



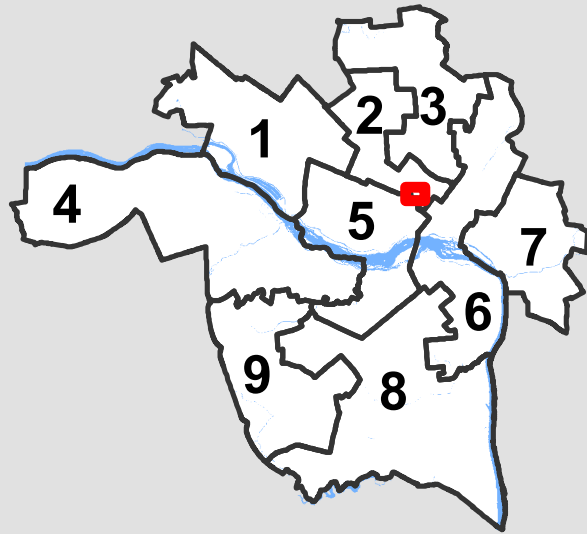
City of Richmond Department of Planning & Development Review

Location, Character, and Extent

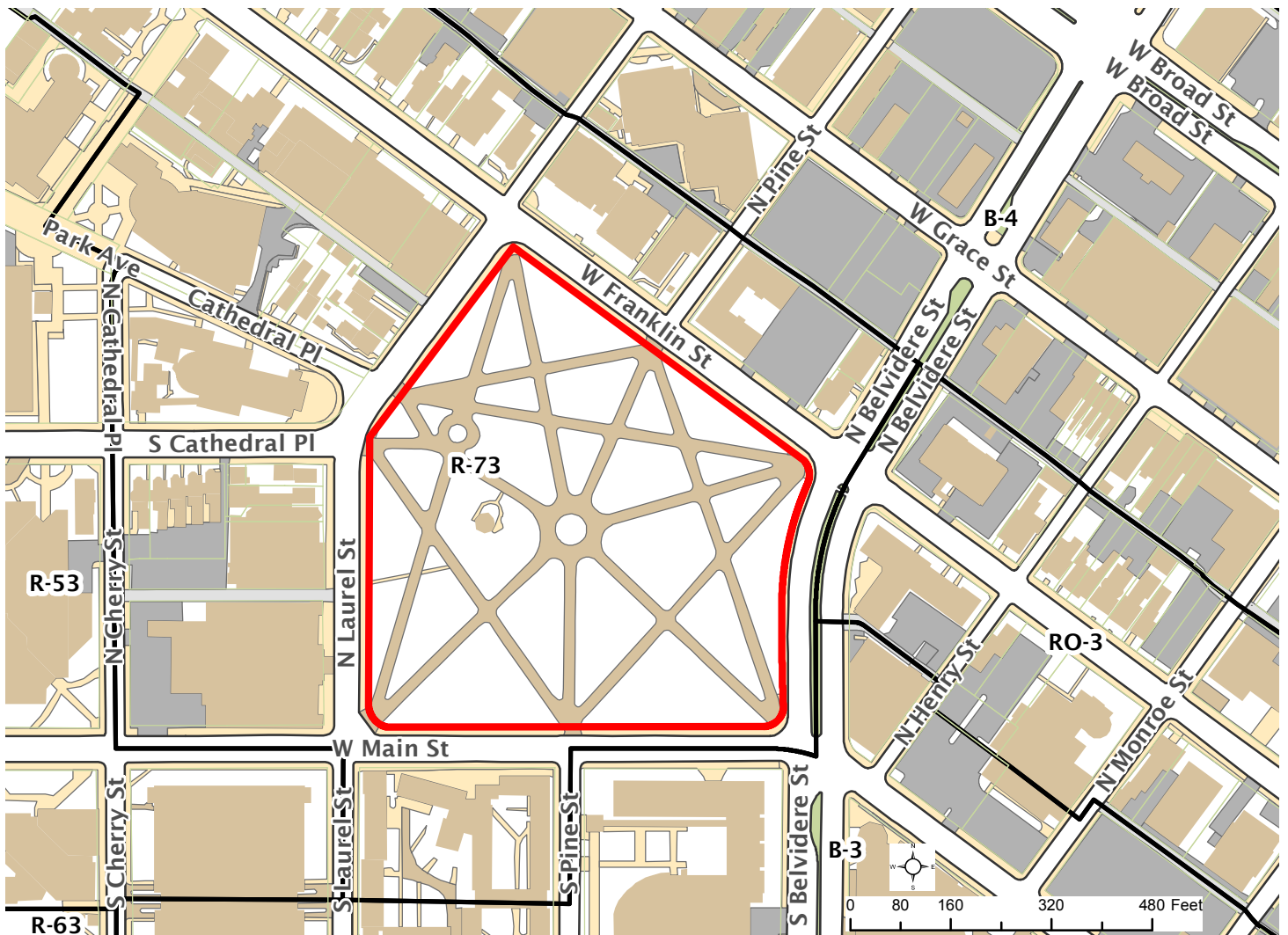
LOCATION: 719 W. Franklin St.

COUNCIL DISTRICT: 2

PROPOSAL: The application is for the conceptual location, character, and extent review of the "Portland Loo," a public facility to be installed in Monroe Park on Laurel Street.



*For questions, please contact Josh Son
at 646-3741 or joshua.son@richmondgov.com*





Application for URBAN DESIGN COMMITTEE Review

Department of Planning and Development Review
Planning & Preservation Division
900 E. Broad Street, Room 510
Richmond, Virginia 23219
(804) 646-6335

<http://www.richmondgov.com/CommitteeUrbanDesign>

Application Type

- Addition/Alteration to Existing Structure
 New Construction
 Streetscape
 Site Amenity

- Encroachment
 Master Plan
 Sign
 Other

Review Type

- Conceptual
 Final

Project Name: MONROE PARK

Project Address: _____

Brief Project Description (this is not a replacement for the required detailed narrative): _____

To install a "Portland Lo" in Monroe Park as a Public Facility - ADA compliant, Free, 24 hours a day all year. Maintenance and cleaning to be provided by Monroe Park Conservancy.

Applicant Information

(on all applications other than encroachments, a City agency representative must be the applicant)

Name: Don Summers Email: Donald.Summers@richmondgov

City Agency: Special Capital Projects Phone: 804-646-6614

Address: _____

Main Contact (if different from Applicant): Alice McGuire Massie

Company: Monroe Park Conservancy Phone: 804-516-3233

Email: amassie@monroe.park.com

Submittal Deadlines

All applications and support materials must be filed no later than 21 days prior to the scheduled meeting of the Urban Design Committee (UDC). Please see the schedule on page 3 as actual deadlines are adjusted due to City holidays. **Late or incomplete submissions will be deferred to the next meeting.**

Filing

Applications can be mailed or delivered to the attention of "Urban Design Committee" at the address listed at the top of this page. **It is important that the applicant discuss the proposal with appropriate City agencies, Zoning Administration staff, and area civic associations and residents prior to filing the application with the UDC.**

UDC Background

The UDC is a ten member committee created by City Council in 1968 whose purpose is to advise the City Planning Commission on the design of projects on City property or right-of-way. The UDC provides advice of an aesthetic nature in connection with the performance of the duties of the Commission under Sections 17.05, 17.06 and 17.07 of the City Charter. The UDC also advises the Department of Public Works in regards to private encroachments in the public right-of-way.

City of Richmond for the Monroe Park Conservancy
Public Toilet
Conceptual Proposal
UDC / June 8, 2017
Planning Commission / June 19, 2017

Background

Monroe Park is one of Richmond's most culturally and environmentally significant open spaces.

Embracing this opportunity, City officials have unanimously granted a 30-year lease to the Monroe Park Conservancy, an active 501 (c) (3) and project advocate.

The City of Richmond in partnership the Monroe Park Conservancy is restoring the Park historic period of significance (1904) and renovating the infrastructure to include sustainable practices.

History of Public Facilities in Monroe Park

In 1874 – Wilfred Emory Cutshaw first advocated the placement of a Keeper's Lodge in Monroe Square. A lack of funding delayed construction of the Keeper's Lodge. (Cutshaw, "January 31, 1876," 128; Office of City Engineer, Monroe Park 1896.)

About 1890 – When the City constructed a wood frame building on the site of the Checkers House, the park house presently in Monroe Park. (Figure 2.27)

1905 – The Keeper's Lodge provided comfort stations for visitors to Monroe Square. It also housed the office and workspace for the park keeper responsible for maintenance and security of the square.

(Figure 2.27) The Keeper's Lodge c. 1905. Courtesy of the Valentine Richmond History Center.



1939 – The City opted to replace the original Keeper’s Lodge with a new structure in 1939. This new structure appears to have the same footprint and be the same size as the original structure.

The new park house came to be known as the “Checkers House” because of the regular games of checkers played there. (G.M. Bowers, “Department of Public Works Annual Report” in Annual Report of the Mayor of Richmond to the City Council for the Year Ending December 31, 1939.)

The Checkers House originally housed 4 bathrooms. Over years of neglect and cost, the City cut the facilities to two bathrooms. These bathrooms and the water fountain were available April – October; they were closed during the fall and winter to avoid freezing pipes.

November 2016 – At the time of closing, the 1930’s sewer system was clogged with tree roots. (City of Richmond Parks, Recreation & Community Facilities)

Spring 2018/Reopening – The Monroe Park Conservancy is committed to provide an ADA, Gender neutral, Public Facility. This basic human need in this public park is essential.

The Challenge - How to provide basic services to the public while maintaining clean, safe and

affordable facilities year round.

Monroe Park Conservancy met with Director Olinger and staff to make a thoughtful proposal.

Proposal

The Portland Loo, <http://theloo.biz/>

Proposed location: North Laurel Street between Cathedral Place and West Franklin Street. This area has connections to water, sewer and electricity. For a local waste management company to provide regular/daily maintenance; the Loo needs to be within a 30 foot reach of a service truck.



The Portland Loo is fabricated in Portland, Oregon by Madden Fabrication. The Portland Loos are simple, sturdy, flush toilet kiosks located on sidewalks in public areas. The Loos are free and accessible around the clock every day of the year.

Portland Loos give the community environmentally-friendly, clean, and safe restroom facilities. The Loo comes fully tested and assembled from the factory.

DESIGNED TO BE DURABLE IN AN URBAN SETTING

- Heavy gauge stainless steel construction with powder coating and graffiti-resistant finish
- Louvered panels allow for community surveillance
- Hand sanitizer dispenser inside and wash station located on outside of unit
- Recessed interior and exterior LED lights
- Entry, railings and fixtures are ADA-compliant



Louvers at the top and bottom of the wall create an interior environment that offers complete visual privacy, while remaining as connected with the outside as possible. The lower louvers are angled to provide law enforcement the opportunity to observe the number of users within the unit without compromising privacy. The unit's hand-washing station is mounted on the exterior to promote shorter use times and to serve the general pedestrian population. The restroom was designed with Crime Prevention Through Environmental Design by using high traffic areas and visibility to deter illegal

activities and generate high usage rates. Each Loo is built to fully comply with ADA Standards.

DESIGN AND CONSTRUCTION FEATURES

- Fits in an average parking space, 10' 7" long x 6' wide x 8' 6" tall
- Total weight approximately 6,000 pounds
- Wall panels, doors and roof are ¼ inch thick, 304L-grade stainless steel
- Louvered panels at top and bottom
- Energy efficient motion-sensor LED lighting
- Heat trace system for freeze protection
- Skylight for additional interior lighting
- Commercial grade stainless steel toilet fixture
- Heavy-duty fittings and door hardware

INSTALLATION

- Foundation layout provided with footing design, dimensions and specifications for installation
- Factory-provided metal template for anchor bolt layout, base plate column mounts, and alignment with sanitary connections

CUSTOMIZATION

- Choose right or left door swing and outside hand wash station located on right or left side of unit for no extra charge.

POWER AND MECHANICAL SYSTEMS

- AC operation advised for installations in deep shade or under leafy canopy
- Total power draw less than 60 watts at full operation
- Interior and exterior automatic LED lighting with photo-eye and motion sensor
- 30-watt heat trace integrated with toilet and plumbing system for freeze protection
- Control circuits housed in NEMA-approved enclosure

MAINTENANCE FEATURES

- Rear utility cabinet houses electrical and plumbing controls
- Maintenance hose bib for cleaning

FABRICATION AND WARRANTY

- Manufactured and factory assembled by Madden Fabrication
- Ready to ship and offered F.O.B at manufacturer's warehouse in Portland, Oregon
- One year warranty on structural components, given normal use and care
- Warranties of over one year for additional components are passed to purchaser



Budget/Funding Sources

Base price of Non-Solar Loo	\$90,000.
Utility work (Water,sewer,electrical)	\$22,000.
Foundation work (Slab and finish)	\$7,000.
Shipping costs (packaging and truck)	\$3,500.
Installation costs (crane,labor, hookup)	<u>\$3,500.</u>
The project is estimated to cost	\$126,000.

The toilet uses minimum water and power; this is an energy saving option.

The Monroe Park Conservancy will contract out the daily maintenance of The Loo. For a local company to provide regular/daily maintenance the Loo needs to be within a 30 foot reach of a service truck.

This funding will come through donations made to the Monroe Park Conservancy.

Construction Program & Dates

The construction of this project will hopefully be rolled into the current construction/renovation schedule of Monroe Park's timeline. The intention is for construction to be completed in Spring 2018.

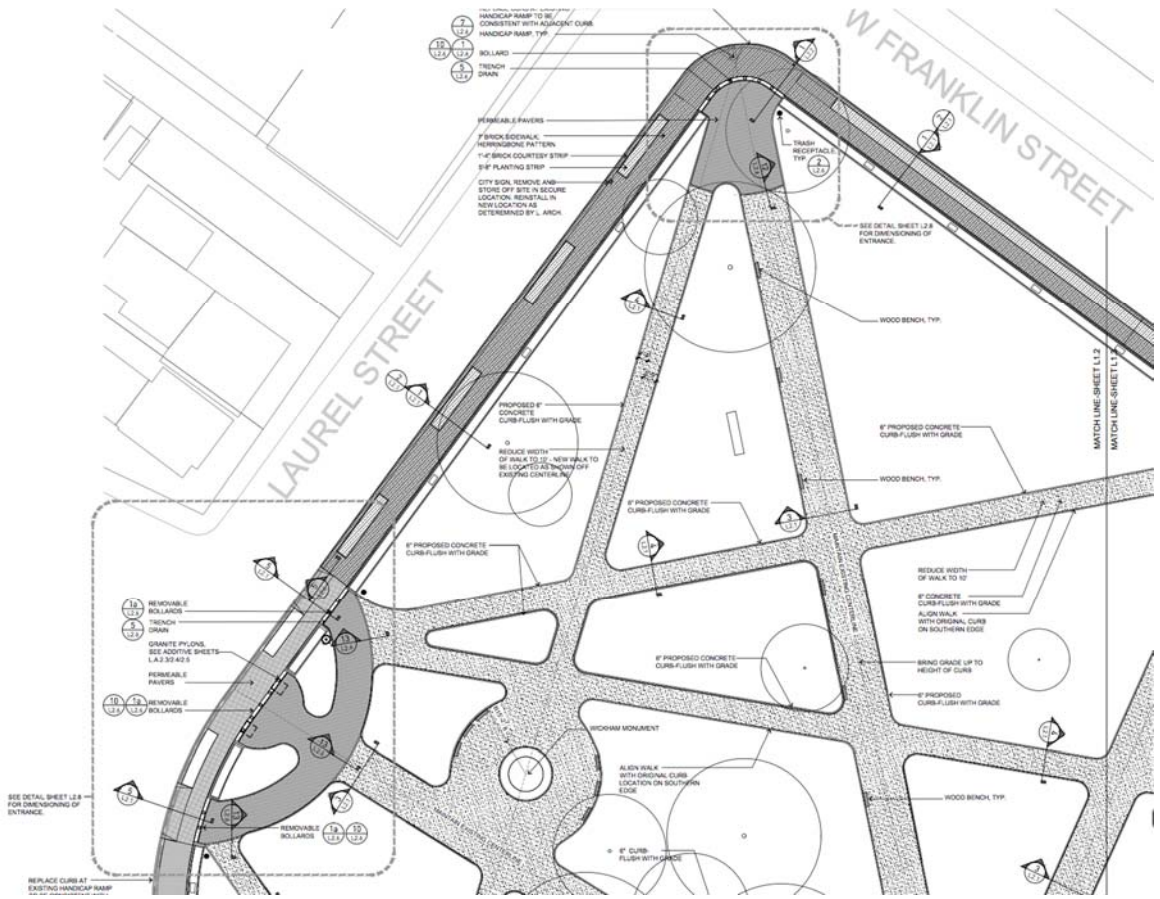
The City of Cambridge, MA is budgeting to add additional Loos in 2018; there test site in Harvard Square has been successful.

"This is going to mean that people have a place to go to the bathroom, which is a fundamental human right as much as food or shelter, which [the homeless] didn't have guaranteed to them before,"

Richard Parker, professor at Harvard Kennedy School and member of Action for Cambridge Toilet (ACT).

"This is an authentic urban place and we welcome everybody here — from homeless kids to global leaders,...The toilet is really located right in the heart of the square, with traffic coming and going on all sides. So the fact that it's in such a public space I think is helpful,"

Denise Jillian, ED Harvard Square Business Association



THE PORTLAND LOO

STRUCTURAL/ARCHITECTURAL DRAWINGS

A0.0
A1.0
A2.0
A3.0
A4.0
A5.0
A6.0
S1.0
S2.0
S3.0
S4.0
P1.0
P2.0
E1.0

SHEET INDEX

COVER SHEET
FLOOR PLAN
EXTERIOR ELEVATIONS FRONT & RIGHT SIDE
EXTERIOR ELEVATIONS BACK & LEFT SIDE
ROOF LAYOUT
INTERIOR SECTION VIEWS
INTERIOR SECTION VIEW
COLUMN AND BEAM LAYOUT
FRONT DOOR
FOUNDATION & ANCHOR BOLT LOCATIONS
STANDARD OPTIONS
PLUMBING FLOOR PLAN
PLUMBING DETAIL
ELECTRICAL SCHEMATIC

GENERAL NOTES

1. WEIGHT : 6,013 lbs
2. SQUARE FOOTAGE : 51.5
3. ALL STRUCTURAL STEEL TO BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC MANUAL 9th EDITION & A.W.S. ALL PANELS, LOUVERS, AND ROOF TO BE 304 STAINLESS STEEL,
4. STRUCTURAL TUBING ASTM 500 GR. B
5. ANCHOR BOLTS 1/2" X 5" TITENS
6. ALL WELDING TO BE DONE BY CERTIFIED WELDERS.
7. ALL EXPOSED BOLTS AND SCREWS TO BE TAMPER RESISTANT FOR HEX PIN BITS.
8. RIVET NUTS TO BE C.F.T. SERIES AND STAINLESS STEEL 302.
9. ALL MATERIALS TO BE SAND BLASTED AND POWDER COATED
10. ALL STRUCTURES TO BE FABRICATED OFF SITE SHALL BE DONE IN SHOPS OR FABRICATORS LICENSED OR APPROVED BY THE BUILDING AND ENGINEERING DIVISION OF THE CITY FOR WHICH IT IS INTENDED FOR

DESIGN INFORMATION

1. DESIGN IS BASED ON INTERNATIONAL BUILDING CODE IRC 2012 EDITION AND ASCE7-10
2. SNOW LOAD=25 PSF MAX
3. WIND DESIGN CRITERIA: 140 MPH (3-SECOND GUST) EXPOSURE C
4. SEISMIC DESIGN CRITERIA: SDS=1.0 MAXIMUM, R-6.5 (LIGHT FRAME SHEAR WALL), IMPORTANCE FACTOR=1
5. SEISMIC DESIGN CATEGORY: D
6. SITE CLASS D
7. CONTRACTOR TO VERIFY DESIGN PARAMETERS SHOWN WITH ACTUAL SITE CONDITIONS AND INSURE ACTUAL SITE PARAMETERS NOT EXCEED DESIGN

SPECIAL INSPECTIONS

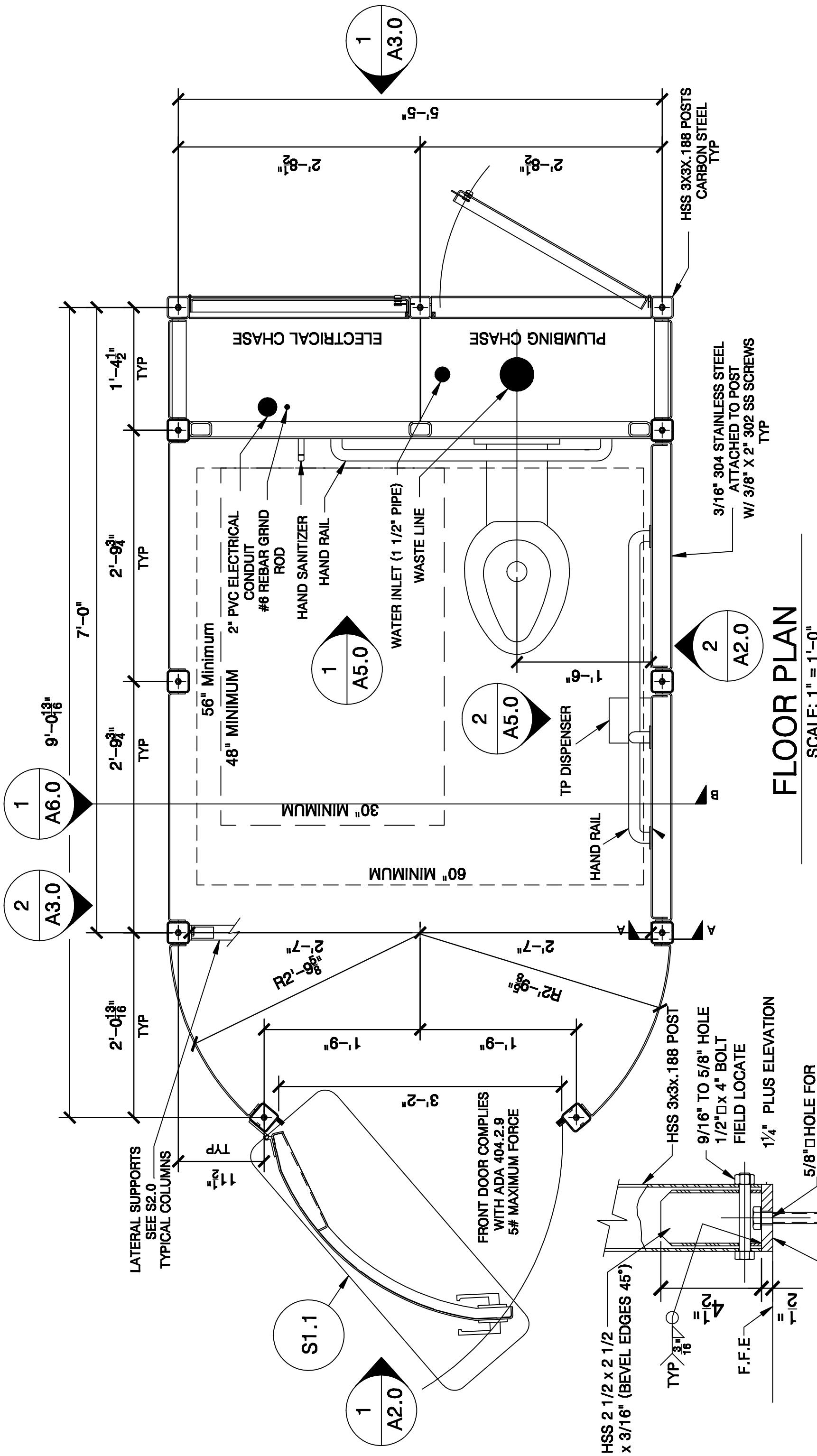
1. AN INDEPENDENT TESTING COMPANY OR SPECIAL INSPECTOR RETAINED BY THE OWNER AND APPROVED BY THE BUILDING OFFICIAL SHALL INSPECT THE FOLLOWING.
 - A. FOUNDATION REINFORCING STEEL PLACEMENT
 - B. VERIFY USE OF REQUIRED CONCRETE MIX DESIGN
 - C. CONCRETE PLACEMENT
 - D. ANCHOR BOLTS-TITENS
(INSTALLED AFTER CONCRETE HAS HARDENED)

REV	DATE	DESCRIPTION	DRN	APPD

MADDEN		PORTLAND LOO	
FABRICATION			
2350 NW 23rd Place • Portland, OR 97210			
Phone: (503) 226-3968 Fax: (503) 242-2446			

NAME	DATE	SERIAL NO.	DRW. NO.
LEO	4/16/2016		A0.0

COVER SHEET



FLOOR PLAN

SCALE: 1" = 1'-0"

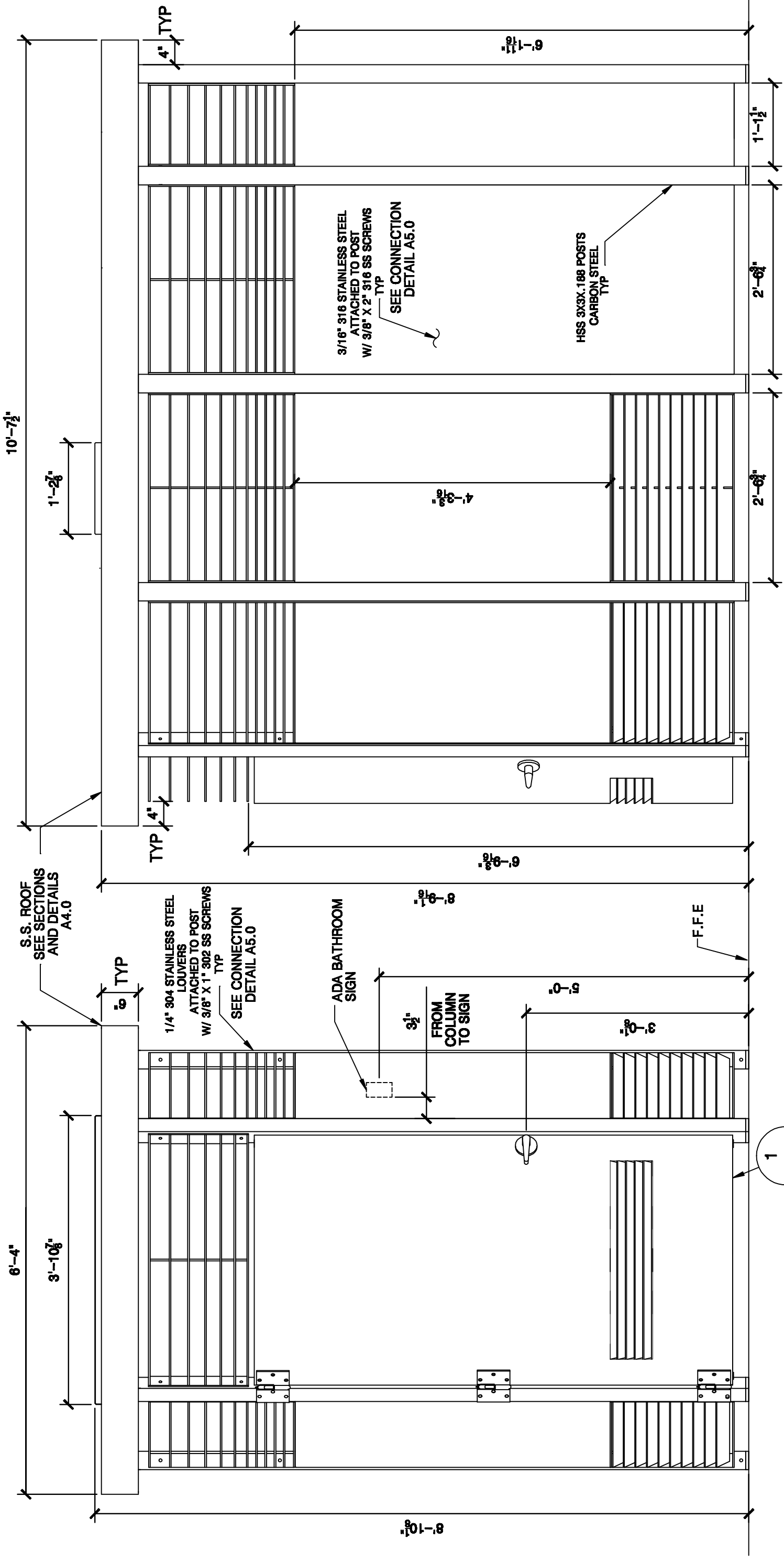
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					LEO	4/16/2016		A1.0

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PORTLAND LOO
 FLOOR PLAN

SECTION A-A

Typ anchoring system
 (11) REQ'D



1
A2.0

1 FRONT ELEVATION VIEW
SCALE: 3/4" = 1'-0"

2
A2.0

2 RIGHT ELEVATION VIEW
SCALE: 3/4" = 1'-0"

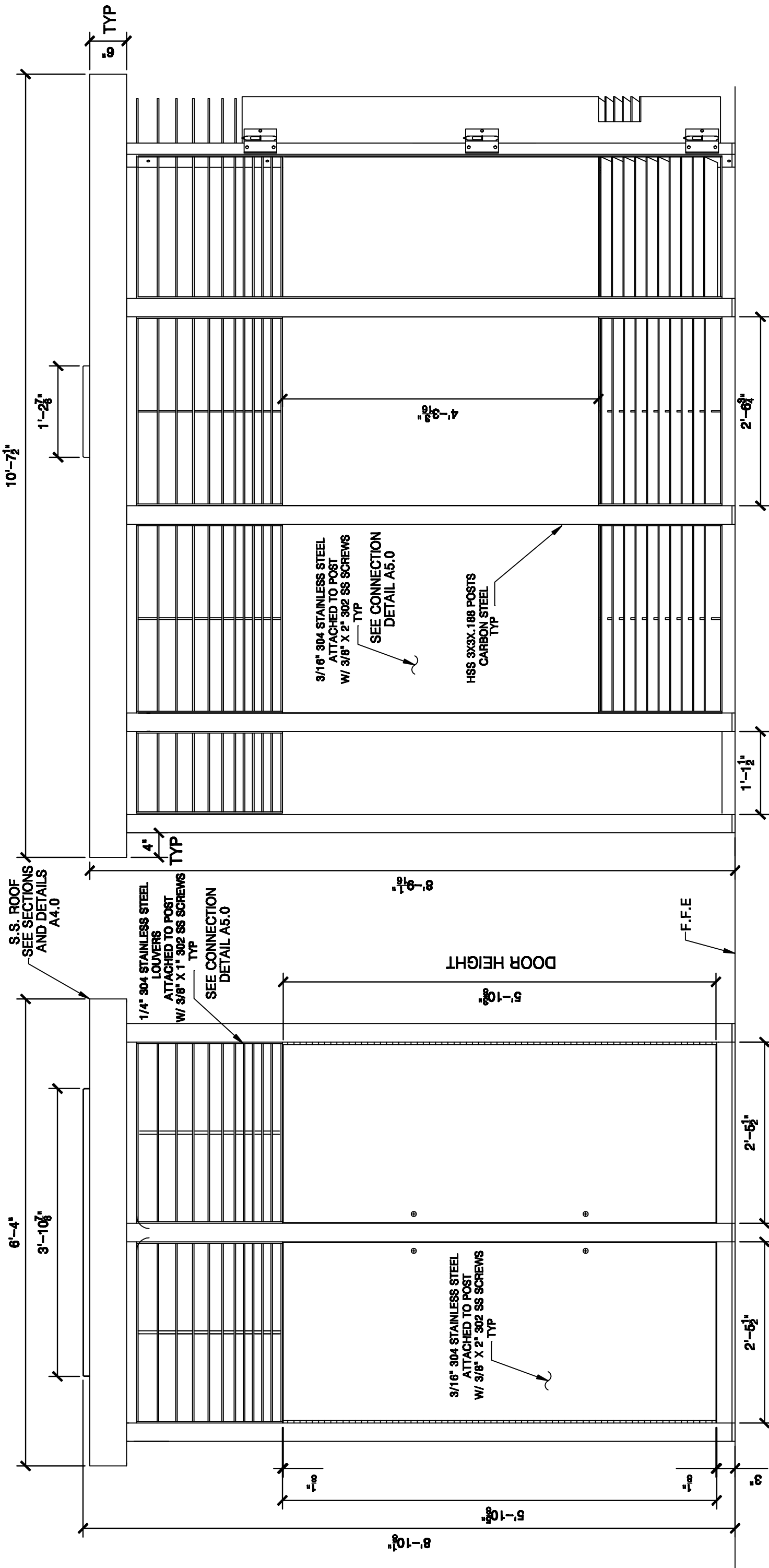
REV	DATE	DESCRIPTION	DRN	APPD

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PORTLAND LOO

EXTERIOR ELEVATIONS FRONT AND RIGHT SIDE	
NAME	DATE
LEO	4/18/2016
SERIAL NO.	DRW. NO.
	A2.0



10'-7 1/2"

1'-2 3/8"

Ø TYP

S.S. ROOF
SEE SECTIONS
AND DETAILS
A4.0

6'-4"

3'-10 3/8"

1/4" 304 STAINLESS STEEL
LOUVERS
ATTACHED TO POST
W/ 3/8" X 1" 302 SS SCREWS
TYP
SEE CONNECTION
DETAIL A5.0

3/16" 304 STAINLESS STEEL
ATTACHED TO POST
W/ 3/8" X 2" 302 SS SCREWS
TYP
SEE CONNECTION
DETAIL A5.0

HSS 3X3X.188 POSTS
CARBON STEEL
TYP

DOOR HEIGHT
5'-10 3/8"

3/16" 304 STAINLESS STEEL
ATTACHED TO POST
W/ 3/8" X 2" 302 SS SCREWS
TYP

F.F.E

2'-6 1/2"

1'-1 1/2"

2'-5 1/2"

2'-5 1/2"

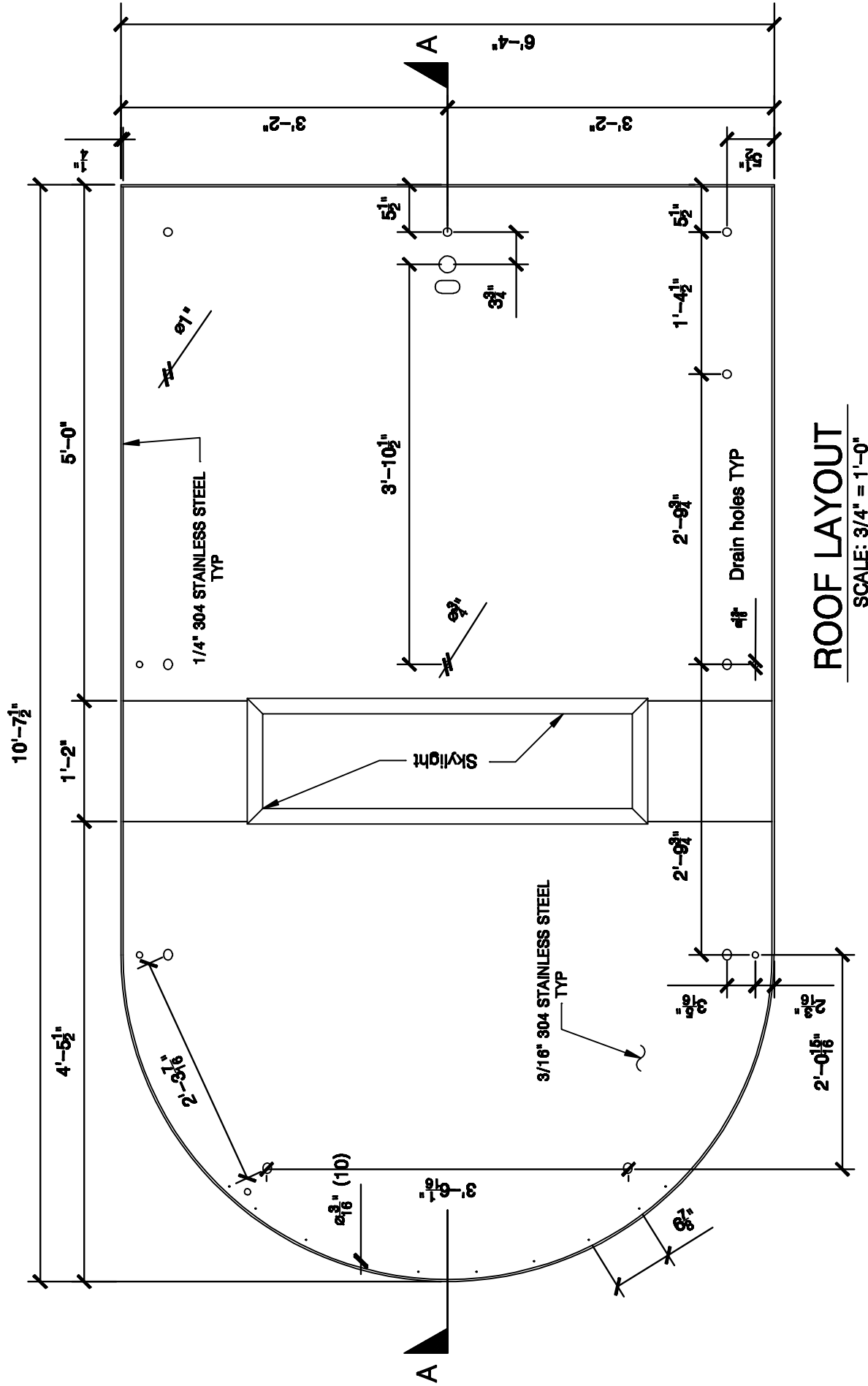
2'-10 3/8"

2 LEFT ELEVATION VIEW
SCALE: 3/4" = 1'-0"

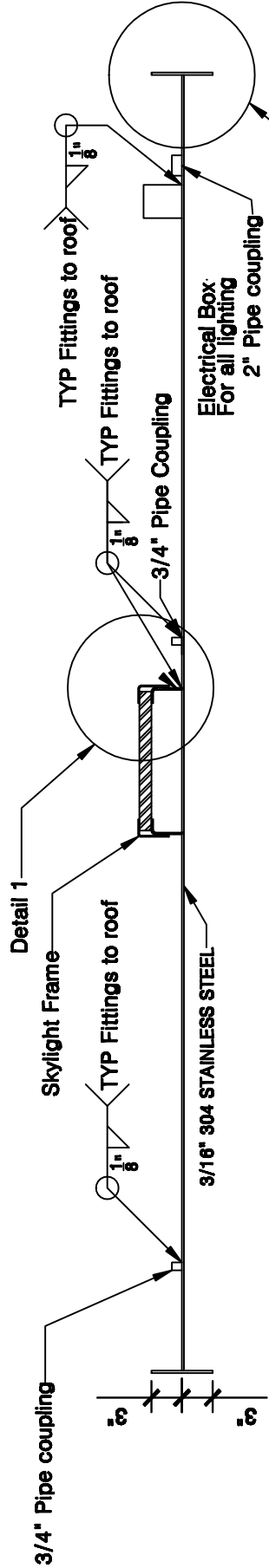
1 BACK ELEVATION VIEW
SCALE: 3/4" = 1'-0"

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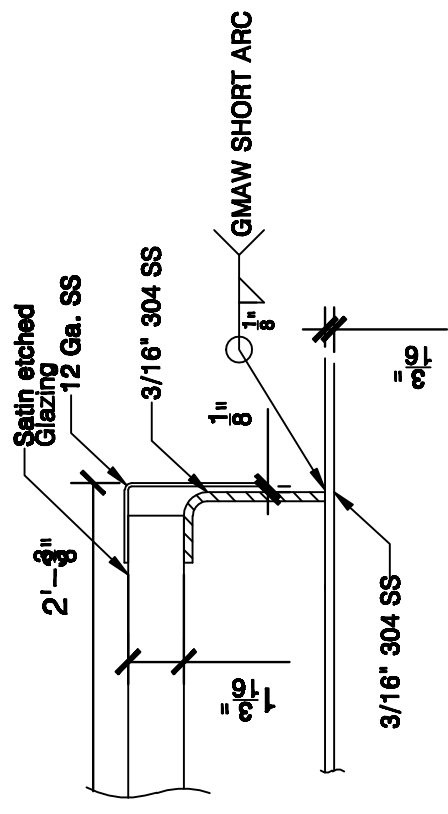
MADDEN FABRICATION				
2550 NW 25th Place • Portland, OR 97210				
Phone: (503) 226-3968 Fax: (503) 242-2446				
PORTLAND LOO				
EXTERIOR ELEVATIONS BACK AND LEFT SIDE				
NAME	DATE	SERIAL NO.	DRW. NO.	
LEO	4/18/2016		A3.0	



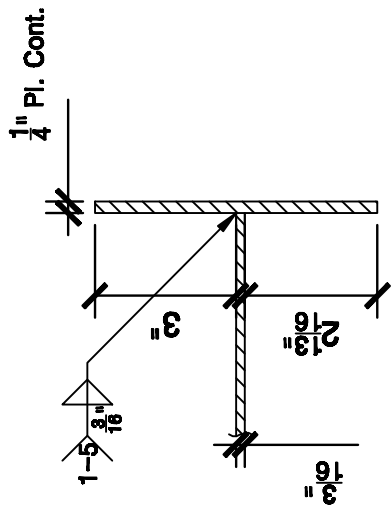
ROOF LAYOUT
SCALE: 3/4" = 1'-0"



SECTION A-A
SCALE: 3/4" = 1'-0"

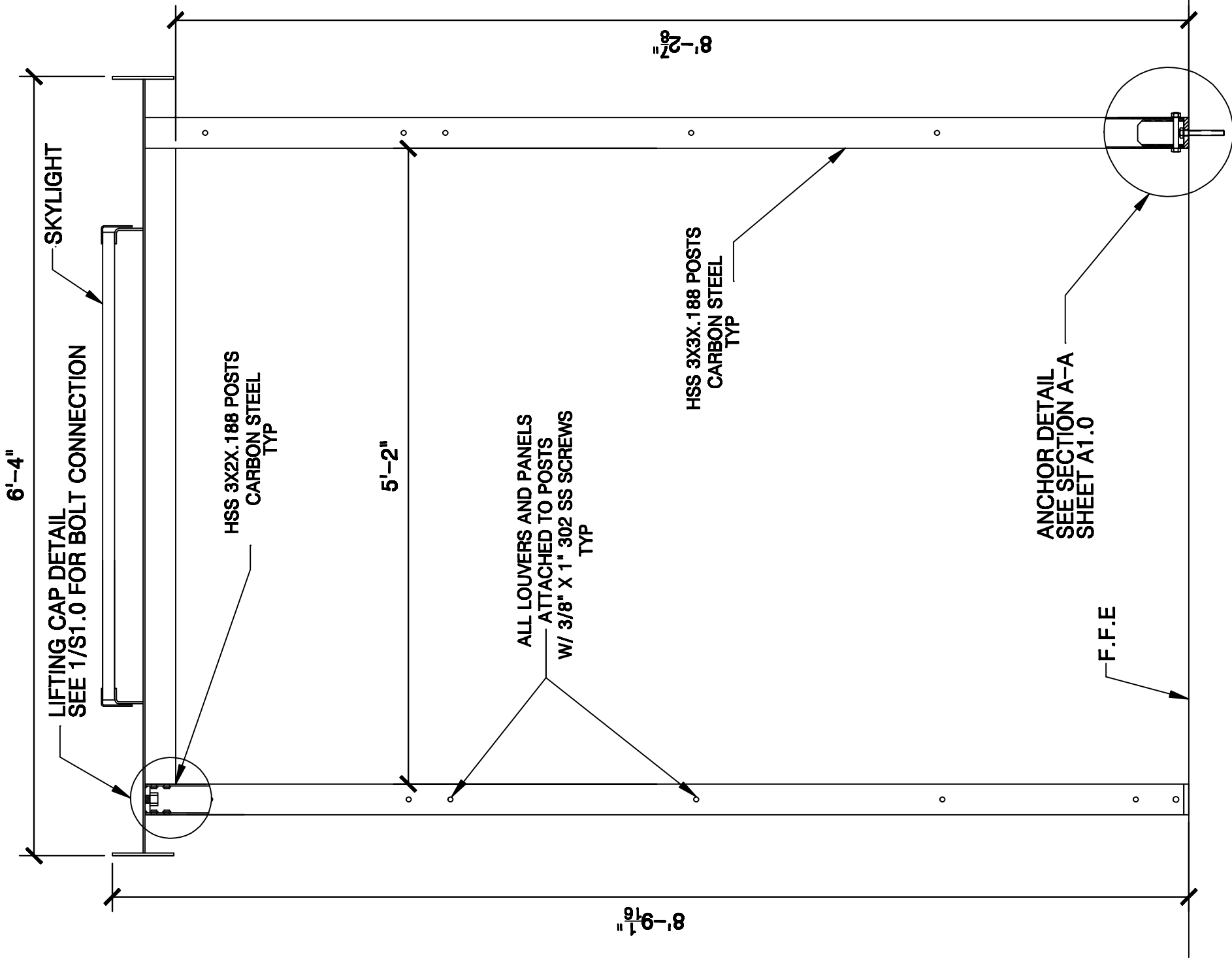


DETAIL 1
SCALE: 3" = 1'-0"



DETAIL 2
SCALE: 3" = 1'-0"

REV	DATE	DESCRIPTION	DRN	APPD	MADDEN FABRICATION			PORTLAND LOO
					2550 NW 25th Place • Portland, OR 97210 Phone: (503) 226-3968 Fax: (503) 242-2446			ROOF LAYOUT
					NAME	DATE	SERIAL NO.	DRW. NO.
					LEO	4/16/2015		A4.0



B-B INTERIOR ELEVATION VIEW

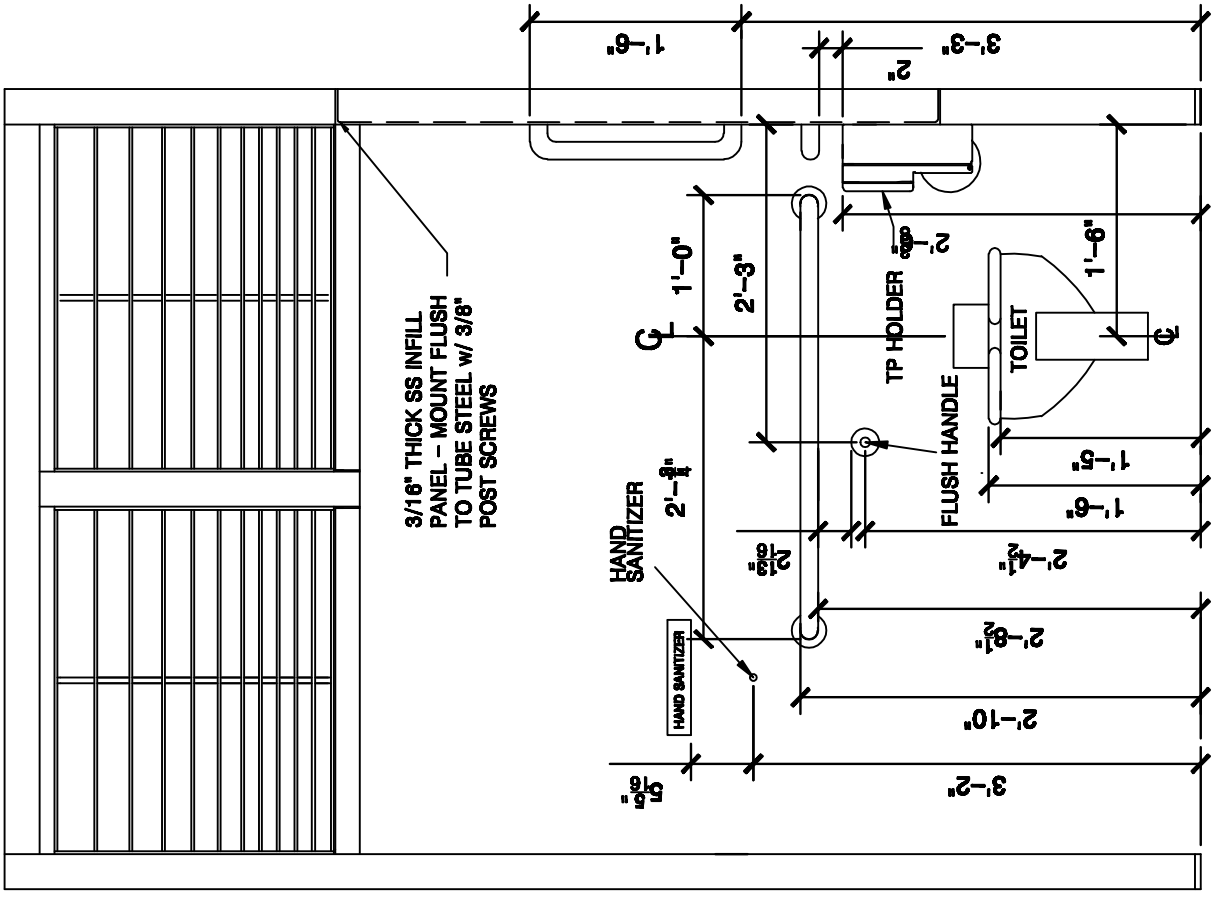
A1.0

SCALE: 3/4" = 1'-0"

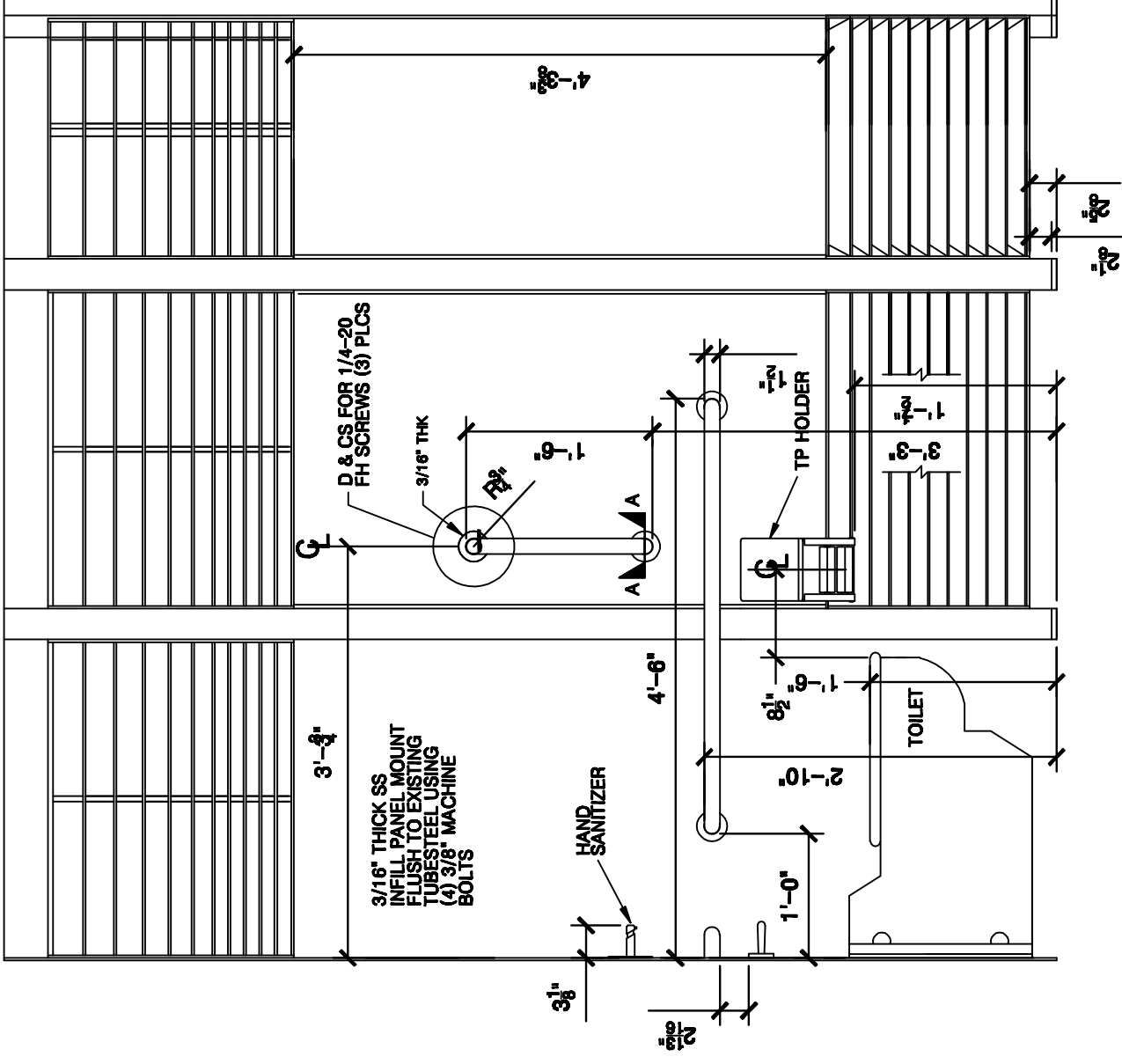
REV	DATE	DESCRIPTION	DRN	APPD

MADDEN FABRICATION				
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NAME	DATE	SERIAL NO.	DRW. NO.	
LEO	4/16/2016			A5.0

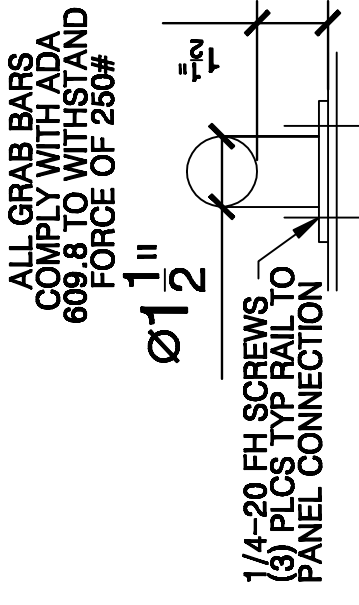
PORTLAND LOO	
INTERNAL SECTION VIEW	



1 WATER CLOSET RAILING
 A5.0 1 1/2"Dx.120" wall ss
 Plate 3/16" ss
 (1) Assm REQ'D SCALE: 3/4" = 1'-0"



2 WATER CLOSET RAILING
 A5.0 1 1/2"Dx.120" wall ss
 Plate 3/16" ss
 (1) Assm REQ'D SCALE: 3/4" = 1'-0"



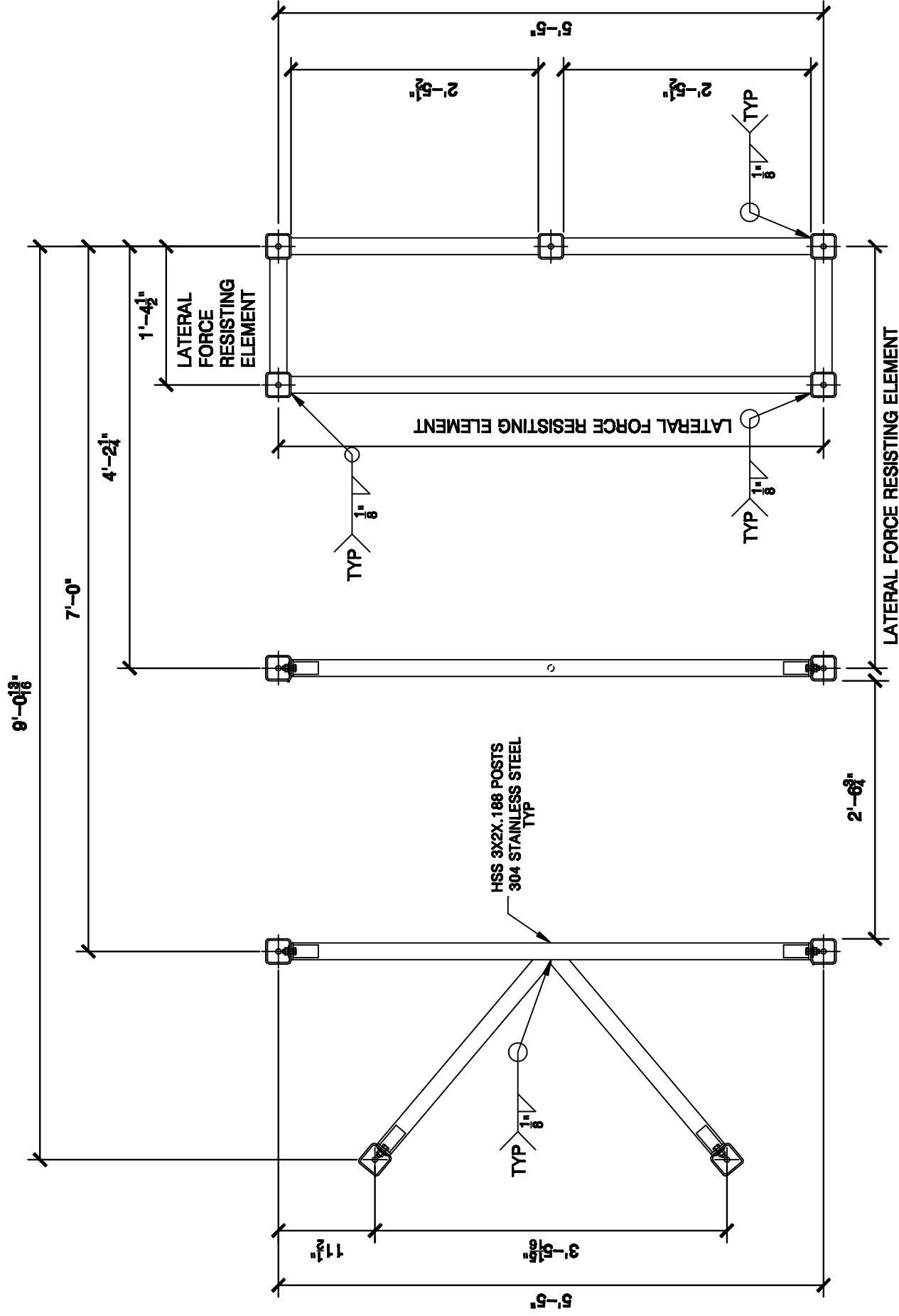
SECTION A-A
 Typ anchoring system
 (11) REQ'D
 SCALE: 3" = 1'-0"

REV	DATE	DESCRIPTION	DRN	APPD

INTERNAL SECTION VIEWS				
NAME	DATE	SERIAL NO.	DRW. NO.	
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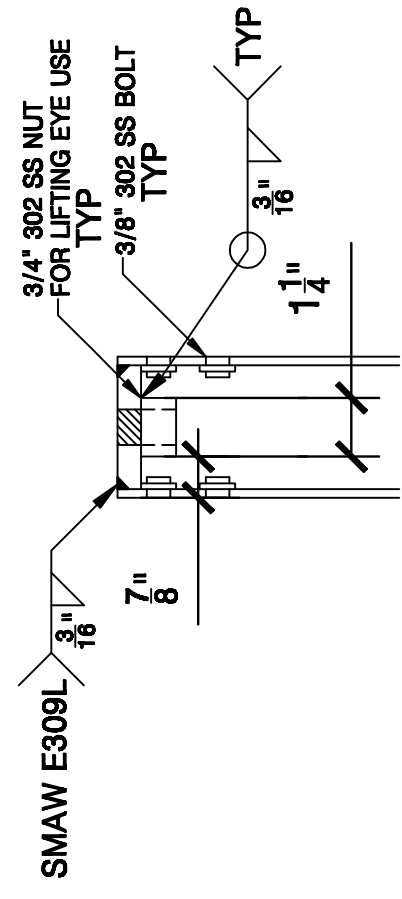
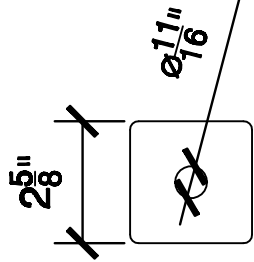
**MADDEN
 FABRICATION**
 2350 NW 23rd Place • Portland, OR 97210
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PORTLAND LOO



COLUMN AND BEAM LAYOUT

SCALE: 3/4" = 1'-0"



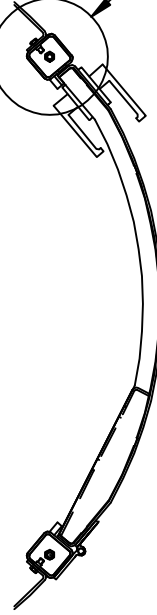
1
S1.0

COLUMN LIFTING CAP

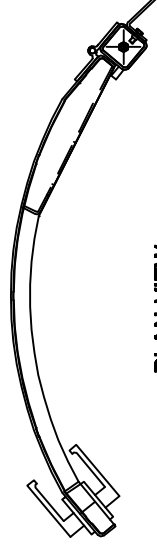
1/2" 304 SS TAP FOR 3/4-10 Bolt (11) REQ'D

SCALE: 3" = 1'-0"

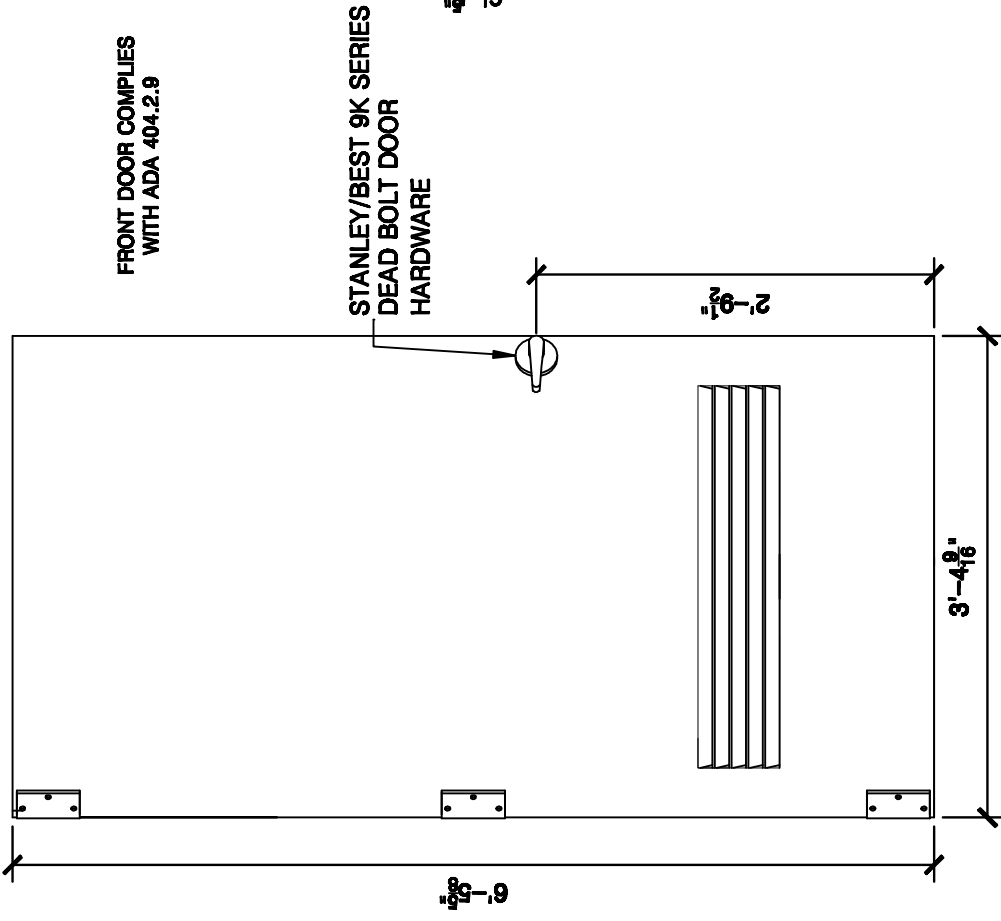
REV	DATE	DESCRIPTION	DRN	APPD	NAME	DATE	SERIAL NO.	DRW. NO.
					LEO	4/18/2016		S1.0
					MADDEN FABRICATION			
					2550 NW 25th Place • Portland, OR 97210 Phone: (503) 226-3968 Fax: (503) 242-2446			
					PORTLAND LOO			
					COLUMN AND BEAM LAYOUT			



PLAN VIEW



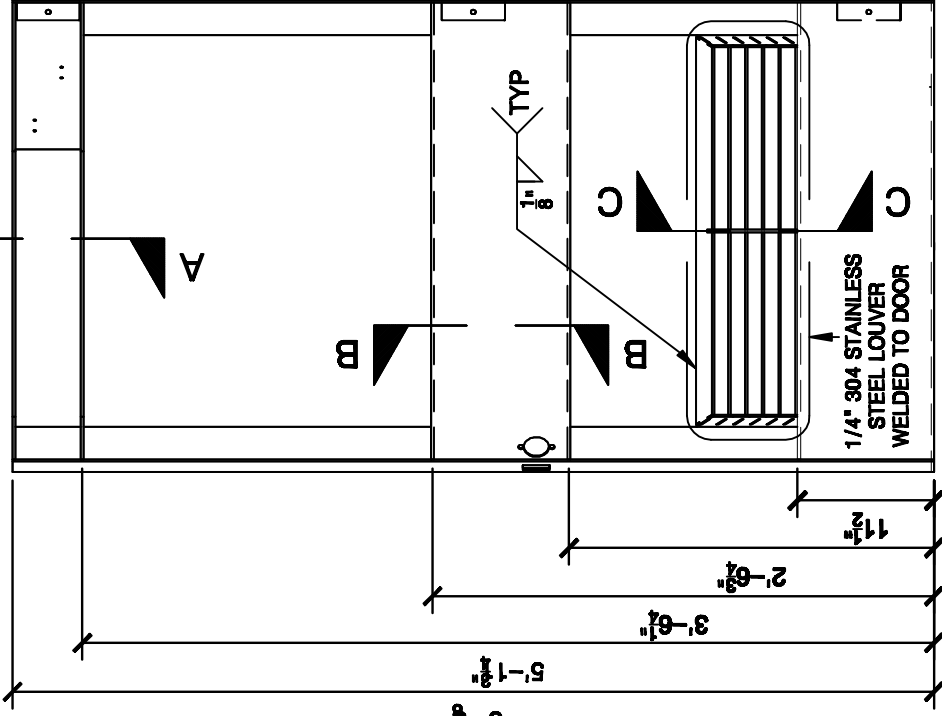
PLAN VIEW



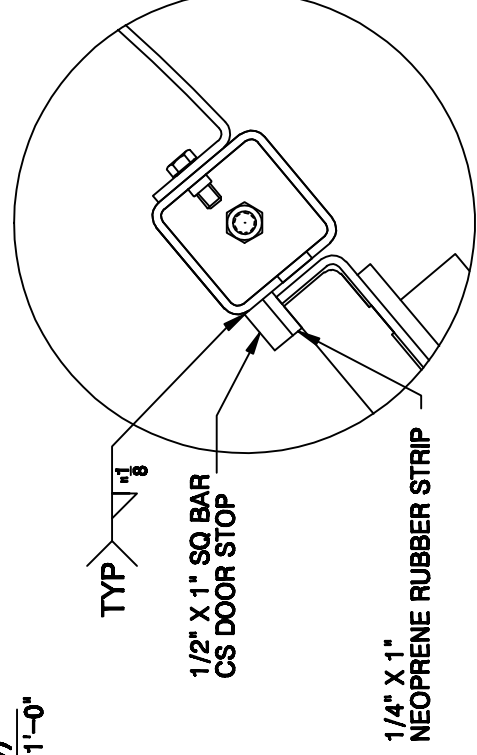
1 RIGHT HAND ENTRY DOOR (STANDARD)

PL 3/16\" 304 STAINLESS STEEL (1) REQ'D

SCALE: 3/4\" = 1'-0\"

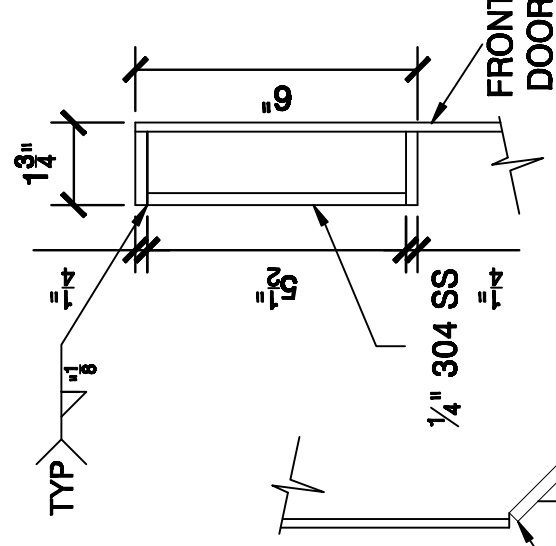


BACKSIDE



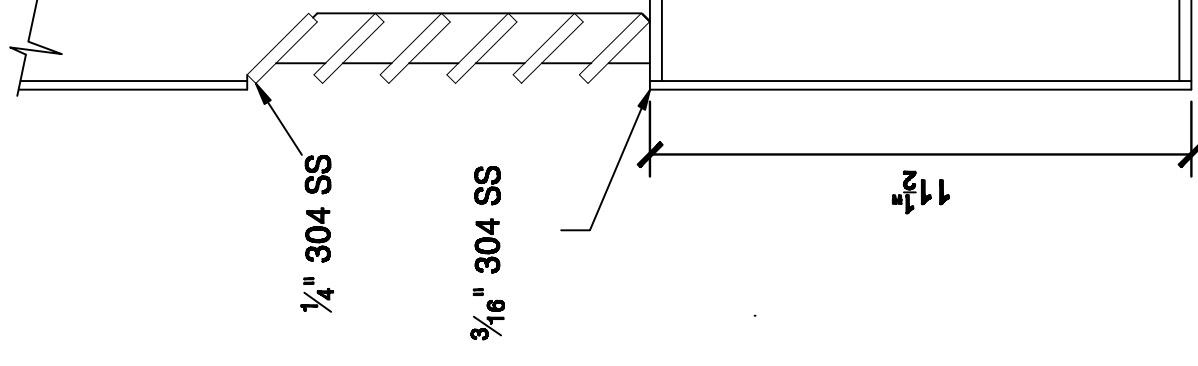
DETAIL 1

SCALE: 3\" = 1'-0\"



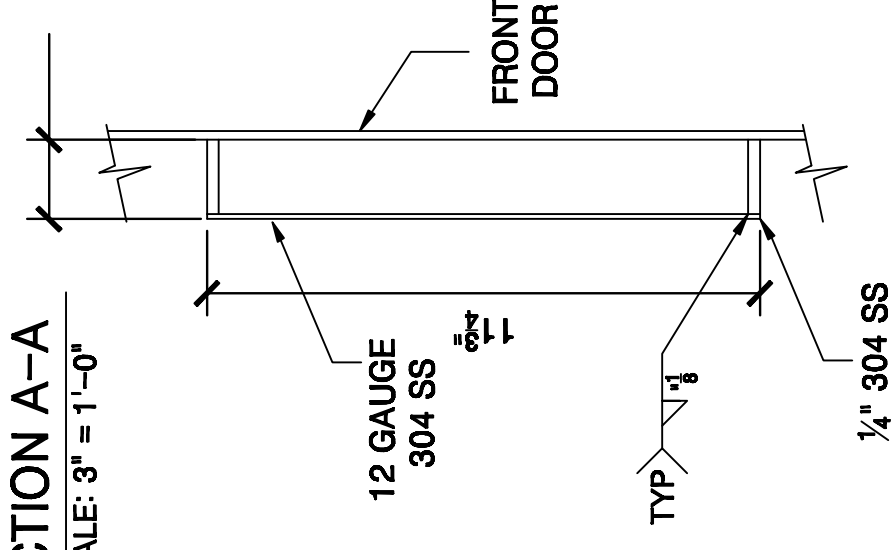
SECTION A-A

SCALE: 3\" = 1'-0\"



SECTION C-C

SCALE: 3\" = 1'-0\"

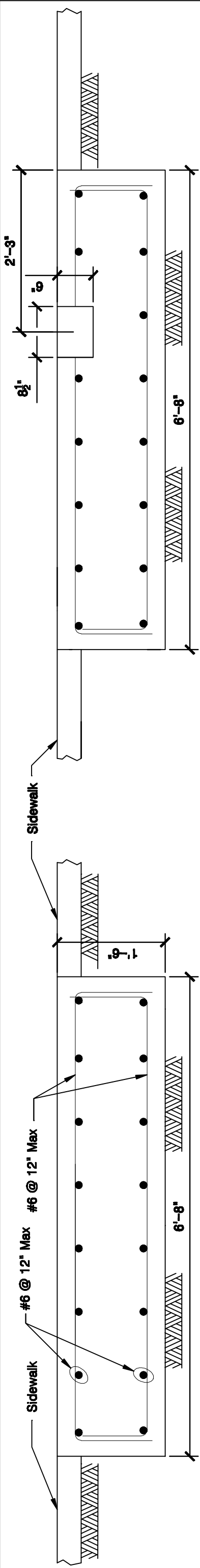


SECTION B-B

SCALE: 3\" = 1'-0\"

MADDEN FABRICATION		PORTLAND LOO	
FRONT DOOR			
REV	DATE	DESCRIPTION	DRN
			APPD
NAME	DATE	SERIAL NO.	DRW. NO.
LEO	4/16/2016		S2.0

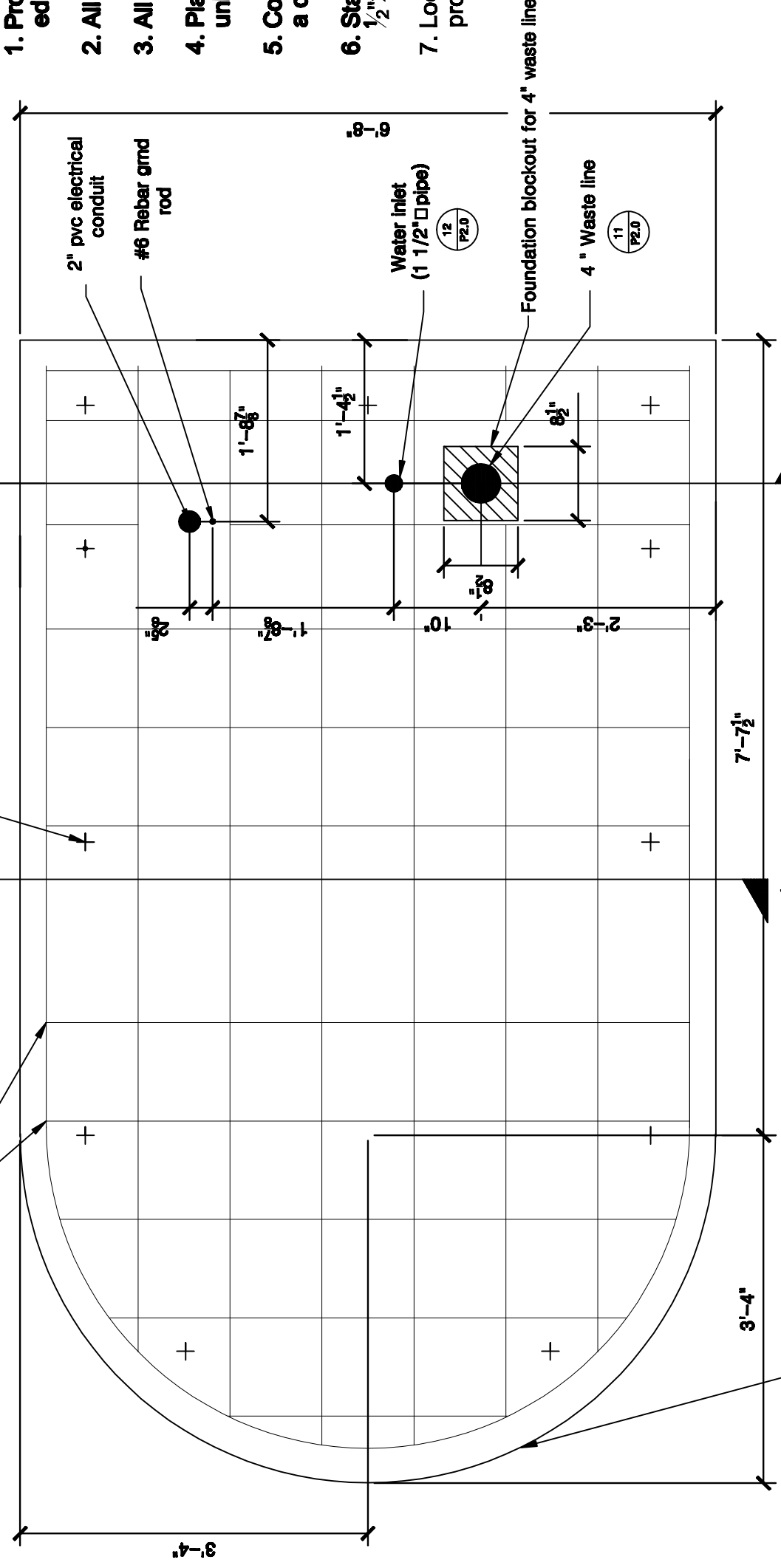
2550 NW 25th Place • Portland, OR 97210
Phone: (503) 226-3968 Fax: (503) 242-2446



SECTION A-A
SCALE: 3/4" = 1'-0"

SECTION B-B
SCALE: 3/4" = 1'-0"

Anchor bolt locations for stanchions
1/2" Hole 5" deep
To be drilled after concrete has hardened



Saw cut profile of footing plan into sidewalk

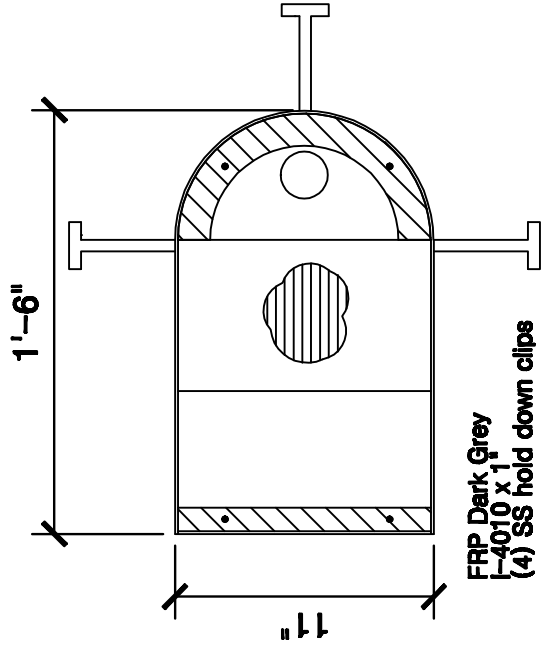
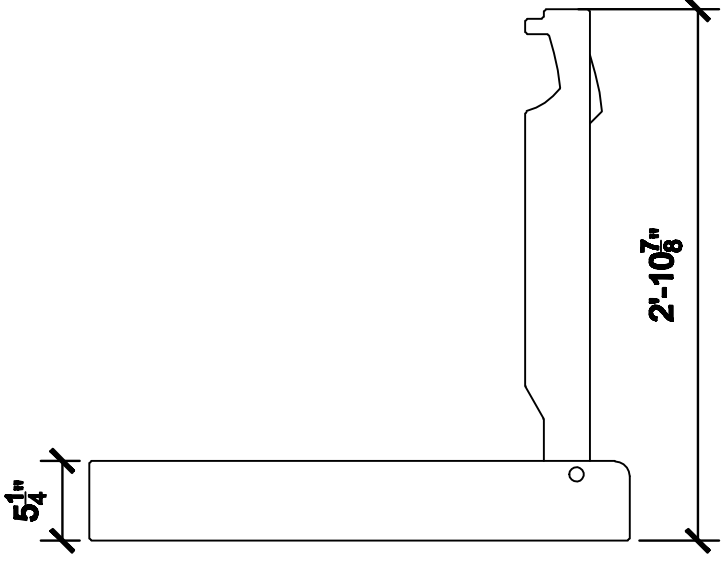
GENERAL NOTES:

1. Provide all materials and perform all work according to the current edition of the Specifications of the Authority Having Jurisdiction.
2. All concrete shall be Structural Class 4000.
3. All reinforcing steel shall conform to ASTM A706 or A615 Grade 60.
4. Place bars 3 inches clear of the nearest face of concrete unless shown otherwise.
5. Concrete footing may be poured integrally with 4' sidewalk, providing a deep cut tool joint is located around perimeter of footing.
6. Stanchions section "A-A" / A1.0 to be fastened to the concrete using 1/2"x5" titens. The Loos columns to be fastened the the stanchions.
7. Location of anchor bolts to be located and drilled using template provided before installation by Madden Fabrication.

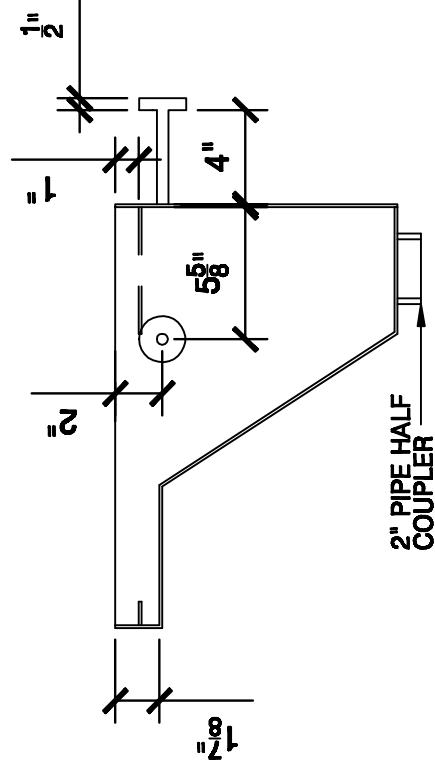
MADDEN FABRICATION 2550 NW 25th Place • Portland, OR 97210 Phone: (503) 226-3968 Fax: (503) 242-2446		NAME	DATE	SERIAL NO.	DRW. NO.
		LEO	4/18/2016		S3.0
REV	DATE	DESCRIPTION	DRN	APPD	

PORTLAND LOO
FOUNDATION & ANCHOR BOLT LOCATION

FOUNDATION & ANCHOR BOLT LOCATIONS
Standard hand wash drain location
SCALE: 3/4" = 1'-0"

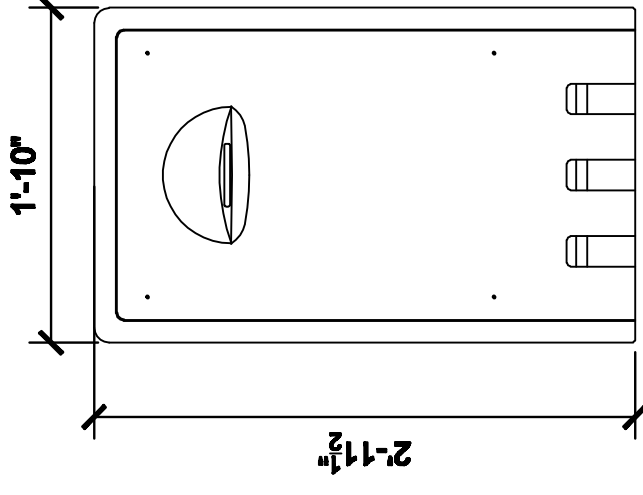


PLAN VIEW



5 WASH BASIN
Sheet 12 GA SS
(1) Assembly REQ'D

6 BABY CHANGING TABLE
KOALA KB101-05
(1) REQ'D

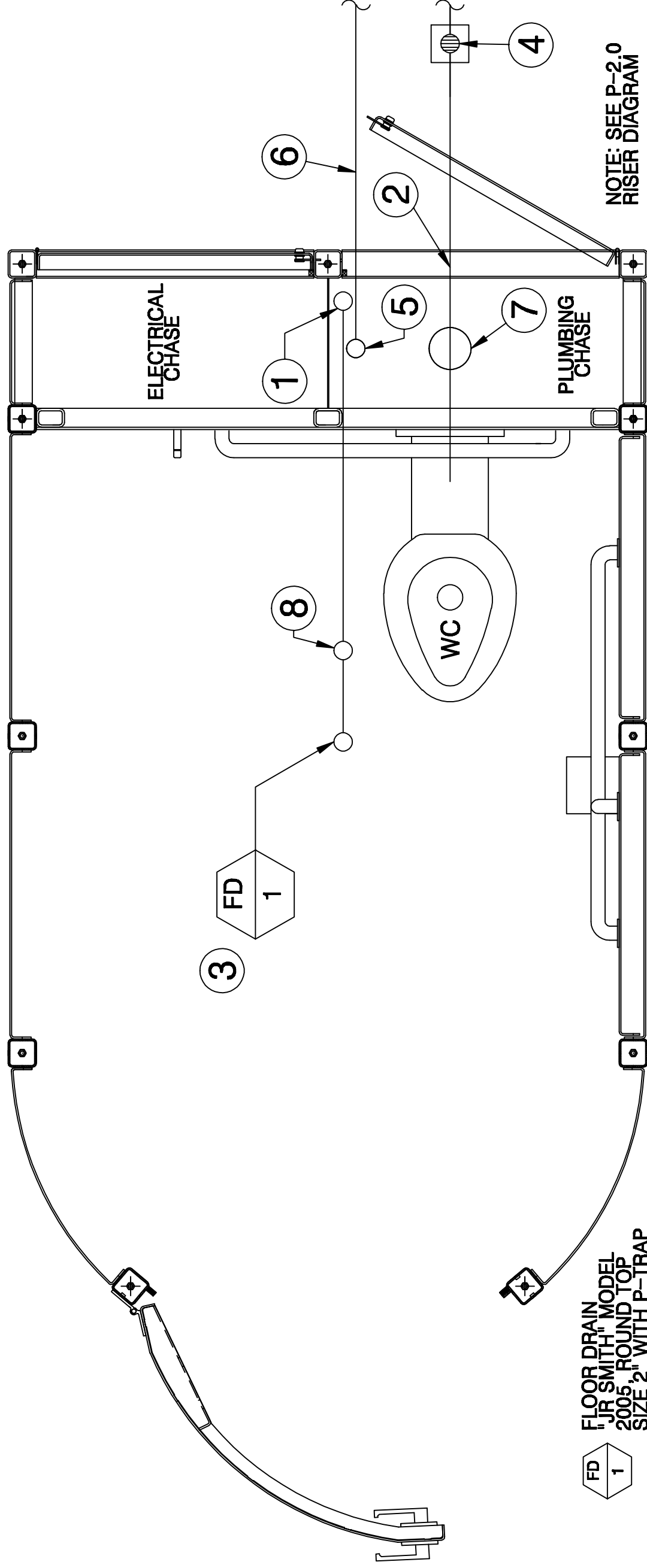


NOTE: TO BE MOUNTED
ON INTERIOR INFILL
PANEL

MADDEN FABRICATION		PORTLAND LOO		STANDARD OPTIONS				
REV	DATE	DESCRIPTION	DRN	APPD	NAME	DATE	SERIAL NO.	DRW. NO.
					LEO	4/18/2016		S4.0
					2550 NW 25th Place • Portland, OR 97210 Phone: (503) 226-3968 Fax: (503) 242-2446			

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MFG.
1	ONE	2" VENT PIPE TUBE TO ROOF	VARIOUS
2	ONE	WASTE PIPING 4" SDR 35 PVC SEWER LINE TO P.O.C.	VARIOUS
3	ONE	ROUTE CW SUPPLY TO FLOOR DRAIN P-TRAP FROM TRAP PRIMING LOCATED IN PLUMBING CHASE	JAY R. SMITH
4	ONE	4" GRADE CLEAN-OUT IN YARD BOX	VARIOUS
5	ONE	WATER INLET 1-1/2" C.W. SUPPLY SHOWN ON SHEET 7	VARIOUS
6	ONE	1-1/2" C.W. SUPPLY TO SOV SHOWN ON SHEET 7	VARIOUS
7	ONE	4" SEWER LINE CARRIER SHOW ON P2.0	VARIOUS
8	ONE	TRAP PRIMER VALVE	PRIME-RIGHT



PLUMBING FLOOR PLAN

SCALE: 1" = 1'-0"

MADDEN FABRICATION

PORTLAND LOO

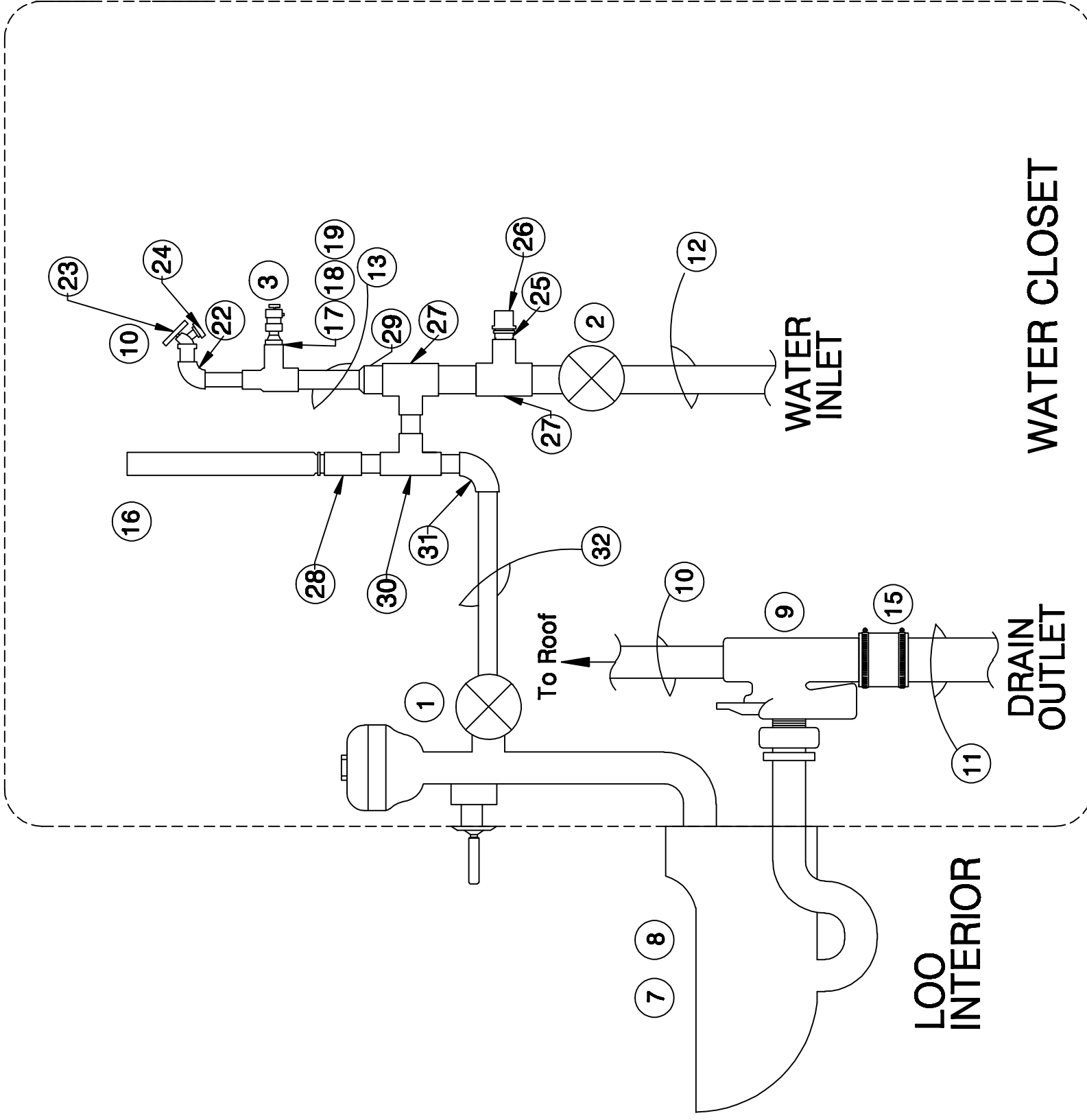
PLUMBING FLOOR PLAN

REV	DATE	DESCRIPTION	DRN	APPD	NAME	DATE	SERIAL NO.	DRW. NO.
					LEO	4/16/2016		P1.0

2550 NW 25th Place • Portland, OR 97210
Phone: (503) 226-3968 Fax: (503) 242-2446

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MFG.
1	ONE	140-1.28 w/ MBFW FLOW UNIT	SLOAN
2	ONE	1 1/2" MAIN SHUT OFF VALVE	VARIOUS
3	ONE	1" - 1/4 TURN SHUT OFF VALVE	VARIOUS
7	ONE	2105-W-1-CN DURA-WARE TOILET	ACORN
8	ONE	DURABLE PLASTIC TOILET SEAT	ACORN
9	ONE	440 Y CARRIER	JAY R. SMITH
10	ONE	2-1/2" SS Sch 40 PIPE	VARIOUS
11	ONE	4" SEWER DRAIN	OTHERS
12	ONE	1-1/2" CU SUPPLY	OTHERS
13	ONE	3/4" IPS CU PIPE	VARIOUS
15	ONE	4" RUBBER COUPLING	FERNCO
16	ONE	EXPANSION HAMMER DEVICE	VARIOUS
17	ONE	1" TO 3/4" DOUBLE REDUCING TEE	VARIOUS
18	ONE	3/4" TO 1/2" THREADED REDUCER	VARIOUS
19	ONE	3/4" TO 1/2" REDUCER	VARIOUS
	ONE	1/8" PLASTIC AIR LINE	ACORN
22	ONE	3/4" 90 DEGREE ELBOW PIPE	VARIOUS
23	ONE	HOSE BIB	VARIOUS
24	ONE	ANTI SIPHON	VARIOUS
25	ONE	SOLDERED THREADED FITTING	VARIOUS
26	ONE	1" THREADED CAP	VARIOUS
27	TWO	1 1/2" TO 1" REDUCING TEE	VARIOUS
28	ONE	1" TO 1" FEMALE THREADED COUPLER	VARIOUS
29	ONE	1 1/2" TO 1" REDUCER	VARIOUS
30	ONE	1" TEE	VARIOUS
31	ONE	1" 90 DEGREE ELBOW PIPE	VARIOUS
32	ONE	1" CU PIPE	VARIOUS
33	ONE	1 1/2" TO 1" REDUCING TEE	VARIOUS
34	ONE	1 1/2" TO 1" REDUCING TEE	VARIOUS
35	ONE	1 1/2" TO 1" REDUCING TEE	VARIOUS
	ONE	TRAP PRIMER VALVE	PRIME-RITE



MADDEN FABRICATION		PORTLAND LOO	
PLUMBING DETAIL			
NAME	DATE	SERIAL NO.	DRW. NO.
LEO	4/18/2016		P20
2550 NW 25th Place • Portland, OR 97210		APPD	
Phone: (503) 226-3968 Fax: (503) 242-2446		DRN	DESCRIPTION
REV	DATE		

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MFG.
1	1-3	Grape Solar 160W PV Module (or equal)	GRAPE SOLAR
2	1-3	MC 4 Cable 30' #10AWG	RLH INDUSTRIES
3	ONE	SS-MPPT-15L SOLAR CHARGE CONTROLLER	MORNINGSTAR CORP
4	5-7	6A-600V Fuse LPCC-6	Buss
5	TWO	MK 8A24 LTP Sealed AGM Battery	MK Battery
6	ONE	24V Photocell EM-24A2	Watt Stopper
7	ONE	Occupancy Sensor WPIR-24	Watt Stopper
8	TWO	24V DC relay RH1B-U-DC24V	IDEC
9	ONE	24V LED Light Rope, White 3W/Ft x 4ft	Flexlight
10	TWO	20', 24V, 5W LED Blue light - SALF-QU	Outwater
11	ONE	Battery system monitor RM-1	Morningstar
12	ONE	RJ-11 Meter Cable	VARIOUS
13	ONE	Ground Bus 44CONN-AL	ITE
14	ONE	V8-4816 6 DIGIT COUNTER	REDINGTON COUNTERS
15	ONE	NEMA1 Enclosure 20"x20" 20206-1	BENC
16	ONE	6ga Battery Harness cable	ALLBATTERY
17	Lot	14ga Cu wire THHN-14-19STR-CU	VARIOUS
18	Lot	10ga Cu wire Varies	VARIOUS
19	ONE	Solistat 2-20 Solid State Thermostat	ENGENTY
20	ONE	Heat trace - 10 ft, 24V, 3W/ft Kompensator	HEATLINE
21	THREE	15 Amp, 150V DC Breaker	ALTEC CORP
22	ONE	63 Amp, 125V DC Breaker	ALTEC CORP
23	ONE	Sola Power Supply SDN-10-24-100C	Sola Inc
24	ONE	110V - 15amp Breaker QO120-15A	SQUARE D
25	ONE	LOAD CENTER, 70A QO24L70S 2 BRKR	SQUARE D
26	ONE	Approved UFER ground connection to rebar Sht S2.0	BY OTHERS
27	ONE	4ga Cu wire insulated	VARIOUS
28	LOT	6ga Cu wire insulated	VARIOUS
29	1-3	6ga crimp eyelet and mechanical fastener to PV	VARIOUS

Items not shown on schematic

A	Lot	Din Rail 2M - 2 ft	WEIDMULLER
B	EIGHT	Modular Fuse Holder CHCCTDI	BUSS
C	TWO	Relay Pin Base 70-459	MAGNECRAFT
D	20	Terminal splice unit	WEIDMULLER
E	TWO	1-5/8" x 1-5/8" x 69" B22SH strut	B-Line or Equal
F	FOUR	3/8" Spring Nut N228	B-Line or Equal
G	FOUR	10-1/2" Shelf Bracket S-205	B-Line or Equal
H	ONE	NEMA1 Panel 20"x20" AW2020	BENC

REV	DATE	DESCRIPTION	DRN	APPD

MADDEN FABRICATION

2550 NW 25th Place • Portland, OR 97210
Phone: (503) 226-3968 Fax: (503) 242-2446

PORTLAND LOO

ELECTRICAL SCHEMATIC

NAME	DATE	DRW. NO.
LEO	4/16/2015	E1.0

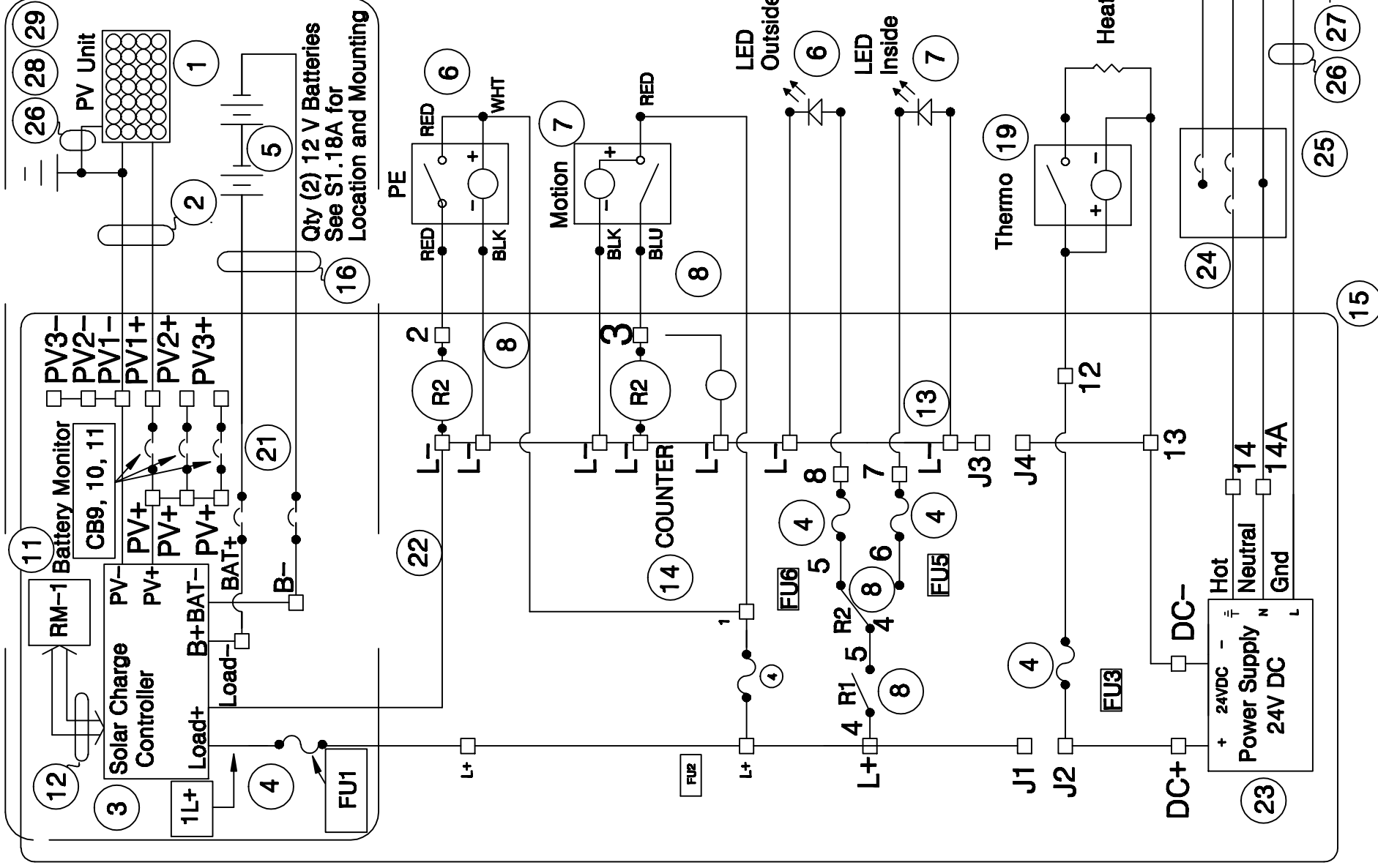
FUSE/BREAKER DESCRIPTION

- FU1 MAIN LOAD
- FU2 PE/MOTION
- FU3 HEAT TRACE
- FU4 NOT USED
- FU5 OUTSIDE LED LIGHT
- FU6 INSIDE LED LIGHT
- CB88 MAIN 24VDC BREAKER
- CB89 PV1 BREAKER
- CB10 PV2 BREAKER
- CB11 PV3 BREAKER

TERMINAL DETAIL

SOH	SOH
1	1
1	1
1	1
2	2
3	3
7	7
8	8
12	12
13	13
13	13
13	13
14	14
14A	14A
J1	J1
J2	J2
J3	J3
J4	J4

1-3 panel solar
Stand alone or backup
power option



Jumper Power Configuration	J1 to J2	J3 to J4
Solar Powered only (3 panels)	Yes	Yes
AC Power Only	Yes	Yes
Hybrid AC/Solar Powered (1-2 panels)	No	No