City of Puyallup
Building
ACCEPTED

JMontgomery
08/16/2022
10:10:25 AM

THE APPROVED CONSTRUCTION PLANS, DOCUMENTS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

FULL SIZED LEDGIBLE COLOR PLANS ARE REQUIRED TO BE PROVIDED BY THE PERMITEE ON SITE FOR INSPECTION

City of Puyallup
Development & Permitting Services
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Building	Planning
Engineering	Public Works
Fire	Traffic

Approval of submitted plans is not an approval of omissions or oversights by this office or noncompliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.

Structural Calculations

PREPARED FOR:

POE Construction
1519 W. Valley Hwy N
Auburn, WA 98001

Clay Johnson

PROJECT:

Red Dot TI - Puyallup Logistics Roof Mounted VRF Support

2220554.20

PREPARED BY:

Daniel L Booth, PE, SE
President

DATE:

June 2022

PRCTI20220873

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Structural Calculations

For

Red Dot TI - Puyallup Logistics Roof Mounted VRF Support

Puyallup, WA

Project # 2220554.20

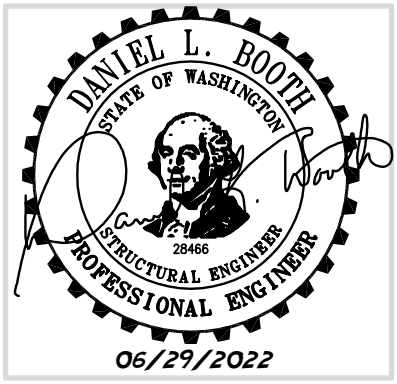
Project Principal Daniel L. Booth, PE, SE

Design Criteria

Design Codes and Standards

Codes and Standards: Structural design and construction shall be in accordance with the applicable sections of the following codes and standards as adopted and amended by the local building authority: International Building Code, 2018 Edition.

Structural Design Criteria:



Live Load Criteria:

Roof (Min Blanket Snow)	25 psf

Wind Load Criteria:

Ultimate Wind Speed	97 MPH
Risk Category	II
Wind Exposure	B
Topographic Factor	1.00

Seismic Criteria:

Risk Category	II
Seismic Importance Factor	1.00
S_s = 1.258	S_{ds} = .433
Site Class	= D
Seismic Design Category	= D

Seismic Design Per ASCE 7-16 Chapter 13

Project Description

The project consists of the design of support framing and anchorage for a 12-ton and 14-ton VRF rooftop mechanical units. Units to be supported on a single stand with a combined equipment weight of 1,385 lbs.

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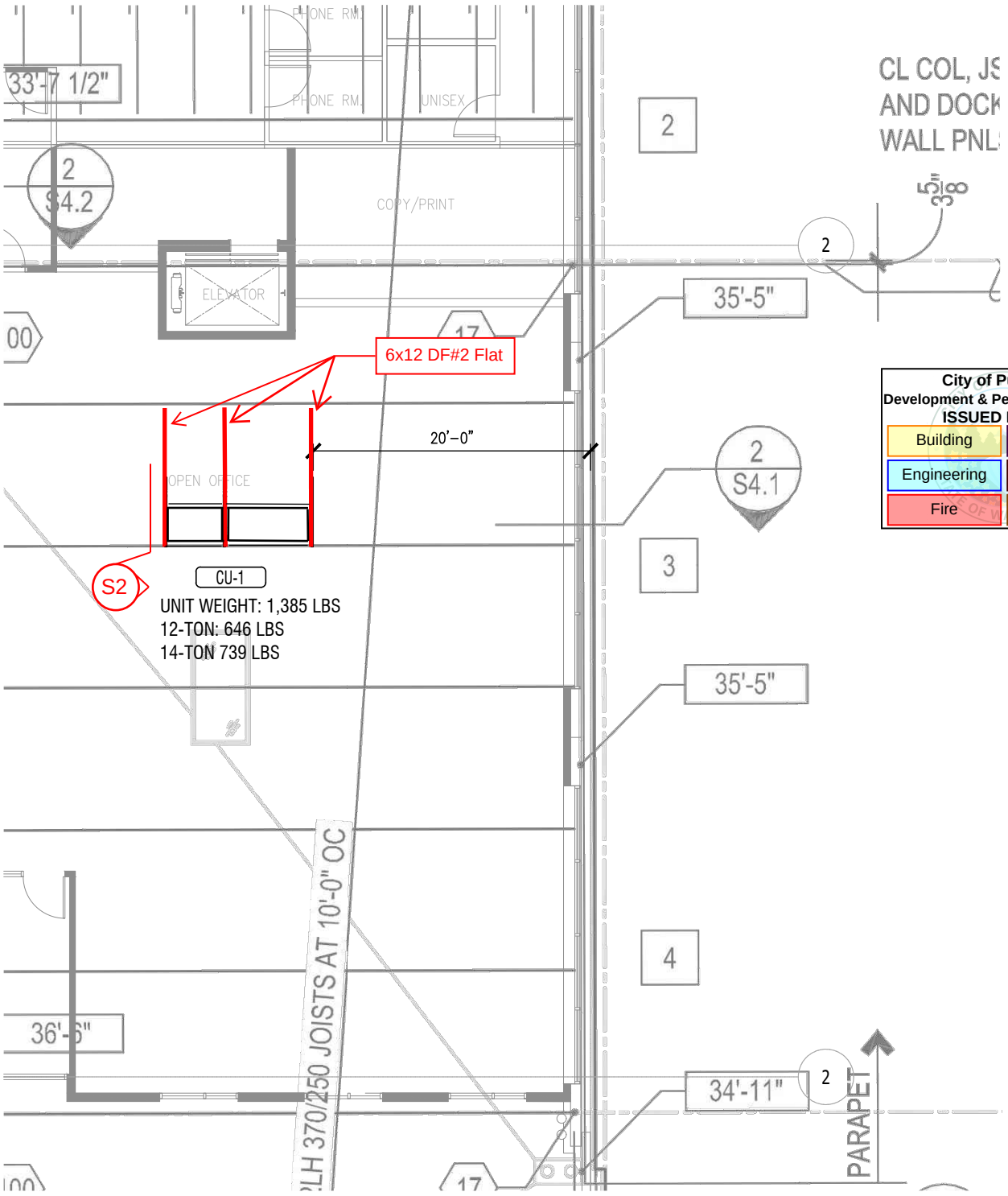

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AHBL
2215 North 30th Street, Suite 300
Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX

Red Dot TI Roof Mounted VRF Support

Plan

DRAWN BY: DLB | DATE: 6/28/22 | JOB NO.: 2220554.20

S1

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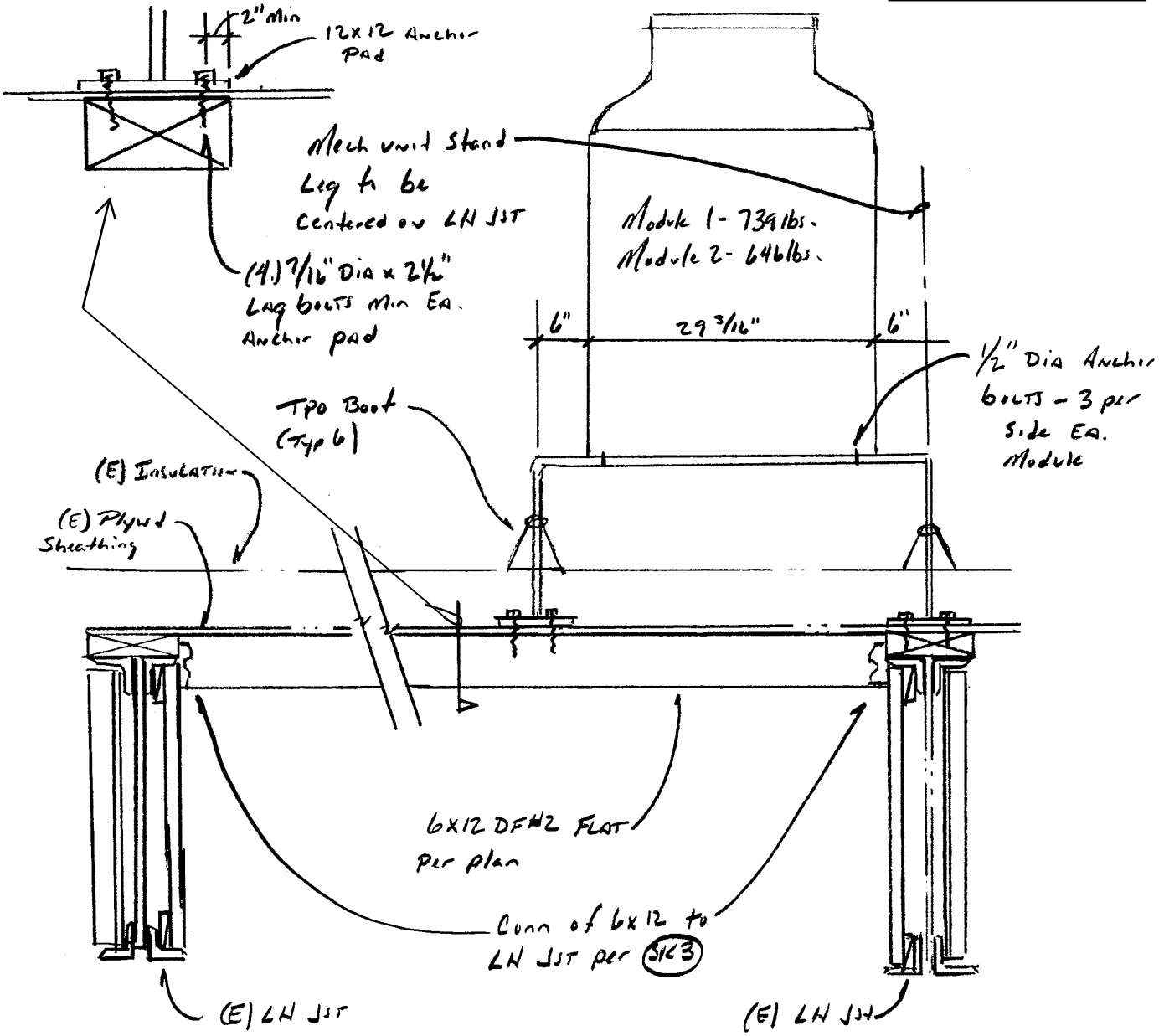
Fire	Traffic



AHBL 2215 North 30th Street, Suite 300 Tacoma, WA 98403 253.383.2422 TEL 253.383.2572 FAX	Red Dot TI Roof Mounted VRF Support			S2
	Detail			
	DRAWN BY: DLB	DATE: 6/28/22	JOB NO.: 2220544.20	

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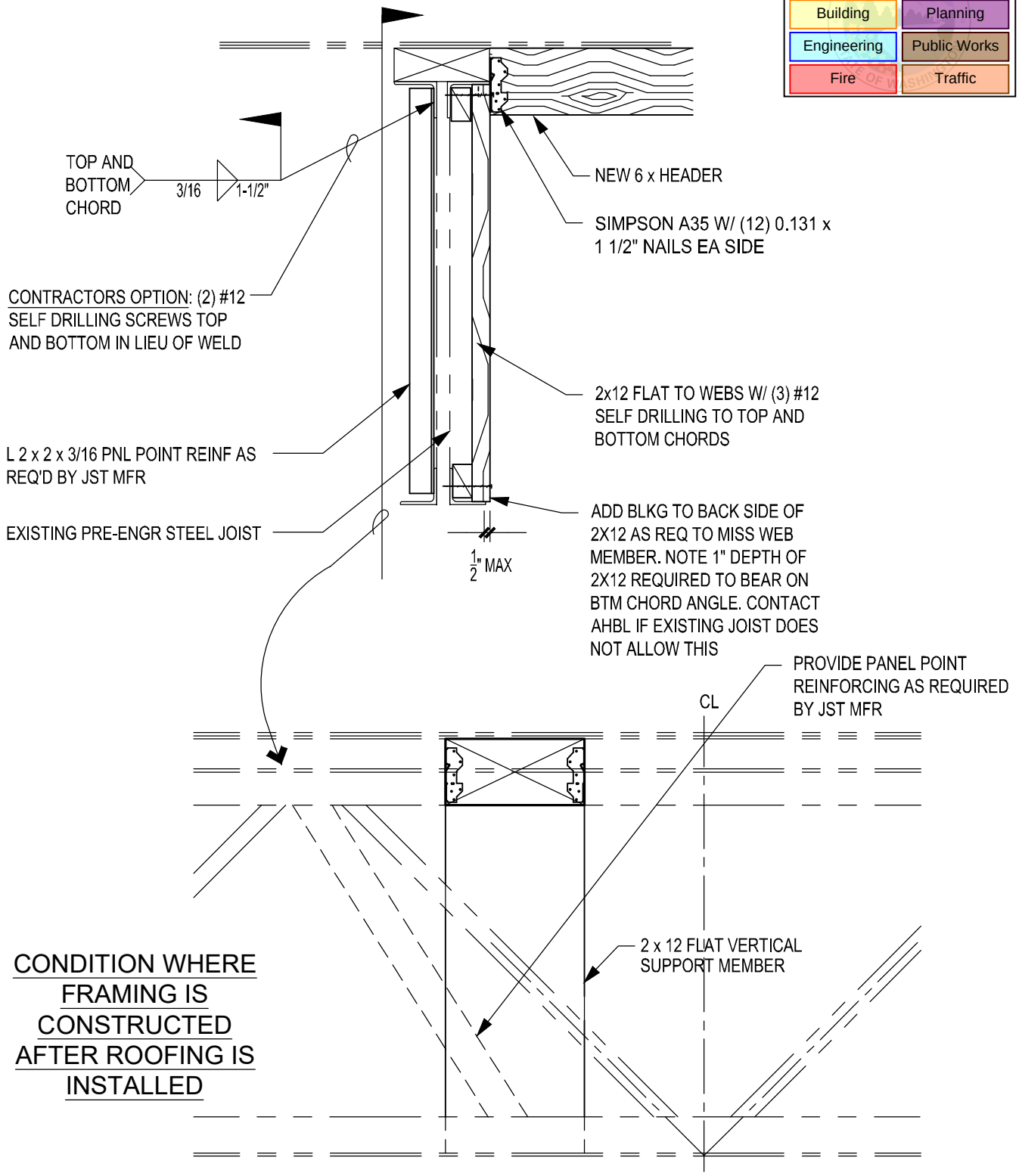

CONDITION WHERE FRAMING IS CONSTRUCTED AFTER ROOFING IS INSTALLED

AHBL
2215 North 30th Street, Suite 300
Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX

Red Dot TI Roof Mounted VRF Support

Detail

DRAWN BY: DLB | DATE: 6/28/22 | JOB NO.: 2220544.20

S3

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Hazards by Location

Search Information

Coordinates: 47.1911, -122.2609

Elevation: 55 ft

Timestamp: 2021-05-20T16:43:26.138Z

Hazard Type: Seismic

Reference Document: ASCE7-16

Risk Category: II

Site Class: D-default

Basic Parameters

Name	Value	Description
S_S	1.258	MCE_R ground motion (period=0.2s)
S_1	0.433	MCE_R ground motion (period=1.0s)
S_{MS}	1.509	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	1.006	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

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Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.914	Coefficient of risk (0.2s)
CR_1	0.898	Coefficient of risk (1.0s)
PGA	0.5	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.6	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)
SsRT	1.258	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.376	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.433	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.482	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

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Hazards by Location

Search Information

Coordinates: 47.1911, -122.2609

Elevation: 55 ft

Timestamp: 2021-05-20T16:46:53.955Z

Hazard Type: Wind

ASCE 7-16

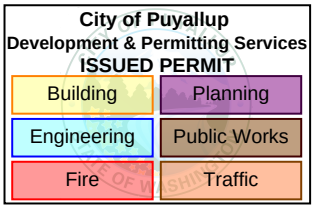
MRI 10-Year	67 mph
MRI 25-Year	73 mph
MRI 50-Year	78 mph
MRI 100-Year	82 mph
Risk Category I	92 mph
Risk Category II	97 mph
Risk Category III	104 mph
Risk Category IV	108 mph

ASCE 7-10

MRI 10-Year	72 mph
MRI 25-Year	79 mph
MRI 50-Year	85 mph
MRI 100-Year	91 mph
Risk Category I	100 mph
Risk Category II	110 mph
Risk Category III-IV	115 mph

ASCE 7-05

ASCE 7-05 Wind Speed	85 mph



The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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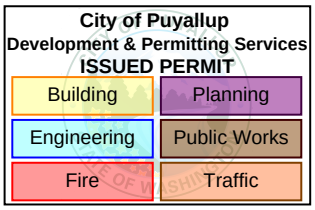
Design Criteria

Unit Weights	CU-1	$W_p := 1385$ *lbf*
Unit Dimensions	Width	$B := 117.81$ *in*
	Length	$L := 29.16$ *in*
	Height	$H := 71.625$ *in*



Snow $SL := 25$ *psf*

Seismic Risk Category II

Site Class D

Seismic Design Category D

$S_S := 1.258$ $F_a := 1.2$ per ASCE 7-16 Section 11.4.8

$S_1 := 0.433$

$S_{MS} := F_a \cdot S_S = 1.51$

$S_{DS} := \frac{2}{3} \cdot S_{MS} = 1.006$

ASCE 7-16 Chapter 13

$a_p := 2.5$

$R_p := 3.0$

$I_p := 1.00$

Building Height $h := 34.95$ *ft*

Attachment Height $z := h = 34.95$ *ft*

Seismic Force

$$F_{ph} := \frac{0.4 \cdot a_p \cdot S_{DS} \cdot W_p}{\left(\frac{R_p}{I_p}\right)} \cdot \left(1 + 2\left(\frac{z}{h}\right)\right) = \left(1.394 \cdot 10^3\right) \text{ lbf}$$

$F_{pmin} := 0.3 \cdot S_{DS} \cdot I_p \cdot W_p = 418.159$ *lbf*

$F_{pmax} := 1.6 \cdot S_{DS} \cdot I_p \cdot W_p = \left(2.23 \cdot 10^3\right)$ *lbf*

$F_{pv} := 0.2 \cdot W_p = 277$ *lbf*

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Design Criteria

Wind ASCE 7-16 Chapter 29.4.1

Exposure Category B

$V := 97$ *mph*

$K_z := 0.74$

$K_{zt} := 1.00$

$K_d := 0.85$

$K_e := 1.00$

$q_h := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot K_e \cdot V^2 = 15.151$

$q_h := q_h \cdot \textbf{psf} = 15.151$ ***psf***

$A_{fh} := B \cdot H = 58.598$ ***ft***^{2}

$GC_{rh} := 1.9$

$F_h := q_h \cdot (GC_{rh}) \cdot A_{fh} = (1.687 \cdot 10^3)$ ***lbf***

$A_{fv} := B \cdot L = 23.857$ ***ft***^{2}

$GC_{rv} := 1.5$

$F_v := q_h \cdot (GC_{rv}) \cdot A_{fv} = 542.166$ ***lbf***

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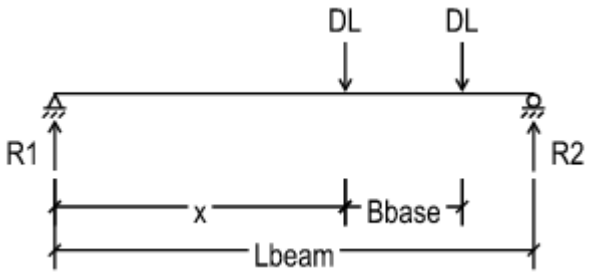
Beam

$L_{beam} := 10\ ft$

$B_{base} := 3.43\ ft$

$x := 6.57\ ft$

$DL := \frac{W_p}{2} = 692.5\ lbf$



Beam Reactions

$R_2 := \frac{DL \cdot x + DL \cdot (x + B_{base})}{L_{beam}} = (1.147 \cdot 10^3)\ lbf$

$R_1 := 2 \cdot DL - R_2 = 237.528\ lbf$

Per EOR shell drawings, steel joists designed for additional 1000 lb point load at any panel point along joist top chord

if $(R_1 < 1000\ lbf, \text{“OK”}, \text{“NO GOOD ”}) = \text{“OK”}$

if $(R_2 < 1000\ lbf, \text{“OK”}, \text{“NO GOOD ”}) = \text{“NO GOOD ”}$

See hand calculation analysis - Joist acceptable for point load

Connection

$h_{cent} := \frac{H}{2} + 18\ in = 4.484\ ft$

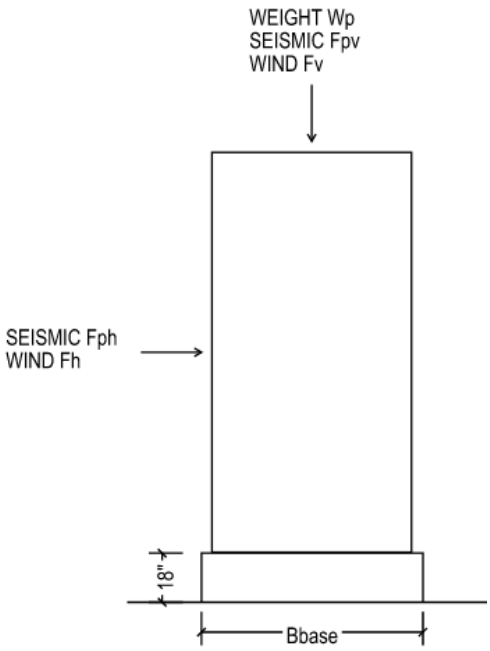
$W_p = (1.385 \cdot 10^3)\ lbf$

$F_{pv} = 277\ lbf$

$F_v = 542.166\ lbf$

$F_{ph} = (1.394 \cdot 10^3)\ lbf$

$F_h = (1.687 \cdot 10^3)\ lbf$



0.6D+0.7E

$M_o := 0.7 \cdot F_{ph} \cdot h_{cent} = (4.375 \cdot 10^3)\ lbf \cdot ft$

$M_r := 0.6 \cdot W_p \cdot \frac{B_{base}}{2} - 0.7 \cdot F_{pv} \cdot \frac{B_{base}}{2} = (1.093 \cdot 10^3)\ lbf \cdot ft$

$M_{net} := M_o - M_r = (3.283 \cdot 10^3)\ lbf \cdot ft$

Uplift Force

$F_u := \frac{M_{net}}{B_{base}} = 957.084\ lbf$

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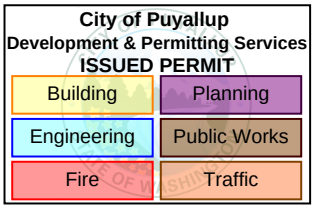

Connection

0.6D+0.6W

$M_o := F_h \cdot h_{cent} = 7564.39\ \textit{lbf} \cdot \textit{ft}$

$F_u := \frac{M_o}{B_{base}} = (2.205 \cdot 10^3)\ \textit{lbf}$

Uplift Force

$F_{vnet} := 0.6\ F_u + \frac{0.6\ F_v}{2} - \frac{0.6\ W_p}{2} = (1.07 \cdot 10^3)\ \textit{lbf}$

Horizontal Force

$F_{hnet} := \frac{F_h}{2} = 843.416\ \textit{lbf}$

Force Combination

$F_{net} := \sqrt{F_{vnet}^2 + F_{hnet}^2} = (1.363 \cdot 10^3)\ \textit{lbf}$

$\alpha := \operatorname{atan}\left(\frac{F_{vnet}}{F_{hnet}}\right) = 51.763\ \textit{deg}$

Curb to Structure Attachment

7/16" Dia Lag Screw - 2" Penetration to Wood Member

Load Duration Factor $C_D := 1.6$

Withdrawal $W_{screw} := C_D \cdot 342\ \frac{\textit{lbf}}{\textit{in}} \cdot 2\ \textit{in} = 1094.4\ \textit{lbf}$

Shear $Z_{perp} := C_D \cdot 190\ \textit{lbf} = 304\ \textit{lbf}$

$Z_\alpha := \frac{W_{screw} \cdot Z_{perp}}{W_{screw} \cdot (\sin(\alpha))^2 + Z_{perp} \cdot (\cos(\alpha))^2} = 420.268\ \textit{lbf}$

Uplift Force at Each Leg

$F := \frac{F_{net}}{2} = 681.366\ \textit{lbf}$

(2) Screws per Leg $\textbf{if}\left(F < 2 \cdot Z_\alpha, \text{“OK”}, \text{“NO GOOD ”}\right) = \text{“OK”}$

Unit to Stand Attachment - 1/2" Dia Bolt

$A_b := \pi \cdot (0.25\ \textit{in})^2 = 0.196\ \textit{in}^2$

$F_{nt} := 45\ \textit{ksi}$

$\Omega := 2.00$

$R_n := \frac{F_{nt} \cdot A_b}{\Omega} = 4417.865\ \textit{lbf}$ $\textbf{if}\left(F_{net} < R_n, \text{“OK”}, \text{“NO GOOD ”}\right) = \text{“OK”}$

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AHBL

Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

Land Surveyors

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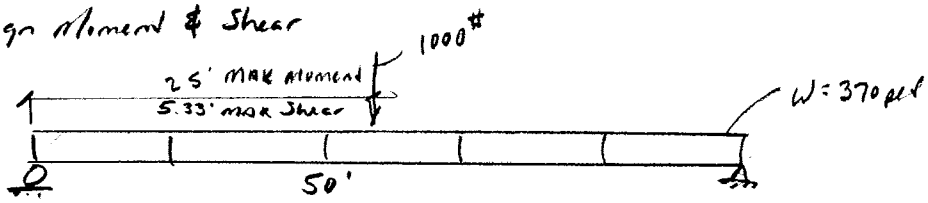
Review of 1st Loads

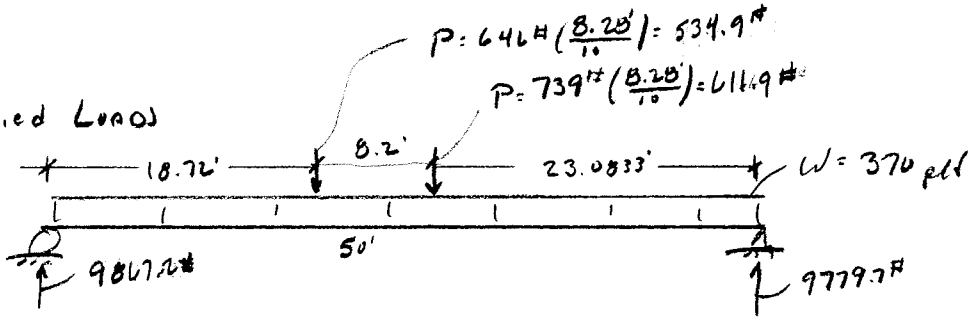
Design Moment & Shear



Max Moment $M = 370\,plf\left(\frac{50'^2}{8}\right) + \frac{1000(50')}{4} = 128.1\,k'$

Max Shear $V = 370\,plf\left(\frac{50'}{2}\right) + \frac{1000\#(44.67')}{50'} = 10.14\,k$

Applied Loads



Max Shear = 9867.2# < 10,140# O.K.

Max Moment = 9779.2# (24.778") − 370 plf (24.778")²/2 − 611.9# (1.695)

= 127,703.6 ft-# < 128,100 ft-# O.K.

Existing LH 1st Adequate for Support of New Mech Unit

If this does not meet with your understanding, please contact us in writing within seven days. THANK YOU.

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Project Title: Dawn Foods Rooftop Mechanical TI
Engineer: BN
Project ID: 2170393.20
Project Descr:

Wood Beam

Project File: panattoni corp center.ec6

LIC# : KW-06014847, Build:20.22.4.26 AHBL, INC (c) ENERCALC INC 1983-2022

DESCRIPTION: Mechanical Unit Support - CU-1

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

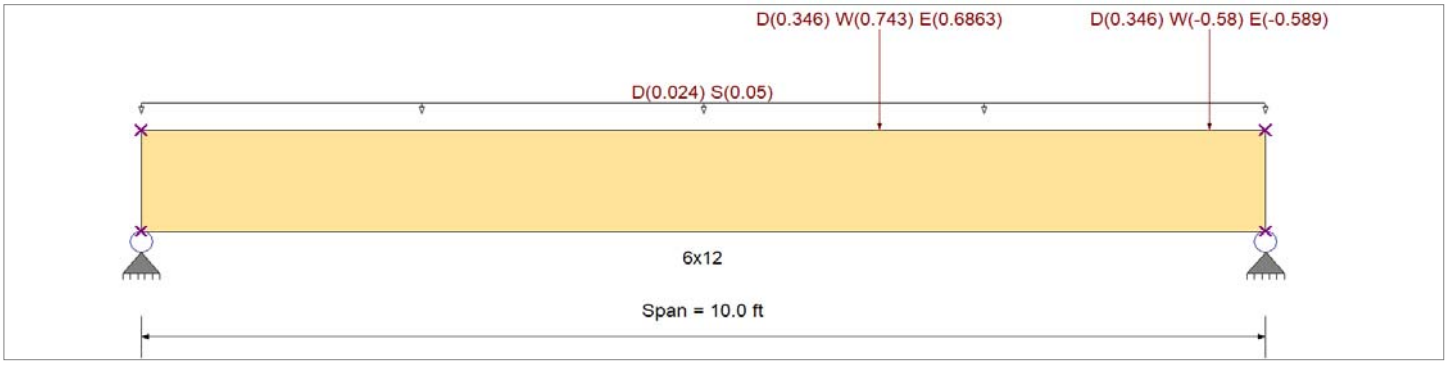
Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Beam Bracing : Completely Unbraced

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Point Load : D = 0.3460, W = 0.7430, E = 0.6863 k @ 6.570 ft
Uniform Load : D = 0.0240, S = 0.050 , Tributary Width = 1.0 ft, (Roof Loads)
Point Load : D = 0.3460, W = -0.580, E = -0.5890 k @ 9.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.376 : 1	Maximum Shear Stress Ratio	=	0.065 : 1
Section used for this span		6x12	Section used for this span		6x12
fb: Actual	=	389.44 psi	fv: Actual	=	13.41 psi
Fb: Allowable	=	1,035.00 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	6.533 ft	Location of maximum on span	=	9.051 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.080 in	Ratio =	1505 >=360	Span: 1 : W Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.155 in	Ratio =	774 >=180	Span: 1 : +D+0.750S+0.5250E
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios									Moment Values			Shear Values		
Segment Length	Span #	M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	M	fb	F'b	V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.337	0.053	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.32	272.83	810.00	0.36	8.60	162.00
+D+S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.376	0.065	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.88	389.44	1035.00	0.57	13.41	207.00
+D+0.750S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.348	0.059	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.74	360.29	1035.00	0.51	12.21	207.00
+D+0.60W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.317	0.055	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.21	457.08	1440.00	0.67	15.96	288.00
+D+0.450W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.285	0.049	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.99	411.02	1440.00	0.60	14.12	288.00
+D+0.750S+0.450W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

PRCTI20220873

Project Title: Dawn Foods Rooftop Mechanical TI
Engineer: BN
Project ID: 2170393.20
Project Descr:

Wood Beam

Project File: panattoni corp center.ec6

DESCRIPTION: Mechanical Unit Support - CU-1

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 10.0 ft	1	0.346	0.062	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.41	498.48	1440.00	0.75	17.73	288.00
+0.60D+0.60W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.242	0.043	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.68	347.95	1440.00	0.53	12.50	288.00
+D+0.70E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.326	0.057	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.27	468.85	1440.00	0.70	16.55	288.00
+D+0.750S+0.5250E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.352	0.063	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.45	507.30	1440.00	0.77	18.19	288.00
+0.60D+0.70E					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.0 ft	1	0.250	0.046	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.74	359.72	1440.00	0.55	13.12	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750S+0.5250E	1	0.1549	5.255		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.620	0.995
Overall MINimum	0.206	-0.063
D Only	0.325	0.745
+D+S	0.575	0.995
+D+0.750S	0.512	0.932
+D+0.60W	0.460	0.707
+D+0.450W	0.426	0.716
+D+0.750S+0.450W	0.614	0.904
+0.60D+0.60W	0.330	0.409
+D+0.70E	0.469	0.669
+D+0.750S+0.5250E	0.620	0.875
+0.60D+0.70E	0.339	0.371
S Only	0.250	0.250
W Only	0.226	-0.063
E Only	0.206	-0.109

CITYMULTI®

26-TON PURY-P312TSNU-A(-BS)

MITSUBISHI ELECTRIC
HEATING & AIR CONDITIONING

Job Name:

System Reference: Date:

208/230V OUTDOOR VRF HEAT RECOVERY SYSTEM

UNIT OPTION

- ☐ Standard Model PURY-P312TSNU-A
- ☐ Seacoast (BS) Model PURY-P312TSNU-A-BS

ACCESSORIES

- ☐ Twinning Kit (Required) CMY-R300NCBK
- ☐ BC Controller (Required) ..... for details see BC Controller Submittals
- ☐ Joint Kit ..... for details see Pipe Accessories Submittal
- ☐ Panel Heater Kit ..... for details see Panel Heater Kit Submittal
- ☐ Snow/Hail Guards Kit ..... for details see Snow/Hail Guards Kit Submittal

Specifications			System
Unit Type			PURY-P312TSNU-A(-BS)
Cooling Capacity (Nominal)		BTU/H	312,000
Heating Capacity (Nominal)		BTU/H	350,000
Net Weight		Lbs. [kg]	1,385 [628]
Refrigerant Piping Diameter	Liquid (High Pressure)	In. [mm]	1-1/8 [28.58] Brazed
	Gas (Low Pressure)	In. [mm]	1-5/8 [41.28] Brazed
Max. Total Refrigerant Line Length		Ft.	3,116
Max. Refrigerant Line Length (Between ODU & IDU)		Ft.	541
Max. Control Wiring Length		Ft.	1,640
Indoor Unit Connectable	Total Capacity		50.0~150.0% of outdoor unit capacity
	Model/Quantity		P04~P96/2.0~50.0
Sound Pressure Levels		dB(A)	67.0/69.0
Sound Power Levels		dB(A)	87.0/88.5
Compressor Operating Range			7.5% to 100.0%
AHRI Ratings (Ducted/Non-ducted)	EER		10.1/10.2
	IEER		21.4/20.5
	COP		3.2/3.36
	SCHE		20.6/23.8

Specifications			Module 1	Module 2
Unit Type			PURY-P168TNU-A(-BS)	PURY-P144TNU-A(-BS)
Cooling Capacity (Nominal)		BTU/H	168,000	144,000
Heating Capacity (Nominal)		BTU/H	188,000	160,000
Guaranteed Operating Range[1]	Cooling[2]	ºF [ºC]	23~126 [-5.0~52.0]	23~126 [-5.0~52.0]
Guaranteed Operating Range	Heating	ºF [ºC]	-13~60 [-25.0~15.5]	-13~60 [-25.0~15.5]
Extended Operating Range	Heating	ºF [ºC]	-18.0~60 [-18.0~15.5]	-18.0~60 [-18.0~15.5]
External Dimensions (H x W x D)		In. [mm]	71-5/8 x 68-15/16 x 29-3/16 [1,818 x 1,750 x 740]	71-5/8 x 48-7/8 x 29-3/16 [1,818 x 1,240 x 740]
Net Weight		Lbs. [kg]	739 [335]	646 [293]
External Finish			Pre-coated galvanized steel sheet (+powder coating for -BS type) [MUNSELL 5Y 8/1]	Pre-coated galvanized steel sheet (+powder coating for -BS type) [MUNSELL 5Y 8/1]
Electrical Power Requirements	Voltage, Phase, Hertz, Power Tolerance		208/230V, 3-phase, 60 Hz, ±10%	208/230V, 3-phase, 60 Hz, ±10%
Minimum Circuit Ampacity		A	61.0/57.0	52.0/48.0
Maximum Overcurrent Protection		A	100/90	80/70
Recommended Fuse Size		A	70/70	60/60
Recommended Minimum Wire Size		AWG [mm]	4/4 [21.2/21.2]	4/4 [21.2/21.2]
SCCR		kA	5	5
FAN[4]	Type x Quantity		Propeller fan x 2	Propeller fan x 2
	Airflow Rate	CFM	14,850	9,550
	External Static Pressure	In. WG	Selectable; 0.00, 0.12, 0.24, 0.32, In. WG; factory set to 0 In. WG	Selectable; 0.00, 0.12, 0.24, 0.32, In. WG; factory set to 0 In. WG
Compressor	Type x Quantity		Inverter scroll hermetic compressor x 1	Inverter scroll hermetic compressor x 1
Refrigerant	Type x Original Charge		R410A x 23 lbs + 12.0 oz [10.8 kg]	R410A x 23 lbs + 12.0 oz [10.8 kg]
Protection Devices	High Pressure Protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)	High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter Circuit (Comp./Fan)		Over-heat protection, Over-current protection	Over-heat protection, Over-current protection

NOTES:
Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)

[1]Harsh weather environments may demand performance enhancing equipment. Ask your Mitsubishi Electric representative for more details about your region
[2]For details on extended cooling operation range down to -10° F DB, see Low Ambient Kit Submittal
[3]When applying product below -4°F, consult your design engineer for cold climate application best practices, including the use of a backup source for heating
[4]Unit will continue to operate in extended operating range, but capacity is not guaranteed

Each individual module requires a separate electrical connection. Refer to electrical data for each individual module.

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

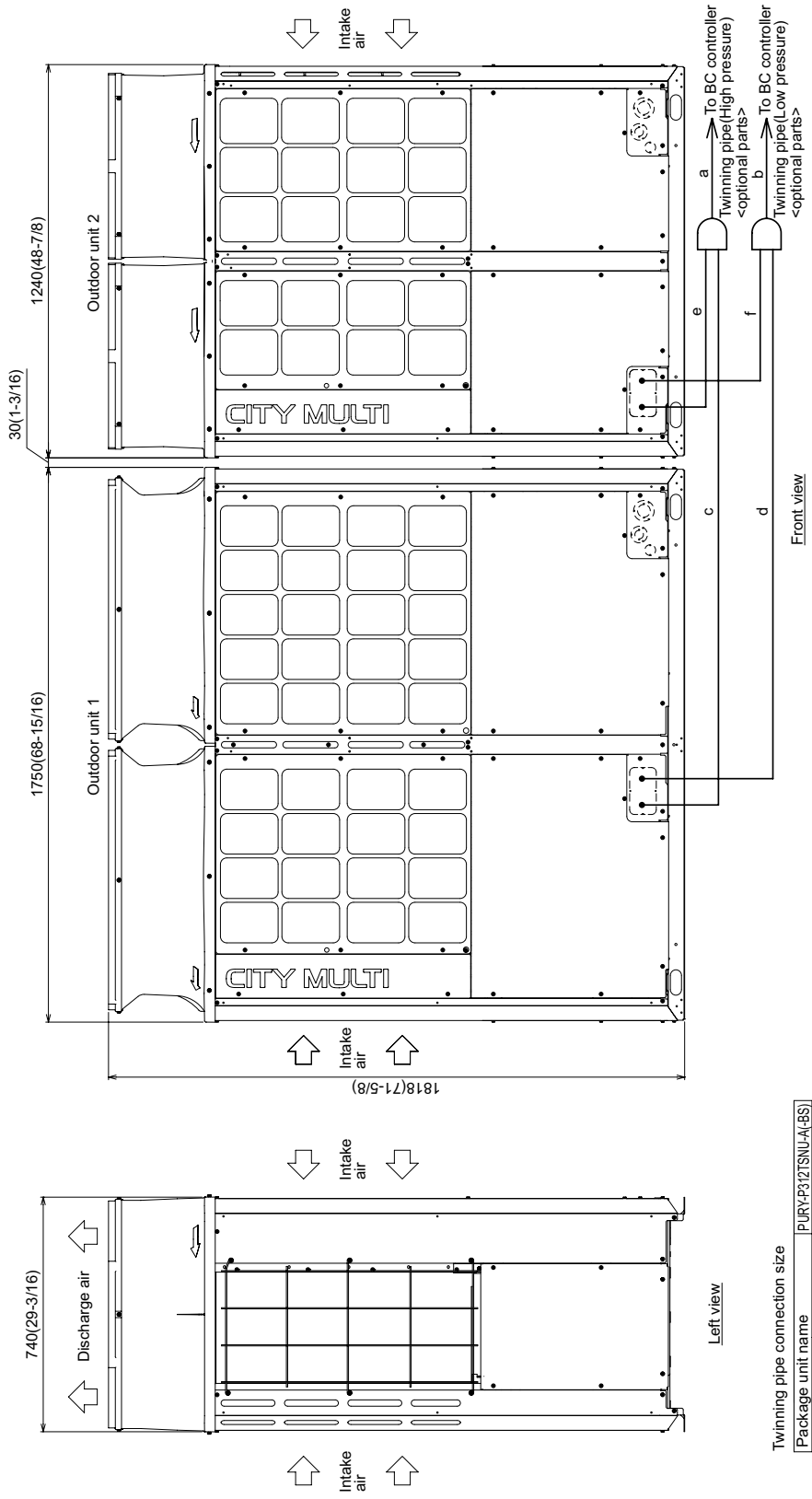
Building	Planning
Engineering	Public Works
Fire	Traffic

PRCTI20220873

OUTDOOR UNIT: PURY-P312TSNU-A(-BS) – DIMENSIONS

PURY-P312TSNU-A(-BS)

Unit: mm(in)



		Unit model	High pressure c or e	Low pressure d or f
Twinning pipe~Outdoor unit		P144	ø22.2(7/8)	ø28.58(1-1/8)
		P168	ø22.2(7/8)	ø28.58(1-1/8)

Twinning pipe connection size

Package unit name			PURY-P312TSNU-A(-BS)
Component unit name	Outdoor unit 1		PURY-P168TNU-A(-BS)
	Outdoor unit 2		PURY-P144TNU-A(-BS)
Outdoor Twinning Kit(optional parts)			CMY-R300NCBK
BC controller ~Twinning pipe	High pressure	a	ø28.58(1-1/8)
	Low pressure	b	ø41.28(1-5/8)

Note 1. Connect the pipes as shown in the figure above. Refer to the table above for the pipe size.
2. Twinning pipes should not be tilted more than 15 degrees from the horizontal plane.
Be sure to see the Installation Manual for details of Twinning pipe installation.
3. The pipe section before the Twinning pipe (section "a"and "b"in the figure) must have at least 500mm(19-11/16) of straight section (*including the straight pipe that is supplied with the Twinning pipe).
4. Only use the Twinning pipe by Mitsubishi (optional parts).

NOTES:
SEACOAST PROTECTION
Anti-corrosion Protection: A coating treatment is applied to condenser coil for protection from air contaminants.
Standard: Salt Spray Test Method - no unusual rust development to 480 hours.
Sea Coast (BS): Salt Spray Test Method (JRA 9002) - no unusual rust development to 960 hours.

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MODULE 1: PURY-P168TNU-A(-BS) – DIMENSIONS

PURY-P168TNU-A(-BS)

Unit: mm(in)

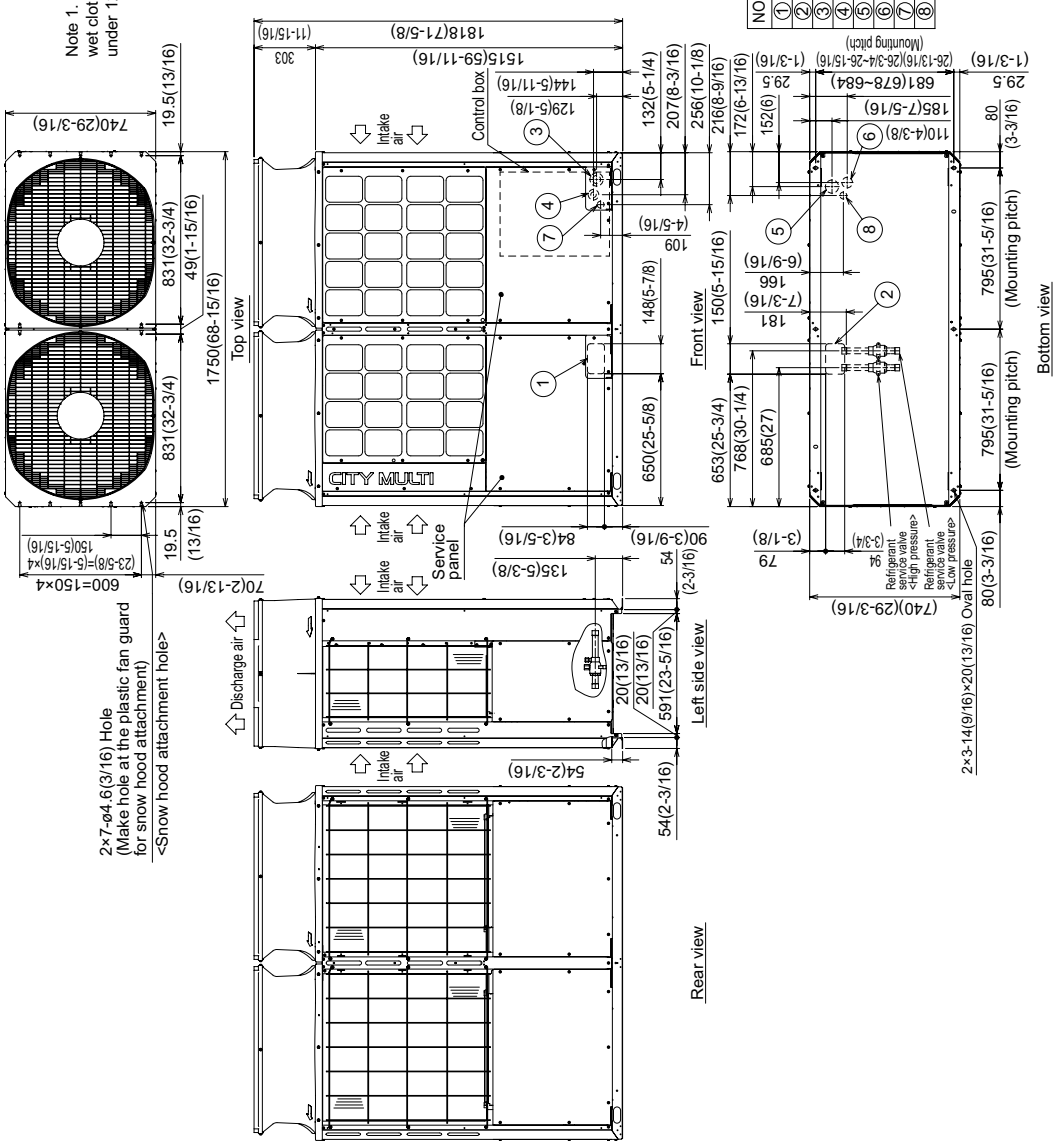
Note 1. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

Connecting pipe specifications

Model	Refrigerant pipe		Diameter Service valve	
	High pressure	Low pressure	High pressure	Low pressure
P168	ø22.2(7/8) Brazed *1	ø28.58(1-1/8) Brazed	ø28.58(1-1/8)	ø28.58(1-1/8)

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage		Specifications
①	For pipes	Front through hole	148(5-7/8) × 84(3-5/16) Knockout hole
②		Bottom through hole	150(5-15/16) × 94(3-3/4) Knockout hole
③	For wires	Front through hole	ø62.7(2-1/2) or ø34.5(1-3/8) Knockout hole
④		Front through hole	ø43.7(1-3/4) or ø22.2(7/8) Knockout hole
⑤		Bottom through hole	ø65(2-9/16) Knockout hole
⑥		Bottom through hole	ø52(2-1/16) Knockout hole
⑦	For transmission cables	Front through hole	ø34(1-3/8) Knockout hole
⑧		Bottom through hole	ø34(1-3/8) Knockout hole



NOTES:
SEACOAST PROTECTION
Anti-corrosion Protection: A coating treatment is applied to condenser coil for protection from air contaminants.
Standard: Salt Spray Test Method - no unusual rust development to 480 hours.
Sea Coast (BS): Salt Spray Test Method (JRA 9002) - no unusual rust development to 960 hours.

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MODULE 2: PURY-P144TNU-A(-BS) – DIMENSIONS

PURY-P96,120,144TNU-A(-BS)

Unit: mm(in)

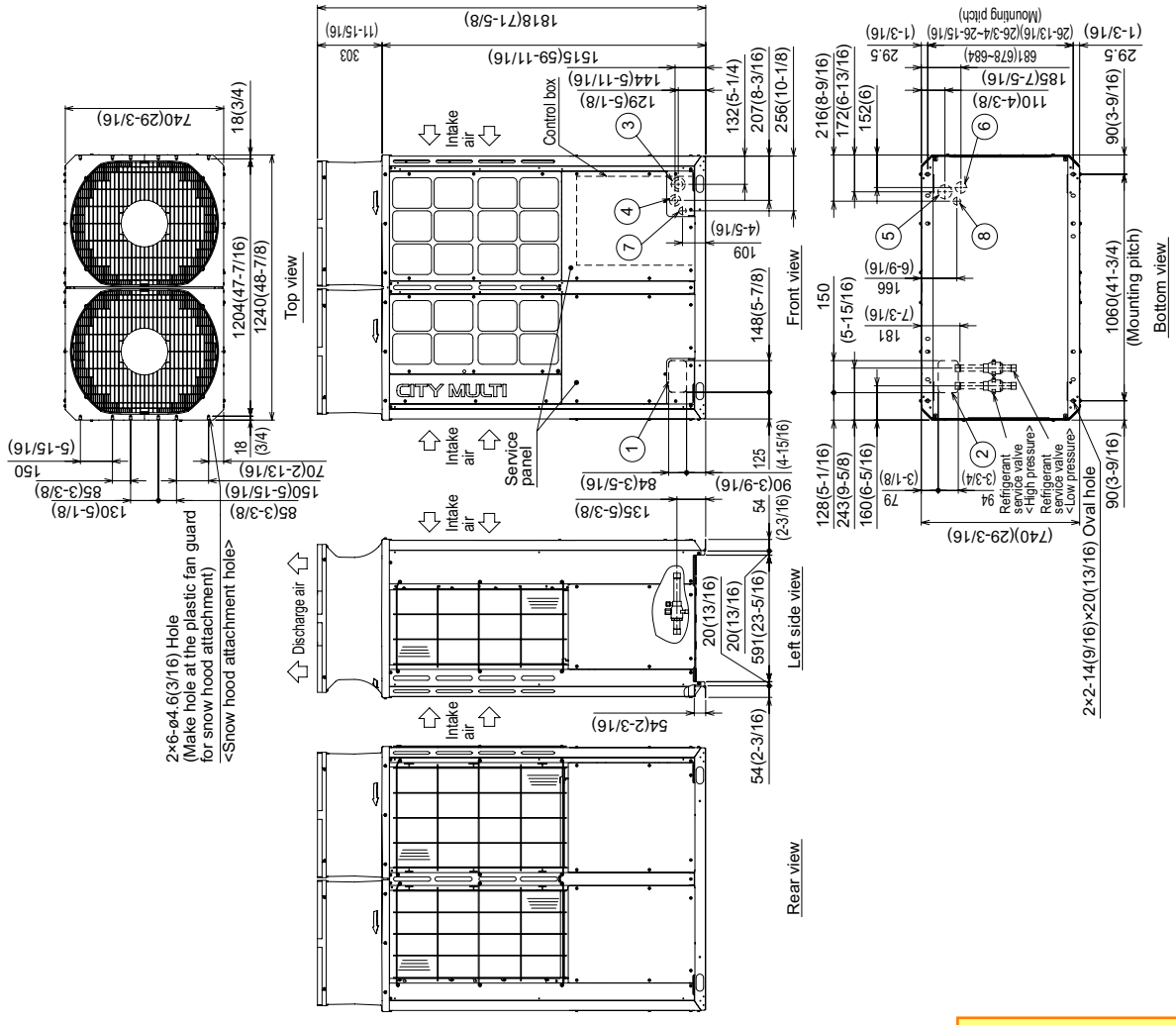
Note 1. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
P96	ø19.05(3/4) Brazed *1	ø22.2(7/8) Brazed *1	ø28.58(1-1/8)	ø28.58(1-1/8)
P120				
P144	ø22.2(7/8) Brazed *1	ø28.58(1-1/8) Brazed		

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage	Specifications
①	For pipes: Front through hole	148(5-7/8) × 84(3-5/16) Knockout hole
②	For pipes: Bottom through hole	150(5-15/16) × 94(3-3/4) Knockout hole
③	For wires: Front through hole	ø62.7(2-1/2) or ø34.5(1-3/8) Knockout hole
④	For wires: Front through hole	ø43.7(1-3/4) or ø22.2(7/8) Knockout hole
⑤	For wires: Bottom through hole	ø65(2-9/16) Knockout hole
⑥	For wires: Bottom through hole	ø52(2-1/16) Knockout hole
⑦	For transmission cables: Front through hole	ø34(1-3/8) Knockout hole
⑧	For transmission cables: Bottom through hole	ø34(1-3/8) Knockout hole



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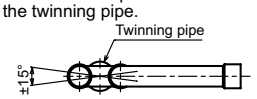
NOTES:
SEACOAST PROTECTION
Anti-corrosion Protection: A coating treatment is applied to condenser coil for protection from air contaminants.
Standard: Salt Spray Test Method - no unusual rust development to 480 hours.
Sea Coast (BS): Salt Spray Test Method (JRA 9002) - no unusual rust development to 960 hours.

TWINNING KIT: CMY-R300NCBK – DIMENSIONS

CMY-R300NCBK

Unit: mm (in.)

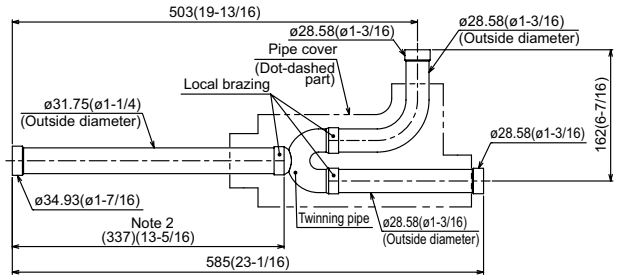
Note:
1. Refer to the figure below for the installation position of the twinning pipe.



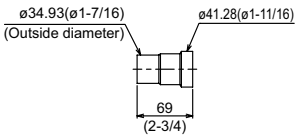
Slope of the twinning pipes are at an angle within ±15° to the horizontal plane.

2. Use the attached pipe to braze the port-opening of the twinning pipe.
3. Pipe diameter is indicated by inside diameter.

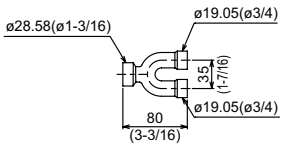
Low-pressure twinning pipe



<Deformed pipe(Accessory)>



High-pressure twinning pipe



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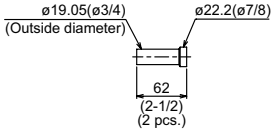
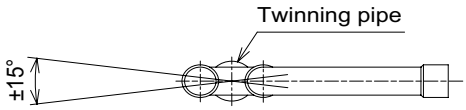


Note 1. Reference the attitude angle of the twinning pipe below the fig.



The angle of the twinning pipe is within ±15° against the horizontal plane.

2. Use the attached pipe to braze the port-opening of the twinning pipe.
3. Pipe diameter is indicated by inside diameter.
4. Only use the Twinning pipe by Mitsubishi (optional parts) .

1340 Satellite Boulevard Suwanee, GA 30024
Toll Free: 800-433-4822 www.mehvac.com

FORM# PURY-P312TSNU-A - 202204

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