

**Design Selection:
Team “Fab Collab”**



Design Selection: Team "Fab Collab"

THE FAB COLLAB
 RY BALMAIN, CHASE JOHNSON,
 DUY TRAN • INOMA WTB
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CONCEPT
 The Fab Collab is a series of four modular, prefabricated units that can be used as a library, workshop, or community space. It is designed to be flexible and adaptable to various environments and uses.

GREEN INITIATIVES
 The design team has incorporated several green initiatives into the design. These include the use of sustainable materials, energy-efficient lighting, and a rainwater harvesting system. The units are also designed to be easily disassembled and reassembled.

ENERGY
 The units are designed to be energy-efficient. They feature energy-efficient lighting, insulation, and a rainwater harvesting system. The units are also designed to be easily disassembled and reassembled.

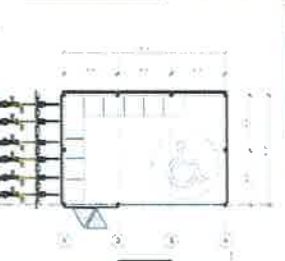
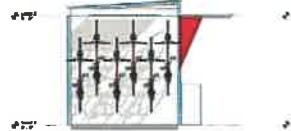
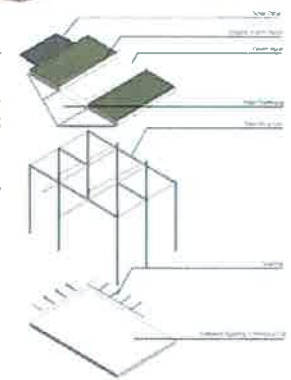
WATER
 The units are designed to be water-efficient. They feature a rainwater harvesting system that collects water from the roof and stores it in a tank. This water can be used for irrigation or other non-potable uses.



INDOOR AIR QUALITY
 The units are designed to have good indoor air quality. They feature energy-efficient lighting, insulation, and a rainwater harvesting system. The units are also designed to be easily disassembled and reassembled.

COST ESTIMATE

Item	Quantity	Unit Price	Total Price
Structure	1	\$10,000	\$10,000
Interior	1	\$5,000	\$5,000
Exterior	1	\$3,000	\$3,000
Lighting	1	\$2,000	\$2,000
Water	1	\$1,000	\$1,000
Other	1	\$1,000	\$1,000
Total			\$22,000



Bus Shelter Design

COMO Connect / Columbia Public Transit

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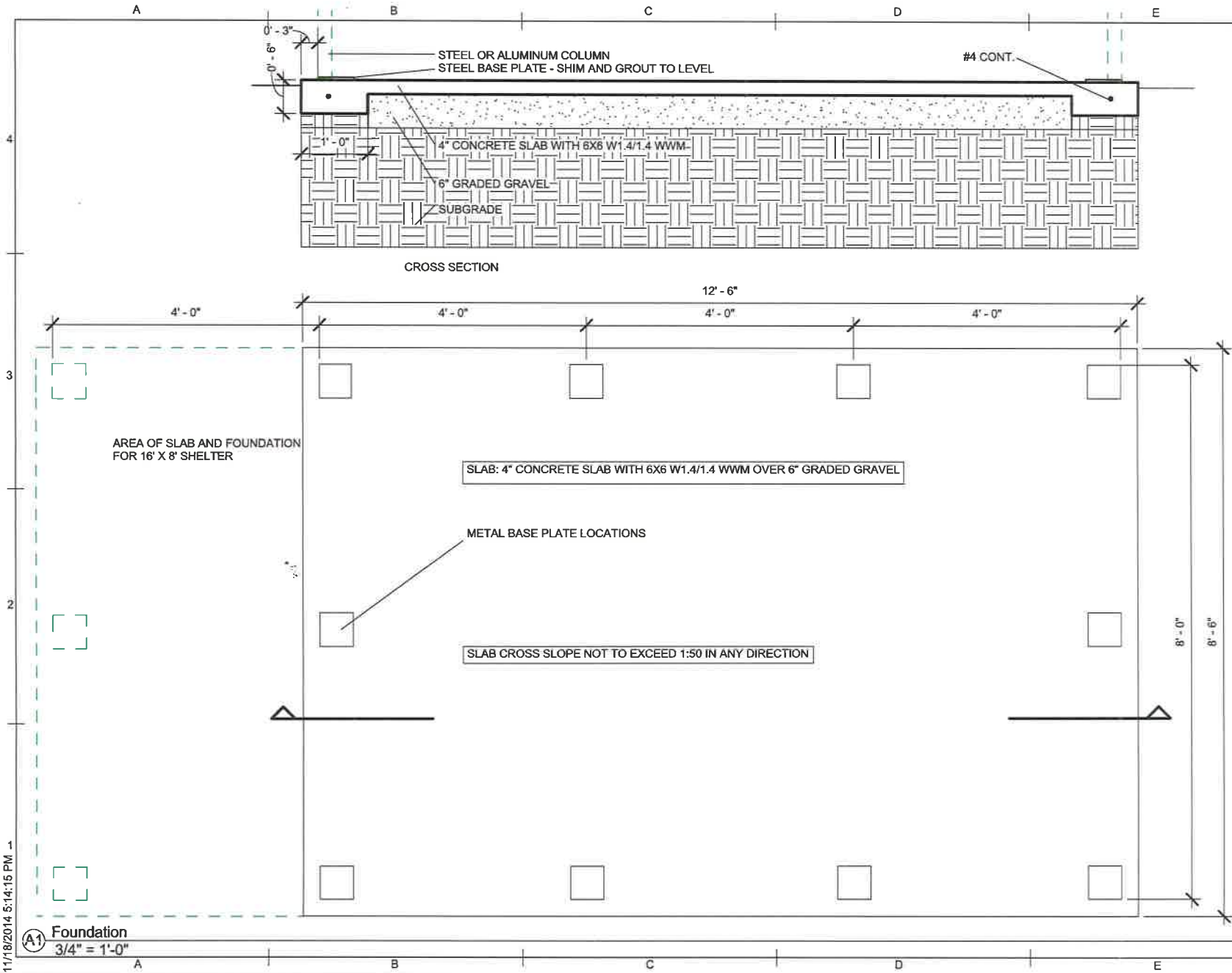


M. Goldschmidt, R. Baldwin, D. Tran, C. Johnson, L. Webb

Cover

Project number	MG2014-1
Date	15 Nov 2014
Drawn by	M. Goldschmidt
Checked by	M. Goldschmidt

A000



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BUS SHELTER DESIGN



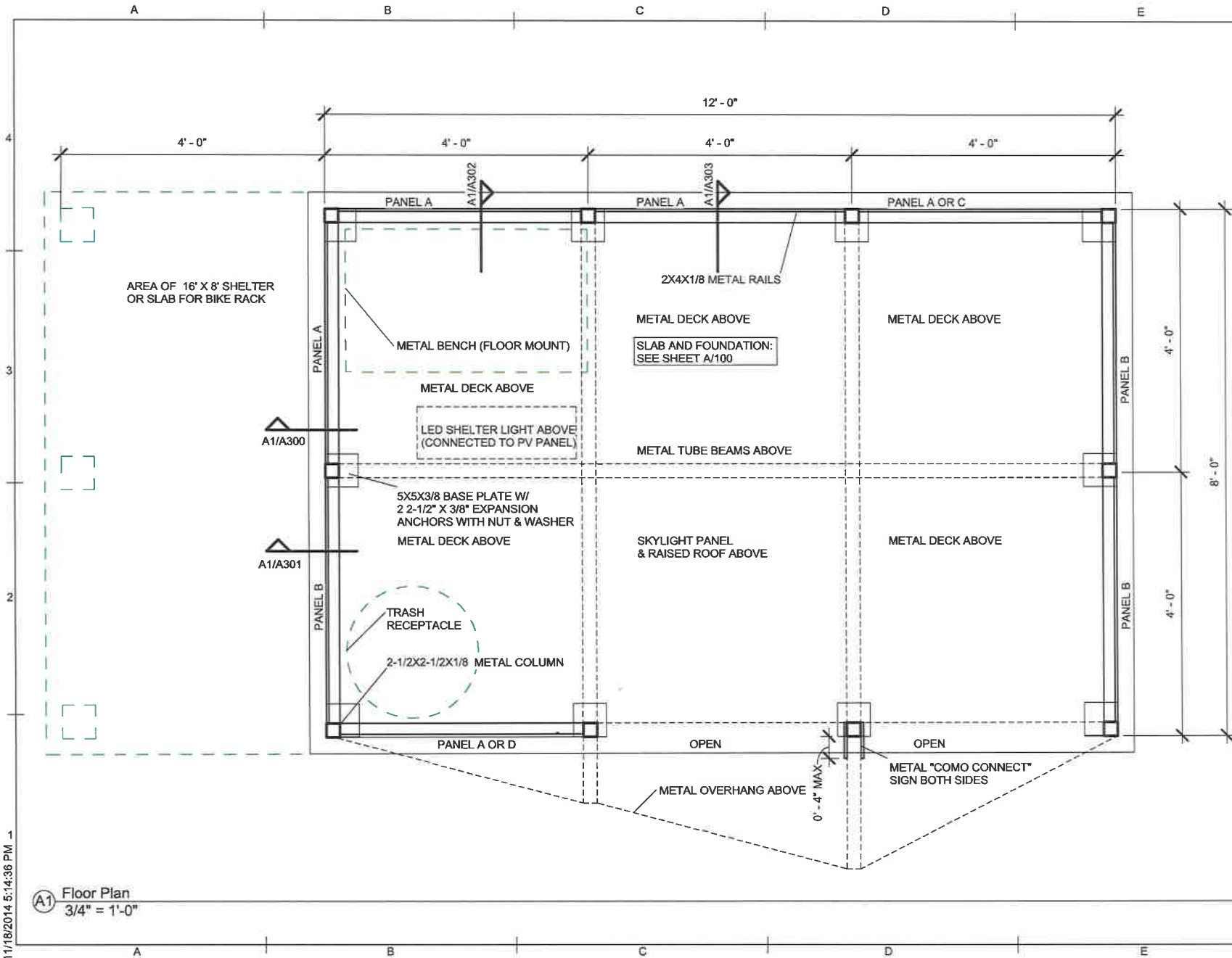
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Foundation Plan

Project number	MG2014-1
Date	15 Nov 2014
Drawn by	Goldschmidt
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A100



A1 Floor Plan
3/4" = 1'-0"

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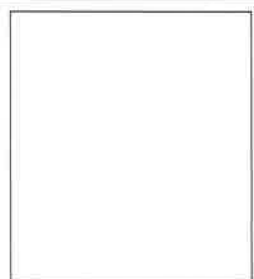
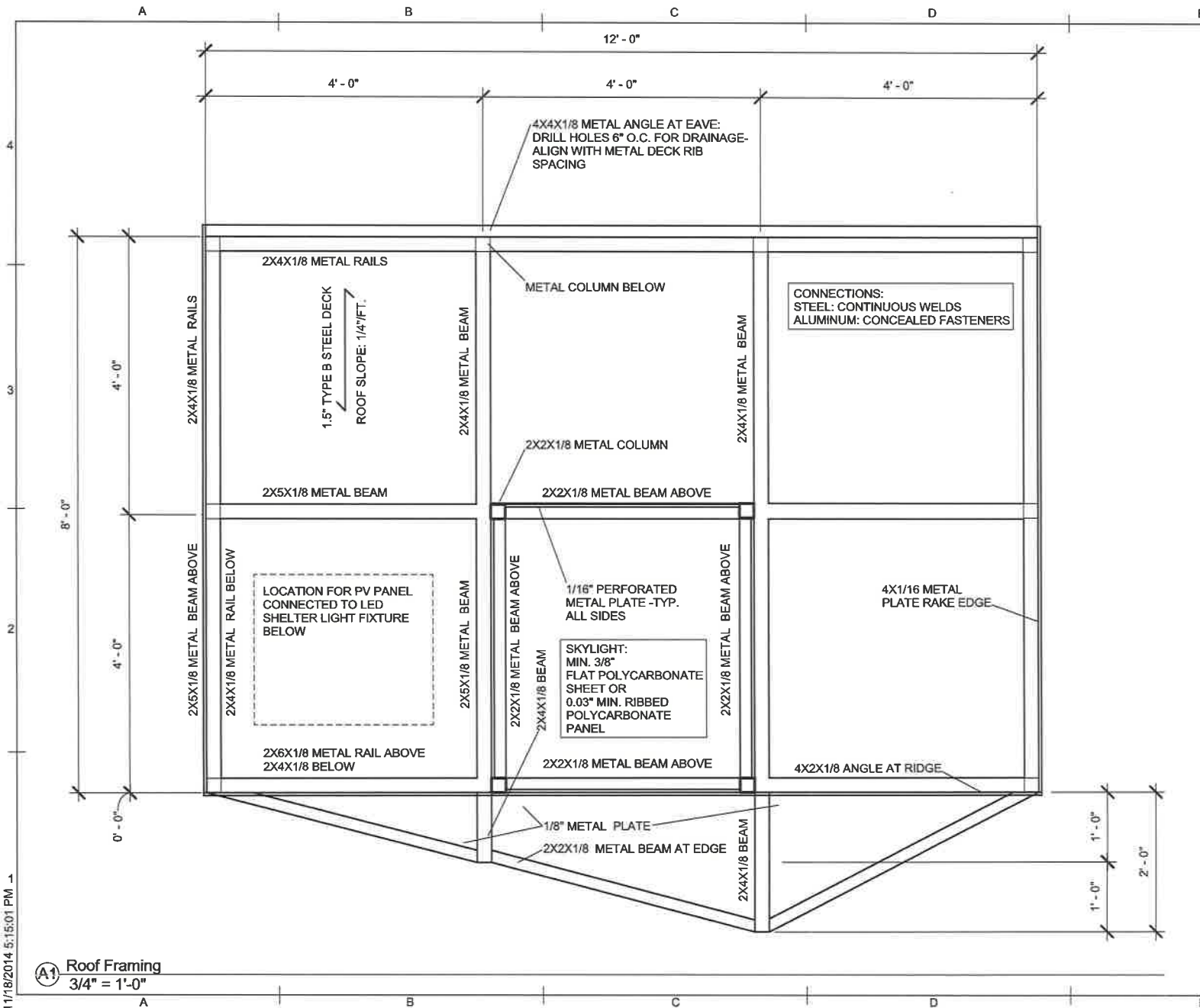
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Floor Plan

Project number	MG2014-1
Date	15 Nov 2014
Drawn by	Author
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A101

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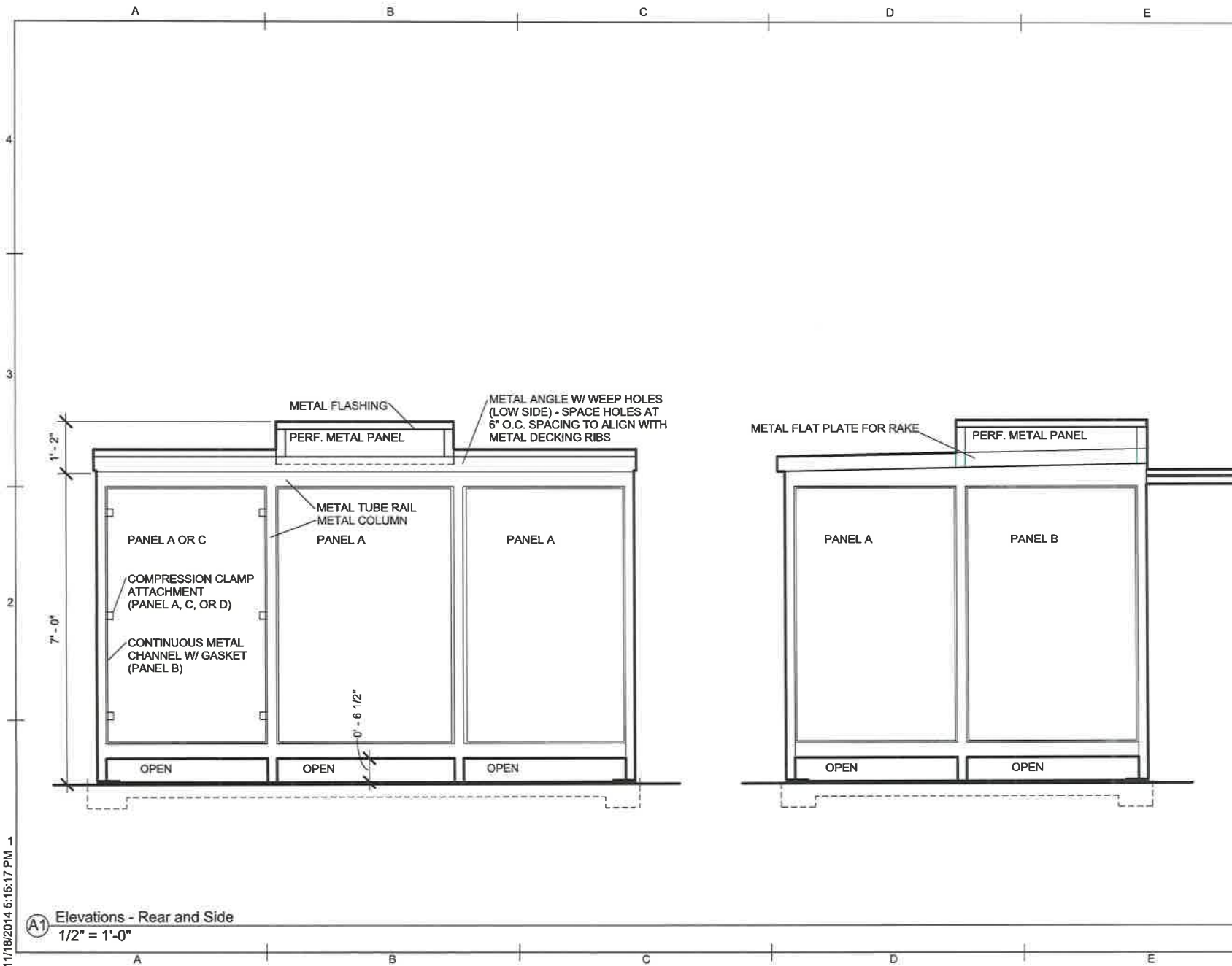
Roof Framing Plan

Project number MG2014-1
Date 15 Nov 2014
Drawn by Author
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A102

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A1 Roof Framing
3/4" = 1'-0"



(A1) Elevations - Rear and Side
1/2" = 1'-0"

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BUS SHELTER DESIGN

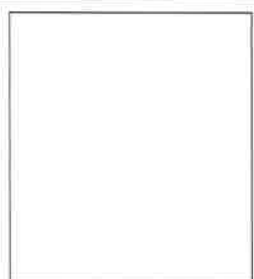
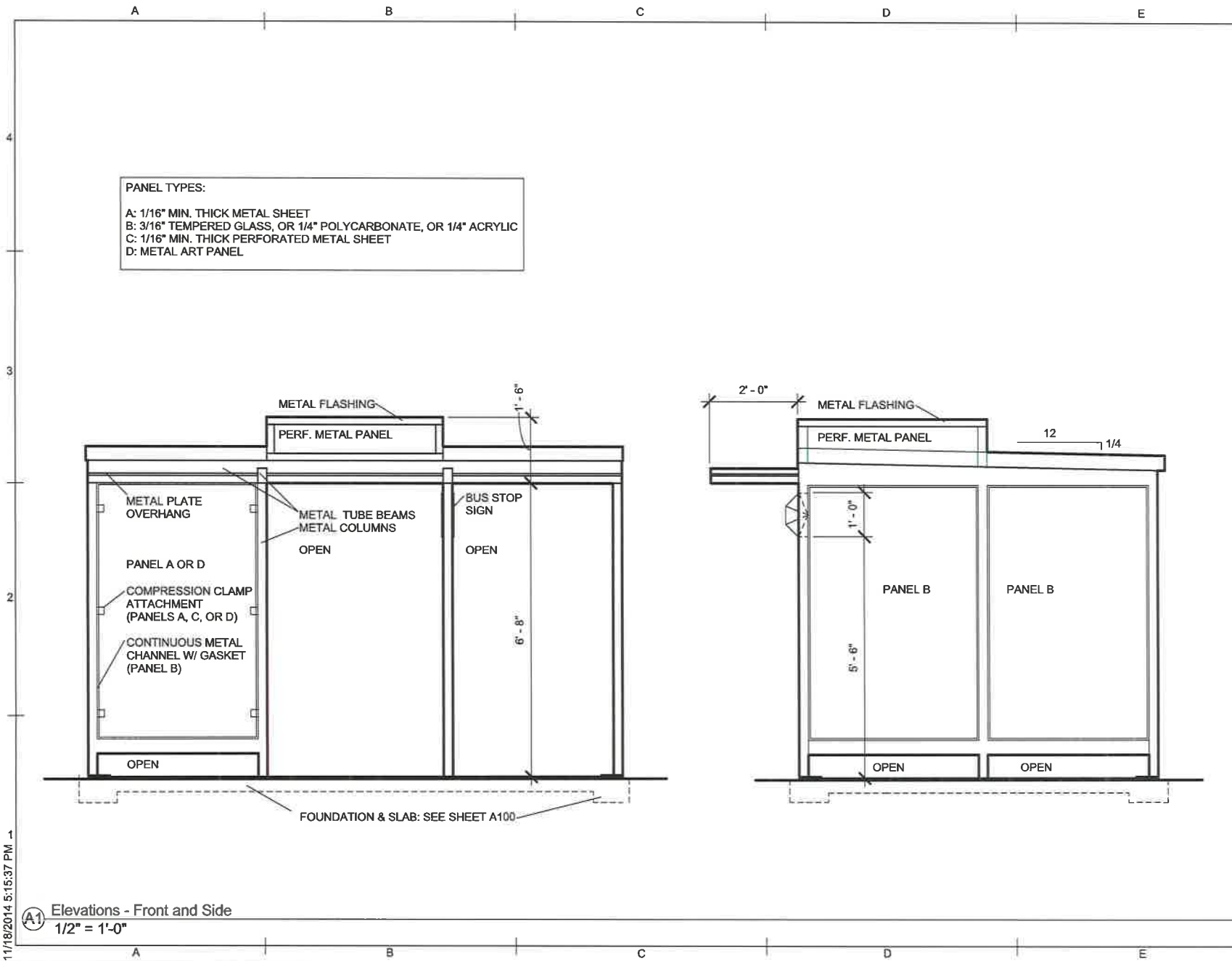
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Elevations

Project number	MG2014-1
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A200



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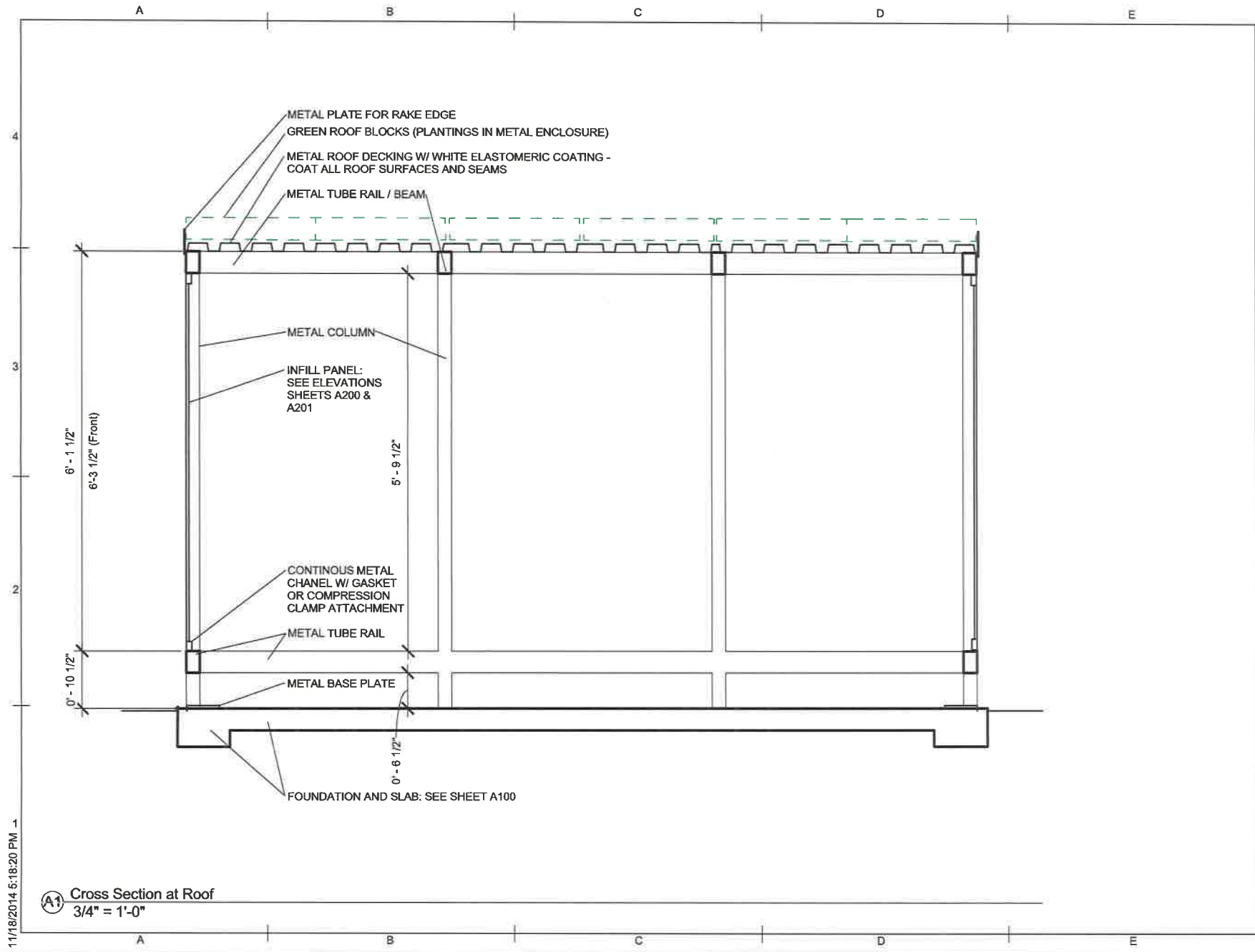
Elevations

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A201

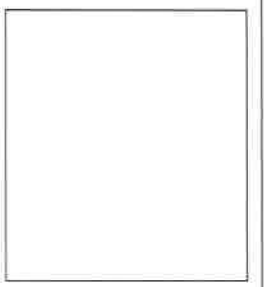
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A1 Elevations - Front and Side
 1/2" = 1'-0"




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(A1) Cross Section at Roof
3/4" = 1'-0"



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BUS SHELTER DESIGN



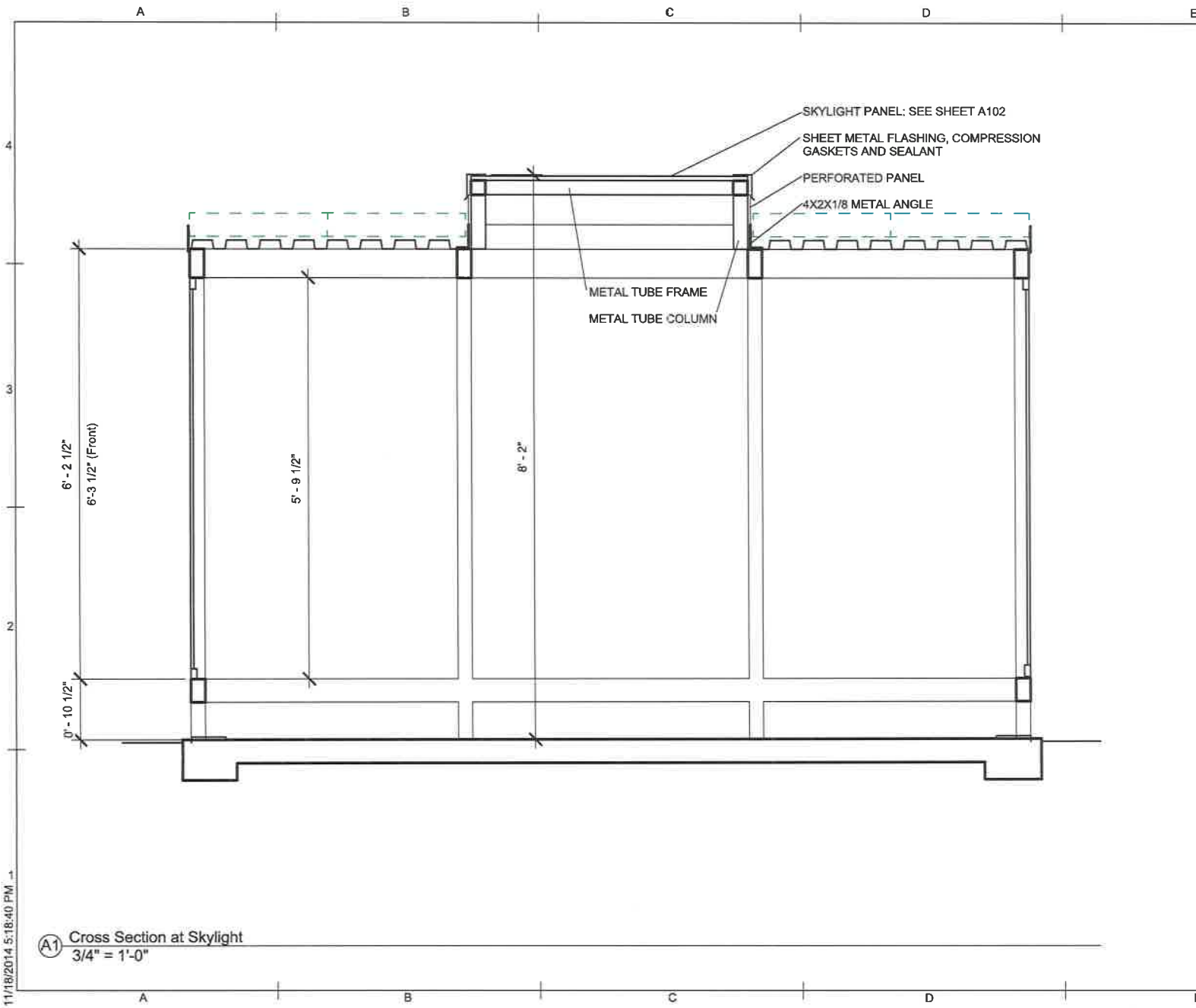
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Cross Section

Project number	MG2014-1
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A300



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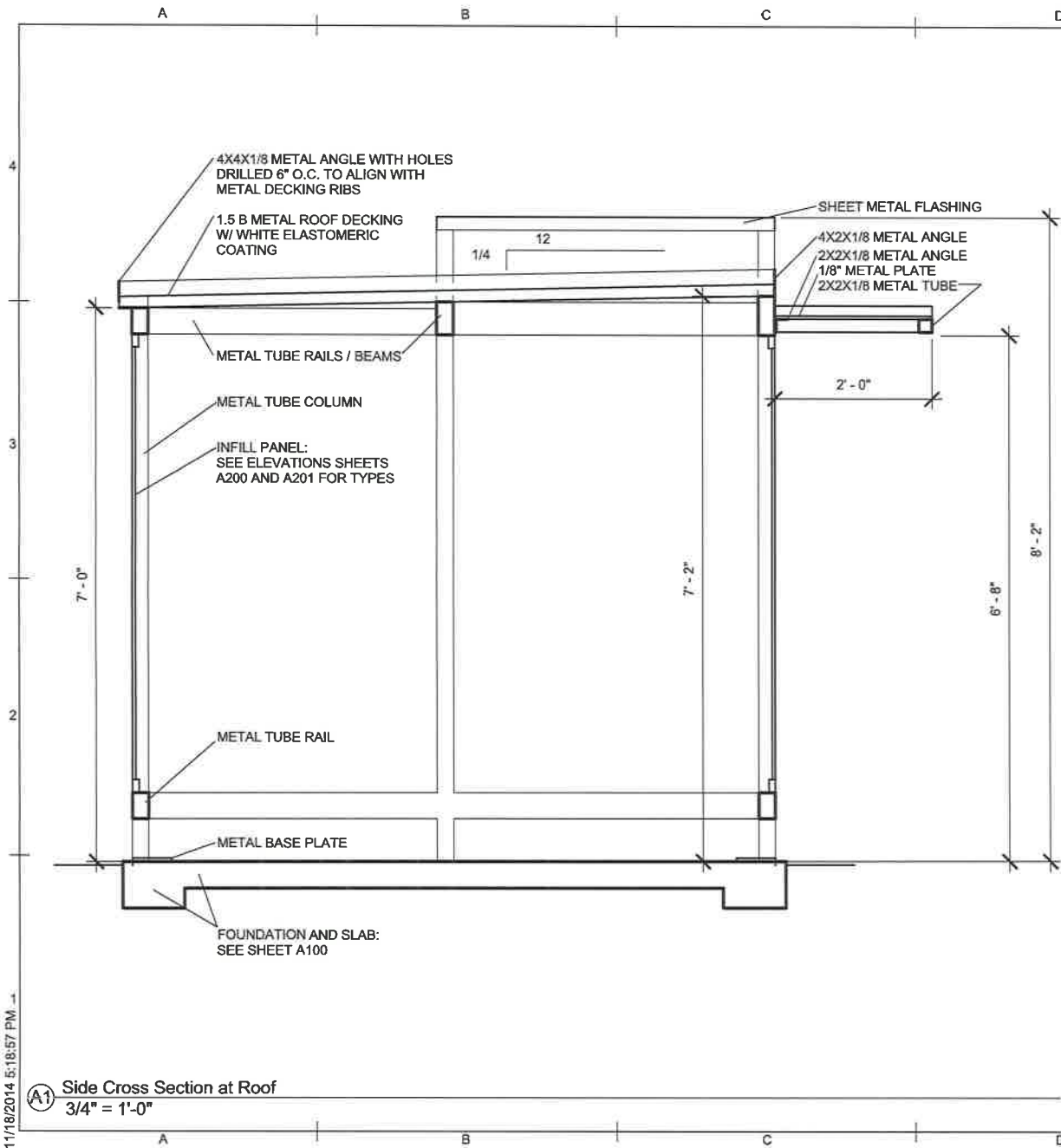
Cross Section

Project number	MG2014-1
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A301

(A1) Cross Section at Skylight
 3/4" = 1'-0"

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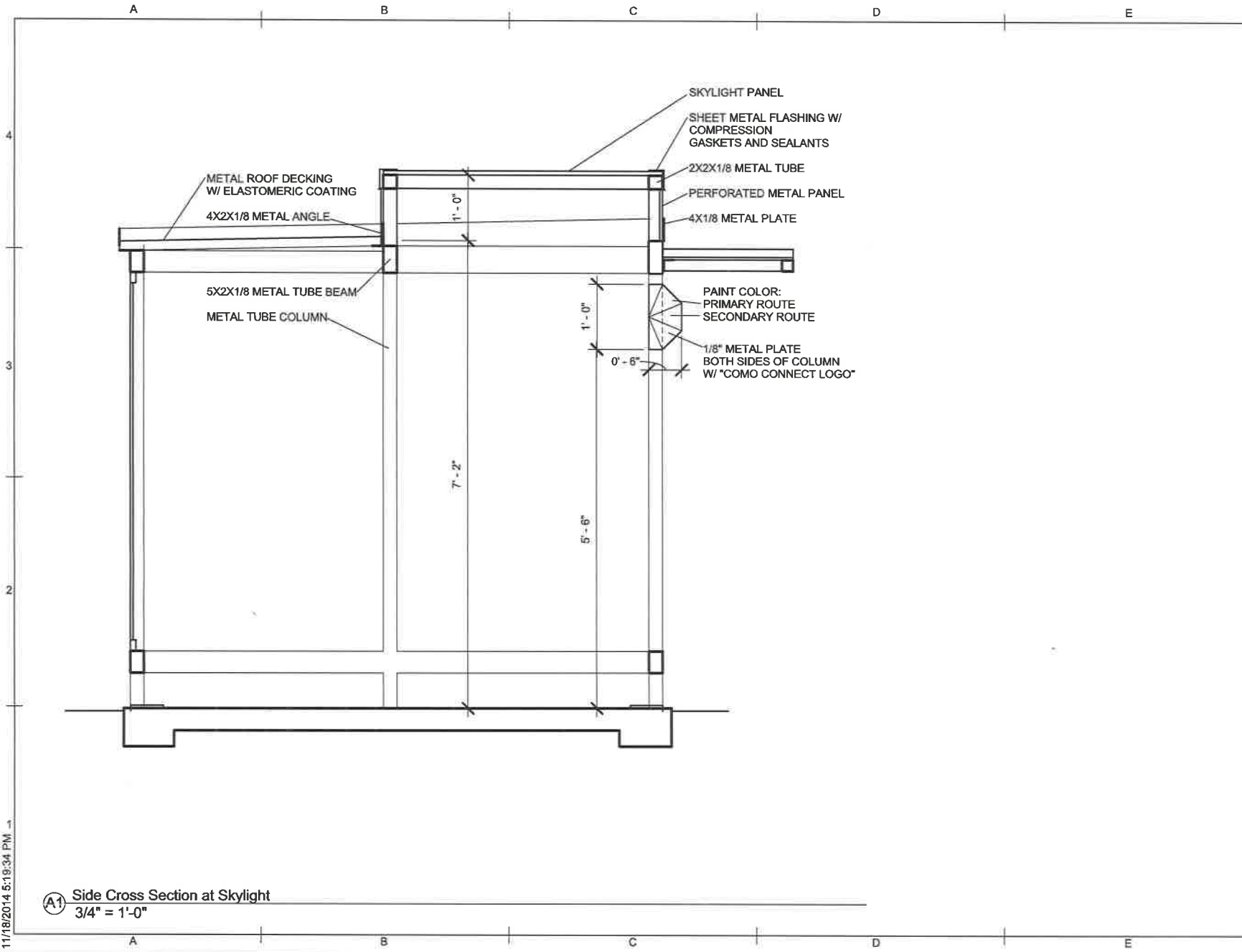
Cross Section

Project number	MG2014-1
Date	15 Nov 2014
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A302

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A1 Side Cross Section at Roof
 3/4" = 1'-0"



SKYLIGHT PANEL
 SHEET METAL FLASHING W/
 COMPRESSION
 GASKETS AND SEALANTS
 2X2X1/8 METAL TUBE
 PERFORATED METAL PANEL
 4X1/8 METAL PLATE
 PAINT COLOR:
 PRIMARY ROUTE
 SECONDARY ROUTE
 1/8" METAL PLATE
 BOTH SIDES OF COLUMN
 W/ "COMO CONNECT LOGO"

METAL ROOF DECKING
 W/ ELASTOMERIC COATING
 4X2X1/8 METAL ANGLE
 5X2X1/8 METAL TUBE BEAM
 METAL TUBE COLUMN

A1 Side Cross Section at Skylight
 3/4" = 1'-0"



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BUS SHELTER DESIGN
 Columbia Public Transit

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Cross Section

Project number	MG2014-1
Date	15 Nov 2014
Drawn by	Author
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A303

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Specifications for:

Bus Shelter Design

[REDACTED] / Columbia Public Transit

September 30, 2014 Revised November 15, 2014

Architect:

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Owner's Representative:

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Material Specifications

Division 3 Concrete

1. Cast-in-Place Concrete:
 - a. Strength: 3000 psi, 28 day
 - b. Slab Finish: troweled and broom
2. Reinforcement:
 - a. Slabs: 6x6 W1.4/1.4 welded wire mesh
 - b. Footings: ASTM A615, grade 60 rebar

Division 5 Metals

1. Wall Panels:
 - a. Panel A:
 - i. 1/16 inch minimum steel or aluminum sheet

- ii. Recycled Content: 50% minimum
 - b. Panel C:
 - i. 1/16 inch perforated steel or aluminum sheet
 - ii. 1/8 inch holes, 3/16 inch centers
 - c. Panel D: Art panel supplied by owner
 - a. Metal panels framed to structure using one of the following:
 - i. continuous steel or aluminum channels with gaskets
 - ii. Steel or aluminum compression clamps with gaskets
 - 1. Mounted on sides with pins
 - 2. 6 required per panel
- 2. Structure:
 - a. Metal tube, angles, and flat plate materials
 - i. 1/8 inch minimum wall thickness on all framing components
 - ii. Sizes shown on drawings
 - iii. One of the following materials:
 - 1. Structural Steel: ASTM A569/A36 steel
 - a. Connect all framing with continuous welds or concealed fasteners
 - b. Finish: primed for painting
 - c. Recycled Content: 50% minimum
 - 2. Aluminum: 6061/6063 aluminum
 - a. Connect all framing with continuous welds or concealed fasteners
 - b. Finish: mill or clear anodized
 - c. Recycled Content: 50% minimum
- 3. Metal Roof Decking:
 - a. Material: G60 galvanized steel, ASTM A653
 - b. Strength: 33 ksi
 - c. Thickness: 1.5 inches
 - d. Type: B, wide rib
 - e. Gauge: 18 minimum
 - f. Recycled Content: 50% minimum

Division 7 Thermal and Moisture Protection

- 1. Roof Coating:
 - a. Product: Commercial grade elastomeric roof coating
 - i. Coats: 2 total to all roof areas, roof seams, and fasteners
 - ii. Apply to all areas of roof and roof seams including metal roof decking and roof side of support angles
 - iii. Color: white
 - iv. Sheen: bright gloss

- v. Accessories: Self-stick seam fabric
- 2. Sealants: One part, moisture curing, commercial grade polyurethane sealant
 - a. +/- 35% joint movement capability
 - b. Color: grey

Division 8 Openings

- 2. Glazing:
 - a. Panel Type B
 - i. One of the following:
 - 1. 3/16 inch tempered clear glass
 - 2. 1/4 inch polycarbonate
 - 3. 1/4 inch acrylic
 - b. Glazing panels framed to structure using continuous steel or aluminum channels with gaskets
 - i. Fasten channels to structure at 12 inches on center
 - c. Skylight Panel:
 - i. One of the following:
 - 1. 3/8 inch polycarbonate
 - 2. 0.03 inch ribbed polycarbonate
 - ii. Fasten to structure with screws with neoprene compression washers at 12 inches on center and within 1 inch of corners.

Division 9 Finishes

- 1. Painting:
 - a. Ferrous Metals
 - i. Primer: Commercial grade, rust-inhibitive primer
 - ii. Top Coats (2): Commercial exterior grade, waterborne alkyd, low-VOC
 - 1. Sheen: gloss
 - 2. Color: grey

Division 26 Electrical (Optional)

- 1. PV/Lighting Module:
 - a. Manufacturer: SolarOne
 - b. Product: LED Shelter Lighting Kit, LSK 1
 - i. PV Panel: 60W
 - ii. Light Fixture: 2 LED lamps with motion activated sensor in aluminum housing

Division 31 Sitework

- 1. Earthwork:
 - a. Subgrade: compacted
 - b. Gravel: graded, washed
- 2. Green Roof Blocks (Optional):
 - a. Manufacturer and Product: "Green Roof Blocks" by Green Roof Blocks, St Louis.
 - i. Growing medium: 80% mineral aggregate, 20% organic matter

- ii. Plants: Low growing succulent ground covers including sedums, native grasses, and perennials
 - iii. Planter: 8mm anodized aluminum planter with rubber walk pads
 - 1. 12 drill holes for drainage: 3 each side
- 3. Site Furnishings (Optional):
 - a. Bench: Belson Outdoors, Model: CNB-20X2S-SM
 - b. Waste Receptacle: Belson Outdoors, Model TB3.

List of major parts for Bus Shelters

Columbia Public Transit

September 10, 2014

Quantities of materials, per shelter.

- I. Foundations and Footing:
 - a. Concrete: need 1.8 to 2 CY
 - b. If porous paving, need a total installation, (paving, underlayment, etc.) that is 10 feet 8 inches by 7 feet 4 inches (approx. 80 sf)
 - c. Rock underlayment: 1.8 to 2 CY of graded, clean gravel
 - d. 150 LF of #4 rebar, preferably
- II. Steel or Aluminum Frame Structure:
 - a. Posts and rails (choose either steel or aluminum):
 - i. Posts:
 1. Steel:
 - a. 2" sq x 1/4"t; 7'-0" height. Quantity: 5
 - b. 2"sq x 1/4"t; 6'-0" height. Quantity 6
 - c. Welded connections
 2. Aluminum:
 - a. 2-1/2"sq x 1/4"t; 7'-0" height. Quantity: 5
 - b. 2-1/2"sq x 1/4"t; 6'-0" height. Quantity: 6
 - c. 5 base shoes to connect posts to base plate
 - d. Concealed connectors
 - ii. Rails:
 1. Steel:
 - a. 2" x 4" x 1/4"t; 64 lineal feet
 - b. Welded connections
 2. Aluminum:
 - a. 2" x 4" x 1/4"t; 64 lineal feet
 - b. Concealed connectors
 3. Add 17 lineal feet to rails for front overhang
 - iii. Posts and rails to have 75-100% post-consumer recycled content
 - iv. Steel will have to be painted, Aluminum should be clear anodized finish.
 - b. Base Plates: 5 quantity 6" sq x 3/8" steel plates
 - c. Fasteners: 10 quantity 3/8" x 3-3/4" concrete anchors with bolt, nut, washer
 - d. Angles: 2-1/2" x 2-1/2" x 3/16"t in steel or aluminum (match posts and rails)
 - i. Need 56 to 60 lineal feet for roof attachment
 - ii. Need 32 lineal feet for interior rail between posts (3' above slab)
 - e. Roof Panel: Quantity of 4; 30 inches by 8 foot panels (2 panels cut to fit space)
 - i. 75% - 100% recycled content
 - ii. 1-1/2" Type B Steel Roof Deck, 18 gauge.

- f. Fascia: 40 lineal feet of 18 gauge (or 1/16") steel or aluminum sheet or plate, 4" height
- III. Transparent Panels: Quantity of 5 (4 wall and one roof panel)
 - a. 1/4 inch thick lexan, acrylic, or tempered & laminated glass
 - b. Panel Size: 6 foot height by 3'-9" wide
- IV. Solid Panels: (one or combination of the following types):
 - a. Quantity of 4, 6'-0"h by 3'-9"w and 1 extra cut for roof overhang and location logo
 - b. 18 gauge solid sheet steel with 75-100% recycled content
 - c. 16 gauge solid aluminum sheet with 75-100% recycled content
 - d. 14 or 16 gauge perforated aluminum or steel sheet with 75-100% recycled content
 - e. Art Work
- V. Panel Connectors
 - a. Glass and/or panel connectors for vertical panels similar to:
 - <http://www.wagnercompanies.com/site/Viewer.aspx?iid=1551&mname=Article&rpId=524> or page 8 or 30 of this:
http://www.morseindustries.com/pdf/morse_archcatalog.pdf
 - i. Each panel will require 8 so total shelter total of 64
 - ii. Or continuous connectors like the ones on current shelters
 - b. Bent glass or panel connectors (L-shaped) for attaching transparent roof panel, similar to a. above. Panel will require 10
- VI. Additional Options:
 - a. If steel frame and panels, approximately 2 gallons of exterior paint, grey (2 coats)
 - b. Panel Assembly: 60-100W PV panel with battery storage
 - c. Lighting: 2 MR16 LED fixtures with lamps with motion sensor
 - i. b. and c. above might be found as complete package:
http://www.solarone.net/UserFiles/File/Complete_Literature/758-1005-00_-_LSK_Fixture_Datasheet.pdf
 - d. Green Roof Blocks:
 - i. <http://greenroofblocks.com/> (St Louis Company) and
http://greenroofblocks.com/wp-content/uploads/2012/03/Green_Roof_Blocks_Data_Sheet.pdf
 - ii. Quantity: 12 will fit (6 on each side of center skylight panel) if no PV panel, 6 will fit if one side has the PV panel.
 - e. Bike rack, bench and trash can: let's leave these open for the moment so we can widen the possibility of a donation.