LEAN SAFETY BEST KNOWN METHODS

Abstract

The Safe Build Alliance is working to gather Best Known Methods in Lean that benefit the construction project. The benefit could enhance safety, efficiency, or quality. Please consider those activities that are conducted by multiple trades, ergonomic innovations, housekeeping best practices or anything that eliminates waste. We are looking for lean tools and actual activities that can be shared throughout the Safe Build Alliance Construction Community.

Remember, ***Waste*** is:
Defects – anything that created re-work
Overproduction – building more than is ready to be installed resulting in storage and/or housekeeping issues
Waiting – wasted time waiting for the next trade, waiting for late deliveries, etc.
Non-Utilized Talent – Underutilizing peoples' skills; light duty work due to an injury
Transportation – moving anything more than once before it becomes work in place
Inventory – extra storage of anything, storing concrete formwork or similar materials after completion
Motion – unnecessary movement of people, taking too many steps to distribute something that can be distributed via use of material handling equipment, etc.
Extra-processing – Higher quality than required

Please submit your Lean BKM's to

aclements@andersen-const.com
dtoy@andersen-const.com

Lean Champions: Craig Moehlman / Cherry City Electric

BKM: Bluebeam Prefabricated Assembly Process

How does it work?

We used Blue Beam drawings of the conduit racks, wall rough and Data drawings, then we build a tool bar and highlight the drawing with the type of assembly used at each location. Blue can make a legend showing the type of assembly and quantity. This drawing is given to our pre – fab to build and then the same drawing is used for install.

How does this benefit the project?

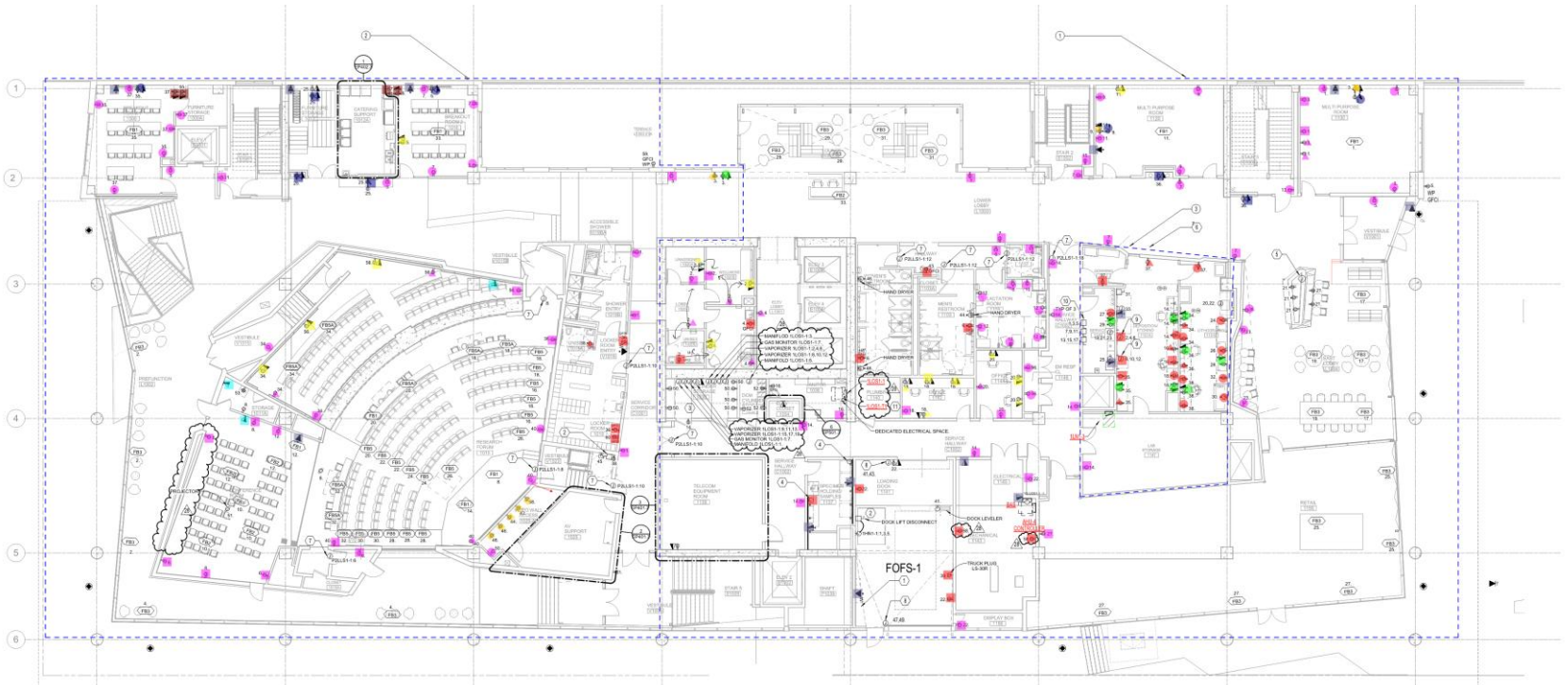
Pre-fab assemblies are made in a controlled environment, at bench heights eliminating workers to weather exposures, back strains and cluttered work spaces

By pre-fabricating these assemblies, it gives us the flexibility to have items delivered by groupings, rooms, floor or about any other way you can imagine. Reducing items being in the way and promotes on time deliveries

Why is this a Lean Method?

This method lets us have items assembled in a controlled environment, promotes Just-in-time deliveries, Requiring less handling and fewer deliveries to the job site, less storage of materials.

Please attach or include photos of the before & after



1 OVERALL PLAN - LEVEL 01 - POWER
EP110.3 1/8" = 1'-0"

GENERAL NOTES:

A. REFER TO THE ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES. WHERE NO ELEVATION EXISTS, REFER TO TYPICAL MOUNTING HEIGHTS ON THE E-601.3 LEGEND DRAWING.

B. REFER TO ARCHITECTURAL FLOOR PLANS FOR EXACT LOCATION OF FLOOR DEVICES.

C. PROVIDE FIRESTOPPING AT ALL PENETRATIONS THROUGH RATED STAIR ENCLOSURES, RATED EGRESS CORRIDORS, RATED SHAFTS, FLOOR AND CEILING ASSEMBLIES.

D. PROVIDE FLEXIBLE CONNECTIONS FOR ALL CONDUITS CROSSING EXPANSION JOINTS.

E. COORDINATE EQUIPMENT CONNECTIONS WITH MECHANICAL CONTRACTOR. REFER TO DRAWING EP-700.3 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULE.

F. REFER TO KITCHEN ENLARGED PLANS FOR KITCHEN EQUIPMENT LAYOUTS AND SCHEDULES.

G. REFER TO THE KITCHEN EQUIPMENT PLANS FOR EXACT LOCATION OF ELECTRICAL DEVICES AND JUNCTION BOXES.

H. PROVIDE #10 CONDUCTORS FOR RECEPTACLES CIRCUITS EXCEEDING TOTAL LENGTH OF 100 FEET BETWEEN DEVICE AND PANEL.

I. WITHIN AREAS OF EXPOSED CONCRETE WALLS, ALL JUNCTION BOXES AND ASSOCIATED CONDUIT FOR RECEPTACLES, ETC SHALL BE LOCATED AND ROUTED IN CONCRETE STRUCTURE. SURFACE MOUNTED JUNCTION BOXES AND CONDUITS ARE NOT ACCEPTABLE UNLESS COORDINATED WITH ARCHITECT AND STRUCTURAL SYSTEM.

J. REFER TO THE MECHANICAL AND PLUMBING PLANS FOR ALL EQUIPMENT LOCATIONS.

K. AREAS ABOVE ELECTRICAL PANELBOARDS AND SWITCHBOARDS SHALL BE KEPT CLEAR OF ALL EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION, INCLUDING PIPING, DUCTWORK, SUPPORTS, ETC. COORDINATE INSTALLATION WITH ALL OTHER TRADES.

L. ALL PENETRATIONS AND ROUTING PATHS OF EXPOSED CONDUIT SHALL BE COORDINATED AND REVIEWED BY THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.

M. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT, DO NOT SHARE NEUTRAL CONDUCTORS.

N. UTILIZE NO MORE THAN SIX CURRENT CARRYING CONDUCTORS PER BRANCH CIRCUIT HOMERUN.

NOTES:

1. PER NFPA, ALL ELECTRICAL DEVICES, EQUIPMENT, LUMINAIRES AND WIRING WITHIN 9FT HORIZONTAL AND VERTICAL OF FUEL OIL FILL STATION AND FUEL OIL EMERGENCY VENTING DISCHARGE LOCATION TO BE INTRINSICALLY SAFE FOR CLASS 1 HAZARDOUS LOCATIONS.

2. MOTORIZED LIFT DISCONNECT. COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER PRIOR TO WORK.

3. PROVIDE INTRINSICALLY SAFE COMPONENTS WITHIN THIS CLASS 1 DIV 1 SPACE.

4. PROVIDE SURFACE MOUNTED RACEWAY CONNECTION. PROVIDE GFI CIRCUIT BREAKER.

5. STUB UP CONDUIT AT FURNITURE ISLAND FOR DURESS STATION.

6. CONFIRM EXACT SPACE REQUIREMENTS AND POWER NEEDS WITHIN FUTURE EQUIPMENT BUILDOUT. PROVIDE CIRCUITS FROM PANEL 1LN1.3

7.CONNECT TO DOOR OPERATOR. COORDINATE WITH ARCHITECTURAL'S DRAWING. CONCEAL CONDUIT ROUTING FOR POWER AND CONTROLS. EXPOSED CONDUIT SHALL BE SUBMITTED TO ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO ROUGH-IN.

8. CONNECT TO ROLL UP DOOR. PROVIDE POWER AND CONTROLS ROUGH-IN AND CONNECTION PER APPROVED MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WIRING DIAGRAMS. CONTROLS ROUGH-IN SHALL BE AT LOCATION APPROVED BY THE ARCHITECT. ALL WIRING SHALL BE IN CONDUIT.

9. EQUIPMENT CONNECTION: PLASMA LAB. PROVIDE (1) 3/4"C, (3)#8 PHASE CONDUCTORS, (1)#10 GRD CONDUCTOR.

10. EQUIPMENT CONNECTION: VACUUM PUMP.

11. PROVIDE WALL MOUNT SUPPORT AND BRACING. MOUNT ABOVE ELECTRICAL PANEL.

CIRCUITING NOTES:

1. ALL NORMAL POWER DEVICES AND EQUIPMENT WITHIN DASHED BOUNDARY SHALL BE PROVIDED WITH BRANCH CIRCUITS FROM PANEL 1LN1.2 UNLESS OTHERWISE NOTED.

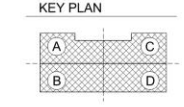
2. ALL NORMAL POWER DEVICES AND EQUIPMENT WITHIN DASHED BOUNDARY SHALL BE PROVIDED WITH BRANCH CIRCUITS FROM PANEL 1LN1.2 UNLESS OTHERWISE NOTED.

3. ALL NORMAL POWER DEVICES AND EQUIPMENT WITHIN DASHED BOUNDARY SHALL BE PROVIDED WITH BRANCH CIRCUITS FROM PANEL 1LN1.3 UNLESS OTHERWISE NOTED.

PRE FAB ORDER

Label	Quantity	Unit
4sq & 5 sq with adjustable bracket	4	Count
4SQ & 5 SQ / SINGLE GANG /KICK PLATE with 1- 40' mc	3	Count
4SQ & 5 SQ / SINGLE GANG /KICK PLATE with 2- 40' mc	5	Count
4SQ & 5 SQ / SINGLE GANG /KICK PLATE	7	Count
4SQ & 5SQ / SINGLE GANG/3 HOLE BRACKETS with 1 -40' mc	9	Count
4SQ / double GANG & 5 sq /KICK PLATE with 1- 40' mc	4	Count
4SQ / double GANG /KICK PLATE with 1- 40' mc	6	Count
4SQ / SINGLE GANG /KICK PLATE with 1- 40' mc	38	Count
4SQ / SINGLE GANG /KICK PLATE with 2- 40' mc	10	Count
4SQ / SINGLE GANG /KICK PLATE	41	Count
4SQ / SINGLE GANG /TSGB with 1-40 ' mc	11	Count
4SQ / SINGLE GANG /TSGB with 2- 40' mc	6	Count
4SQ / SINGLE GANG /TSGB	19	Count
5SQ / SINGLE GANG /KICK PLATE	3	Count
5SQ / SINGLE GANG /TSGB	14	Count
EVO BOX WITH 1-40' MC	5	Count
EVO BOX	5	Count

KEY PLAN



INFORMATION SHOWN MAY TONED IS PART OF A SEPARATE PACKAGE AND IS INCLUDED HERE FOR REFERENCE ONLY

KNIGHT CANCER RESEARCH BUILDING

OHSU Design & Construction Mail Code: CSD210
2131 SW Sam Jackson Park Road
PORTLAND, OR 97239
503.418.0723

SRG Partnership, INC
srgpartnership.com
621 SW Morrison, Suite 200
Portland, OR 97205
503.222.1917

McCarthy | Andersen
Joint Venture
6712 N Cutter Circle
PORTLAND, OR 97217
503.283.6713

PAE
Portland | San Francisco | Seattle
pae-engineers.com

Cherry City Electric

OHSU Knight Cancer Research Building
Permit Package 3 - Tenant Improvement
2720 SW Moody Ave, Portland, OR 97201

Drawing scales indicated apply to 24" x 36" drawing sheets. Scale may vary on smaller drawing plots and less than the size.

Revisions: Number	Description	Date
28	PP3 ADDENDUM 4 & COP CR	02-17-17

Drawing Title
OVERALL PLAN - LEVEL 01 - POWER

For Additional Information Refer To
Permit Package 1 & 2

Drawn by: Author
Checked by: Checker
Date: 20 JANUARY 17
Project No: 214934

Consultant Project No
Owner Project No
Drawing No

EP110.3

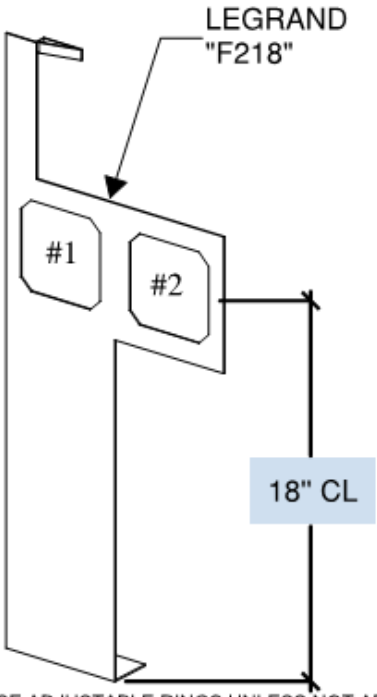
IN WALL 4

JOB NAME: KCRB JOB #: 3416116

FOREMAN: CELL #:

DATE: DATE NEEDED:

TYPE		QTY		Area / Floor	



* USE ADJUSTABLE RINGS UNLESS NOT APPROVED

BOX #1			
SIZE	☐ 4-11/16 DEEP ☐ 4-11/16 ☐ 4"S SHLW ☒ 4"S DEEP ☐ 5"S SHLW ☐ 5"S DEEP	K.O.	☐ 1/2" & 3/4" ☐ ALL 1" ☐ 1-1/4"
		GRD. PIGTAIL	☒
		FIRE PAD	☐
		SOUND PAD	☐
CONN#1	☒ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☐ 1-1/4"EMT	CONN#2	☒ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☐ 1-1/4"EMT
RING	☒ 1 GANG ☐ 2 GANG	TYPE *	☒ ADJUSTABLE ☐ 3/4" RAISED ☐ 5/8" RAISED ☐ 1-1/4" RAISED ☐ 2" RAISED
Horizontal	☐		
Vertical	☒		
	☐		

BOX #2			
SIZE	☐ 4-11/16 DEEP ☐ 4-11/16 ☐ 4"S SHLW ☐ 4"S DEEP ☐ 5"S SHLW ☒ 5"S DEEP	K.O.	☐ 1/2" & 3/4" ☐ ALL 1" ☐ 1-1/4"
		GRD. PIGTAIL	☐
		FIRE PAD	☐
		SOUND PAD	☐
CONN#1	☐ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☒ 1-1/4"EMT	CONN#2	☐ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☐ 1-1/4"EMT
RING	☒ 1 GANG ☐ 2 GANG	TYPE *	☒ ADJUSTABLE ☐ 3/4" RAISED ☐ 5/8" RAISED ☐ 1-1/4" RAISED ☐ 2" RAISED
Horizontal	☐		
Vertical	☒		
	☐		

COMMENTS OR SPECIAL INSTRUCTION:

POWER BOX #1 WITH 2- 40' 12-2 MC STRANDED AND PLUG TAIL

DATA BOX 5S RANDL TYPE OR EQUAL WITH 1 1/4 EMT CONN SS

Print Date 5/6/2016

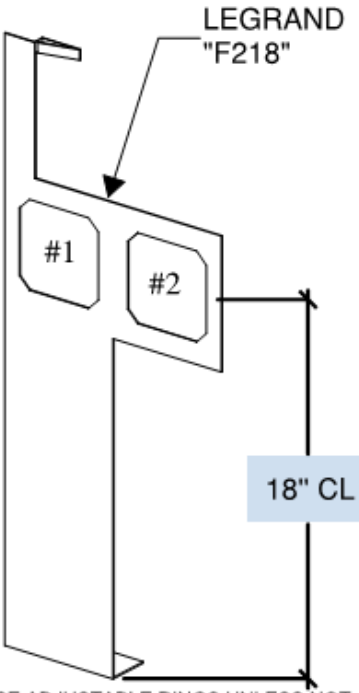
IN WALL 4

JOB NAME: KCRB JOB #: 3416116

FOREMAN: CELL #:

DATE: DATE NEEDED:

TYPE		QTY		Area / Floor	



* USE ADJUSTABLE RINGS UNLESS NOT APPROVED

BOX #1			
SIZE	☐ 4-11/16 DEEP ☐ 4-11/16 ☐ 4"S SHLW ■ 4"S DEEP ☐ 5"S SHLW ☐ 5"S DEEP	K.O.	☐ 1/2" & 3/4" ☐ ALL 1" ☐ 1-1/4"
		GRD. PIGTAIL	■
		FIRE PAD	☐
		SOUND PAD	☐
CONN#1	☐ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☐ 1-1/4"EMT	CONN#2	☐ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☐ 1-1/4"EMT
RING	■ 1 GANG ☐ 2 GANG	TYPE *	■ ADJUSTABLE ☐ 3/4" RAISED ☐ 5/8" RAISED ☐ 1-1/4" RAISED ☐ 2" RAISED
Horizontal	☐		
Vertical	■		
	☐		

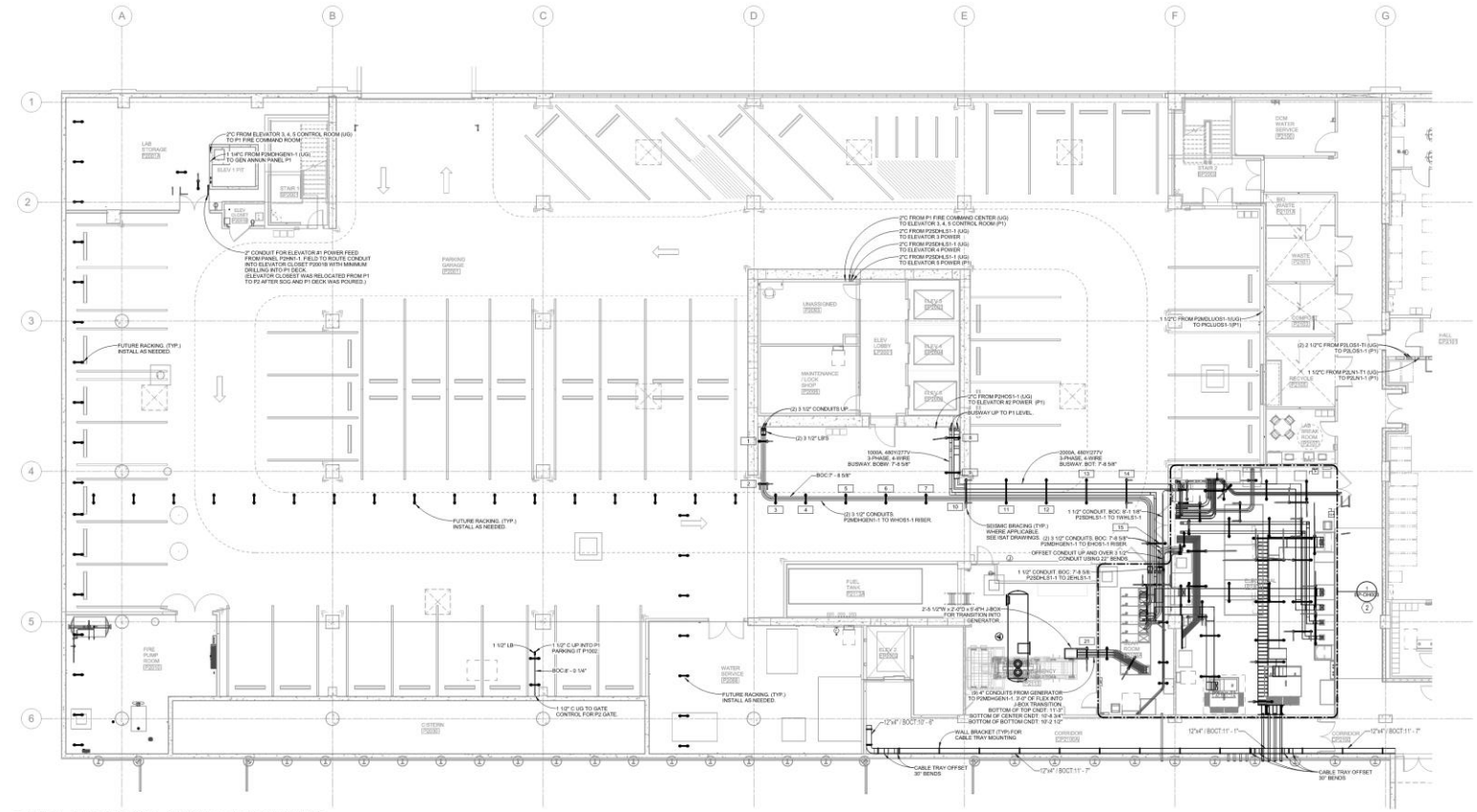
BOX #2			
SIZE	☐ 4-11/16 DEEP ☐ 4-11/16 ☐ 4"S SHLW ☐ 4"S DEEP ☐ 5"S SHLW ■ 5"S DEEP	K.O.	☐ 1/2" & 3/4" ☐ ALL 1" ☐ 1-1/4"
		GRD. PIGTAIL	☐
		FIRE PAD	☐
		SOUND PAD	☐
CONN#1	☐ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ■ 1-1/4"EMT	CONN#2	☐ 1/2" MC ☐ 1/2" EMT ☐ 3/4" EMT ☐ 1" EMT ☐ 1-1/4"EMT
RING	■ 1 GANG ☐ 2 GANG	TYPE *	■ ADJUSTABLE ☐ 3/4" RAISED ☐ 5/8" RAISED ☐ 1-1/4" RAISED ☐ 2" RAISED
Horizontal	☐		
Vertical	■		
	☐		

COMMENTS OR SPECIAL INSTRUCTION:

POWER BOX #1 WITH 1- 40' 12-2 MC STRANDED AND PLUG TAIL

DATA BOX 5S RANDL TYPE OR EQUAL WITH 1 1/4 EMT CONN SS

Print Date 5/6/2016



1 LEVEL P2 ELECTRICAL OVERHEAD LAYOUT-WEST

EP-OH001 1/8" = 1'-0"

LEVEL P2 RACK ASSEMBLIES

Prefab Number	Strut Type	Rack Width	TOS TopRack	TOS BotRack	Rod Length
1	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
2	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
3	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
4	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
5	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
6	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
7	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
8	1 5/8" STANDARD STRUT	3' - 0"	0' - 0"	6' - 2 3/4"	3' - 0"
9	1 5/8" STANDARD STRUT	3' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 3/8"
10	1 5/8" STANDARD STRUT	5' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 1/4"
11	1 5/8" STANDARD STRUT	5' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 3/8"
12	1 5/8" STANDARD STRUT	5' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 3/8"
13	1 5/8" STANDARD STRUT	5' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 3/8"
14	1 5/8" STANDARD STRUT	5' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 3/8"
15	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	7' - 8 5/8"	1' - 5 3/8"
16	1 5/8" STANDARD STRUT	8' - 0"	0' - 0"	11' - 3 3/4"	2' - 3 1/4"
16.1	1 5/8" STANDARD STRUT (HANGS FROM RACK #16)	2' - 0"	0' - 0"	10' - 8 1/2"	1' - 2"
17	SEE NOTES	8' - 0"	0' - 0"	12' - 1"	1' - 6"
18	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	11' - 3 3/4"	2' - 3 1/4"
19	1 5/8" STANDARD STRUT	2' - 0"	11' - 0"	11' - 3 3/4"	2' - 3 1/4"
20	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	11' - 3 3/4"	2' - 3 1/4"
21	7/8" B8 DOUBLE RACK	2' - 6"	11' - 9 1/4"	10' - 8 3/4"	2' - 10 1/4"
22	7/8" B8 DOUBLE RACK	2' - 6"	11' - 9 1/4"	10' - 8 3/4"	2' - 10 1/4"
23	7/8" B8 DOUBLE RACK	3' - 0"	11' - 9 1/4"	10' - 8 3/4"	2' - 10 1/4"
24	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	15' - 9 1/2"	3' - 2 1/2"
25	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	16' - 7 3/8"	2' - 4 5/8"
26	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	16' - 7 3/8"	2' - 4 5/8"
27	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	17' - 9 1/8"	1' - 2 7/8"
28	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	15' - 9 1/2"	3' - 2 1/2"
29	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	16' - 6 5/8"	2' - 5 3/8"
30	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	17' - 2 1/2"	1' - 9 1/2"
31	1 5/8" STND DOUBLE RACK	4' - 0"	16' - 6 5/8"	15' - 9 1/2"	3' - 2 1/2"
32	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	15' - 9 1/2"	3' - 2 1/2"
33	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	16' - 6 5/8"	2' - 5 3/8"
34	1 5/8" STND DOUBLE RACK	4' - 0"	17' - 9 1/8"	17' - 2 1/2"	1' - 9 1/2"
35	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	17' - 2 1/2"	1' - 9 1/2"
36	1 5/8" STANDARD STRUT	3' - 0"	0' - 0"	16' - 6 1/2"	2' - 5 1/2"
37	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	16' - 6 1/2"	2' - 5 1/2"
38	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	16' - 6 1/2"	2' - 5 1/2"
39	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	16' - 6 1/2"	2' - 5 1/2"

LEVEL P2 RACK ASSEMBLIES

Prefab Number	Strut Type	Rack Width	TOS TopRack	TOS BotRack	Rod Length
40	1 5/8" STANDARD STRUT	3' - 0"	0' - 0"	17' - 8"	1' - 4"
41	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	11' - 6"	7' - 6"
42	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	11' - 6"	7' - 6"
43	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	11' - 6"	2' - 1"
44	1 5/8" STANDARD STRUT (RODS 3" FROM ONE END 24" FROM OTHER)	6' - 0"	0' - 0"	12' - 1"	6' - 11"
45	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	12' - 1"	6' - 11"
46	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	12' - 1"	1' - 6"
47	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	12' - 1"	1' - 6"
48	1 5/8" STND DOUBLE RACK	12' - 0"	15' - 9 1/2"	12' - 1"	6' - 11"
49	1 5/8" STANDARD STRUT	6' - 0"	0' - 0"	12' - 1"	6' - 11"
50	1 5/8" STANDARD STRUT	6' - 0"	0' - 0"	12' - 1"	6' - 11"
51	1 5/8" STANDARD STRUT	6' - 0"	0' - 0"	12' - 1"	1' - 6"
52	1 5/8" STANDARD STRUT	6' - 0"	0' - 0"	12' - 1"	1' - 6"
53	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	12' - 1"	1' - 6"
54	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	11' - 8"	1' - 11"
55	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	11' - 8"	1' - 11"
56	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	12' - 1"	6' - 11"
57	1 5/8" STND DOUBLE RACK	4' - 0"	15' - 9 1/2"	11' - 5"	7' - 7"
58	1 5/8" STND DOUBLE RACK	4' - 0"	15' - 9 1/2"	11' - 5"	7' - 7"
59	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	11' - 5"	2' - 2"
60	1 5/8" STANDARD STRUT	6' - 0"	0' - 0"	11' - 5"	2' - 2"
61	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	17' - 7"	1' - 5"
62	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	17' - 7"	1' - 5"
63	1 5/8" STANDARD STRUT	4' - 0"	0' - 0"	17' - 7"	1' - 5"
64	1 5/8" STND DOUBLE RACK	6' - 0"	17' - 7"	15' - 9 1/2"	3' - 2 1/2"
65	1 5/8" STANDARD STRUT	2' - 0"	0' - 0"	15' - 4 3/8"	3' - 7 5/8"

RACK SCHEDULE NOTES:

1. RACK WIDTH COLUMN IS ACTUAL CUT LENGTH OF STRUT.
2. RODS ARE ASSEMBLED TO STRUT 3" IN FROM EACH END UNLESS NOTED IN "STRUT TYPE" COLUMN.
3. MEASUREMENT 0'-0" INDICATES THIS IS A SINGLE TIERED RACK.
4. A MEASUREMENT IN BOTH "TOS TopRack" AND "TOS BotRack" INDICATES THIS IS A TWO TIERED RACK.

NOTES:

1. CONFIGURATION OF BUSWAY HAS CHANGED SINCE BLUE BANGERS WERE INSTALLED IN DECK. NEW STRUT ASSEMBLY TO BE INSTALLED TO ACCOMMODATE THIS CHANGE. USE EXISTING BLUE BANGERS IF POSSIBLE.
2. SEE SHEET EP-CH003 FOR INFORMATION PERTAINING TO ELECTRICAL P2109 AND EMERGENCY GENERATOR P2113 ROOMS.
3. REFER TO NAVISWORKS .NWD FOR FURTHER INFORMATION.
4. ALL BENDS ARE 90° U.O.N.

3/10/2017 7:54:05 AM

KNIGHT CANCER RESEARCH BUILDING

OHSU
OHSU Design & Construction
Mail Code: CSB210
2131 SW Sam Jackson Park Road
PORTLAND, OR 97239
503 418 9723

SRG
SRG Partnership, INC
srgpartnership.com
621 SW Morrison, Suite 200
Portland, OR 97205
503 222 1917

McCARTHY | ANDERSEN
McCarthy | Andersen
Joint Venture
6712 N Cutter Circle
PORTLAND, OR 97217
503 283 6712

PAE
Portland | San Francisco | Seattle
pae-engineers.com

Cherry City Electric

OHSU Knight Cancer Research Building
Shop Drawings
2720 SW Moody Ave, Portland, OR 97201

Drawing scales indicated apply to original drawing sheets. Scale may not be accurate if drawing plots are less than this size.

Revisions Number	Description	Date

Drawing Title: P2 ELECTRICAL OVERHEAD LAYOUT-WEST

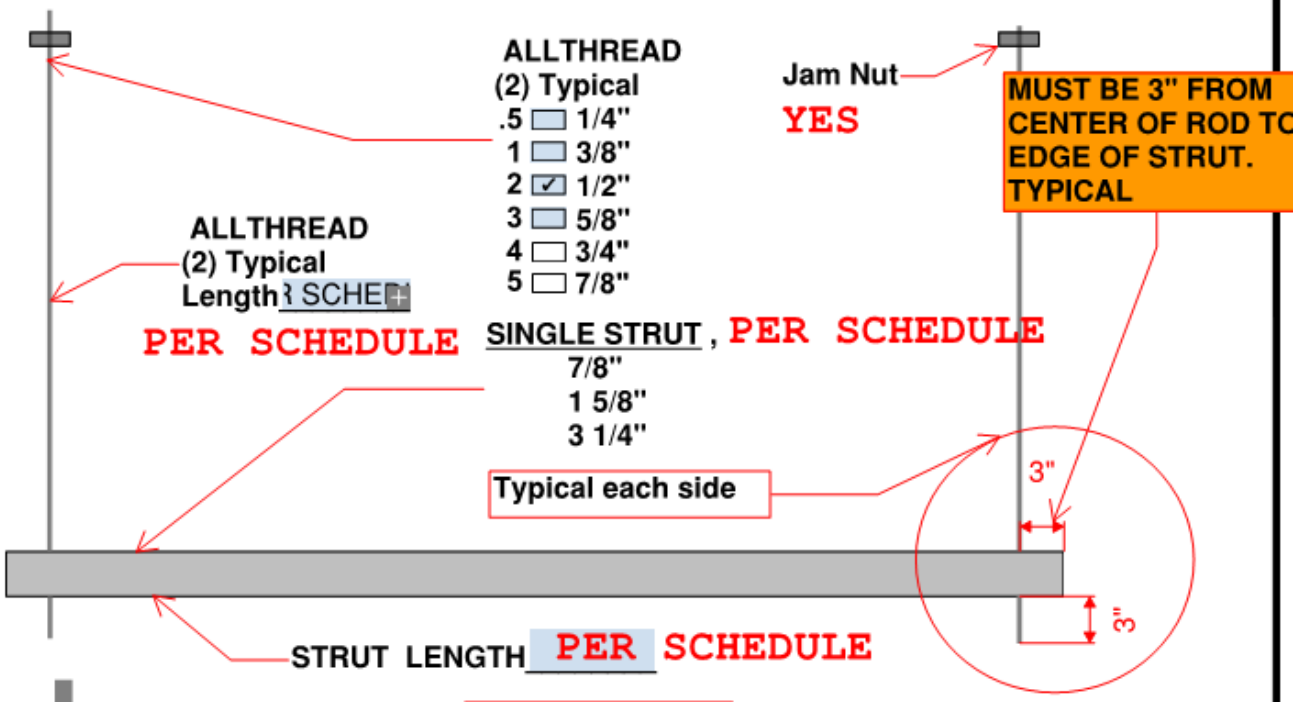
For Additional Information Refer To

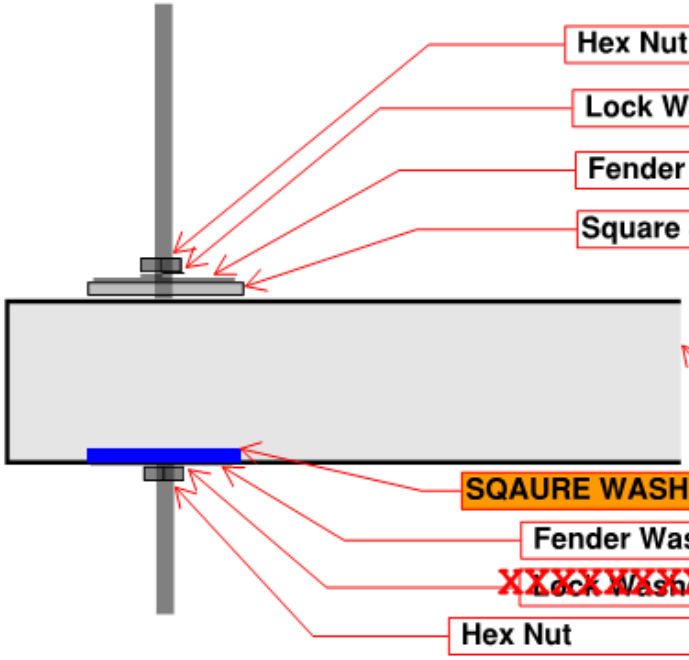
Drawn by: Author
Checked by: Checker
Date
Project No: 214034
Consultant Project No
Owner Project No
Drawing No

EP-OH001

SINGLE STRUT RACK ASSEMBLY

JOB NAME: KCRB
JOB #: 3416116
FOREMAN: Scott Burke
CELL #: 503-880-7890
DATE: 3-21-17
DATE NEEDED: 4-3-17





Quantity

Rack Tag # - - -

Refer to rack legend

Strut Facing Up

TYPICAL FACING UP. INVERSE ON SCHEDULE INDICATES FACING DOWN

COMMENTS OR SPECIAL INSTRUCTION:

STRUT FACING UP TYPICAL. INVERSE LISTED ON SCHEDULE INDICATES FACING DOWN.

RACKS WITH RODS LESS THAN 3" SHIP ASSEMBLED BUT NOT TIGHTENED, 3'+ RODS SHIP LOOSE

1/2" ROD TYPICAL, PLEASE SECURE THREADED ENDS WITH TAPE TO PREVENT LOOSING HARDW

12 gauge Gold Gaurd slotted strut typical. (Gold Gaurd strut should be Acme brand)