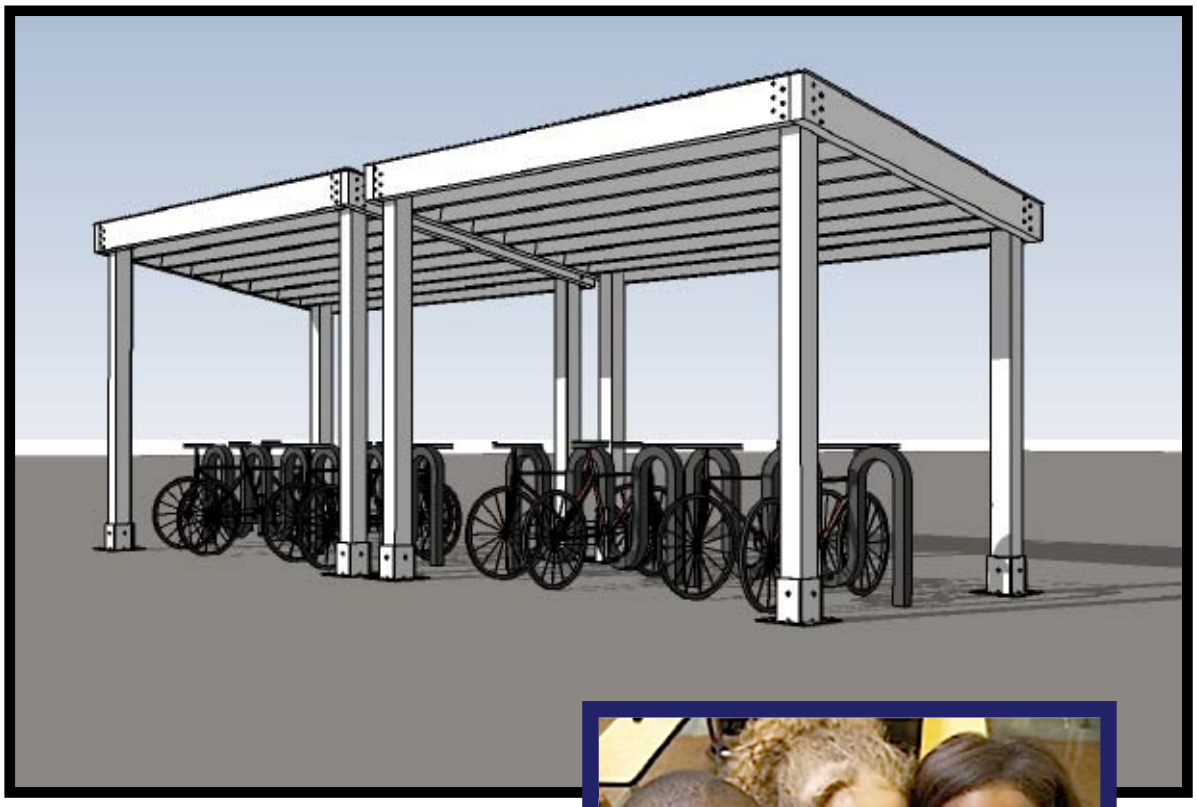
Portland Public Schools

Bike Shelter

Project Development Guide



1 What, Why and How

What? Portland Public Schools presents the **Bike Shelter Development Guide** as a support booklet for parent volunteer groups, school staff and students interested in building bike shelters on school sites. The booklet references a pre-engineered design and includes a kit of parts that can be assembled with little expertise using common tools and elbow grease. No power tools required!

Why? The District, in conjunction with the City of Portland's **Safe Routes to Schools**, is committed to providing school environments that use a holistic approach in promoting and protecting children's health, wellness and ability to learn - including support of healthy eating habits and physical activity.

The project was partially funded through a Federal grant promoting healthy living. Advancing year round bicycle riding aligns with one of the grant's primary objectives, which is to increase opportunities for students to be physically active before, during and after school.

Safe Routes to Schools is a partnership of the City of Portland with schools, neighborhoods, community organizations and agencies that advocate for and implement programs to make walking and biking around our neighborhoods and schools fun, easy, safe and healthy for all students and families - while reducing our reliance on cars.

How? So you want to build a shelter? The first step is to generate a Project Development Request through the Facilities and Asset Management department. This can be completed on-line at (http://www.pps.k12.or.us/depts-c/fam/pdr/pdr.php) A project manager will be asked to help you though the steps to successfully complete your project. For questions, please contact Ed Bruin, (503) 916-2000 ext. 74201.

Note: This booklet is not intended to limit your creative options for designing and building a shelter. It is intended to help streamline the process by providing pre-engineered drawings, a list of materials, and partnerships with local suppliers for materials and ease of construction. Other designs are encouraged provided the sponsors produce engineered, stamped drawings and the dimensions and locations meet the requirements set forth in this booklet.

2 Where

The prototypical shelter included in this package was intentionally designed to fall outside the purview of the City's Planning, Building and Zoning bureaus. Due to the design and size of these covered, non-habitable accessory structures, building and zoning permits, and land use review is not required. You may build the shelter contained in this booklet (or similarly sized shelters) provided you meet the following criteria:

- A building permit is not required to construct a covered, non-habitable accessory structure (e.g. bike shelter) that is less than or equal to 120 square feet in area and less than 10 feet in height measured from the finish floor level to the average height of the roof.

- A zoning permit is not required for a covered, non-habitable accessory structure less than or equal to 200 square feet in area and less than 10 feet in height measured from the finish floor level to the average height of the roof (out of the required setbacks).

- The bike shelter must be located at least 10 feet from all property lines.

- If the bike shelter is located at a historic landmark it must be located at least 40 feet from the front property line and 10 feet from the other property lines.

- The bike shelter must not be located directly adjacent anther structure whereby the shelter can be used to access the roof of the other structure.

- The project sponsors should consider site drainage while locating the shelter and any potential paving. Please ensure the shed roof water run off does not impede positive site drainage.

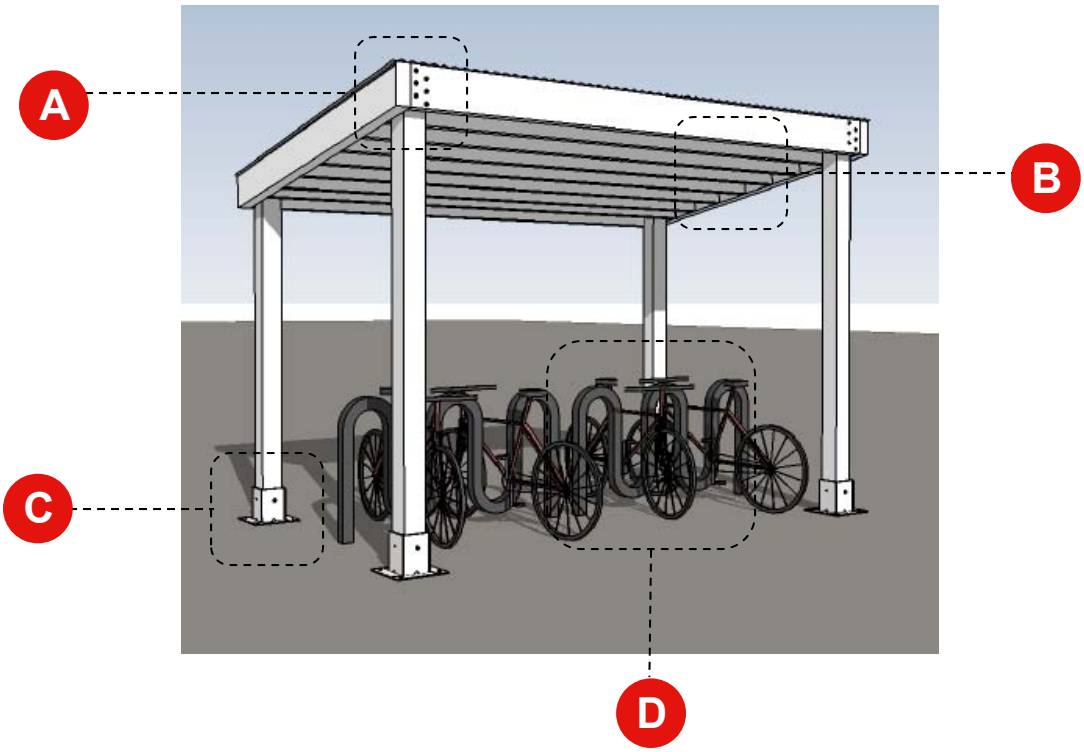
Note:
The City of Portland allows the erection of multiple shelters, provided they are not attached in any way. However, if it is your intention to introduce paving to an area of the grounds as a pad for your shelter(s), and this area is in excess of 500 square feet, a stormwater management mitigation plan and a zoning permit would be required.

One shelter has a roof area of less than 100 square feet, which means depending on the size of paving it should be possible to install multiple shelters under the 500 s.f. threshold.

3 Prototype

PPS and a lumber supplier are working together to pre-assemble material packages that can be ordered by the individual project sponsors and delivered free of charge to the majority of PPS sites (based on a mileage radius from the lumber yard.)

PPS will arrange for the delivery of custom steel column bases to the project team.



A. All lumber is Pressure Treated, precut to be assembled on-site. Non-corrosive fasteners and hangers are included in the baseline 2012 pricing.

B. For ease of construction, it is recommended that joist hangers be mounted to rim joists prior to erection.

C. Galvanized custom steel post bases will be supplied by PPS. Presuming non-level ground, post bases should be leveled using steel washers. Since the posts are pre-cut to a fixed length, PT shims may be placed in the bottom of the steel "boots" to ensure each post is at the same elevation.

D. Your assigned project manager shall work with Safe Routes to Schools for the installation of bike racks. (The racks shown are for illustration only and do not represent the actual racks.)

4 Costs

Portland Public Schools funded the initial cost of engineering the prototype shelter and will pay for the custom steel bases. It is the school's responsibility to paying a re-use fee to the Engineer of Record. In addition, the project sponsors are responsible for the cost of the shelter and paving, if necessary, either through grants or other fundraising.

Should your school elect to hire a contractor or in anyway make a payment for construction labor, the State of Oregon procurement rules require that the contractor use BOLI or DCU labor rates. Your Project Manager can answer any questions you have about this process.

Design: BK Engineers Inc.
2700 SE Harrison St., Suite B
Milwaukie, OR 97222 Tel. (503) 607-0481 x 208
Contact: Matt Vander Zanden, P.E.

Lumber, Fasteners and Roofing: Mr. Plywood Inc.
7609 Southeast Stark Street, Portland, OR 97215 Tel. (503) 254-7387
Contact: Bret Brantner

(This booklet was put together in the spring of 2012. Prices described herein can be expected to fluctuate and generally escalate over time.)

Custom Bases: PPS supplied.

Concrete Paving: The bike shelters are designed to be installed on a paved surface- concrete or asphalt with concrete footings. It is the responsibility of the project team to install the surface for the structure, either by contracting the work or by self-performing.

Cost Estimate:

Description (Per shelter):	Amount
Design Services Re-Use Fee:	$150.00
Custom Bases:	Provided by PPS
Carpentry:	$547.70
Bike Shelter Estimated Cost:	**$697.70**

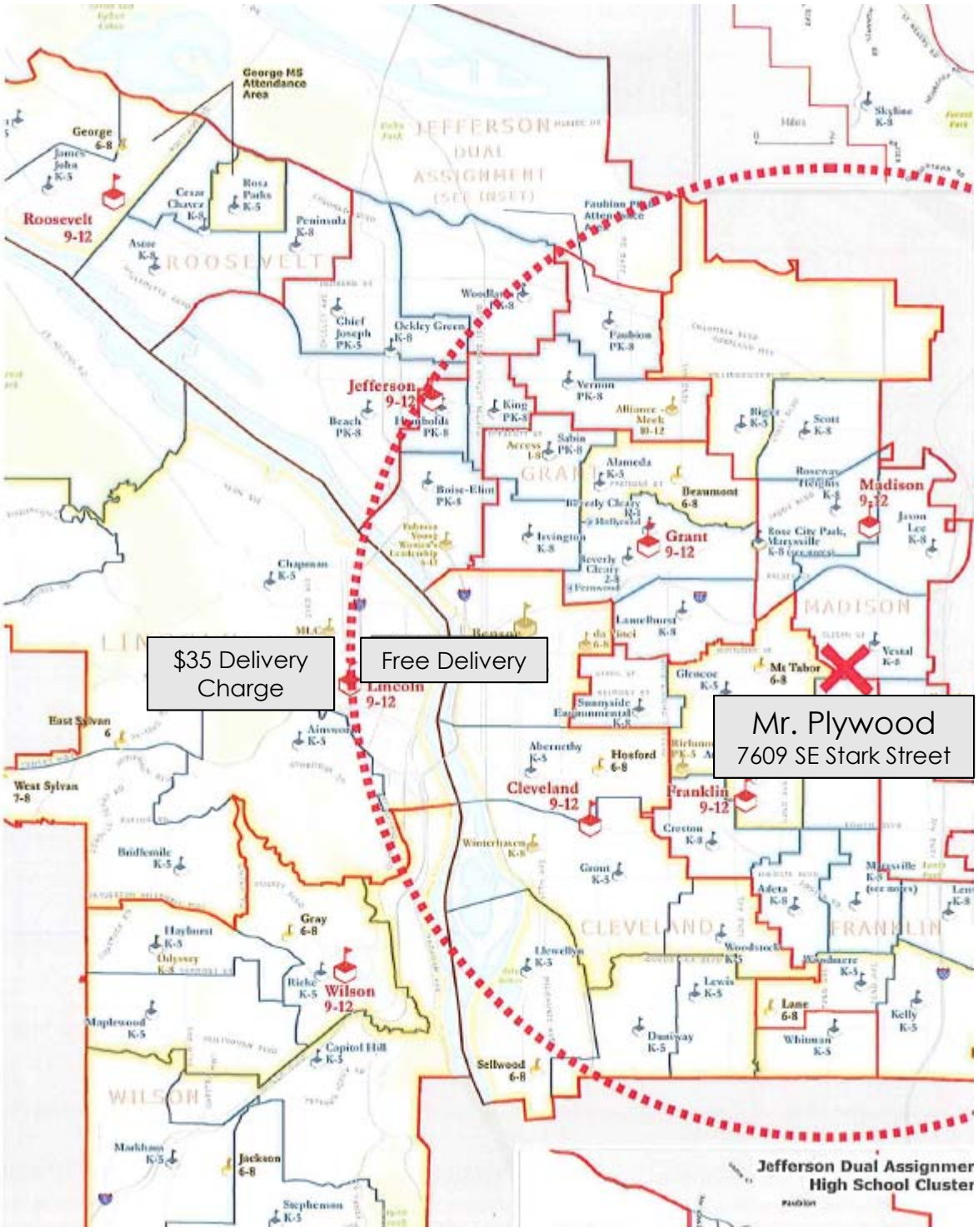
Carpentry Material Schedule: *All lumber is quoted as Pressure Treated

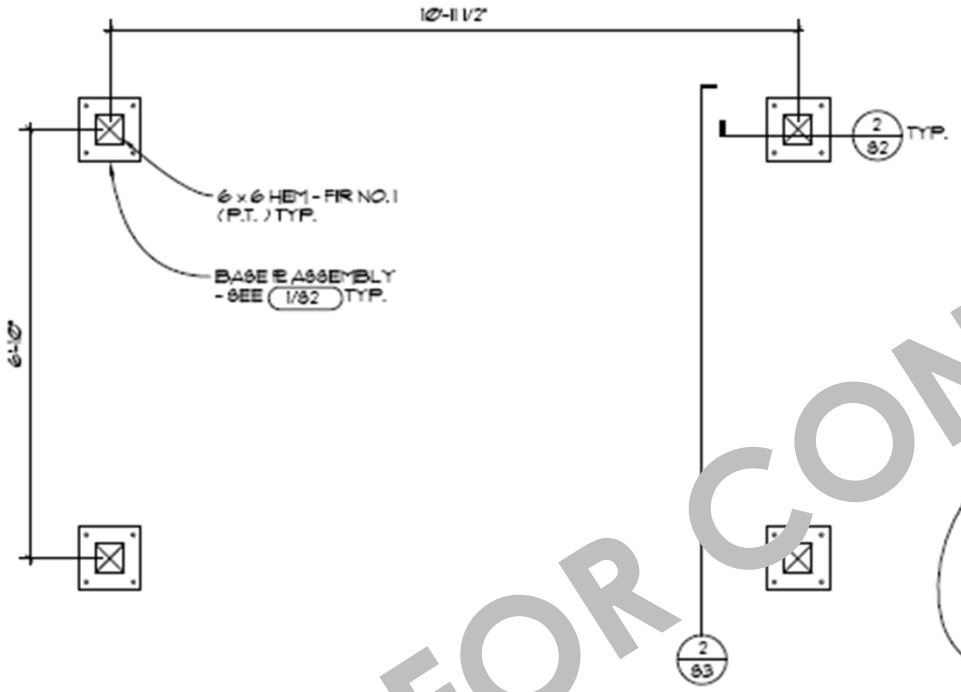
Qty.:	Description (Per shelter):	Unit Price	Amount
2	Wood Post (6x6x10')	$33.70	$67.40
2	Wood Post (6x6x8')	$26.81	$23.62
2	Wood Beam (4x10x12')	$33.88	$67.76
2	Wood Rim Joist (4x10x8')	$27.10	$54.10
7	Wood Joist (2x10x12')	$18.36	$128.52
14	Joist Hangers LUS 28 Z	$1.59	$22.26
1	SDS 25600 Hex Head Wood Screw- 50 pc. box	$45.86	$45.86
1	SDS 25312 Hex Head Wood Screw- 10 pc. box	$5.94	$5.94
1	STB2 372346SS Strong Bolt- 16 pc. Box	$6.97	$6.97
250	Roof Fasteners: #10 2" Neo Head Screw w/ EPDM Washer	$30.00	$30.00
6	8'x27"x26 ga. Corrugated Galv. Metal Roof	$25.44	$152.64
1	9 ga. 1 1/2 Joist Nails Galv.	$3.49	$3.49
		Sub-Total:	$608.56
	PPS Discount:	10%	$60.86
		Carpentry Total:	$547.70

New Concrete Pad:

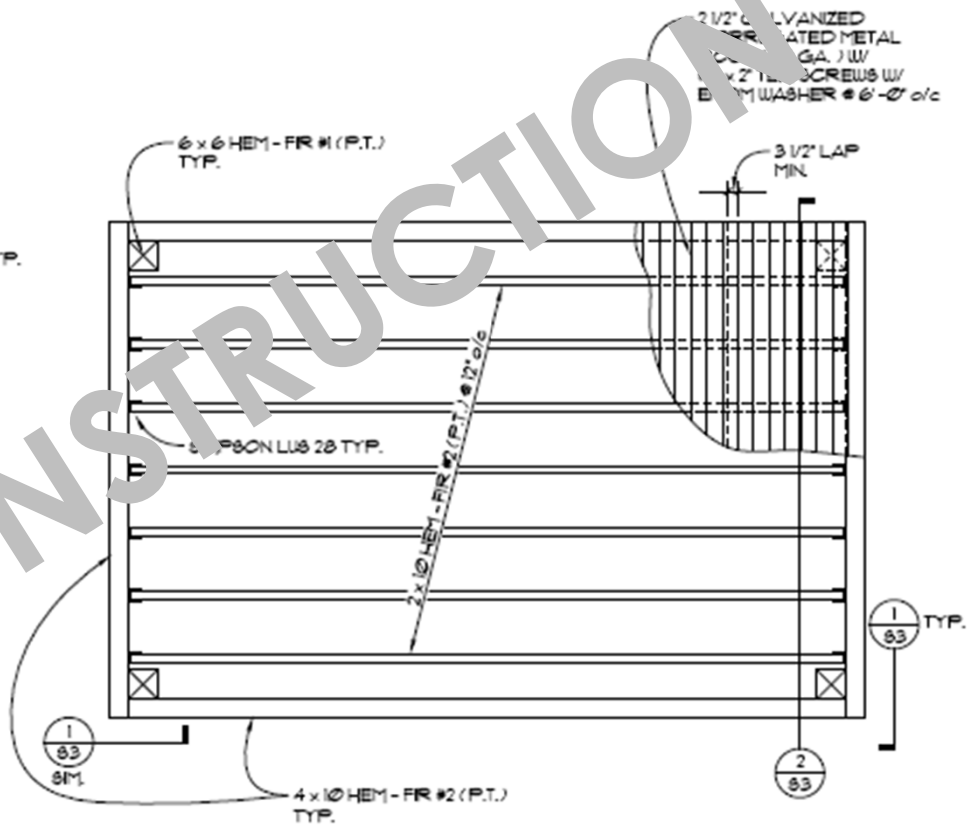
Qty.	Description (Per shelter):	Unit Price	Amount
1	140 Square feet x 3 1/2" Concrete Slab (Material only)		1000
1	Contract Labor Estimate		1000
	Concrete Pad Estimated Cost:		**$2,000.00**

5 Delivery Map





1 FOUNDATION PLAN
1/2" = 1'-0"



2 ROOF FRAMING PLAN
1/2" = 1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

PORTLAND PUBLIC SCHOOLS
SCHOOL DISTRICT No. 1 MULTNOMAH COUNTY, OREGON
501 N. DIXON ST. PORTLAND, OREGON 97227 249-2000

FACILITY: MEEK HIGH SCHOOL
40039 NE ALBERTA CT.
PORTLAND , OR. 97211

PROJECT: BIKE SHELTER

DRAWINGS: BKE INC. STRUCTURAL ENGINEERS
2700 SE HARRISON ST. STE B MILWAUKIE OR. 97222 .
503-607-0481, FAX 503-607-0486

DATE: 02/28/12
BY: MLV
PROJECT No. 12-059

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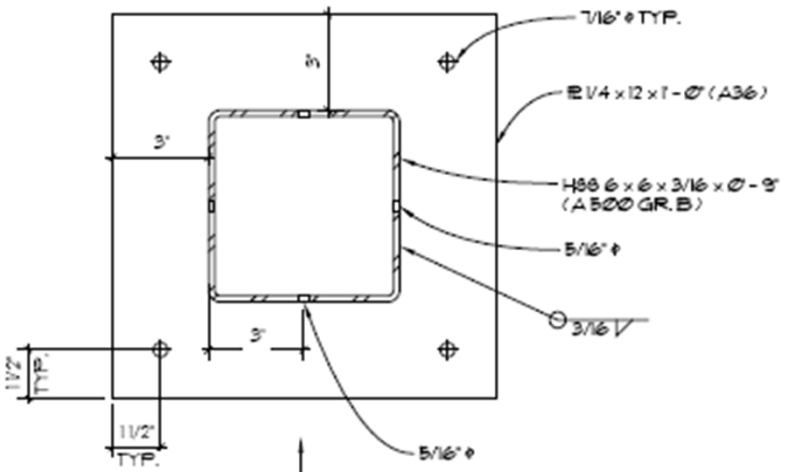
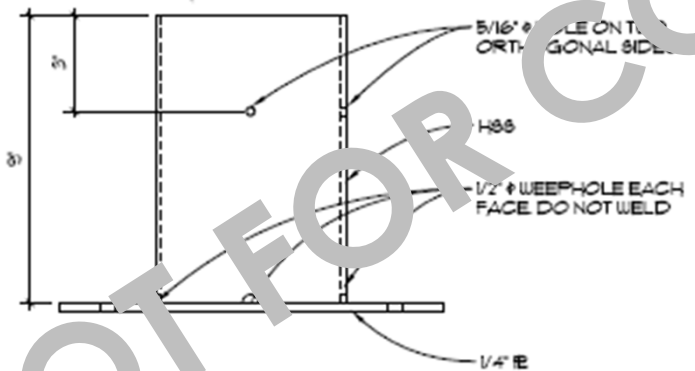
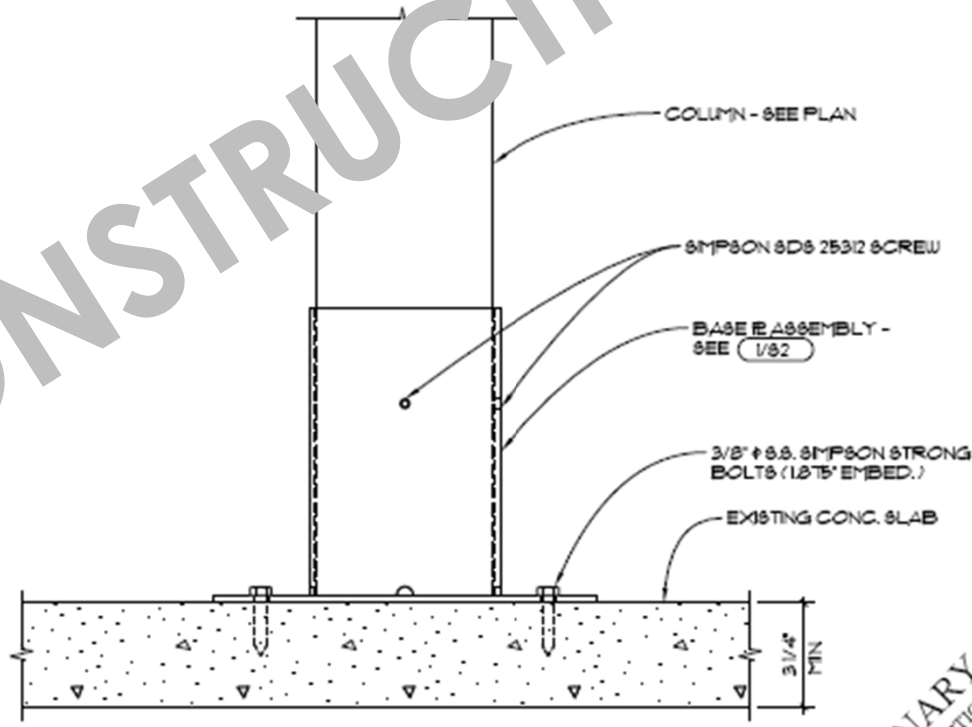




1/S2

3" = 1'-0"



2/S2

3" = 1'-0"

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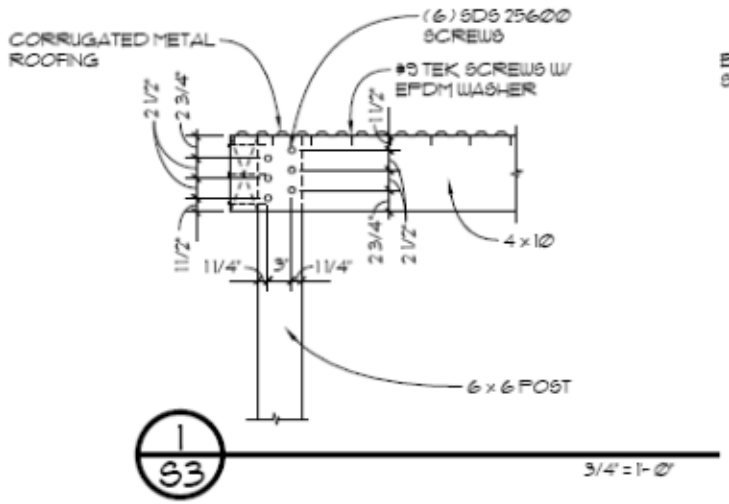

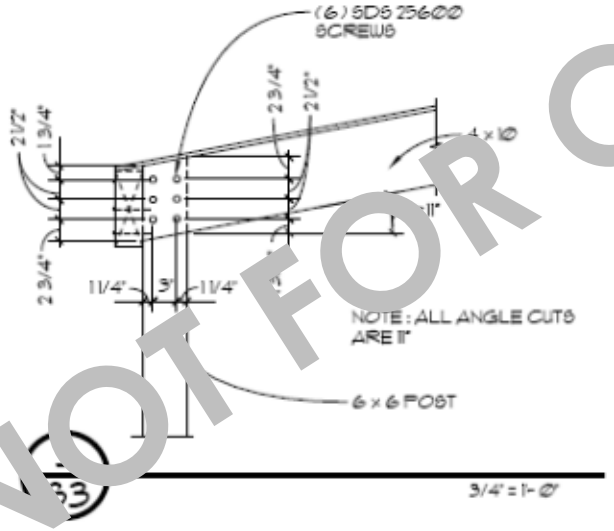

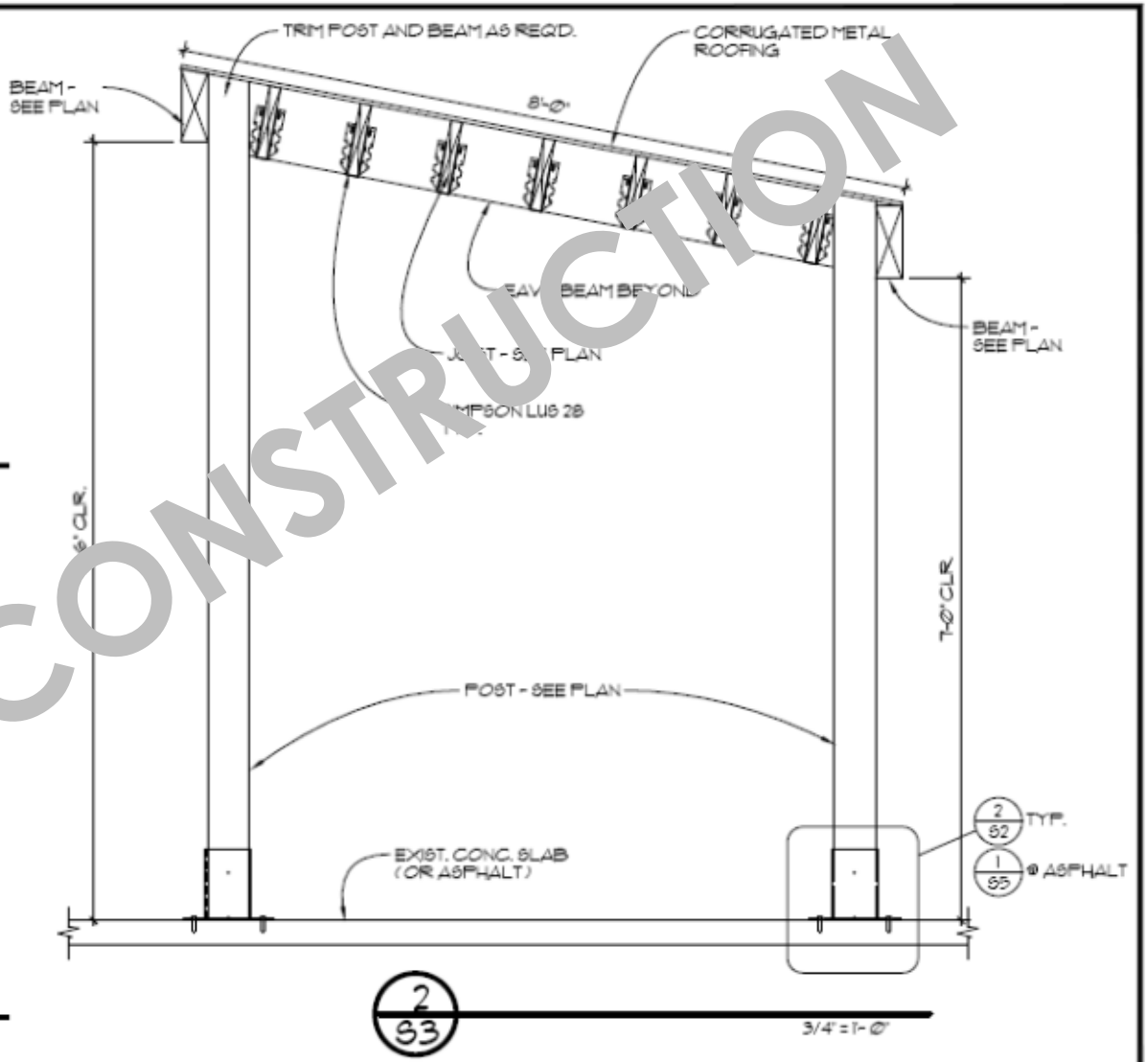

REGISTERED PROFESSIONAL ENGINEER
70,795
OREGON
JULY 09, 2002
MATTHEW L. VANDERZANDEN
EXPIRES: 06 / 30 /2012

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BKE INC. STRUCTURAL ENGINEERS
2700 SE HARRISON ST. STE B MILWAUKIE OR. 97222 ,
503-607-0461, FAX 503-607-0466
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BY: MLV
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NOTES

GENERAL

1. These notes set the minimum standards for construction. The drawings govern over the General Notes to the extent shown.
2. Contractor shall verify all dimensions and conditions on drawings and in the field.
3. Contractor shall provide all necessary temporary support prior to completion of vertical and lateral load systems.
4. The contractor shall be responsible for all required safety precautions and methods, techniques, sequences, and procedures required to perform his work.
5. Where reference is made to ASTM, AISC, ACI or other standards, the latest issue shall apply.
6. All work shall be in strict compliance with the International Building Code as amended by the State of Oregon and all other state and local codes and building requirements that apply.
7. Design Criteria:
   a. Basic Roof Load (snow) — 25#/sq.ft. (snow build up loading as per IBC)
   b. Wind — 95 mph (3 sec. gust) Exposure "B", $I_w = 1.0$
   c. Seismic — Occupancy Catagory - II; $I_E = 1.0$; Site Classification - D; R = 1.5; $S_{DS} = 0.732$ $S_{D1} = 0.388$

WOOD FRAMING

1. All lumber species and grades to be as follows:
   a. Joists and beams — Pressure Treated Hem - Fir #2
   b. Posts — Pressure Treated Hem - Fir #2
2. Framing anchors, joist hanger, post caps, etc. to be "Simpson" or approved equal. At pressure treated wood follow manufacturers recommendations regarding corrosion resistant issues for anchors and fasteners.
3. Where pressure treated lumber is required use copper or zinc borate treatment with minimum retention of .17/.25 pcf.
4. All cut ends of lumber are to be treated with approved [illegible].

STRUCTURAL AND MISCELLANEOUS STEEL

1. Detailing, fabrication and erection shall conform to the Steel Construction Manual of AISC.
2. All steel to be A36 or better except as noted.
3. All welding to be done by Certified Welders to AWS Standards with E 70XX electrodes. Use weld metal with charpy V - notch toughness of 20 or greater at 70° F.
4. All structural tubing to be ASTM A500, Grade B, f_y = 46 ksi.
5. No [illegible] overdrilled or punched holes with burning torch.
6. [illegible] to be done in building jurisdiction certified shop. If not done in certified shop special inspection is required.

BILL OF MATERILS

PURPOSE	DESCRIPTION	LENGTH	QTY
POST BASE	BASE PL ASSEMBLY		4
POST	6 x 6 HEM - FIR NO. 2 (P.T.)	8' - 3 1/4"	2
	6 x 6 HEM - FIR NO. 2 (P.T.)	7' - 9 1/4"	2
JOISTS	4 x [illegible] HEM - FIR NO. 2 (P.T.)	12' - 0"	2
	4 x [illegible] HEM - FIR NO. 2 (P.T.)	8' - 0"	2
	2 x [illegible] HEM - FIR NO. 2 (P.T.)	12' - 0"	7
[illegible]	SIMPSON LUS 28 (STAINLESS STEEL OR Z MAX)		14
JOIST TO BEAM	SIMPSON SD825600 SCREWS		48
POST TO BASE PL	SIMPSON SD825312 SCREWS		8
BASE PL ANCHORS	SIMPSON STB2 - 37234668		16
HANGER CONNECTORS	10d COMMON NAILS (STAINLESS STEEL OR GALVANIZED)		140
ROOF CONNECTORS	#8 TEK SCREW W/ EPDM WASHER	2"	232
ROOF	26 GA. GALVANIZED 2 1/2" x 1/2" CORRUGATED METAL ROOFING 27 1/2" WIDE	8' -0"	6
SHIM FOR BASE PL	GALVANIZED WASHERS (1/2" MAX. INNER DIAMETER 1" MAX. OUTER DIAMETER 1/8" MIN. THICKNESS		AS NEEDED

ERRECTION NOTES:

1. EXISTING CONC. SLAB MUST BE 3 1/4" THICK MIN.
2. EXISTING CONC. SLAB TO HAVE A MAX. OF 2% SLOPE
3. TO ACHEIVE A HORIZONTAL TOP BEAM ON A SLOPED SURFACE IT IS ACCEPTABLE TO USE P.T. BLOCKS IN THE BOTTOM OF BASE PL ASSEMBLY
4. ALL HANGERS/ CONNECTORS TO BE STAINLESS OR Z'MAX/ GALVANIZED
5. BIKE SHELTER IS TO BE LOCATED NO CLOSER THAN 5' - 0" TO AN ADJACENT TALLER STRUCTURE
6. SUBSTITUTION OF ANY IDENTFIED MATERIALS IS NOT PERMITTED
7. DEVIATION FROM THESE PLANS FOR ANY RESON WILL RESULT IN ADDITIONAL ENGINEERING COSTS

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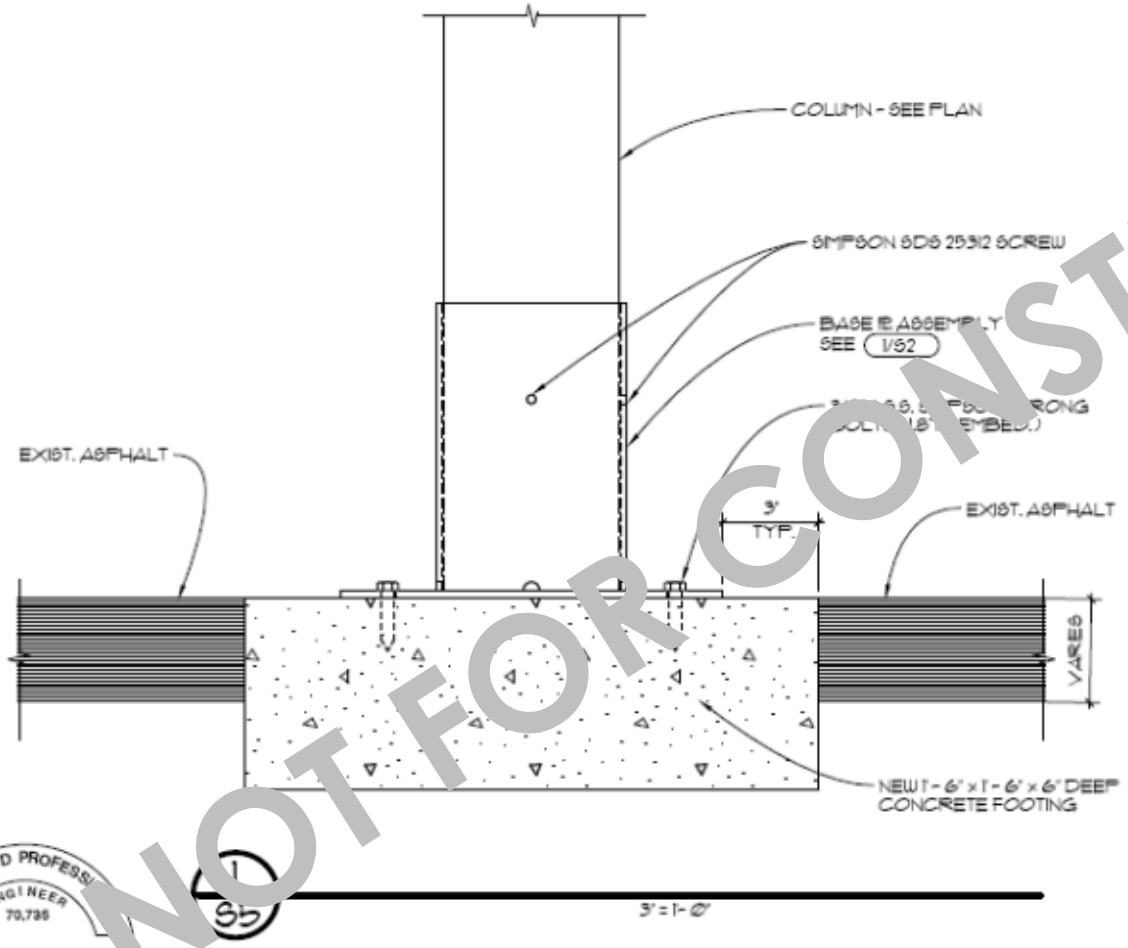

REGISTERED PROFESSIONAL ENGINEER
70,735
OREGON
JULY 09, 2003
MATTHEW L. VANDERZANDEN
EXPIRES: 06/30/2012

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