



Capital Projects & Purchasing Department
113 Mable T. Willis Blvd.
Walterboro, SC 29488
843.539.1968

BID: CPST-07
COTTAGEVILLE RECREATION AREA PROJECT
72 SALLEY ACKERMAN DRIVE

BID DUE: THURSDAY, JULY 6, 2017 at 2:00pm

Addendum #2
dated 6-7-2017

Answers to questions and revised plans

1. Demo Plan Sheet C4.0 – notes states, to remove 5 pine trees in the area around the gravel to be removed. On the Architectural Site Plan Sheet AS101, it notes to remove 5 pine trees in a completely different area next to the roadway. Which is correct?
Answer: The Architectural Site Plan Sheet AS101 is correct, however, the note “OWNER TO MARK TREES FOR DEMOLITON PRIOR TO CONSTRUCTION” should negate any confusion. The owner will verify the trees to be demolished.
2. Site Plan Page C6.0, 1,365 LF Rubberized Paved Path – Can you provide detail on this path, type of rubber material to be used and a supplier’s list for the material? Also, what type base goes under the rubberized path and how thick does the sub-base need to be?
Answer: See attachments: SHEET NO. SKA-1 and SECTION 32 1823.33
3. Details Page C12.0, Detail 16 Concrete Sidewalk Detail - notes section states, see architects plans for rubberized path details and specs for site and the notes below pertain to concrete sidewalks only. First, there are no plans and second, where in the drawings does it show concrete sidewalks to be installed? Are we to remove the existing concrete sidewalk next to the roadway (not in demo drawings) and re-pour with new? Details also show concrete curb and gutter and ADA detectable warning surfaces but doesn’t show in the drawings where any of this is supposed to be installed.
Answer: See Sketch SAK-2 for track detail. Remove Sidewalk details from the scope of this work. We are not removing existing concrete sidewalk next to roadway. Please disregard concrete curb and gutter and ADA detectable warning surfaces.

4. Sheet A101 Detail for Park Benches – The detail shows the foundation but does not spec out anything on the bench itself. Is this a custom-made bench or can you provide a model number and supplier? The trash receptacles are by Northgate and they also make a bench similar to the ones in the drawing. Are you looking for a 6' wide Northgate bench and please specify how many benches there are?

Answer: Style of bench: Northgate Bench with Arched Back Parent SKU: 2ZT2086BK 6' Bench black bench Number of benches: (4) four as shown on sheet AS101

5. Alternates 3 and 4 – Trash receptacles and grill. For trash receptacle, they have model #4ZT4282 but not model #4ZT4008 listed in the drawings. For the grill, Northern Tool model number specs are no longer available – please provide substitute and how many you are looking for. Please clarify and let us know how many of these needs to be priced. Also, we need info on how the trash receptacles and grills will be mounted? Do we need to pour concrete slabs, embedded or surface mount? Let us know which styles/models you prefer if you decide to use this brand.

Answer:

Style of Trash Receptacle: Northgate 32-Gal Rain Bonnet Lid Receptacle SKU: 4ZT4282

Number of Receptacles: (1) one

Trash Receptacle is not surface mounted.

Style of Grill: Northern Tool + Equipment Pilot Rock Heavy-Duty Jumbo Steel Park-Style Charcoal Grill — 24 1/4in. x 16 1/8in., Model# CBP-247

Number of Grills: (1) one

Grill will need to be embedded in the new slab shown on Detail 1/A102 in lower right-hand corner denoted by call out 6/A101 close to column line 6 and column line C.

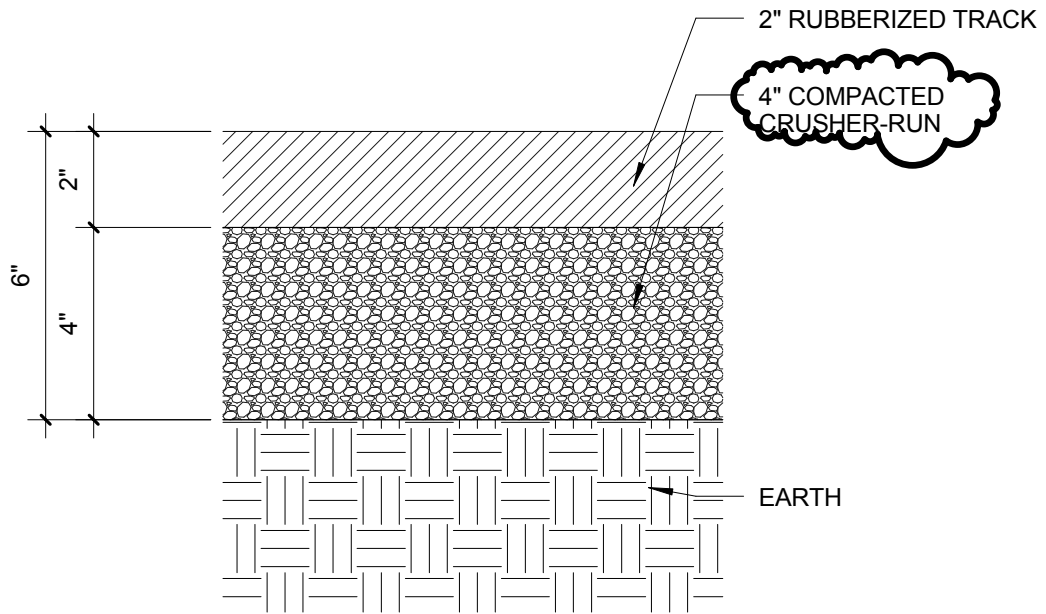
6. What gauge roof panel is to be used?

Answer: See attachment: SECTION 07 4113 METAL ROOF PANELS, Section 2.02 Item B, 2b.

Revised plans

- Remove Delegated Design note from page A101.
See attached revised page A101 stamped structural design
- See attached new page A102, PB/PBS, PS4Z, CC/ECC/ECCU, ECCL/CCC/CCT, KBS1Z

GENERAL NOTE: THIS TRACK DOES NOT REQUIRE METAL EDGE BANDING



1 SKETCH AT RUBBERIZED TRACK
 SKA-1 3" = 1'-0"

BROWNSTONE

1310 LADY STREET SUITE 204
 COLUMBIA, SC 29201
 TELEPHONE: 803.376.6044

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PROJECT NAME
**COTTAGEVILLE,
 SOUTH CAROLINA**

SHEET NO.
SKA-1

TITLE: **SKETCH OF WALKING TRACK**

CLIENT: _____

ISSUED FROM: _____ DATE: _____

FROM: _____

DRAWN BY: **KAW** _____

SECTION 32 1823.33
SYNTHETIC RUNNING TRACK SURFACING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Synthetic running track surfaces.

1.02 SUBMITTALS

- A. Product Data: Manufacturer's product data including standard specifications, installation guidelines and maintenance instructions.
 - 1. Submit documentation that synthetic running track surfacing material is free of toxic or hazardous substances that exceed the limits set forth by the U.S. Environmental Protection Agency.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum 1 year experience in successful installation of surfacing systems of type specified herein.
 - 1. Submit manufacturer's certification that installer is qualified to install the products specified.
 - 2. Submit installer's certification that installer is a member of American Sports Builders Association (ASBA).
 - 3. Submit installer's certification that installer employs at least one ASBA "Certified Track Builder" (CTB) on installation team for project.

1.04 WARRANTY

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Synthetic Running Track Surfacing:
- B. Basis of Design: American Recycling Center Inc.
 - 1. Beynon Sports Surfaces: www.beynonsports.com.
 - 2. Conica Sports Surfaces Division of BASF Construction Chemicals: www.conica.basf.com.
 - 3. United Sport Systems: www.unitedsportsystems.com.
 - 4. Any substitutions will need prior approval

2.02 SYNTHETIC RUNNING TRACK SURFACING

2.03

- A. Synthetic Running Track Surfacing System:
 - 1. System Thickness: 2-inch thick (50.8mm).
 - 2. Base Layer: Paved-in-place base layer of Type 2 base layer recycled SBS rubber granule and polyurethane binder.
 - 3. Finish Layer: Structural spray coating of colored polyurethane and Type 2 top layer EPDM rubber granule mixture, sprayed onto base system.
 - 4. Comply with the following as described in IAAF/NCAA Performance Specification for Synthetic-Surfaced Athletics Tracks (Outdoor):
 - a. Black Latex Track Surface
 - 5. Flammability Behavior: Class 1 in accordance with DIN 4102-1.

2.04 MATERIALS

- A. SBR Latex Binder: No Asphaltic materials shall be incorporated into the system. FORTIFIED SBR LATEX BINDER A - carboxilated styrene butadiene latex polymer (≥ 45.0 - ≤ 55.0 %) Styrene Butadiene Ratio) containing a minimum of 50% resin solids content. Basis of Design of Latex shall be manufactured by American Recycling Center, Inc. (Product No.: 240). or equal.
- B. Rubber Granules: Premium graded black SBR butyl rubber granules ranging in size from 1mm to 16mm.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Flood Test: Flood substrate immediately after substrate is capable of supporting foot traffic. Allow to dry for 20 minutes.
 - 1. If any areas of ponded water (“birdbaths”) are visible at the end of the 20 minute drying time, correct areas of substrate that allow water to pond.
 - 2. Cold tar patching, skim-coat patching and sand-mix patching are not acceptable methods of correction.

3.02 PREPARATION

- A. Protection: Protect surfaces adjacent to track surfacing operations from polyurethane liquids.
- B. Ensure that crusher-run compaction tests indicate compaction of 95 percent or greater. Repair areas not in conformance or replace with new materials, recompact, and recheck surfaces.

3.03 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's recommendations.
 - 2. Prime areas to be surfaced.
 - 3. Make substrate surface repairs and minor planarity corrections with repair compound.
 - 4. Install track surface as specified to achieve track surface performance and physical dimensions within tolerances.

3.04 INSTALLATION OF PAVED-IN-PLACE SYNTHETIC TRACK SURFACE

- A. Priming: Prime only area to be covered within working day to ensure good bond to base. Apply primer at manufacturer's recommended rate.
- B. Base Layer: Mix base layer granules with polyurethane binder at manufacturer's recommended rate until homogeneous. Pave mixture in place using heated mechanical screed paver specially designed for this work. Apply to recommended depth at recommended application rate.
- C. Spray Coat: Apply spray coat with air and volume controlled spray equipment in even surfaces without streaking. Apply second coat in opposite direction to first application. Achieve uniform finish. Apply at manufacturer's recommended rate.

3.05 FIELD QUALITY CONTROL

3.06 CLEANING

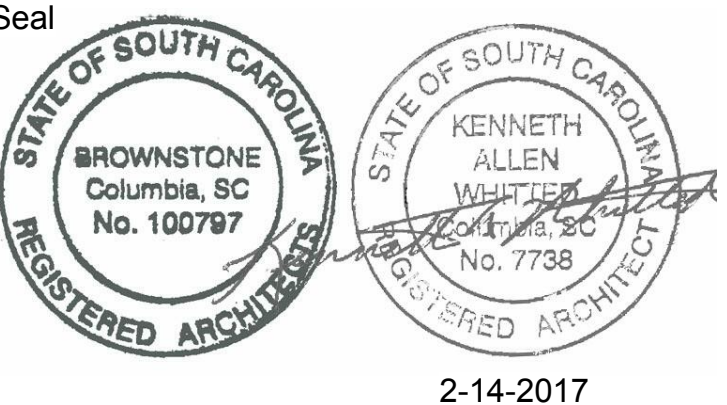
- A. Leave surfacing in clean condition and free of surface defects.
- B. Reapply and touch up paint striping once during the warranty period.

3.07 PROTECTION

- A. Protect installed surfacing from damage during the balance of construction activity.

END OF SECTION 32 1823.33

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Client
COLLETON COUNTY SOUTH CAROLINA

Project
COTTAGEVILLE, SOUTH CAROLINA

Issued For
COTTAGEVILLE 100% CONSTRUCTION DOCUMENTS

Date
14 FEBRUARY, 2017

No.	Item	Date
1	Addendum #2	June 5

Key Plan

Sheet Title
FOUNDATION

Drawn By
Checked By

Author
Checker

IRRIGATION NOTES

1. A LOW VOLUME IRRIGATION SYSTEM, THAT PROVIDES 100% COVERAGE TO ALL PROPOSED PLANTINGS, WILL BE DESIGNED AND INSTALLED BY THE CONTRACTOR.
2. THE PROPOSED IRRIGATION SYSTEM MUST MEET OR EXCEED ALL APPLICABLE CITY CODE REQUIREMENTS. (I.E. BACK FLOW PREVENTION, AUTOMATIC RAIN SHUTOFF DEVICE, ETC.)
3. IRRIGATION SHOP DRAWINGS MUST BE SUBMITTED AND APPROVED BY THE CITY PRIOR TO THE COMMENCEMENT OF WORK.
4. IRRIGATION SYSTEM MUST BE INSPECTED AND ACCEPTED BY CITY PROJECT MANAGER PRIOR TO INSTALLATION OF MULCH.
5. IRRIGATION AS-BUILT DRAWINGS, WHICH ACCURATELY AND CLEARLY IDENTIFY ALL MODIFICATIONS AND/OR SUBSTITUTIONS, MUST BE SUBMITTED PRIOR TO FINAL INSPECTION AND ACCEPTANCE.
6. THE EXISTING WATER METER WILL BE UTILIZED FOR THIS IRRIGATION SYSTEM.
7. THE LANDSCAPE CONTRACTOR MUST COORDINATE THE PLACEMENT AND POWER SUPPLY FOR THE IRRIGATION CONTROL TIMER WITH THE CITY AND THE GENERAL CONTRACTOR.
8. THE FOLLOWING IRRIGATION SYSTEM COMPONENTS WILL BE UTILIZED, PER EACH MANUFACTURER'S SPECIFICATIONS:
HARDIE - RANDALL 8 STATION OUTDOOR CONTROL TIMER
RICHDAL - 214APR 1" ELECTRIC VALVE
AMTCE - 10" ROUND VALVE BOX

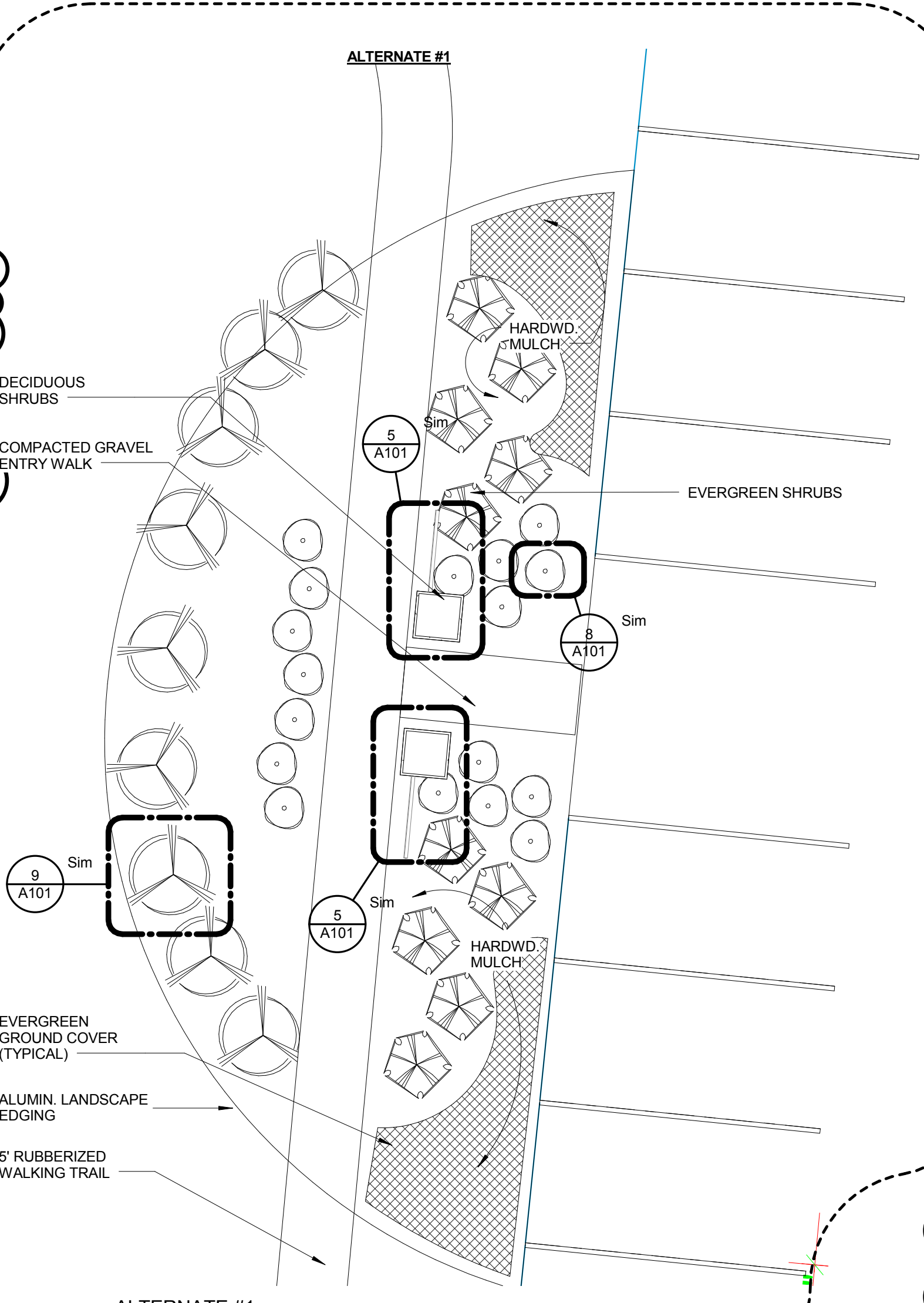
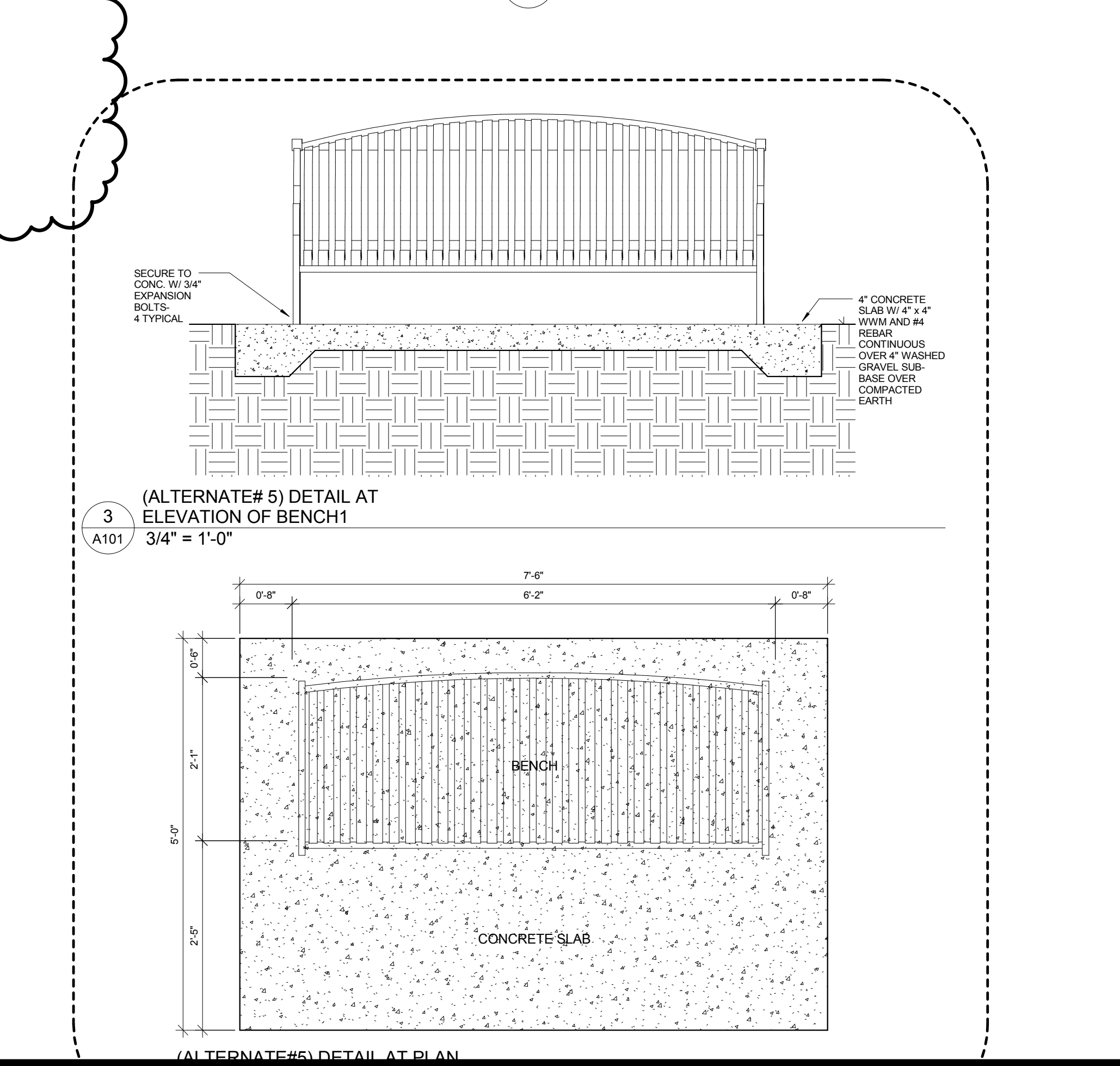
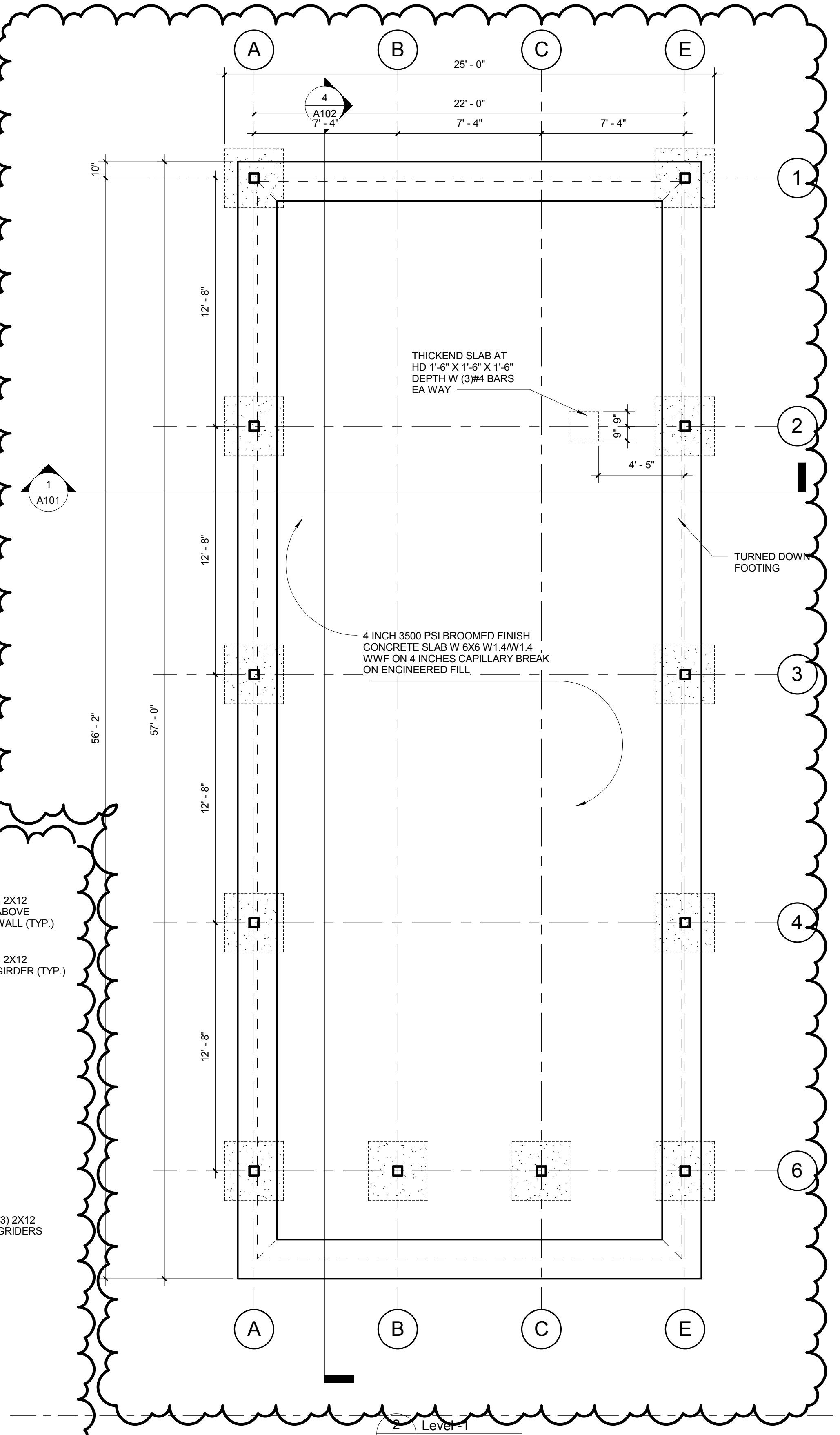
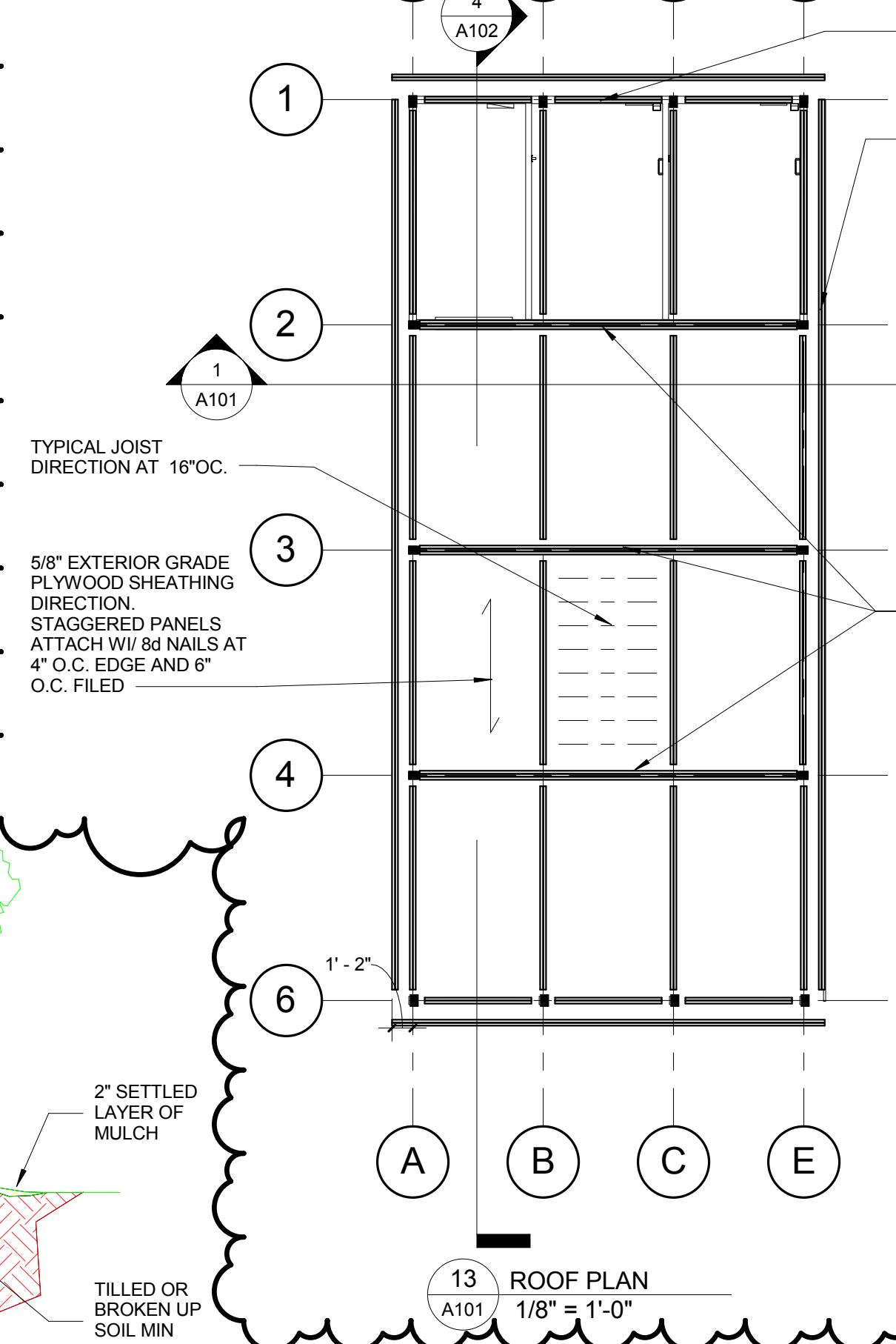
NOTES: EVERGREEN TREE PLANTING

1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-2004). PLANT ACCORDING TO ANSI A300 PART 6
2. DIG THE PLANTING HOLE A MINIMUM OF 2X WIDTH OF ROOTBALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.
3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL-TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 2"-3" (SETTLED) DEPTH OF PINE STRAW OR BARK MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

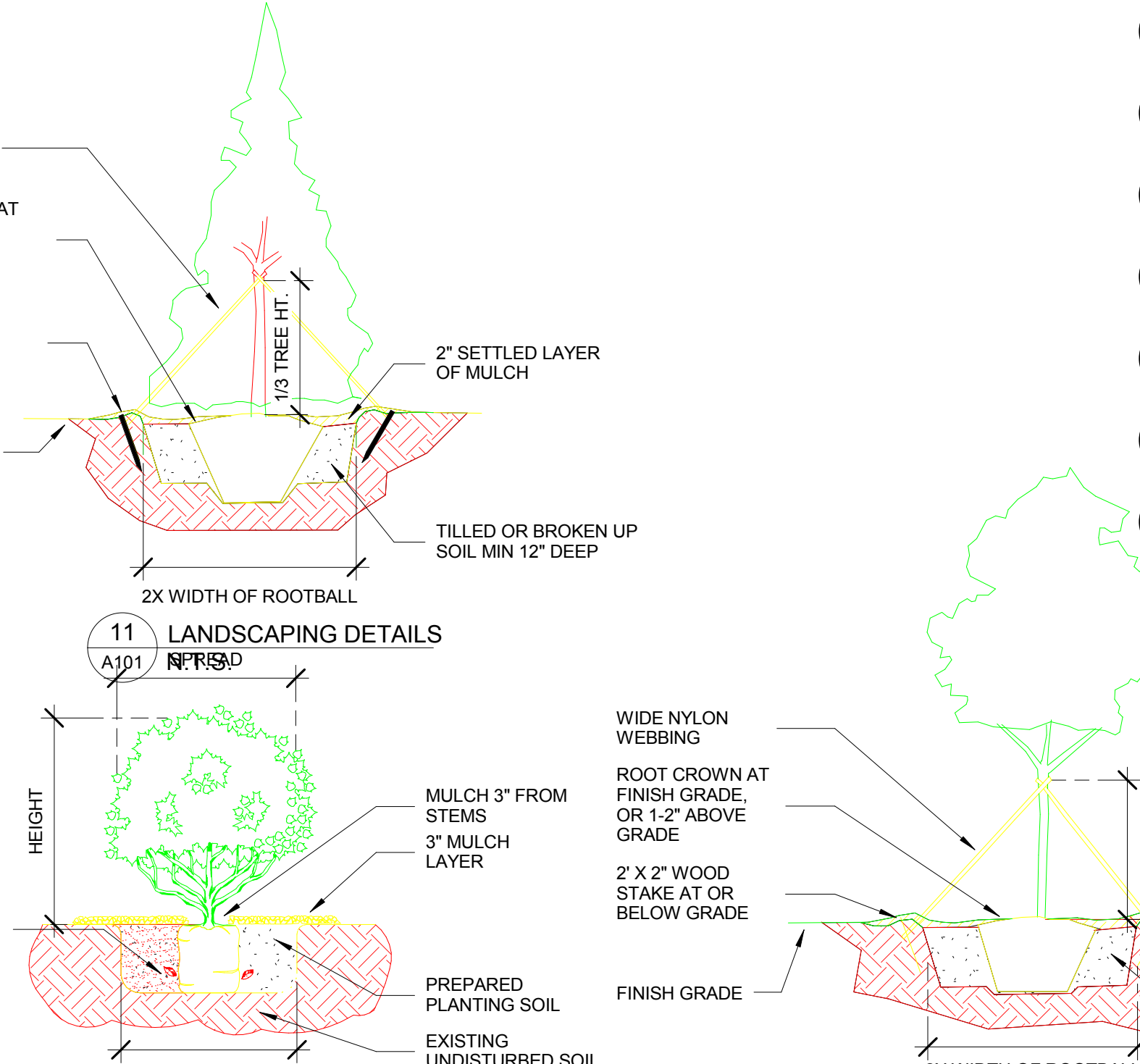
NOTES: TYPICAL SHRUB PLANTING, INDIVIDUAL PLANTING HOLE

1. DIG PLANTING HOLE AT LEAST 2X THE WIDTH OF THE ROOT BALL OR CONTAINER.
2. SCARIFY SUBGRADE AND SIDES OF PLANTING HOLE WHEN PLANTING IN CLAY SOIL.
3. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE, OR 1-2" ABOVE IF THE SOIL IS PRONE TO SETTLING.
4. IF CONTAINER GROWN PLANT, GENTLY SLIDE PLANT OUT OF CONTAINER. DISTURB THE ROOTS.
5. IF B&B PLANT, REMOVE BURLAP FROM AT LEAST THE TOP 12 INCHES OF THE ROOTBALL. WITHOUT DISTURBING THE ROOTBALL. REMOVE ALL GORD FROM THE TRUNK. REMOVE BURLAP AND WIRE BASKET (IF PRESENT) FROM THE ROOT BALL.
6. BACK FILL THE PLANTING HOLE WITH EXCAVATED NATIVE SOIL. BROKEN UP OR TILLED. WATER TO REMOVE AIR POCKETS. DO NOT ADD AMENDMENTS.
7. PLACE PINE STRAW OR BARK MULCH ON THE SURFACE TO A (SETTLED) DEPTH OF 1 TO 3 INCHES.

13 ROOF PLAN



ALTERNATE #1 DETAIL AT SITE ENTRY
1/8" = 1'-0"



8 TREE 2
1/8" = 1'-0"

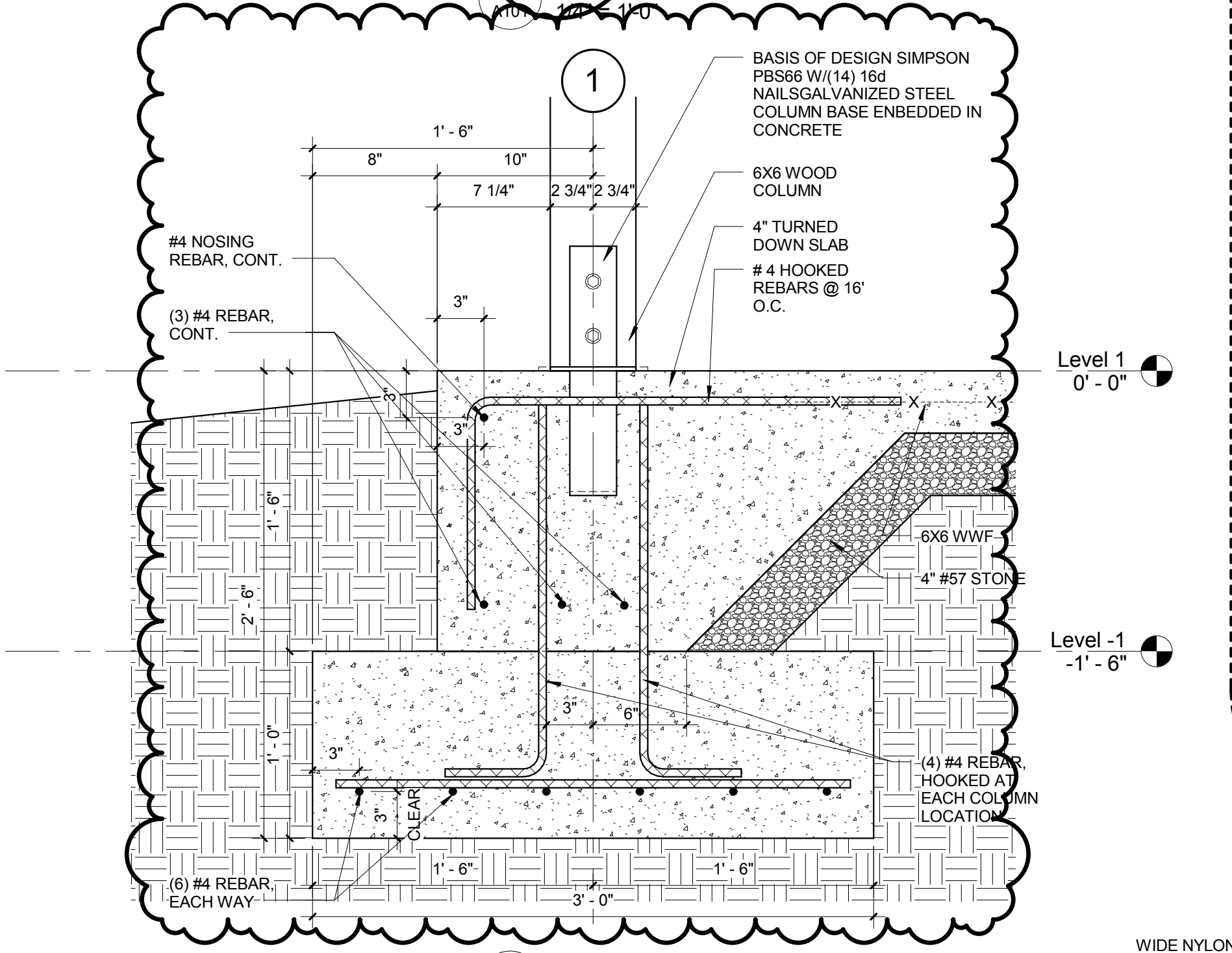
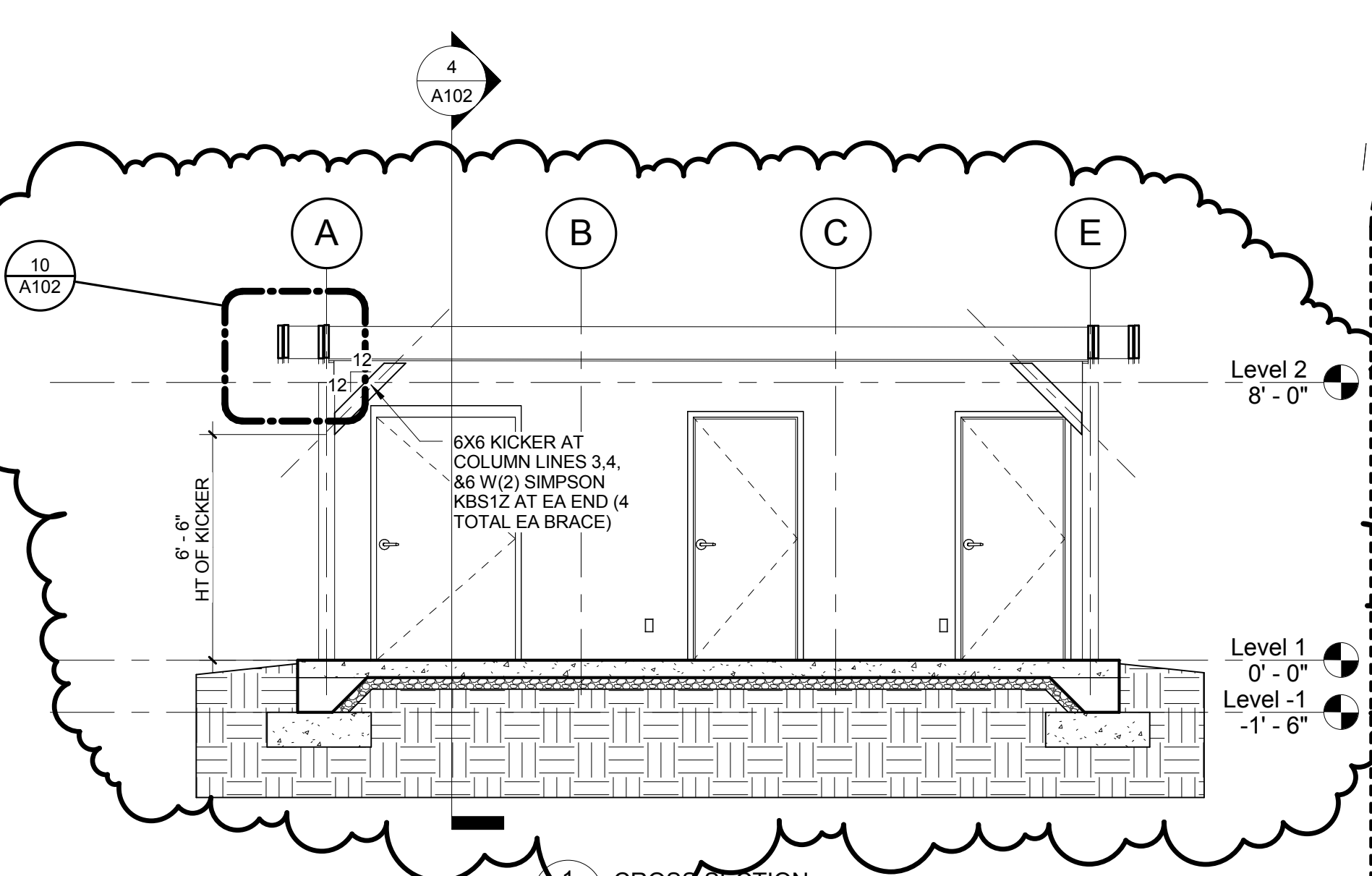
9 TREE 3
1/8" = 1'-0"



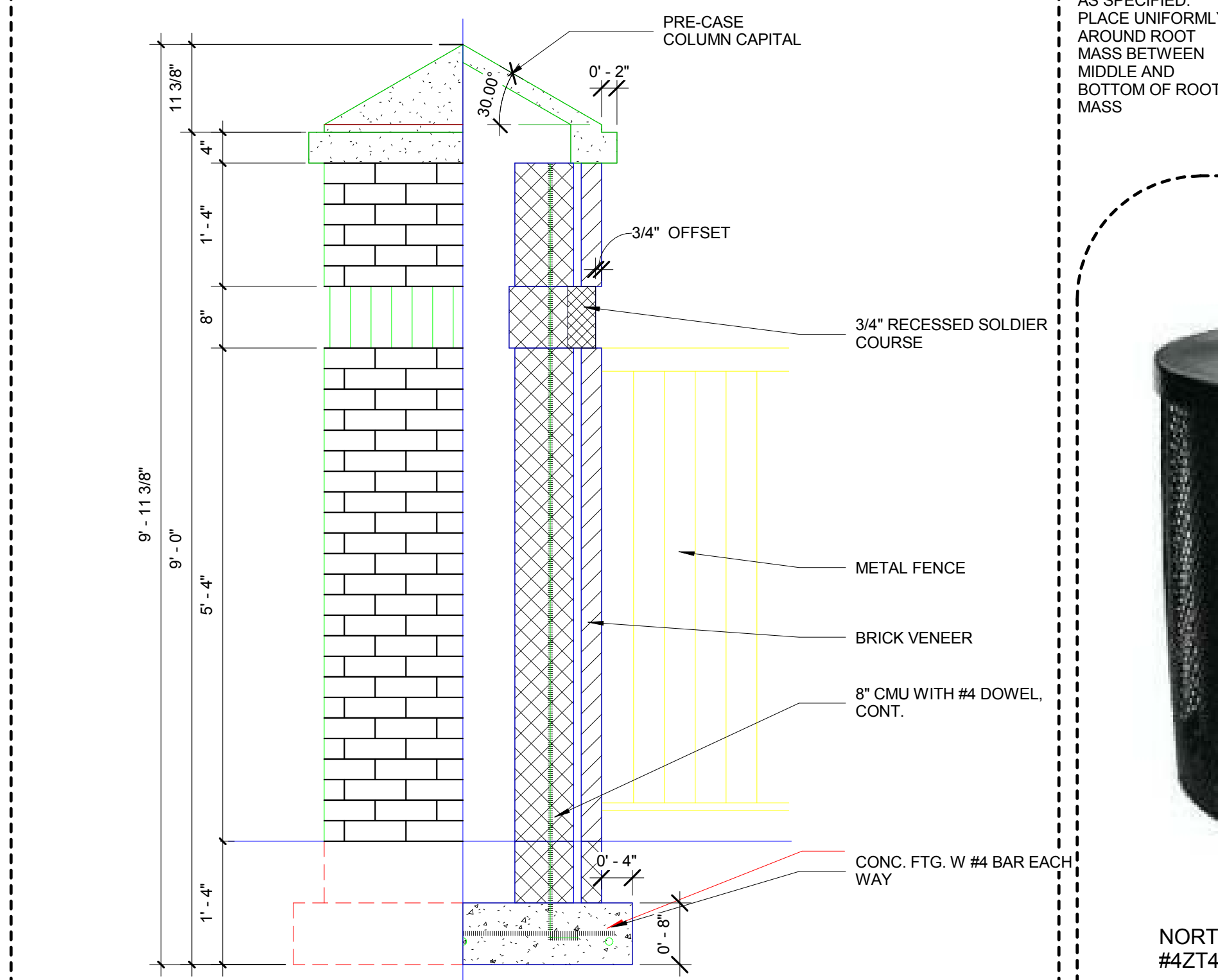
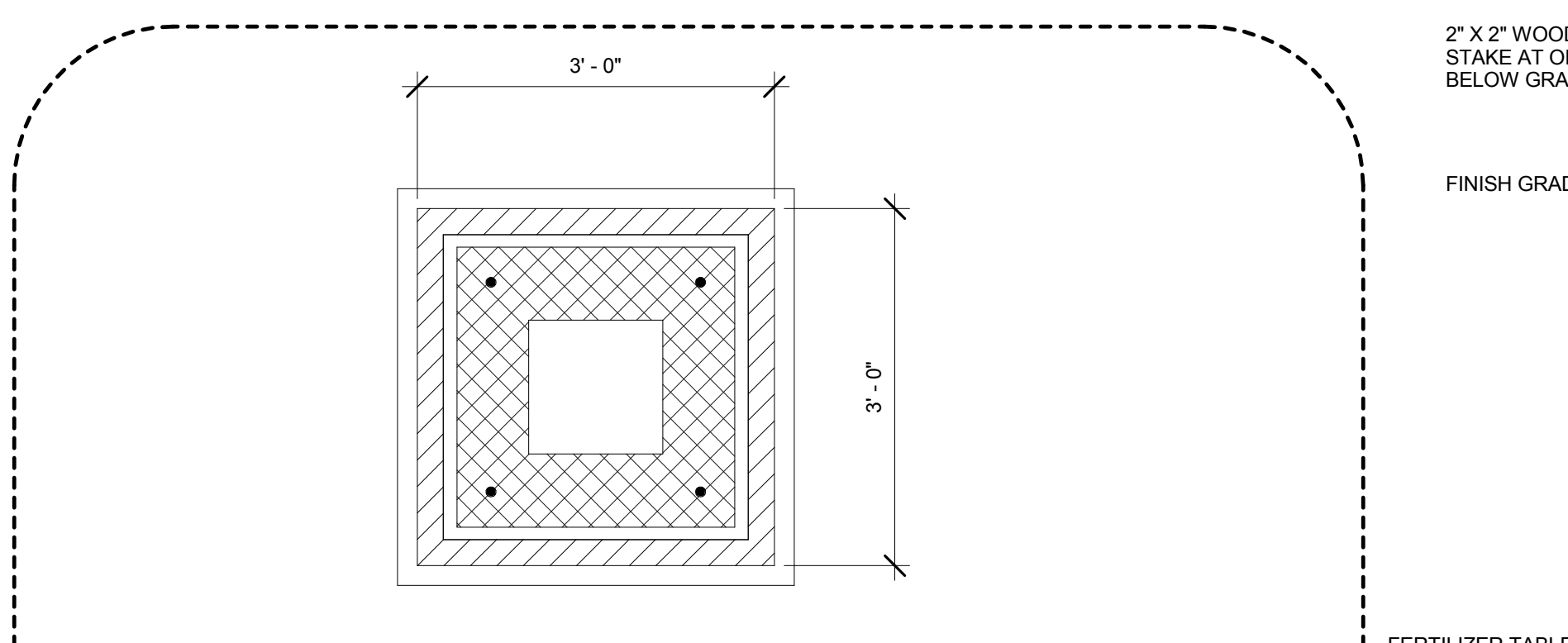
7 ALTERNATE #3 BASIS OF DESIGN TRASH RECEPTACLE
N.T.S.

8 NORTHGATE FLAT LID TRASH RECEPTACLE, 32 GALLON, MODEL #42T4008, 23.5" DIA. X 39.35" H

9 ALTERNATE #4 BASIS OF DESIGN EXTERIOR COOKING GRILL
N.T.S.

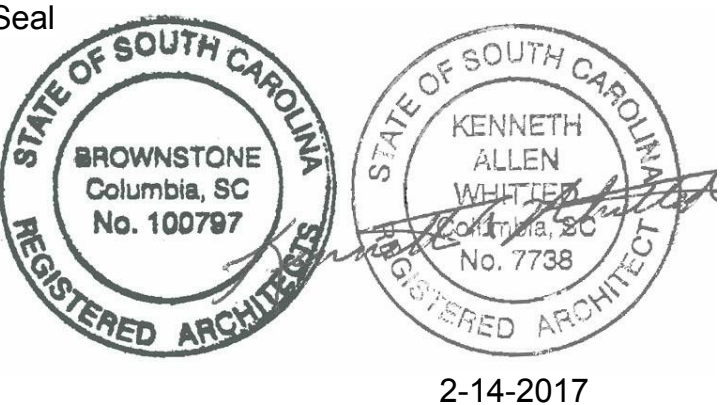


4 DETAIL AT COLUMN BASE
1 1/2" = 1'-0"



5 ALTERNATE #2 COLUMN DETAIL
3/4" = 1'-0"

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2-14-2017

Client
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Project
COTTAGEVILLE, SOUTH CAROLINA

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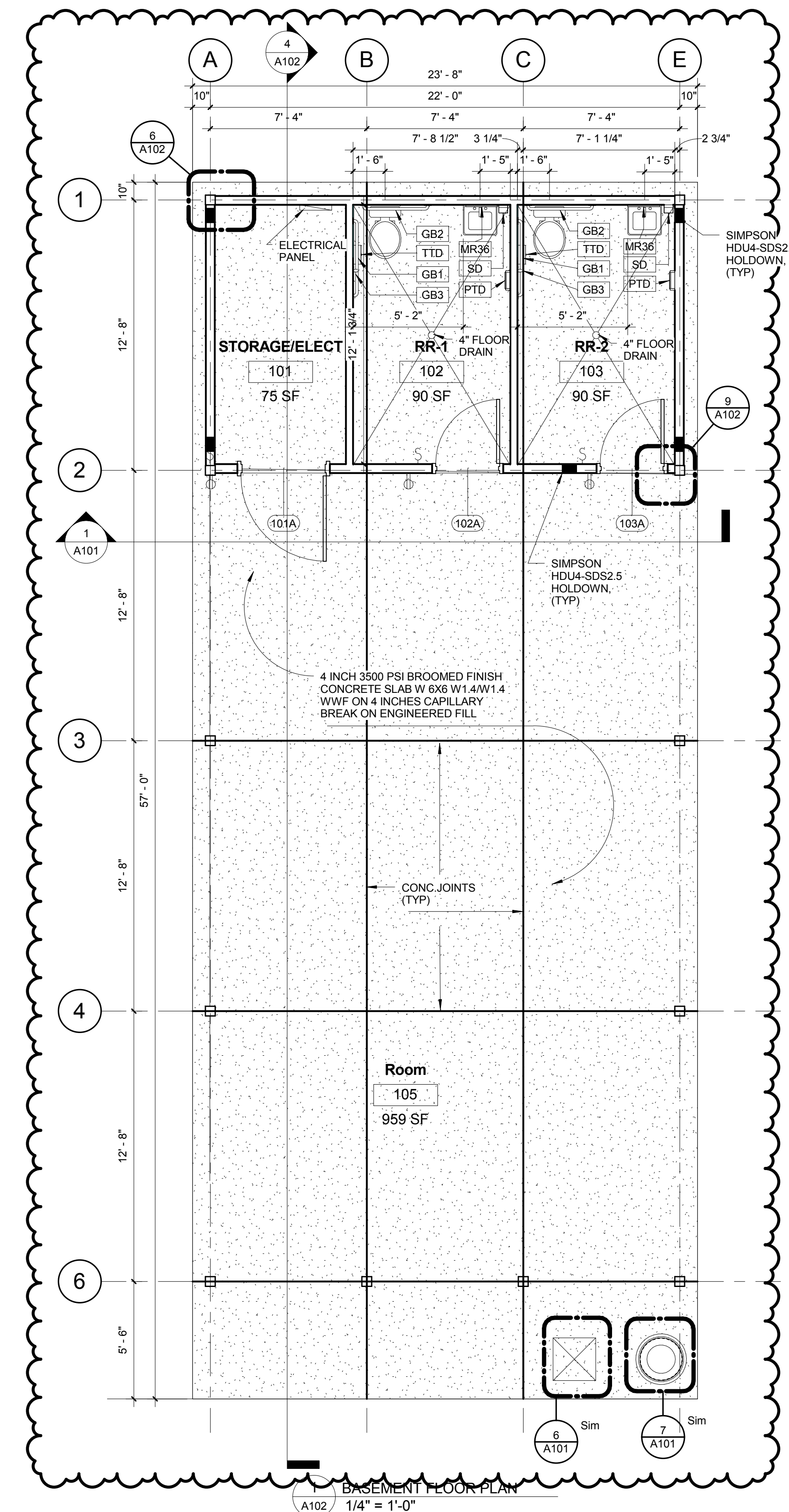
Date
14 FEBRUARY, 2017

No.	Item	Date
1	Addendum #2	June 5

Key Plan

Sheet Title
FLOOR PLANS

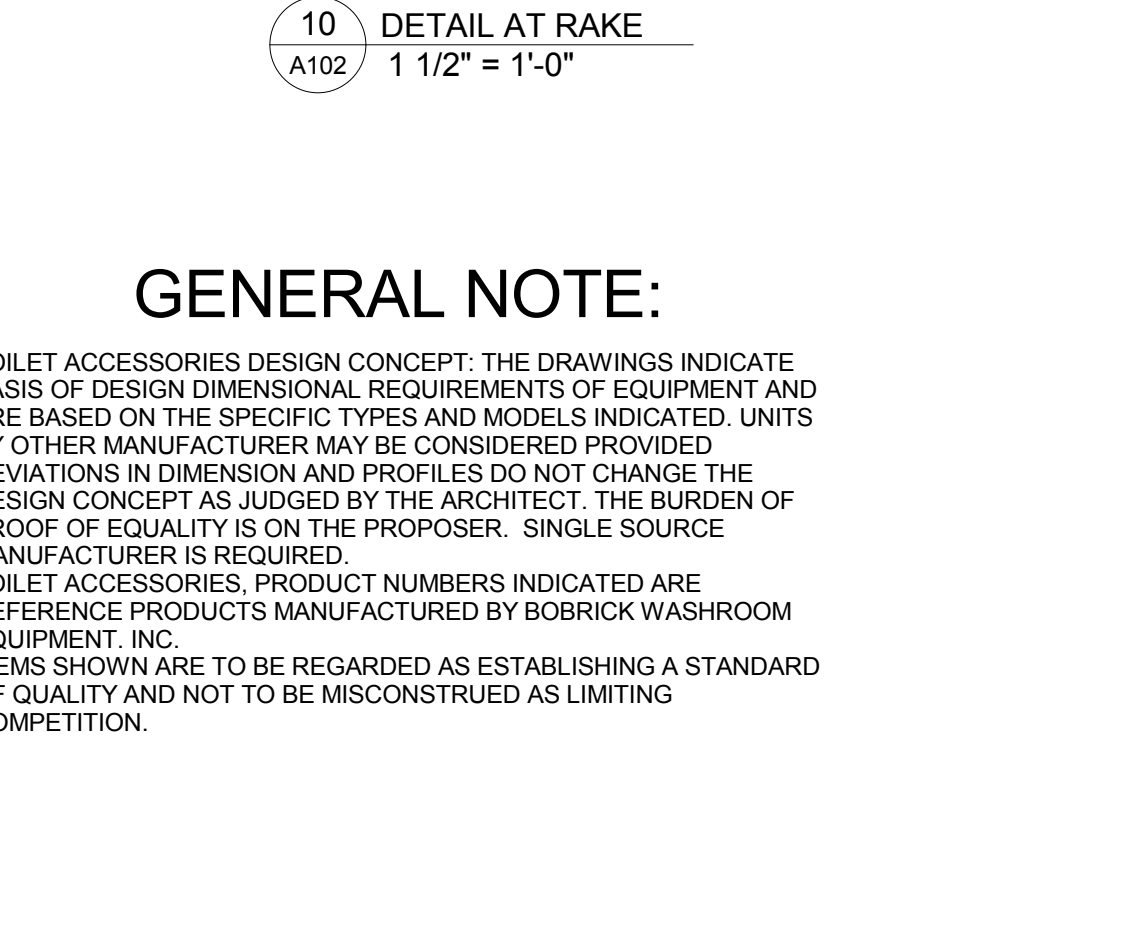
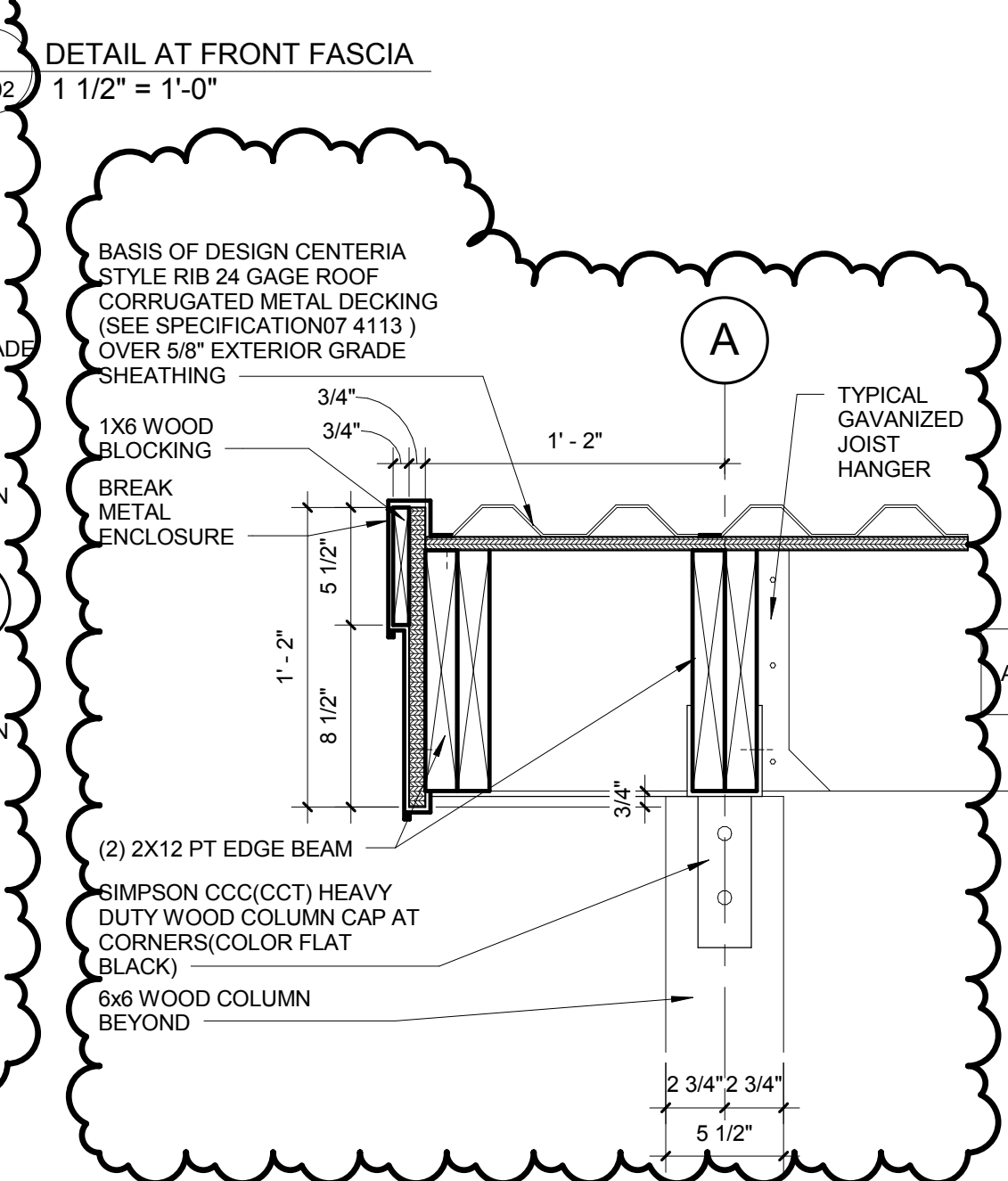
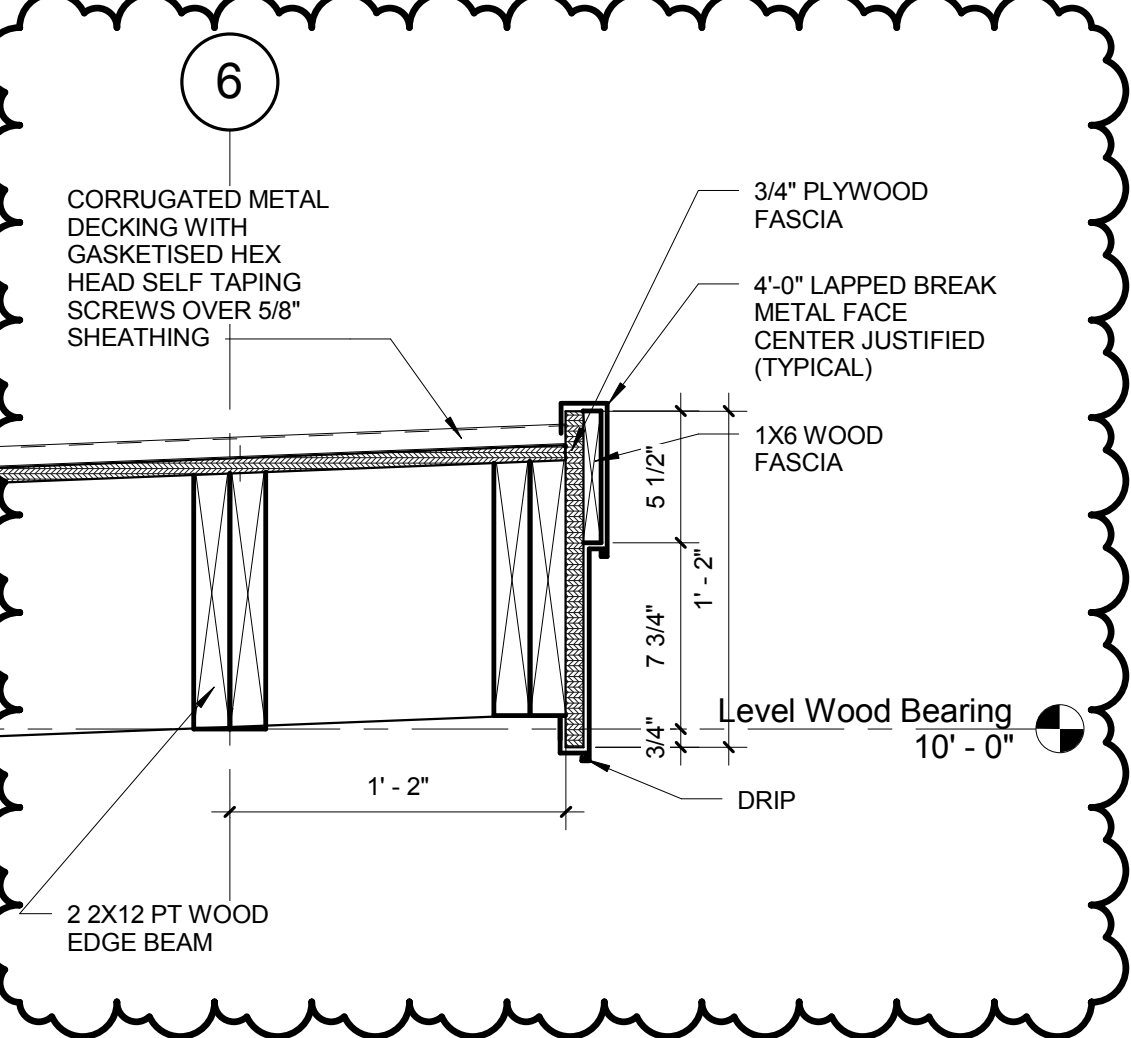
Drawn By
Checked By
A102
KAW
KAW



Door Schedule

Number	Width	Height	DOOR			FRAME				
			Hardware Set	Door Type	Door - Material	Thickness	Fire Rating	Frame Material	* Door/Frame - Head	* Door/Frame - Jamb
101A	4' - 0"	7' - 0"	1	D1	HM	0' - 1 3/4"	0	HM	HM	F1
102A	3' - 0"	7' - 0"	1	D1	HM	0' - 1 3/4"	0	HM	HM	F1
103A	3' - 0"	7' - 0"	1	D1	HM	0' - 1 3/4"	0	HM	HM	F1

NOTE: LOCK SET#1 IS MORTISED STYLE ANSI A 156.1 ANSI NO. E2151 GRADE 2 LOCK SETS. SINGLE CYLINDER DEADBOLT LOCK. DEADBOLT THROW OR RETRACED BY KEY FROM OUTSIDE OR BY INSIDE TURN UNIT. PLACE PUSH/PULL HANDLES ON BOTH SIDES OF DOOR. UNIT LATCH HAS PRIVACY NOTIFICATION OF "OCCUPIED" OR "VACANT"

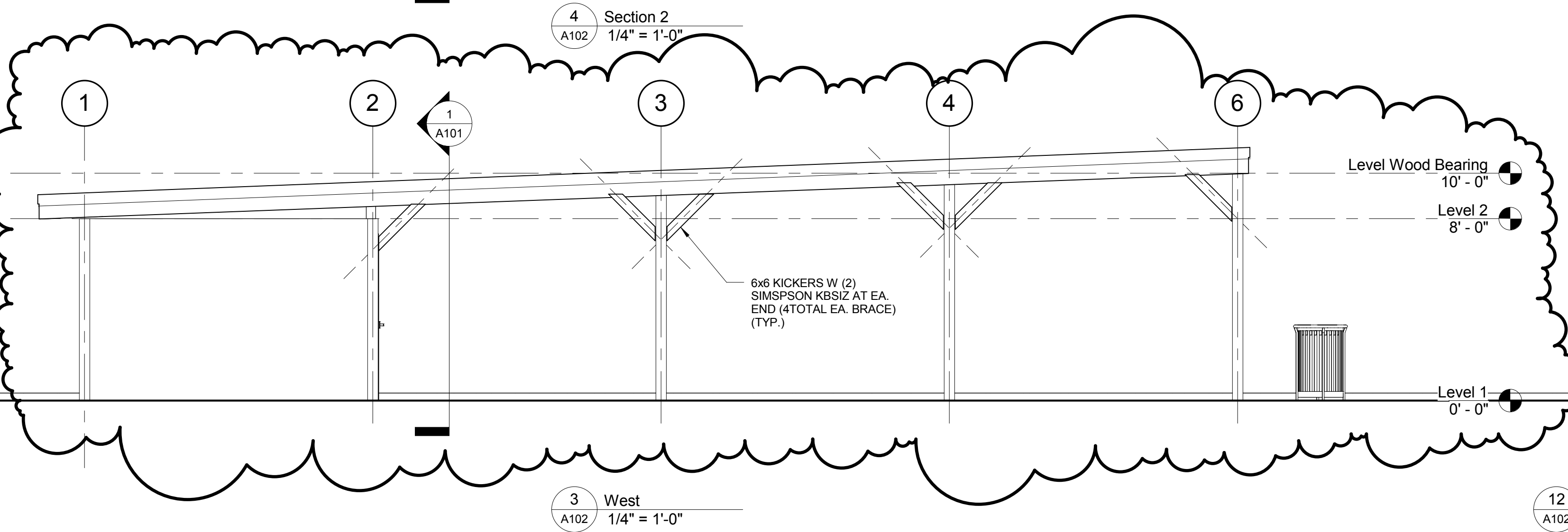
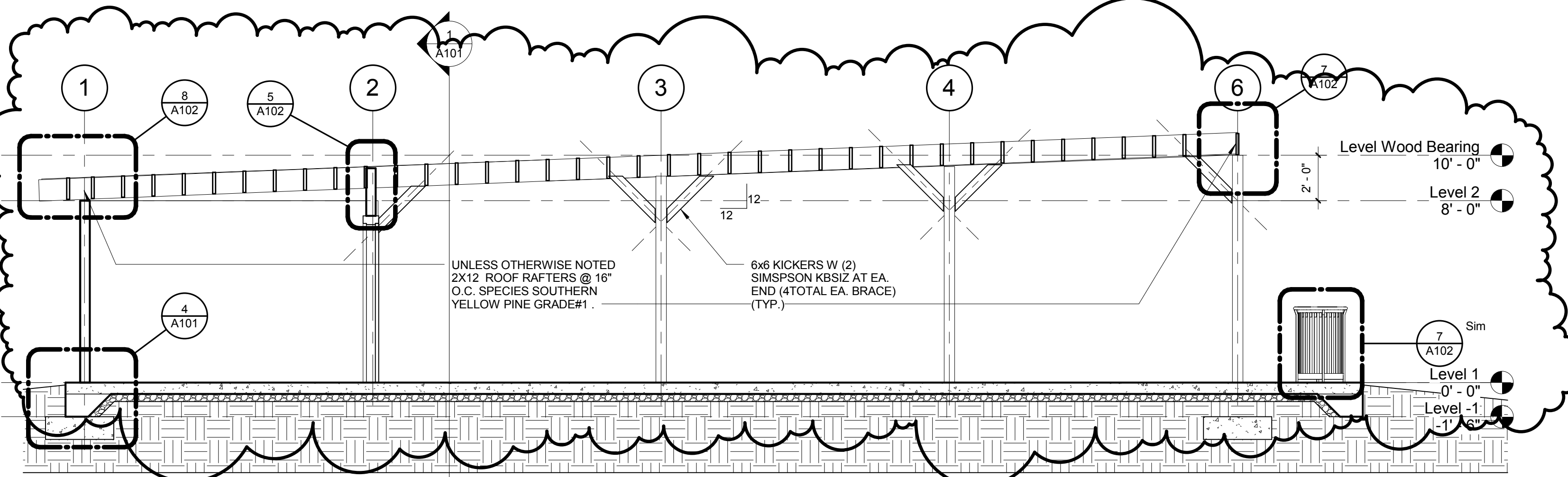
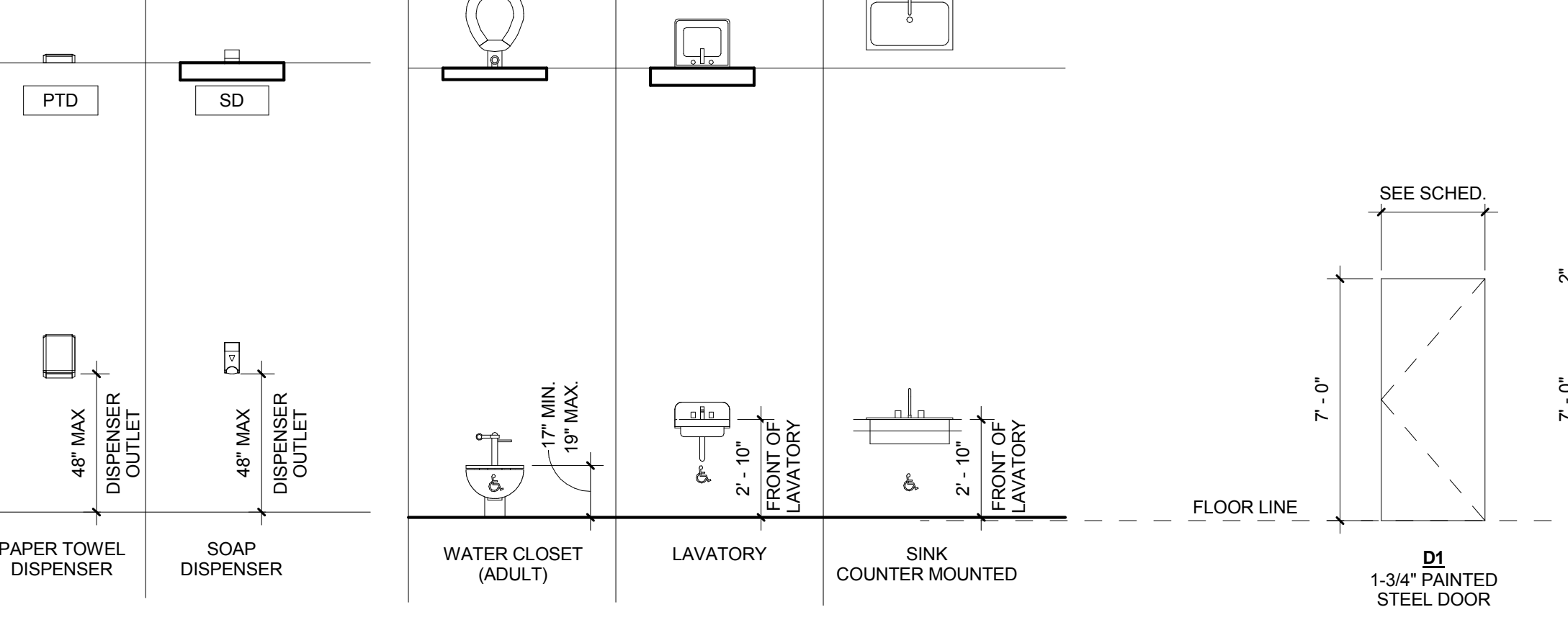
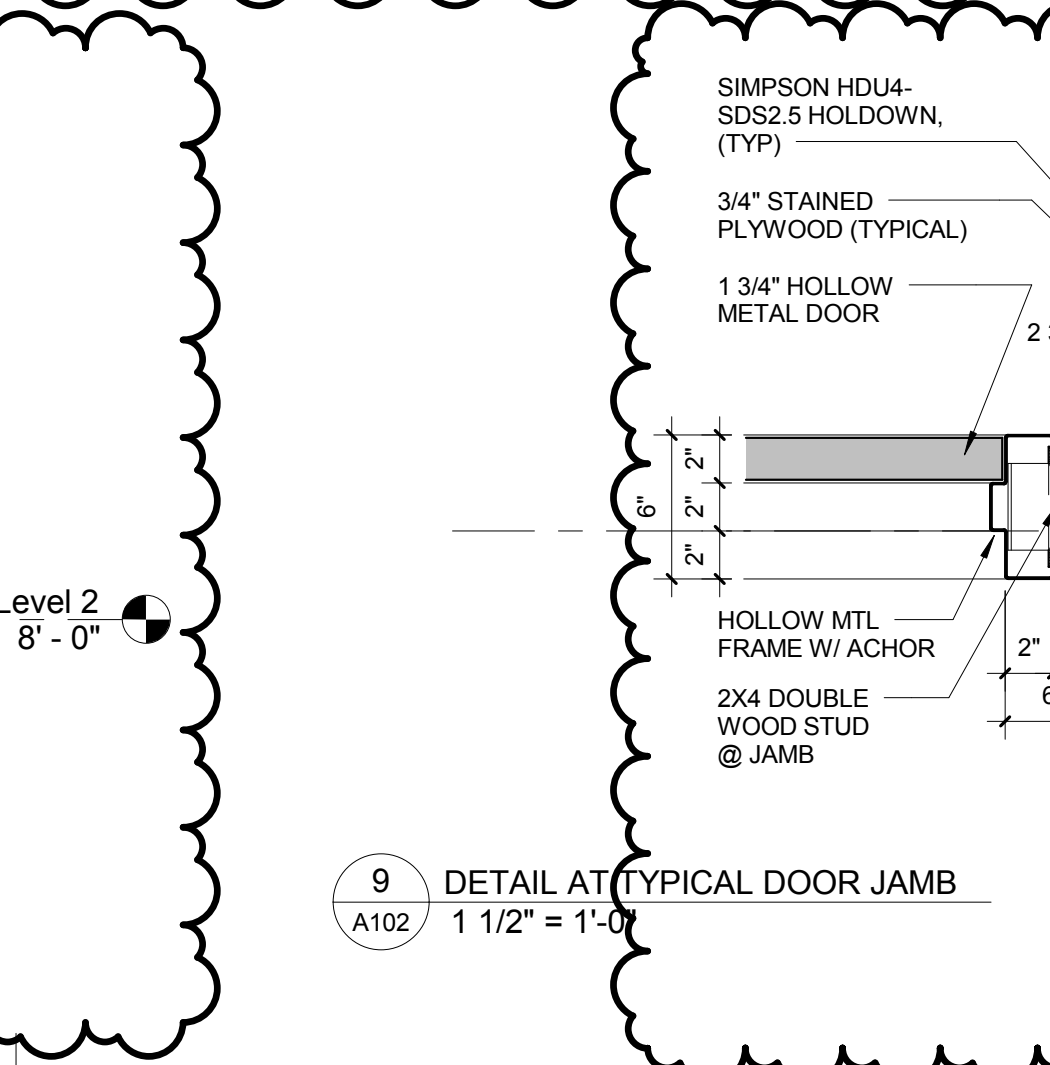
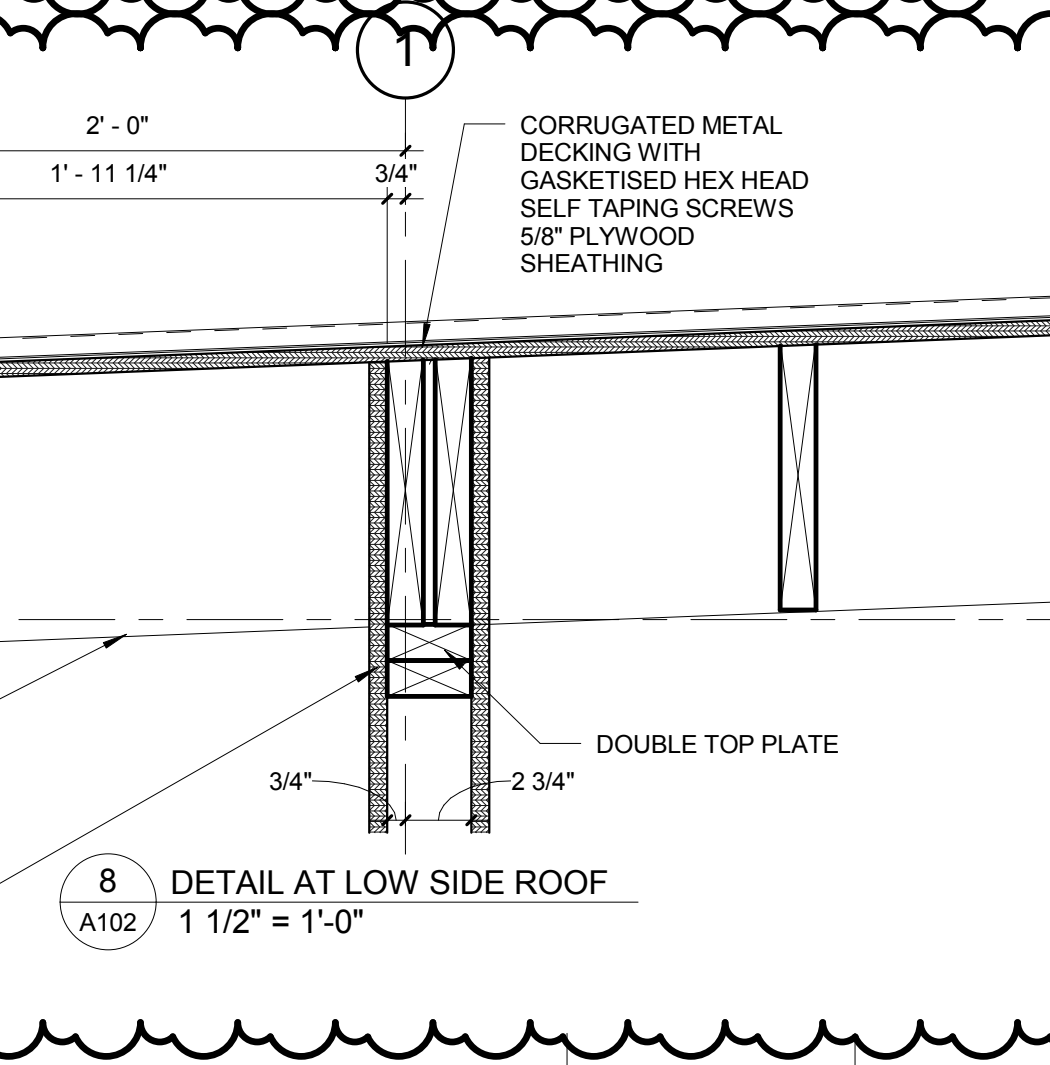
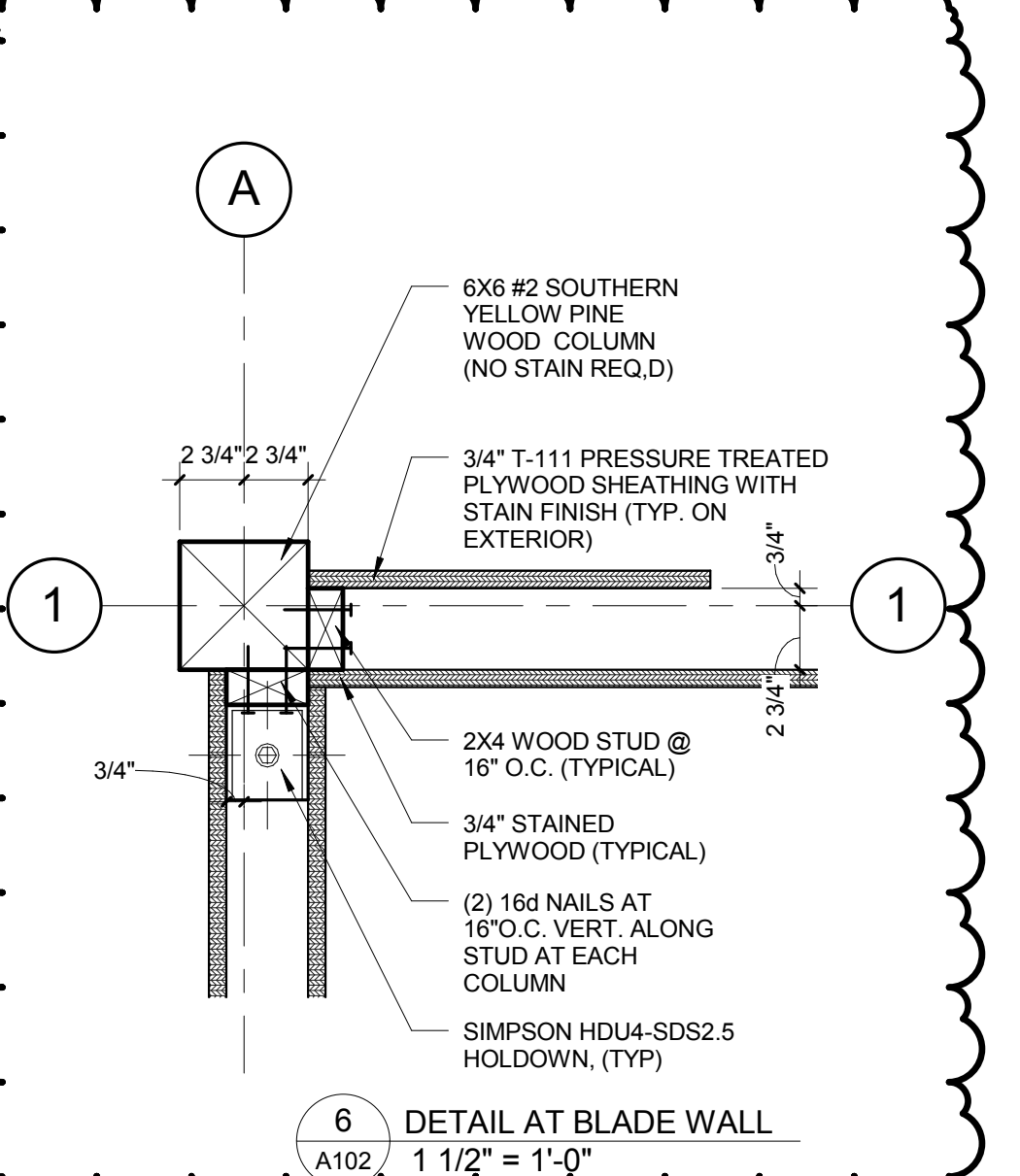
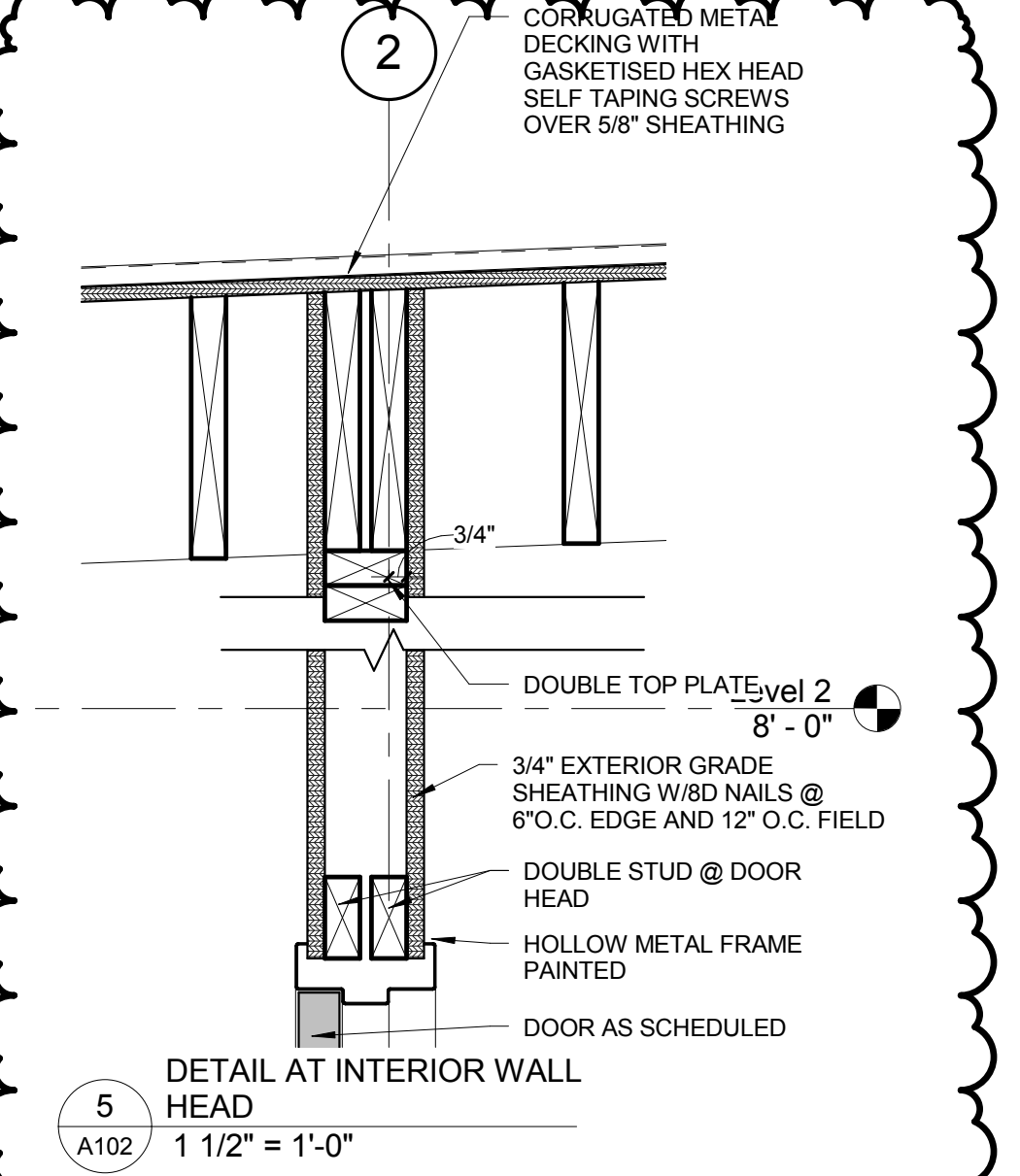
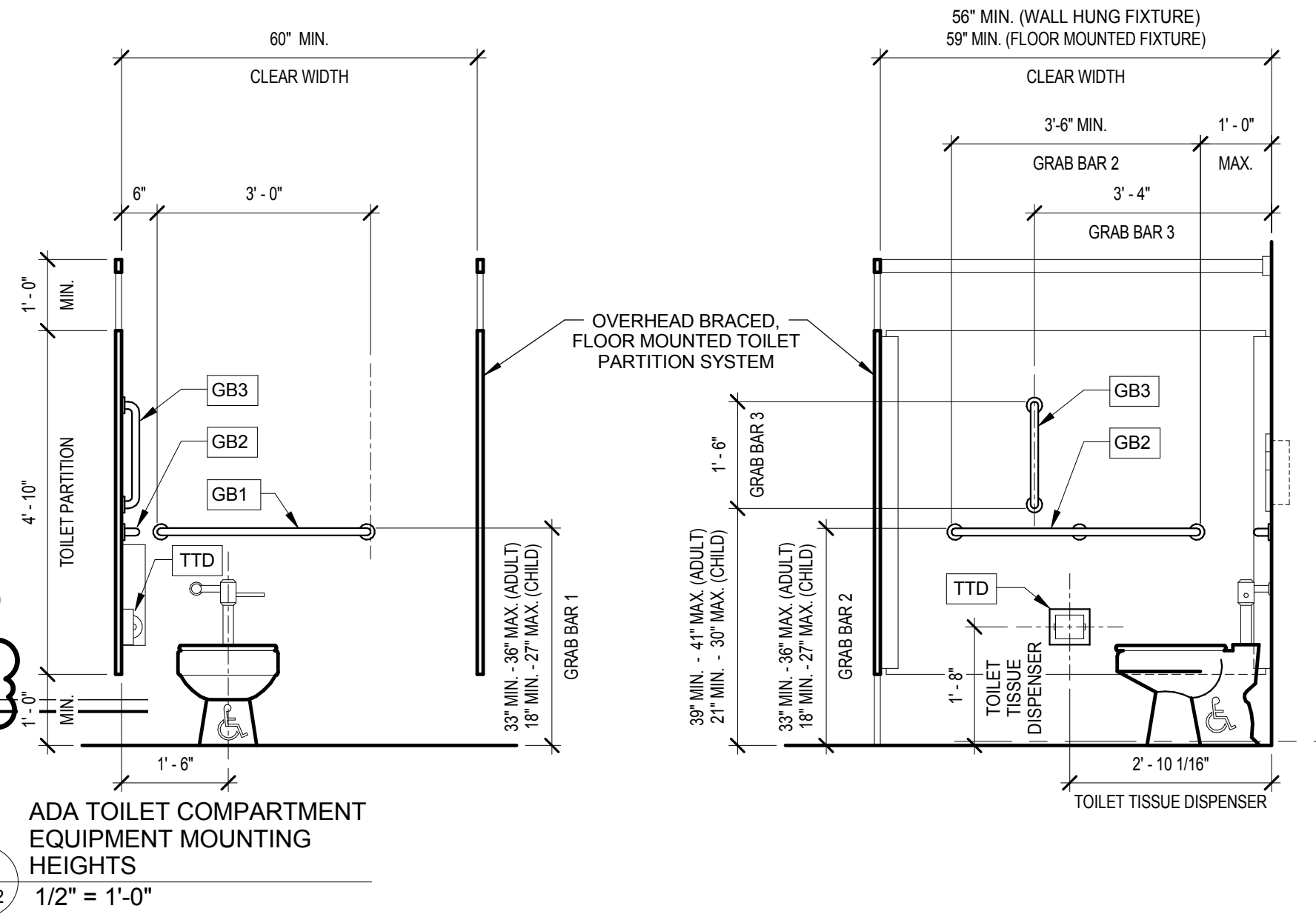


GENERAL NOTE:

- TOILET ACCESSORIES DESIGN CONCEPT: THE DRAWINGS INDICATE BASIS OF DESIGN DIMENSIONAL REQUIREMENTS OF EQUIPMENT AND ARE BASED ON THE SPECIFIC TYPES AND MODELS INDICATED. UNITS BY OTHER MANUFACTURER MAY BE CONSIDERED PROVIDED DEVIATIONS IN DIMENSION AND PROFILES DO NOT CHANGE THE DESIGN CONCEPT AS JUDGED BY THE ARCHITECT. THE BURDEN OF PROOF OF EQUALITY IS ON THE PROPOSER. SINGLE SOURCE MANUFACTURER IS REQUIRED.
- TOILET ACCESSORIES. PRODUCT NUMBERS INDICATED ARE REFERENCE PRODUCTS MANUFACTURED BY BOBRICK WASHROOM EQUIPMENT, INC.
- ITEMS SHOWN ARE TO BE REGARDED AS ESTABLISHING A STANDARD OF QUALITY AND NOT TO BE MISCONSTRUED AS LIMITING COMPETITION.

BASIS OF DESIGN TOILET ACCESSORIES LIST

GB1	BOBRICK B-6806 99 x 36 1-1/2" Diameter Straight Grab Bar, Peened	PTD	BOBRICK B5262 (Paper Towel Dispenser)
GB2	BOBRICK B-6806 99 x 42 1-1/2" Diameter Straight Grab Bar, Peened	SD	BOBRICK B-40 SURFACE MOUNTED SOAP DISPENSER Surface-Mounted Soap Dispenser
GB3	BOBRICK B-6806 99 x 18 1-1/2" Diameter Straight Grab Bar, Peened	MIR36	BOBRICK B-294 1830 (Angle-Frame Two Position Tilt Mirror)
TTD	BOBRICK B5288 SURFACE MOUNTED TOILET TISSUE DISPENSER		



PB/PBS

Regular and Standoff Post Bases

The PBS features a 1" standoff height. It reduces the potential for decay at post and column ends.

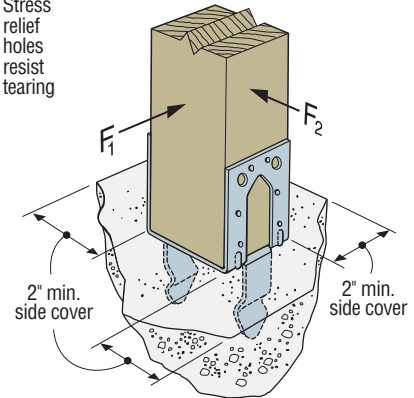
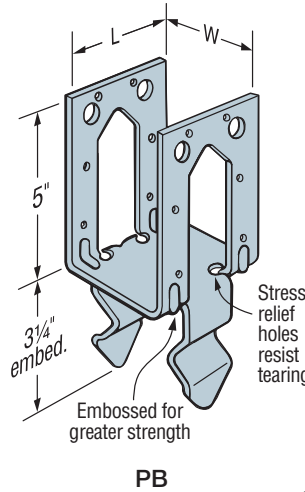
Material: PB — 12 gauge; PBS — see table

Finish: Galvanized. Some products available in ZMAX® or HDG coating; see Corrosion Information, pp. 15–18.

Installation:

- Use all specified fasteners; see General Notes.
- Install either nails or bolts (see p. 20 note d).
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations (such as fences or unbraced carports).
- PB — Holes are provided for installation with either 16d commons or ½" bolts for PB66 and PB66R; all other models use 16d commons only. A 2" minimum sidecover is required to obtain the full load.
- PBS — Embed into wet concrete up to the bottom of the 1" standoff base plate. A 2" minimum side cover is required to obtain the full load. Holes in the bottom of the straps allow for free concrete flow.

Codes: See p. 14 for Code Reference Key Chart

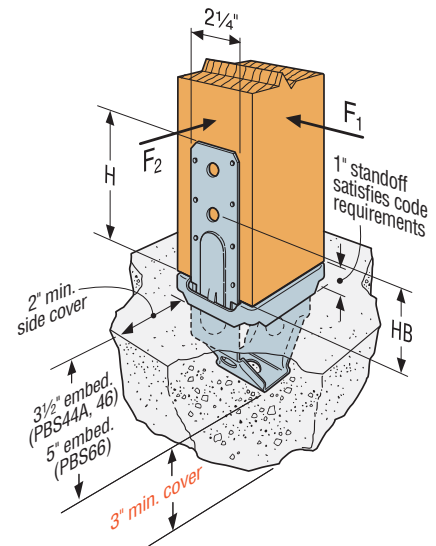


Typical PB Installation

These products are available with additional corrosion protection. For more information, see p. 18.

Model No.	Dimensions (in.)		Fasteners		Allowable Loads (160)		Code Ref.
	W	L	Nails	Machine Bolts	Non-Cracked	Cracked	
					Uplift	Uplift	
Wind and Seismic Design Category A&B							
PB44	3 9/16	3 1/4	(12) 16d	N/A	1,485	1,040	I28, FL, L27
PB46	5 1/2	3 1/4	(12) 16d	N/A	1,485	1,040	
PB66	5 1/2	5 1/4	(12) 16d	(2) 1/2" dia.	1,485	1,040	
Seismic Design Category C–F							
PB44	3 9/16	3 1/4	(12) 16d	N/A	1,150	875	I28, FL, L27
PB46	5 1/2	3 1/4	(12) 16d	N/A	1,150	875	
PB66	5 1/2	5 1/4	(12) 16d	(2) 1/2" dia.	1,150	875	

1. Loads may not be increased for short-term loading.
2. Concrete shall have a minimum compressive strength, $f_c = 2,500$ psi.
3. Multiply Seismic and Wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD capacities.
4. In accordance with IBC Section 1613.1, detached one- and two-family dwellings in Seismic Design Category (SDC) may use "Wind and SDC A&B" allowable loads.
5. Download shall be limited by the design capacity of the post. See pp. 383–385 for common post allowable loads.
6. For lateral loads for all PB models: F_1 allowable = 765 lb. F_2 allowable = 1,325 lb.
7. Designer is responsible for concrete design.
8. Structural composite lumber columns have sides that either show the wide face or the edges of the lumber strands/veneers known as the narrow face. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLM at strongtie.com for load reductions due to narrow face installations.
9. **Nails:** 16d = 0.162" dia. x 3 1/4" long. See pp. 26–27 for other nail sizes and information.



Typical PBS44A Installation

PB/PBS

Regular and Standoff Post Bases (cont.)

These products are available with additional corrosion protection. For more information, see p. 18.

These products are approved for installation with the Strong-Drive® SD Connector screw. See pp. 39–40 for more information.

Model No.	Nominal Post Size	Material (ga.)		Dimensions (in.)				Fasteners		Allowable Loads			Code Ref.
		Base	Strap	W	L	H	HB	Nails	Machine Bolts	Non-Cracked Uplift	Cracked Uplift	Download	
Wind and Seismic Design Category A&B													
PBS44A	4x4	12	14	3 ⁷ / ₁₆	3 ¹ / ₂	6 ¹ / ₄	3 ⁷ / ₁₆	(14) 16d	(2) 1/2" dia.	1,285	900	10,975	I28, FL, L27
PBS46	4x6	12	14	3 ⁷ / ₁₆	5 ⁷ / ₁₆	6 ⁹ / ₁₆	3 ³ / ₈	(14) 16d	(2) 1/2" dia.	1,285	900	14,420	
PBS66	6x6	12	12	5 ¹ / ₂	5 ³ / ₈	6 ¹ / ₂	3 ¹¹ / ₁₆	(14) 16d	(2) 1/2" dia.	2,165	2,165	14,420	
Seismic Design Category C–F													
PBS44A	4x4	12	14	3 ⁷ / ₁₆	3 ¹ / ₂	6 ¹ / ₄	3 ⁷ / ₁₆	(14) 16d	(2) 1/2" dia.	1,080	755	10,975	I28, FL, L27
PBS46	4x6	12	14	3 ⁷ / ₁₆	5 ⁷ / ₁₆	6 ⁹ / ₁₆	3 ³ / ₈	(14) 16d	(2) 1/2" dia.	1,080	755	14,420	
PBS66	6x6	12	12	5 ¹ / ₂	5 ³ / ₈	6 ¹ / ₂	3 ¹¹ / ₁₆	(14) 16d	(2) 1/2" dia.	2,165	2,165	14,420	

- For higher downloads, solid pack grout under 1" standoff plate before installing PBS into concrete. Base download on column or concrete, according to the code.
- Concrete shall have a minimum compressive strength, $f'_c = 2,500$ psi.
- Multiply Seismic and Wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD capacities.
- In accordance with IBC Section 1613.1, detached one- and two-family dwellings in Seismic Design Category (SDC) C may use "Wind and SDC A&B" allowable loads.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations (such as fences or unbraced carports).
- Download shall be reduced where limited by the design capacity of the post. See pp. 383–385 for common post allowable loads.
- Designer is responsible for concrete design.
- For lateral loads for all PBS models: F_1 allowable = 1,165 lb. when using nails and 230 lb. when using bolts. F_2 allowable = 835 lb. when using either nails or bolts.
- Structural composite lumber columns have sides that either show the wide face or the edges of the lumber strands/veneers known as the narrow face. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLM at strongtie.com for load reductions due to narrow face installations.
- Nails:** 16d = 0.162" dia. x 3 1/2" long. See pp. 26–27 for other nail sizes and information.

EPS4Z

Post Bases

The EPS4Z provides a light-duty connector for attachment of posts to concrete.

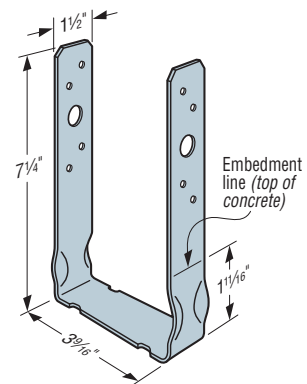
Material: 14 gauge

Finish: ZMAX® coating; see Corrosion Information, pp. 15–18

Installation: • Use all specified fasteners; see General Notes.

- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations (such as fences or unbraced carports).
- Embed into wet concrete up to the embedment line. A 2" minimum side cover is required to obtain the full load.
- Posts shall be preservative-treated wood to meet building code requirements.

Codes: See p. 14 for Code Reference Key Chart

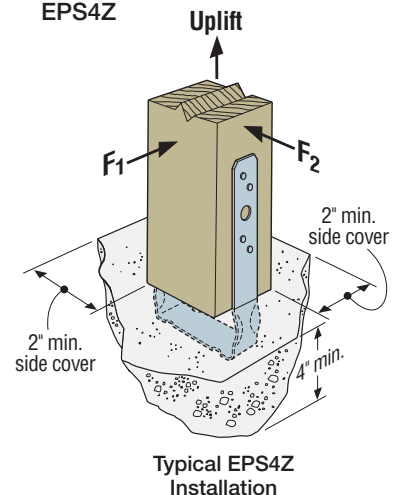


EPS4Z

These products are available with additional corrosion protection. For more information, see p. 18.

Model No.	Nails	Allowable Loads (DF/SP)		Code Ref.
		Non-Cracked Uplift	Cracked Uplift	
Wind and Seismic Design Category A&B				
EPS4Z	(8) 10d x 1 1/2"	980	685	I28, FL, L27
Seismic Design Category C–F				
EPS4Z	(8) 10d x 1 1/2"	825	575	I28, FL, L27

- Loads may not be increased for short-term loading.
- Concrete shall have a minimum compressive strength, $f'_c = 2,500$ psi.
- Multiply Seismic and Wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD capacities.
- In accordance with IBC Section 1613.1, detached one- and two-family dwellings in Seismic Design Category (SDC) C may use "Wind and SDC A&B" allowable loads.
- Download shall be reduced where limited by the design capacity of the post. See pp. 383–385 for common post allowable loads.
- For lateral loads: F_1 allowable = 575 lb. and F_2 allowable = 680 lb.
- Designer is responsible for concrete design.
- Structural composite lumber columns have sides that either show the wide face or the edges of the lumber strands/veneers known as the narrow face. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLM at strongtie.com for load reductions due to narrow face installations.
- Nails:** 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 26–27 for other nail sizes and information.



Typical EPS4Z Installation

CC/ECC/ECCU

Column Caps

Column caps provide a high-capacity connection for column-beam combinations.

Material: CC3¼, CC44, CC46, CC48, CC4.62, CC64, CC66, CC68, CC6-7½, ECC3¼, ECC44, ECC46, ECC48, ECC4.62, ECC64, ECC66, ECC68, ECC6-7½ — 7 gauge; all others — 3 gauge

Finish: Simpson Strong-Tie® gray paint; may be ordered HDG or some in stainless steel; CCO, ECCO — no coating

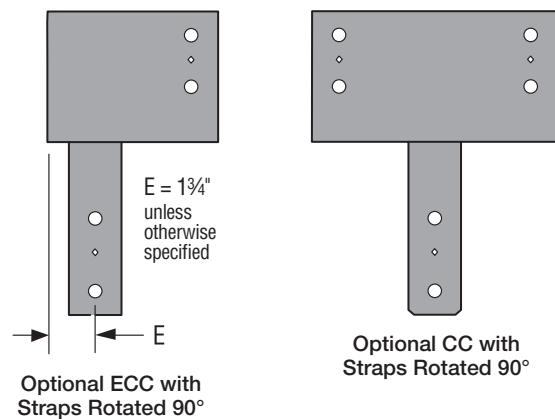
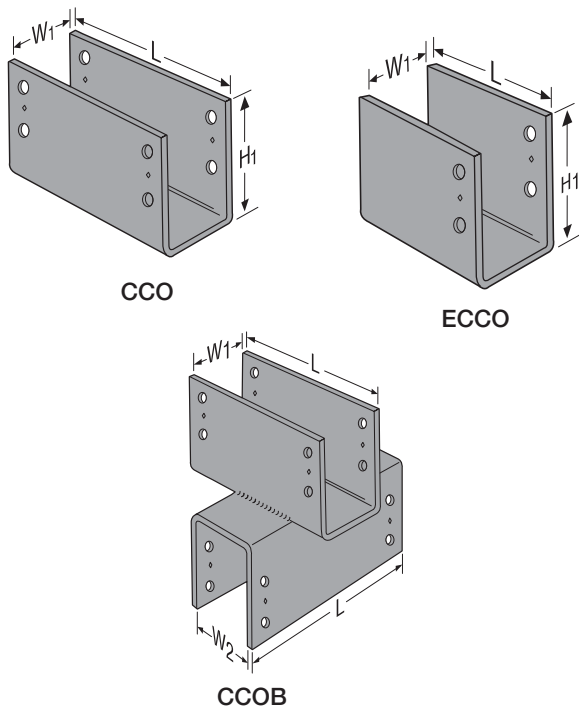
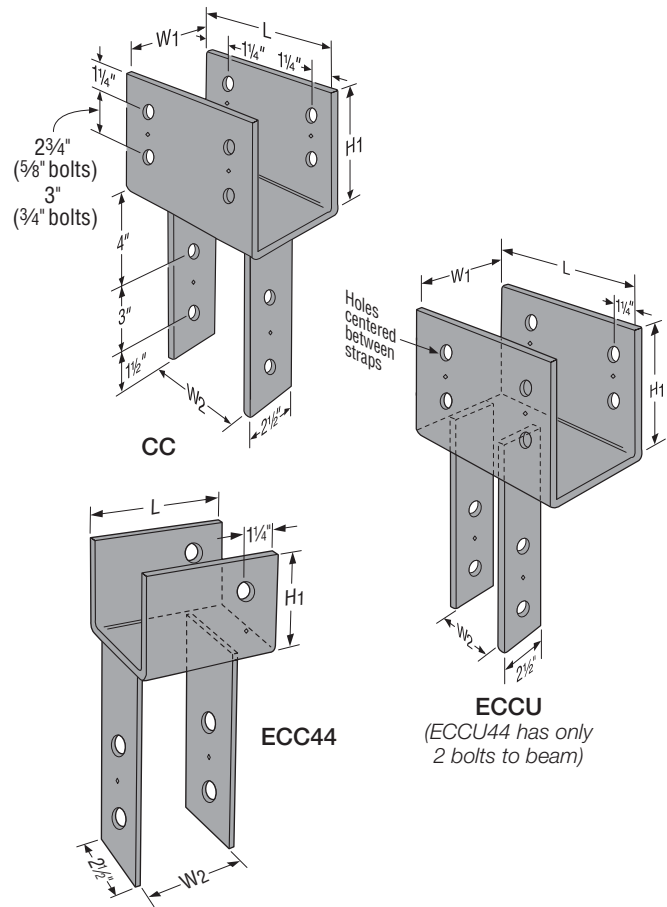
Installation:

- Use all specified fasteners; see General Notes
- Bolt holes shall be a minimum of ½" to a maximum of ¼" larger than the bolt diameter (per 2015 NDS, section 12.1.3.2)
- Contact engineered wood manufacturers for connections that are not through the wide face

Options:

- Straps may be rotated 90° where $W_1 \geq W_2$ (see illustration) and for CC5¼-6.
- For special, custom, or rough cut lumber sizes, provide dimensions. An optional W_2 dimension may be specified. (The W_2 dimension on straps rotated 90° is limited by the W_1 dimension.)
- CC/ECCO — Column cap only (no straps) may be ordered for field-welding to pipe or other columns. CCO/ECCO dimensions are the same as CC/ECC.
- CCOB — Any two CCOs may be specified for back-to-back welding to create a cross beam connector. Use the table loads; the load is no greater than the lesser element employed.

Codes: See p. 14 for Code Reference Key Chart



CC/ECC/ECCU

Column Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 18.

Model No.	Beam Width	Dimensions (in.)							Machine Bolts				Allowable Loads (DF/SP)					Code Ref.	CCO/ECCO Model No. (No Legs)	
		W ₁	W ₂	L			H ₁	Size	Beam			Post	CC		ECC	ECCU				
				CC	ECC	ECCU			CC	ECC	ECCU		Uplift	Down	Down	Uplift	Down			
		(160)	(100)	(100)	(160)	(100)														
SS	CC3¼-4	3½"	3¼	3¾	11	7½	9½	6½	5/8	4	2	4	2	3,640	16,980	6,125	1,010	6,125	I12, L4, FL	CC03¼ ECC03¼
	CC3¼-6	3½"	3¼	5½	11	7½	9½	6½	5/8	4	2	4	2	3,640	19,250	9,625	1,010	9,625		CC04 ECC04
SS	CC44	4x	3%	3%	7	5½	6½	4	5/8	2	1	2	2	1,465	15,310	7,655	205	7,655		CC04/6 ECC04/6
	CC46	4x	3%	5½	11	8½	9½	6½	5/8	4	2	4	2	2,800	24,060	12,030	740	12,030	160	CC04.62 ECC04.62
	CC48	4x	3%	7½	11	8½	9½	6½	5/8	4	2	4	2	2,800	24,060	16,405	740	16,405		CC04.62 ECC04.62
	CC4.62-3.62	4½"	4%	3¾	11	8½	9½	6½	5/8	4	2	4	2	2,800	19,020	7,655	740	7,655	170	CC04.62 ECC04.62
	CC4.62-4.62	4½"	4%	4%	11	8½	9½	6½	5/8	4	2	4	2	2,800	24,450	9,845	740	9,845		CC04.62 ECC04.62
	CC4.62-5.50	4½"	4%	5½	11	8½	9½	6½	5/8	4	2	4	2	2,800	28,585	12,030	740	12,030		CC05¼-4 ECC05¼
	CC5¼-4	5½"	5¼	3¾	13	9½	10½	8	¾	4	2	4	2	7,530	26,635	10,045	2,735	10,045	I12, L4, FL	CC05¼ ECC05¼
	CC5¼-6	5½"	5¼	5½	13	9½	10½	8	¾	4	2	4	2	7,530	28,190	15,785	2,735	15,785		CC06 ECC06
	CC5¼-8	5½"	5¼	7½	13	9½	10½	8	¾	4	2	4	2	7,530	37,310	21,525	2,735	21,525		ECC068
	CC64	6x	5½	3¾	11	7½	9½	6½	5/8	4	2	4	2	4,040	28,586	12,030	1,165	12,030	160	CC07 ECC07
SS	CC66	6x	5½	5½	11	7½	9½	6½	5/8	4	2	4	2	4,040	30,250	18,905	1,165	18,905		CC07 ECC07
	CC68	6x	5½	7½	11	9½	9½	6½	5/8	4	2	4	2	4,040	37,810	25,780	1,165	25,780	170	CC07½ ECC07½
	CC6-7½	6x	5½	7½	11	9½	9½	6½	5/8	4	2	4	2	4,040	37,810	24,060	1,165	24,060		CC07 ECC07
	CC74	6¾"	6%	3¾	13	10½	10½	8	¾	4	2	4	2	7,525	33,490	13,230	3,605	13,230		I12, L4, FL
	CC76	6¾"	6%	5½	13	10½	10½	8	¾	4	2	4	2	7,525	37,125	20,790	3,605	20,790	CC07½ ECC07½	
	CC77	6¾"	6%	6%	13	10½	10½	8	¾	4	2	4	2	7,525	49,140	25,515	3,605	25,515	160	
	CC78	6¾"	6%	7½	13	10½	10½	8	¾	4	2	4	2	7,525	49,140	28,350	3,605	28,350		CC08 ECC08
	CC7½-4	7"	7%	3¾	13	10½	10½	8	¾	4	2	4	2	7,510	34,736	18,375	4,855	18,375		170
	CC7½-6	7"	7%	5½	13	10½	10½	8	¾	4	2	4	2	7,585	58,500	28,875	4,855	28,875	CC09 ECC09	
	CC7½-7½	7"	7%	7½	13	10½	10½	8	¾	4	2	4	2	7,585	57,750	36,750	4,855	36,750	I12, L4, FL	
	CC7½-8	7"	7%	7½	13	10½	10½	8	¾	4	2	4	2	7,585	52,500	36,750	4,855	36,750		CC10 ECC10
	CC84	8x	7½	3¾	13	10½	10½	8	¾	4	2	4	2	7,440	37,210	16,405	2,625	16,405	170	CC09 ECC09
	CC86	8x	7½	5½	13	10½	10½	8	¾	4	2	4	2	7,440	41,250	23,100	2,625	23,100		CC09 ECC09
	CC88	8x	7½	7½	13	10½	10½	8	¾	4	2	4	2	7,440	54,600	31,500	2,625	31,500		I12, L4, FL
	CC94	8¾"	8%	3¾	13	10½	10½	8	¾	4	4	4	2	7,515	43,410	19,905	3,990	19,905	CC10 ECC10	
	CC96	8¾"	8%	5½	13	10½	10½	8	¾	4	4	4	2	7,515	48,125	26,950	4,670	26,950	170	
	CC98	8¾"	8%	7½	13	10½	10½	8	¾	4	4	4	2	7,515	63,700	36,750	4,670	36,750		CC10 ECC10
	CC106	10x	9½	5½	13	10½	10½	8	¾	4	4	4	2	7,515	52,250	29,260	3,325	29,260		

- Uplift loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
- Down loads may not be increased for short-term loading and shall not exceed the post capacity. See pp. 383-385 for common post allowable loads.
- CC uplift loads do not apply to splice conditions.
- Splice conditions with CCs must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
- Column sides are assumed to be aligned in the same vertical plane as the beam sides. CC4.62 models assume a minimum 3½"-wide post.
- Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLM at strongtie.com for values on the narrow face (edge).
- Beam depth must be at least as tall as H₁. Uplift loads assume a minimum beam height of 11".
- For 5¼"-engineered lumber, use 5½" models.
- CCO and ECCO welded to steel column will achieve maximum load listed as CC and ECC. Steel column width shall match beam width. Weld by Designer.

ECCL/CCC/CCT

Column Caps

Column-to-beam connections often have multiple beams framing on top of a column. L, T, and cross-column caps provide design solutions for this application. Many combinations of beam and post sizes can be manufactured (refer to worksheet T-CCLTC-WS at strongtie.com for details) with the following criteria applied:

Material: 7 gauge

Finish: Simpson Strong-Tie® gray paint, also available in HDG

Installation:

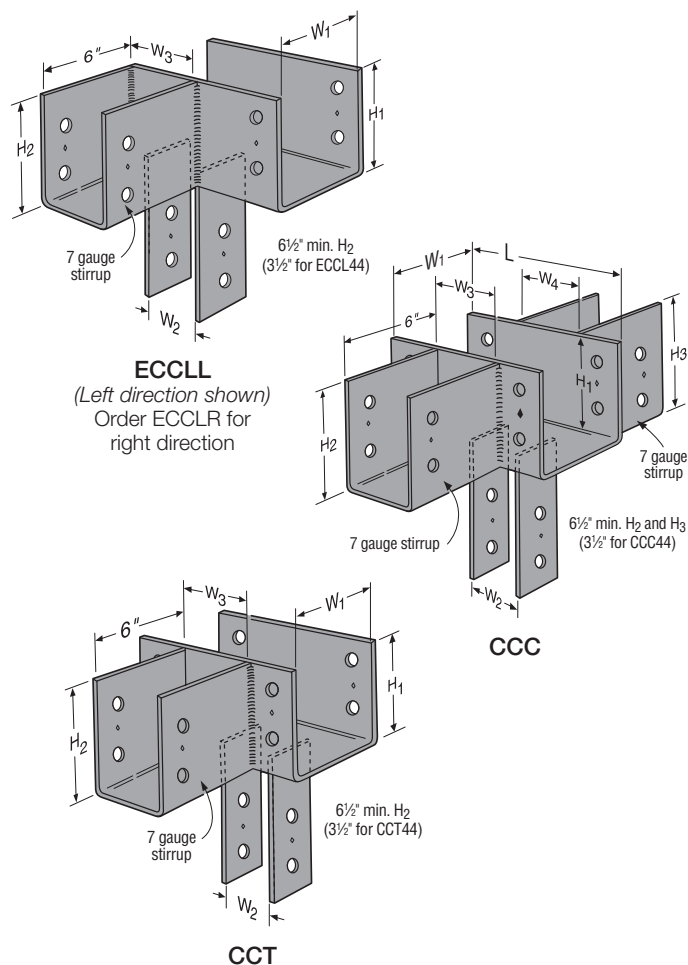
- Use all specified fasteners; see General Notes
- Bolt holes shall be a minimum of $\frac{1}{32}$ " to a maximum of $\frac{1}{16}$ " larger than bolt diameter (per NDS 2015 12.1.3.2)

Options:

- Many combinations of beam and post sizes can be manufactured. Refer to worksheet T-C-CCQLTC at strongtie.com.
- The download capacity shall be determined from the capacity for the unmodified product (see p. 115). The side beam can take a maximum of 40% of the download and shall not exceed 10,665 lb. The sum of the loads for the side beam(s) and main beam can not exceed the table load.
- Uplift loads do not apply for ECCL caps. For CCC and CCT, uplift loads from table apply for main beam only.
- The column width in the direction of the main beam width must be the same as the main beam width (W_1).
- Specify the stirrup height from the top of the cap. The minimum side stirrup heights (H_2 or H_3) is $6\frac{1}{2}$ " ($3\frac{1}{2}$ " for 44s).
- The L dimension may vary depending on the width of the side stirrup (W_3 or W_4).
- Column caps may be ordered without the column straps for field welding to a steel column. No loads apply. Specify CCOC/CCOT/ECCOL. **Weld by Designer.**

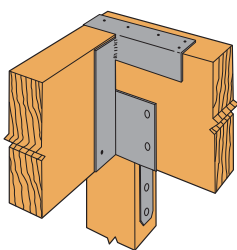
Ordering Examples:

- A CCC66 with $W_3 = 5\frac{1}{2}$ ", H_2 and $H_3 = 6\frac{1}{2}$ " is a CC66 column cap with $5\frac{1}{2}$ " beams on each side with all beam seats flush.
- An ECCLR66 with $W_3 = 3\frac{5}{8}$ ", $H_2 = 7\frac{1}{2}$ " is an ECC66 end column cap with a 4x beam on the right side (specify direction left (which is shown) or right for stirrup) and stirrup seat 1" below the cap seat.

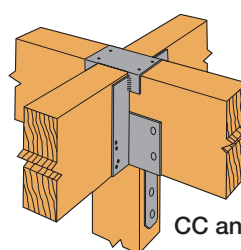


There are cost-effective alternatives for replacing column caps by using a combination of connectors. Designer must specify the options required.

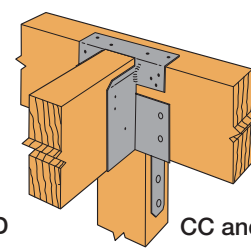
For column cap clearance, allow 3" for the hanger flange depth.



ECC and HW
(Top flange offset right)



CC and HWD



CC and GLT

Ordering Multiple-Beam Column Caps

Ordering bolted column caps incorporate several key steps that are important to ensure the highest-capacity capacity solution for your project. Here are some common steps to begin that process. For more information, refer to worksheet T-CCLTC-WS for bolted connections and worksheet T-CCQLTC for Quick Install connections. See p. 2 of these worksheets for model numbers for common post and beam width combinations. These worksheets are available at strongtie.com.

1. **Choose Column Cap Style.** Look at the configuration of the column caps to determine which style column cap you require. If you don't know which style column cap is required, refer to your plans to determine the correct configuration.
2. **Determine Column Cap Dimensions.** Fill in the dimensions of the column cap on the worksheet. If you don't know the dimensions of the column cap, go directly to the "Post and Beam Dimensions" section.
3. **Provide Beam and Post Dimensions.** The "Post and Beam Dimensions" section of this worksheet is required. Fill in all applicable dimensions in actual inches, not as nominal dimensions.
4. **Determine Beam Orientation.** Refer to your plans or check the configuration of the column cap you selected in order to determine the orientation of the beam. Check the box for the beam orientation that best describes your beam configuration: Beam B flush at bottom of Beam A; Beam B flush at both the top and bottom of Beam A; or Beam B flush at top of Beam A.
5. Check the box for the required style and strap orientation.
6. **Select Finish.** Standard finish is Simpson Strong-Tie® gray paint, available in HDG (specify HDG).
7. **Place Order.** Contact Simpson Strong-Tie for ordering information.

KBS1Z

Knee-Brace Stabilizer

The KBS1Z knee-brace stabilizer makes a structural connection between knee bracing and columns or beams to help stabilize free-standing structures and comply with many prescriptive deck bracing requirements such as AWC's DCA6 Prescriptive Residential Wood Deck Construction Guide. Factory-formed at a 45° angle and easily installed with nails, the KBS1Z braces 2x, 4x and 6x in line post-to-beam configurations. Check with your local building department for deck bracing requirements.

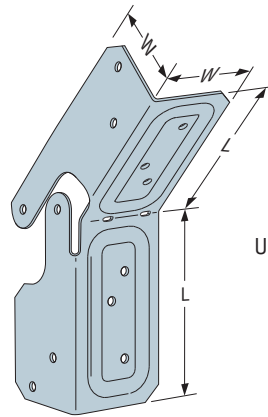
Material: 16 gauge

Finish: ZMAX® coating

Installation:

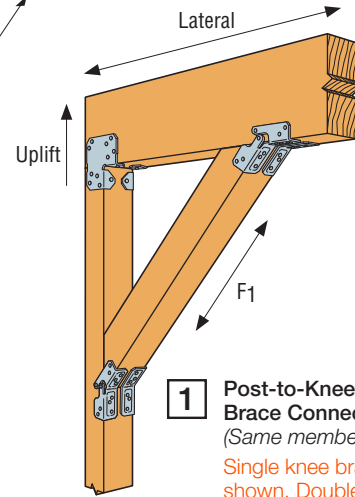
- Use all specified fasteners; see General Notes.
- For installations at an angle other than 45°, bend KBS1Z along slots to desired angle. Bend one time only.
- **Knee Brace:**
 - Cut braces at desired angle
 - Bend KBS1Z to desired angle if required
 - Install fasteners to secure in place
 - For equal-width members, install (2) KBS1Z on each end of brace (see connection type 1)
 - For 2x knee brace, install single KBS1Z on each end of brace (see connection type 2)
- **Beam-to-Post:**
 - Install in pairs; see illustrations for quantity and configuration

Codes: See p. 14 for Code Reference Key Chart



KBS1Z

U.S. Patent 9,045,895



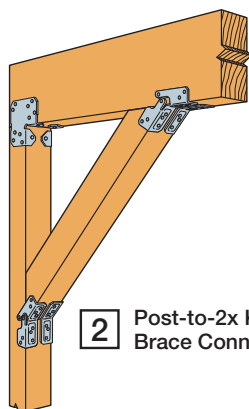
1 Post-to-Knee Brace Connection
(Same member width)
Single knee brace shown. Double knee brace installation similar.

These products are available with additional corrosion protection. For more information, see p. 18.

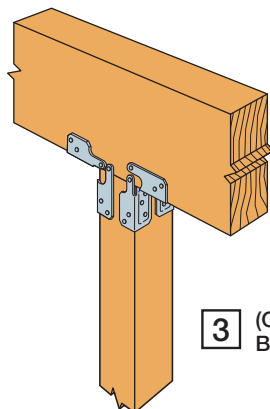
These products are approved for installation with the Strong-Drive® SD Connector screw. See pp. 39-40 for more information.

Model No.	Dimensions (in.)		Type of Connection	Connectors per Joint	Fasteners Each Connector	Direction of Load	Allowable Loads (160)				Code Ref.
	W	L					In-Service Moisture Content				
							≤ 19%		> 19%		
DF/SP	SPF/HF	DF/SP	SPF/HF								
KBS1Z	1½	3	1	2	(12) 8d	F ₁ – Brace angle = 45°	1,175	1010	1055	860	IP6, L26, FL
						F ₁ – Brace angle = 30° or 60° ³	835	720	835	720	
			2	1	(12) 8d x 1½"	F ₁ – Brace angle = 45°	630	540	470	385	
						F ₁ – Brace angle = 30° or 60° ³	510	440	395	330	
			3	4	(12) 8d	Uplift	1,160	1,000	1,160	1,000	
						Lateral	1,725	1,480	1,725	1,480	
			4	2	(12) 8d	Uplift	540	465	540	465	
						Lateral	485	420	430	370	
				4		Uplift	900	775	900	775	
						Lateral	1,270	1,095	1,270	1,095	

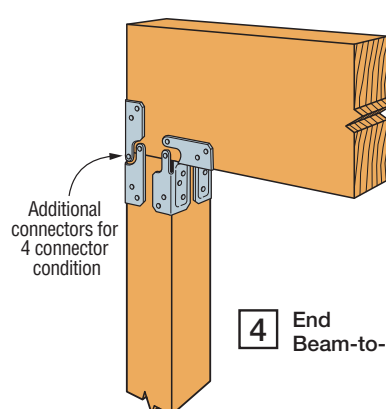
1. Allowable loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. For braces installed at intermediate angles, allowable loads may be interpolated between loads listed for brace angle = 45° and brace angle = 30° or 60°.



2 Post-to-2x Knee Brace Connection



3 (Continuous) Beam-to-Post



4 End Beam-to-Post

**SECTION 07 4113
METAL ROOF PANELS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural roofing system of preformed steel panels.
- B. Fastening system.
- C. Factory finishing.
- D. Accessories and miscellaneous components.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- C. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2012).
- D. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; 1995 (Reapproved 2011).
- E. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems; 2011.
- F. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Summary of test results, indicating compliance with specified requirements.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Specimen warranty.
- B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
 - 1. Show work to be field-fabricated or field-assembled.
 - 2. Include structural analysis signed and sealed by qualified structural engineer, indicating conformance of roofing system to specified loading conditions.
- C. Test Reports: Indicate compliance of metal roofing system to specified requirements.
- D. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in the manufacture of roofing systems similar to those required for this project.
- B. Installer Qualifications: Company trained and authorized by roofing system manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.
- B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

- A. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of 10 year period from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Design is based on Style Rib Profile Series , manufactured by Centria.
- B. Metal Roof Panels:
 - 1. ATAS International, Inc; Dutch Seam: www.atas.com/sle.
 - 2. Berridge Manufacturing Company; Cee-Lock: www.berridge.com/sle.
 - 3. Firestone Building Products LLC; _____: www.firestonebpco.com.
 - 4. Metl-Span, a Division of NCI Group, Inc; _____: www.metlspan.com.
 - 5. Petersen Aluminum Corporation; Snap-Clad Panel: www.pac-clad.com/sle.
 - 6. Sheffield Metals International; SMI 1.5" SnapLock 550 Standing Seam: www.sheffieldmetals.com/sle.
 - 7. Any substitutions will need prior approval.

2.02 STRUCTURAL METAL ROOF PANELS

- A. Structural Metal Roofing: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for conformance to the following minimum standards:
 - 1. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
 - 2. Wind Uplift: Class 90 wind uplift resistance of UL 580.
 - 3. Air Infiltration: Maximum 0.06 cfm/sq ft (1.1 cubic meters/hr/sq m) at air pressure differential of 6.24 lbf/sq ft (300 Pa), when tested according to ASTM E1680.
 - 4. Water Penetration: No water penetration when tested according to procedures and recommended test pressures of ASTM E1646. Perform test immediately following air infiltration test.
- B. Metal Panels: Factory-formed panels with factory-applied finish.
 - 1. Type: Single skin, uninsulated.
 - 2. Steel Panels:
 - a. Zinc-coated SS (structural steel) sheet conforming to ASTM A653/A653M; minimum G60 (Z180) galvanizing.
 - b. Steel Thickness: Minimum 24 gage (0.024 inch) (0.61 mm).
 - 3. Profile: Lapped seam, with exposed fastener system.
 - 4. Texture: Smooth.
 - 5. Length: 30'-0" of roof slope, 1 horizontal joint.
 - 6. Width: Maximum panel coverage of 36 inches (914 mm).

2.03 ATTACHMENT SYSTEM

- A. Exposed System: Provide manufacturer's recommended stainless steel fasteners engineered to meet performance requirements and equipped with appropriate sealant separators to provide weathertight connections that will accommodate anticipated thermal movement.

2.04 PANEL FINISH

- A. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil (0.023 mm); color and gloss as selected from manufacturer's standards.

2.05 ACCESSORIES AND MISCELLANEOUS ITEMS

- A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, trim, moldings, closure strips, caps, and similar sheet metal items of the same material, thickness, and finish as used for the

roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

- B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.
- C. Sealants:
 - 1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
 - 2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
- D. Underlayment for Wood Substrate: ASTM D226/D226M roofing felt, perforated type; covered by water-resistant rosin-sized building paper.

2.06 FABRICATION

- A. Panels: Fabricate panels and accessory items at factory, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Broom clean wood sheathing prior to installation of roofing system.
- B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- C. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- D. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- E. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

- A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
 - 1. Install roofing system with exposed fasteners prefinished to match panels.
 - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
- B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.
- C. Install roofing felt and building paper slip sheet on roof deck before installing preformed metal roof panels. Secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 2 inches (50 mm) and side and end laps a minimum of 3 inches (75 mm). Offset seams in building paper and seams in roofing felt.
- D. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

END OF SECTION 07 4113