



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY
APPLICATION #: OSP - 0326

OSHPD Special Seismic Certification Preapproval (OSP)

Type: [] New [X] Renewal

Manufacturer Information

Manufacturer: United Metal Products, Inc
Manufacturer's Technical Representative: Jeremiah Graaff
Mailing Address: 1920 E. Encanto Drive, Tempe, AZ 85281
Telephone: 480-968-9550 Email: j.graaff@unitedmetal.com

Product Information

Product Name: Custom Air Conditioning Units
Product Type: Custom Air Conditioning Unit
Product Model Number: Various (See Attachment)
General Description: Custom air conditioning unit with internal and external components as shown in the attachment.
Mounting Description: Rigid base mounted.

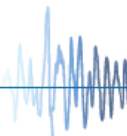
Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc
Contact Person: Galen Reid
Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702
Telephone: 844-TRU-0200 Email: greid@structint.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: [Signature] Date: 4/2/2019
Title: Senior Engineer Company Name: TRU Compliance, by Structural Integrity Associates, Inc

Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: TRU Compliance, by Structural Integrity Associates, Inc

Name: Andy Coughlin, SE California License Number: S6082

Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702

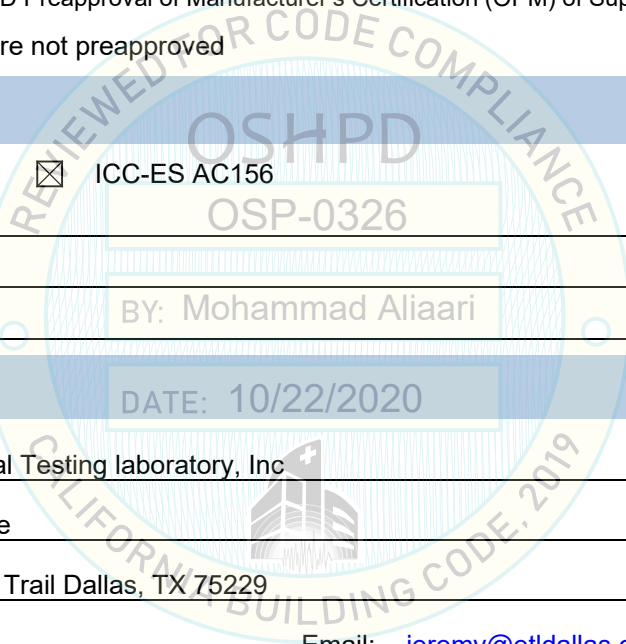
Telephone: 844-TRU-0200 Email: acoughlin@structint.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
- Other (Please Specify): _____



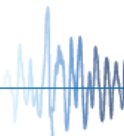
Testing Laboratory

Company Name: Environmental Testing laboratory, Inc

Contact Name: Jeremy Lange

Mailing Address: 11034 Indian Trail Dallas, TX 75229

Telephone: 972-247-9657 Email: jeremy@etldallas.com





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 1.88

S_{DS} (Design spectral response acceleration at short period, g) = 2.50

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See Attachments

Overall dimensions and weight (or range thereof) = See Attachments

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) = _____

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = by: Mohammad Aliaari

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2015: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): Product Matrices

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: M. Aliaari

Date: October 22, 2020

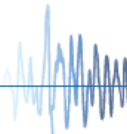
Print Name: Mohammad Aliaari

Title: Senior Structural Engineer

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.50

z/h = 1.0

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1801527-CR-001 R1



United Metal
Products®



Manufacturer: United Metal Products, Inc	TABLE 1
Model Line: Custom Air Handling Units	

Certified Product Construction Summary:
Units shall be constructed in accordance with United Metal typical seismic details. 2" cabinet thickness with aluminum, carbon steel, or stainless steel construction according to Table 2. Cross bracing as indicated in certified drawings.

Certified Options Summary:
Indoor or outdoor.
Units within dimensions listed below certified for interior section, end section, or enclosed section.
See Tables 2 through 17 for a full list of certified options.

Mounting Configuration:
Base mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT	
		Depth	Width	Height				
Custom Air Handling Units	Enclosure Sections - 4 Walls ⁴ (no walls removed)	18	24	18	-	Lower Limit, 50psf max	Extrap.	
		...	...	...	...		Extrap.
		188	112	86	7,300	UUT: Carbon steel, 50 psf	3	
		...	...	...	...		Interp.
		280	112	113	14,543	UUT: Carbon steel, 67 psf	4	
		...	...	...	...		Interp.
	Enclosure Sections - 3 Walls ² (inlet or outlet wall removed)	112 ⁴	244 ⁴	113	-	Upper Limit; 67 psf max.	Interp.	
		18	24	18	-	Lower Limit, 79 psf max.	Extrap.	
		...	...	...	...		Extrap.
		112	244	140	15,050	UUT: Stainless steel, 79 psf	2 ³	
	Enclosure Sections - 2 Walls ² (inlet and outlet walls removed)	...	...	...	...		Interp.
		112 ¹	244	140	-	Upper Limit; 79 psf max.	Interp.	
		18	24	18	-	Lower Limit, 80 psf max.	Extrap.	
		...	...	...	...		Extrap.
			112	244	140	15,181	UUT: Aluminum, 80 psf	1 ³
				Extrap.
			112 ¹	244	140	-	Upper Limit; 80 psf max.	Extrap.

1. Max section depth is 280" if width ≤ 112" and height ≤ 113".
2. See representative unit drawings for bracing requirements and overall size limits for multi-section AHU's.
3. Transverse bracing tested in place of removed end wall(s).
4. For 4-wall units, see drawing #009. Max allowed width ≤ 280", if depth ≤ 112" and height ≤ 113". Max allowed depth ≤ 280", if width ≤ 112" and height ≤ 113".

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



United Metal
Products®



Manufacturer: United Metal Products, Inc Model Line: Custom Air Handling Units		Table Description: AHU Construction			TABLE 2	
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.5g \quad z/h = 1.0$ $S_{DS} = 2.5g \quad z/h = 0.0$	
					$I_p = 1.5$	
Component Type	Manufacturer	Model	Description	Notes	UUT	
Base Frame	United Metal Products	6" Height	11ga Structural Tube or 12ga Fabricated Tube; Carbon Steel or Stainless Steel	UUT: stainless steel, fabricated tube	2	
		...		UUT: galv. carbon steel, structural tube	1, 3	
		8" Height		Interp.		
Decking	United Metal Products	16 ga	Aluminum, Carbon Steel or Stainless Steel Decking with 18-20ga Bottom Liners;	UUT: galv. carbon steel, structural tube	4	
		...		Extrap.		
		14 ga		UUT: Stainless steel	2	
		...		UUT: Galv. carbon steel	3, 4	
		12 ga		Interp.		
Wall/Roof Framing	United Metal Products	2" Enclosure Thickness	1"x2"x0.063" Tube Frame; Carbon Steel or Stainless Steel	UUT: Aluminum (.080")	1	
				UUT: Stainless steel	2	
Walls and Roof	United Metal Products	2" Typical Panel (Exterior and Interior Panels)	22-16ga Aluminum, Carbon Steel or Stainless Steel	UUT: Galv. carbon steel	1, 3, 4	
		2" Composite Panel (Exterior Panel with or without Interior liner)		UUT: 0.04" Aluminum panels with foam insulation	1	
				UUT: 0.04" Aluminum panel with perf liners. Foam and fiberglass insulation	1	
				UUT: 18ga SS panel with and without 20ga SS internal liners and fiberglass insulation	2	
				UUT: 22ga galv. carbon steel panels and liners with foam insulation	3	
UUT: 16ga galv. carbon steel panels with 20ga liners. Foam insulation	4					

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer:	United Metal Products, Inc	Table Description:	Fans - Individual / Array	TABLE 3
Model Line:	Custom Air Handling Units			

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5 g \quad z/h = 1.0$	$I_P = 1.5$
		$S_{DS} = 2.5 g \quad z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
MPQN/MPQS Housed Plenum Array Direct Drive (Twin City)	122	23	20	23	290	Carbon Steel Housing	UUT: AL wheel tested, 2Wx3H array	2
	150	25.4	21	25.4	350		Interp.	
	165	28.1	23.6	28.1	485		Interp.	
	182	31.8	27.4	31.8	675		Interp.	
	200	34.5	30	34.5	765		Interp.	
	222	39.8	33.4	39.8	855		Interp.	
	245	43.3	36.8	43.3	1,170		Interp.	
	270	46.9	40.5	46.9	1,400		UUT: AL wheel tested, 1Wx2H array	1
EPF/EPQ - Belt Drive (Twin City)	122	20	13.8	20	295	Carbon Steel Housing	UUT: AL wheel tested, single fan	3
	150	22	15.8	22	375		Interp.	
	165	24	17	24	465		Interp.	
	182	26	19	26	605		Interp.	
	200	29	21.4	29	650		Interp.	
	222	32	23	32	765		Interp.	
	245	34	25.3	34	975		Interp.	
	270	38	27.3	38	1,210		Interp.	
	300	42	30.5	42	1,500		Interp.	
	330	46	33.8	46	1,735		Interp.	
	365	51	36.6	51	2,110		Interp.	
	402	56	39.5	56	2,355		Interp.	
	445	62	43.6	62	2,845		Interp.	
490	68	47.1	68	3,090	UUT: AL wheel tested, single fan	4		

Note: Dimensions and weights represent individual fan cells. Fan arrays may not exceed tested C.G. or weight.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer:	United Metal Products, Inc	Table Description:	Fans - Individual / Array	TABLE 3
Model Line:	Custom Air Handling Units			

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
EPFN/EPQN - Direct Drive (Twin City)	122	20	24.1	20	235	Carbon Steel Housing	UUT: AL wheel tested, single fan	3
	150	22	25.8	22	290		Interp.	
	165	24	27.7	24	370		Interp.	
	182	26	32.1	26	490		Interp.	
	200	29	33.9	29	515		Interp.	
	222	32	40.4	32	580		Interp.	
	245	34	42.3	34	745		Interp.	
	270	38	45.7	38	945		Interp.	
	300	42	48.4	42	1,205		Interp.	
	330	46	52.6	46	1,435		Interp.	
	365	51	57.3	51	1,775		Interp.	
	402	56	59.8	56	1,990		Interp.	
	445	62	64.6	62	2,470		Interp.	
	490	68	67.8	68	2,735		UUT: AL wheel tested, single fan	4
BAE DWDI - Belt Drive (Twin City)	122	28.6	19.8	23.2	380	Carbon Steel Housing	UUT: AL wheel tested, single fan	3
	135	30.6	21.9	25.5	460		Interp.	
	150	33.1	24.3	28.1	505		Interp.	
	165	35.6	26.8	30.9	615		Interp.	
	182	38.5	29.7	34.1	885		Interp.	
	200	42.1	32.6	37.4	1,065		Interp.	
	222	46.9	36.3	41.5	1,295		Interp.	
	245	50.8	40	45.9	1,525		Interp.	

Note: Dimensions and weights represent individual fan cells. Fan arrays may not exceed tested C.G. or weight.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



United Metal
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Manufacturer: United Metal Products, Inc	Table Description: Fans - Individual / Array	TABLE 3
Model Line: Custom Air Handling Units		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g \quad z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g \quad z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
BAE DWDI - Belt Drive (Twin City)	270	54.8	44.1	50.6	1,925	Carbon Steel Housing		Interp.
	300	59.1	49.1	57.8	2,525		Interp.	
	330	63.1	54.1	63.6	2770		Interp.	
	365	68.9	60	69.6	3395		Interp.	
	402	74.8	66.2	77.1	4015		Interp.	
	445	80.4	73.1	84.1	4835		Interp.	
	490	90.6	80.7	92.9	5225		UUT: AL wheel tested, single fan	4
HPA Housed Plenum Array - Direct Drive (Greenheck)	15	29	29	31	400	Carbon Steel Housing	UUT: AL wheel tested, 2Wx3H array	2
	16	31.5	31.5	35.9	440		Interp.	
	18	34.4	34.4	37.1	570		Interp.	
	20	37.3	37.3	38.5	620		Interp.	
	22	41	41	41.1	695		Interp.	
	24	44.8	44.8	42.6	905		Interp.	
	27	48.9	48.9	46.5	1150		UUT: AL wheel tested, 1Wx2H array	1
Compact Plenum Fan Direct Drive (United Metal Products)	18	20	25	25	115	Carbon Steel Housing		Extrap.
	20	20	27	27	120		UUT: AL wheel tested, single fan	3
	22	22	29	29	155		Interp.	
	24	24	32	32	225		Interp.	
	27	25	34	34	280		UUT: AL wheel tested, single fan	3
Prop Fans - Direct Drive (United Metal Products)	18	26	22	22	160	Carbon Steel Housing		Extrap.
	20	26	24	24	160		UUT: composite wheel tested, single fan	3
	22	26	26	26	230		Interp.	

Note: Dimensions and weights represent individual fan cells. Fan arrays may not exceed tested C.G. or weight.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



United Metal
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Manufacturer:	United Metal Products, Inc	Table Description: Fans - Individual / Array	
Model Line:	Custom Air Handling Units		TABLE 3

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g$ $z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g$ $z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Prop Fans - Direct Drive (United Metal Products)	24	26	28	28	230	Carbon Steel Housing		Interp.
	27	27	31	31	250		Interp.	
	30	27	34	34	255		Interp.	
	33	27	37	37	260		Interp.	
	36	28	40	40	370		Interp.	
	40	28	44	44	370		Interp.	
	44	28	46	46	375		Interp.	
	48	28	52	52	395		UUT: composite wheel tested, single fan	3
Prop Fans - Belt Drive (United Metal Products)	18	28	22	22	165	Carbon Steel Housing		Extrap.
	20	28	24	24	165		Extrap.	
	22	28	26	26	235		Extrap.	
	24	28	28	28	235		Extrap.	
	27	29	31	31	260		Extrap.	
	30	29	34	34	260		UUT: composite wheel tested, single fan	3
	33	29	37	37	265		Interp.	
	36	30	40	40	375		Interp.	
	40	30	44	44	375		Interp.	
	44	30	46	46	380		Interp.	
48	30	52	52	400	UUT: composite wheel tested, single fan	3		

Note: Dimensions and weights represent individual fan cells. Fan arrays may not exceed tested C.G. or weight.

**SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX**

1801527-CR-001 R1



**United Metal
Products®**



Manufacturer:	United Metal Products, Inc	Table Description: Fan Motors	TABLE 4
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Component Type	Manufacturer	Model	Description	Notes	UUT
Fan Motors (TEFC or ODP)	Baldor/Reliance	0.5 HP	208V - 460V, 3-phase (TEFC or ODP)	Weight: 41 lb	Extrap.
		...		Extrap.	
		0.75 HP		Weight: 53 lb; ODP	3
		1 HP		Weight: 64 lb; TEFC/ODP	2
		1.5 HP		Weight: 100 lb; ODP	3
		3 HP		Weight: 175 lb; ODP	3
		...		Interp.	
		5 HP		Weight: 193 lb; TEFC/ODP	1,3,2
		...		Interp.	
		10 HP		Weight: 282 lb; ODP	1
	...	Interp.			
	50 HP	Weight: 858 lb; ODP	4		
	TECO/ Westinghouse	0.5 HP	208V - 460V, 3-phase (TEFC or ODP)	Weight: 45 lb	Extrap.
		...		Extrap.	
		1 HP		Weight: 70 lb; TEFC/ODP	2
		1.5 HP		Weight: 80 lb; TEFC/ODP	2
		3 HP		Weight: 198 lb; ODP	3
		...		Interp.	
		5 HP		Weight: 215 lb; TEFC	1
		...		Interp.	
10 HP		Weight: 312 lb; ODP		1	
...		Interp.			
50 HP	Weight: 948 lb; TEFC	4			

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer:	United Metal Products, Inc	Table Description: Coils	TABLE 5
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g$ $z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g$ $z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Coils (RAE Corp)	Water Coils (Cold/Hot; Stacked 2-high max)	1 Row	12	12	17	Copper Tubing and Header. Aluminum or Copper Fins		Extrap.
		...						Extrap.
		2 Row	16	13.5	35		UUT: AL fins	3
		...						Interp.
		8 Row	226	45	1871		UUT: Copper fins (stacked - top)	1
		...						Interp.
		8 Row	226	78	2200	Copper Tubing and Header. Aluminum Fins	UUT: AL fins (stacked - bottom)	1
	Evaporator Coils (Stacked 3-high max)	1 Row	12	12	18	Copper Tubing and Header. Aluminum or Copper Fins		Extrap.
		...						Extrap.
		2 Row	16	13.5	38		UUT: Copper fins	3
		...						Interp.
		8 Row	226	24	1056		UUT: Copper fins (stacked - top)	2
		...						Interp.
		8 Row	226	36	1358		Copper Tubing and Header. Aluminum Fins	UUT: AL fins (stacked - middle)	2
...							Interp.	
	8 Row	226	60	1746		UUT: AL fins (stacked - bottom)	2	

Note: Single, double or triple stacked coil configurations. Uncoated or corrosion resistant coating. Coils may use hot water, cold water or refrigerant as the heat transfer medium. Coil cases installed with UMP bulkhead wall, either as a single coil or with multiple coils stacked.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer:	United Metal Products, Inc	Table Description: Damper, Louver, and Damper Actuator	TABLE 6
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT	
		Depth	Width	Height					
Backdraft Dampers (Greenheck)	EM32	3.125	6	6	8	Aluminum		Extrap.	
		...						Extrap.	
		3.125	29	29	95		UUT: parallel blades	2	
		...						Interp.	
Backdraft Dampers (Ruskin)	BD6	3.125	47	47	140	Aluminum	UUT: parallel blades	1	
		2.25	6	6	8			Extrap.	
		...						Extrap.	
		2.25	23	23	80		UUT: parallel blades	3	
Dampers (Ruskin)	CD 50	...				Aluminum		Interp.	
		2.25	47	47	140		UUT: opposed blades	3	
		5	5	5	5			Extrap.	
		...						Extrap.	
	CD 60		5	12	12	5	Carbon Steel	UUT: opposed blades	3
			...						Interp.
			5	60	72	120		UUT: opposed blades	2
			5	5	5	5			Extrap.
		...						Extrap.	
		5	12	12	30		UUT: parallel blades	3	
		...						Interp.	
		5	60	72	210		UUT: parallel blades	4	

*Multiple damper and/or louvers and/or actuators may be conjoined to achieve larger sizes.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



United Metal
Products®



Manufacturer:	United Metal Products, Inc	Table Description: Damper, Louver, and Damper Actuator	
Model Line:	Custom Air Handling Units		TABLE 6

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT	
		Depth	Width	Height					
Louvers (Ruskin)	ELF811DD	5	5	5	5	Aluminum		Extrap.	
		...							Extrap.
	L375D	5	60	72	120	Carbon Steel		2	
		...							Extrap.
		5	60	72	210				4
Actuators - Spring Return 24V/120V (Siemens)	GMA					Power or spring return made of die cast aluminum alloy housing.	UUT: 62 lb-in tested GMA161.1P	3	
	GCA						UUT: 142 lb-in tested GCA121.1P	2	
Actuators - Non-Spring Return 24V/120V (Siemens)	GDE					Power or spring return made of die cast aluminum alloy housing.	UUT: 44 lb-in tested GDE131.1P	3	
	GLB						88 lb-in	Interp.	
	GEB						132 lb-in	Interp.	
	GBB						177 lb-in	Interp.	
	GIB						UUT: 310 lb-in tested GIB 161.1P	4	

*Multiple damper and/or louvers and/or actuators may be conjoined to achieve larger sizes.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer:	United Metal Products, Inc	Table Description: Filters	TABLE 7
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g \quad z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g \quad z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT	
		Depth	Width	Height					
Front Withdrawal Filter Frame (Camfil Farr)	Flat or Magna-Frame	3	12	12		Frame: Carbon Steel or Stainless Steel		Extrap.	
		...					Extrap.		
		3	12	24			UUT: Carbon Steel & Stainless Frames	2	
		...					Interp.		
		3	24	24			UUT: Carbon Steel & Stainless Frames	2	
	V-Bank	3	12	12			Frame: Carbon Steel or Stainless Steel		Extrap.
		...						Extrap.	
		3	12	24				UUT: Carbon Steel & Stainless Frames	2
		...						Interp.	
		3	24	24				UUT: Carbon Steel & Stainless Frames	2
Front and/or Side withdrawal filter frame (United Metal Products)	Flat	1	12	12		Frame: Carbon Steel		Extrap.	
		...					Extrap.		
		1	12	24			UUT: Carbon Steel	2	
		...					Interp.		
		1	24	24			UUT: Carbon Steel	2	
		...					Interp.		
		4	12	24			UUT: Carbon Steel	2	

¹ Filter media: metal, glass fiber or synthetic with filtration efficiencies equivalent to MERV 2 through MERV 15.
² Bag and Rigid Filters. 2" and 4" panel type. HEPA Filters 95%-99.999% Efficiency.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



United Metal
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Manufacturer: United Metal Products, Inc	Table Description: Filters	TABLE 7
Model Line: Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Front and/or Side withdrawal filter frame (United Metal Products)	Flat	...			...	Frame: Carbon Steel	UUT: Galvanized Steel tested	Interp.
		4	24	24				2
	V-Bank	V-Bank	2	12	12	...	Frame: Aluminum, Carbon Steel, or Stainless Steel	UUT: Aluminum & Stainless Frames
			2	12	24			2
			2	24	24			Interp.
			2	24	24			UUT: Aluminum & Stainless Frames
			4	12	24			Interp.
			4	24	24			UUT: Carbon Steel
			4	24	24			Interp.
			4	24	24			UUT: Carbon Steel

¹ Filter media: metal, glass fiber or synthetic with filtration efficiencies equivalent to MERV 2 through MERV 15.
² Bag and Rigid Filters. 2" and 4" panel type. HEPA Filters 95%-99.999% Efficiency.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



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Manufacturer:	United Metal Products, Inc	Table Description:	Pumps	TABLE 8
Model Line:	Custom Air Handling Units			

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5 g$ $z/h = 1.0$	$I_P = 1.5$
		$S_{DS} = 2.5 g$ $z/h = 0.0$	

Component Type	Manufacturer	Model	Description	Notes	UUT	
Pumps	BJM (R Series)	R100	0.15	13	Stainless motor housing and cast iron pump. 115v & 460v	Extrap.
		R250	0.33	32		1
		R400	0.5	33		Interp.
		R400D	0.5	33		Interp.
		R750	1	68		Interp.
		R08	1	66		Interp.
		R15	2	68		1
	Ebara 3U/CDU Series	CDU70/1	0.75	41	Stainless casing, impeller and shaft. 115v & 460v	3
		CDU70/3	1.5	50		Interp.
		CDU70/5	2	58		Interp.
		CDU120/1	1	46		Interp.
		CDU120/3	1.5	50		Interp.
		CDU120/5	3	66		Interp.
		CDU200/1	0.5	50		Interp.
		CDU200/3	3	65		Interp.
		CDU200/5	3	65		Interp.
		3U-32-125	3	100		Interp.
	3U-32-160A	5	110	3		
	Goulds LSP Series	LSP0311F	0.33	11	Stainless motor casing and shaft. 115v & 460v	1
		LSP0711F	0.75	15		1

* Manual and actuated valves per Table 8. Submersible or end suction type.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	Table Description: Pumps	TABLE 8
Model Line: Custom Air Handling Units		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g$ $z/h = 1.0$	$I_P = 1.5$
		$S_{DS} = 2.5g$ $z/h = 0.0$	

Component Type	Manufacturer	Model	Description	Notes	UUT	
Pumps	Goulds	1 MC/MS 1	0.5	40	Cast iron housing with Stainless impeller. 115v & 460v	3
		2 MC/MS 1	0.5	41		Interp.
		3 MC/MS 1	0.5	43		Interp.
		1 MC/MS 1	0.75	43		Interp.
		2 MC/MS 1	0.75	44		Interp.
		3 MC/MS 1	0.75	46		Interp.
		1 MC/MS 1	1	47		Interp.
		2 MC/MS 1	1	48		Interp.
		3 MC/MS 1	1	50		Interp.
		1 MC/MS 1	1.5	50		Interp.
		2 MC/MS 1	1.5	51		Interp.
		3 MC/MS 1	1.5	53		Interp.
		1 MC/MS 1	2	52		Interp.
		2 MC/MS 1	2	53		Interp.
		3 MC/MS 1	2	55		Interp.
		1 MC/MS 1	3	58		Interp.
		2 MC/MS 1	3	59		Interp.
3 MC/MS 1	3	61	3			

*Manual and actuated valves per Table 8. Submersible or end suction type.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	Table Description: Valves and Valve Actuators	TABLE 9
Model Line: Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5 g$ $z/h = 0.0$

Component Type	Manufacturer	Model	Description	Notes	UUT	
Valves	BRAY	ST 05-2-...	2-way ST model ball valves. Manual and actuated valves.	UUT: ST 05-2-004	1	
		ST 75-2-...			Interp.	
		ST 1-2-...			Interp.	
		ST 125-2-...			Interp.	
		ST 150-2-...			Interp.	
		ST 2-2-...			Interp.	
		ST 250-2-...			Interp.	
		ST 3-2-...			Interp.	
		ST 05-3-...			Interp.	
		ST 75-3-...			Interp.	
		ST 1-3-...		3-way ST model ball valves. Manual and actuated valves.		Interp.
		ST 125-3-...				Interp.
		ST 150-3-...				Interp.
		ST 2-3-...				Interp.
					ST 250-3-...		UUT: ST 250-3-100	1
Actuators	BRAY	DM24-35	DM/DCMS		1	
		...			Interp.	
		DM24-70			1	

* Brass construction. PVC, CPVC, copper and stainless steel piping (see UUT #1 for more information).

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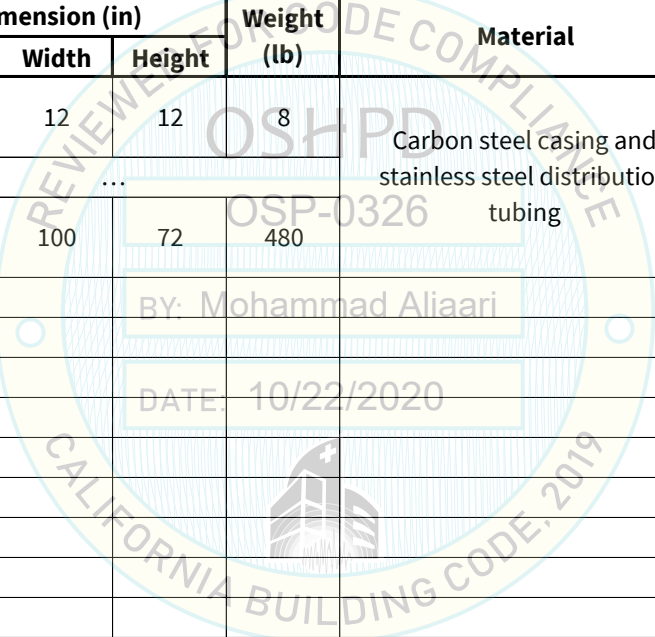
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Manufacturer:	United Metal Products, Inc	Table Description: Humidifier	TABLE 10
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g \quad z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g \quad z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Humidifiers (Dri-Steem)	Ultra-Sorb (LV)	5	12	12	8	Carbon steel casing and stainless steel distribution tubing	UUT: Flexible steam hose with vertical tube orientation.☒	3
		...						Interp.
		5	100	72	480		UUT: Flexible steam hose with vertical tube orientation.☒	3



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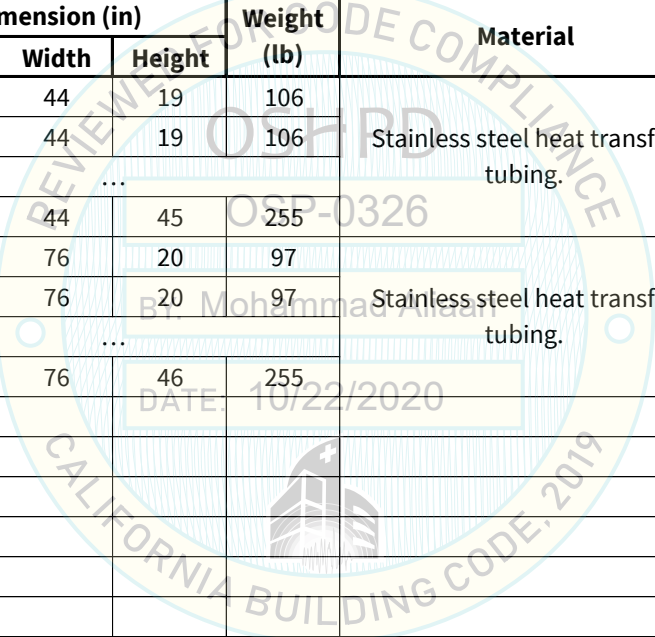
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Manufacturer:	United Metal Products, Inc	Table Description: Gas Heater	TABLE 11
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Gas Heater - HMA (Heatco, Inc.)	HMA180	28	44	19	106	Stainless steel heat transfer tubing. 500,000-600,000 BTUH	Extrap.	
	HMA200	28	44	19	106		2	
	...	...					Interp.
	HMA600	28	44	45	255		2	
Gas Heater - HMB (Heatco, Inc.)	HMB180	17	76	20	97	Stainless steel heat transfer tubing. 180,000-400,000 BTUH	Extrap.	
	HMB200	17	76	20	97		2	
					Interp.	
	HMB600	22	76	46	255		2	



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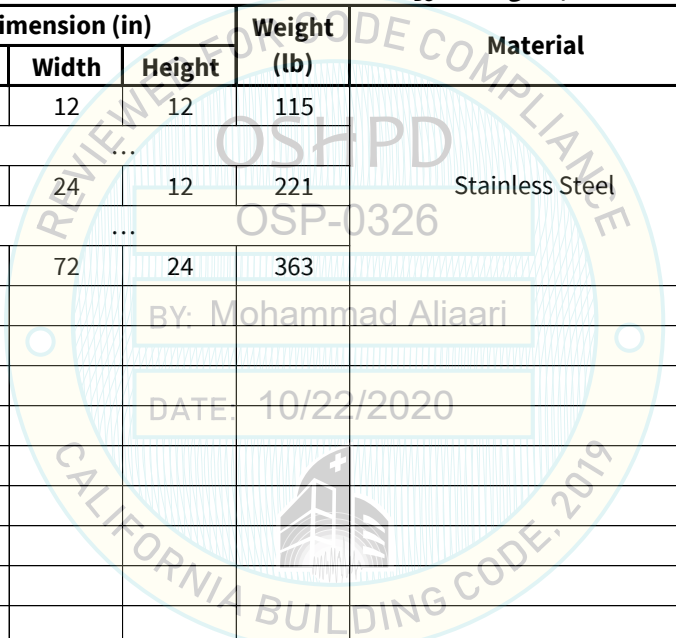
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Manufacturer: United Metal Products, Inc	Table Description: Electric Heater	TABLE 12
Model Line: Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Electric Heater - Finned Tubular Series (Indeeco)	1 kW	6	12	12	115	Stainless Steel		Extrap.
	...							Extrap.
	5 kW	6	24	12	221			3
	...							Interp.
	140 kW	8	72	24	363			3



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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Manufacturer:	United Metal Products, Inc	Table Description: VFD	TABLE 13
Model Line:	Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
ACH-550 VFD (ABB)	1.5 HP	8.3	4.9	14.5	14.3		UUT: (1) ACH-550-PCR-03A3-4 and (1) ACH-550-VCR-03A3-4	3
	2 HP	8.3	4.9	14.5	14.3			Interp.
	3 HP	8.3	4.9	14.5	14.3			Interp.
	5 HP	8.3	4.9	14.5	14.3			Interp.
	7.5 HP	8.3	4.9	14.5	14.3			Interp.
	10 HP	8.7	4.9	18.5	19.8			Interp.
	15 HP	8.7	4.9	18.5	19.8			Interp.
	20 HP	9.1	8	23	35			Interp.
	25 HP	9.1	8	23	35			Interp.
	30 HP	9.1	8	23	35			Interp.
	40 HP	10.3	8	27.1	53			Interp.
	50 HP	10.3	8	27.1	53		UUT: (1) ACH-550-PCR-072A-4 and (1) ACH-550-VCR-072A-4	4
60 HP	10.3	8	27.1	53			*Interp.	

* Software change only

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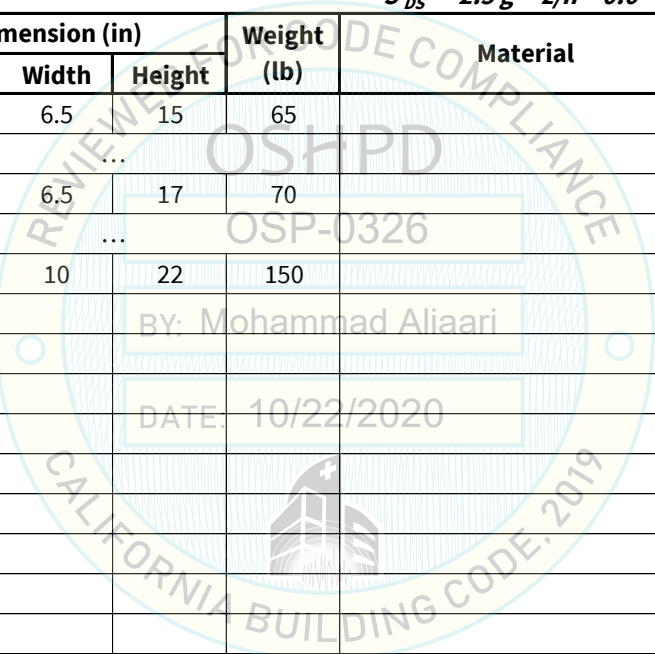
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Manufacturer: United Metal Products, Inc		Table Description: Compressors					TABLE 14	
Model Line: Custom Air Handling Units		Seismic Certification Limits: $S_{DS} = 2.5g$ $z/h = 1.0$ $S_{DS} = 2.5g$ $z/h = 0.0$					$I_p = 1.5$	
Building Code: CBC 2019								
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
ZP Compressors (Emerson-Copeland)	1.7 HP	6.5	6.5	15	65	208/230 – 460V	Extrap.	
	...	...					Extrap.
	2.8 HP	6.5	6.5	17	70		3	
	...	...					Interp.
	15 HP	10	10	22	150		3	



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	Table Description: Electrical Panel	TABLE 15
Model Line: Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Electrical Panel (Hoffman)	Enclosure	4	6	6	20	Carbon Steel	UUT: NEMA 3R	1
		...						Interp.
		12	30	30	110		UUT1: NEMA 3R UUT2: NEMA 3R	1, 2
		...						Interp.
		12	36	30	140		UUT: NEMA 3R	4
		...						Interp.
		12	36	62	325	UUT: NEMA 3R	3	

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	Table Description: Electric Panel Contents	TABLE 16
Model Line: Custom Air Handling Units		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.5g$ $z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g$ $z/h = 0.0$	

Component Type	Manufacturer	Model	Description	Notes	UUT
Axial Fan	Dayton	6KD75	12VDC - 240VAC		4
Axial Fan Filter/Guard	Dayton	4YD86	Fan/Filter Guard		4
Circuit Breakers	ABB	T1N015TL	15A - 225A		3
	WIED	QL113DMKM01	1A - 20A		2,4
Contactors	ABB	DP30C1P-F	1-Pole		1
		...			Interp.
		DP30C4P-F	4-Pole		4
	Siemens	3RT1015-2AB01	7A		3
		...	...		Interp.
		3RT1045-3AC20	120A		4
Current Sensor	Veris Hawk	H808	3/4A - 75A		1
D-Block	Burndy	BDB-212-500-3	0A - 860A		3
Digital Display	Johnson Controls	D350AA-1C	Digital Display		4
Disconnects	ABB	OETL-NF200ASW	35A - 60A		1
		OETL-NF600ASW	16A - 600A		1,4
	Bussmann	16220-3	175A		1
Fuses	Bussmann	FNM-1/4	1/4A		1
		...	...		Interp.
		LPJ-400SP	400A		1
Fuse Mount	Bussmann	CHM1DU	1/4A		1
		...	...		Interp.
		JM60400-1CR	400A		1
Indicator Light	IDEC	HW1P-1FQD	24V - 120V		1,3

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	Table Description: Electric Panel Contents	TABLE 16
Model Line: Custom Air Handling Units		

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.5g$ $z/h = 1.0$ $I_P = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Component Type	Manufacturer	Model	Description	Notes	UUT
Indicator Light	Siemens	52PE4D2	24V		4
Light	Siemens	52BL4D2XB	24V - 120V		1,2
Motor Circ. Protector	Siemens	3RV10424MB10	1A - 100A		3,4
PLC	Automated Logic - OEM Ctrl	812 - 6126	PLC		1
PLC Display		Backview 6	PLC Display		1
PLC Expander		48 - 8160	PLC Expander		1
Prop. Controller	Johnson Controls	A350PS-1C	Prop. Controller		4
Relay	Allen Bradley	700-HLT1U1	24V - 120V		4
	IDEC	RH1B-U - RH4B-U	24V - 120V, AC120V		1,4
Relay Base	IDEC	SR2P-06	300V		4
		...	...		Interp.
		SR3P-06	300V		4
		SH1B05	1-Pole		1
		...	...		Interp.
SH4B05	4-Poles		4		
Signaling Switch	Siemens	52SA2AABJ1	Signaling Switch		4
Staging Switch	Johnson Controls	S350CC-1C	24V - 240V		4
Switch	Siemens	52SA2HAB	1 - 4 Position		1,4
Switch W/Light	Siemens	52PA24D2	24V		4
		52PA4H2	240V		4
TDS Control	Pulsafeeder	MTC1XTX-XXX	TDS Control		4
		MVS1XX-XXX	TDS Control		4
Temperature Switch	Johnson Controls	A19ABA-40C	Temperature Switch		4

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



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Manufacturer: United Metal Products, Inc Model Line: Custom Air Handling Units		Table Description: Electric Panel Contents			TABLE 16	
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.5 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$	
					$I_P = 1.5$	
Component Type	Manufacturer	Model	Description	Notes	UUT	
Timer	ICM	ICM251	24V - 240V, 20A		3	
	IDEC	RTE-P2AF20	0 - 600 Hours		4	
Timer Relay	Diehl	880	24 Hour		1	
Transformer	Basler	BE111650GAA	50VA - 1000VA		1,3	
	Hammond	SP50MQMJ - SP3000MQMJ	50VA - 3000VA		2	
VFD	ABB	ACH550-VCR-072A-4	0A - 72A, 50HP	With CB & Bypass	3,4	
		ACH550-PCR-072A-4	0A - 72A, 50HP	With CB Disconnect	3,4	

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801527-CR-001 R1



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Manufacturer: United Metal Products, Inc Model Line: Custom Air Handling Units		Table Description: Miscellaneous				TABLE 17		
Building Code: CBC 2019		Seismic Certification Limits:				$S_{DS} = 2.5g \quad z/h = 1.0$ $S_{DS} = 2.5g \quad z/h = 0.0$		
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Evaporative Humidifier (UMP)	Standard	12	120	117	546	Stainless steel holding frame	UUT: Munters CELdek Media; Dimensions do not include holding frame; media dimensions only.	1
UV Lights (Steril-Aire)	DE	2.8	18	1.8	3			3
		...						Interp.
Rainhoods (UMP)	Rainhoods	2.8	42	1.8	5.4			3
		21	12	10	27			Extrap.
		...						Extrap.
Rainhoods (UMP)	Rainhoods	21	96	18	20	Aluminum or Carbon steel	UUT: Aluminum	3
		21	96	18	60		UUT: Carbon Steel	3
Sound Attenuators (Vibro Acoustics)	RD	36	36	108	446	Carbon Steel	3 high stack	1
Cross Flow Heat Exchangers (Innergytech/Hoval)	Model 100	51	39	39	210	Aluminum plates		3
Doors (UMP)	Doors	2	9	16	16			Extrap.
		...						Extrap.
		2	28	72	52			3,4
		2	28	72	100		With combustion hoods - SS	2
		2	32	72	58		With Window	4
		2	34	78	68		With combustion hoods - CS	2
		...						Interp.
2	32	122	88			1		

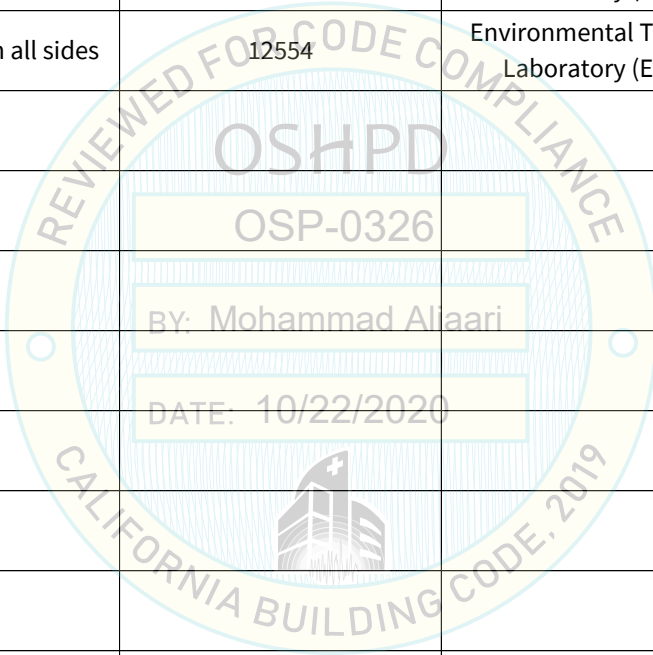
UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc
Model Line: Custom Air Handling Units

UUT	Unit Description	Report Number	Testing Laboratory	S _{DS}	z/h	I _p
1	Middle demount section with side walls	12554	Environmental Testing Laboratory (ETL)	2.5	1.0	1.5
2	End demount section with side walls and one end wall	12554	Environmental Testing Laboratory (ETL)	2.5	1.0	1.5
3	Cabinet with walls on all sides	12554	Environmental Testing Laboratory (ETL)	2.5	1.0	1.5
4	Cabinet with walls on all sides	12554	Environmental Testing Laboratory (ETL)	2.5	1.0	1.5



Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	UUT 1
Model Line: Custom Air Handling Units	
Model Number: Middle demount section with side walls Serial Number: N/A	

Product Construction Summary:
Panel: Typical and composite panels tested. Typical panel is 2" thick with exterior and interior panel made of 0.04" aluminum with urethane foam insulation. Composite panel is 2" thick with exterior panel made of 0.04" aluminum and perforated liners made of 0.04" aluminum with urethane foam insulation and fiberglass insulation. Decking: made of 0.08" aluminum with fiberglass insulation and 0.05" aluminum bottom liners. Wall Framing: 1"x2"x0.063" tubular galvanized steel. Base Frame: 6" deep structural tube made of 11ga galvanized steel. Door: (1) 32Wx122H.

Options/Subcomponent Summary:
Electrical Panel: (1) NEMA 3R-12Dx30Wx30H, (1) NEMA 3R-4Dx6Wx6H. Sound Attenuator: (3) Stacked 1Wx3H RD-Series 36Dx36Wx36H. Evaporative Media: Munters CELdek 12Dx120Wx117H. Pumps: (1) BJM R250-0.33HP-115v w/2-Way BRAY Valve ST05-2-004, BRAY Actuator DM24-35, and 3/4" Cu piping (1) BJM R15-2HP-460v with 2" PVC piping and manual ball valve, (1) Goulds LSP 0311F-1/3HP-115v with 3/4" SS piping and manual valve, (1) Goulds LSP 0711F-3/4HP-115v w/3-Way BRAY Valve ST250-3-100, BRAY Actuator DM24-70 and 2 2/1" PVC piping. Fans: Steel Frame, (2) Stacked 1Wx2H Twin City aluminum wheel model 270 direct drive with (1) TECO 5HP-460v and (1) TECO 10HP-460v; (2) Stacked 1Wx2H Greenheck aluminum wheel model HPA 27 direct drive with (1) Baldor 5HP-460v and (1) Baldor 10HP-460v. Backdraft Damper: Greenheck EM-32 47Wx47H with aluminum blades. Water Coils: 8 row 226Wx45H copper coil with copper fins 4 fpi; 8 row 226Wx78H copper coil with aluminum fins 8 fpi.

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
15,181	112	244	140	13.45	13.14	14.15

UUT Highest Passed Seismic Run Information								
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2019	ICC-ES AC156 (2018)	2.5	1.0	1.50	4.00	3.00	1.67	0.67
		2.5	0.0					

Test Mounting Details: 2 walls in place, Inlet and Outlet walls removed, bracing at removed walls



The unit is mounted to the seismic table using eight 7/8" Grade 8 bolts (installed on base sides only). Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1

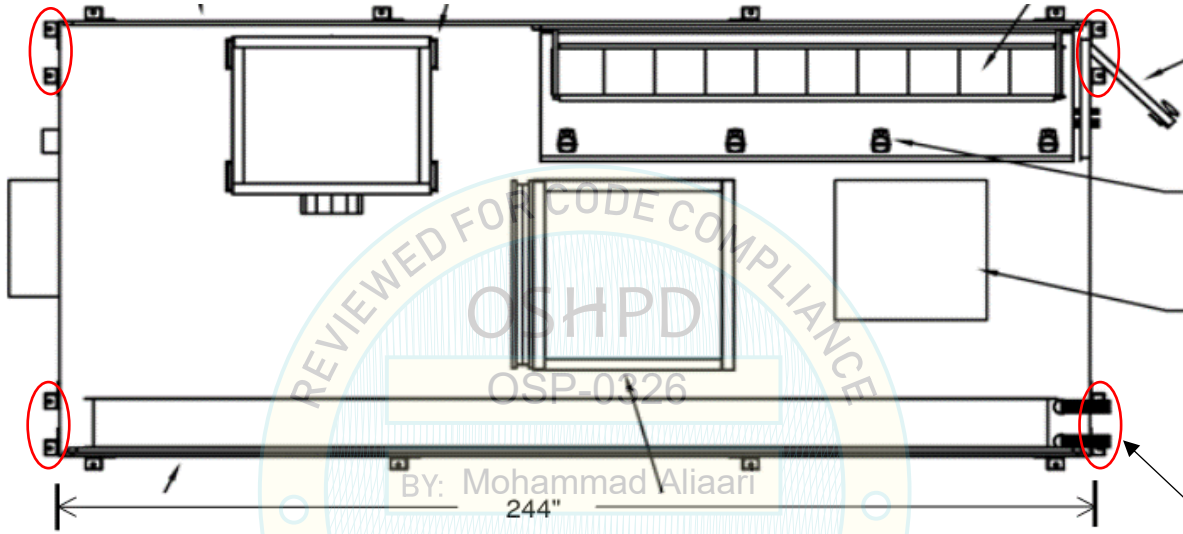


Manufacturer: United Metal Products, Inc
Model Line: Custom Air Handling Units
Model Number: Middle demount section with side walls

Serial Number: N/A

UUT 1

Test Unit Drawings:

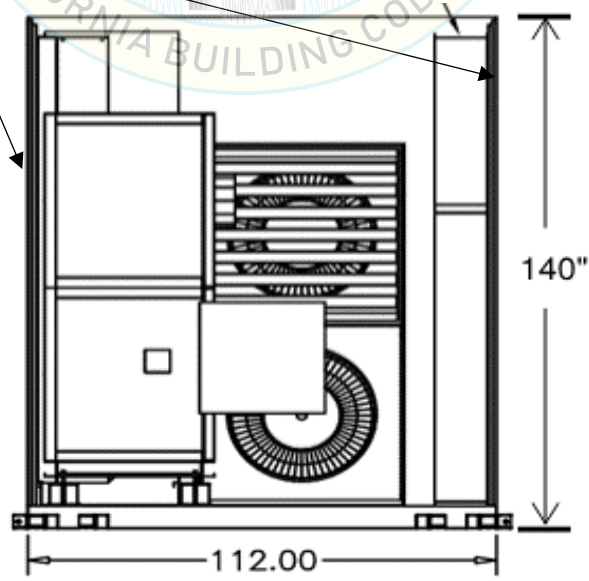


BY: Mohammad Aliaari
244"

DATE: 10/22/2020
Top View

Inlet & Outlet
Walls Removed

Indicates anchor
locations



Side View

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc
Model Line: Custom Air Handling Units
Model Number: End demount section with side walls & 1 end wall **Serial Number:** N/A

UUT 2

Product Construction Summary:

Panel 2" thick with external panels made of 18ga 304SS, with and without liners made of 20ga 304SS with fiberglass insulation. Decking: made of 14ga 304SS with fiberglass insulation, and 20ga 304SS bottom liners. Wall Framing: 1"x2"x0.063" tubular stainless steel. Base Frame: 6" deep fabricated tube made of 12ga 304SS. Doors: (1) 28Wx72H, (1) 28Wx72H with hood - SS, (1) 31Wx64H, (1) 34Wx78H with hood - GS, and (1) 17Wx60H.

Options/Subcomponent Summary:

Electric Panel: (1) NEMA 3R - 12Dx30Wx30H. Louver: (1) Ruskin aluminum blades and frame 5Dx60Wx72H. Damper: (1) Ruskin 60Wx72H-CD50-Oplosed blades with Siemens Actuator GCA-142 lbs-in. Backdraft Damper: (1) Greenheck EM-32 29Wx29H with aluminum blades. Evaporator Coils: Refrigerant heat transfer coil - 8 row 226Wx24H copper coil with copper fins 4 fpi; 8 row 226Wx36H copper coil w/ Al fins 8 fpi; 8 row 226Wx60H copper coil with aluminum fins 8 fpi. Fans: Steel Frame, (6) Stacked 2Wx3H Twin City aluminum wheel model 122 direct drive with (2) TECO 1HP-460v, (2) TECO 1HP-460v, (1) TECO 1.5HP-460v, and (1) TECO 1.5HP-460v. (6) Stacked 2Wx3H Greenheck aluminum wheel model HPA 15 direct drive with (2) Baldor 1HP-460v, (2) Baldor 1HP-460v, (1) Baldor 5HP-460v, and (1) Baldor 5HP-460v. Filter Frames: V bank and flat bank using frames: Farr Type 8, Farr Magnaframe II and UMP (galvanized, aluminum, and SS.) Filters: Farr Aeroplete III, Farr 30-30, Farr Optipac, Farr Riga-Flo/PH, and Farr HEPA. Gas Heater: Heatco, Inc. (1) HMA200, (1) HMA600, (1) HMB200, and (1) HMB600.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
15,050	112	244	140	3.17	2.93	3.32

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2019	ICC-ES AC156 (2018)	2.5	1.0	1.50	4.00	3.00	1.67	0.67
		2.5	0.0					

Test Mounting Details: 3 walls in place, Outlet wall removed, bracing at removed wall



The unit is mounted to the seismic table using eight 7/8" Grade 8 bolts (installed on base sides only). Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

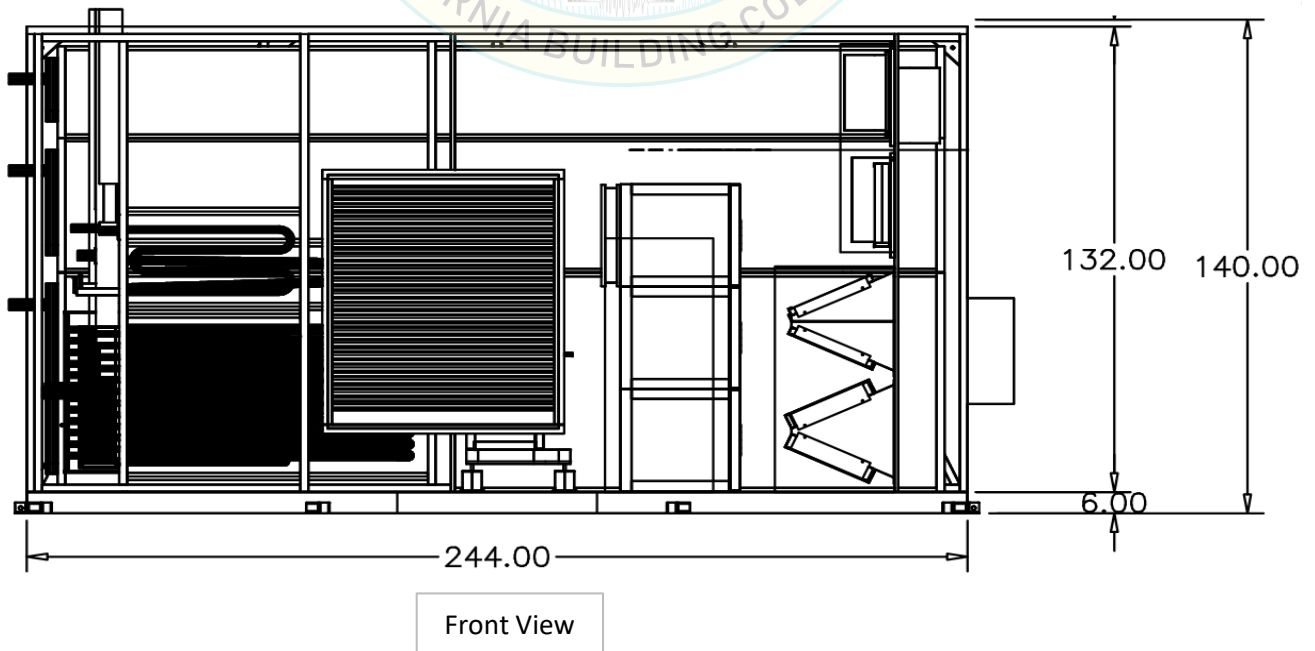
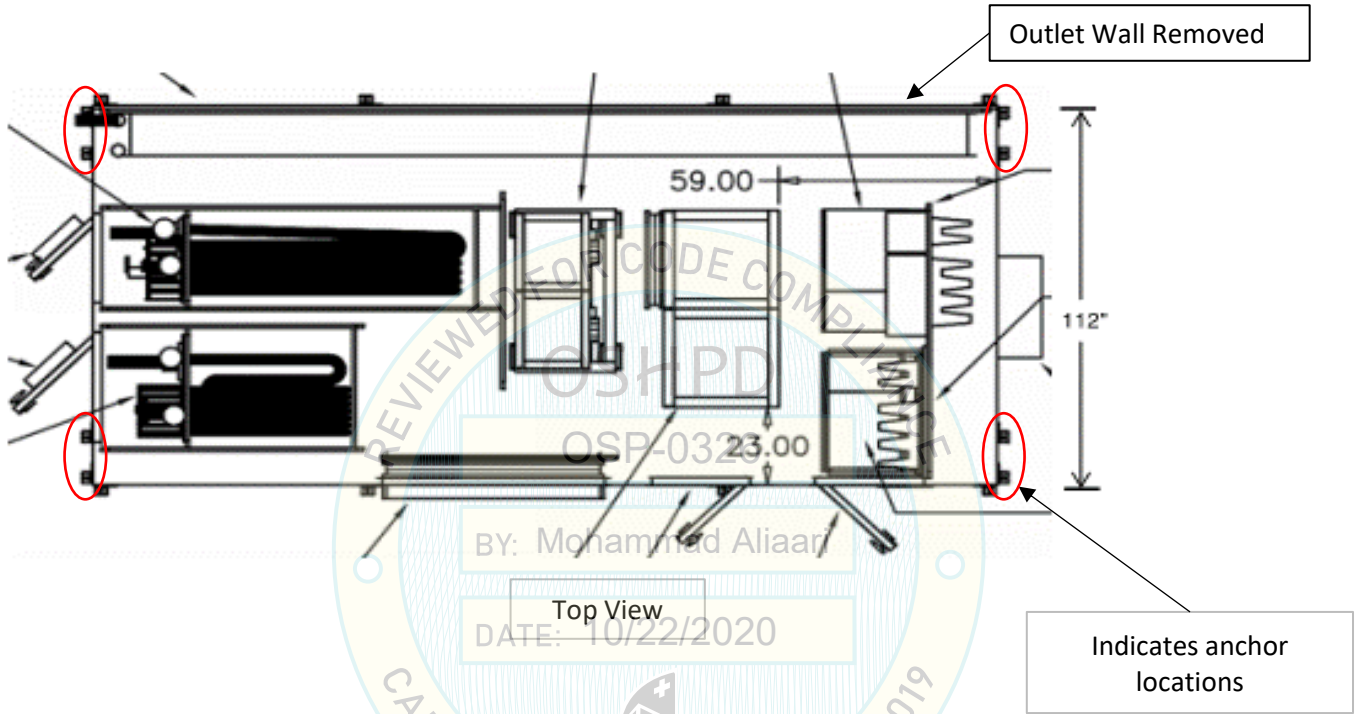
1801527-CR-001 R1



Manufacturer: United Metal Products, Inc
Model Line: Custom Air Handling Units
Model Number: End demount section with side walls & 1 end wall **Serial Number:** N/A

UUT 2

Test Unit Drawings:



UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	UUT 3
Model Line: Custom Air Handling Units	
Model Number: Cabinet with walls on all sides	
Serial Number: N/A	

Product Construction Summary:
Panel 2" thick made of 22ga Galv. steel with 22ga Galv. steel liners and urethane foam insulation. Decking: made of 14ga Galv. steel with fiberglass insulation and 20ga Galv. steel bottom liner. Wall Framing: 1"x2"x0.063" tubular Galv. steel. Base Frame: 6" deep structural tube made of 11ga Galv. steel. Hoods: 98Wx36H total (98Wx18H each), (1) Aluminum and (1) Galv. steel. Doors: (2) 28Wx72H.

Options/Subcomponent Summary:
Electrical Panel: (1) NEMA 3R - 12Dx36Wx62H. Fans: (1) Twin City Al wheel model BAE-DW122 belt drive with (1) Baldor 3HP-460v; (1) Twin City Al wheel model 122 belt drive with (1) Baldor 3HP-460v; (1) Twin City Al wheel model 122 direct drive with (1) TECO 3HP-460v; (1) UMP Compact Direct Drive Al wheel model 20 direct drive with (1) Baldor 1.5HP-460v; (1) UMP Compact Direct Drive Al wheel model 27 direct drive with (1) Baldor 5HP-460v; (1) UMP Prop Fans Direct Drive composite wheel model 20 with (1) Genteq 0.5HP-460v; (1) UMP Prop Fans Direct Drive composite wheel model 20 with (1) Genteq 0.75HP-460v; (1) UMP Prop Fans Direct Drive composite wheel model 48 with (1) Baldor 1.5HP-460v; (1) UMP Prop Fans Belt Drive composite wheel model 30 with (1) Baldor 0.75HP-460v; (1) UMP Prop Fans Belt Drive composite wheel model 48 with (1) Baldor 3HP-460v. Water Pumps: (1) Goulds model 1MC1 - 1/2HP, (1) Goulds model 3MC1 - 3HP, (1) Ebara model CDU70/1 - 3/4HP, (1) Ebara model CDU200/5 - 3HP. Humidifier: Ultra-Sorb (1) 12Wx12H and (1) 100Wx72H. Electric Heater: Indeeco (1) model 5kW-480v/3 and (1) model 140kW-480v/3. VFD: (1) ABB-ACH550-VCR-03A3-4/1.5HP, (1) ABB-ACH550-PCR-03A3-4/1.5HP. Compressor: Emerson-Copeland (1) 2.8HP-460/3 and (1) 15HP-460v/3. Dampers: Ruskin (1) 12Wx12H-CD60-Parallel Blades with Siemens Actuator GMA-62 lbs-in, (1) 12Wx12H-CD50-Opposed Blades with Siemens Actuator GDE-44 lbs-in. Backdraft Dampers: (1) 23Wx23H-BD6-Parallel Blades, (1) 47Wx47H-BD6-Parallel Blades. Heat Exchanger: InnergyTech Model 100 51Dx39Wx39H diagonal mount. UV Lights: SterilAire DE Series (1) 18" and (1) 42". Water & Evaporator Coils: 2 row 16Wx13.5H copper coil with aluminum fins 14 fpi (water coil); Refrigerant heat transfer coil - 2 row 16Wx13.5H copper coil with copper fins 14 fpi.

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
7,300	188	112	86	6.01	7.19	6.71

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2019	ICC-ES AC156 (2018)	2.5	1.0	1.50	4.00	3.00	1.67	0.67	
		2.5	0.0						

Test Mounting Details: All 4 walls in place



The unit is mounted to the seismic table using eight 7/8" Grade 8 bolts (installed on base sides only). Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1

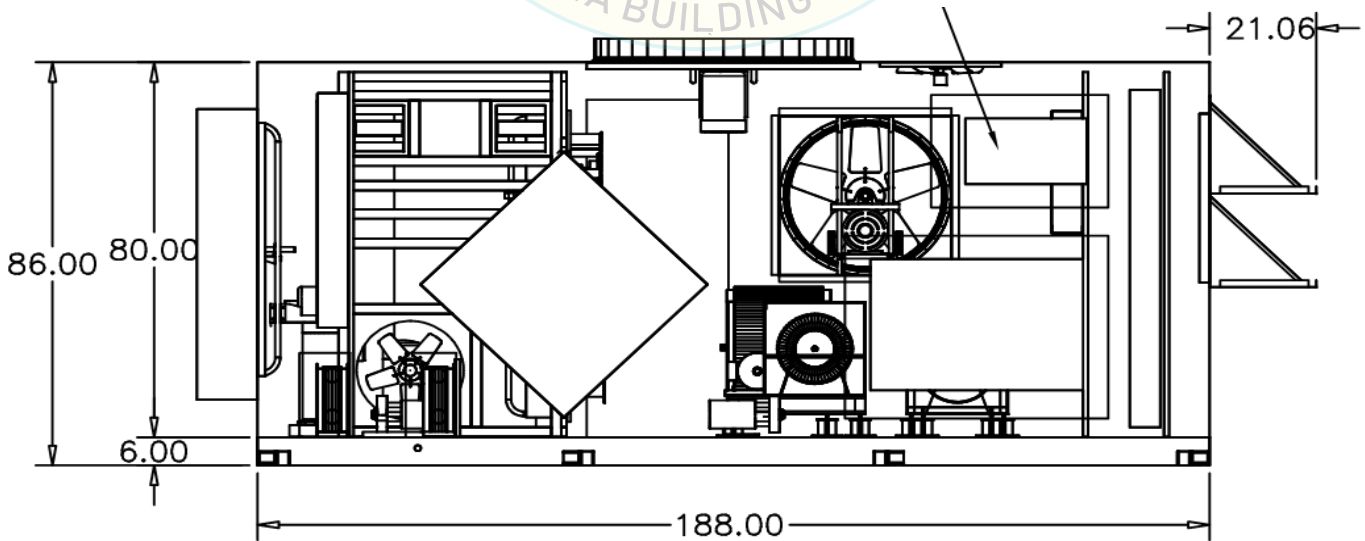
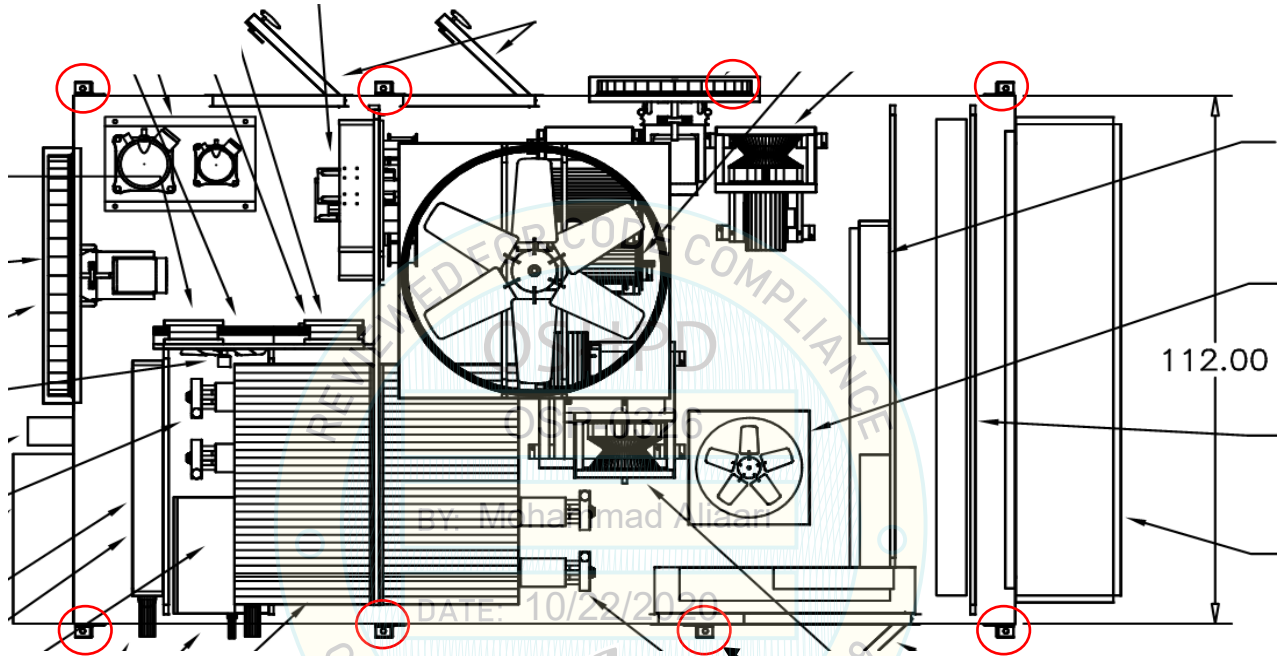


Manufacturer: United Metal Products, Inc
Model Line: Custom Air Handling Units
Model Number: Cabinet with walls on all sides

Serial Number: N/A

UUT 3

Test Unit Drawings:



UNIT UNDER TEST (UUT) SUMMARY SHEET

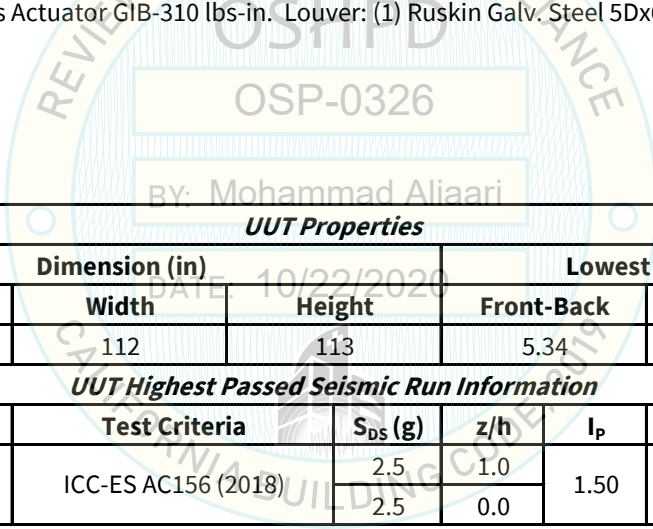
1801527-CR-001 R1



Manufacturer: United Metal Products, Inc	UUT 4
Model Line: Custom Air Handling Units	
Model Number: Cabinet with walls on all sides	
Serial Number: N/A	

Product Construction Summary:
 Panel 2" thick with external panels made of 16ga Galv. Steel and with liners made of 20ga Galv. Steel. Decking: made of 14ga Galv. Steel with fiberglass insulation, and 20ga Galv. Steel bottom liners. Wall Framing: 1"x2"x0.063" tubular galvanized steel. Base Frame: 8" deep structural tube made of 11ga galvanized steel. Doors: (1) 28Wx72H, (1)32Wx72H with window.

Options/Subcomponent Summary:
 Electrical Panel: (1) NEMA 3R – 12Dx36Wx30H. Fans: (1) Twin City Al wheel model BAE-DW490 belt drive with (1) Baldor 50HP-460v; (1) Twin City Al wheel model 490 direct drive with (1) TECO 50HP-460v; (1) Twin City Al wheel model 490 belt drive with (1) Baldor 50HP-460v. VFD: (1) ABB-ACH550-PCR-072A-4/50HP, (1) ABB-ACH550-VCR-072A-4/50HP. Damper: Ruskin (1) 60Wx72H-CD60-Parallel Blades with Siemens Actuator GIB-310 lbs-in. Louver: (1) Ruskin Galv. Steel 5Dx60Wx72H.



UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
14,543	280	112	113	5.34	5.30	6.32

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2019	ICC-ES AC156 (2018)	2.5	1.0	1.50	4.00	3.00	1.67	0.67
		2.5	0.0					

Test Mounting Details: All 4 walls in place



The unit is mounted to the seismic table using eight 7/8" Grade 8 bolts (installed on base sides only).
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801527-CR-001 R1

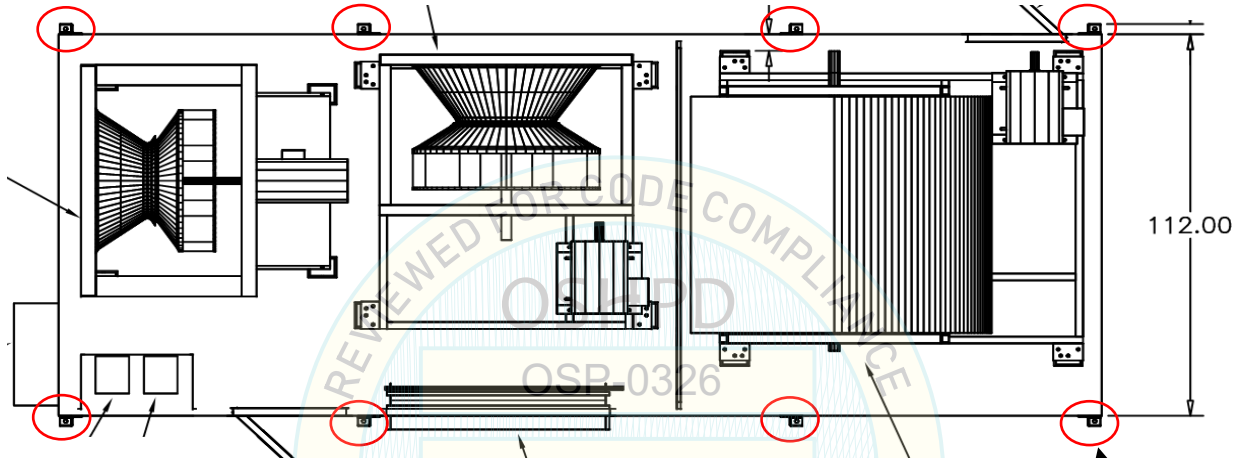


Manufacturer: United Metal Products, Inc
Model Line: Custom Air Handling Units
Model Number: Cabinet with walls on all sides

Serial Number: N/A

UUT 4

Test Unit Drawings:

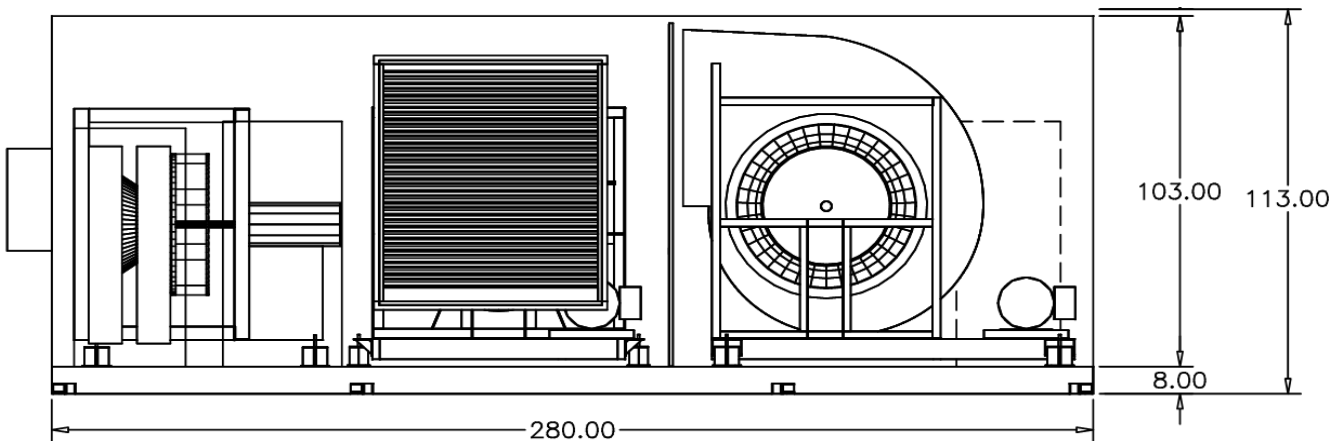


BY: Mohammad Aliaari

DATE: 10/22/2020

Top View

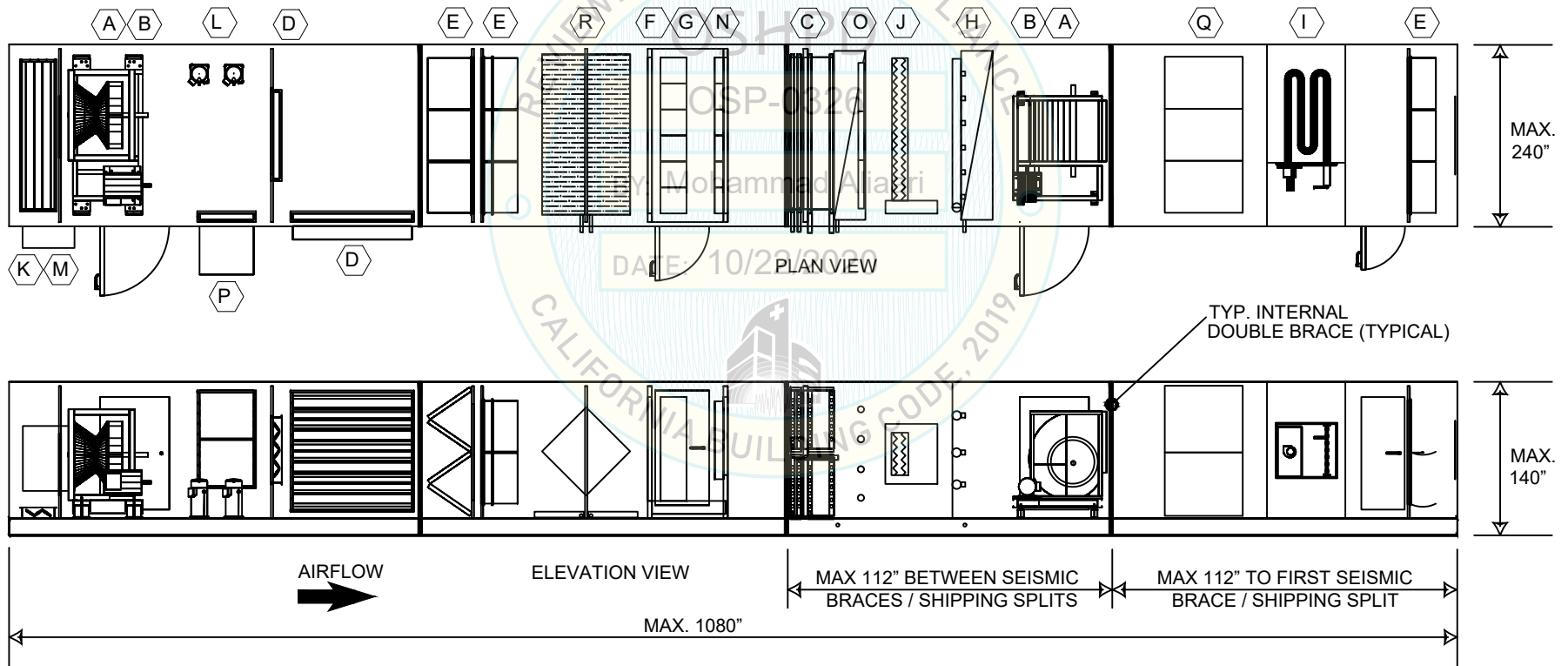
Indicates anchor locations



Side View

- (A) Fans (Table 2)
- (B) Motors (Table 3)
- (C) Coils (Table 4)
- (D) Dampers & Louvers (Table 5)
- (E) Filters (Table 6)
- (F) Pumps (Table 7)
- (G) Valves (Table 8)
- (H) Humidifiers (Table 9)
- (I) Furnaces (Table 10)
- (J) Electric Heaters (Table 11)
- (K) VFDs (Table 12)
- (L) Compressors (Table 13)
- (M) Electrical Panel (Table 14)
- (N) Evaporative Humidifier (Table 15)
- (O) U.V. Lights (Table 15)
- (P) Rain Hoods (Table 15)
- (Q) Sound Attenuators (Table 15)
- (R) Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 112"Dx240"Wx140"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.

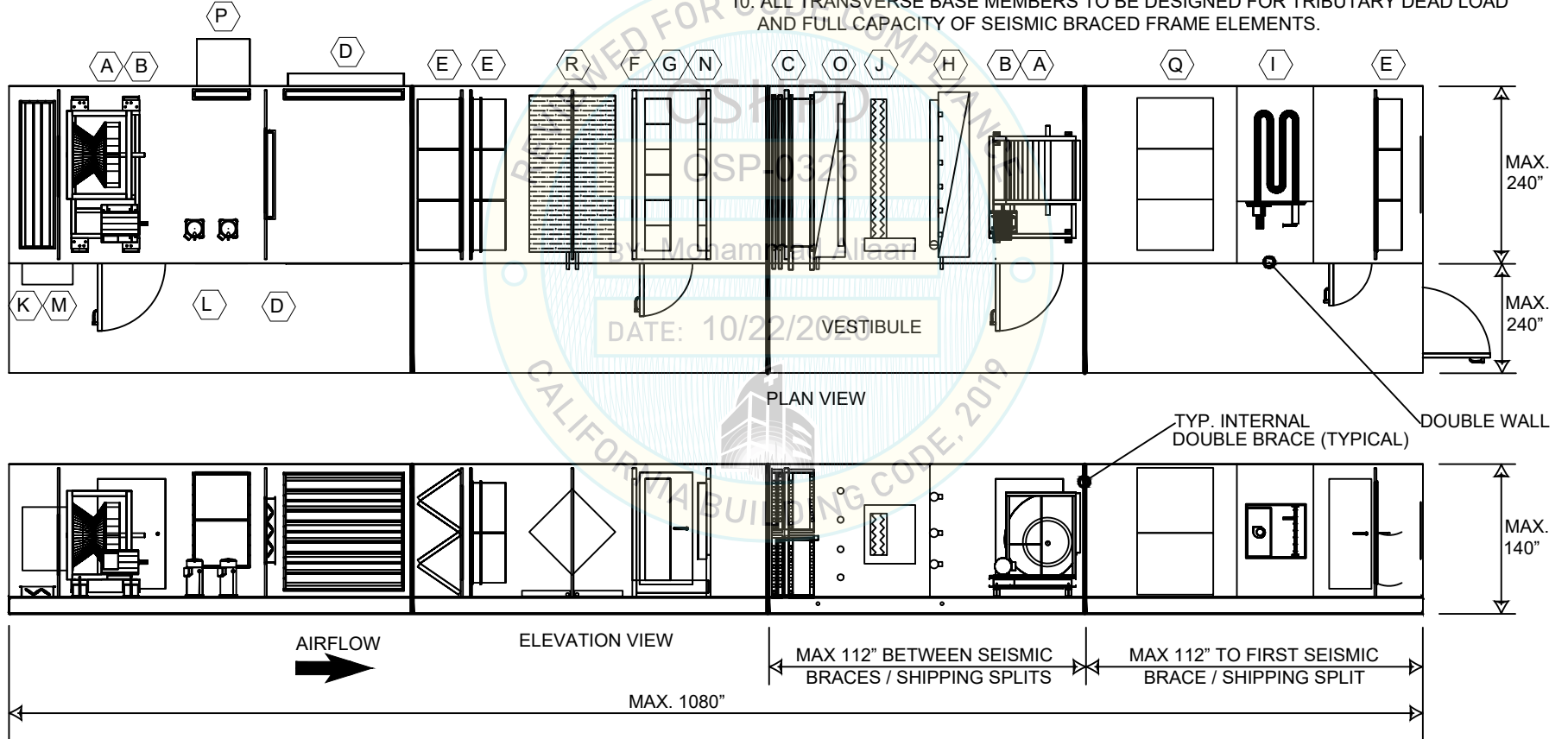


MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.

 <small>Confidential - Duplication Prohibited</small>	JOB NAME: OSHPD SEISMIC CERTIFICATION	UNIT TYPE: SINGLE AIR TUNNEL WITH SPLITS	REV No.:	1	2	3	4	5
	DATE DRAWN: 3-14-2013	DRAWING No.: SEISMIC - 001	DATE:	8-5-13	8-20-13	8-30-13	5-11-20	10-09-20
			INITIAL:	PA	PA	PA	BKS	BKS

- (A) Fans (Table 2)
- (B) Motors (Table 3)
- (C) Coils (Table 4)
- (D) Dampers & Louvers (Table 5)
- (E) Filters (Table 6)
- (F) Pumps (Table 7)
- (G) Valves (Table 8)
- (H) Humidifiers (Table 9)
- (I) Furnaces (Table 10)
- (J) Electric Heaters (Table 11)
- (K) VFDs (Table 12)
- (L) Compressors (Table 13)
- (M) Electrical Panel (Table 14)
- (N) Evaporative Humidifier (Table 15)
- (O) U.V. Lights (Table 15)
- (P) Rain Hoods (Table 15)
- (Q) Sound Attenuators (Table 15)
- (R) Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 112"Dx240"Wx140"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.



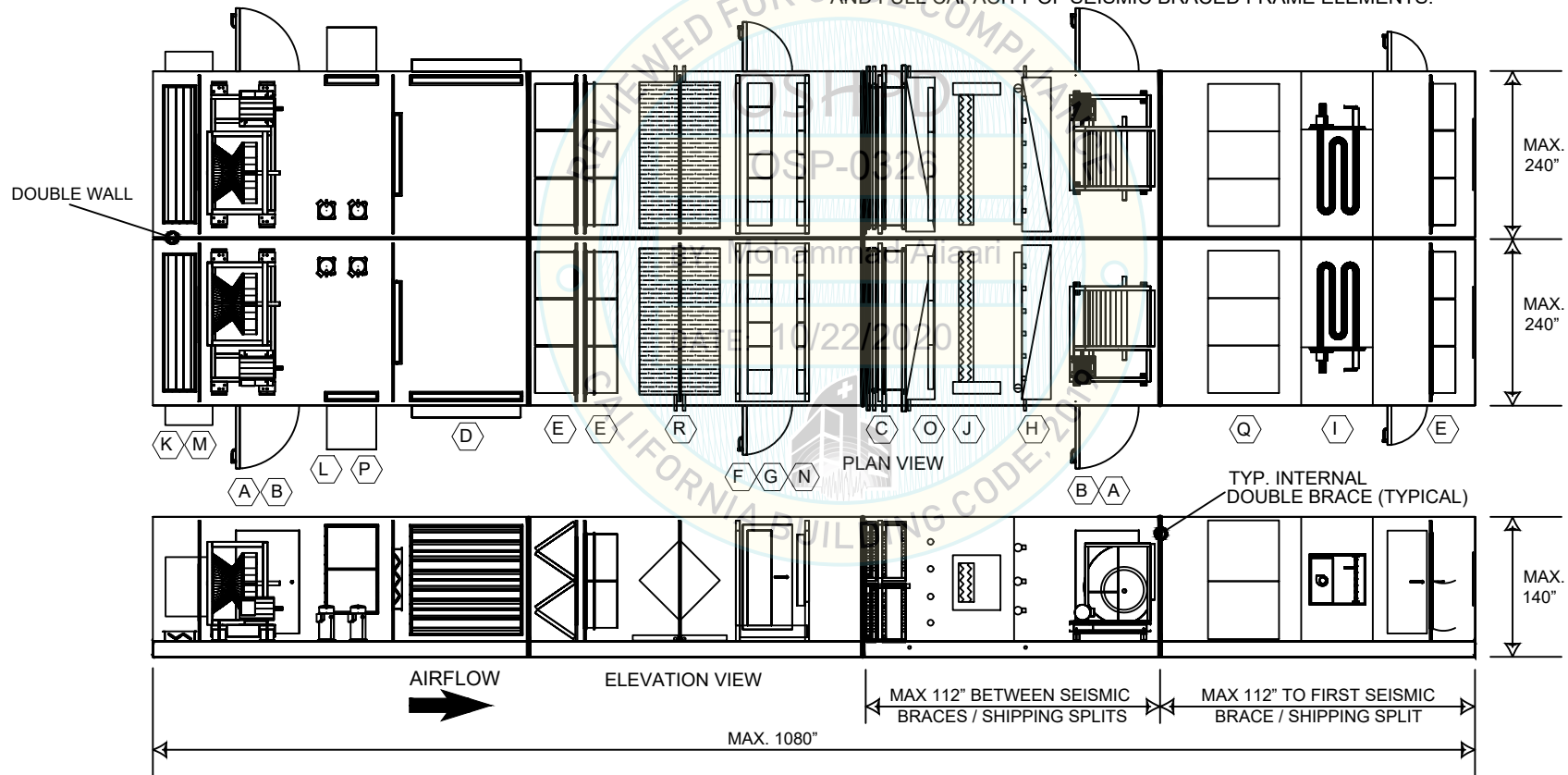
JOB NAME: OSHPD SEISMIC CERTIFICATION
DATE DRAWN: 3-14-2013

UNIT TYPE: SINGLE AIR TUNNEL WITH VESTIBULE WITH SPLITS
DRAWING No.: SEISMIC - 002

REV No.:	1	2	3	4	5
DATE:	5-8-13	8-20-13	8-30-13	5-11-20	10-09-20
INITIAL:	PA	PA	PA	BKS	BKS

- (A) Fans (Table 2)
- (B) Motors (Table 3)
- (C) Coils (Table 4)
- (D) Dampers & Louvers (Table 5)
- (E) Filters (Table 6)
- (F) Pumps (Table 7)
- (G) Valves (Table 8)
- (H) Humidifiers (Table 9)
- (I) Furnaces (Table 10)
- (J) Electric Heaters (Table 11)
- (K) VFDs (Table 12)
- (L) Compressors (Table 13)
- (M) Electrical Panel (Table 14)
- (N) Evaporative Humidifier (Table 15)
- (O) U.V. Lights (Table 15)
- (P) Rain Hoods (Table 15)
- (Q) Sound Attenuators (Table 15)
- (R) Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 112"Dx240"Wx140"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.



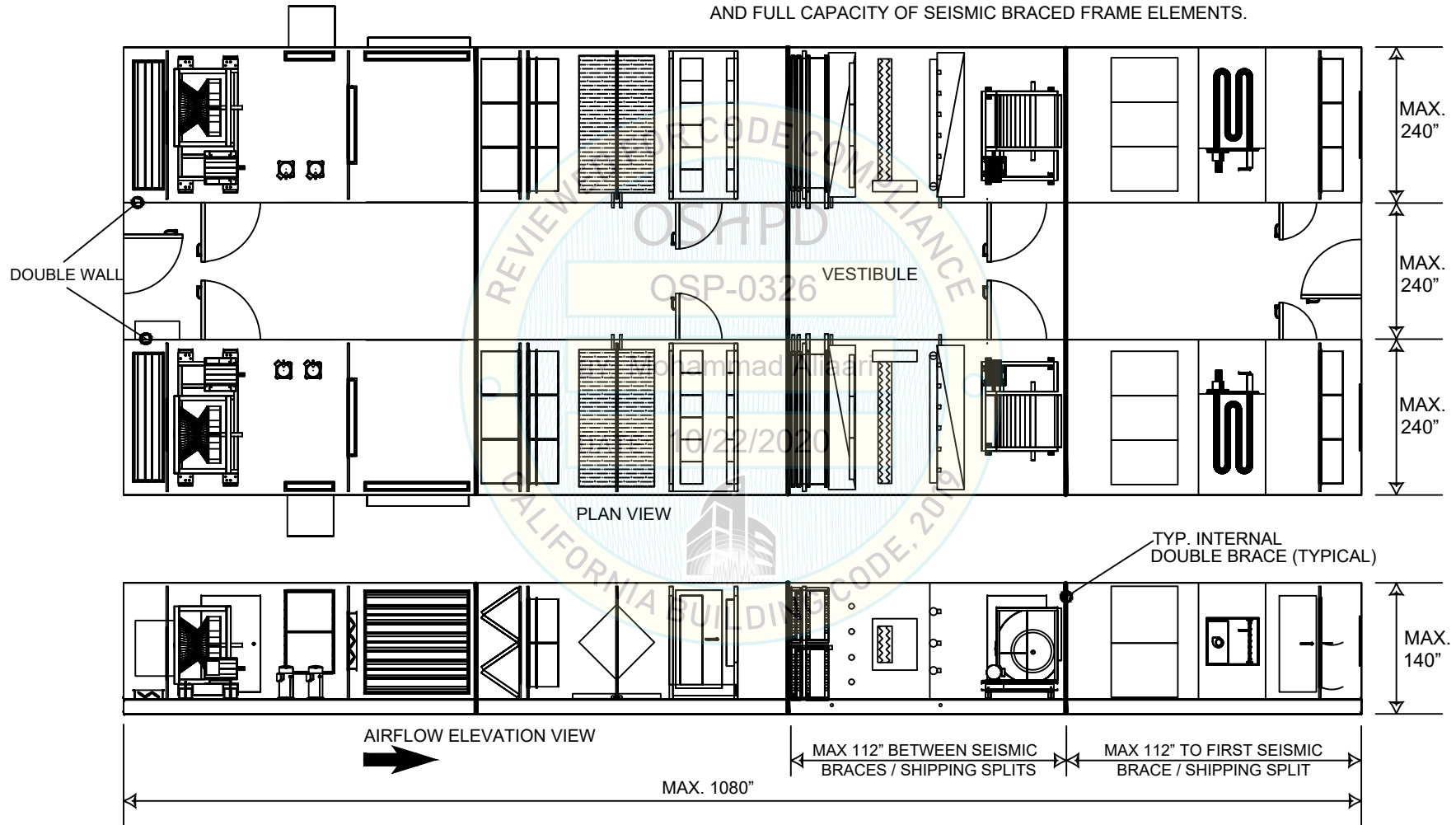
JOB NAME: OSHPD SEISMIC CERTIFICATION
DATE DRAWN: 3-14-2013

UNIT TYPE: DOUBLE AIR TUNNEL WITH SPLITS
DRAWING No.: SEISMIC - 003

REV No.:	1	2	3	4	5
DATE:	8-5-13	8-20-13	8-30-13	5-11-20	10-09-20
INITIAL:	PA	PA	PA	BKS	BKS

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.

6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 112"Dx240"Wx140"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.



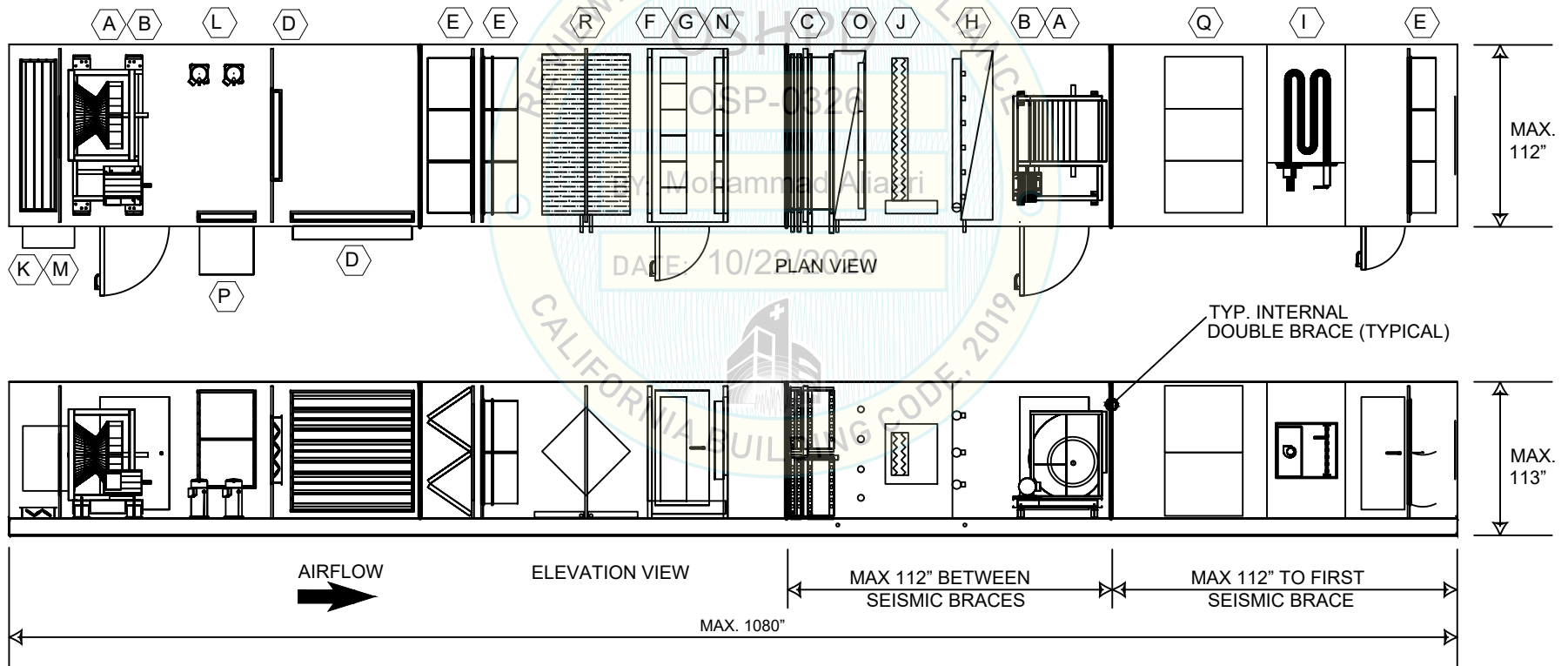
JOB NAME: OSHPD SEISMIC CERTIFICATION
DATE DRAWN: 3-14-2013

UNIT TYPE: DOUBLE AIR TUNNEL WITH VESTIBULE WITH SPLITS
DRAWING No.: SEISMIC - 004


REV No.:	1	2	3	4	5
DATE:	8-5-13	8-20-13	8-30-13	5-11-20	10-09-20
INITIAL:	PA	PA	PA	BKS	BKS

- (A) Fans (Table 2)
- (B) Motors (Table 3)
- (C) Coils (Table 4)
- (D) Dampers & Louvers (Table 5)
- (E) Filters (Table 6)
- (F) Pumps (Table 7)
- (G) Valves (Table 8)
- (H) Humidifiers (Table 9)
- (I) Furnaces (Table 10)
- (J) Electric Heaters (Table 11)
- (K) VFDs (Table 12)
- (L) Compressors (Table 13)
- (M) Electrical Panel (Table 14)
- (N) Evaporative Humidifier (Table 15)
- (O) U.V. Lights (Table 15)
- (P) Rain Hoods (Table 15)
- (Q) Sound Attenuators (Table 15)
- (R) Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 280"Dx112"Wx113"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.

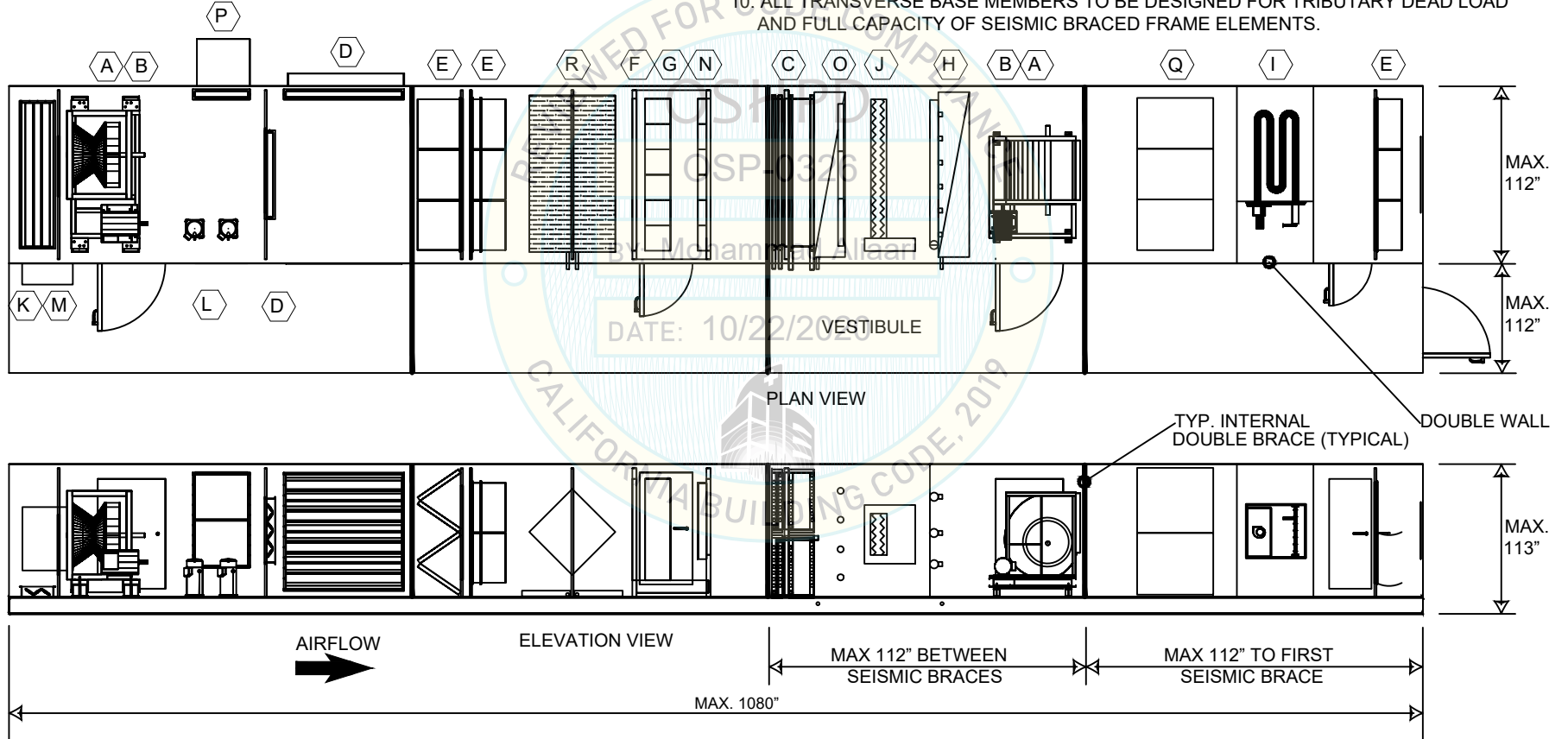


MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.

 <small>Confidential - Duplication Prohibited</small>	JOB NAME: OSHPD SEISMIC CERTIFICATION	UNIT TYPE: SINGLE AIR TUNNEL	REV No.: 1	2	3	4	5
	DATE DRAWN: 8-14-2013	DRAWING No.: SEISMIC - 005	DATE: 8-20-13	8-30-13	9-5-13	5-11-20	10-09-20
			INITIAL: PA	PA	PA	BKS	BKS

- (A) Fans (Table 2)
- (B) Motors (Table 3)
- (C) Coils (Table 4)
- (D) Dampers & Louvers (Table 5)
- (E) Filters (Table 6)
- (F) Pumps (Table 7)
- (G) Valves (Table 8)
- (H) Humidifiers (Table 9)
- (I) Furnaces (Table 10)
- (J) Electric Heaters (Table 11)
- (K) VFDs (Table 12)
- (L) Compressors (Table 13)
- (M) Electrical Panel (Table 14)
- (N) Evaporative Humidifier (Table 15)
- (O) U.V. Lights (Table 15)
- (P) Rain Hoods (Table 15)
- (Q) Sound Attenuators (Table 15)
- (R) Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 280"Dx112"Wx113"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.



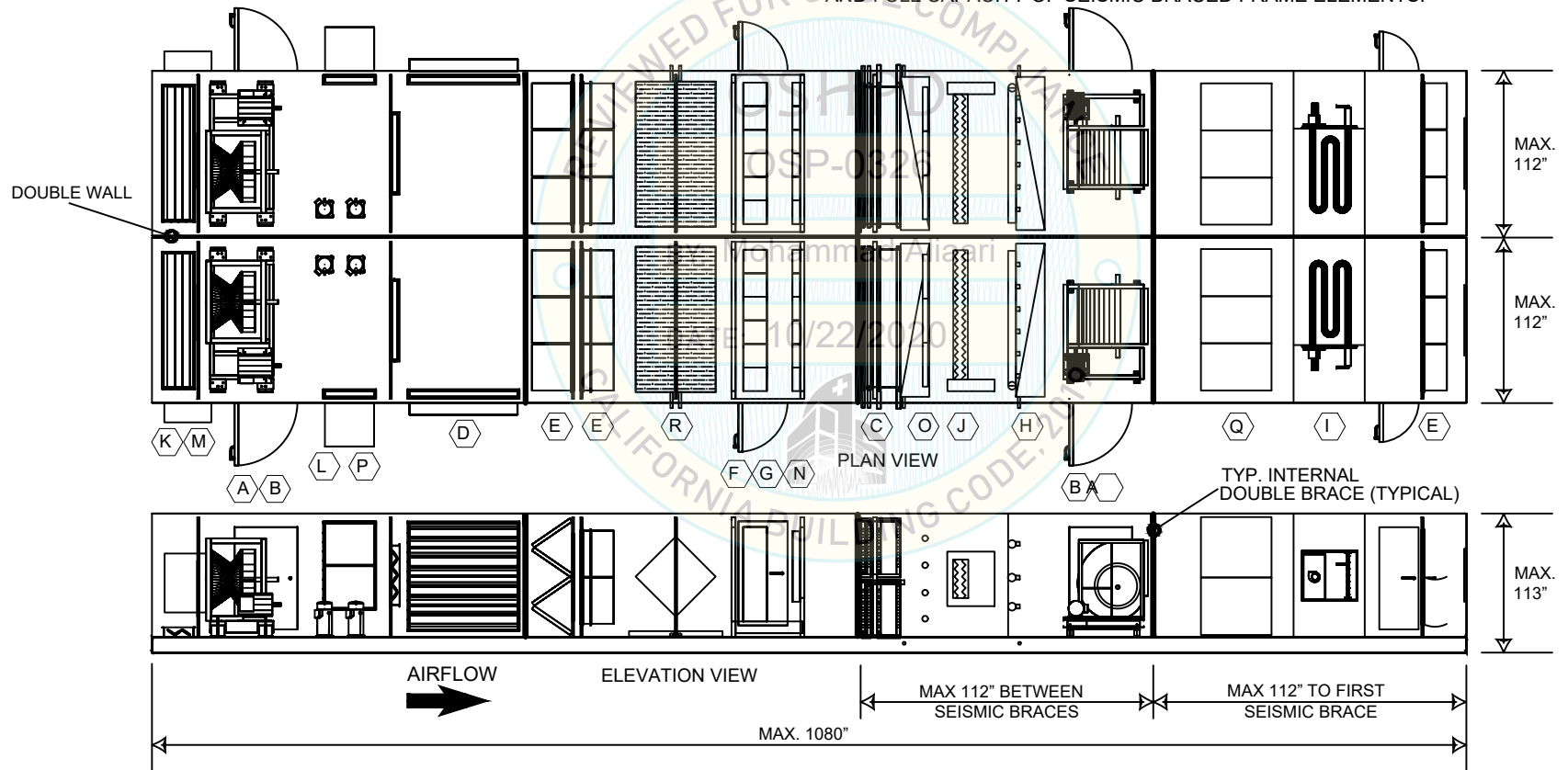
JOB NAME: OSHPD SEISMIC CERTIFICATION
DATE DRAWN: 8-14-2013

UNIT TYPE: SINGLE AIR TUNNEL WITH VESTIBULE
DRAWING No.: SEISMIC - 006

REV No.:	1	2	3	4	5
DATE:	8-20-13	8-30-13	9-5-13	5-11-20	10-09-20
INITIAL:	PA	PA	PA	BKS	BKS

- A** Fans (Table 2)
- B** Motors (Table 3)
- C** Coils (Table 4)
- D** Dampers & Louvers (Table 5)
- E** Filters (Table 6)
- F** Pumps (Table 7)
- G** Valves (Table 8)
- H** Humidifiers (Table 9)
- I** Furnaces (Table 10)
- J** Electric Heaters (Table 11)
- K** VFDs (Table 12)
- L** Compressors (Table 13)
- M** Electrical Panel (Table 14)
- N** Evaporative Humidifier (Table 15)
- O** U.V. Lights (Table 15)
- P** Rain Hoods (Table 15)
- Q** Sound Attenuators (Table 15)
- R** Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 280"Dx112"Wx113"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.



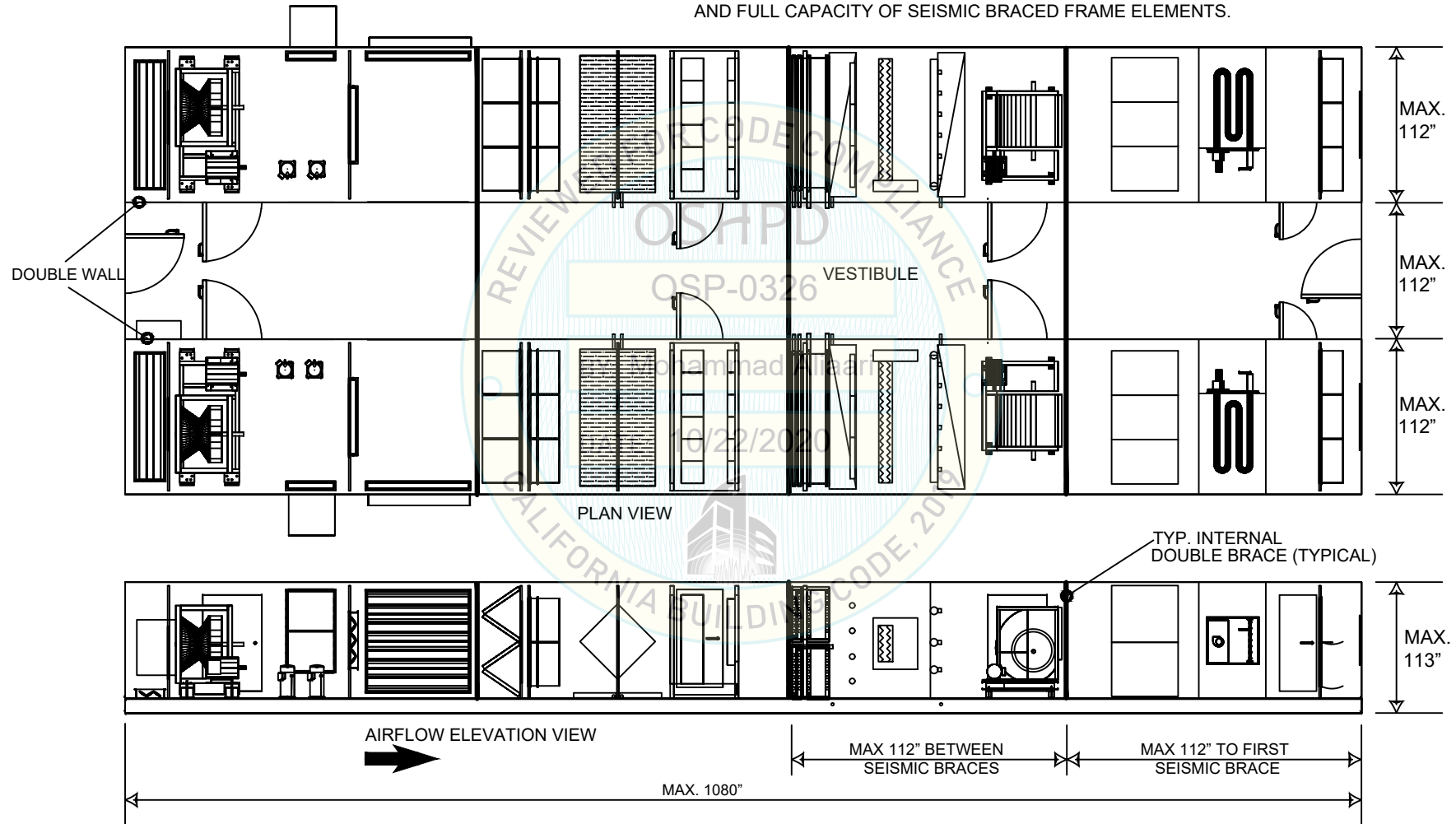
JOB NAME: OSHPD SEISMIC CERTIFICATION
 DATE DRAWN: 8-14-2013

UNIT TYPE: DOUBLE AIR TUNNEL
 DRAWING No.: SEISMIC - 007

REV No.:	1	2	3	4	5
DATE:	8-20-13	8-30-13	9-5-13	5-11-20	10-09-20
INITIAL:	PA	PA	PA	BKS	BKS

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 2" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 80 PSF MAX. LOADING.

6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 280"Dx112"Wx113"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. STRUCTURAL INTEGRITY SHALL BE MAINTAINED BETWEEN SHIPPING SPLITS.
10. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN WITH INTERNAL SEISMIC BRACES AS NEEDED. SEE SEISMIC BRACING INSTALLATION DRAWING FOR BRACING CONSTRUCTION DETAILS. ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.



JOB NAME: OSHPD SEISMIC CERTIFICATION

UNIT TYPE: DOUBLE AIR TUNNEL WITH VESTIBULE

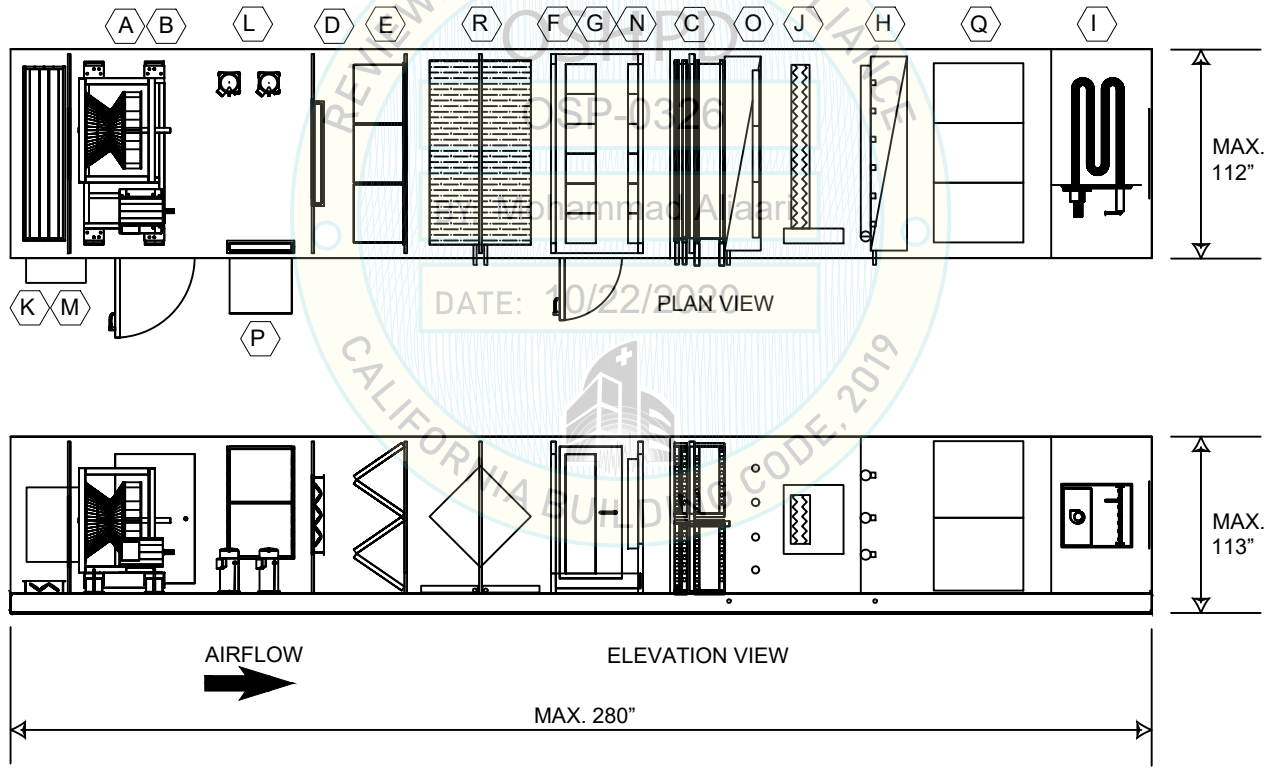
REV No.:	1	2	3	4	5
DATE:	8-20-13	8-30-13	9-5-13	5-11-20	10-09-20
INITIAL:	PA	PA	PA	BKS	BKS

DATE DRAWN: 8-14-2013

DRAWING No.: SEISMIC - 008

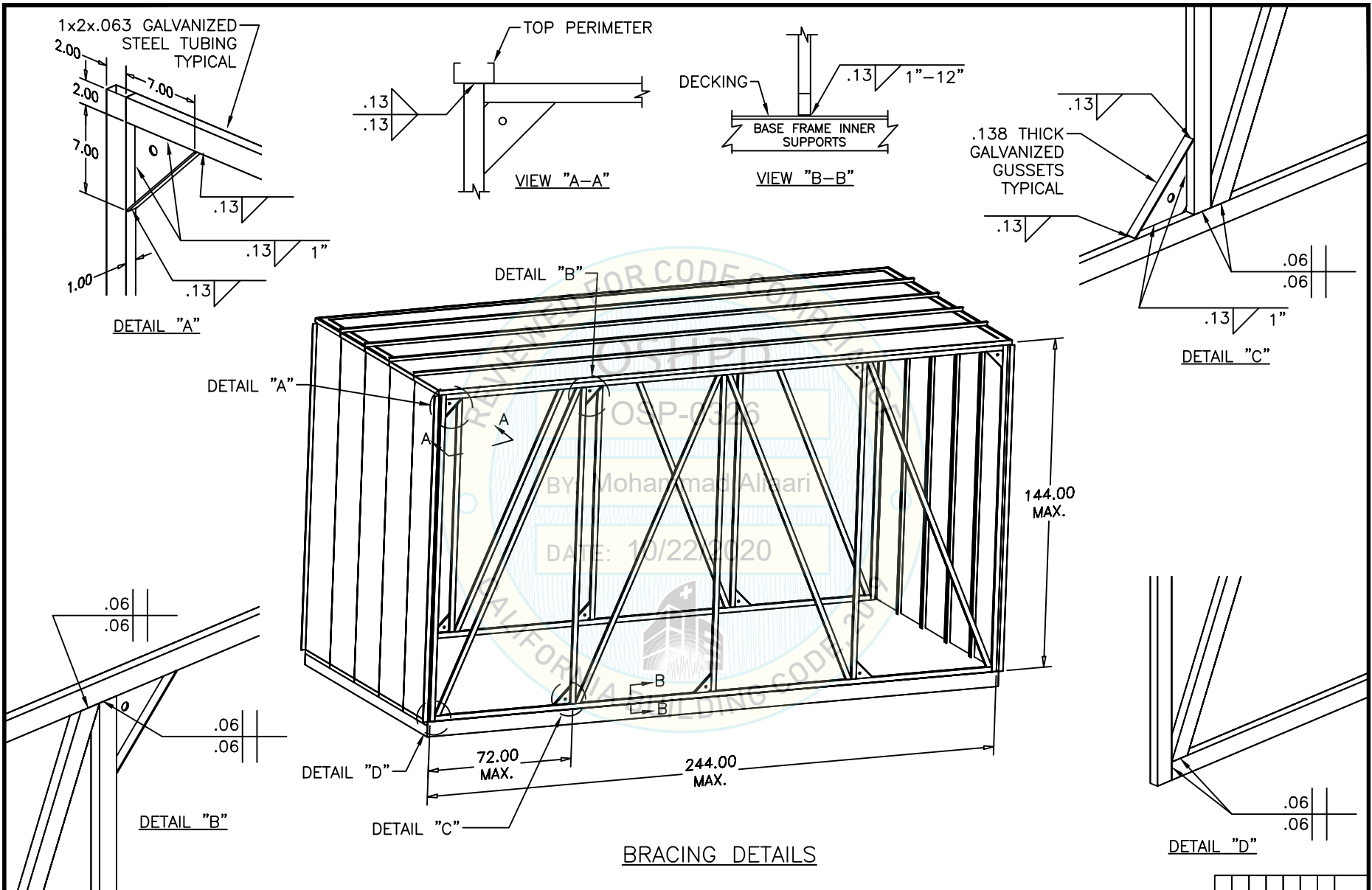
- (A) Fans (Table 2)
- (B) Motors (Table 3)
- (C) Coils (Table 4)
- (D) Dampers & Louvers (Table 5)
- (E) Filters (Table 6)
- (F) Pumps (Table 7)
- (G) Valves (Table 8)
- (H) Humidifiers (Table 9)
- (I) Furnaces (Table 10)
- (J) Electric Heaters (Table 11)
- (K) VFDs (Table 12)
- (L) Compressors (Table 13)
- (M) Electrical Panel (Table 14)
- (N) Evaporative Humidifier (Table 15)
- (O) U.V. Lights (Table 15)
- (P) Rain Hoods (Table 15)
- (Q) Sound Attenuators (Table 15)
- (R) Air-to-Air Heat Exchangers (Table 15)

1. ALL DIMENSIONS ARE IN INCHES. DO NOT SCALE.
2. WALL INSULATION: NONE or 4" THICK.
3. GALVANIZED OR STAINLESS STEEL BASE FRAME HEIGHT: 6" - 8".
4. ELECTRICAL PANELS MAY BE AT VARIOUS LOCATIONS ON THE UNIT.
5. MAXIMUM UNIT WEIGHT: 50 PSF MAX. LOADING.
6. CASING CONSTRUCTION: GALVANIZED STEEL, STAINLESS STEEL OR ALUMINUM PANELS FASTENED TO AN INTERIOR STEEL FRAMEWORK WITH MECHANICAL FASTENERS.
7. MAXIMUM SIZE PER SECTION / SHIPPING SPLIT: 280"Dx112"Wx113"H. INTERNAL SEISMIC BRACES REQUIRED AT ALL SPLITS. SEE "BRACING DETAIL" DRAWING.
8. ALL COMPONENTS ARE SHOWN FOR REFERENCE AND CAN BE RECONFIGURED AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.
9. ALL TRANSVERSE BASE MEMBERS TO BE DESIGNED FOR TRIBUTARY DEAD LOAD AND FULL CAPACITY OF SEISMIC BRACED FRAME ELEMENTS.
10. AHU CABINET SHALL HAVE 4 WALLS IN PLACE



MULTIPLE CONFIGURATIONS MAY BE DESIGNED UP TO THE MAXIMUM STANDARD AHU CABINET SIZES SHOWN ON THIS DRAWING WITHOUT ANY SEISMIC BRACES
 ALL CERTIFIED COMPONENTS MAY BE CONFIGURED WITHIN EACH AHU AS REQUIRED TO MEET APPLICATION AND SITE REQUIREMENTS.

 <small>Confidential - Duplication Prohibited</small>	JOB NAME: OSHPD SEISMIC CERTIFICATION	UNIT TYPE: SINGLE AIR TUNNEL WITH 4 WALLS	REV No.:	1	2			
	DATE DRAWN: 9-5-2013	DRAWING No.: SEISMIC - 009	DATE:	5-11-20	10-09-20			
			INITIAL:	BKS	BKS			



BRACING DETAILS



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JOB NAME: SEISMIC TESTING		MODEL NO.		TAG NO.	
CONTRACTOR:		REVISIONS		DWG. NO.	
ENGINEER:		DATE	8-20-13	5-11-20	SHOP #
DATE DRAWN:		INT.	PA	BKS	JOB NO. 0908205