/A10.04 (right jamb) to ***“B1/A10.06.”***

DGD-9

Sheet A10.05 – Door Details:

- A. Add new Jamb Detail B1 as shown in attached Supplemental Drawing SDA-006.
- B. Add new Plan Detail B2 as shown in attached Supplemental Drawing SDA-010.

DGD-10

Sheet A10.06 – Flashing Details: Revise Flashing Detail C2 as shown in attached Supplemental Drawing SDA-005.

DGD-11

Sheet A13.02 – Interior Elevations and Details:

- A. Update Details C1, C2, D1, D2, and E1 for reception desk as shown on attached Supplemental Drawing SDA-013.
- B. Add Details E2 and E3 for reception desk as shown on attached Supplemental Drawing SDA-015.

DGD-12

Sheet A14.02 – General Details:

- A. Revise Detail A3 as shown in attached Supplemental Drawing SDA-002.
- B. Revise Detail D6 as shown in attached Supplemental Drawing SDA-003.
- C. Revise Detail D5 as shown in attached Supplemental Drawing SDA-004.

Structural Drawing Items

No items this addendum.

Mechanical Drawing Items

DMD-1

Sheet P4.0 – Plumbing Details: Revise irrigation system connection point to be located outside of building. See revisions as shown on attached Mechanical Sketch Sheet SDP-001.

DMD-2

Sheet M1.0 – Floor Plan Level 1 HVAC: Rotate HP-1-2 and HP-1-3 to match door orientation; see revisions as shown on attached Mechanical Sketch Sheet SDM-001.

DMD-3

Sheet M1.1 – Floor Plan Level 2 HVAC: Rotate HP-2-2 and HP-2-3 to match door orientation; see revisions as shown on attached Mechanical Sketch Sheet SDM-002.

DMD-4

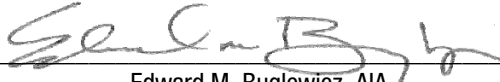
Sheet M5.0 – Mechanical Schedules: Revise mechanical schedule to include notes indicating two-stage compressors and ECM motors as designed. See revisions as shown on attached Mechanical Sketch Sheet SDM-003.

Electrical Drawing Items

No items this addendum.

ALL OTHER REQUIREMENTS OF THE PLANS AND SPECIFICATIONS REMAIN IN EFFECT. THIS ADDENDUM SHALL BE ATTACHED AND MADE A PART OF THE PLANS AND SPECIFICATIONS.

RDG PLANNING & DESIGN

By   
Edward M. Buglewicz, AIA  
for RDG Schutte Wilscam Birge, Inc.

END OF ADDENDUM D

DB/SL/SS/jm

Enclosure:

- Specification Section 23 09 13.53 – Variable-Frequency Motor Controllers for HVAC
- Specification Section 23 81 01 – Terminal Heat Transfer Units
- Supplemental Drawings SDA-001 through SDA-015
- Supplemental Drawing SDP-001
- Supplemental Drawing SDM-001, SDM-002, and SDM-003
- Revised Sheet A05.03 – Brick Banding Elevations

## SECTION 23 09 13.53 - VARIABLE-FREQUENCY MOTOR CONTROLLERS FOR HVAC

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Variable frequency controllers.

#### 1.2 REFERENCE STANDARDS

- A. NEMA ICS 7.1 - Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable Speed Drive Systems; National Electrical Manufacturers Association.
- B. NEMA ICS 7 - Industrial Control and Systems: Adjustable-Speed Drives; National Electrical Manufacturers Association.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); National Electrical Manufacturers Association.
- D. NFPA 70 - National Electrical Code; National Fire Protection Association.

#### 1.3 SUBMITTALS

- A. Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.
- B. Shop Drawings: Indicate front and side views of enclosures with overall dimensions and weights shown; conduit entrance locations and requirements; and nameplate legends.
- C. Specification Compliance Review.
- D. Test Reports: Indicate field test and inspection procedures and test results.
- E. Manufacturer's Field Reports: Indicate start-up inspection findings.
- F. Operation Data: NEMA ICS 7.1. Include instructions for starting and operating controllers, and describe operating limits that may result in hazardous or unsafe conditions.
- G. Maintenance Data: NEMA ICS 7.1. Include routine preventive maintenance schedule.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. Extra Air Filters: Two of each type.
  - 2. Spare Fuses: Three of each size and type installed.
  - 3. Indicating Lights: Two of each type installed.

#### 1.4 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience and with service facilities within 100 miles of Project.
- C. Products: Listed and classified by Underwriters Laboratories Inc. or testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

- D. Coordinate features of VFCs and accessory devices with pilot devices and control circuits to which they connect.
- E. Coordinate features, accessories, and functions of each VFC and each installed unit with ratings and characteristics of supply circuit, motor, required control sequence, and duty cycle of motor and load.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
- B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to components, enclosure, and finish.

### PART 2 PRODUCTS

#### 2.1 PERFORMANCE, CAPACITIES AND CHARACTERISTICS

- A. See Drawings for Equipment Schedules with Equipment Performance Requirements when capacities and characteristics are not indicated in the specifications.

#### 2.2 MANUFACTURERS

- A. ABB Inc.; [www.abb.us/drives](http://www.abb.us/drives)
- B. Danfoss: [www.danfossdrives.com](http://www.danfossdrives.com)
- C. Reliance Electric/Rockwell Automation: [www.rockwellautomation.com/relianceelectricdrives](http://www.rockwellautomation.com/relianceelectricdrives)
- D. Siemens Energy & Automation: [www.sea.siemens.com](http://www.sea.siemens.com).
- E. Schneider Electric; Square D Products: [www.schneider-electric.us](http://www.schneider-electric.us).
- F. Toshiba International Corporation: [www.toshiba.com](http://www.toshiba.com)
- G. Yaskawa America Inc.: [www.yaskawa.com](http://www.yaskawa.com)

#### 2.3 DESCRIPTION

- A. Variable Frequency Controllers: Enclosed HVAC controllers suitable for operating the indicated loads, in conformance with requirements of NEMA ICS 7. Select unspecified features and options in accordance with NEMA ICS 3.1.
  - 1. Employ microprocessor-based inverter logic isolated from power circuits.
  - 2. Employ pulse-width-modulated inverter system.
  - 3. Design for ability to operate controller with motor disconnected from output.
  - 4. Design to attempt five automatic restarts following fault condition before locking out and requiring manual restart.
  - 5. Provide unit suitable for operation of premium-efficiency motor as defined by NEMA MG 1.
- B. Enclosures: NEMA 250, Type 1, suitable for equipment application in places restricted to persons employed on the premises.
  - 1. Provide NEMA outdoor rated enclosure where indicated on plans.
- C. Finish: Manufacturer's standard enamel.

## 2.4 OPERATING REQUIREMENTS

- A. Rated Input Voltage: As indicted on drawings.
- B. Input Frequency Tolerance: 60 Hz, plus or minus 6 percent.
- C. Displacement Power Factor: Between 1.0 and 0.95, lagging, over entire range of operating speed and load.
- D. Overload Capability: 1.1 times the base load current for 60 seconds; 2.0 times the base load current for 3 seconds.
- E. Operating Ambient: 0 degrees C to 40 degrees C.
- F. Minimum Efficiency at Full Load: 96 percent.
- G. Starting Torque: 100 percent of rated torque or as indicated.
- H. Speed Regulation: Plus or minus 1 percent.
- I. Volts Per Hertz Adjustment: Plus or minus 10 percent.
- J. Current Limit Adjustment: 60 to 110 percent of rated.
- K. Acceleration Rate Adjustment: 0.5 to 30 seconds.
- L. Deceleration Rate Adjustment: 1 to 30 seconds.
- M. Input Signal: 4 to 20 mA DC.
- N. Adjustable carrier frequency.

## 2.5 COMPONENTS

- A. Display: Provide integral digital display to indicate output voltage, output frequency, and output current.
- B. Status Indicators: Separate indicators for overcurrent, overvoltage, ground fault, overtemperature, and input power ON.
- C. HAND-OFF-AUTOMATIC selector switch and manual speed control.
- D. Self-Protection and Reliability Features:
  - 1. Input transient protection by means of surge suppressors.
  - 2. Undervoltage and overvoltage trips; inverter overtemperature, overload, and overcurrent trips.
  - 3. Motor Overload Relay: Adjustable and capable of NEMA 250, Class 20 performance.
  - 4. Notch filter to prevent operation of the controller-motor-load combination at a natural frequency of the combination.
  - 5. Phase failure protection.
  - 6. Phase reversal protection.
  - 7. Short-circuit protection.
  - 8. Motor overtemperature fault
- E. Input Line Conditioning: DC link reactor or 3 percent impedance line reactor to minimize power line harmonics.

- F. VFC Output Filtering: Dampened, low pass KLC output filter manufactured by TCI of Milwaukee, Wisconsin. Filter amperage shall match drive amperage. Provide for each VFC which exceeds the manufacturer's maximum recommended lead length from its controlled motor.
- G. Control Power Source: Separate circuit.
- H. Control Signal Interface:
  - 1. Electric Input Signal Interface: A minimum of 2 analog inputs (0 to 10 V or 0/4-20 mA) and 6 programmable digital inputs.
  - 2. Output Signal Interface:
    - a. A minimum of 1 analog output signal (0/4-20 mA), which can be programmed to any of the following:
      - 1) Output frequency (Hz).
      - 2) Output current (load).
      - 3) DC-link voltage (VDC).
      - 4) Motor torque (percent).
      - 5) Motor speed (rpm).
      - 6) Set-point frequency (Hz).
    - b. User Interlock Terminal Strip: Connections for life safety functions, freeze, and external start/stop. All interlocks and start/stop contacts shall remain fully functional whether drive is in auto or bypass position.
- I. Historical Logging Information and Displays:
  - 1. Real-time clock with current time and date.
  - 2. Running log of total power versus time.
  - 3. Total run time.
  - 4. Fault log, maintaining last four faults with time and date stamp for each.
- J. Door Interlocks: Furnish mechanical means to prevent opening of equipment with power connected, or to disconnect power if door is opened; include means for defeating interlock by qualified persons.
- K. Safety Interlocks: Furnish terminals for remote contact to inhibit starting under both manual and automatic mode.
- L. Control Interlocks: Furnish terminals for remote contact to allow starting in automatic mode.
- M. Emergency Stop: Use dynamic brakes for emergency stop function.
- N. Disconnecting Means: Include integral fused disconnect switch or circuit breaker on the line side of each controller.
- O. Wiring Terminations: Match conductor materials and sizes indicated.

## 2.6 SOURCE QUALITY CONTROL

- A. Shop inspect and perform standard productions tests for each controller.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that surface is suitable for controller installation.
- B. Do not install controller until building environment can be maintained within the service conditions required by the manufacturer.

### 3.2 INSTALLATION

- A. Install in accordance with NEMA ICS 7.1 and manufacturer's instructions.
- B. Install each VFC in accordance with manufacturer's recommendations. Installation shall be the responsibility of the Contractor supplying the controller.
- C. Do not mount VFCs on vibrating equipment. Provide supplementary supports as required.
- D. Install free-standing VFCs on concrete bases.
- E. Tighten accessible connections and mechanical fasteners after placing controller.
- F. Provide fuses in fusible switches; refer to Section 26 28 13 for product requirements.
- G. Select and install overload heater elements in motor controllers to match installed motor characteristics.
- H. Provide engraved plastic nameplates; refer to Section 26 05 53 for product requirements and location.
- I. Clean VFCs internally, on completion of installation, according to manufacturer's written instructions. Vacuum dirt and debris; do not use compressed air.

### 3.3 FIELD QUALITY CONTROL

- A. Provide the service of the manufacturer's field representative to prepare and start controllers.

### 3.4 ADJUSTING

- A. Make final adjustments to installed controller to assure proper operation of load system. Obtain performance requirements from installer of driven loads.
- B. Set overload relay to correspond to the full load amps of the connected motor.
- C. Lock out critical speeds as required to avoid noise and vibration.

### 3.5 CLOSEOUT ACTIVITIES

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain VFCs.
- B. Provide a minimum of two hours of on-site instruction for the Owner's designated representative regarding the proper operation of each drive. Instruction shall be done at the convenience of the Owner. Instruction shall include a description of the functions of all indicators and controls and a demonstration of the following:
  - 1. Normal operating procedures - automatic mode.
  - 2. Normal starting, stopping and speed control procedures - manual mode.
  - 3. Bypass mode operation.
  - 4. Emergency shutdown.

END OF SECTION

## SECTION 23 81 01 - TERMINAL HEAT TRANSFER UNITS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Electric heaters.

#### 1.2 SUBMITTALS

- A. See Section 01 33 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide typical catalog of information including arrangements.
- C. Manufacturer's Instructions: Indicate installation instructions and recommendations.
- D. Operation and Maintenance Data: Include manufacturers descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.
- E. Warranty: Submit manufacturer's warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

#### 1.4 WARRANTY

- A. See Section 01 77 00 - Closeout Procedures, for additional warranty requirements.

### PART 2 PRODUCTS

#### 2.1 ELECTRIC UNIT HEATERS

- A. Manufacturers:
  - 1. INDEECO (Industrial Engineering and Equipment Company): [www.indeeco.com](http://www.indeeco.com).
  - 2. Berko
  - 3. Marley Engineered Products: [www.marleymep.com](http://www.marleymep.com).
  - 4. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Assembly: UL listed and labelled assembly with terminal box and cover, and built-in controls.
- C. Heating Elements: Enclosed copper tube, aluminum finned element of coiled nickel-chrome resistance wire centered in tubes and embedded in refractory material.
- D. Cabinet: 0.0478 inch steel with easily removed front panel with integral air outlet and inlet grilles.
- E. Element Hangers: Quiet operating, ball bearing cradle type providing unrestricted longitudinal movement, on enclosure brackets.

- F. Fan: Direct drive propeller type, statically and dynamically balanced, with fan guard.
- G. Motor: Permanently lubricated, sleeve bearings for horizontal models, ball bearings for vertical models.
- H. Control: Separate fan speed switch and thermostat heat selector switch, factory wired, with switches built-in behind cover. Provide thermal overload.

## PART 3 EXECUTION

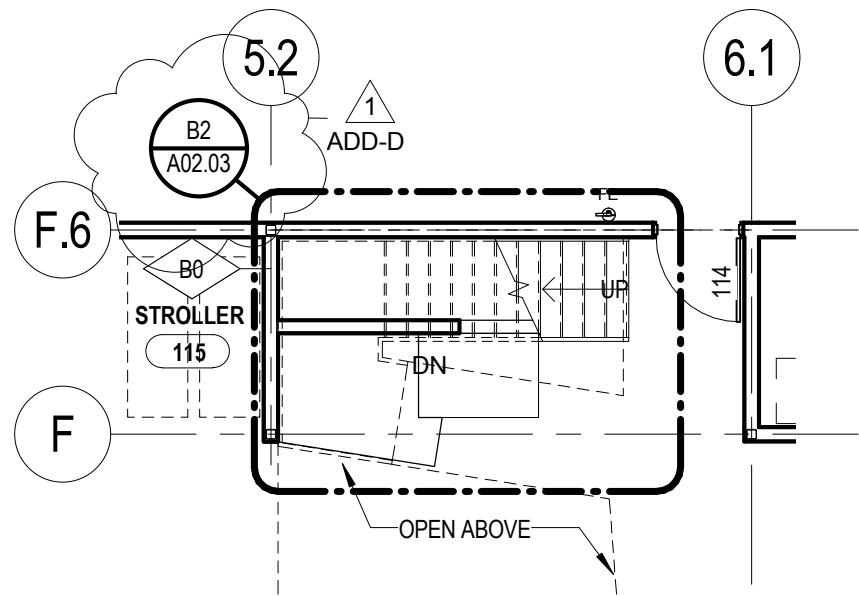
### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install equipment exposed to finished areas after walls and ceiling are finished and painted. Do not damage equipment or finishes.
- C. Cabinet Unit Heaters: Install as indicated. Coordinate to assure correct recess size for recessed units.
- D. Install electric heating equipment including devices furnished by manufacturer but not factory-mounted. Furnish copy of manufacturer's wiring diagram submittal. Install electrical wiring in accordance with manufacturer's submittals and Section 26 27 17.

### 3.2 CLEANING

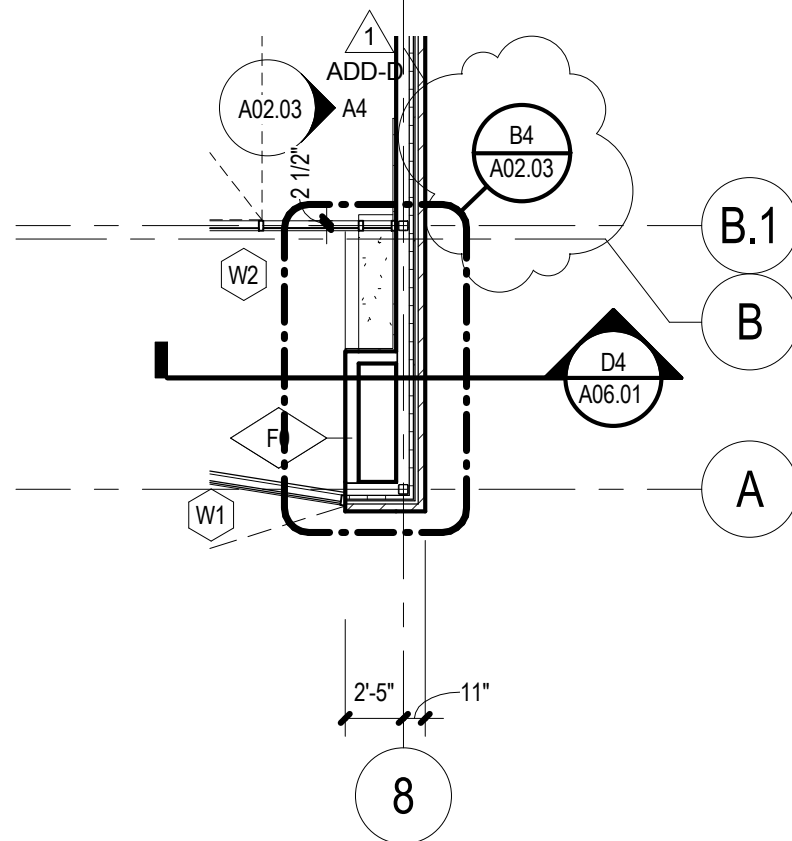
- A. After construction is completed, including painting, clean exposed surfaces of units. Vacuum clean coils and inside of cabinets.
- B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials furnished by manufacturer.

## END OF SECTION



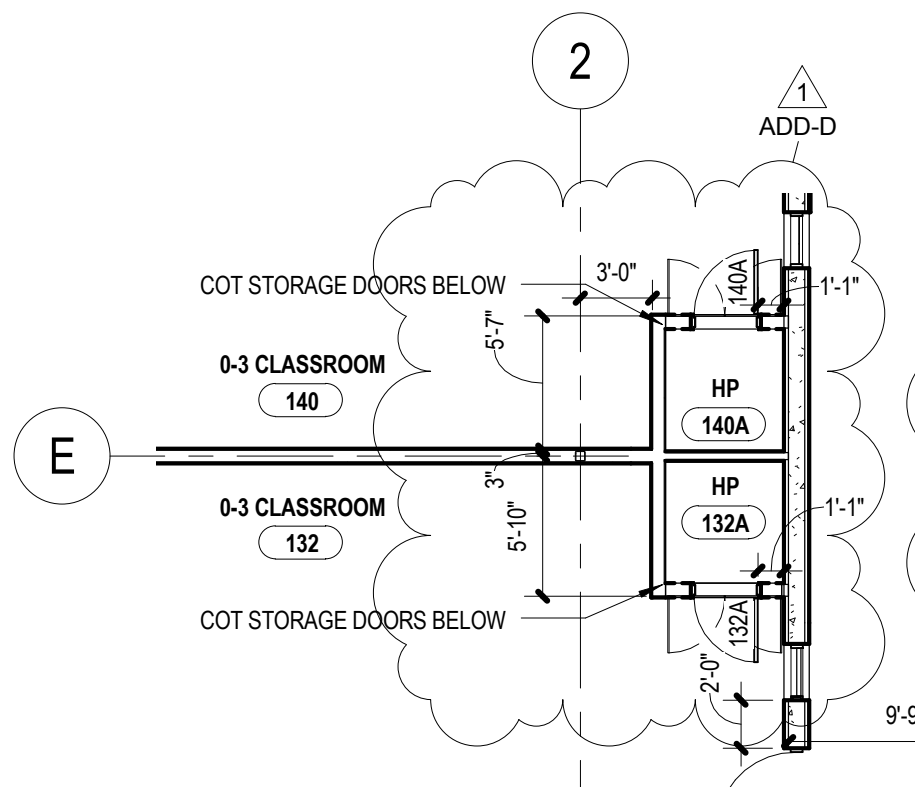
### FLOOR PLAN LEVEL 1

1/8" = 1'-0"



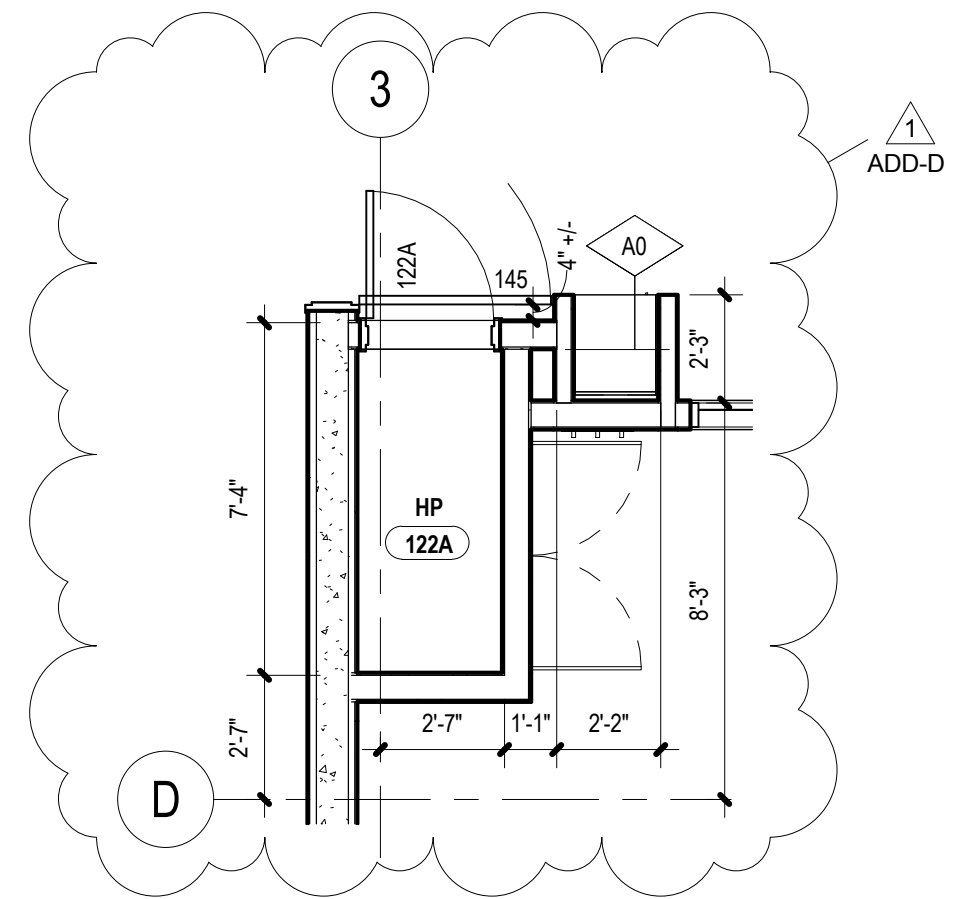
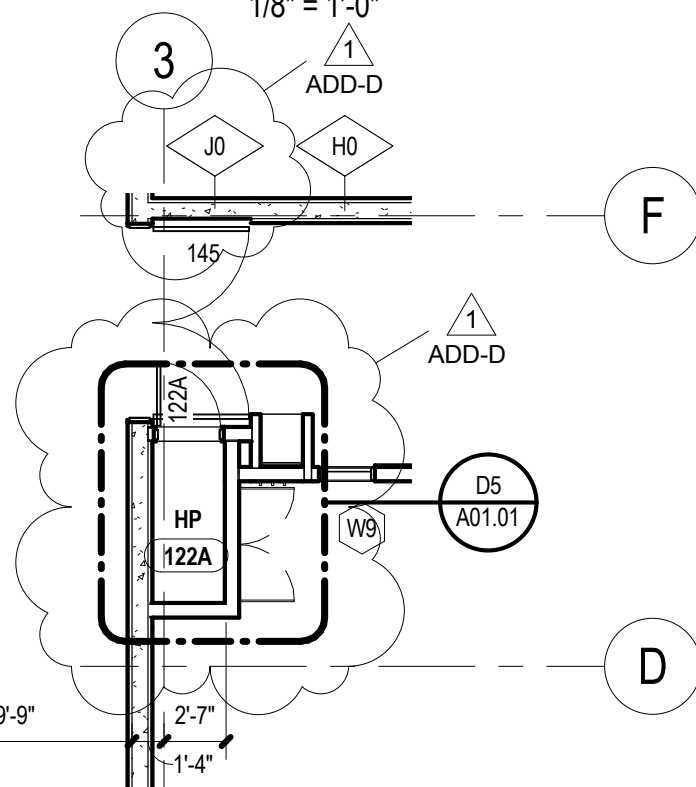
### FLOOR PLAN LEVEL 1

1/8" = 1'-0"



### FLOOR PLAN LEVEL 1

1/8" = 1'-0"



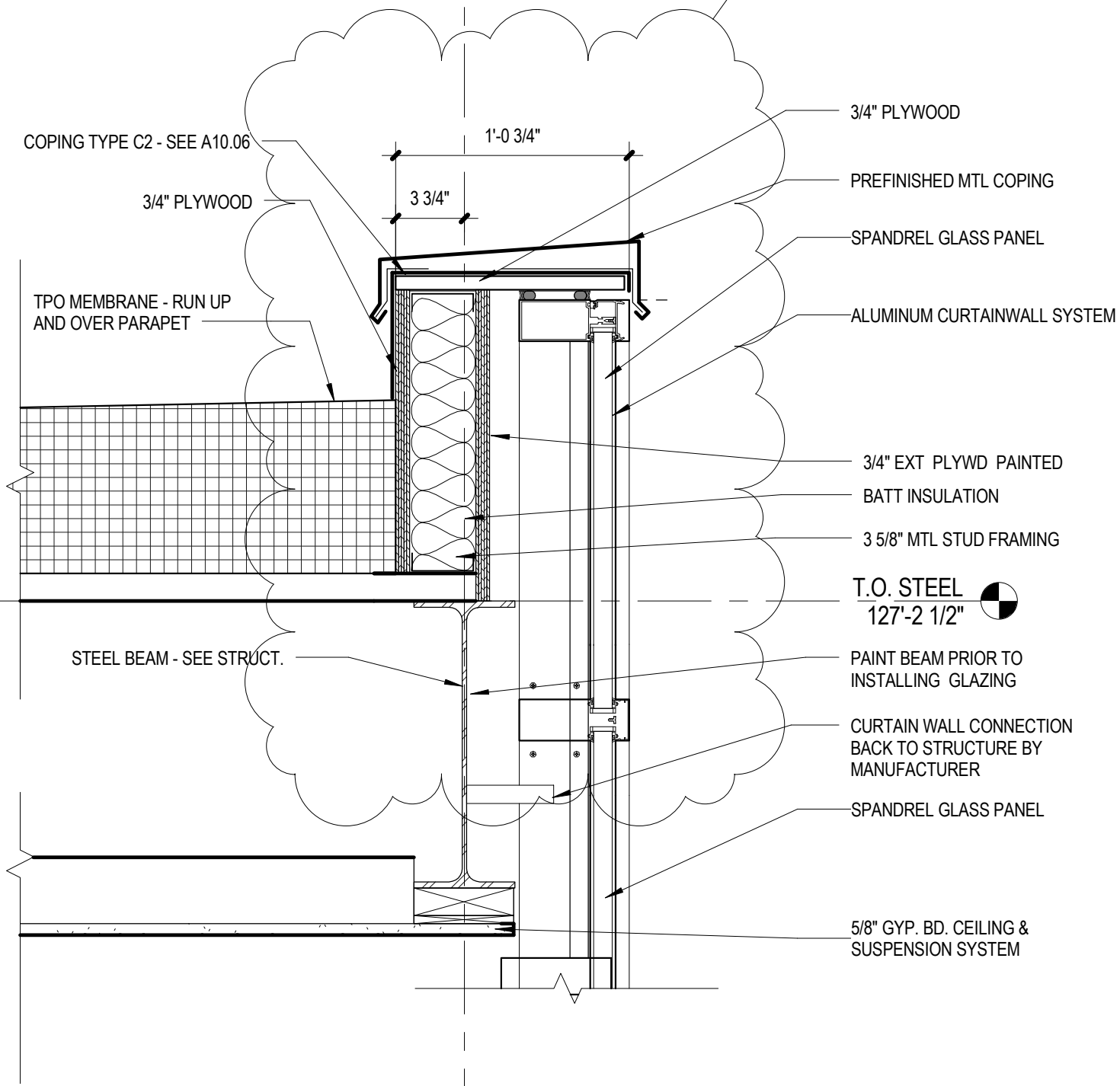
### D5 ENLARGED PLAN RM 122A

1/4" = 1'-0"

	Project Number: 2014.129.00	Date: 11/21/14	Add to Sheet: A01.01	Drawing: SDA-001
	ADD D			GATEWAY EARLY CHILDHOOD CENTER

8

1  
ADD-D

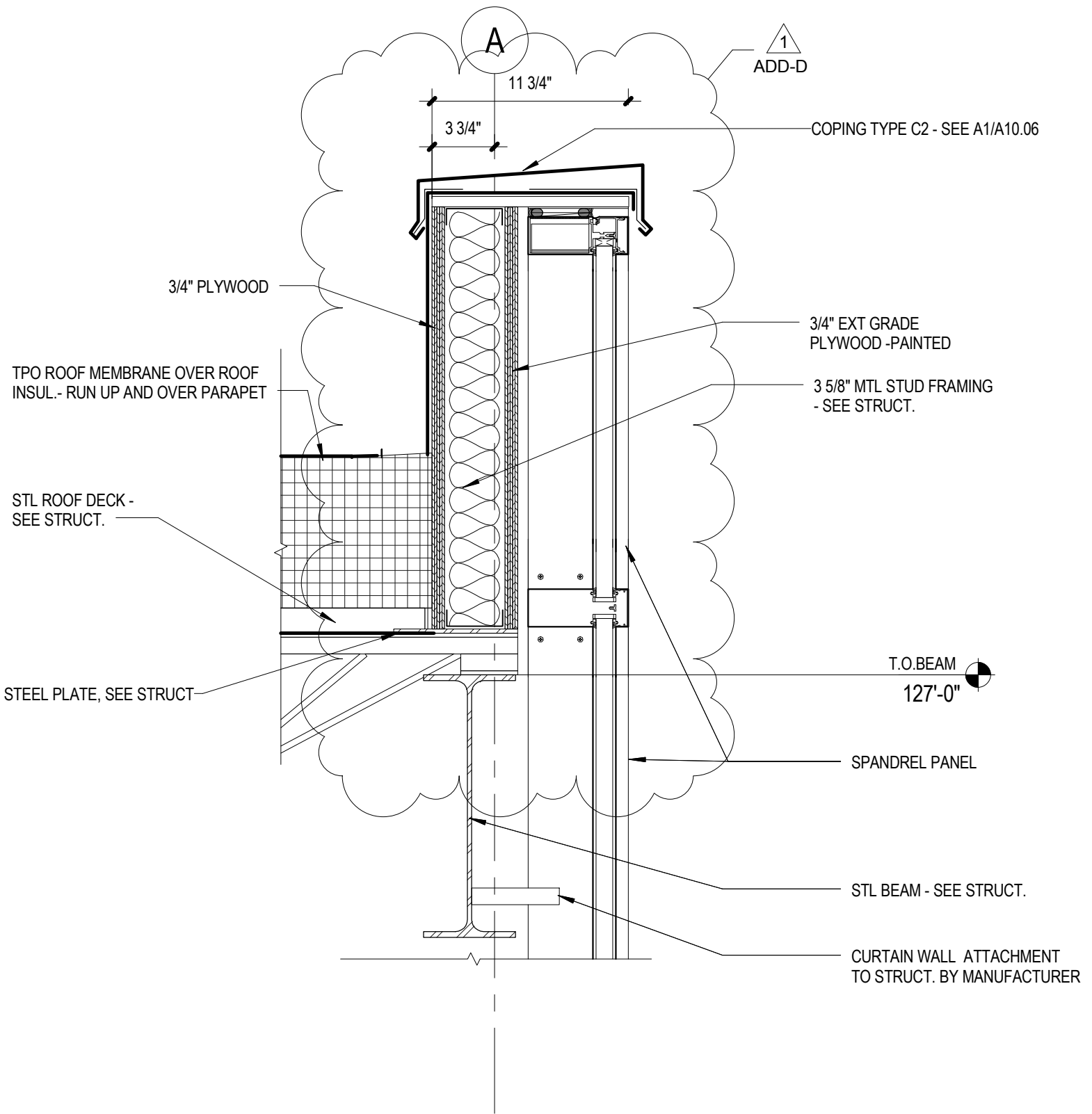


A3

# CLERESTORY WALL EAST

1 1/2" = 1'-0"

	Project Number:	Date:	Change to Sheet:	Drawing:
	2014.129.00	11/21/14	A14.02	SDA-002
GATEWAY EARLY CHILDHOOD CENTER				
ADD-D				

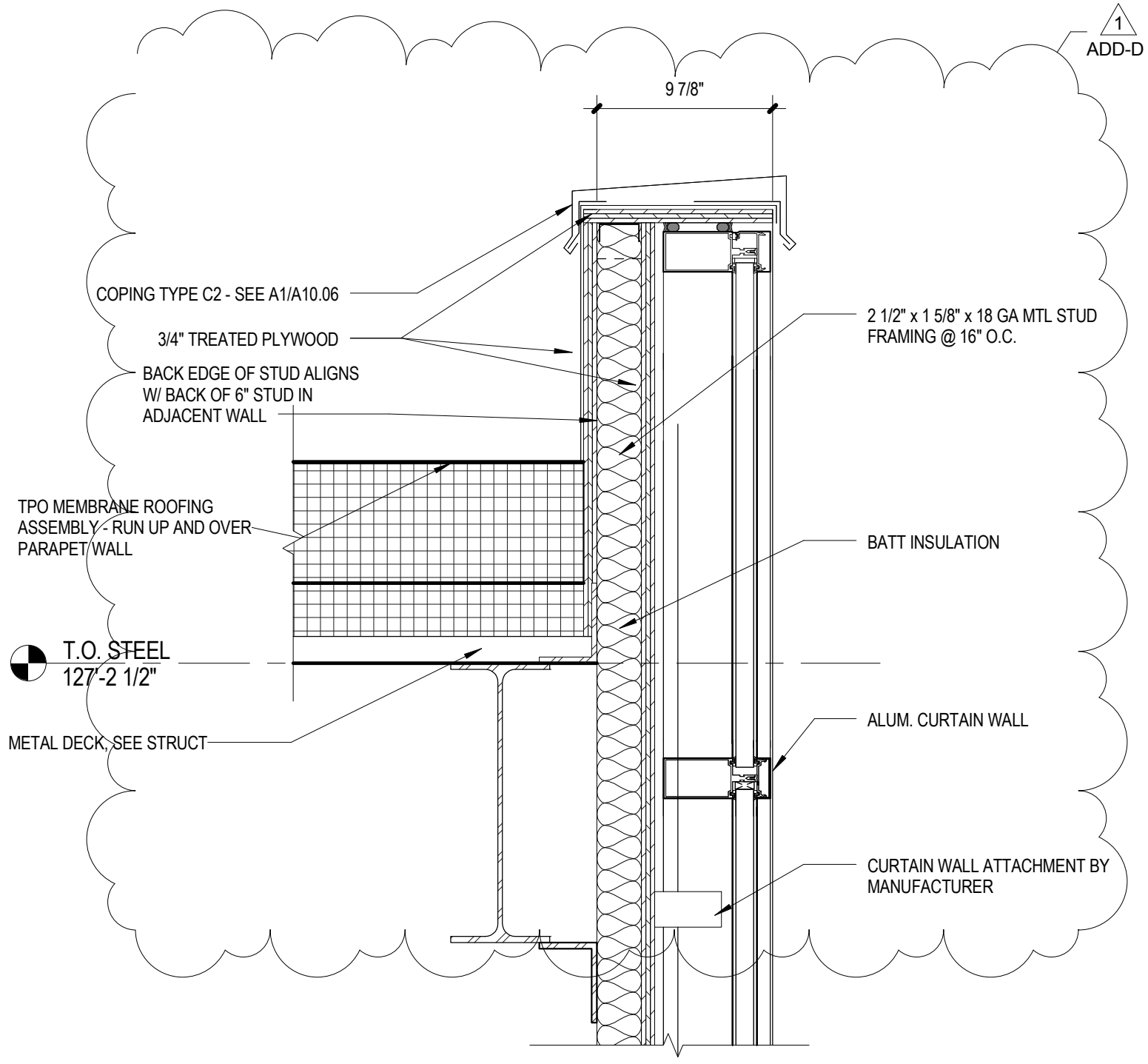


D6

# PARAPET AT SPANDREL

1 1/2" = 1'-0"

	Project Number:	Date:	Change to Sheet:	Drawing:	
	2014.129.00	11/21/14	A14.02	SDA-003	
GATEWAY EARLY CHILDHOOD CENTER					
ADD-D					

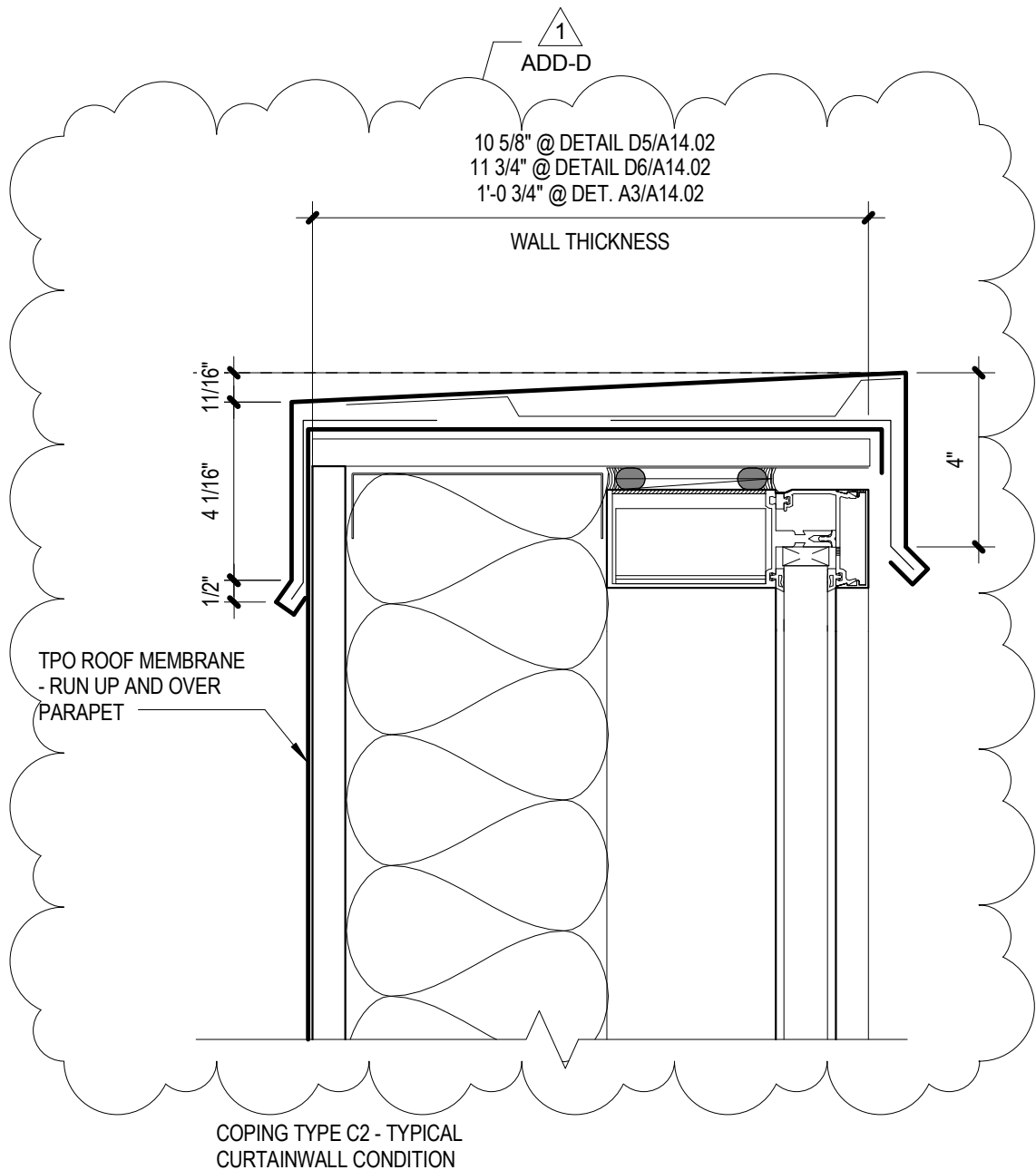


D5

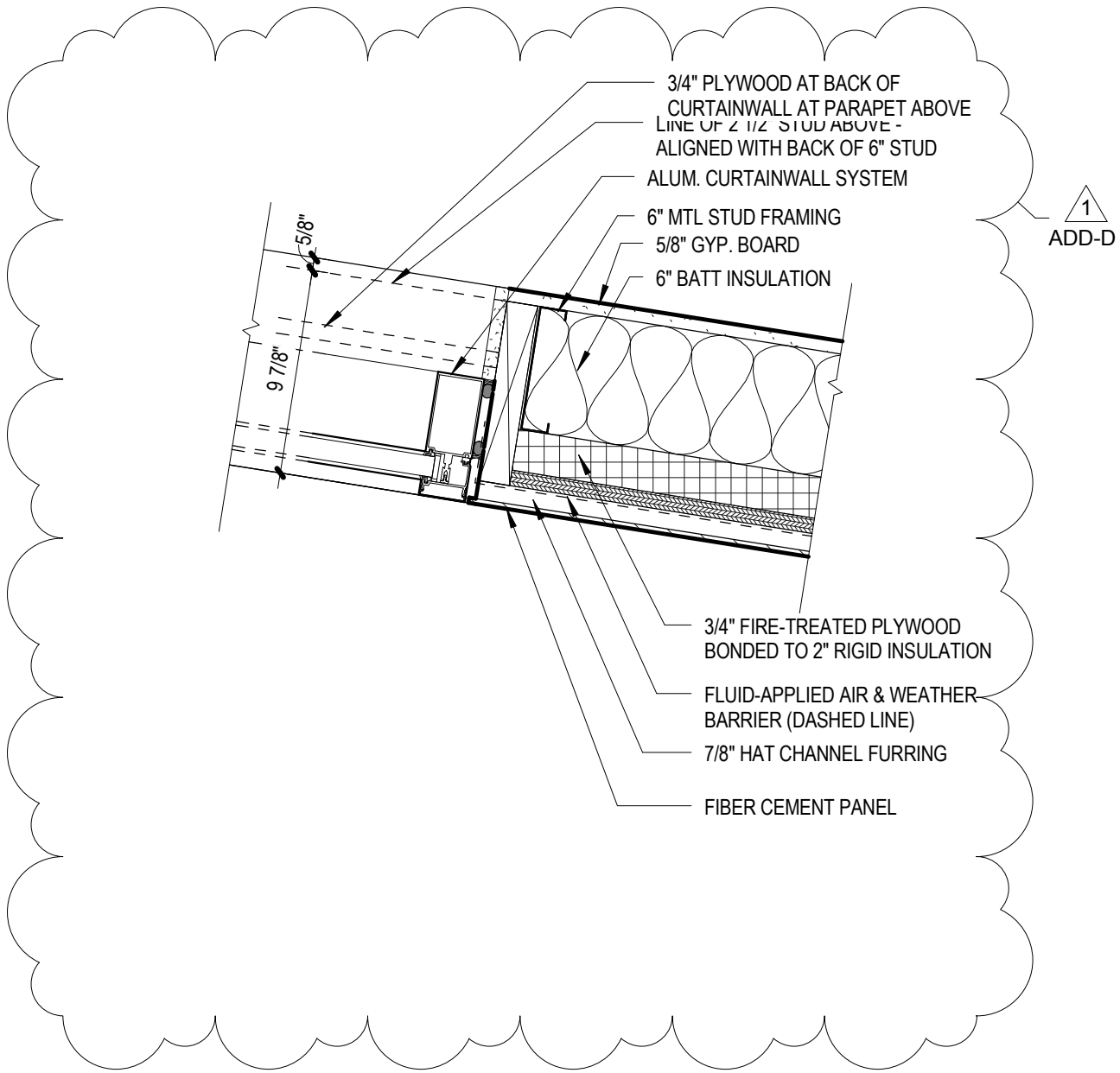
# CONSULT FRONT

1 1/2" = 1'-0"

	Project Number:	2014.129.00	Date:	11/21/14	Change to Sheet:	A14.02	Drawing:	SDA-004
	GATEWAY EARLY CHILDHOOD CENTER							
ADD-D								



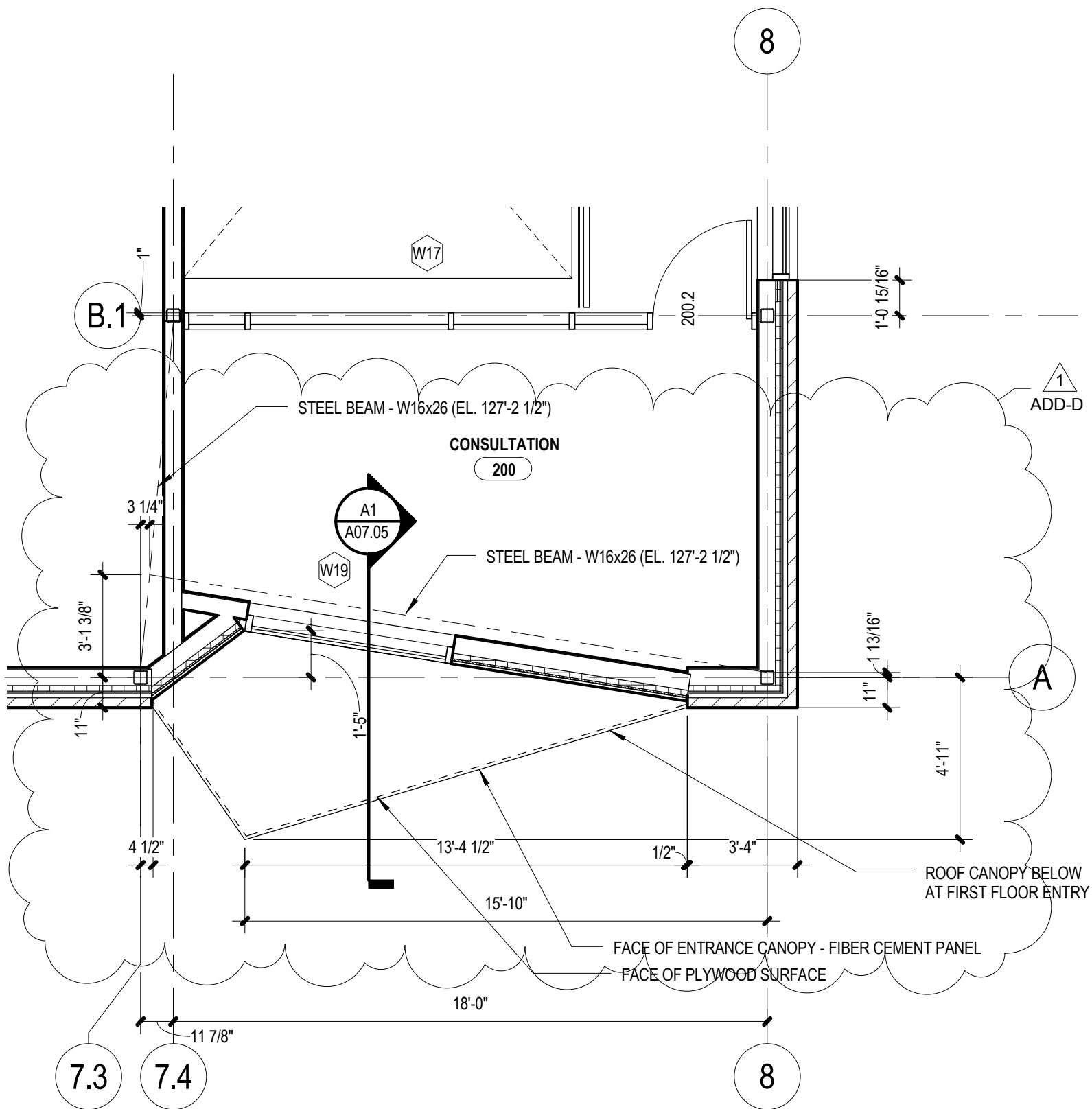
## FLASHING TYPE C2



B1

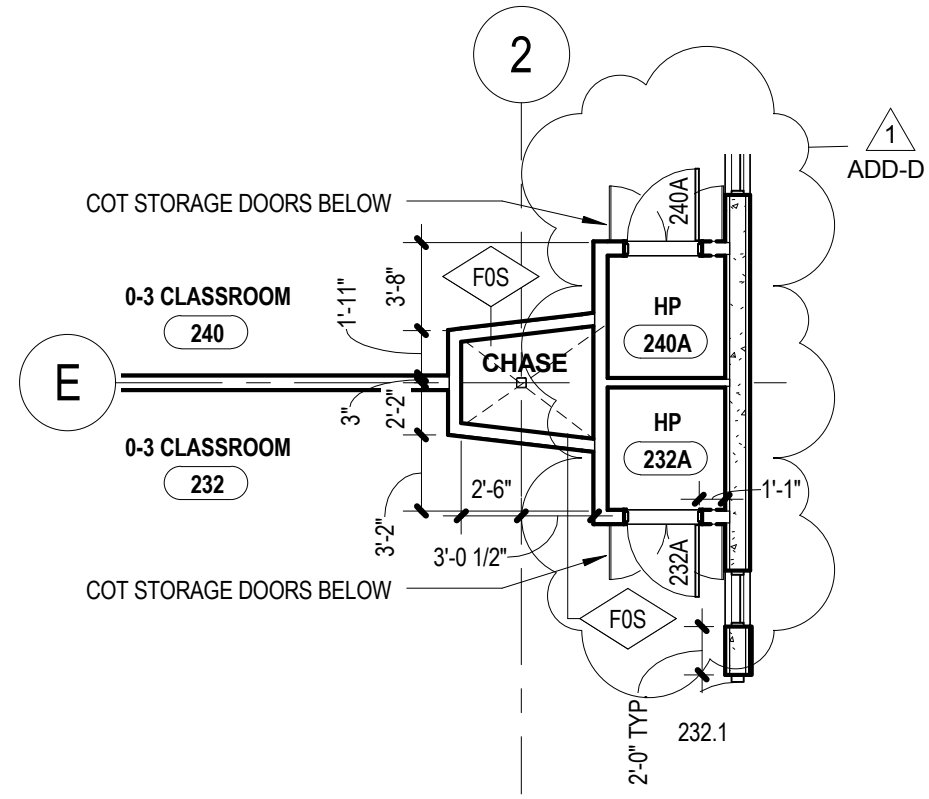
JAMB DETAIL

1 1/2" = 1'-0"



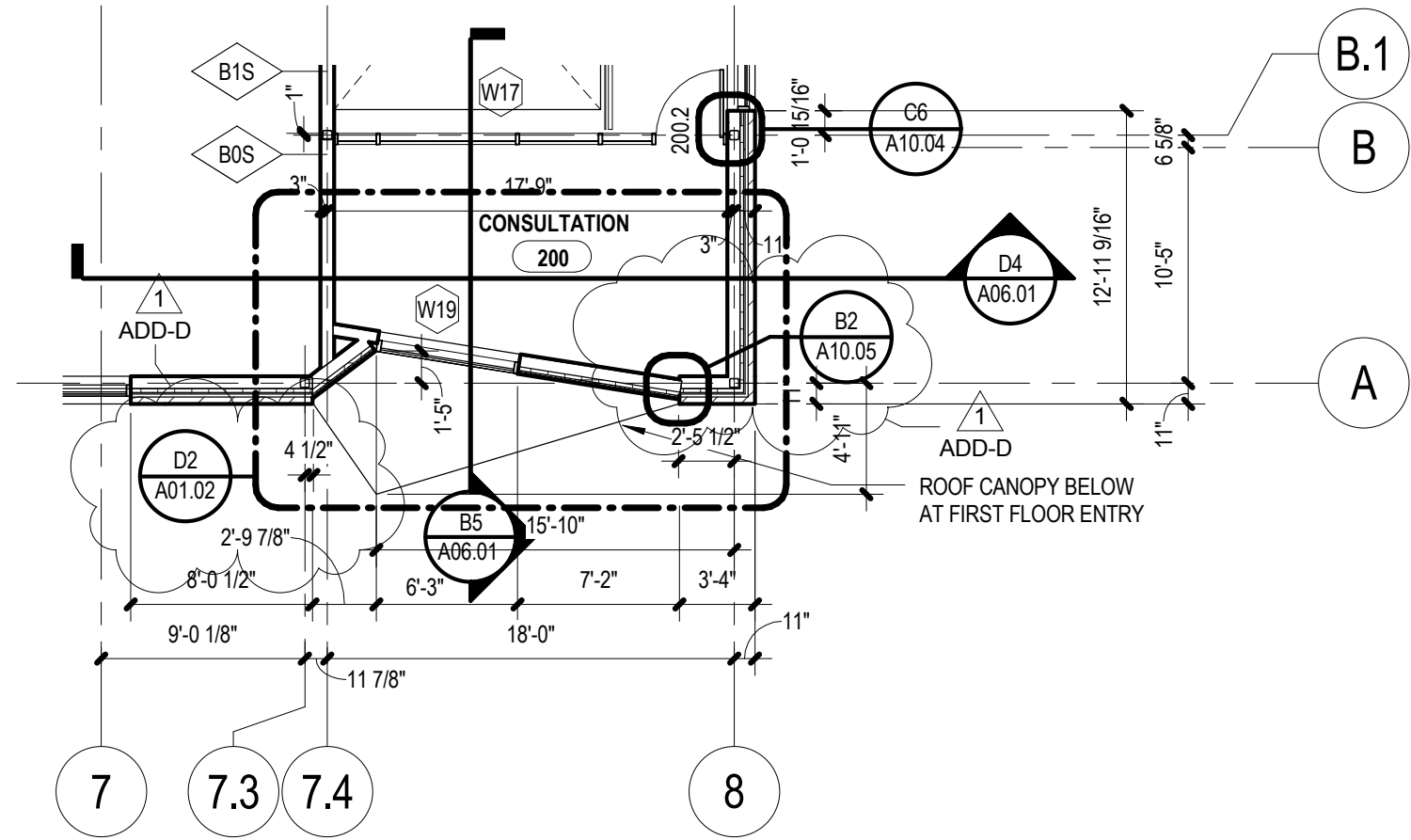
**D1** ENTRANCE CANOPY LAYOUT  
 1/4" = 1'-0"

	Project Number:	Date:	Change to Sheet:	Drawing:
	2014.129.00	11/21/14	A01.02	SDA-007
GATEWAY EARLY CHILDHOOD CENTER				
ADD-D				



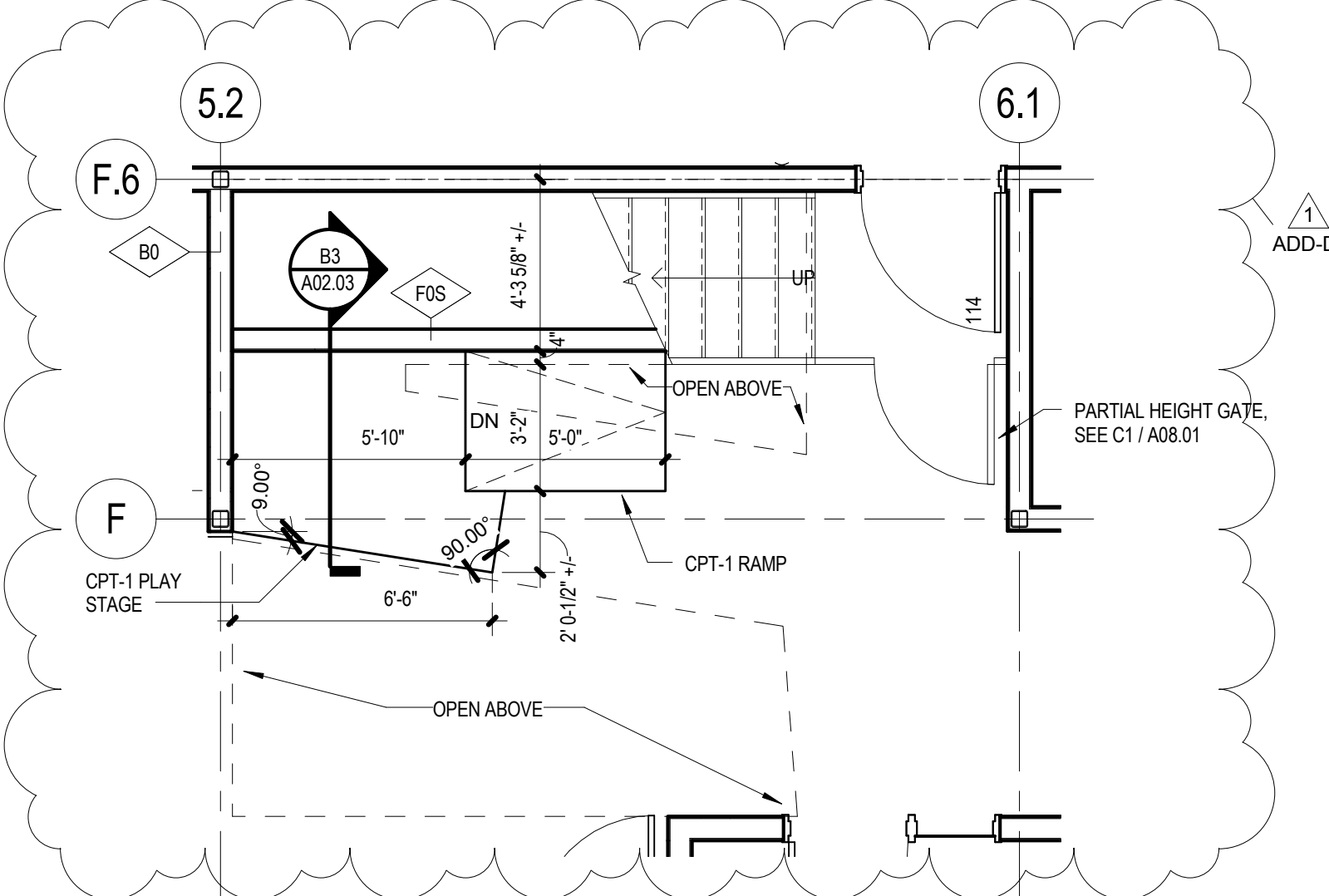
## FLOOR PLAN LEVEL 2

1/8" = 1'-0"



## FLOOR PLAN LEVEL 2

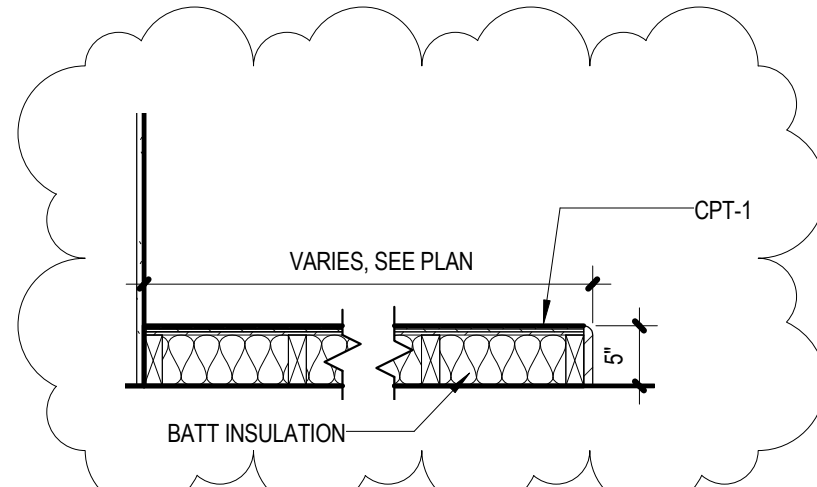
1/8" = 1'-0"



B2

## ENLARGED PLAN AT STAIR PLAY

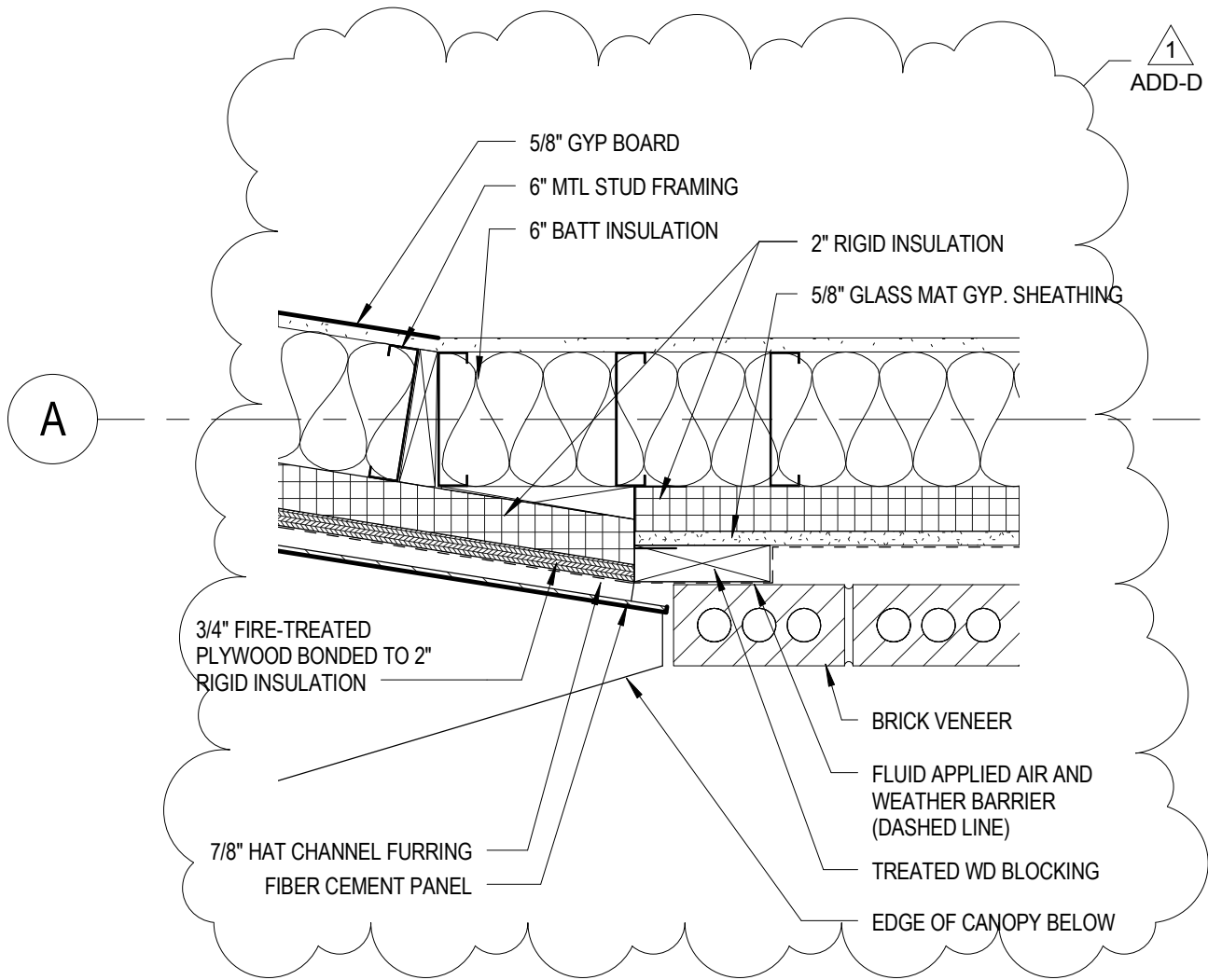
1/4" = 1'-0"



B3

## MILLWORK SECTION

3/4" = 1'-0"

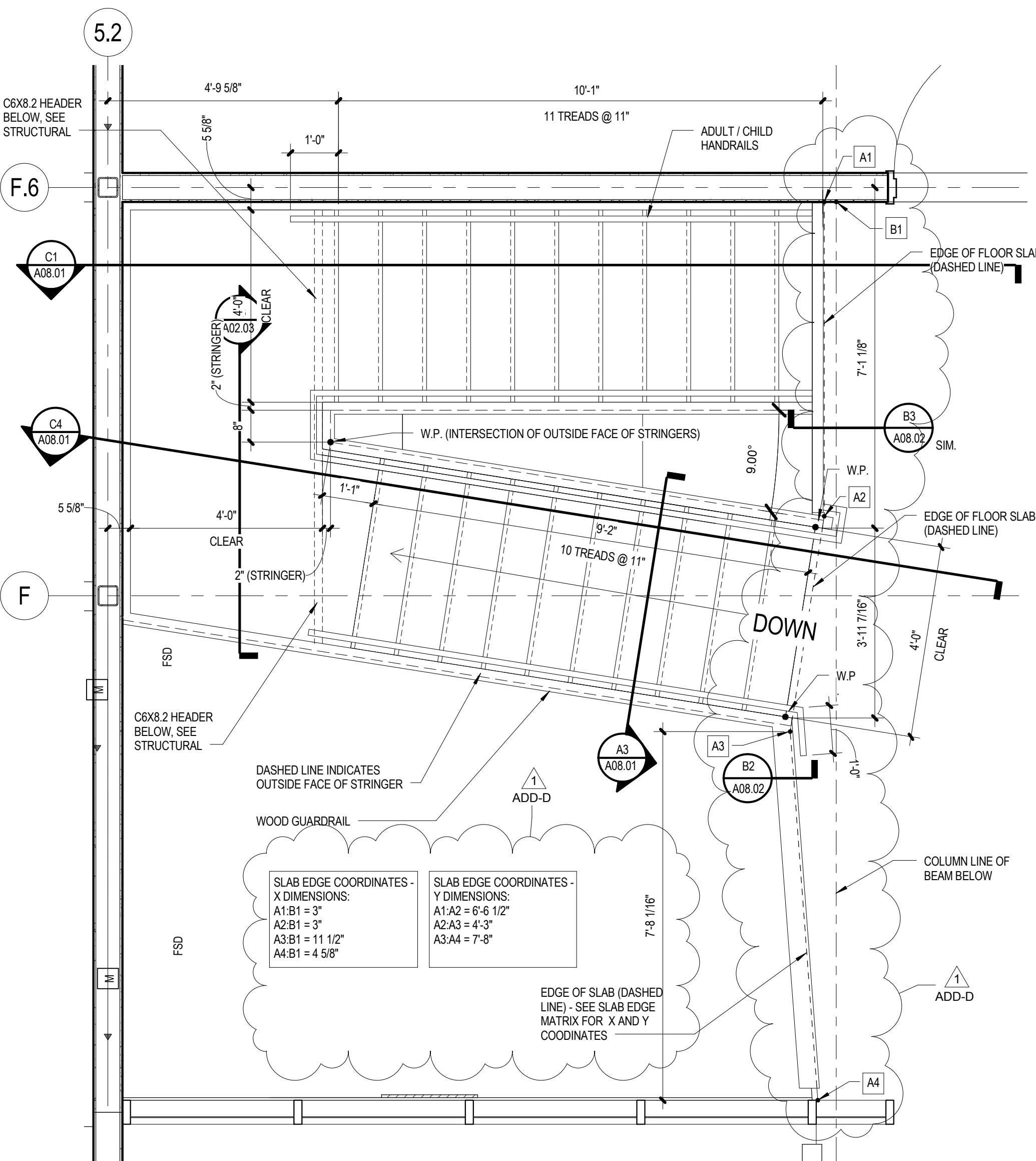


B2

# BRICK TO FIBER CEMENT TRANSITION

1 1/2" = 1'-0"

	Project Number:	Date:	Change to Sheet:	Drawing:
	2014.129.00	11/21/14	A10.05	SDA-010
	GATEWAY EARLY CHILDHOOD CENTER			
ADD-D				



SLAB EDGE COORDINATES - X DIMENSIONS:

A1:B1	= 3"
A2:B1	= 3"
A3:B1	= 11 1/2"
A4:B1	= 4 5/8"

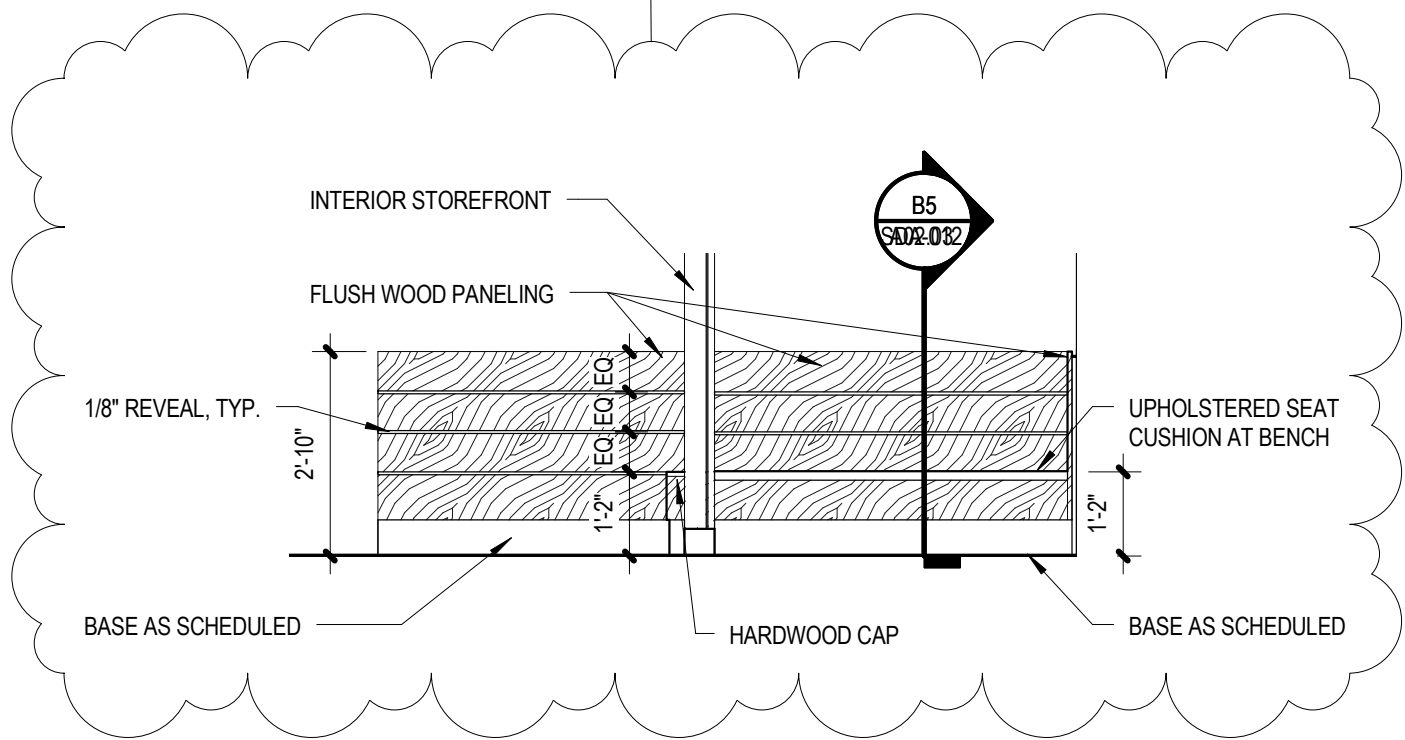
SLAB EDGE COORDINATES - Y DIMENSIONS:

A1:A2	= 6'-6 1/2"
A2:A3	= 4'-3"
A3:A4	= 7'-8"

EDGE OF SLAB (DASHED LINE) - SEE SLAB EDGE MATRIX FOR X AND Y COORDINATES

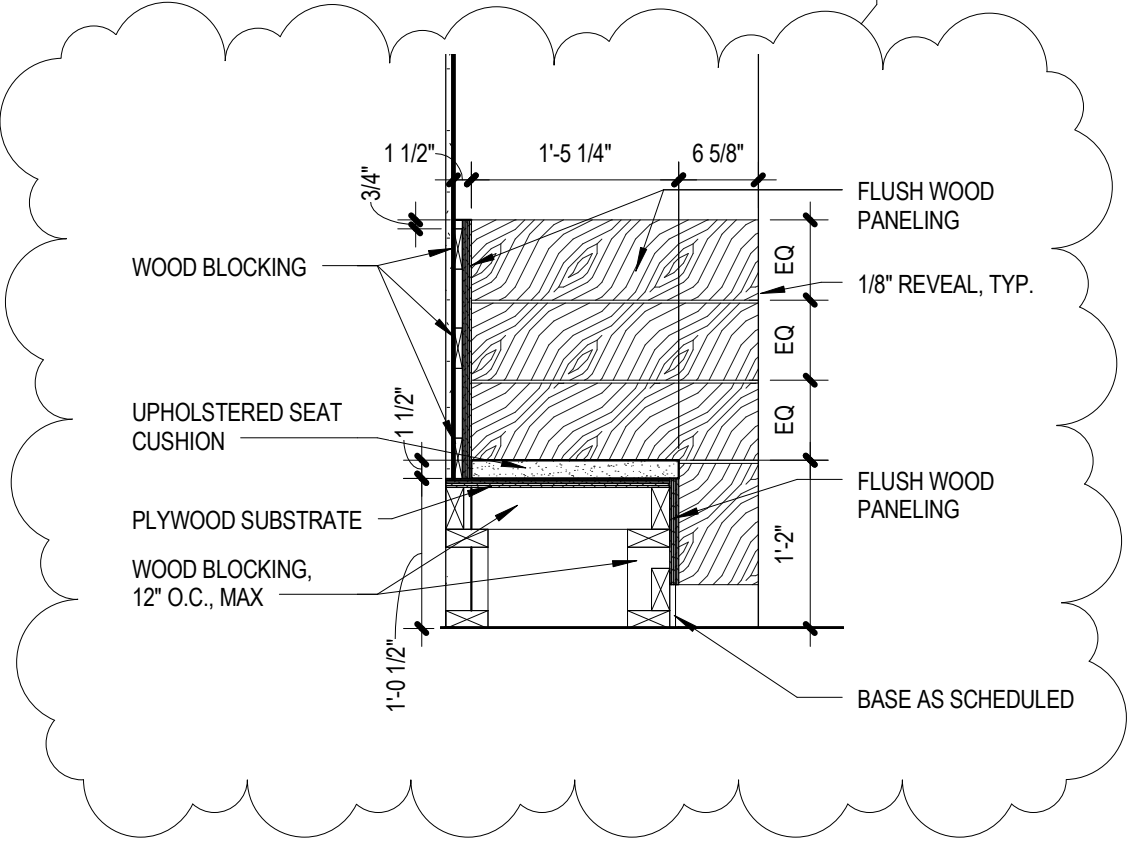
**A4 ENLARGED STAIR PLAN**  
1/2" = 1'-0"

1  
ADD-D



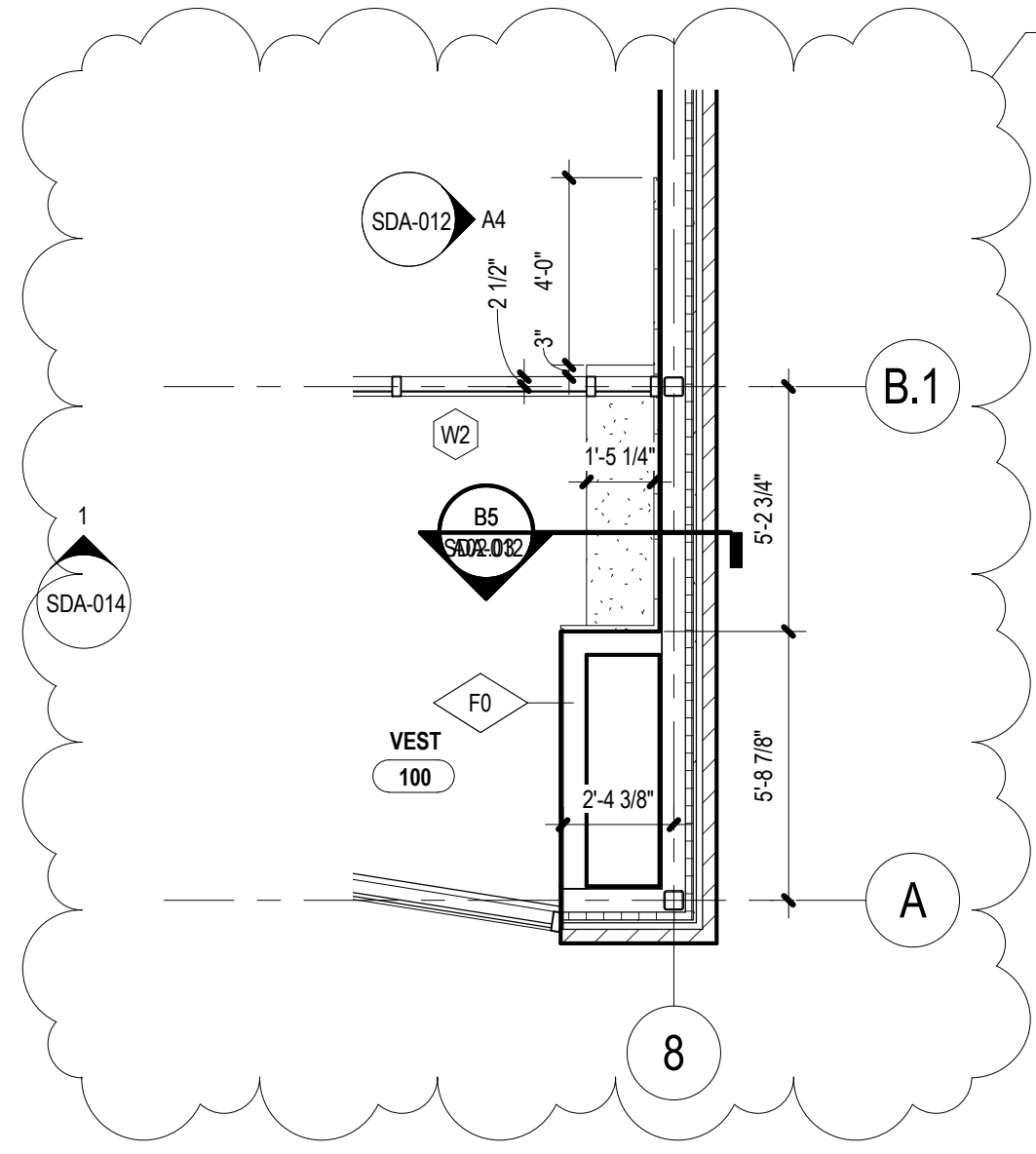
**A4** VESTIBULE BENCH  
3/8" = 1'-0"

1  
ADD-D



**B5** MILLWORK SECTION  
3/4" = 1'-0"

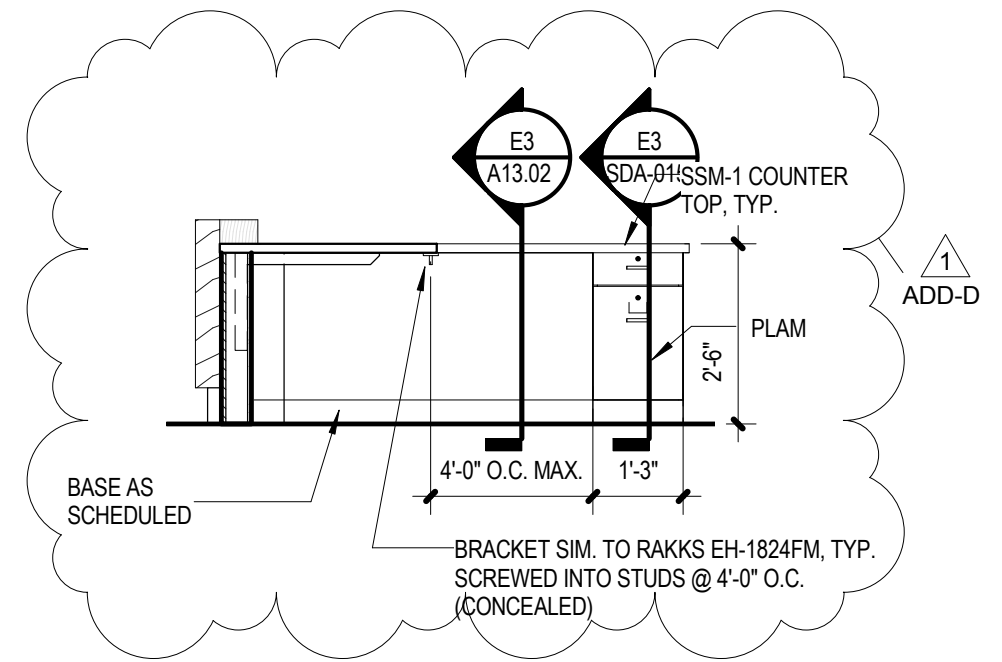
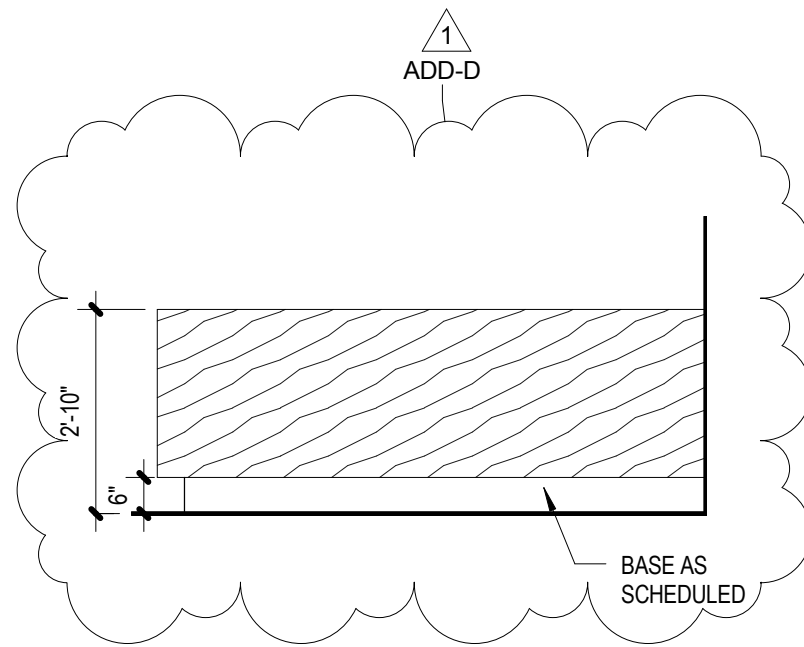
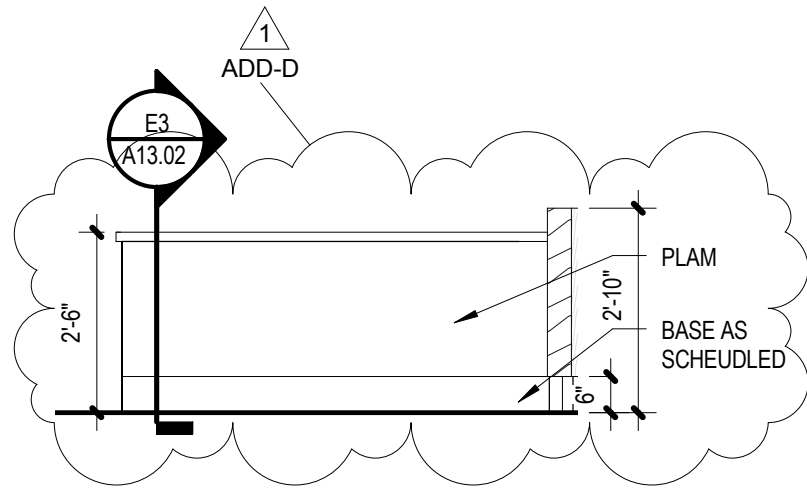
1  
ADD-D



**B4** ENLARGED PLAN AT VESTIBULE  
1/4" = 1'-0"



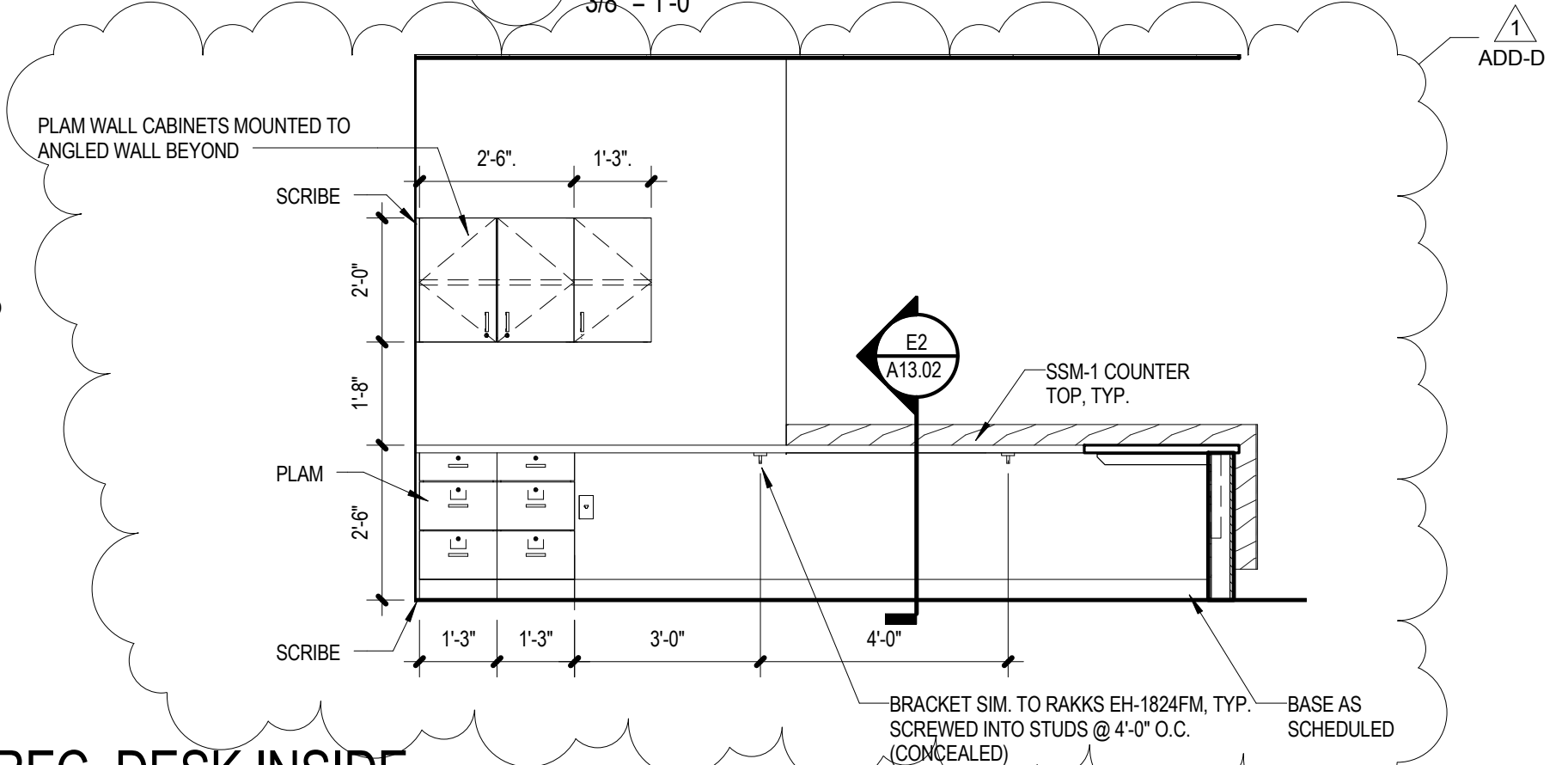
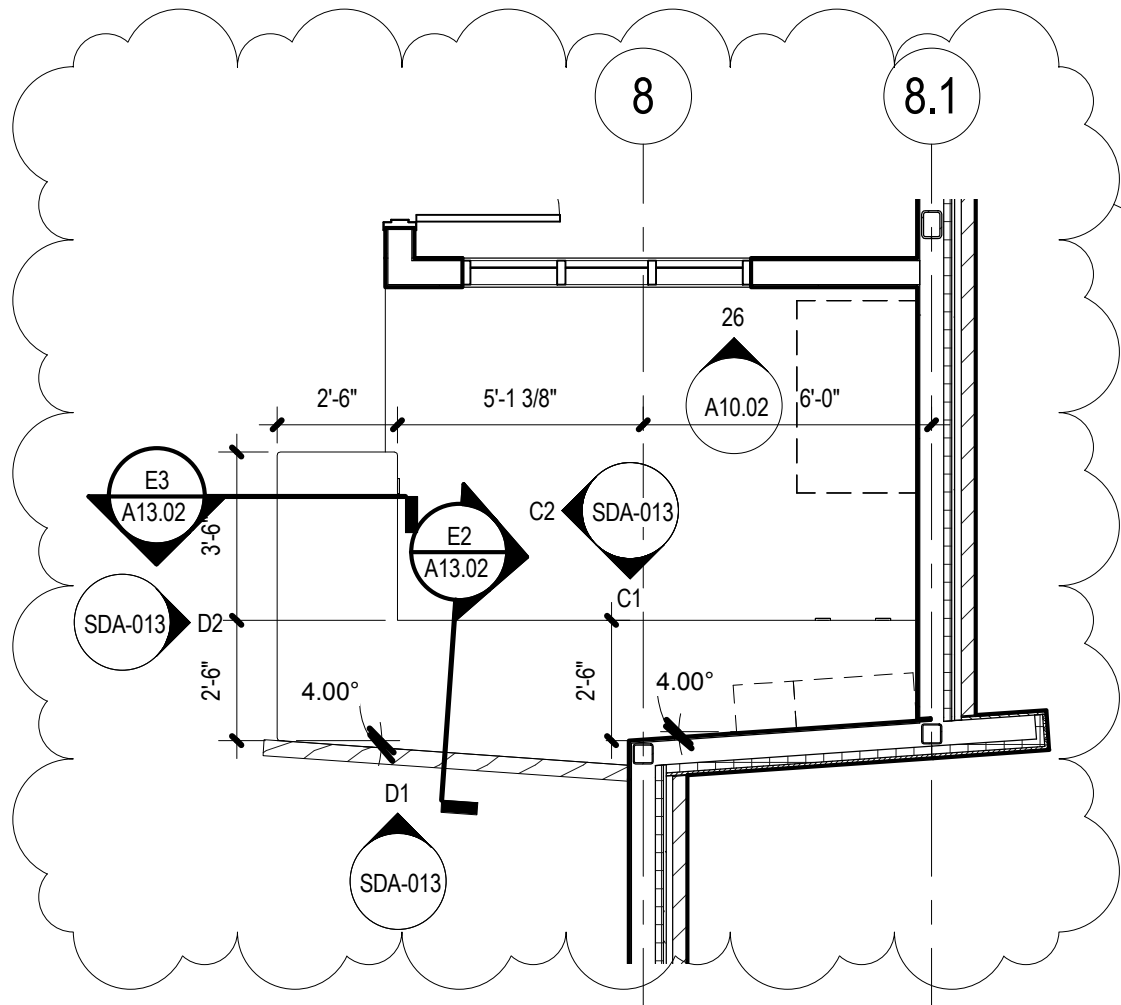
Project Number: 2014.129.00	Date: 11/24/14	Add to Sheet: A02.03	Drawing: SDA-012
ADD-D		GATEWAY EARLY CHILDHOOD CENTER	



**D2 REC. DESK**  
3/8" = 1'-0"

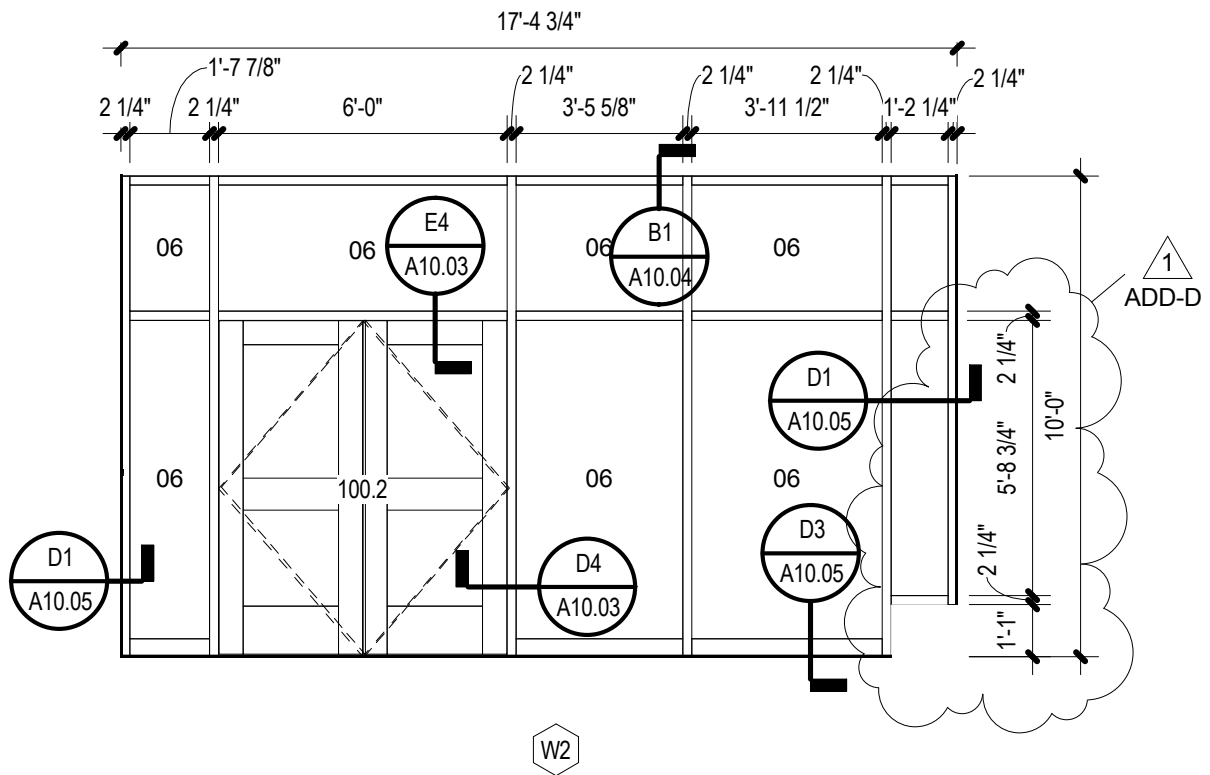
**D1 REC. DESK**  
3/8" = 1'-0"

**C2 REC. DESK INSIDE**  
3/8" = 1'-0"

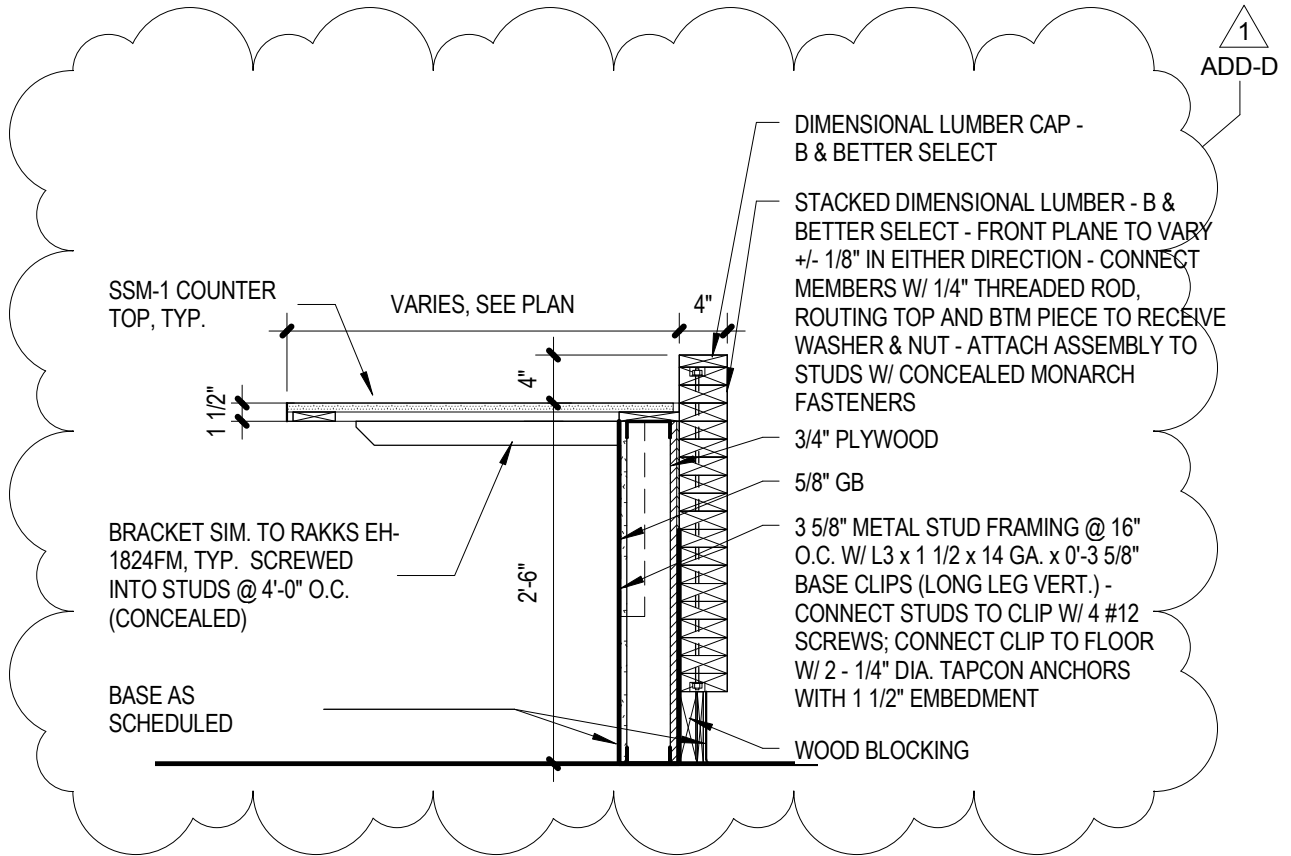


**C1 REC. DESK INSIDE**  
3/8" = 1'-0"

**E1 RECEPTION DESK**  
1/4" = 1'-0"

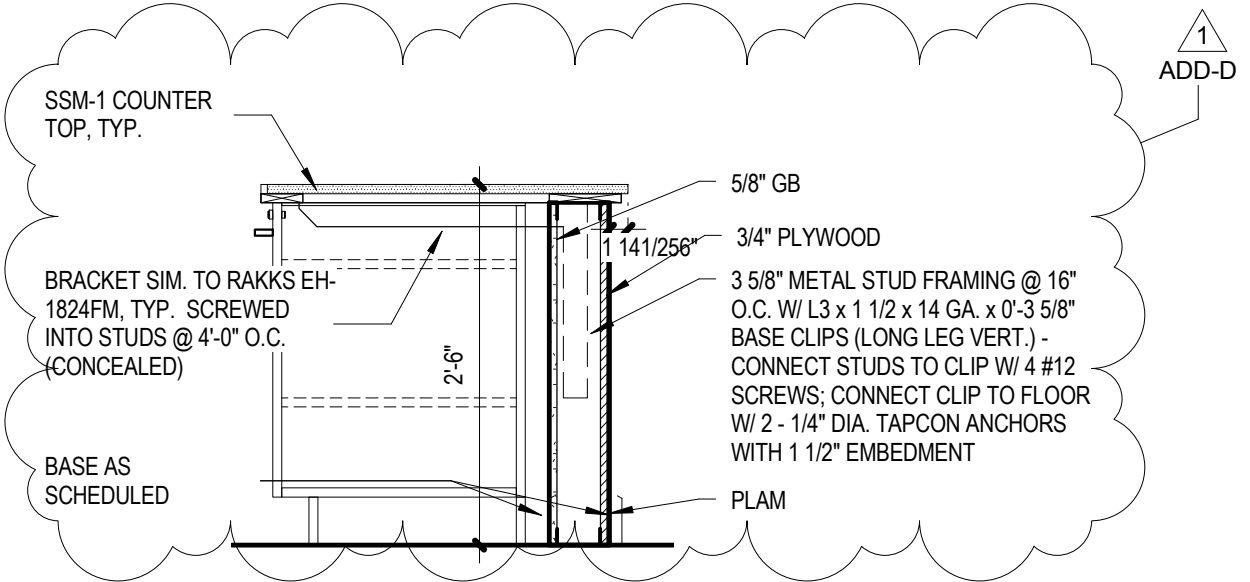


INTERIOR ALUMINUM STOREFRONT



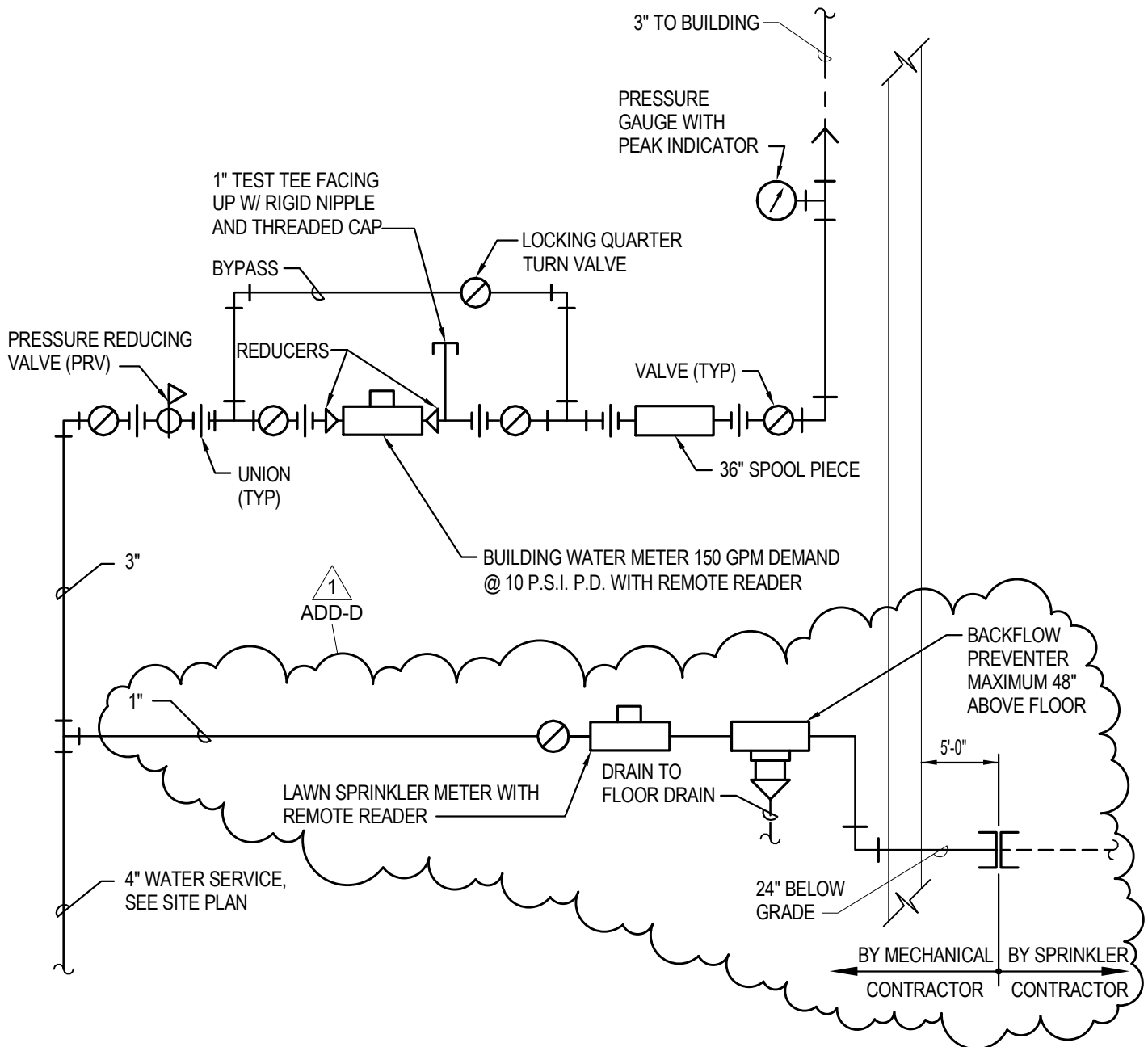
**E2** MILLWORK SECTION

3/4" = 1'-0"



**E3** MILLWORK SECTION

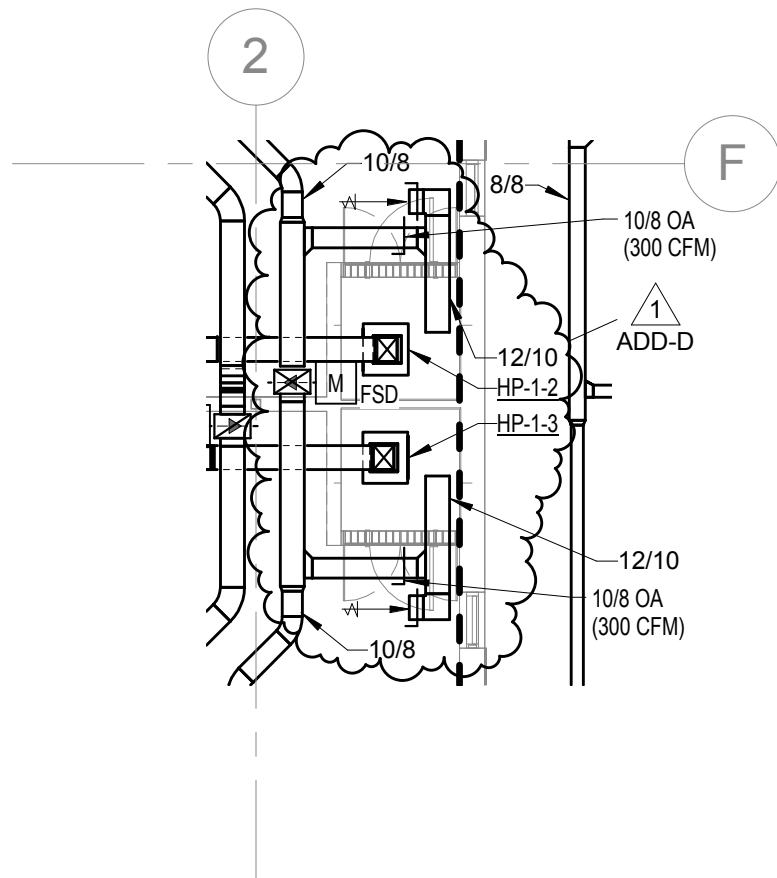
3/4" = 1'-0"



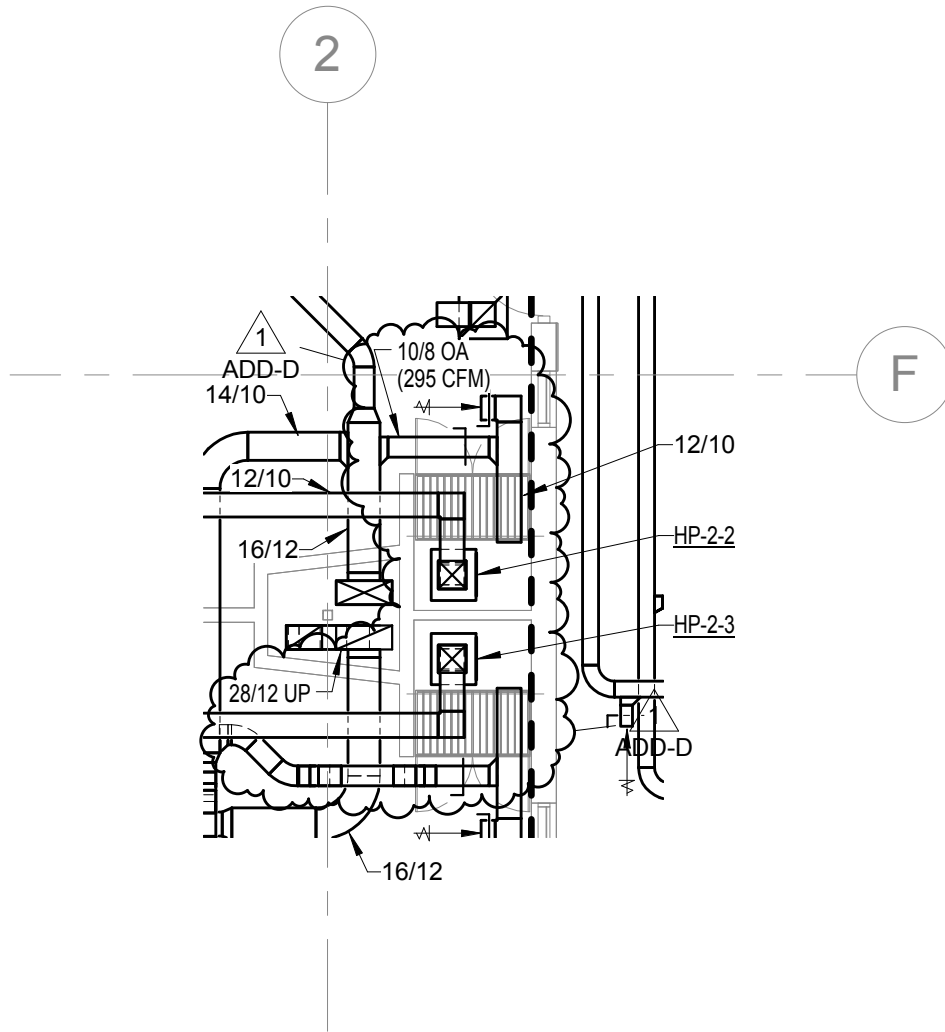
# WATER METER WITH LAWN SPRINKLER

NO SCALE

1  
P4.0



1 SDM-001 FLOOR PLAN - LEVEL 1 - HVAC  
 1/8" = 1'-0"



1 SDM-002 FLOOR PLAN - LEVEL 2 - HVAC  
 1/8" = 1'-0"

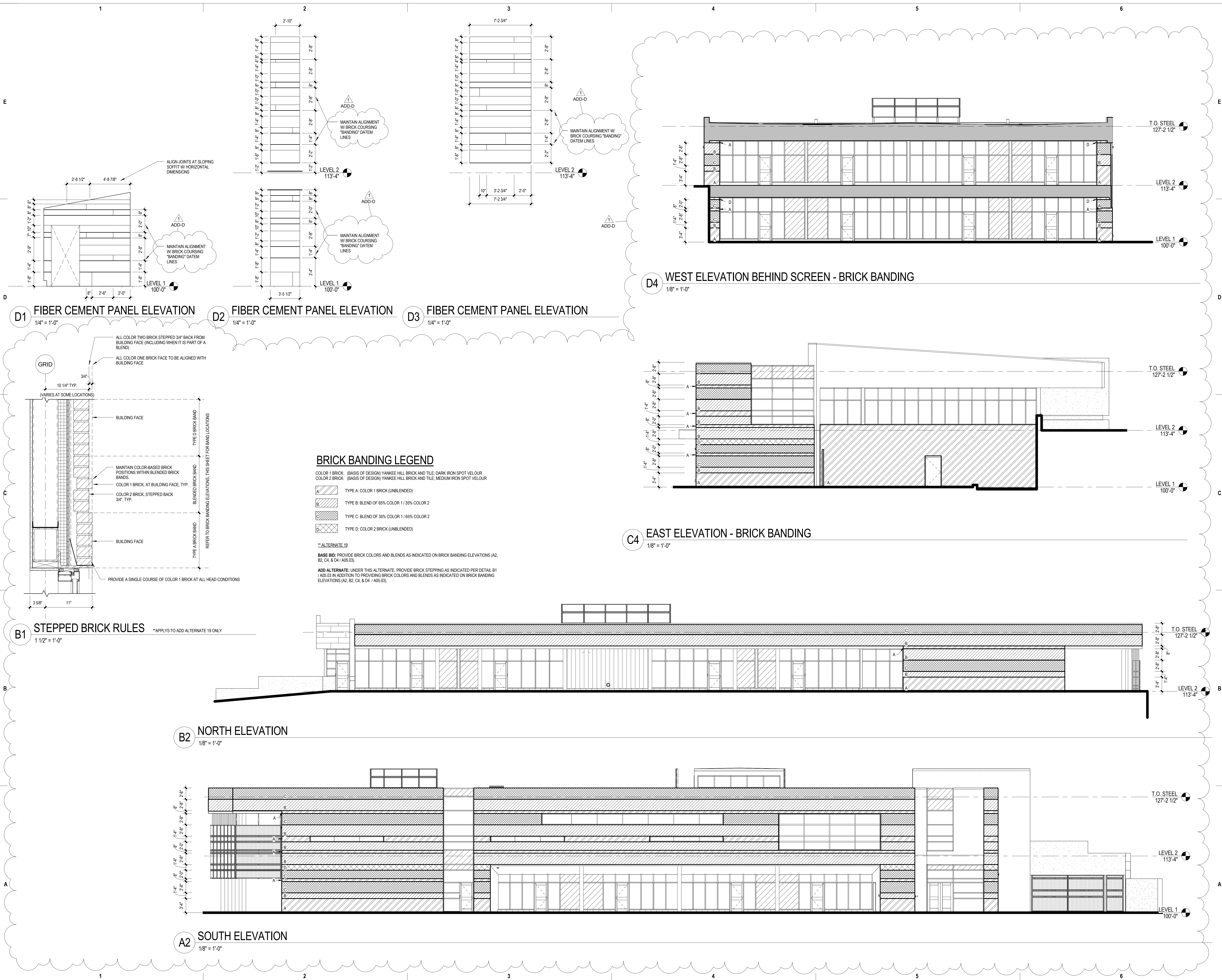
### WATER SOURCE HEAT PUMP SCHEDULE

MARK	HP-1-1	HP-1-2	HP-1-3	HP-1-4	HP-1-5	HP-1-6	HP-1-7	HP-1-8	HP-1-9	HP-1-10	HP-1-11	HP-1-12	HP-1-13	HP-1-14	HP-1-15	HP-2-1	HP-2-2	HP-2-3	HP-2-4	HP-2-5	HP-2-6	HP-2-7	HP-2-8	HP-2-9	HP-2-10	HP-2-11	HP-2-12	HP-2-13	HP-2-14	HP-2-15	HP-2-16	
CONFIGURATION	VERTICAL	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	
AIR FLOW (CFM)	600	600	600	750	250	350	1125	200	600	600	600	600	600	250	250	750	600	600	950	250	750	950	750	600	500	1300	400	200	600	950	250	
EXT. SP (IN. W.C.)	0.5	0.5	0.5	0.75	0.5	0.4	0.6	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.75	0.5	0.5	0.5	0.5	0.75	0.5	0.75	0.5	0.4	0.6	0.4	0.3	0.5	0.5	0.5	
CONDENSER WATER GPM	4.5	4.5	4.5	6.0	2.3	3.0	9.0	2.3	4.5	4.5	4.5	4.5	4.5	2.3	2.3	6.0	4.5	4.5	7.5	2.3	6.0	7.5	6.0	4.5	3.8	10.5	3.0	2.3	4.5	7.5	2.3	
MAX. WPD (FEET)	4.2	4.2	4.2	15.2	3.5	5.6	10.2	3.0	4.2	4.2	4.2	4.2	4.2	3.5	3.5	15.2	4.2	4.2	7.6	3.5	15.2	7.6	15.2	4.2	5.2	11.9	5.6	3.0	4.2	7.6	3.5	
CONDENSER WATER RUNOUT SIZE	3/4	3/4	3/4	3/4	1/2	1/2	3/4	1/2	3/4	3/4	3/4	3/4	3/4	1/2	1/2	3/4	3/4	3/4	3/4	1/2	3/4	3/4	3/4	3/4	1/2	3/4	1/2	3/4	3/4	3/4	1/2	
COOLING DATA	TOTAL COOLING (MBH)	18.7	18.7	18.7	23.5	9.4	11.7	35.4	6.0	18.7	18.7	18.7	18.7	9.4	9.4	23.5	18.7	18.7	29.9	9.4	23.5	29.9	23.5	18.7	15.0	43.1	12.0	6.0	18.7	29.9	9.4	
	SENSIBLE COOLING (MBH)	13.5	13.5	13.5	16.9	6.0	7.3	23.6	4.5	13.5	13.5	13.5	13.5	6.0	6.0	16.9	13.5	13.5	19.9	6.0	16.9	19.9	16.9	13.5	10.8	32.6	8.4	4.5	13.5	19.9	6.0	
	EWT (°F)	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
	LWT (°F)	95.2	95.2	95.2	94.8	95.3	94.7	94.8	95.0	95.2	95.2	95.2	95.2	95.2	95.3	95.3	94.8	95.2	95.0	95.3	94.8	95.0	94.8	95.0	94.8	95.2	94.9	95.1	95.0	95.2	95.0	95.3
HEATING DATA	MIN. EER (1)	15.2	15.2	15.2	13.7	14.2	14.1	14.0	13.7	15.2	15.2	15.2	15.2	14.2	14.2	13.7	15.2	15.2	13.7	14.2	13.7	13.7	13.7	15.2	14.6	14.6	13.9	13.7	15.2	13.7	14.2	
	HEATING (MBH)	20.9	20.9	20.9	27.3	10.5	13.1	41.6	7.2	20.9	20.9	20.9	20.9	20.9	10.5	10.5	27.3	20.9	20.9	35.4	10.5	27.3	35.4	27.3	20.9	17.0	48.9	13.4	7.2	20.9	35.4	10.5
	EWT (°F)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
ELECTRICAL DATA	LWT (°F)	52.8	52.8	52.8	52.9	53.0	53.5	52.9	52.8	52.8	52.8	52.8	52.8	53.0	53.0	52.9	52.8	52.8	52.7	53.0	52.9	52.7	52.9	52.8	53.0	52.8	53.2	52.8	52.8	52.7	53.0	
	MIN. COP (1)	4.4	4.4	4.4	4.5	4.0	3.9	4.3	4.1	4.4	4.4	4.4	4.4	4.0	4.0	4.5	4.4	4.4	4.3	4.0	4.5	4.3	4.5	4.4	4.4	4.3	4.1	4.1	4.4	4.3	4.0	
	VOLTS	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208
DIMENSIONS (LxWxH) (IN)	PHASE	1	1	1	3	1	1	3	1	1	1	1	1	1	1	3	1	1	3	1	3	1	3	1	1	3	1	1	1	3	1	
	WIRE SIZING AMPS	15.2	15.2	15.2	12.0	5.3	7.0	18.4	4.3	15.2	15.2	15.2	15.2	15.2	5.3	5.3	12.0	15.2	15.2	14.8	5.3	12.0	14.8	12.0	15.2	8.5	23.0	7.0	4.3	15.2	14.8	5.3
	FUSE/BREAKER AMPS	20	20	20	15	15	15	30	15	20	20	20	20	20	15	15	15	20	20	20	15	15	15	20	15	15	35	15	15	20	20	15
OPERATING WEIGHT (LBS)	26x23x45	26x23x45	26x23x45	22x22x40	44x23x18	22x23x35	26x22x45	22x23x35	26x23x45	26x23x45	26x23x45	26x23x45	63x23x20	44x23x18	44x23x18	22x22x40	26x23x45	26x23x45	22x22x40	22x23x35	22x22x40	22x22x40	22x22x40	26x23x45	44x21x17	26x22x45	44x23x18	44x23x18	63x23x20	44x21x19	44x23x18	
MANUFACTURER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	CLIMATEMASTER	
MODEL NUMBER	TS018	TS018	TS018	TV024	TS009	TS012	TV036	TS006	TS018	TS018	TS018	TS018	TS018	TS009	TS009	TV024	TS018	TS018	TV030	TS009	TV024	TV030	TV024	TS018	TC015	TV042	TS012	TS006	TS018	TV030	TS009	
REMARKS	(2) (4)	(2) (4)	(2) (4)	(2) (3) (4)	(2)	(2)	(2) (3) (4)	(2)	(2) (4)	(2) (4)	(2) (4)	(2) (4)	(2) (4)	(2)	(2)	(2) (3) (4)	(2) (4)	(2) (4)	(2) (3) (4)	(2)	(2) (3) (4)	(2) (3) (4)	(2) (3) (4)	(2) (4)	(2)	(2) (3) (4)	(2)	(2)	(2) (4)	(2) (3) (4)	(2)	

REMARKS:  
 (1) MINIMUM EER AND COP RATING ACCORDING TO ARI-SO-13256-1.  
 (2) PROVIDE WATER-LEVEL DETECTION DEVICE IN PRIMARY DRAIN PAN TO SHUT DOWN UNIT AND ALARM THE BUILDING MANAGEMENT SYSTEM IN THE EVENT THAT THE PRIMARY DRAIN BECOME BLOCKED. LOCATE SENSOR AT POINT ABOVE THE PRIMARY DRAIN LINE PER CODE REQUIREMENTS.  
 (3) PROVIDE UNIT WITH 2-STAGE COMPRESSOR.  
 (4) PROVIDE WITH ECM MOTOR.

1  
ADD-D





**D1 FIBER CEMENT PANEL ELEVATION**  
1/4" = 1'-0"

**D2 FIBER CEMENT PANEL ELEVATION**  
1/4" = 1'-0"

**D3 FIBER CEMENT PANEL ELEVATION**  
1/4" = 1'-0"

**B1 STEPPED BRICK RULES**  
1 1/2" = 1'-0" \*\*APPLYS TO ADD ALTERNATE 19 ONLY

**B2 NORTH ELEVATION**  
1/8" = 1'-0"

**A2 SOUTH ELEVATION**  
1/8" = 1'-0"

**D4 WEST ELEVATION BEHIND SCREEN - BRICK BANDING**  
1/8" = 1'-0"

**C4 EAST ELEVATION - BRICK BANDING**  
1/8" = 1'-0"

**BRICK BANDING LEGEND**

COLOR 1 BRICK: (BASIS OF DESIGN) YANKEE HILL BRICK AND TILE; DARK IRON SPOT VELOUR  
 COLOR 2 BRICK: (BASIS OF DESIGN) YANKEE HILL BRICK AND TILE; MEDIUM IRON SPOT VELOUR

**A:** TYPE A: COLOR 1 BRICK (UNBLENDED)  
**B:** TYPE B: BLEND OF 65% COLOR 1 / 35% COLOR 2  
**C:** TYPE C: BLEND OF 35% COLOR 1 / 65% COLOR 2  
**D:** TYPE D: COLOR 2 BRICK (UNBLENDED)

\*\*ALTERNATE 19  
 BASE BID: PROVIDE BRICK COLORS AND BLENDS AS INDICATED ON BRICK BANDING ELEVATIONS (A2, B2, C4 & D4 / A05.03)  
 ADD ALTERNATE: UNDER THIS ALTERNATE, PROVIDE BRICK STEPPING AS INDICATED PER DETAIL B1 / A05.03 IN ADDITION TO PROVIDING BRICK COLORS AND BLENDS AS INDICATED ON BRICK BANDING ELEVATIONS (A2, B2, C4 & D4 / A05.03).

**CONSTRUCTION DOCUMENTS**

**GATEWAY EARLY CHILDHOOD CENTER**

**RDG**  
PLANNING & DESIGN

**ARCHITECT**  
RDG Planning & Design  
6002 Leavenworth Street, Suite 100  
Omaha, NE 68114  
(402) 342-3881 Fax  
(402) 342-3881 Cell

**CIVIL**  
Edward Griffin & Associates  
10010 Leavenworth Street, Suite 100  
Omaha, NE 68131  
(402) 342-3881 Fax  
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**STRUCTURAL**  
Professional Engineering  
Omaha, NE 68114  
(402) 342-3881 Fax  
(402) 342-3881 Cell

**MECHANICAL/ELECTRICAL**  
Allen Engineering  
Omaha, NE 68114  
(402) 342-3881 Fax  
(402) 342-3881 Cell

**LANDSCAPE ARCHITECT**  
RDG Planning & Design  
6002 Leavenworth Street, Suite 100  
Omaha, NE 68114  
(402) 342-3881 Fax  
(402) 342-3881 Cell

**FOOD SERVICE EQUIPMENT**  
Sharr Consulting, Inc.  
10010 Leavenworth Street, Suite 100  
Omaha, NE 68131  
(402) 342-3881 Fax  
(402) 342-3881 Cell

**EDMUND EUGLEWINE**  
A-3896  
STATE OF NEBRASKA  
11-12

**KEY PLAN**

5810 South 42nd Street  
Omaha, NE 68107

PROJECT NO: 2014.128.014  
ISSUED: 11/13/2014

RDG Planning & Design  
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GATEWAY EARLY CHILDHOOD CENTER

PROJECT NO: 2014.128.014  
ISSUED: 11/13/2014

REV DATE DESCRIPTION

**BRICK BANDING ELEVATIONS**

**A05.03**