



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0118 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Alliance Air Products, LLC

Manufacturer's Technical Representative: Tomas R. Sieber

Mailing Address: 2285 Michael Faraday Drive, Suite 15, San Diego, CA 92154

Telephone: 619.671.0100

Email: tsieber@allianceairproducts.com

Product Information

Product Name: Custom Air Conditioning Units

Product Type: Custom Air Conditioning Units

Product Model Number: Various (See Attachments)

(List all unique product identification numbers and/or part numbers)

General Description: Custom air conditioning units and associated internal components.

Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigidly mounted to floor externally (with internal vibration isolated components).

Applicant Information

Applicant Company Name: SEESTudio, Inc.

Contact Person: Dan Junker, SE

Mailing Address: 1281 9th Ave. San Diego, CA 92101, Suite 1101

Telephone: 619.606.5058

Email: djunker@seestudioinc.com

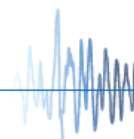
I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: _____

Date: 01.03.17

Title: Principal Engineer

Company Name: SEESTudio, Inc.





OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

Company Name: SEESTudio, Inc.

Name: Dan Junker, SE California License Number: S6178

Mailing Address: 1281 9th Ave. San Diego, CA 92101, Suite 1101

Telephone: 619.606.5058 Email: djunker@seestudioinc.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): _____

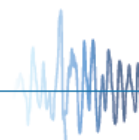
Testing Laboratory

Company Name: Clark Dynamic Test Laboratory, Inc.*

Contact Name: Robert Francis, General Manager

Mailing Address: 1801 Route 51 Jefferson Hills, PA 15025

Telephone: 412.387.1004 Email: rfrancis@clarktesting.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) = 5.63

S_{DS} (Design spectral response acceleration at short period, g) = 2.5

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

R_p (Equipment or component response modification factor) = 2.0

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) = _____

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): SEES Certified Component Summary

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: _____

Date: June 23, 2017

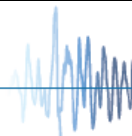
Print Name: Timothy J. Piland

Title: SSE

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

z/h = 1

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION

CERTIFIED COMPONENTS

 TABLE **1**
MANUFACTURER: Alliance Air Products, LLC

MODEL LINE: Custom Air Handling Unit (AHU)

TABLE DESCRIPTION: AHU Cabinets

CONSTRUCTION SUMMARY:

Certified unit construction shall be identical to cabinet construction of UUT's. Refer to supplemental drawings included herein for detailing requirements, materials of construction, and required seismic bracing. Units shall be constructed in accordance with Alliance Air Products typical seismic details. 2" deep 16ga Insulated panels constructed of SS, GS, or AL. 22ga solid or perforated wall liners (SS,GS,AL). 14ga to 10ga floor panels (SS,CS,AL). 1.5-2.0lb fiberglass or urethane foam insulation. 4" to 10" deep base framing (SS,GS) or 4" to 6" deep base framing (AL) perimeter channel.

** Cable cross-bracing required on all approved sections as detailed and spaced per the attached drawings

OPTIONS SUMMARY:

With or without splits. With or without vestibule. Refer to supplemental drawings included herein for approved AHU cabinet layouts & configurations. Indoor or outdoor (NEMA 1 or NEMA 3R). Units within dimensions listed below certified for interior section, end section, or enclosed section.

CERTIFICATION PARAMETERS:
Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$
 S_{DS} at $z/h = 1.0$: $S_{DS} = 2.5g$
MOUNTING SUMMARY:
NOTES:

Rigid Floor Mount. SEOR to design anchorage.

Model Line	Model	Max Dimensions (in)			Weight (psf)	Description		UUT
		Depth	Width	Height				
Custom Air Handling Unit (AHU)	AHU Cabinets	96.0	96.0	96.0	100 Max.	Min.		
		...						
		81.0,76.0	104.0	110.0			(SS Tested)	1A,1B
		96.0	104.0	142.0			(AL Tested)	2
		134.0	104.0	142.0			(AL Tested)	3
		117.0	146.0	144.0			(GS Tested)	4A,4B
		95.0	146.0	146.0			(GS Tested)	5
		107.0	146.0	146.0			(GS Tested)	6
		111.6	146.0	144.0			(GS Tested)	7
		120.4	146.0	144.0			(GS Tested)	8
		...						
		134.0*	146.0	146.0		Max.		
		* Maximum individual Module Depth						



CERTIFIED SUB-COMPONENTS

TABLE 2.1

TABLE DESCRIPTION: Fans

CERTIFICATION PARAMETERS:

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: S_{DS} = 2.5g

NOTES:

Mounted to AHU base frame with vibration isolators.

S E E T O M O R R O W B U I L T T O D A Y

Document No.: 2016.047.CCS.001.3



CERTIFIED SUB-COMPONENTS

TABLE 2.2

MANUFACTURER:	Alliance Air Products, LLC
MODEL LINE:	Custom Air Handling Unit (AHU)
TABLE DESCRIPTION:	Fans

S E E T O M O R R O W B U I L T T O D A Y



CERTIFIED SUB-COMPONENTS

TABLE 2.3

CONSTRUCTION SUMMARY:	CERTIFICATION PARAMETERS:
Aluminum Wheel and Carbon Steel Frame (All models). Note: Fan base construction on all models must be identical to that which successfully passed seismic testing. All changes made to address anomalies during testing must be implemented into certified units (must use 3/8" snubber plates).	Building Code: CBC 2016 Component Importance Factor: $I_p = 1.5$ S_{Ds} at $z/h = 1.0$: $S_{Ds} = 2.5g$
OPTIONS SUMMARY:	
5-75 Motor horsepower; 208, 230, or 460 voltage. Motors per Table 2.4	

[illegible]



CERTIFIED SUB-COMPONENTS

TABLE 2.4

MANUFACTURER:	Alliance Air Products, LLC
MODEL LINE:	Custom Air Handling Unit (AHU)
TABLE DESCRIPTION:	Fan Motors

CONSTRUCTION SUMMARY: Component construction specific to model number listed below.		CERTIFICATION PARAMETERS: Building Code: CBC 2016 Component Importance Factor: $I_p = 1.5$ S_{DS} at $z/h = 1.0$: $S_{DS} = 2.5g$	
OPTIONS SUMMARY: 208, 230, or 460 voltage.			
MOUNTING SUMMARY: Mounted to fan frame		NOTES:	

[illegible]

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE 3

MANUFACTURER: Alliance Air Products, LLC

MODEL LINE: Custom Air Handling Unit (AHU)

TABLE DESCRIPTION: Coils

CONSTRUCTION SUMMARY:

Galvanized or Stainless Steel Casing and Drain Pan; Aluminum or Copper Fins; Tube Wall Thickness: 0.016-0.049; Fin Thickness: 0.006-0.010; Fins per Inch: 4-10; 1-10 Rows; Note: Coil construction on all models must be identical to that which successfully passed seismic testing. All changes made to address anomalies during testing must be implemented into certified units (ensure coil is centered in rack, 16 GA horizontal plate to cabinet wall at mid-height).

OPTIONS SUMMARY:

Single or stacked configuration; Hot Water or Chilled Water.

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: S_{DS} = 2.5g

MOUNTING SUMMARY:

Mounted within AHU. Coils shall be mounted in coil rack as tested.

NOTES:

[illegible]



CERTIFIED SUB-COMPONENTS

TABLE 4

MANUFACTURER:	Alliance Air Products, LLC
MODEL LINE:	Custom Air Handling Unit (AHU)
TABLE DESCRIPTION:	Miscellaneous Components

S E E T O M O R R O W B U I L T T O D A Y



CERTIFIED SUB-COMPONENTS

TABLE 5

CONSTRUCTION SUMMARY:		CERTIFICATION PARAMETERS:	
Dampers: Aluminum (All models) Louvers: Stainless Steel, Aluminum, or Galvanized Steel		Building Code: CBC 2016	
OPTIONS SUMMARY:		Component Importance Factor: $I_p = 1.5$	
		S _{DS} at z/h = 1.0: S _{DS} = 2.5g	
MOUNTING SUMMARY:		NOTES:	

[illegible]



TABLE 6

TABLE DESCRIPTION: Filters

S_{DS} at z/h = 1.0: S_{DS} = 2.5g

NOTES:

Mounted within AHU.

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TABLE 7

TABLE DESCRIPTION: Furnaces

S_{DS} at z/h = 1.0: S_{DS} = 2.5g

NOTES:

Mounted within AHU.

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CERTIFIED SUB-COMPONENTS

TABLE 8

MANUFACTURER:	Alliance Air Products, LLC
MODEL LINE:	Custom Air Handling Unit (AHU)
TABLE DESCRIPTION:	Variable Frequency Drives (VFD's)

CONSTRUCTION SUMMARY:	CERTIFICATION PARAMETERS:
Component construction specific to model listed below.	Building Code: CBC 2016
OPTIONS SUMMARY:	Component Importance Factor: $I_p = 1.5$
208/230 or 460V.	S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$
MOUNTING SUMMARY:	NOTES:
Mounted within AHU.	

[illegible]

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

 TABLE **9**
MANUFACTURER: Alliance Air Products, LLC

MODEL LINE: Custom Air Handling Unit (AHU)

TABLE DESCRIPTION: Starter Panels

CONSTRUCTION SUMMARY:

Painted galvanized carbon steel enclosure.

CERTIFICATION PARAMETERS:
Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$
 S_{DS} at $z/h = 1.0$: $S_{DS} = 2.5g$
OPTIONS SUMMARY:

208/230 or 460V.

MOUNTING SUMMARY:

Mounted within AHU.

NOTES:

Sub-Component	Manufacturer	Model	Max Dimensions (in)			Weight (lb)	Description		UUT
			Depth	Width	Height				
Starter Panel Enclosure	Alliance Air Products, LLC	5 HP	8.0	20.0	24.0	51	Min.		1B
		...							
		100HP	12.0	30.0	40.0	128	Max.		6
Control Transformer	Eaton	0.1 kVA					Min.		1B, 6
		...							
		2.0 kVA					Max.		1B, 6
Fuses	LittleFuse	0.5 A					Min.		1B, 6
		...							
		225.0 A					Max.		1B, 6
Disconnect	Eaton	30.0 A					Min.		1B, 6
		...							
		400.0 A					Max.		1B, 6
Contactors	Eaton	9.0 A					Min.		1B
		...							
		115.0 A					Max.		1B
	ABB	9.0 A					Min.		6
		...							
Overload	Eaton	115.0 A					Max.		6
		1.0 A					Min.		1B
		...							
	ABB	125.0 A					Max.		6
		1.0 A					Min.		6
Selector Switch	Eaton	M22							1B
	ABB	M2							6



S E E S T U D I O
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UNIT UNDER TEST (UUT) DESCRIPTION

UUT Summary

MANUFACTURER: Alliance Air Products, LLC

MODEL LINE: Custom Air Handling Unit (AHU)

[illegible]

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **1A,1B**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype - Small Cabinet Sections 1 & 2

CONSTRUCTION SUMMARY:

2" deep 16ga SS Wall Panels. 20ga SS, 20ga perforated SS, 20ga GS, 20ga perforated GS, 0.02" AL wall liners. 6" deep stainless steel base channels. 16ga SS floor lining. SS door. 3lb fiberglass insulation.

OPTIONS SUMMARY:

Model 122 Direct Drive Aluminum Fan w/ 5 HP Baldor Motor. Model 122 Belt Drive Carbon Steel Fan w/ 5 HP Baldor Motor. Model 182 Single Fan Aluminum Stacked Fan w/ 5 HP TECO/Westinghouse Motor. 12"x12" Door. 18"x36" Door. 36" Deep Sound Trap. 22"x12" Damper. 22"x15" Louver. 4x1.5 Cell Filter Frame w/ Pre-filters. 250,000 BTU Furnace. 1.0 HP NEMA 3 VFD. 5 HP Starter Panel.

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 35" o.c. at perimeter framing parallel to airflow.

TEST PARAMETERS:

Building Code: CBC 2016

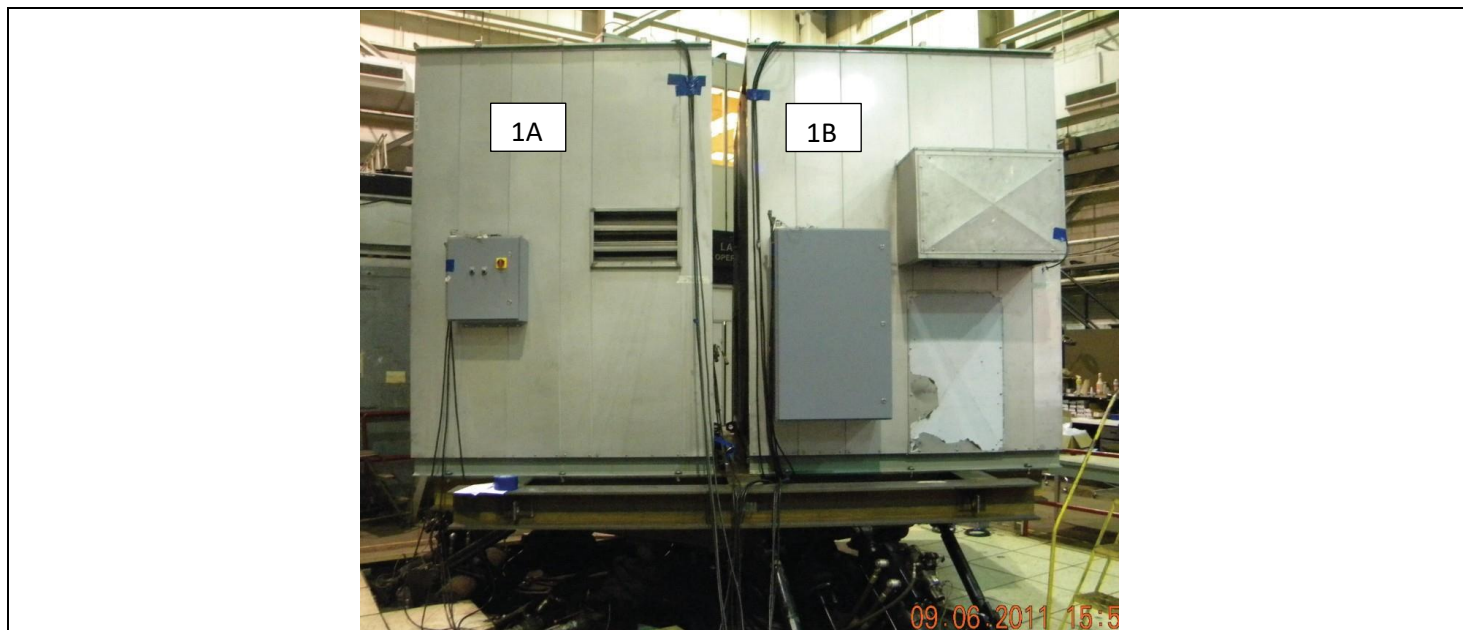
Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
81.0(A), 76.0(B)	104.0	110.0	7,845	3.0	3.3	2.8

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST

PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **2**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype - Medium Cabinet Section 1

CONSTRUCTION SUMMARY:

2" deep 0.063" thick AL wall panels. No Liner, 0.02" AL liner, 0.02" perforated AL Liner. 6" deep AL channel base framing. 0.06" AL floor lining. 1.5lb fiberglass insulation. Injected foam insulation. AL Door. Coils mounted in coil rack.

OPTIONS SUMMARY:

Model 182 Nine (9) Carbon Steel & Aluminum Fan Stacked Fan w/ 15 HP TECO/Westinghouse Motor. 10 Row CW-24Wx24H Copper Coil, 10 fpi, 0.016" Tube Thickness, 0.006" Fin Thickness. 10 Row CW-24Wx24H Aluminum Coil, 10 fpi, 0.049" Tube Thickness, 0.006" Fin Thickness. (1) 18" UV Light. 4.5x2 Cell Filter Frame w/ Final Filters. 21"x15" Humidifier. 24Wx60H Door. 18Wx60H Door.

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 45" o.c. at perimeter framing parallel to airflow.

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
96.0	104.0	142.0	5,635	7.5	7.5	12.6

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST

PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **3**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype - Medium Cabinet Section 2

CONSTRUCTION SUMMARY:

2" deep 0.063" thick AL wall panels. 0.125" AL treadplate floor lining. No Liner, 20ga perforated GS, 20ga GS wall liners. 6" deep AL channel base framing. 1.5lb fiberglass insulation. Injected foam insulation. AL Door.

OPTIONS SUMMARY:

18"x42" Door. 36"x72" Door. (2) 48"x48" Sound Trap. 48"x108" Damper. 50"x115" Louver. 250,000 BTU Furnace. 400,000 BTU Furnace.

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 64" o.c. at perimeter framing parallel to airflow.

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
134.0	104.0	142.0	4,270	4.6	15.9	13.5

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST

PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{Ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **4A,4B**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype – Large Cabinet Sections 1 & 2

CONSTRUCTION SUMMARY:

2" deep 14ga GS wall panels. 20ga GS, 20ga perforated GS wall liners. 10ga GS floor lining. 10" deep carbon steel channel base framing. 1.5lb fiberglass insulation. GS door.

OPTIONS SUMMARY:

GS Flat HEPA Filter Frame. 5H x 5W, 24x24x2 30% PF. 5H x 1W, 24x12x2 30% PF. 5H x 5W, 24x24x12 95% FF. 5H x 1W, 24x12x12 95% FF. 18"x60" Door. (2) 40W x 48H nearwall opening, 1 GS Damper, 1 GS Louver. (2) 40W x 48H farwall opening 1 GS Damper, 1 GS Louver.

MOUNTING SUMMARY:

Rigid floor mount with 3/4" grade 5 bolts at 55" o.c. at perimeter framing parallel to airflow.

TEST PARAMETERS:

Building Code: CBC 2016

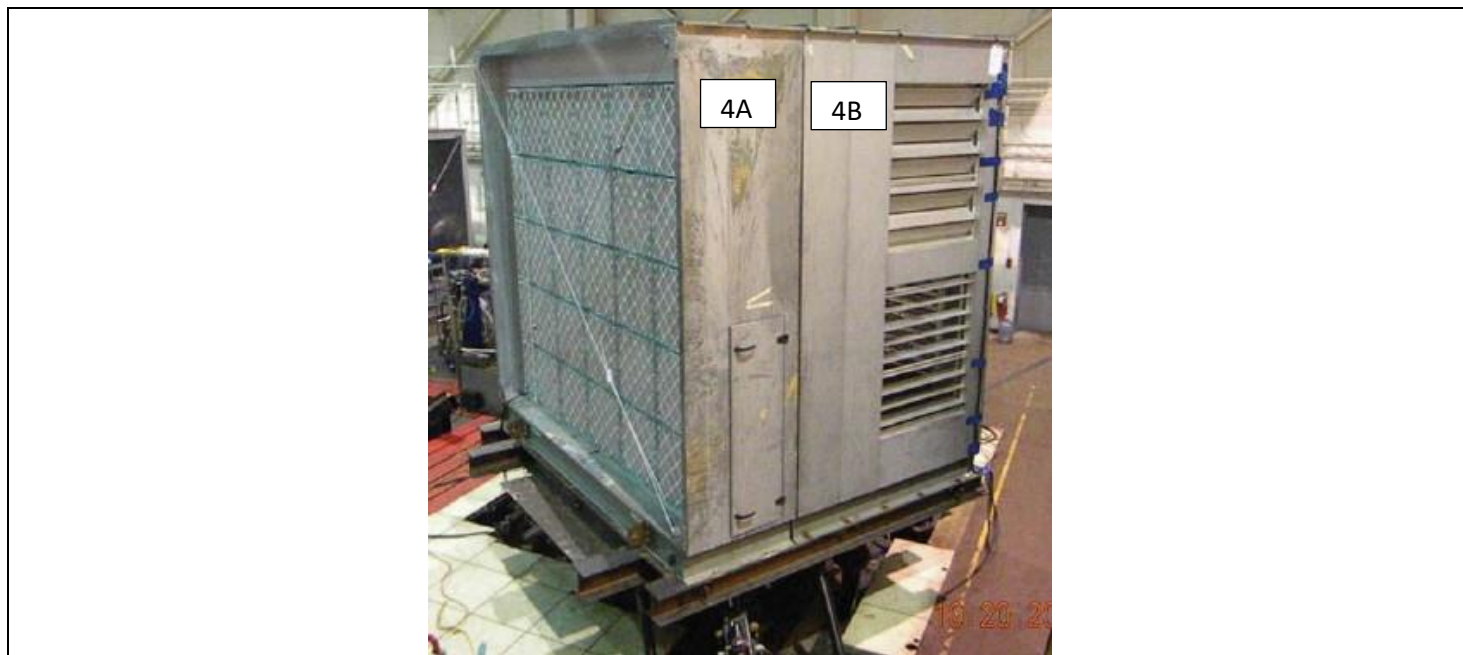
Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
117.0	146.0	144.0	5,270	7.0	11.9	>33.3

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST

PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{Ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **5**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype – Large Cabinet Section 3

CONSTRUCTION SUMMARY:

2" deep 14ga GS wall panels. 20ga GS, 22ga GS wall liners, .125" carbon steel treadplate floor lining. 10" deep carbon steel channel base framing. GS Door. 1.5 lb fiberglass insulation. Coils mounted in coil rack.

OPTIONS SUMMARY:

4 Row HW/CW-130Wx60H Copper Coil, 8 fpi, 0.02" tube thickness, 0.01" Fin Thickness. 8 Row HW/CW-130Wx60H Aluminum Coil, 8 fpi, 0.02" tube thickness, 0.01" Fin Thickness. 16ga GS, SS drain pan. 16ga SS, GS casing. 18"x60" Door. 24"x60" Door. (5) 48" UV Lights. SS 125"x130" Humidifier.

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 44" o.c. at perimeter framing parallel to airflow.

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
95.0	146.0	146.0	6,850	17.4	5.9	18.2

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST

PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{Ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **6**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype – Large Cabinet Section 4

CONSTRUCTION SUMMARY:

2" deep 16ga GS wall panels. 22ga GS, 22ga perforated GS wall liners. 16ga GS floor lining. 10" deep carbon steel channel base framing. GS Door. 1.5 lb fiberglass insulation.

OPTIONS SUMMARY:

(2) Model 402 Direct Drive Aluminum Fans w/ 50 HP TECO/Westinghouse Motors, Carbon Steel Frame. 24"x60" Door. 100 HP Starter Panel.

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 51" o.c. at perimeter framing parallel to airflow.

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
107.0	146.0	146.0	6,900	3.4	3.1	3.0

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST
PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{Ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **7**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype – Large Cabinet Section 5A

CONSTRUCTION SUMMARY:

2" deep 16ga GS wall panels. 20ga GS wall liners. 14ga GS floor lining. 10" deep carbon steel channel base framing. GS Door. 1.5 lb fiberglass insulation.

OPTIONS SUMMARY:

SS 2,250,000 BTU Furnace. 24"x60" Door. 74" Vestibule.

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 52" o.c. at perimeter framing parallel to airflow.

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
111.6	146.0	144.0	6,170	3.6	10.6	9.5

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST
PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{Ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **8**

MANUFACTURER: Alliance Air Products, LLC
MODEL LINE: Custom Air Handling Unit (AHU)
MODEL NUMBER: Test Prototype – Large Cabinet Section 5B

CONSTRUCTION SUMMARY:

2" deep 16 ga GS wall panels. 20 ga GS wall liners. 16 ga GS floor lining. 10" deep carbon steel channel base framing. GS door. 3 lb fiberglass insulation.

OPTIONS SUMMARY:

Model 600 direct drive aluminum fan w/ 75 HP Baldor motor, carbon steel frame. 100 HP VFD.

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mount with 5/8" grade 5 bolts at 57" o.c. at perimeter framing parallel to airflow.

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE



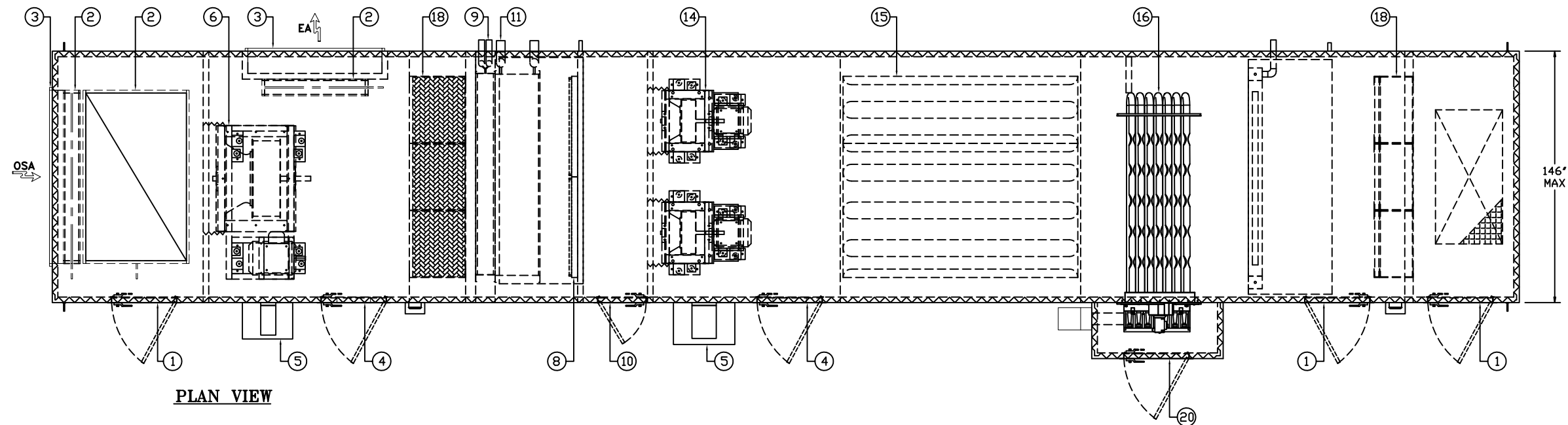
UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
120.4	146.0	144.0	8,125	2.7	2.4	3.1

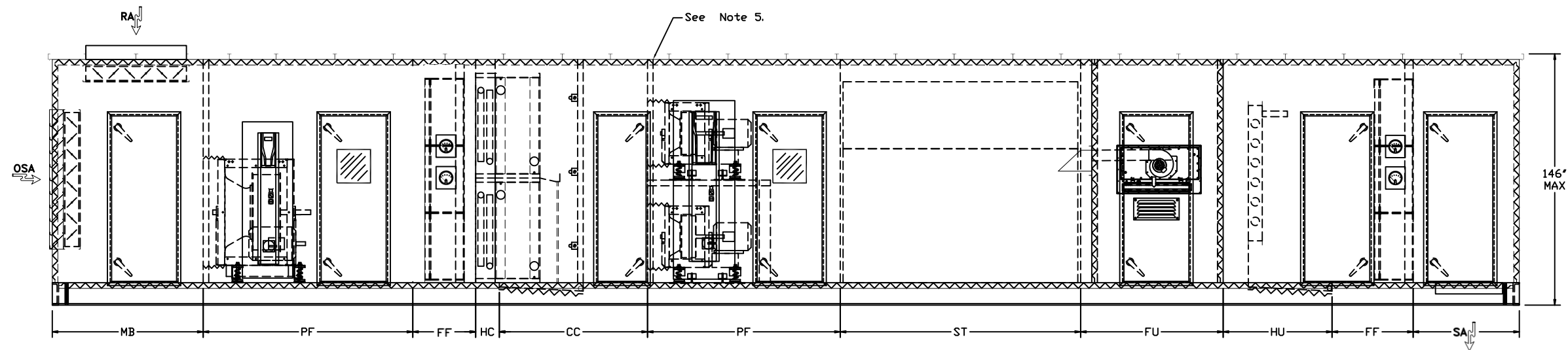
UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL AFTER THE TEST

PER MANUFACTURER REQUIREMENTS WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{Ds} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.00	4.00	3.00	1.67	0.67



PLAN VIEW



SIDE VIEW

- ① Access Door (See Table 4)
- ② Damper (See Table 5)
- ③ Louver (See Table 5)
- ④ Access Door (See Table 4)
- ⑤ VFD & enclosure (See Table 8)
- ⑥ Fan & motor (See Table 2)
- ⑦ Louver (See Table 5)
- ⑧ UV Lights (See Table 4)
- ⑨ Heating Coil (See Table 3)
- ⑩ Access Door (See Table 4)
- ⑪ Cooling Coil (See Table 3)
- ⑫ Access Door (See Table 4)
- ⑬ Starter Panel (See Table 9)
- ⑭ Fan & motor (See Table 2)
- ⑮ Sound Traps (See Table 4)
- ⑯ Gas Furnace (See Table 7)
- ⑰ Access Door (See Table 4)
- ⑱ Filters (See Table 6)
- ⑲ Access Door (See Table 4)
- ⑳ Access Door (See Table 4)

SECTIONS :

CC = Cooling Coil
 PF = Plenum Fan
 ST = Sound Trap
 FF = Flat Filter
 FU = Furnace
 HC = Heating Coil
 HU = Humidifier
 MB = Mixing Box

NOTES :

1. Wall insulation 2" & 4".
2. Cabinet Material: Galvanized Steel, Stainless Steel, Aluminum.
3. Coil rack is required for stacked coils.
4. Unit base heights 4' to 10". Base material steel, aluminum.
5. Two (2) sets of internal seismic cross bracing required @ 10'-0" o.c. max. (Typ. @ each section inlet). See Internal Cross Bracing Sheet for details.
6. Seismic cross bracing to be installed @ each side of shipping splits within AHU.
7. Shipping splits may be located at any section.

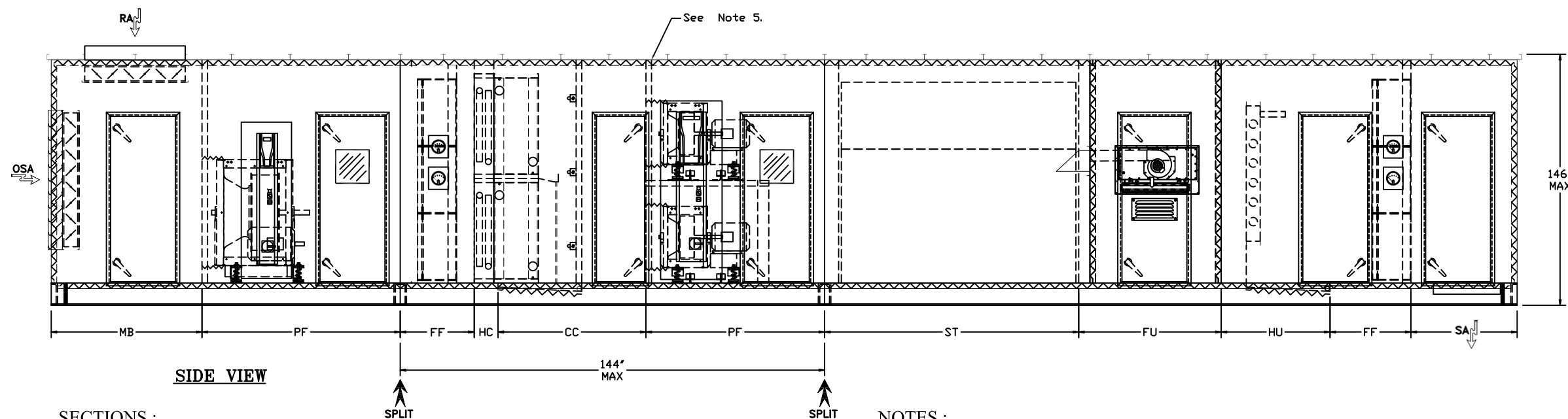
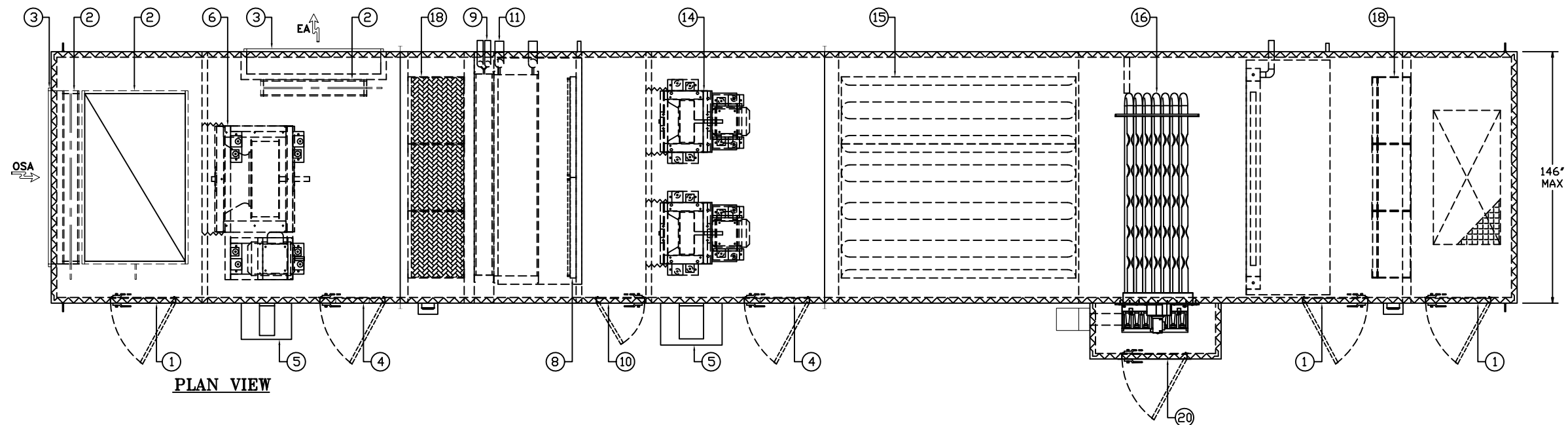
SCHEMATIC LINE DRAWINGS FOR AIR HANDLING UNITS

Lifting lug locations on mechanical drawing are for representation only. Actual lifting locations will vary depending engineering review.



2285 Michael Faraday Dr. Suite 15
 San Diego, CA 92154
 Phone (619) 428-9688
 Fax (619) 428-9689

Project Name:	OSP Inline Unit	Model:	TBD	PROJECT ENGINEER TSIEBER		
Unit Tag:	AHU-1	Qty.:	(1) ONE EACH	DESIGN ENGINEER GSALGADO		
				DATE 05-01-12	SCALE N/A	DWG UNITS N/A
				FILE: Bid\2012\1205\1201-001\Sub...\Mech...\MD-AHU1-1205-001.dwg		



- ① Access Door (See Table 4)
- ② Damper (See Table 5)
- ③ Louver (See Table 5)
- ④ Access Door (See Table 4)
- ⑤ VFD & enclosure (See Table 8)
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SCHEMATIC LINE DRAWINGS FOR AIR HANDLING UNITS

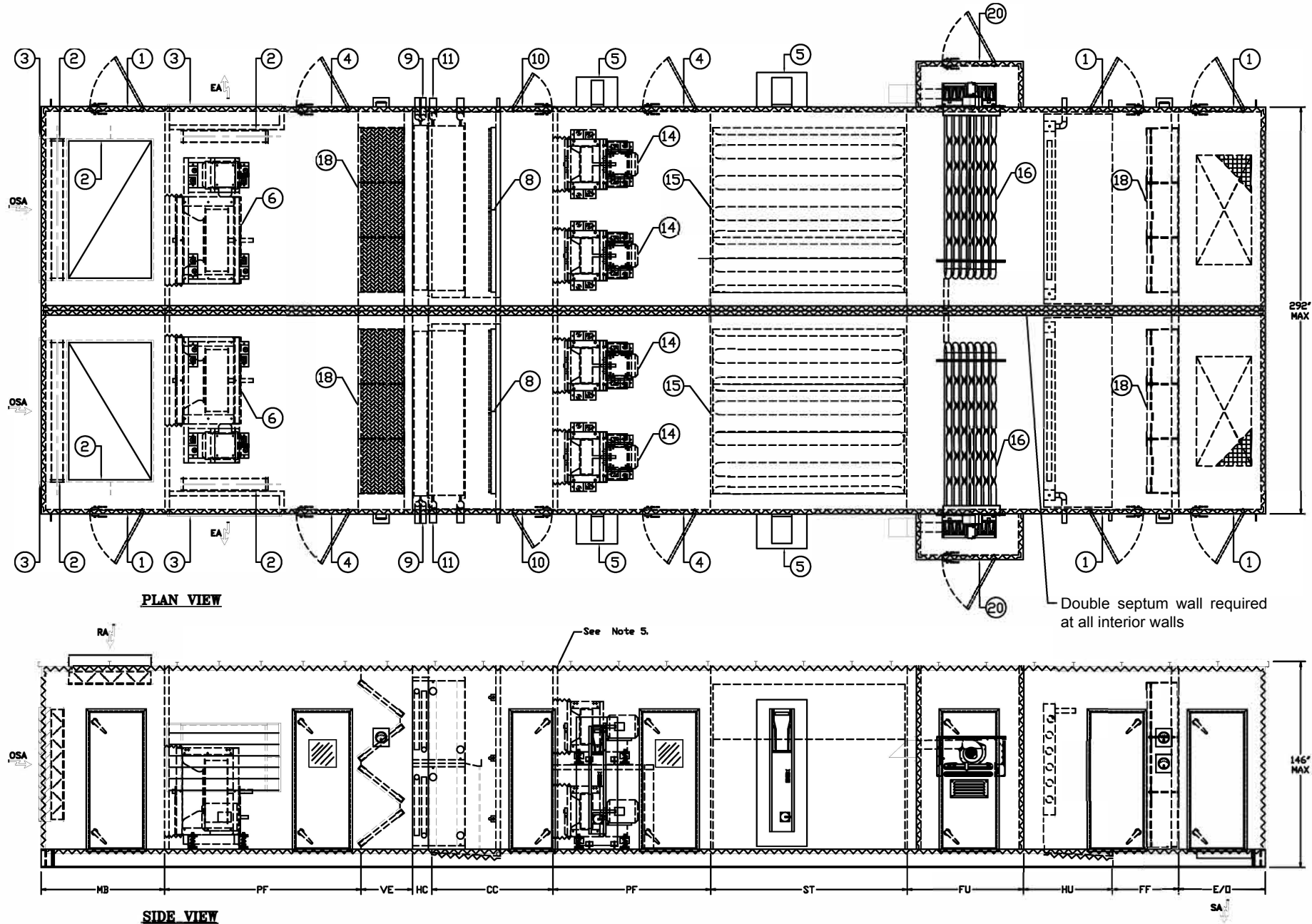
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Project Name:	OSP Inline Unit w/ Splits	Model:	TBD	PROJECT ENGINEER TSIEBER		
				DESIGN ENGINEER GSALGADO		
Unit Tag:	AHU-1	Qty. :	(1) ONE EACH	DATE 05-01-12	SCALE N/A	DWG UNITS N/A
				FILE: Bid\2012\1205\1201-001\Sub...\Mech...\MD-AHU1-1205-001.dwg		

No.	DATE		DWN	APP
1	6/12/17	SEE REVISION SHEET	J.M.	L.P.



- ① Access Door (See Table 4)
- ② Damper (See Table 5)
- ③ Louver (See Table 5)
- ④ Access Door (See Table 4)
- ⑤ VFD & enclosure (See Table 8)
- ⑥ Fan & motor (See Table 2)
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- ⑲ Access Door (See Table 4)
- ⑳ Access Door (See Table 4)

SECTIONS :

- AB = Air Blender
- CC = Cooling Coll
- DF = DWDI Fan
- DX = DX Coll
- EC = Economizer
- FF = Flat Filter
- FU = Furnace
- HC = Heating Coll
- HU = Humldfier
- MB = Mixing Box

NOTES :

- Wall Insulation 2" & 4".
- Cabinet Material: Galvanized Steel, Stainless Steel, Aluminum.
- Coll rack is required for stacked colls.
- Unit base heights 4' to 10'. Base material steel, aluminum.
- Two (2) sets of internal seismic cross bracing required @ 10'-0"o.c. max. (Typ. @ each section Inlet). See Internal Cross Bracing Sheet for details.
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SCHEMATIC LINE DRAWING FOR AIR HANDLING UNITS

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Project
Name:

Unit
Tag:

OSP Inline Unit

Model: TBD

AHU-1

Qty. : (1) ONE EACH

PROJECT ENGINEER TSIEBER

DESIGN ENGINEER GSALGADO

DATE 05-01-12

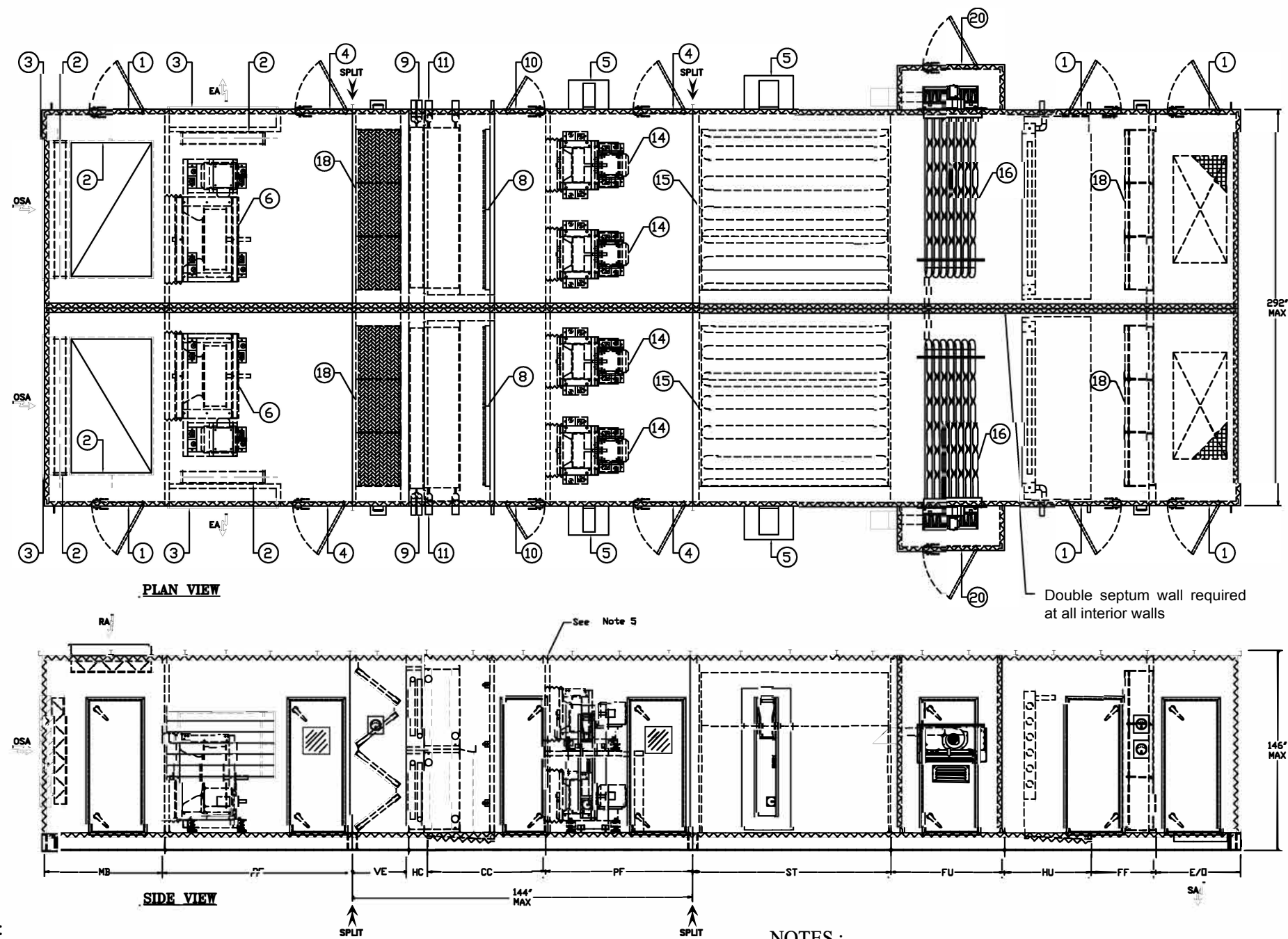
SCALE N/A

DWG UNITS N/A

FILE: Bid\2012\1205\1201-001\Sub...\Mech...\MD-AHU1-1205-001.dwg



No.	DATE	DWN	APP
1	6/12/17	SEE REVISION SHEET	J.M. L.P.



- 1 Access Door (See Table 4)
- 2 Damper (See Table 5)
- 3 Louver (See Table 5)
- 4 Access Door (See Table 4)
- 5 VFD & enclosure (See Table 8)
- 6 Fan & motor (See Table 2)
- 7 Louver (See Table 5)
- 8 UV Lights (See Table 4)
- 9 Heating Coil (See Table 3)
- 10 Access Door (See Table 4)
- 11 Cooling Coil (See Table 3)
- 12 Access Door (See Table 4)
- 13 Starter Panel (See Table 9)
- 14 Fan & motor (See Table 2)
- 15 Sound Traps (See Table 4)
- 16 Gas Furnace (See Table 7)
- 17 Access Door (See Table 4)
- 18 Filters (See Table 6)
- 19 Access Door (See Table 4)
- 20 Access Door (See Table 4)

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Project
Name:
Unit
Tag:

OSP Inline Unit
w /Splits

Model: TBD

AHU-1

Qty. : (1) ONE EACH

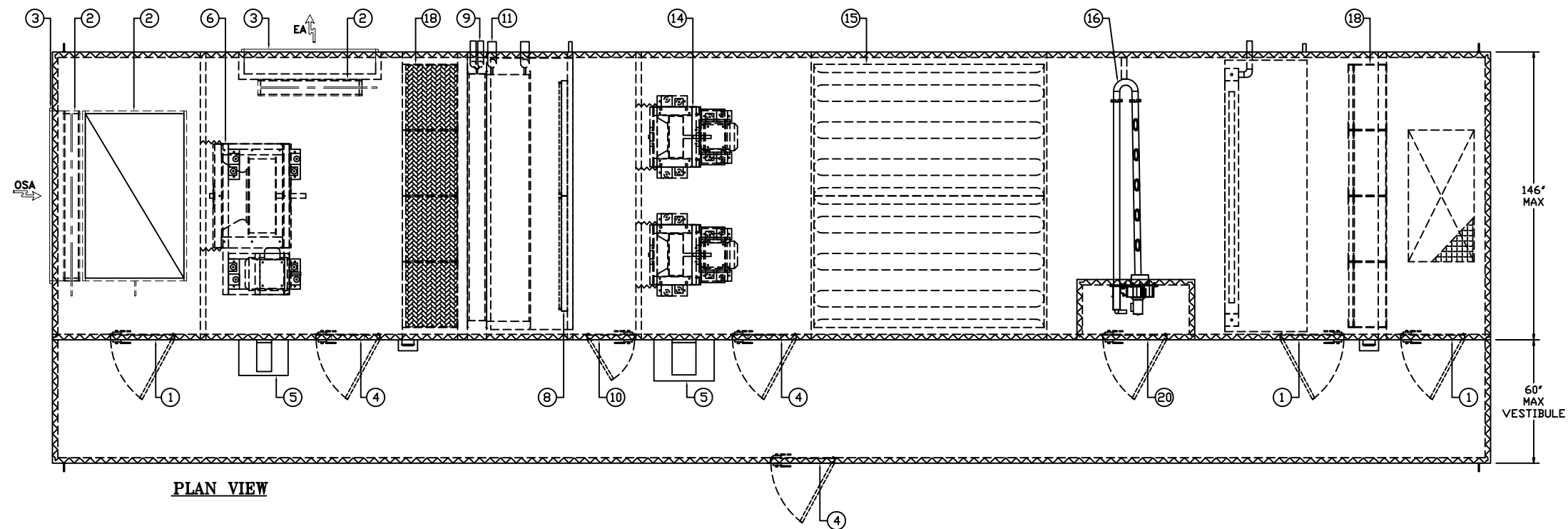
PROJECT ENGINEER TSIEBER

DESIGN ENGINEER GSALGADO

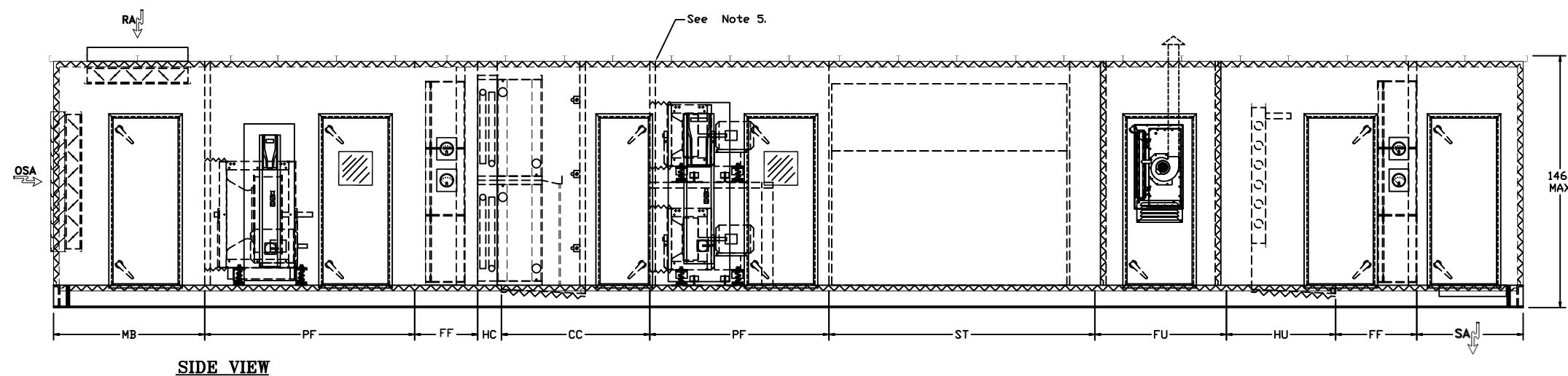
DATE 05-01-12 SCALE N/A DWG UNITS N/A

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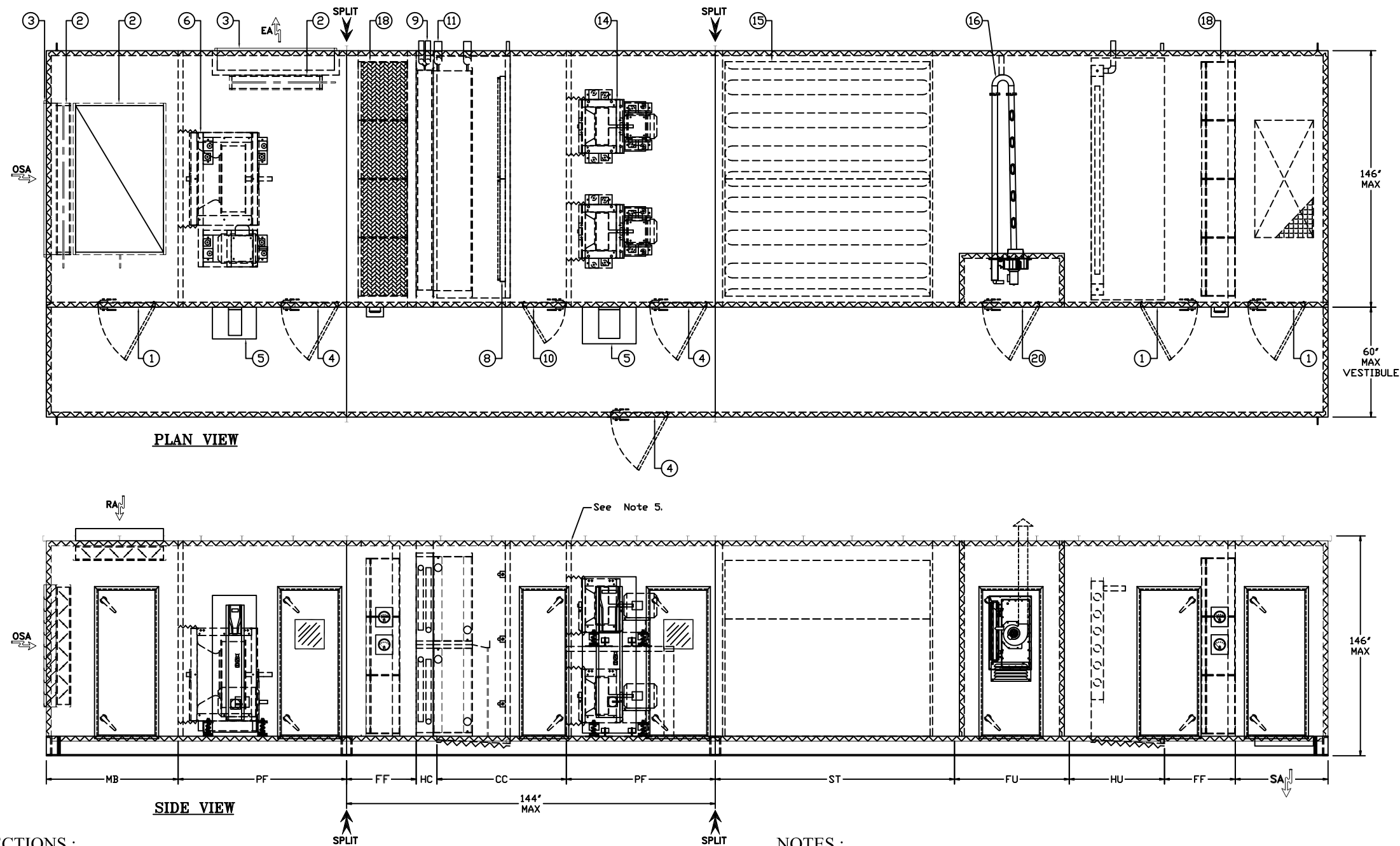
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Unit Tag:	AHU-1	Qty.:	(1) ONE EACH	DESIGN ENGINEER GSALGADO
				DATE 05-01-12 SCALE N/A DWG UNITS N/A
				FILE: Bid\2012\1205\1201-001\Sub...\Mech...\MD-AHU1-1205-001.dwg



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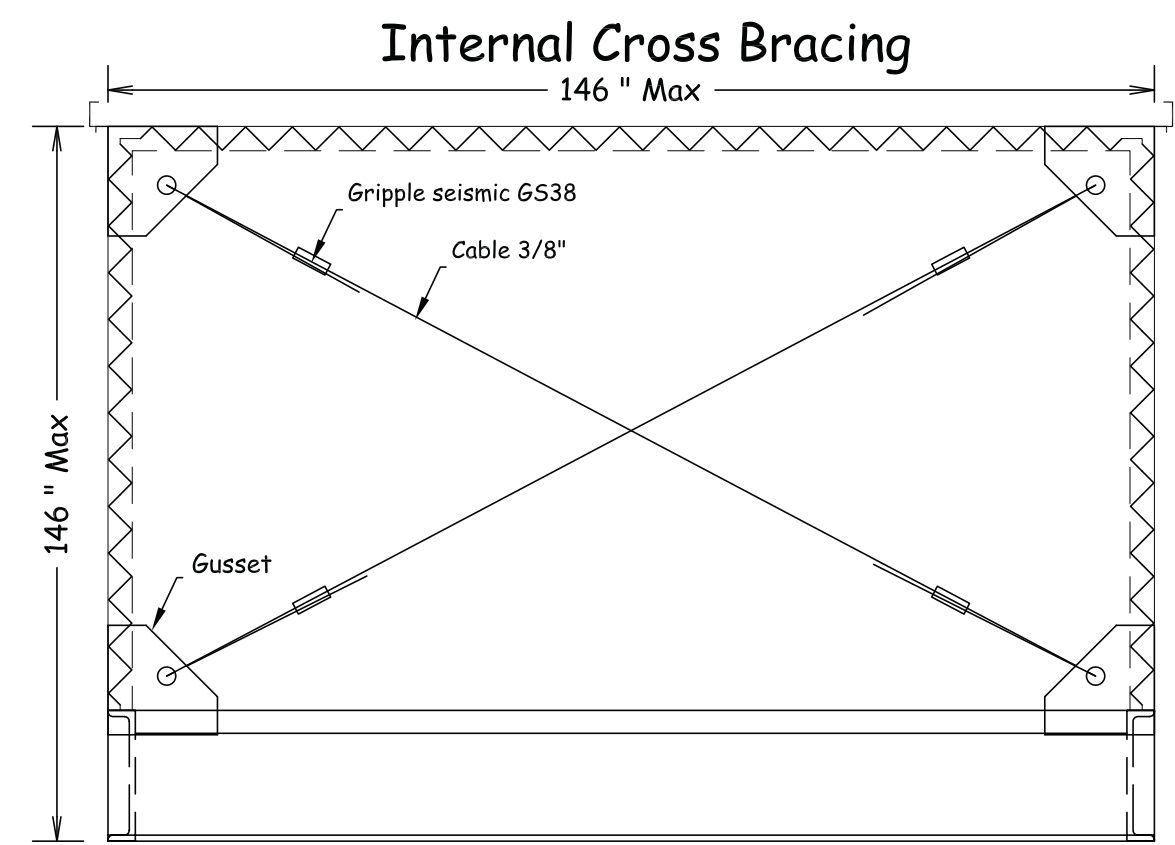
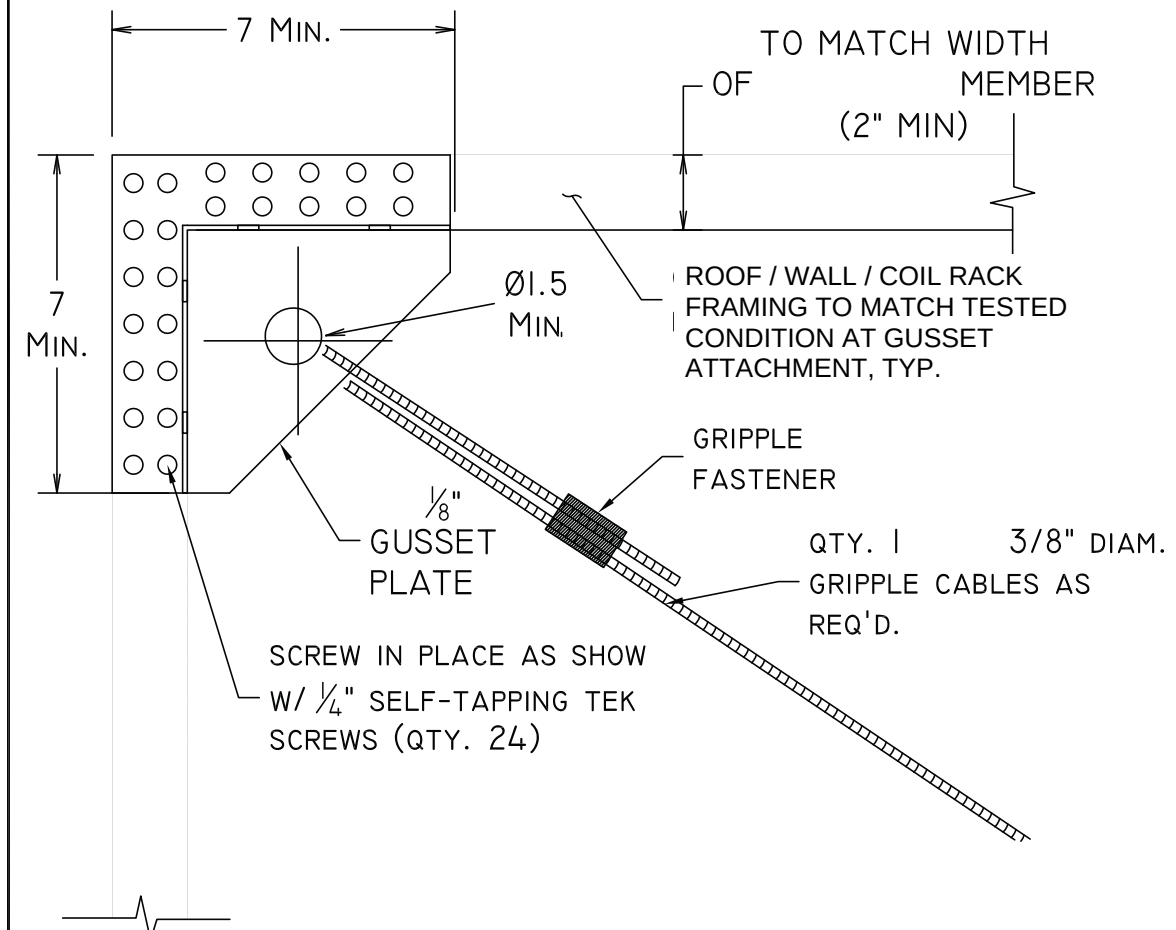
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Project Name:	OSP Inline Unit	Model:	TBD	PROJECT ENGINEER TSIEBER		
Unit Tag:	AHU-1	Qty.:	(1) ONE EACH	DESIGN ENGINEER GSALGADO		
				DATE 05-01-12	SCALE N/A	DWG UNITS N/A
				FILE: Bid\2012\1205\1201-001\Sub...\Mech...\MD-AHU1-1205-001.dwg		



- Notes:
- 1.- Two (2) sets of X-cable braces and gussets required at a max. spacing of 10'.
 - 2.- Seismic restraints to be installed at each side of a shipping split within the AHU.



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 San Diego, CA 92154
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 Fax (619) 428-9689

Project
 Name:
 Unit
 Tag:

Internal Cross
 Bracing
 Gusset

PROJECT ENGINEER TSIEBER		
DESIGN ENGINEER IMORENO		
DATE 06-06-12	SCALE NA	DWG UNITS INCHES
FILE: \\Project\1600\16003\TEMP 1109-1662\MFG\Gusset\Gusset.dwg		