

## Submittal Form

ARCHITECT

ENGINEER

## AHSC

(Project)

Submittal No. 001

**Description:** Air Distribution

**Date:** 07/17/17 **Return By:** 07/31/17

Division: 23

Section: 23 30 00

Andersen

**Subcontract/Supplier:**

The review by O'Neill Walsh Community Builders ("OWCB") of the above Submittal shall not relieve Subcontractor/Supplier from any of its obligations under the agreement with OWCB nor give rise to any claim in favor of the Subcontractor/Supplier or third parties against OWCB or Owner.

By: Logan Bright

O'Neill Walsh Community Builders

Notes:

Notes:

Notes:

REVISION AND RESUBMIT.

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contact documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for: Dimensions, which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

MFIA, Inc. Consulting Engineers

By: Takako Baker, Date: 7/24/17

See attached for submittal review letter.



**"Your Green Heating & Cooling Professionals  
Dedicated to Serving Your and Your Community"**

## **HVAC Submittals**

**Asian Health & Service Center  
9005 SE Foster Rd.  
Portland, OR 97266**

**General Contractor  
O'Neill / Walsh Community Builders  
2905 SW First Avenue  
Portland, OR 97201**

**Submitted By  
Andersen Mechanical  
16285 SW 85<sup>th</sup> Ave, Suite 410  
Tigard, OR 97224**



23\_30\_00

Air Distribution



## UPC #070 25' Insulated UL 181 Class 1 Air Duct

### Description

ATCO's UPC #070 is a UL 181, Class 1 Air Duct and is manufactured with a reinforced grey polyester jacket.

The UPC #070 inner core is air-tight and is designed for low-to-medium operating pressures in HVAC systems.

### Construction

A double lamination of tough polyester which encapsulates a steel wire helix forms the air-tight inner core to ATCO's UPC #070. The double-layer core is wrapped in a thick blanket of fiberglass insulation and sheathed in a rugged and durable reinforced grey polyester jacket.

### Applications

UPC #070 is designed for indoor use as a supply and return air duct in residential and commercial low-to-medium pressure heating and air conditioning systems. ATCO's UPC #070 can be used as a complete air duct system and/or a branch duct connecting to mixing boxes, diffusers, light troffers, room inlets, or other terminal devices.

### Code Compliance\*

UL 181, UMC 10-1, SBCC, BOCA, NFPA 90A & 90B, HUD 515-2.1 (b), Cities of Chicago, New York & San Francisco, County of Dade (Florida), California State Fire Marshal.

\*ATCO recommends that you check with the local code body having jurisdiction in your area to determine applicable codes.

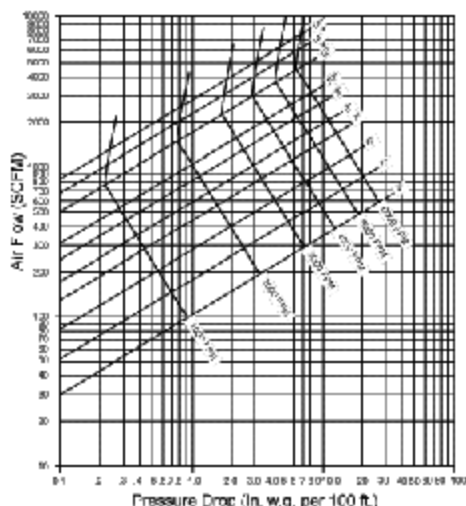
### Features and Benefits

- **Air-tight Inner Core**  
Energy efficient  
No fiberglass erosion into airstream
- **Encapsulated Wire Helix**  
No unraveling when cut to length  
Quick installation
- **Smooth Inner Core**  
Low friction loss  
Low operating cost
- **Thick Blanket of Fiberglass Insulation**  
Energy efficient  
Excellent thermal characteristics
- **Tough Reinforced Polyester Jacket**  
Tear and puncture resistant  
Low maintenance
- **Lightweight Compact Carton**  
Reduces warehouse and job site handling costs.



## Product and Performance Data

### Air Friction Chart \*



**STRAIGHT RUN** \* FD 72-R1 Test Code of the Air Diffusion Council. Friction loss is computed in inches of water gauge per 100 ft. of straight duct. By using CFM or FPM values for a given duct dimension, the friction loss can be determined. Conversion of CFM to FPM also can be made.

### Product Data

- Length: 25'
- Diameter: 4", 5", 6", 7", 8", 9", 10", 12", 14", 16", 18", 20"
- Vapor Barrier: Reinforced polyester
- End Treatment: 25'-plain ends
- Packaging: 1 piece per carton

### Warranty

Atco warrants that all flexible ducts will be free from defects in material and workmanship for a period of five years from the date of purchase only if the ducts are installed in accordance with Atco's installation instructions and under conditions specified in Atco's performance data. The buyer's exclusive remedies for any defect in the flexible ducts shall be replacement or refund of the purchase price, at Atco's option.

ATCO MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE. IN PARTICULAR, ATCO MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ATCO SHALL HAVE NO LIABILITY TO THE BUYER OR ANY THIRD PARTY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, LOST PROFITS OR OTHER ECONOMIC INJURY DUE TO ANY DEFECT IN THE FLEXIBLE DUCTS.

MATERIALS AND SPECIFICATIONS FOR THE FLEXIBLE DUCTS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

### UPC #070

### Performance Data

- **Rated Positive Pressure:** 10" w.g. per UL-181 (UL Listed pressure ratings are determined in straight lengths @ ambient temperatures.)
- **Recommended Operating Pressures:** (Determined in a 90° bend at elevated temperatures in accordance with ADCFD 72-R1 Test Code.)
- **Maximum Positive:**  
6" w.g. - 4" thru 12" Dia.  
4" w.g. - 14" thru 20" Dia.  
(With factory installed metal collars, 2" w.g. - all diameters)
- **Maximum Negative:**  
3/4" w.g. - all diameters
- **Maximum Velocity:** 5,000 FPM
- **Vapor Transmission:** .6 perms
- **Maximum Operating Temperatures:**  
-20°F to 140°F Continuous (@ maximum pressure)  
-20°F to 180°F Continuous (@ 2" pos. w.g. max.)  
-20°F to 250°F Intermittent (@ 1/2" pos. w.g. max.)
- **R Value:** R-4.2  
(In accordance with ADC flexible duct performance and installation standards (1991) using ASTM C-518 at installed wall thickness on flat insulation only.)
- **Flame Spread:** Less than 25
- **Smoke Developed:** Less than 50

**INSTALLATION:** Air duct connections and joints shall be made per installation instructions outlined by ATCO Rubber Products, Inc. and as required by the UL 181 listing procedure. (Installation instructions are included inside of each carton.)

ATCO RUBBER PRODUCTS, INC.  
CORPORATE HEADQUARTERS  
7101 ATCO DRIVE  
FORT WORTH, TEXAS 76118-7098  
PHONE: (817) 595-2894  
1-800-USS-DUCT (1-800-877-3828)  
FAX: 1-(800)-366-3539



# DUCT-SEAL™ 321

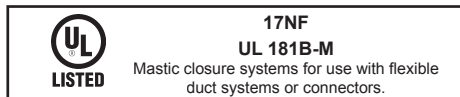
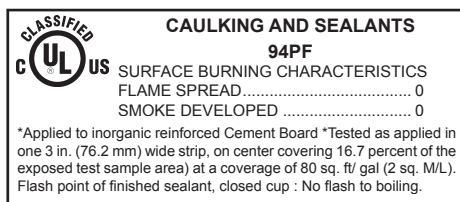
## Indoor/Outdoor Water Based Duct Sealant

DUCT-SEAL 321 is an **all purpose industrial grade duct sealant** for all types of metal duct, glass fiber duct board, and flex duct, as well as duct fabric and flexible tubing runouts. It includes UV inhibitors for **extended outdoor exposure** and built-in **fiber reinforcement** for **added strength**. This non-toxic water based product is solvent free and is suitable for residential use.

### TECHNICAL DATA

Color	Gray
Consistency	Smooth creamy texture
Base	Synthetic latex
Solvent	Water
Weight per Gallon	10.6 lbs.
Solids Content	65%
Viscosity	Thixotropic
Coverage (per gal)	Up to 320 lin. ft. at 3" width 20 mil thickness
Shore A Hardness	>20
Flexibility	Passes 1/4 inch mandrel bend
Time to Test	48 hours*
Service Temperature	-20°F to 200°F
Weather Resistance	Weather resistant
Mildew Resistance	Mold & Mildew resistant
VOC (less water)	75 g/l (less water)
Pressure Classes	SMACNA 1/2, 1, 2, 3, 4, 6 and 10 inches w.g.
Seal Classes	SMACNA A, B, C
Packaging	11 oz. cart., 1, 2 & 5 gal. pails
Freeze/Thaw Stability	Passed 5 Cycles
Specifications Compliance	Passes ASTM D-2202, ASTM C-731. USDA, EPA and FDA Approved. LEED compliant SCAQMD Rule 1168.

\*May vary according to  
temperature and humidity



City of Los Angeles Approval RR #8069

### DUCT-SEAL 321 PART NUMBERS

1 Case w/ (25) 11 oz. Cartridges	304159
1 Case w/ (4) 1-Gallon Pails	304156
1 - 2-Gallon Pail	304157
1 - 5-Gallon Pail	304158

### APPLICATION

*Apply to entire surface of duct joint*

Temperature	35°F. to 110°F. (1.7°C to 44°C)
Method	Brush, putty knife, caulk gun, pump
Preparation	Surface must be dry, dirt, oil and grease free.
Rate	Apply at joints and fasteners to 20 mil thick wet film
Clean Up Wet	Soap and water
Clean Up Dry	UN-TACK™ or Solvent (Use safe handling practices.)
Painting	Only latex or epoxy paints

### STORAGE - DO NOT FREEZE

Temperature	35°F. to 110°F. (1.7°C to 44°C)
Shelf Life	One year (unopened)
Flammability	Non-flammable

### PRECAUTIONS

Surface must be clean and free of moisture, contamination and foreign matter. Do not allow this product to freeze. Do not apply this when rain or freezing temperatures will occur within 36 hours. Do not apply this product where temperatures will exceed 200°F. Keep out of the reach of children. Review MSDS for complete safety information prior to use. **DO NOT** use where acidic or alkaline chemicals are present (ie., lab fume hood, vents, etc.)

**For Industrial Professional Use Only.**

For additional information contact:

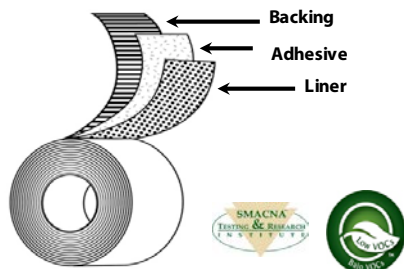


Carlisle Coatings & Waterproofing  
Incorporated

900 Hensley Lane  
Wylie, Texas 75098

Phone: (800) 527-7092 FAX: (972) 442-0076  
[www.hardcast.com](http://www.hardcast.com)

## FoilMastic™ UL 181B-FX Foil Tape



**Backing:** Printed 2 mil Foil  
**Adhesive:** Butyl Rubber Adhesive  
**Liner:** Blue LDPE Film  
**Colors:** Aluminum  
**Specifications:** UL 181B-FX Listed; Pressure testing validated by SMACNA Testing & Research Institute  
**Standard Sizes:** 48mm x 31M, 72mm x 31M

### Applications

- Indoor/Outdoor sealing of low, medium, and high pressure sheet metal duct systems and UL Listed flexible, non-metallic ducts
- Seal cracks and seams in gutters, sheet metal roofing, trailers, and more

### Features

### Benefits

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>Aggressive butyl mastic adhesive</li> <li>Conformable foil backing</li> <li>UL 181B-FX Listed</li> <li>Low VOC Content</li> </ul> | <ul style="list-style-type: none"> <li>Provides permanent water and air-tight seal</li> <li>Resistant to moisture and solvents</li> <li>Performs to SMACNA 0.5", 1", 2", 3", 4", 6" up to 10" w.g. pressure classes and seal classes A, B, and C*</li> <li>Repositionable for several minutes for easy install</li> <li>Easy to use in tight spaces</li> <li>Conforms easily to round, square or odd-shaped objects</li> <li>Meets code requirements and can contribute toward requirements for EA Credit 1 (Optimize Energy Performance) under LEED®</li> <li>Can contribute toward satisfying EQ Credit 4.1 (Low Emitting Materials) under LEED®</li> </ul> |
|--|---|

### Typical Test Values

	Standard UOM	Metric UOM	Test Method
<b>Total Thickness</b>	17.0 mils	0.432 mm	ASTM D-1000
<b>Foil Thickness</b>	2.0 mils	0.051 mm	ASTM D-1000
<b>Adhesion to Steel</b>	90 oz/in	9.85 N/cm	PSTC-101
<b>Adhesion to Backing</b>	40 oz/in	4.38 N/cm	PSTC-101
<b>Tensile Strength</b>	23 lb/in	40.28 N/cm	ASTM D-1000
<b>Operating Temperature</b>	40 to 200 °F	4 to 93 °C	
<b>Smoke Developed</b>	<50		UL 723
<b>Flame Spread</b>	<25		UL 723
<b>VOC Content</b>	<1 g/L		

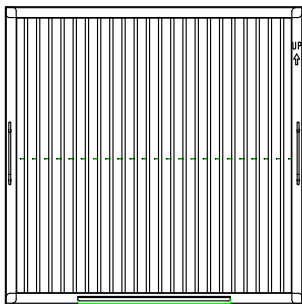
\* Results verified by the SMACNA Research & Testing Institute.

Recommended Storage Conditions: 32-90 °F at 50% RH ± 2%

Standard Shelf Life (at 25C): 36 months from date of manufacture.

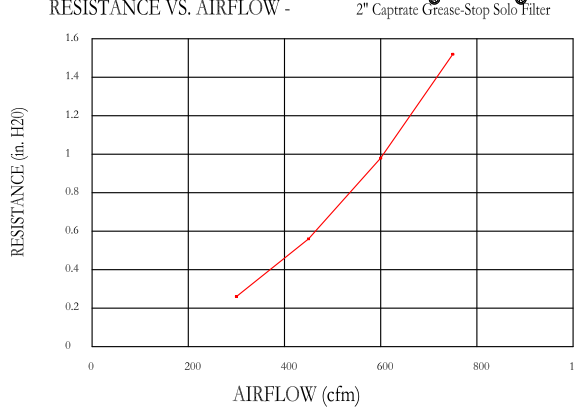
The information presented herein was prepared at BERRY PLASTICS CORPORATION (25 Forge Parkway Franklin, MA 02038) by qualified technical personnel. To Berry Plastics' knowledge it is true and accurate. However, the information and recommendations are furnished for these products with the understanding that the purchaser or user, as the case may be, will independently determine that the product is suitable for the intended use, and that such use complies with all applicable federal, state and local laws and regulations. The data are typical values submitted only for the user's information and consideration, and do not constitute a warranty of any kind (including but not limited to a warranty of merchantability or of fitness for a particular purpose), or a representation for which BERRY PLASTICS assumes any legal responsibility.





Captrate  
Grease-Stop Solo Filter

RESISTANCE VS. AIRFLOW - 2" Captrate Grease-Stop Solo Filter



Filter Detail

CAPTRATE

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)  
SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED



TOTAL DUCT AREA=144 X  $\frac{\text{CFM}}{\text{FPM}(*)}$

DUCT LENGTH=  $\frac{\text{TOTAL DUCT AREA}}{\text{DUCT DEPTH}}$

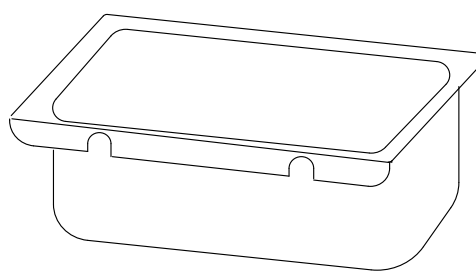
CALCULATIONS UTILIZED

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

- NFPA #99
- ETL SANITATION
- B.O.C.A. #93-16
- LCB.O. #4416
- SBCD PST & ESI NO. 93137
- E.T.L. LISTED 3054804-001
- LOS ANGELES RR#8080
- ETL IS LISTED TO ULC STANDARDS



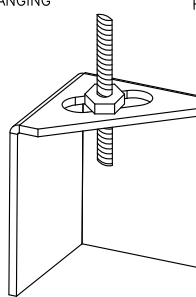
BUILDING CODES



Grease cup will be supported by 2 studs on the inside wall of the hood. The grease will drain through a concealed grease trough and into this removable cup.

1/2 Pint Grease Cup Detail

1/2" DIA. ALL THREAD ROD CONNECTED TO ROOF JUST ONE ABOVE AND ONE BELOW THROUGH ANOTHER HANGING ANGLE



1/2" DIA. HEAVY DUTY NUT ONE ABOVE AND ONE BELOW HANGING ANGLE

\* ROD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR  
HANGING ANGLE IS PRE-PUNCHED AT FACTORY

ND-2 HANGING ANGLE DETAIL

HANGING ANGLES WILL BE LOCATED IN THE FOLLOWING LOCATIONS FOR WALL CANOPIES

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24" High Hood)	DIM FROM FRONT (30" High Hood)
Wall	Exhaust Only	4.166"	2.25"
	With MUA		2.25"
Back Shelf	Exhaust Only	4.166"	2.25"
	With MUA		2.25"
Condensate	2.25"	2.25"	

HANGING ANGLE LOCATIONS

HOOD INFORMATION - Job#2653811

HOOD NO.	TAG	MODEL	LENGTH	MAX. COOKING TEMP.	TOTAL EXH. CFM	EXHAUST PLENUM RISER(S)					TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG.		
						WIDTH	LENG.	HEIGHT	DIA.	CFM			S.P.	END TO END	ROW
1		5424 ND-2-PSP-F	4' 0.00'	600 Deg.	800			4"	8"	800	-0.662"	760	430 SS Where Exposed	ALONE	ALONE

HOOD INFORMATION

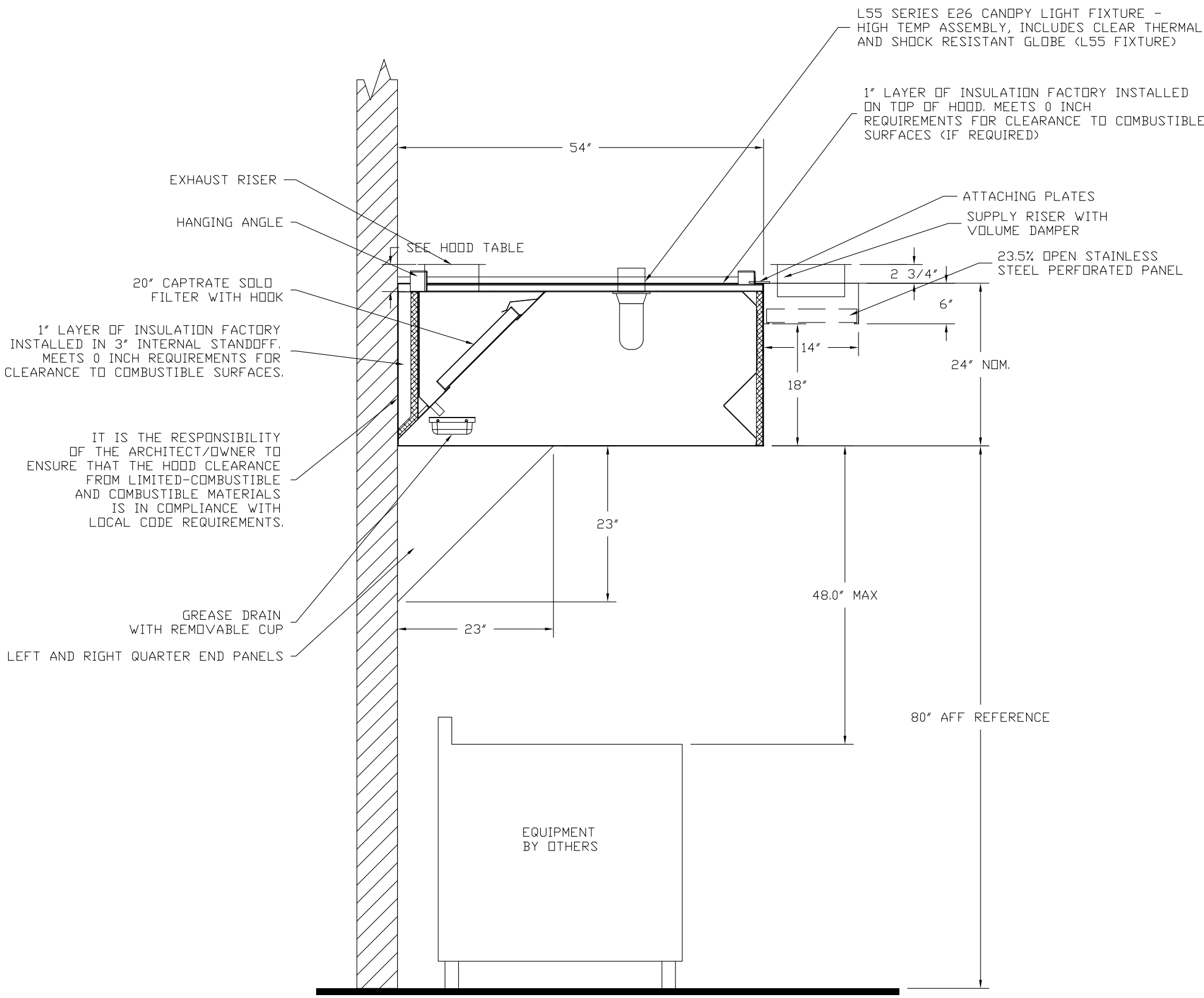
HOOD NO.	TAG	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WGT		
		TYPE	QTY.	HEIGHT	LENGTH	EFFICIENCY @ 9 MICRONS	QTY.	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM	SIZE			ELECTRICAL	MODEL #
1		Captrate Solo Filter	2	20"	16"	93% See Filter Spec.	2	L55 Series E26	NO	Left	12"x54"x24"	Ansul R102	1.5	SC-111110FP	1 Light 1 Fan	YES	445 LBS

HOOD OPTIONS

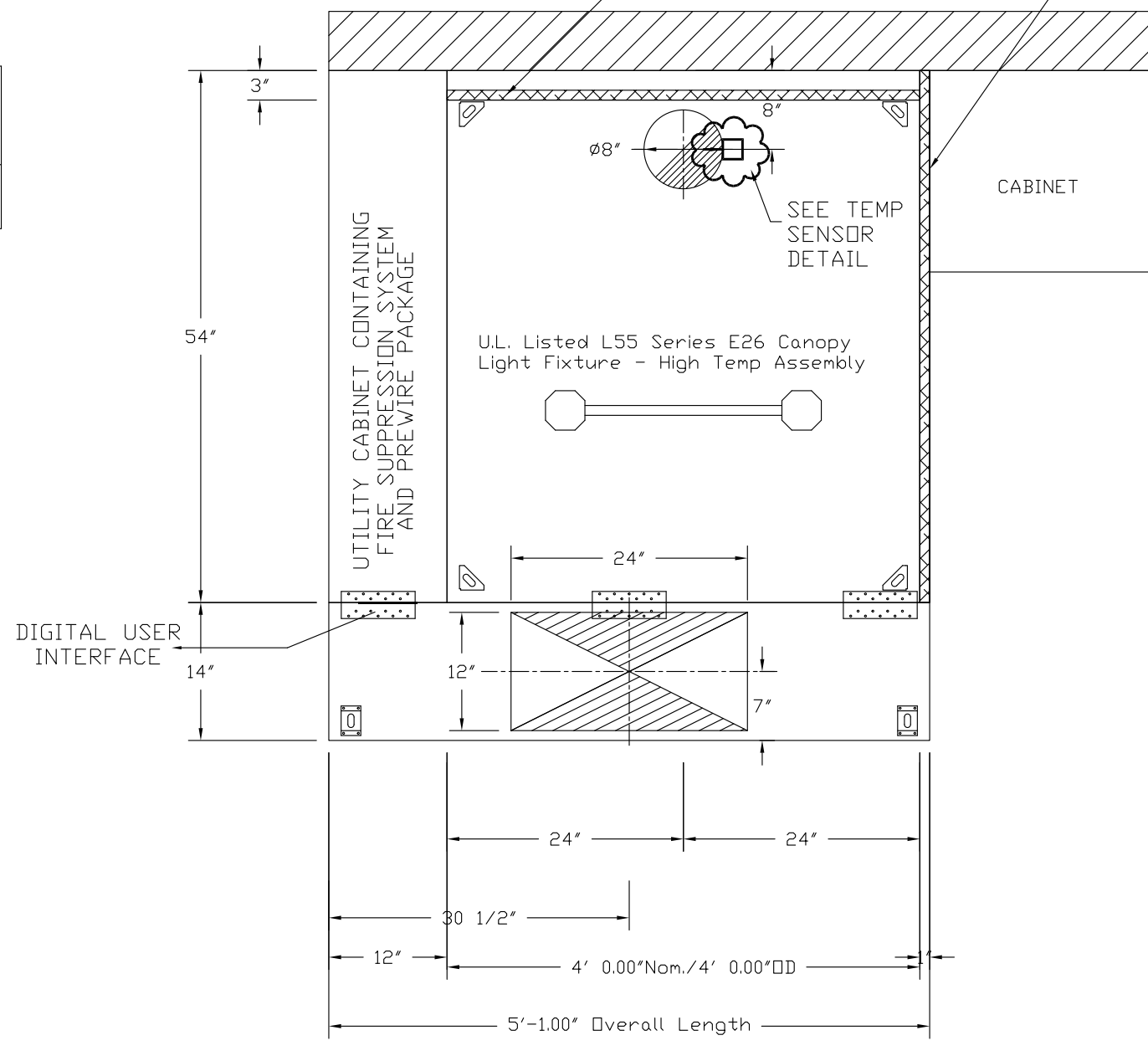
HOOD NO.	TAG	OPTION
1		RIGHT END STANDOFF (FINISHED) 1" Wide 54" Long Insulated
		LEFT QUARTER END PANEL 23" Top Width, 0" Bottom Width, 23" High 430 SS
		RIGHT QUARTER END PANEL 23" Top Width, 0" Bottom Width, 23" High 430 SS
		INSULATION FOR BACK OF HOOD

PERFORATED SUPPLY PLENUM(S)

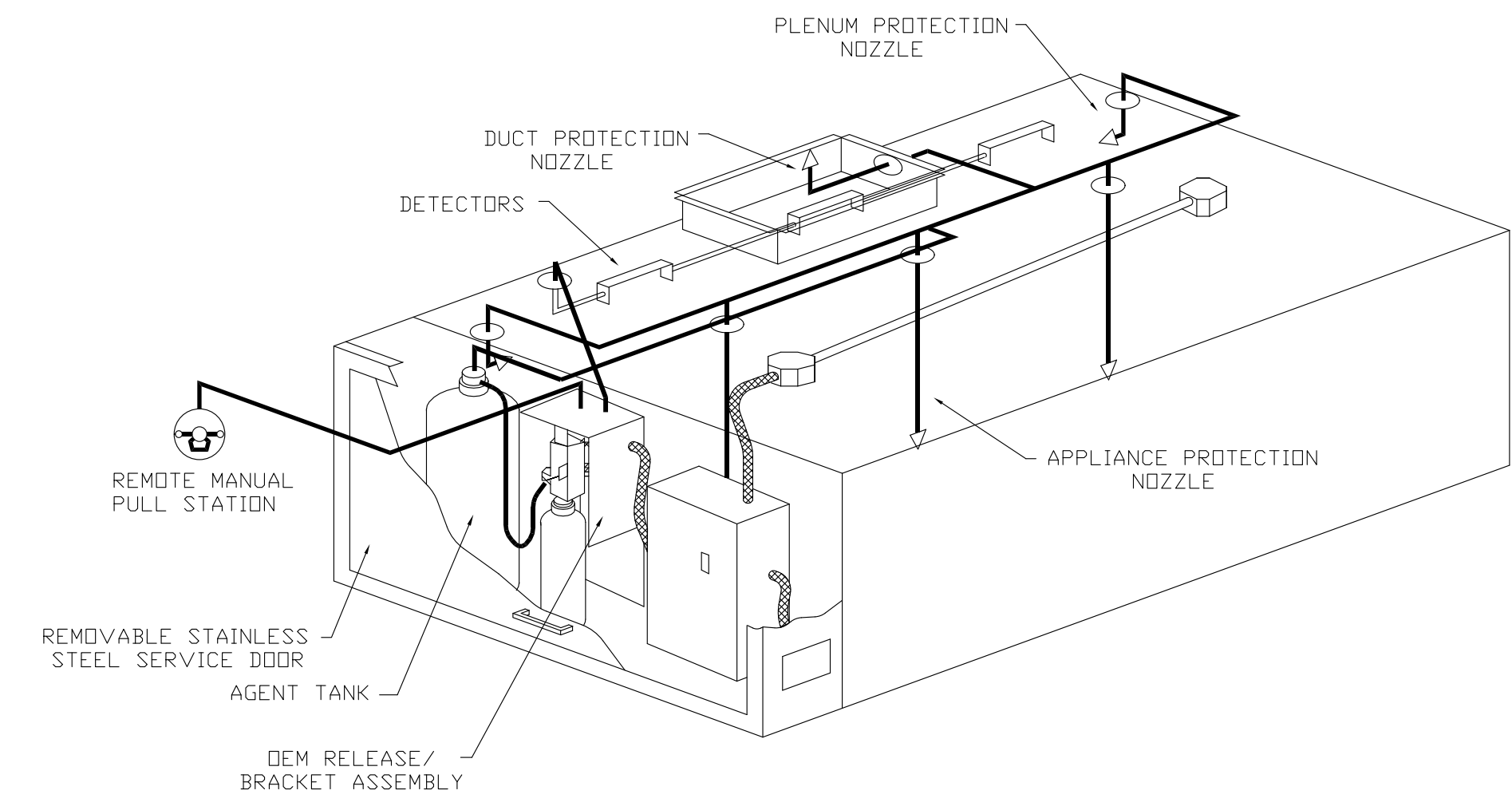
HOOD NO.	TAG	POS.	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENG.	DIA.	CFM	S.P.
1		Front	61"	14"	6"	MUA	12"	24"		760	0.218"



SECTION VIEW - MODEL 5424ND-2-PSP-F HOOD - #1



PLAN VIEW - Hood #1  
4' 0.00" LONG 5424ND-2-PSP-F

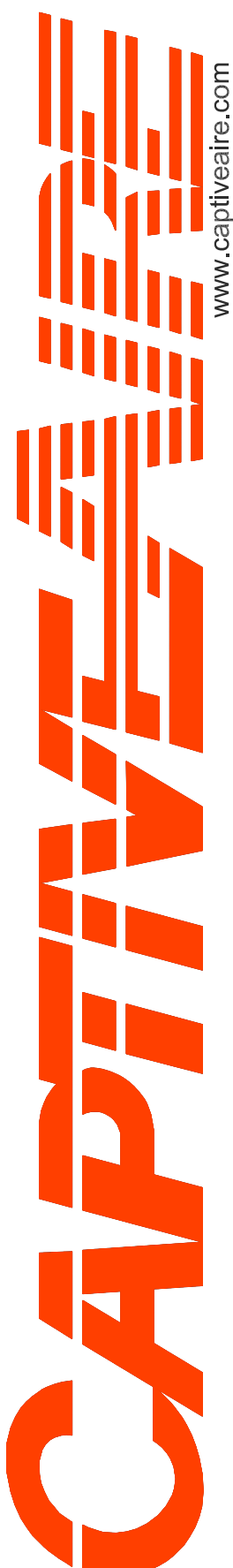


TYPICAL ANSUL R-102 SYSTEM LAYOUT

FOR QUESTIONS, CALL  
KURT CURTIS: REGIONAL MANAGER  
PHONE: (360) 828-5418  
FAX: (919) 227-5983  
EMAIL: kurt.curtis@captiveaire.com

REVISIONS

DESCRIPTION	DATE:



OREGON OFFICE

2702 NE 114th Ave, Suite 2, Vancouver, WA, 98684 PHONE: (360) 828-5418 FAX: (919) 227-5983 EMAIL: reg90@captiveaire.com  
www.captiveaire.com

ASIAN HEALTH  
PORTLAND, OR, 97215

DATE: 6/2/2017

DWG.#: 2653811

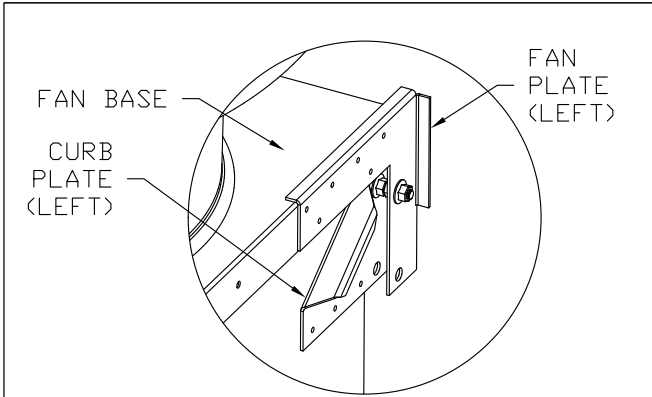
DRAWN BY: kcurtis

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

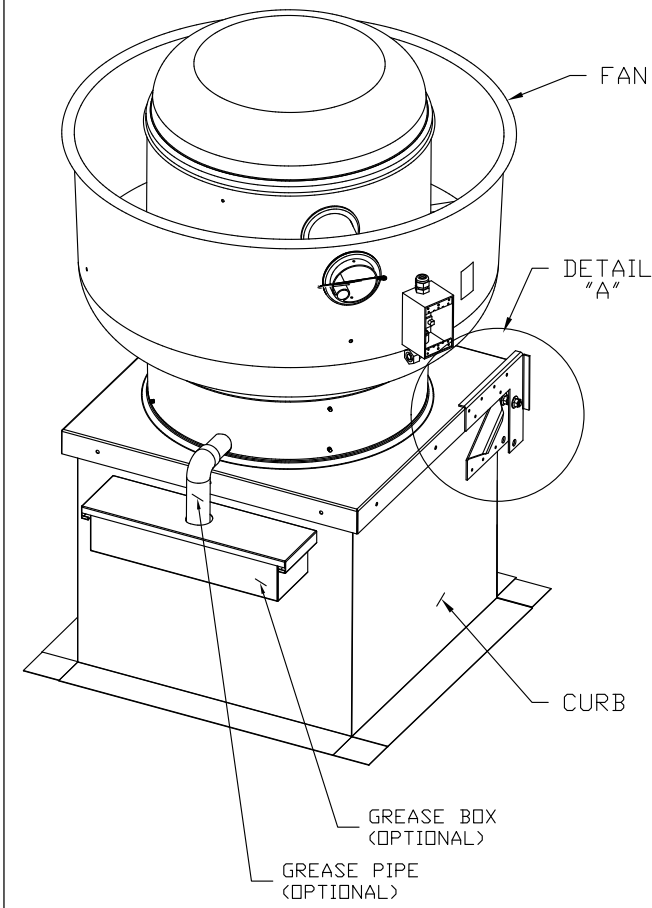
MASTER DRAWING

SHEET NO. 1

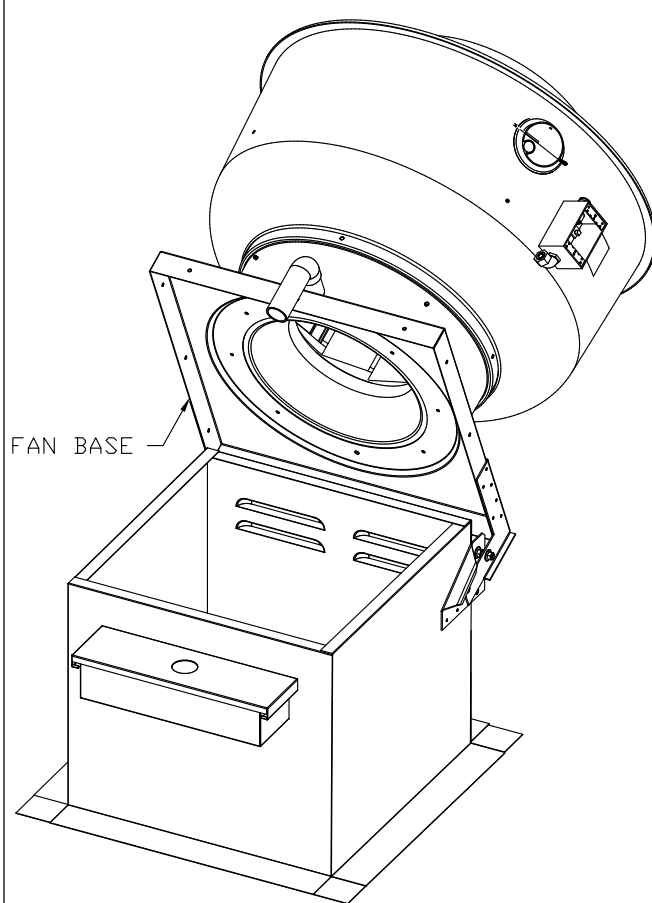




#### HINGE KIT DETAIL

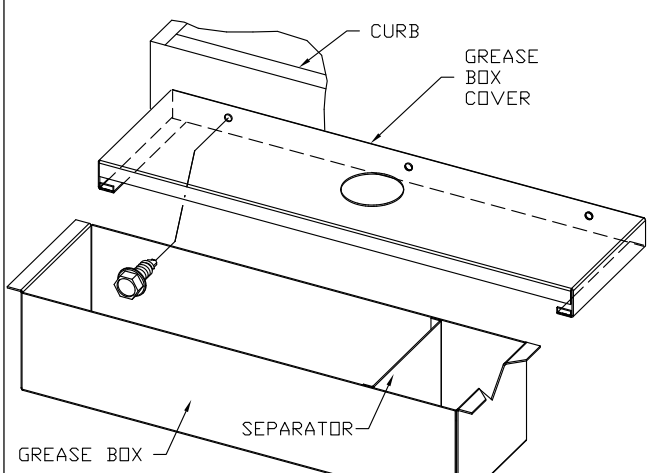


#### FAN IN CLOSED POSITION

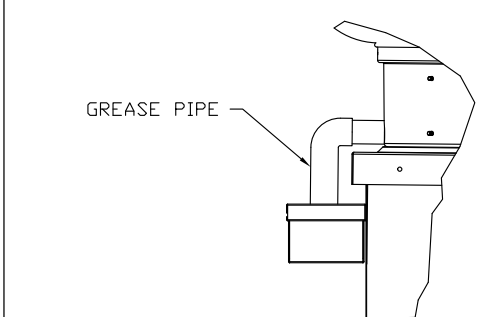


ATTENTION: INSTALLER SHOULD SUPPLY ENOUGH ELECTRICAL CORD TO LET FAN MAKE COMPLETE SWING

#### FAN IN OPEN POSITION



ATTACH GREASE BOX COVER TO THE CURB 3" BELOW TOP EDGE OF CURB. USING (3) LONG (3/4" LG) SCREWS AS SHOWN. INSTALL GREASE PIPE AS SHOWN.



#### GREASE BOX INSTALLATION

#### EXHAUST FAN INFORMATION - Job#2653811

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SONES
1		DU33HFA	800	0.850	1597	0.333	0.2740	1	115	4.4	69	13.2

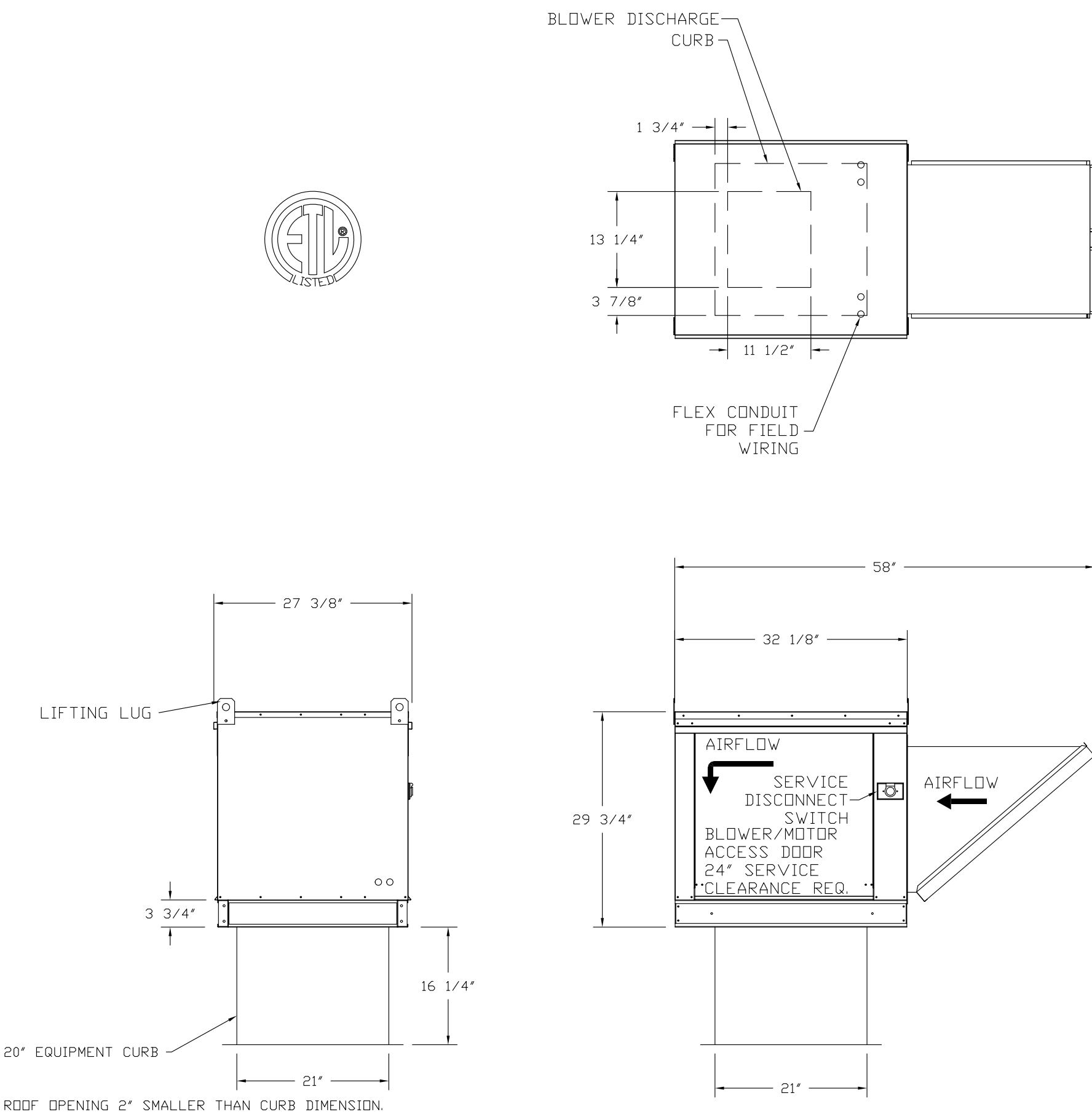
#### FAN OPTIONS

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1		1 - Grease Box 1 - ECM Wiring Package-Exhaust - Manual or 0-10VDC Reference Speed Control (NIDEC Motor)
2		1 - Motorized Backdraft Damper for Size 1 Housing 1 - ECM Wiring Package-Supply - Manual or 0-10VDC Reference Speed Control (NIDEC Motor)

#### CURB ASSEMBLIES

NO.	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	34 LBS	Curb	19.500"W x 19.500"L x 22.000"H Vented Hinged
2	# 2	29 LBS	Curb	21.000"W x 21.000"L x 20.000"H

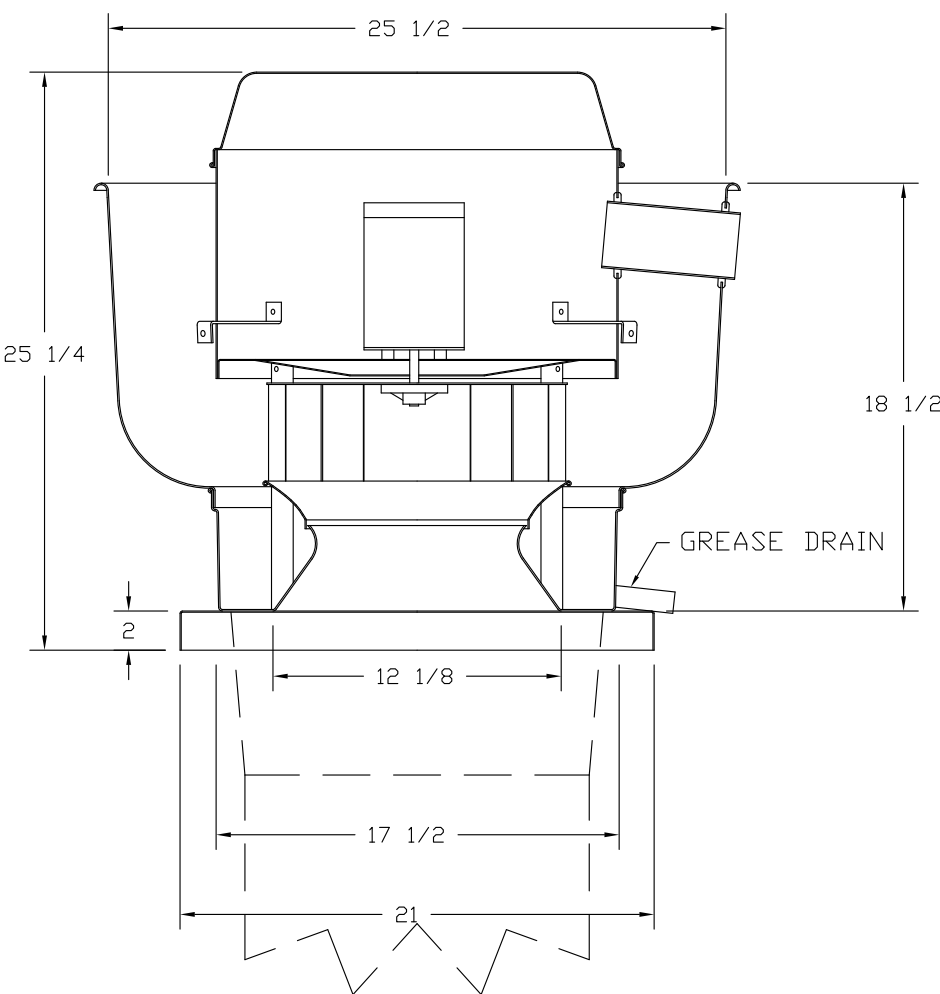
FAN #2 A1-G10D - SUPPLY FAN  
1. DIRECT DRIVE DIRECT DRIVE UNTEMPERED SUPPLY UNIT WITH 10" BLOWER IN SIZE #1 HOUSING WITH SPEED CONTROL, DISCONNECT SWITCH.  
2. INTAKE HOOD WITH EZ FILTERS-LOW CFM  
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT  
4. MOTORIZED BACK DRAFT DAMPER 16" X 18" FOR SIZE 1 STANDARD & MODULAR HEATER AND UNTEMPERED UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, TFB120S ACTUATOR INCLUDED  
5. ECM WIRING PACKAGE AND MANUAL OR 0-10VDC CONTROL FOR SUPPLY EC MOTORS. RTC CONTROLLER.



#### MUA FAN INFORMATION - Job#2653811

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	DESIGN CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SONES
2		A1-G10	G10D	A1	760	0.500	828	1.000	0.4320	1	115	10.2	213	16.7

#### FAN #1 DU33HFA - EXHAUST FAN



#### FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL762
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

#### NORMAL TEMPERATURE TEST

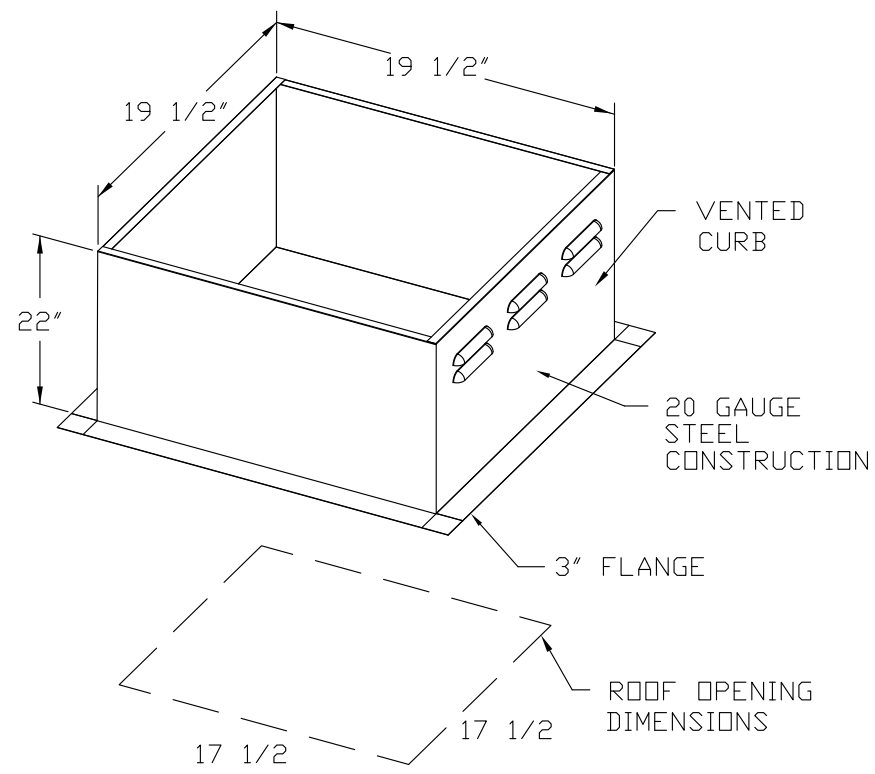
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETEIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

#### ABNORMAL FLARE-UP TEST

EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

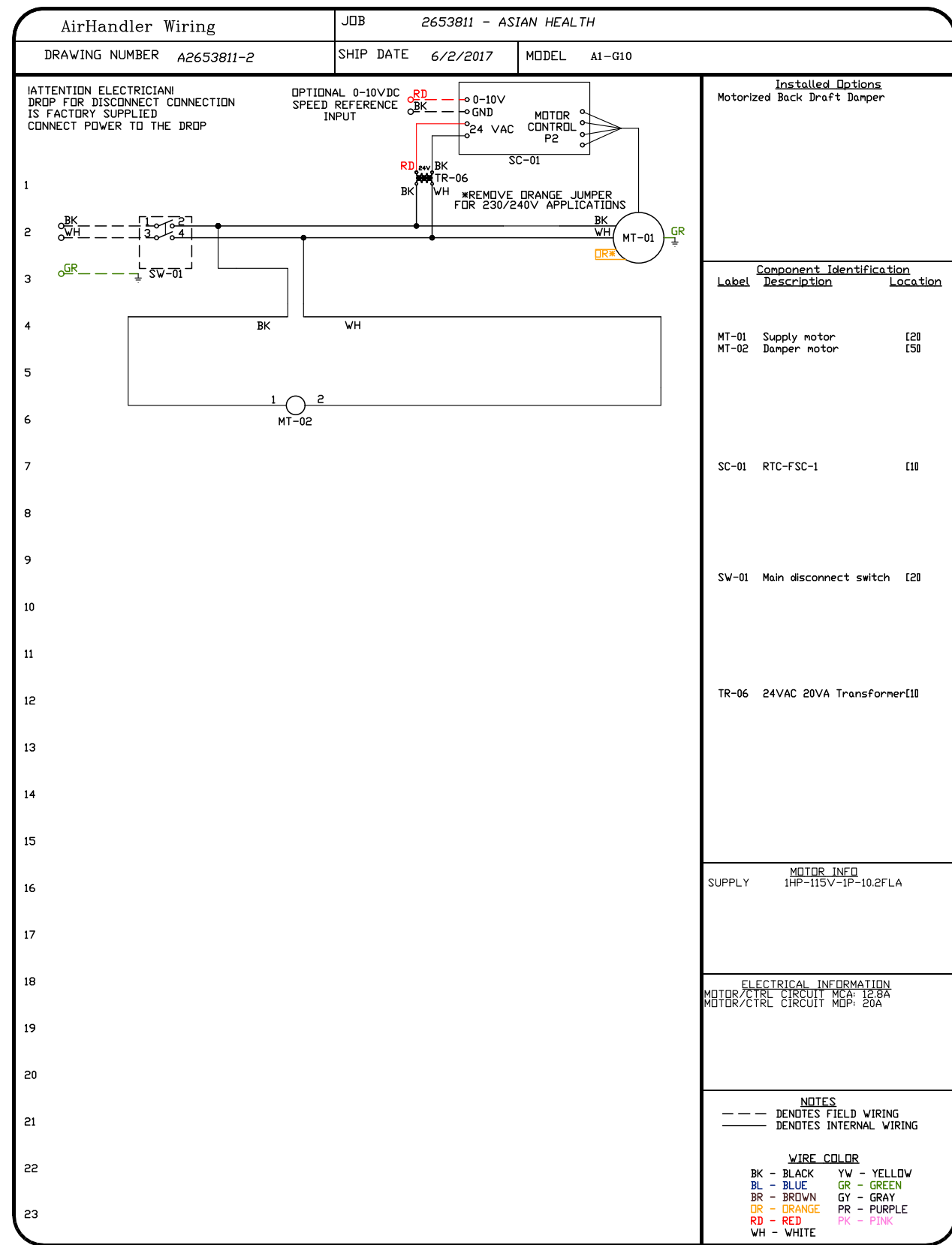
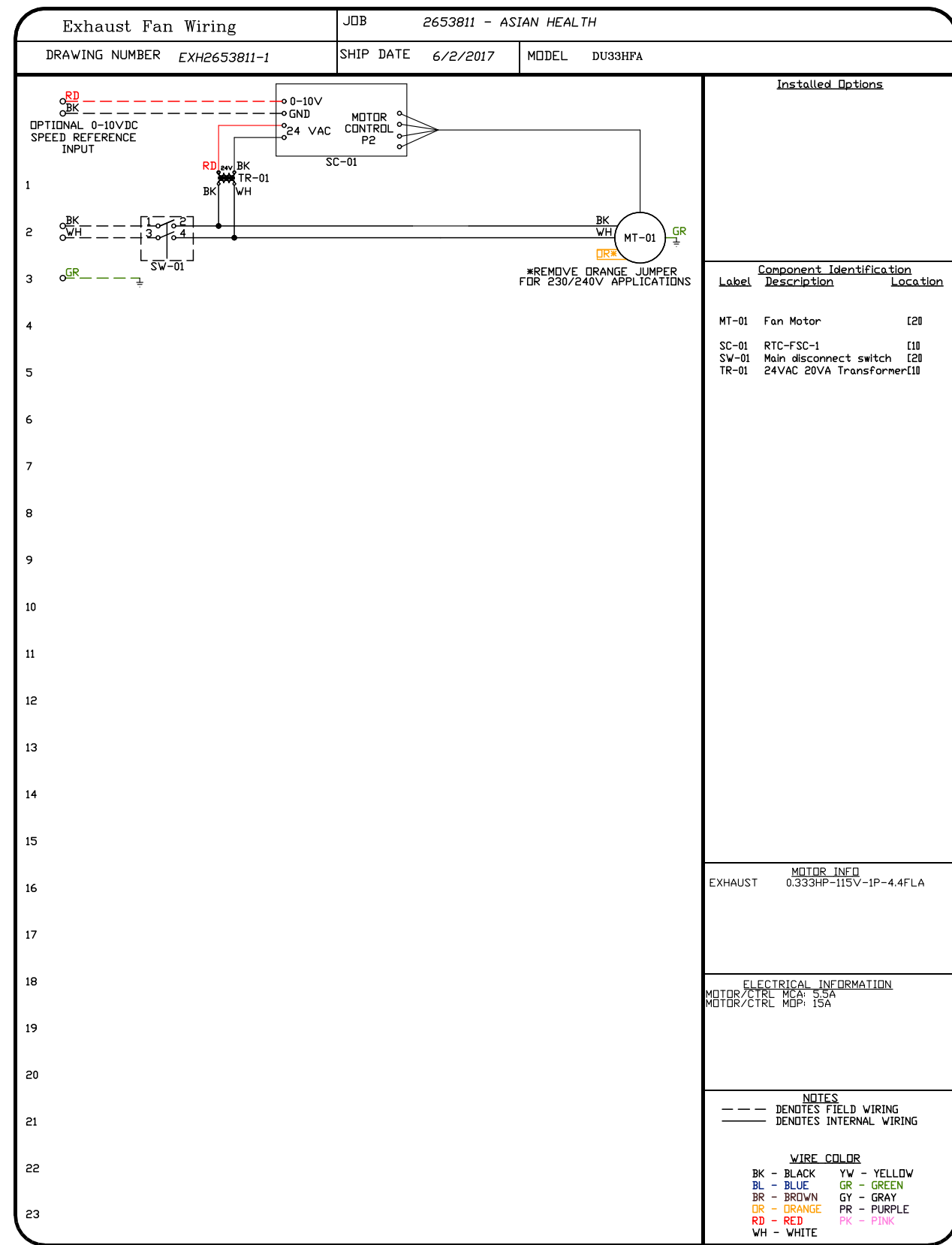
#### OPTIONS

GREASE BOX  
ECM WIRING PACKAGE-EXHAUST - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL (NIDEC MOTOR)



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

SPECIFY PITCH:  
EXAMPLE: 7/12 PITCH = 30° SLOPE



FOR QUESTIONS, CALL  
KURT CURTIS: REGIONAL MANAGER  
PHONE: (360) 828-5418  
FAX: (919) 227-5983  
EMAIL: kurt.curtis@captiveaire.com

REVISIONS

DESCRIPTION	DATE:

www.captiveaire.com  
reg90@captiveaire.com

OREGON OFFICE  
2702 NE 114th Ave, Suite 2, Vancouver, WA, 98684 PHONE: (360) 828-5418 FAX: (919) 227-5983 EMAIL: reg90@captiveaire.com

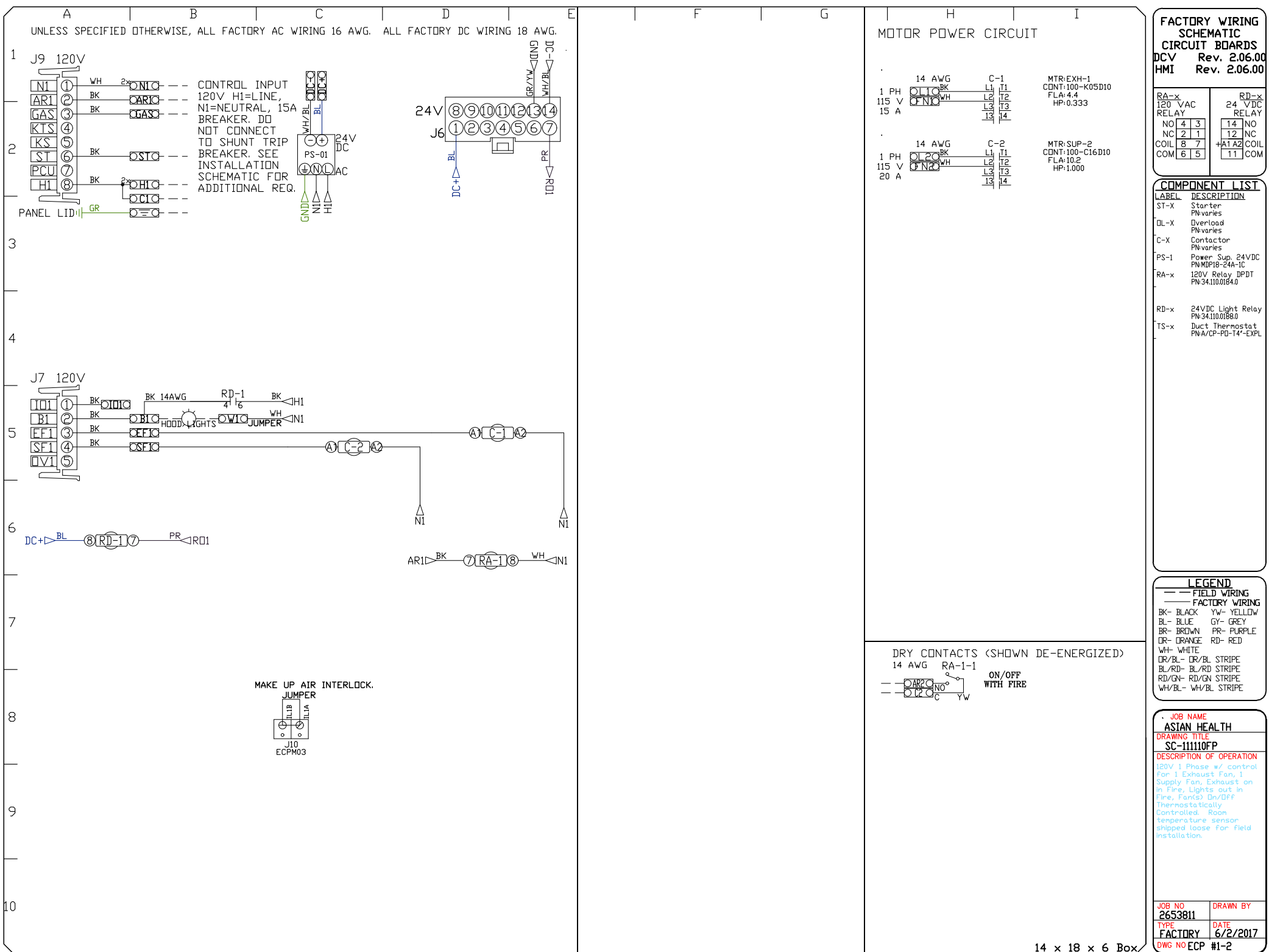
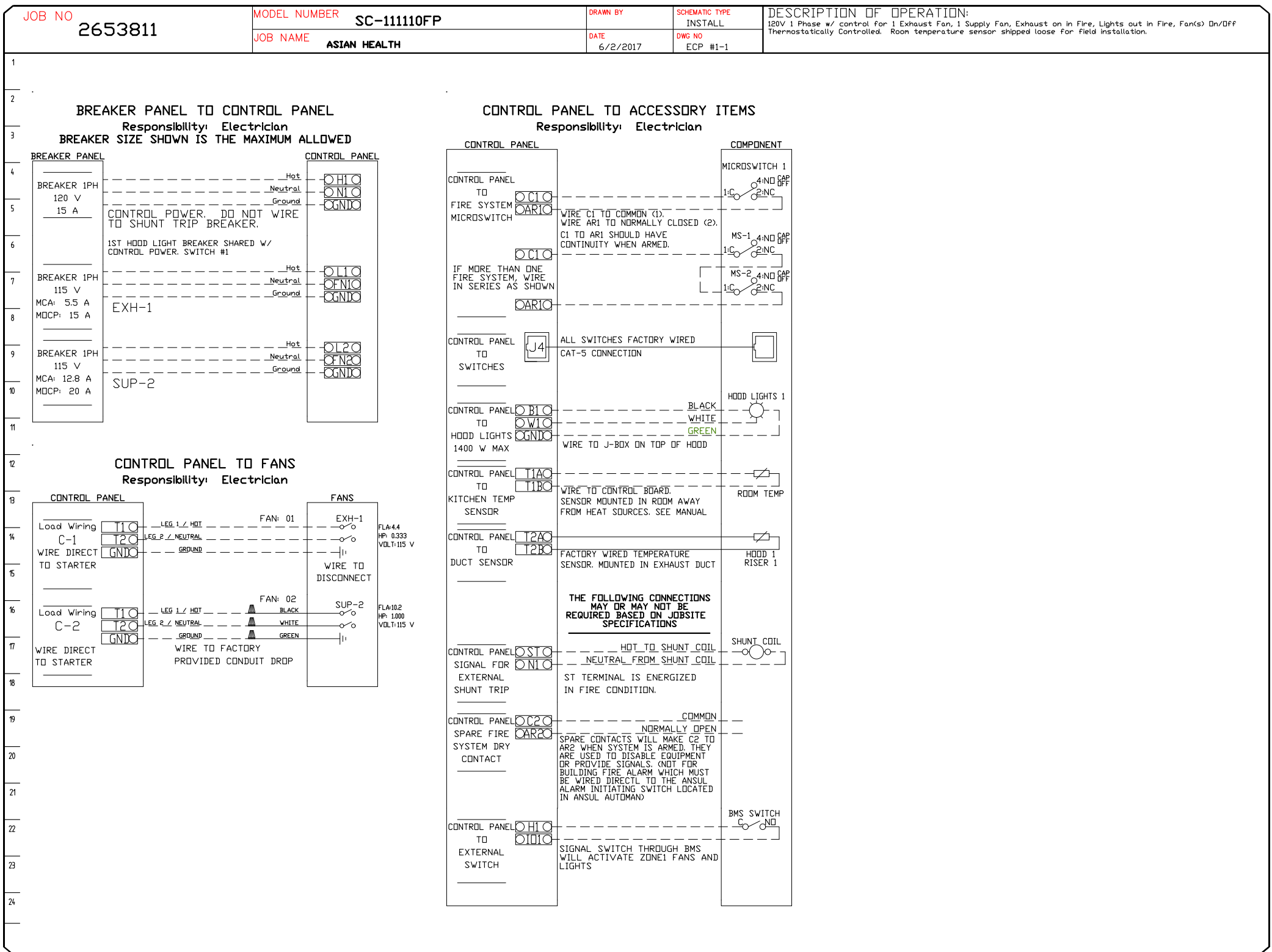
ASIAN HEALTH  
PORTLAND, OR, 97215

DATE: 6/2/2017  
DWG.#: 2653811  
DRAWN BY: kcurtis  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO.  
2

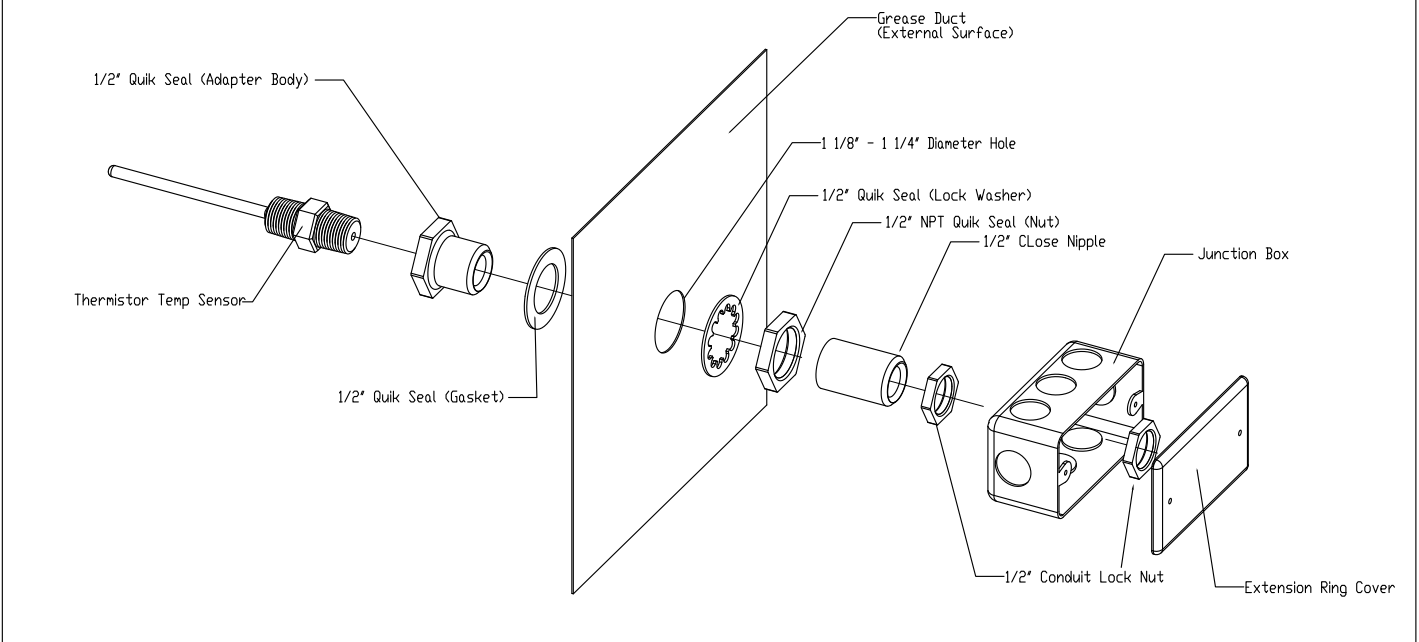
ELECTRICAL PACKAGES - Job#2653811

NO.	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED			
				LOCATION	QUANTITY		TYPE	?	HP.	VOLT FLA
1		SC-11110FP	Utility Cabinet Left	03 - Utility Cabinet Left	1 Light	Smart Controls Thermostatic Control	Exhaust	1	0.333	115 4.4
				Hood # 1	1 Fan		Supply	1	1.000	115 10.2

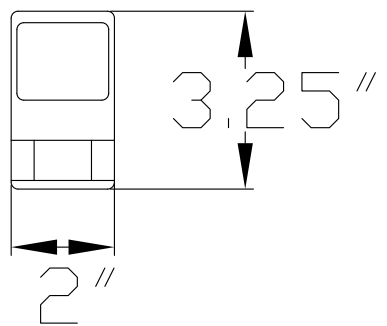


THERMISTOR INSTALLATION

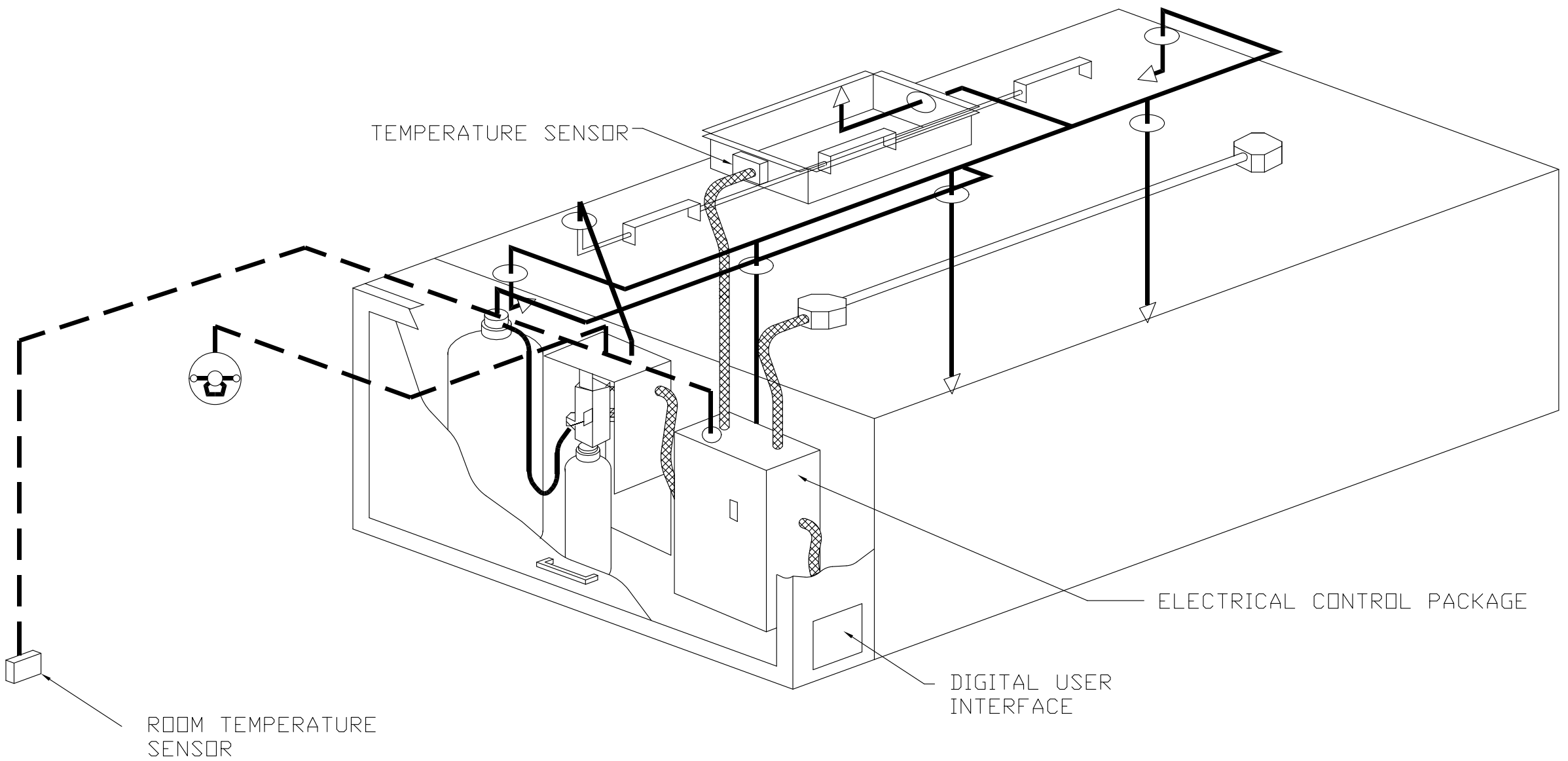
NOTES: One Thermistor per Exhaust Riser  
Thermistor has 2 wires that connect to control cabinet



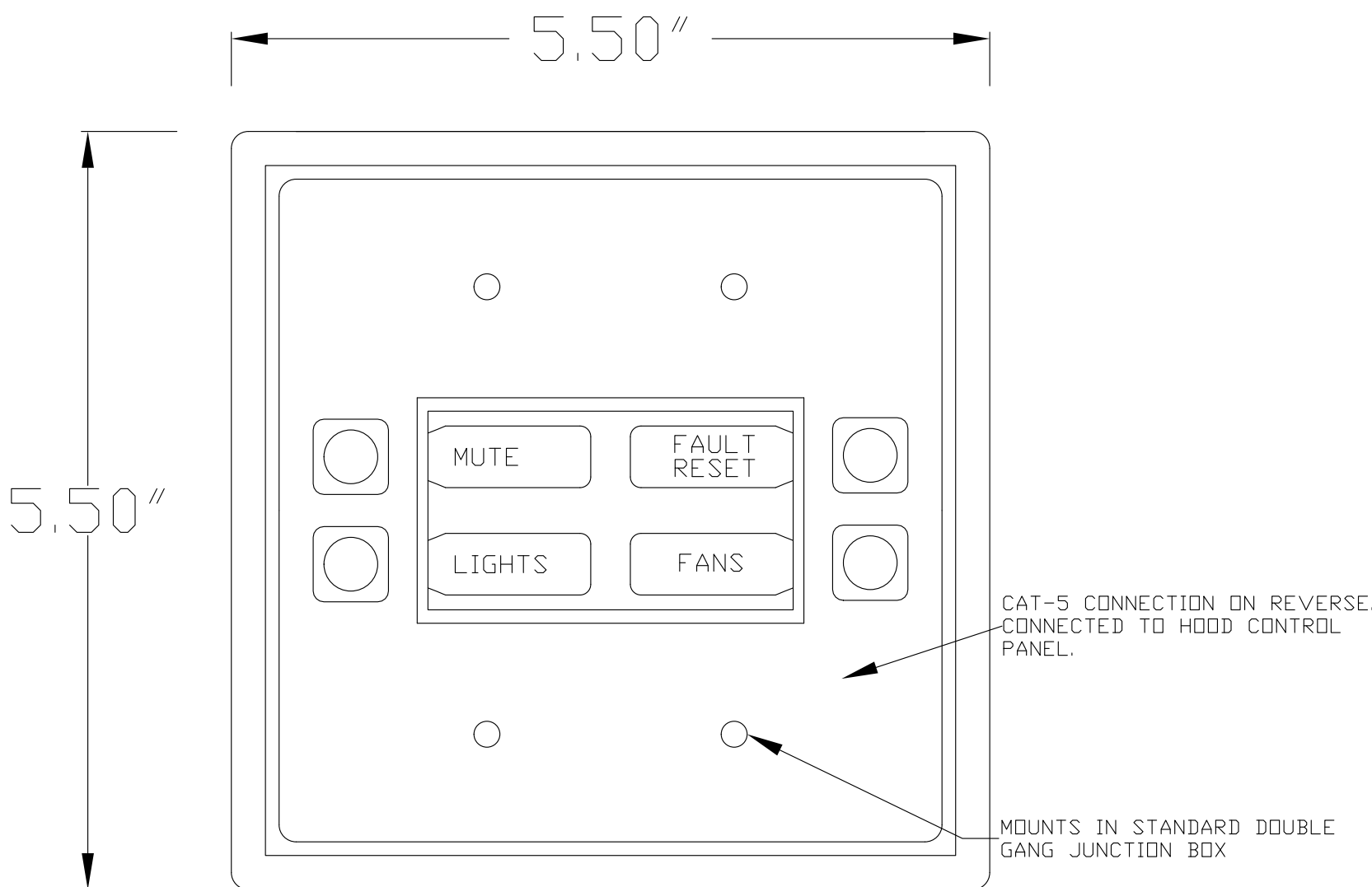
Room Temperature Sensor



Provides room override based on temperature differential between the room and duct. Install on a wall in space but not directly under the hood or close to an appliance so the reading is accurate for space.



TYPICAL CONTROL CENTER INSTALLATION



DIGITAL USER INTERFACE

IT IS THE RESPONSIBILITY OF THE EC TO MAKE ALL FIELD CONNECTIONS INTO AND OUT OF THE CAPTIVEAIRE CONTROL PANEL INCLUDING BUT NOT LIMITED TO LOW VOLTAGE, CAT 5, 24V WIRES TO ALL TEMP SENSORS, INCLUDING THE ROOM TEMP SENSOR, MOTOR LINE VOLTAGE POWER FEEDS, AND CONTROL WIRING.

REFER TO WIRING SCHEMATICS IN THIS DRAWING AND POSTED INSIDE OF THE CONTROL CABINET

**REVISIONS**

DESCRIPTION	DATE:

**ASIAN HEALTH**  
PORTLAND, OR, 97215

**DATE:** 6/2/2017

**DWG.#:** 2653811

**DRAWN BY:** kcurtis

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

**MASTER DRAWING**

**SHEET NO.** 3

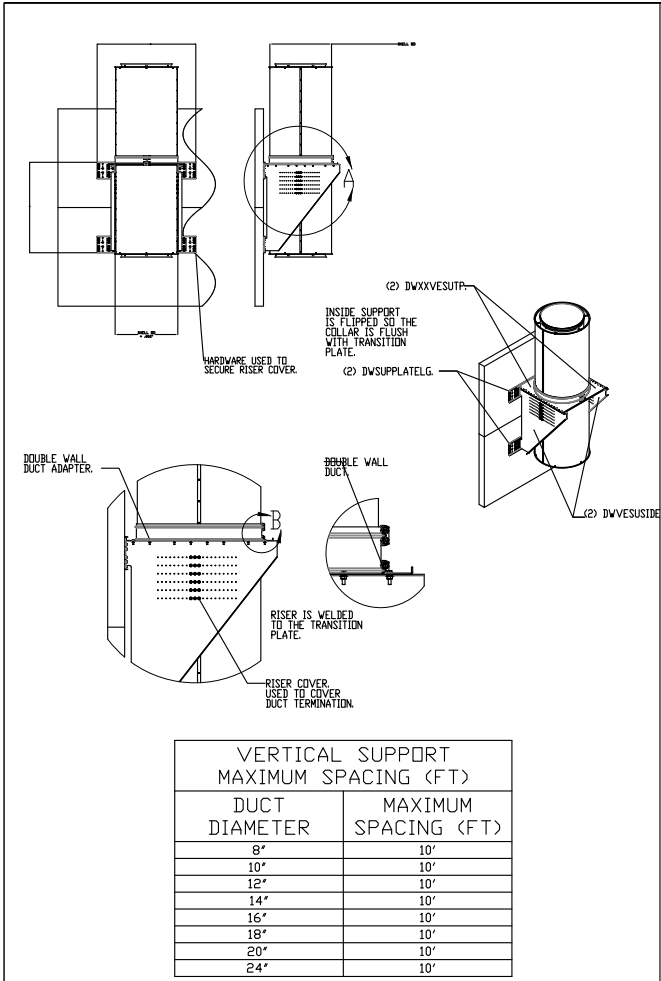
**CAPTIVEAIRE**

**OREGON OFFICE**  
2702 NE 114th Ave, Suite 2, Vancouver, WA, 98684 PHONE: (360) 828-5418 FAX: (919) 227-5983 EMAIL: reg90@captiveaire.com

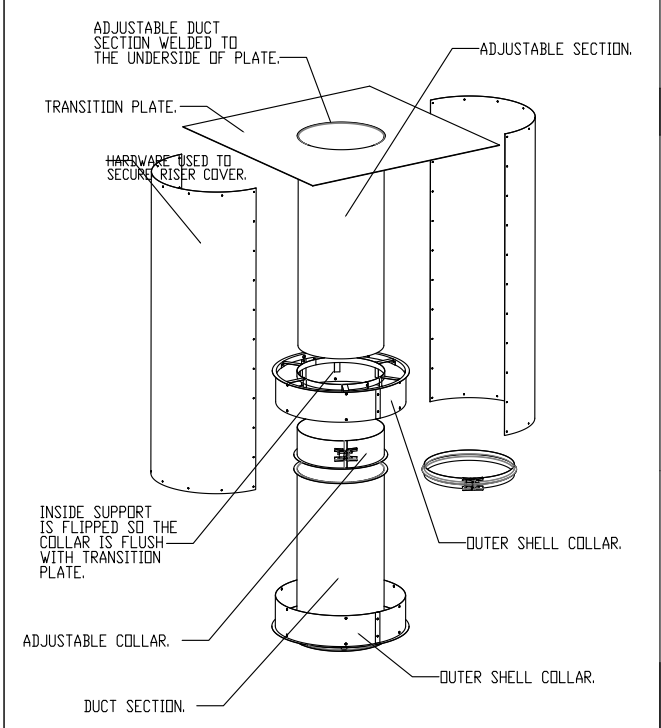
**LEGEND**

**FOR QUESTIONS, CALL**  
KURT CURTIS: REGIONAL MANAGER  
PHONE: (360) 828-5418  
FAX: (919) 227-5983  
EMAIL: kurt.curtis@captiveaire.com

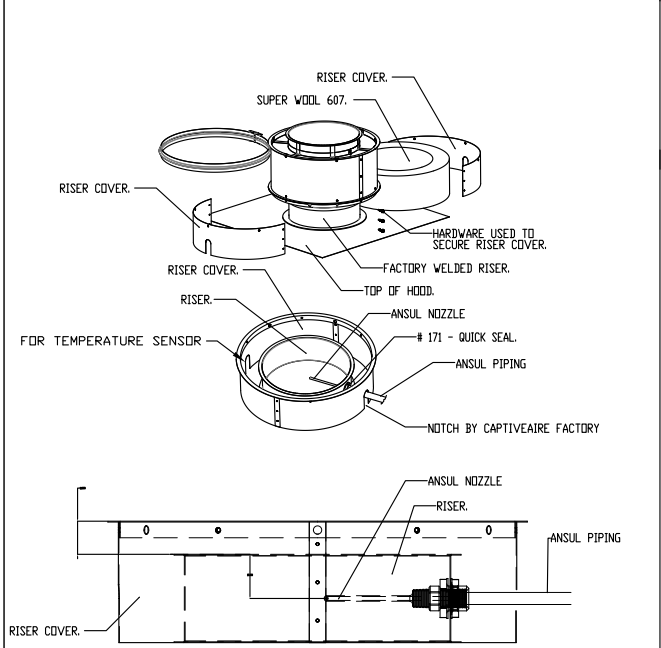




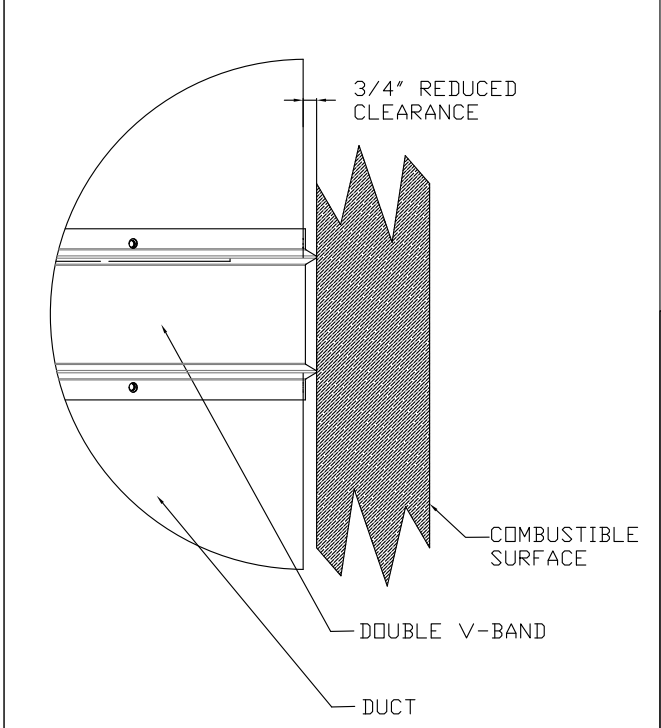
DUCT SUPPORT ASSEMBLY



TRANSITION PLATE DETAIL



OUTER DUCT BAND DETAIL



REDUCED CLEARANCE DETAIL

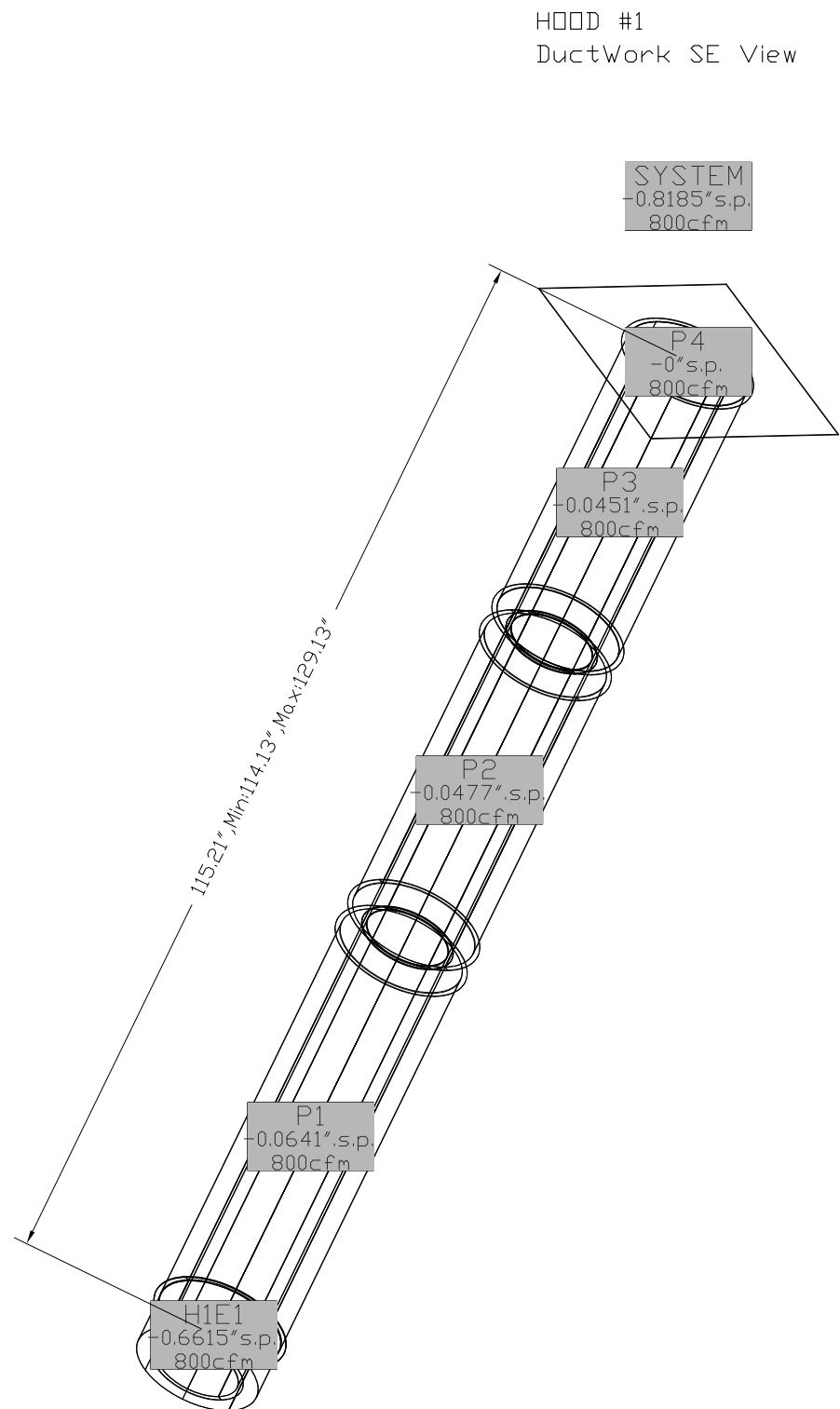
- DUCT RUN TO BE FIELD VERIFIED, PARTS SUBJECT TO CHANGE
- DUCT RUNS TO HAVE CLEANOUTS EVERY 10', AND EVERY CHANGE OF DIRECTION UNLESS SPECIFIED OTHERWISE.
- VERTICAL HANGING SUPPORTS TO BE EVERY 10', HORIZONTAL SUPPORTS TO BE EVERY 7' FOR INNER DUCT DIA 8" TO 16" AND EVERY 5' FOR INNER DUCT DIA 18" TO 24".
- ADJUSTABLE DUCT OVERLAP TO BE NO LESS THAN 6", UNLESS INNER DIAMETER IS 8" (4" OVERLAP) OR 10" (5" OVERLAP).
- 3/4" CLEARANCE TO COMBUSTIBLES IS FROM OUTER SHELL, V-BAND IS LISTED TO BE AGAINST SURFACE.

DUCTWORK NOTES

DuctWork #1 Parts – Job#2653811

Hood #	Tag	Part #	CFM	S.P.	Weight	Velocity	QTY	Description
HOOD #1	P1	DW0847DWLT-2R-S	800	-0.0641	42.14	2291.83	1	Double Wall Duct – 8" Inner Duct, 47" long – 2 Layers Reduced Clearance – 12" Stainless Steel Outer Shell.
	P2	DW0835DWLT-2R-S	800	-0.0477	33.61	2291.83	1	Double Wall Duct – 8" Inner Duct, 35" long – 2 Layers Reduced Clearance – 12" Stainless Steel Outer Shell.
	P3 Assembled w/P4	DW0847DWAJDTP-2R-S	800	-0.0451	50.87	2291.83	1	Double Wall Adjustable Duct Transition Plate – 8" Inner Duct, 47" long – 2 Layers Reduced Clearance – 12" Stainless Steel Outer Shell.
	P4 Assembled w/P3 System at P4	DW1908TP	800	0	6.62	2291.83	1	Duct to Curb Transition, 19-1/2" Curb to 8" Duct, 16 GA Aluminized. Misc. non-standard transition plate. For Use With Exhaust Fan.
MISC Parts		3M-2000PLUS			0.80		1	Duct – 3M Fire Barrier 2000 Plus Silicone – Used as sealant to Seal Duct Joints.
		DW08DWCLASY-2R-S			5.33		2	Duct – 8" Duct – 12" Double "V" Clamp – 2R Insulation & Single "V" Clamp Included – Reduced Clearance.
		DW12DWRISER-2R-S			6.60		1	Double Wall Riser Cover – Used On 8" Inner Riser, 4' long – 2 Layers Reduced Clearance – 12" Stainless Steel Outer Riser Shell Assembly. Includes Insulation & Single V Clamps For Inner & Outer Connections.
	Additional Parts							
		DW12VESUTP			3.00		2	Double Wall Duct Support Flat Top Plate 12" Shell Diameter, Used in Vertical Support Assembly For Double Wall Duct. 12 GA Steel, Clear Zinc Coating.
Total Weight					157.30			

DuctWork #1 SE View



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DUCT RUN BASED OFF A  
19.5' ROOF HEIGHT, TO BE  
FIELD VERIFIED, PARTS  
SUBJECT TO CHANGE

Furnish double wall, factory built grease duct for use with Type I kitchen hoods, which conforms to the requirements of NFPA-96. Products shall be ETL listed to UL-1978 and UL-2221 for venting air and grease vapors from commercial cooking operation. Models DW-2R, 3R and 3Z are used for grease duct applications when installed in accordance with these instructions and National Fire Protection Association "NFPA 96"; Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Double wall grease ducts are listed for a continuous internal temperature of 500 degrees F and intermittent temperatures of 2000 degrees F.

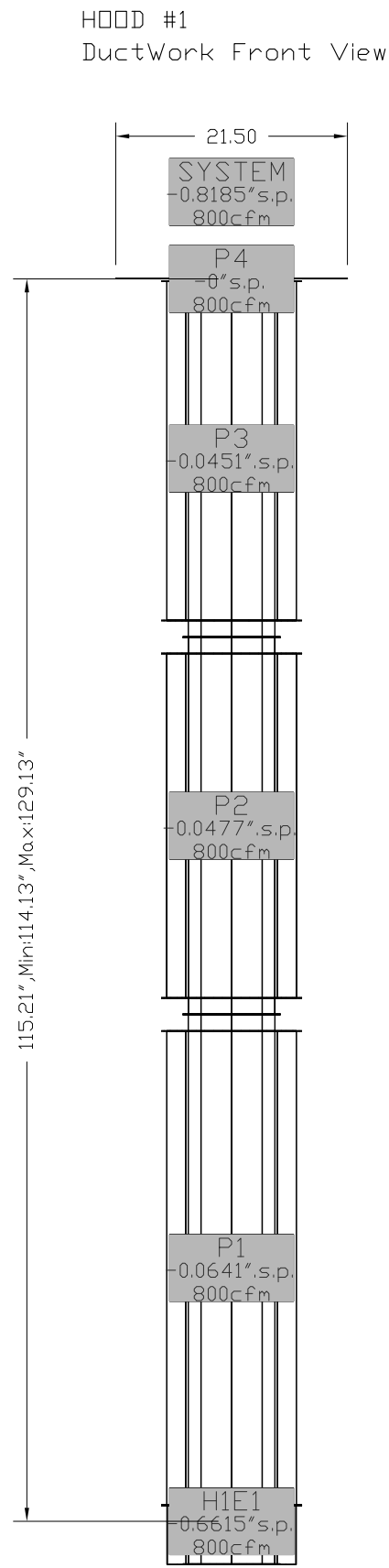
The duct sections shall be constructed of an inner duct wall and an outer wall with insulation in between. The inner duct wall shall be constructed of .036 inch thick, 430 type stainless steel and be available in diameters 8" through 24". The outer wall shall be constructed of stainless steel at a minimum of .024 inch thickness. The duct, based on model number, shall include layers of Super Wool 607 Plus insulation between the inner and outer wall. Grease duct joints shall be held together by means of formed V clamps and sealed with 3M Fire Barrier 2000+. The duct wall assembly shall be tested and listed at 3/4" or zero inch clearance, according to classifications.

Classifications and Clearances

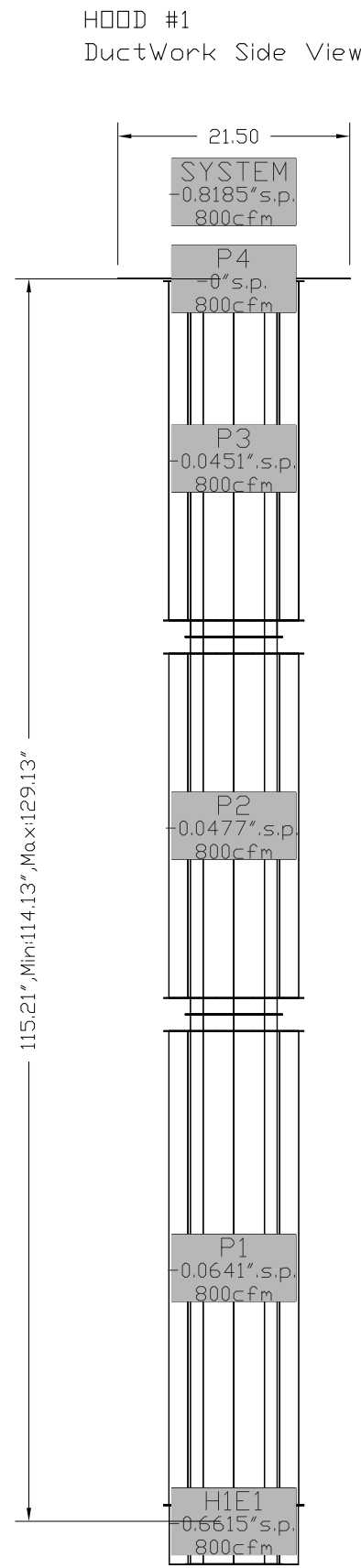
UL 2221: Standard for Fire Resistive Grease Duct Enclosure Assemblies. Chapter 7 of this standard references a test labeled Internal Fire Test. Section 7.1.1 references two installation conditions, Condition A and Condition B. Condition A represents all installation condition except for installation within non-ventilated combustible enclosures. Condition B represents installation within a non-ventilated combustible enclosure.

Model DW-3R is classified under UL2221 (Test of Fire Resistive Duct Enclosure Assemblies) as an alternate to 2-Hr. fire resistive shaft enclosures with a reduced clearance to combustibles (sizes 8" to 16" diameter). Model 2R is listed in accordance with the requirements for duct enclosure Condition B.

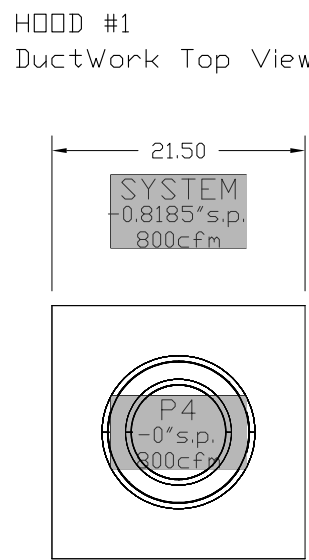
DuctWork #1 Front View



DuctWork #1 Side View



DuctWork #1 Top View



REVISIONS

DESCRIPTION	DATE:
△	
△	
△	
△	

CAPTIVAIRE

OREGON OFFICE

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ASIAN HEALTH

PORTLAND, OR, 97215

DATE: 6/2/2017

DWG.#: 2653811

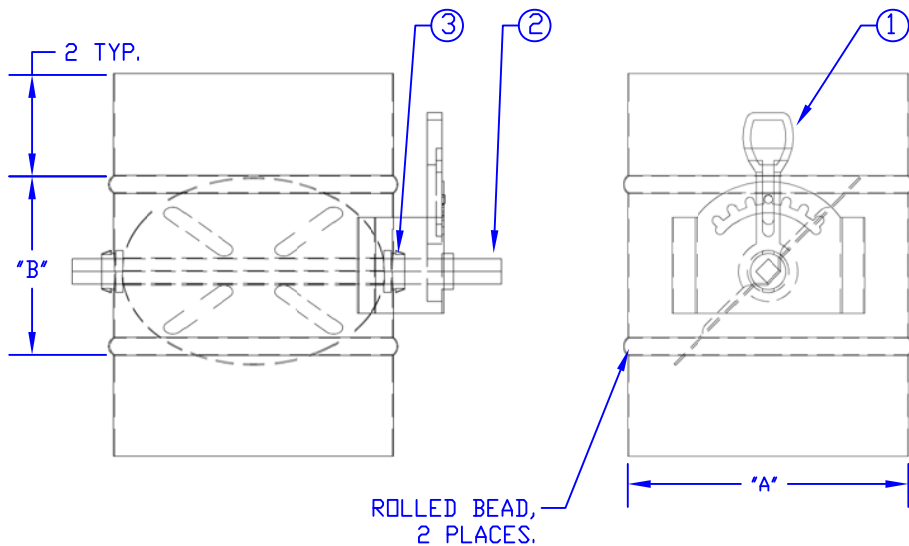
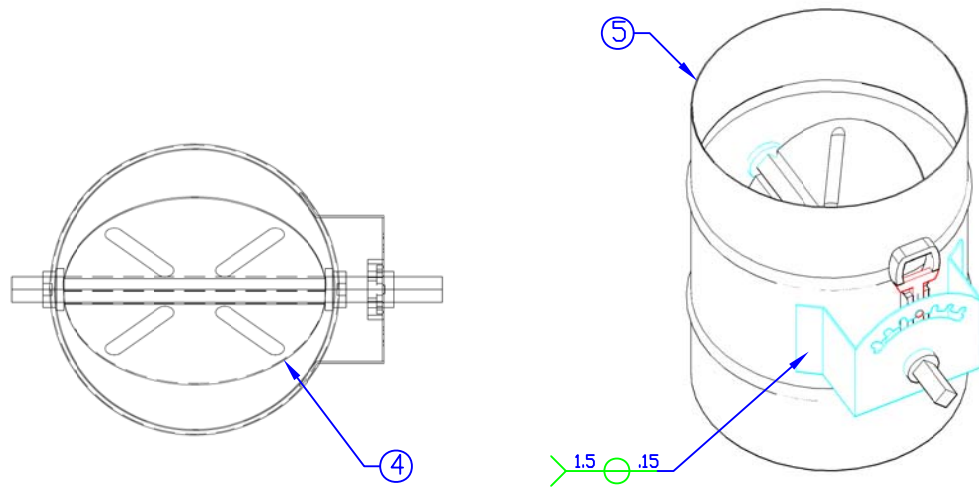
DRAWN BY: kcurtis

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

MASTER DRAWING

SHEET NO.

4



Rev	Descr	Date	Sign	ECO #	REV
New Item		5/24/11	PLB		A

- BOM -  
REFERENCE ONLY - NOT MAINTAINED!  
- SEE DBA FOR CURRENT PARTS LIST -

BOM #	Qty	Group / P/N	Descr.
1	1	HARDWARE, Dampers	Damper, Quad, Standoff, Everlock, Zytel, 1.5
2	1	RAWM, Bar	STRUC, Bar, Square, Galv, 0.375
3	2	HARDWARE, Dampers	Damper, Bearing, Open, B-Snap, Zytel, 0.75, 0.44
4	1	HARDWARE, Dampers	Damper, Blade, Galv
5	varies	RAWM, FLAT	G90 Galvanized Steel

#### SPECIFICATIONS:

-VOLUME DAMPER, QUADRANT LOCK-

DATA	
"A"	"B"
5	4
6	4
7	5
8	6
9	7
10	8
12	10
14	12
16	14

- All testing for pressure drop determinations of single blade volume dampers shall be in conformance to AMCA standard 500-D.
- Performance ratings to meet or exceed minimum requirement for pressure drop per ASHRAE standard 90.1-2004
- +10'/-2' wg design capacity.
- 2000 fpm maximum design capacity.
- 2' wg maximum pressure differential.
- Pressure loss  $\leq 0.15$  wg @ 2000 fpm.
- Leakage  $\leq 4.0$  cfm per sq ft of damper area per 1' wg column differential.
- Maximum design temperature = 248° F.
- Construction methods to comply with SMACNA standards S1 through S3 (HVAC-DCS 2005).
- Material gauge not less than that for longitudinal seam duct built to +10'/-2' wg per SMACNA tables 3-5 & 3-6.

<b>METU</b> <b>STREIMER</b> for better ductwork ADDRESS: 740 NORTH KNOTT ST. PORTLAND, OR 97227 PHONE: (503) 943-6043 FAX: (503) 288-3327 E-MAIL: info@metu-streimer.com	DESCRIPTION:	MATERIAL:	FINISH:	SCALE:	PAGE
	DAMPER, FASTAP, SLEEVE FITTINGS, SWR	GALV		1/4	1 OF 1
	THIS DRAWING IS THE PROPERTY OF SSWVI, AND MAY NOT BE USED WITHOUT AUTHORIZATION.	DWG SIZE: B	DRAWN BY: PLB	DWG #:	DASH #
		PRODUCT: FTGS, SWR	WHERE USED:	PART #	DASH #



Phone: 503-234-5071  
2220 SE Ninth Ave., Portland, OR 97214  
Fax: 503-233-0451  
800-848-5199

## SUBMITTAL

PROJECT: ASIAN HEALTH & SERVICE CENTER  
LOCATION: PORTLAND, OR  
ARCHITECT: \_\_\_\_\_  
ENGINEER: \_\_\_\_\_  
CONTRACTOR: ANDERSEN HEATING  
DATE SUBMITTED: June 7, 2017  
PROJECT MANAGER: JD ROGERS EMAIL: jrogers@johnsonair.com  
ACCOUNT MANAGER: JD ROGERS EMAIL: jrogers@johnsonair.com  
PLAN DATE: July 22, 2016  
ADDENDUMS: NA

WE ARE PLEASED TO SUBMIT THE FOLLOWING LIST OF EQUIPMENT FOR APPROVAL. BASED UPON INFORMATION RECEIVED WE BELIEVE THIS MATERIAL CONFORMS TO THE SPECIFICATIONS. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SIZES AND QUANTITIES PRIOR TO ORDER RELEASE. MATERIAL WILL BE RELEASED TO PRODUCTION UPON RETURN OF APPROVED SUBMITTALS TO JOHNSON AIR PRODUCTS AT 2220 S.E. 9TH AVE., PORTLAND, OREGON 97214.

MATERIAL SUBMITTED: FIRE/SMOKE DAMPER

SPECIFICATIONS: \_\_\_\_\_

MANUFACTURER: GREENHECK

**\*\* PLEASE VERIFY SIZE PRIOR TO ORDERING \*\***

(Please see attached literature)



Dampers

ID #	Tag	Qty	Mark	Model	Width~ (in.)	Height~ (in.)	Actuator
1-1		1	FSD	FSD-212	22.000	12.000	MS4104F10 10

ACCESSORIES:  
Retaining Angles: Mounting - 2-Side Loose, Size - Minimum allowable by UL

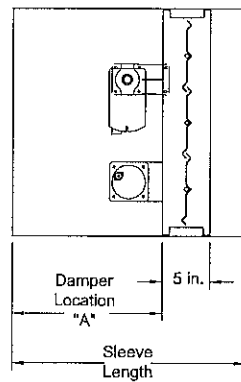
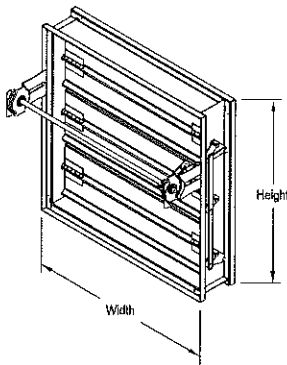
## Model: FSD-212

### Ratings and General Construction

Mounting:	Vertical	Axle/Linkage Material:	Steel	Axle Bearings:	304 SS
Velocity (ft/min):	2,000	Pressure Rtg. (in. wg):	4	Sizing:	Nominal
Closure Device:	RRL	Closure Temp (°F):	165	Sealed Trans/Slv.:	No
Frame Thickness (ga):	16	Blade Action:	Parallel	Blade Seal:	Silicone
Clean Wrap:	No	FM Approved Label:	No		

### Actuator

Actuator Type:	120 VAC	Actuator Mounting:	External	Actuator Location:	Right Side
Actuator Mfr.:	All	Fail Position:	Closed	Operating Mode:	Two Position
Actuator Temp. (°F):	250	Cycle Time:	Standard	NEMA Enclosure:	1
Auxiliary Switch:	No				



### Application & Design

Model FSD-212 is a combination fire smoke damper with 3V style blades. The FSD-212 has been qualified to 2,000 ft/min and 6 in. wg for operation and dynamic closure in emergency fire smoke situations. This model may be installed vertically (with blades running horizontal) or horizontally and is rated for airflow and leakage in either direction.

### Ratings

UL 555 Fire Resistance Rating	
Fire Rating:	1½ hours
Max. Pressure:	Consult Factory
UL555S Leakage Rating	
Leakage Class:	II

### Codes Approved

Model FSD-212 meets the requirements for fire dampers, smoke dampers and combination fire smoke dampers established by:

National Fire Protection Association:  
NFPA Standards 80, 90A, 92A, 92B, 101, 105  
IBC International Building Codes  
New York City (MEA listing #260-91-M)  
CSFM (Fire Damper Listing)  
Listing #3225-0981:103  
CSFM (Leakage Smoke Damper Listing)  
Listing #3230-0981:104  
FM Approval Specification Tested Product  
Underwriters Laboratories  
UL Classified to U.S. and Canadian safety standards  
Standard 555 & 555S (Listing #R13317)  
Installation instructions available at [www.greenheck.com](http://www.greenheck.com).



Notes: All dimensions shown are in units of inches.

Width & Height furnished approximately 0.25 under size.

(Add sleeve thickness for overall sleeved damper dimension)

If the actuator is contained, then it does not extend more than 1.5 inches above or below the damper sleeve.

\*Compact Configuration

### Selected Accessories

- Retaining Angles: Mounting - 2-Side Loose, Size - Minimum allowable by UL

Access doors that are smaller than 12 in. x 12 in. supplied on dampers with internal actuators, fusible links or more than one section high are intended for visual inspection.

Row ID	Tag	Qty	Width (in.)	Height (in.)	Compact*	Actuator Contained	Drive Arrangement	Actuator Model	Act. Qty.	Sleeve Length (in.)	Sleeve Gauge (ga)	"A" Dim. (in.)
1-1		1	22.000	12.000	Yes	Yes	Drive-MLS-11-1FER-1	MS4104F1010	1	16.000	20	7.188

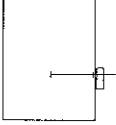
Total Qty: 1  
Total Number of Actuators: 1

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Damper Drive Arrangements Job Summary -Start-

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Drive Arrangement: Drive-MLS-11-1FER-1



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Damper Drive Arrangements Job Summary -End-

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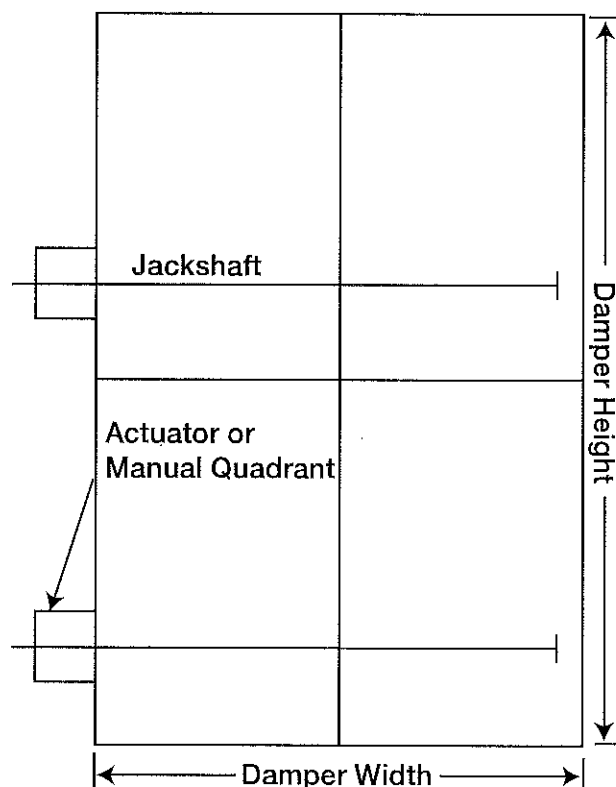
# Drive Arrangement Definition

On multi-blade dampers (except vertical blade and Face & Bypass), they are given a drive arrangement code that helps describe the construction of the damper. The following breaks down what each number and letter represents.

**22-2FEL-2**

① ② ③ ④ ⑤ ⑥ ⑦

- ① Number of sections wide
- ② Number of sections high
- ③ Number of actuators or manual quadrants
- ④ Who supplies the actuators or manual quadrants  
F - Factory  
C - Customer Supplied (field mounted)
- ⑤ Actuator or manual quadrant mounting  
E - External  
I - Internal  
B - Both internal and external
- ⑥ Actuator or manual quadrant location  
L - Left hand drive  
R - Right hand drive  
B - Both right and left
- ⑦ Number of jackshafts



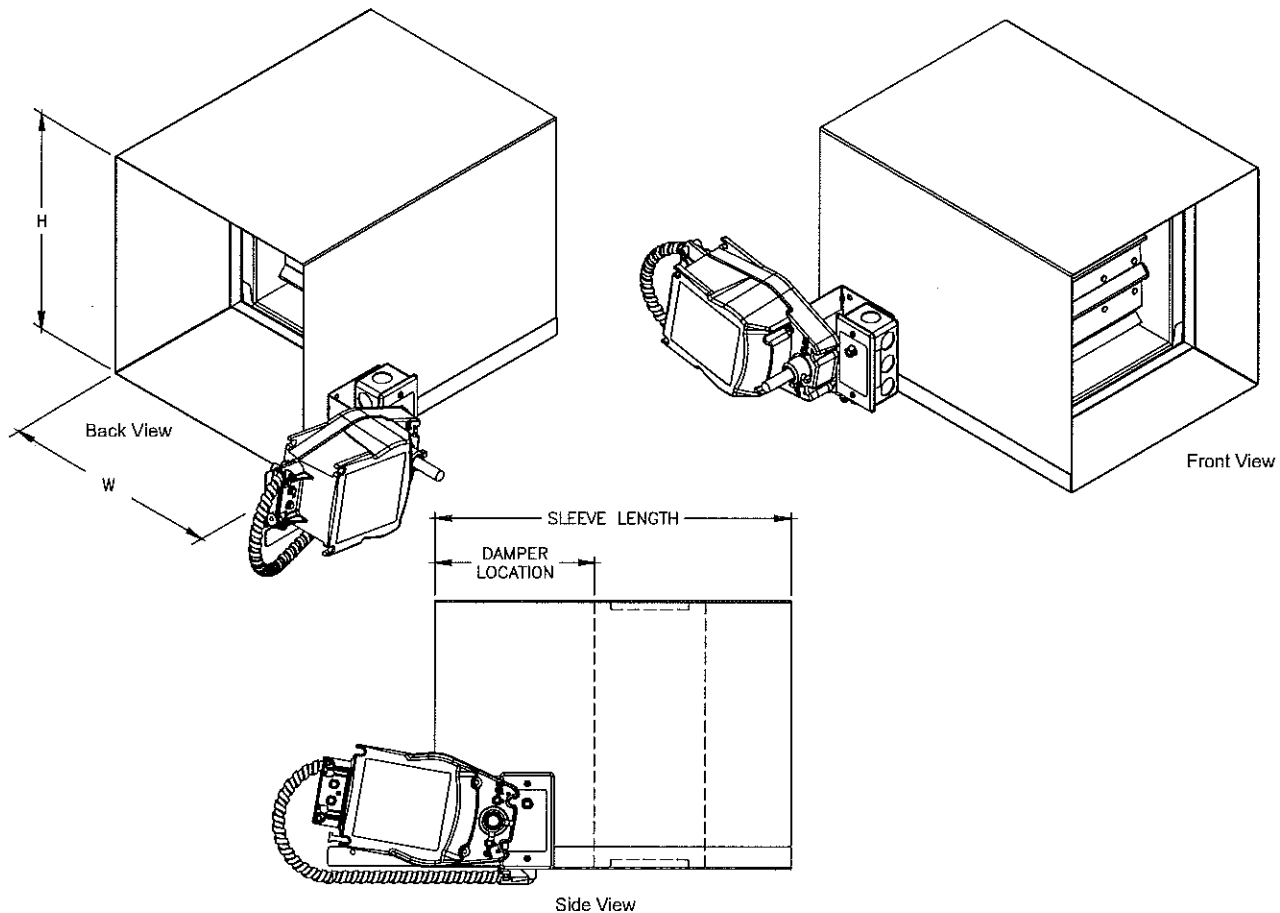
Vertical blade and face & bypass dampers are given a configuration ID number that helps describe the construction of the damper. See the following examples:

Model	Drive Arrangement Prefix
AMD-23, 33, 42	AMD
AMD-42V	VB
DFD-210, 230; DFDAF-310; DFDAF-330; SEDFD-210	MLS
FBH & FBV	FB
FSD, OFSD, CFSD, SMD, SEFSD, SSFSD, SESMD, SSSMD series (except vertical blade models)	MLS
FSD-311V, SMD-301V	VB
GFSD series	GFSD
ICD series	CC
IMO series	MLS
MBD-15 & VCD series (except vertical blade models)	CC
VCD-xxV (vertical blade models)	VB

# Compact Configuration

## for Combination Fire Smoke and Smoke Dampers

Compact configuration is a type of drive assembly used for certain configurations of motorized life safety dampers. This assembly provides benefits such as a smaller footprint, faster installation time and improved consistency without affecting the damper's operation. This assembly incorporates an actuator, drive axle, mounting bracket and RRL (Reusable Resettable Link).



### Applicable configurations:

Configurations outside those listed below are constructed using the traditional built up method.

- Model:** FSD-211, -212, -213; CFSD-211-2, -212-2, 211-3, -212-3, SMD-201, -202, -203
- Size:** UL qualified sizes 24 in. x 24 in. (610mm x 610mm) and less
- Sleeve Length:** 16 in. (406mm), 21 in. (533mm) or 24 in. (610mm) ; 20 ga. (.9mm) thickness
- Closure Temperature (RRL):** 165°F (74°C), 212°F (100°C)
- Actuator Mounting:** External Right
- Actuator Model:** Belimo FSLF and FSTF, Honeywell MSxx04 and MSxx09

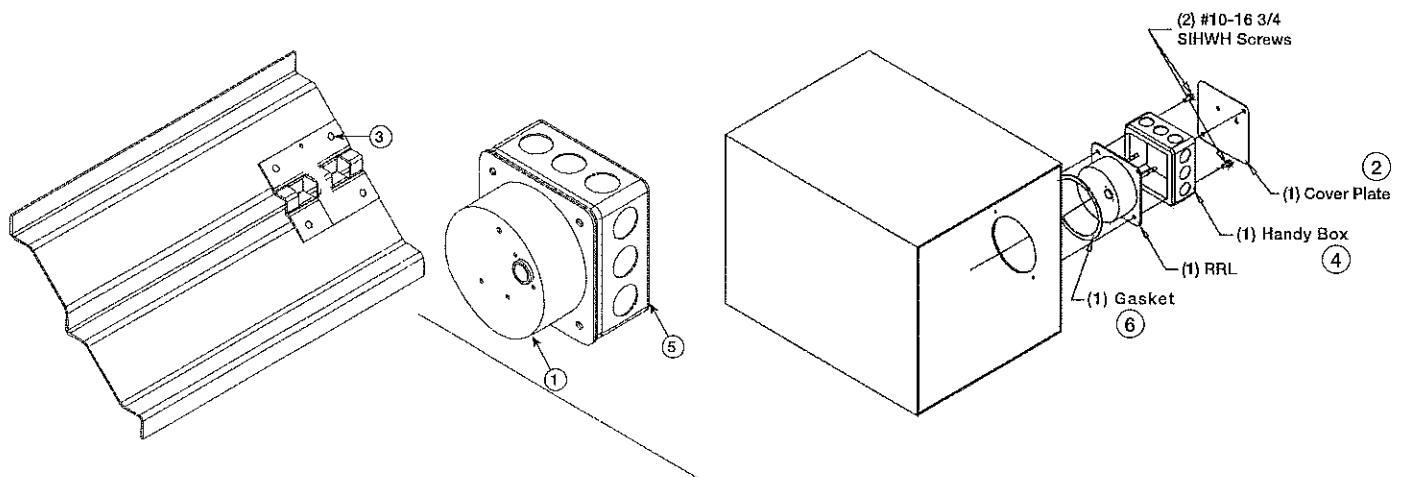
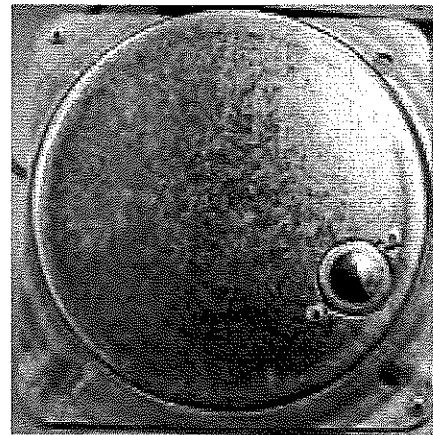


### APPLICATION

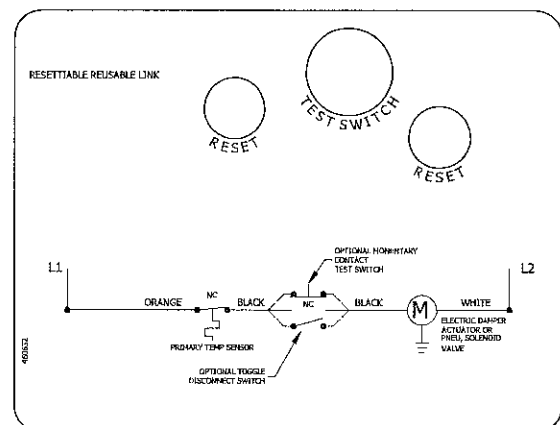
The RRL Option replaces the fusible link on a combination fire smoke damper with an electric sensor (thermostat). The sensor has a fixed temperature setting (usually 165° F [74°C]) and performs the same function as the fusible link that it replaces. The sensor interrupts power to the actuator and the actuator's spring return mechanism causes the damper to close.

The sensor is of the manual reset type and can be reset after the temperature has cooled down below the sensor set point. Before resetting any sensor, a careful inspection of the damper and sensor should be made as exposure to actual fire conditions may render these devices unusable.

This option requires factory installation of the damper actuator and factory wiring of the electric sensor to meet UL requirements for fire dampers. If the damper is equipped with a pneumatic actuator, an EP switch is required with an appropriate electric power circuit, to allow the electric thermostat to control the pneumatic actuator.



Item Number	Part Number	Qty.	Description
1	821278 (212°) 820734 (165°)	1	RRL Switch Box
2	380864	1	4 in. x 4 in. Cover Plate
3	415555	4	#10 Self Drilling Tek Screws
4	658593	1	4 in. x 4 in. Handy Box
5	460632	1	Label
6	370119	1	Gasket



WIRING DIAGRAM

# POC RETAINING ANGLE

Greenheck's one piece retaining angle, the POC (literally named for being a "Piece of Cake") makes damper installation a breeze. The POC angle is designed by fastening four pieces together to form one piece. When installed the angles simply wraps around the sleeve of the damper and is fastened in place.

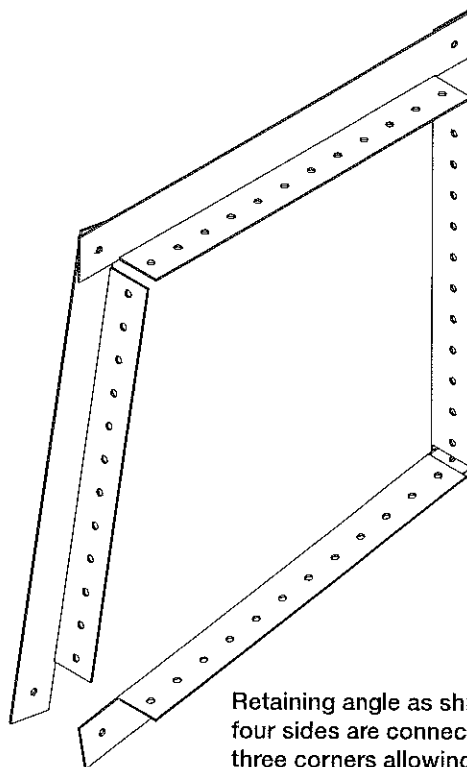
## Construction

20 ga. (1mm) or 16 ga. (1.5mm) galvanized steel.

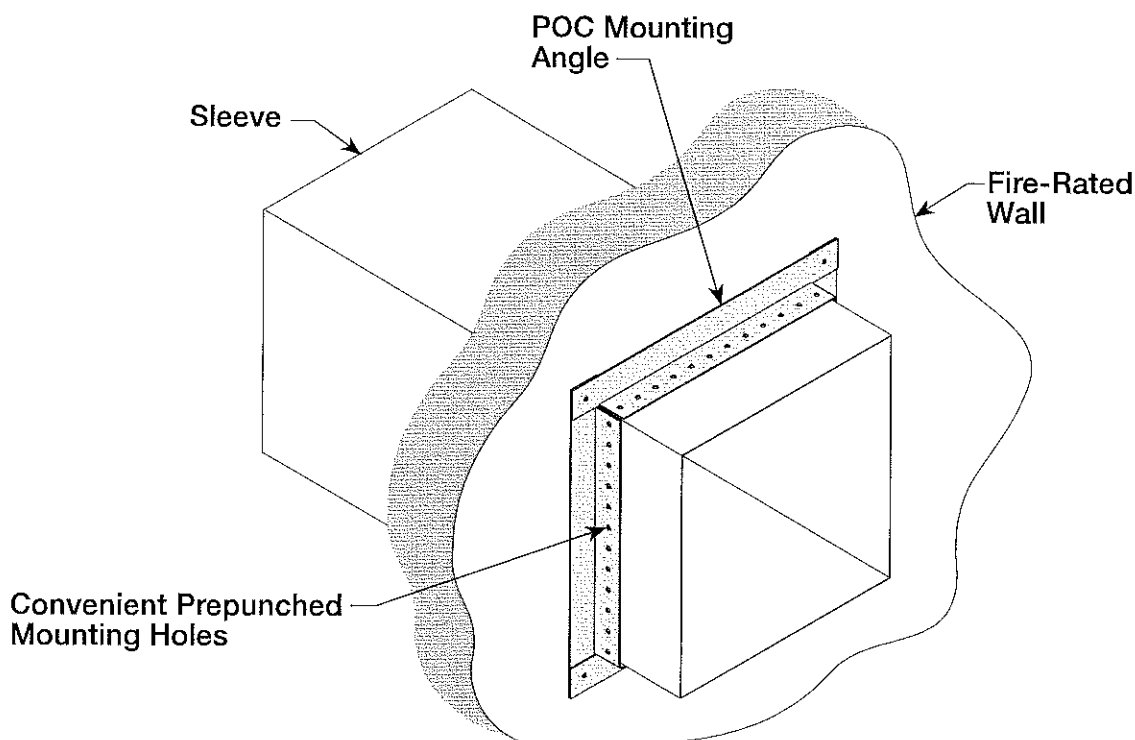
1½ in. x 1¼ in. (38mm x 32mm) or  
2½ in. x 1¼ in. (64mm x 32mm) for sizes greater  
than 48 inches (1219mm)

Retaining angles for 1½ hour rated fire and combination fire smoke dampers with a width and height 48 in. (1219mm) or less must be a minimum of 20 ga. (1mm) steel. Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than 48 in. (1219mm) must be a minimum of 16 ga. (1.5mm). If damper width plus damper height is less than or equal to 44 in. (1117mm) then the POC angles ships in one piece. If damper width plus damper height is greater than 44 in. (1117mm) then the POC angles ships in two pieces.

Meets requirements of UL 555 and UL 555S.



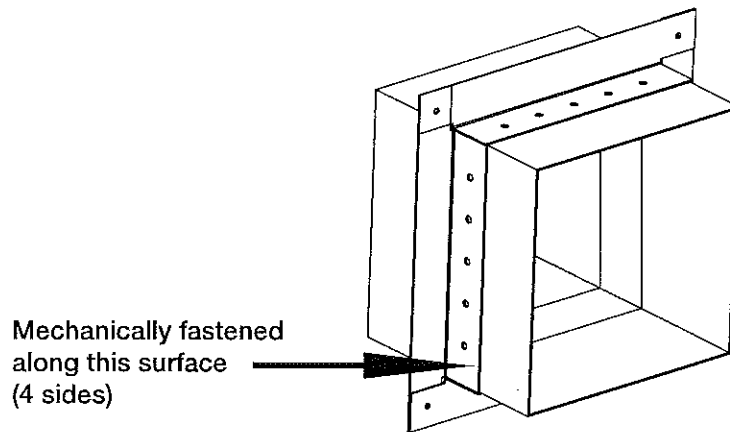
Retaining angle as shipped from factory. The four sides are connected together by rivets in three corners allowing for easy installation.



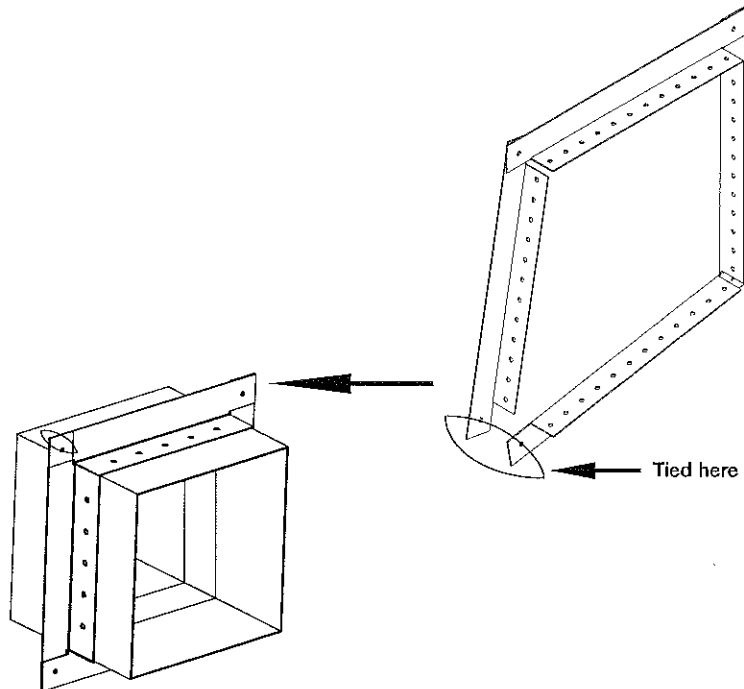
Retaining angle as mounted in the field. The POC angle wraps around the sleeve. The factory provides prepunched mounting holes to further simplify installation.

## Available retaining angle option:

- **Loose** - Angle/s ships unattached to the damper.
- **Single-Fastened** -Angles ships mechanically fastened to the damper sleeve at a specified location.



- **Wrapped** - Angle is wrapped around the damper sleeve and tied together.



## Honeywell MSXX04 and MSXX09 Series Two Position Actuators

## Application

The MS4104, MS4109, MS4604, MS4609, MS8109 and MS8109 fast acting, two position actuators are spring return direct coupled actuators (DCA) with an integral junction box for on/off damper control. The actuator accepts an on/off signal from a single-pole, single-throw (spst) controller. Reversible mounting allows actuator to be used for either clockwise (cw) or counterclockwise (ccw) spring rotation.

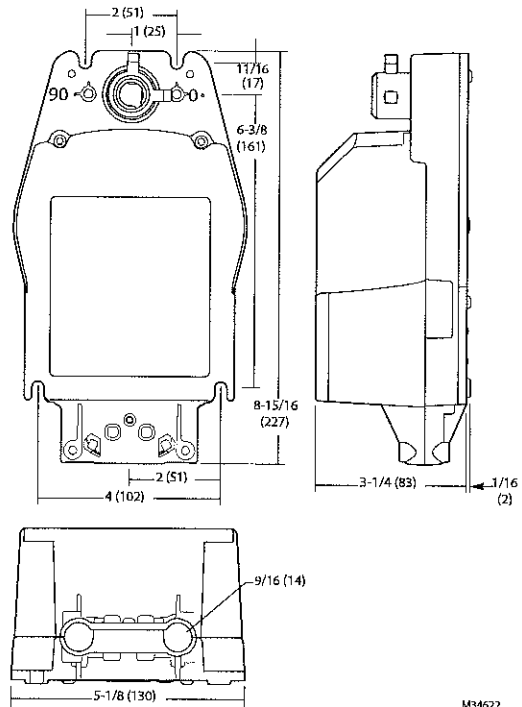
### Timing (at rated torque and voltage)

**Drive Open: 15 seconds typical**

**Spring Close: 15 seconds typical**

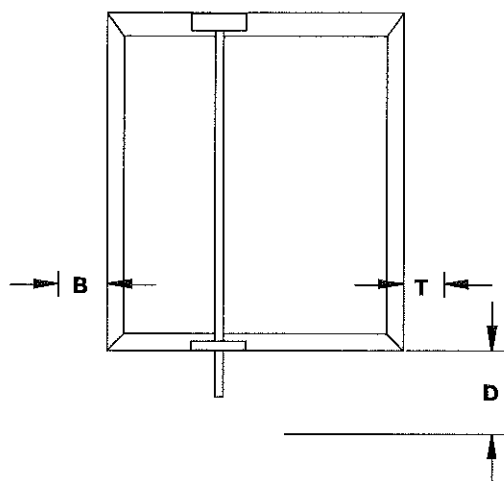
### Environmental Protection Ratings:

## Nema 1



Model	Torque Rating			Power Consumption		Voltage Input in Vac	Auxiliary Switches
	Stall Maximum lb.-in. (N•m)	Spring Return lb.-in. (N•m)	Typical Driving lb.-in. (N•m)	Running	Holding		
MS4104F1010	150 (17)	30 (3.4)	30 (3.4)	0.18A, 18W	0.11A, 9W	120 ±10% 50/60 Hz	No
MS4104F1210							Yes (2)
MS4109F1010	240 (27)	80 (9)	80 (9)	0.25A, 23W	0.13A, 7W	120 ±10% 50/60 Hz	No
MS4109F1210							Yes (2)
MS4604F1010	150 (17)	30 (3.4)	30 (3.4)	0.13A, 18W	0.10A, 11W	230 ±10% 50/60 Hz	No
MS4604F1210							Yes (2)
MS4609F1010	240 (27)	80 (9)	80 (9)	0.13A, 23W	0.09A, 7W	230 ±10% 50/60 Hz	No
MS4609F1210							Yes (2)
MS8104F1010	150 (17)	30 (3.4)	30 (3.4)	16VA	8VA	24 Vac/dc +20%, -10% 50/60 Hz	No
MS8104F1210							Yes (2)
MS8109F1010	240 (27)	80 (9)	80 (9)	23VA	7 VA	24 Vac/dc+20%, -10% 50/60 Hz	No
MS8109F1210							Yes (2)

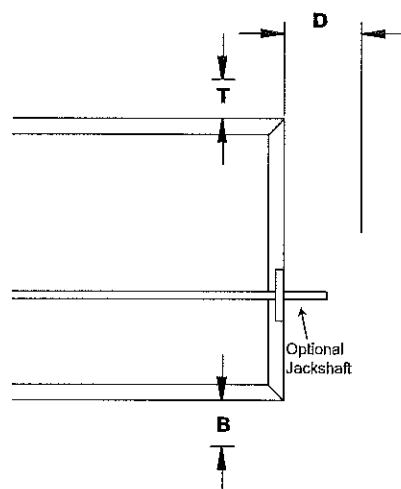
## For Vertical Blade



Width	"T"	"B"	"D"
≥6 (152) to <9 (229)	0	4.75 (121)	6 (152)
≥9 (229)	0	0	6 (152)

Dimensions are in inches (mm).

## For Horizontal Blade



Height	"T"	"B"	"D"
≥6 (152) to <9 (229)	0	4.75 (121)	6 (152)
≥9 (229)	0	0	6 (152)

Dimensions are in inches (mm).

**Note:** If actuator orientation is selected as "Contained", then "B" and "T" equals 0. If less than 16 in. (406mm) high, the junction box (used on RRL, RRL/OCI, OCI and TOR) is mounted opposite actuator side and is 1½ in. (38mm) past the frame.





Phone: 503-234-5071  
2220 SE Ninth Ave., Portland, OR 97214  
Fax: 503-233-0451  
800-848-5199

## SUBMITTAL

PROJECT: ASIAN HEALTH & SERVICE CENTER  
LOCATION: PORTLAND, OR  
ARCHITECT: \_\_\_\_\_  
ENGINEER: \_\_\_\_\_  
CONTRACTOR: ANDERSEN HEATING  
DATE SUBMITTED: June 7, 2017  
PROJECT MANAGER: JD ROGERS EMAIL: jrogers@johnsonair.com  
ACCOUNT MANAGER: JD ROGERS EMAIL: jrogers@johnsonair.com  
PLAN DATE: July 22, 2016  
ADDENDUMS: NA

WE ARE PLEASED TO SUBMIT THE FOLLOWING LIST OF EQUIPMENT FOR APPROVAL. BASED UPON INFORMATION RECEIVED WE BELIEVE THIS MATERIAL CONFORMS TO THE SPECIFICATIONS. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SIZES AND QUANTITIES PRIOR TO ORDER RELEASE. MATERIAL WILL BE RELEASED TO PRODUCTION UPON RETURN OF APPROVED SUBMITTALS TO JOHNSON AIR PRODUCTS AT 2220 S.E. 9TH AVE., PORTLAND, OREGON 97214.

MATERIAL SUBMITTED: CONTROL DAMPER

SPECIFICATIONS: \_\_\_\_\_

MANUFACTURER: GREENHECK

**\*\* PLEASE VERIFY SIZE PRIOR TO ORDERING \*\***

(Please see attached literature)

Dampers

ID #	Tag	Qty	Mark	Model	Width~ (in.)	Height~ (in.)	Actuator
2-1		1	CONTROL DAMPER	VCD-23	20.000	20.000	TFB120
ACCESSORIES:							

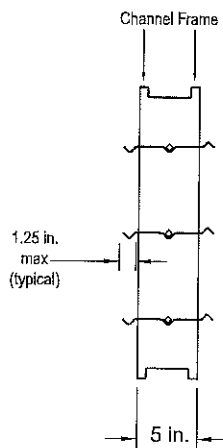
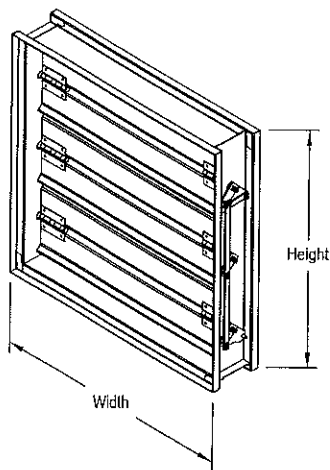
## Model: VCD-23

### Ratings and General Construction

Blade Action:	Opposed	Axle Bearings:	Synthetic	Standoff Bracket:	1.5
Frame Type:	Channel	Axle/Linkage Material:	Steel	Jackshafting:	No Preference
Material:	Galvanized	Blade Seal:	TPE	Clean Wrap:	No
Frame Thickness (ga):	16	Jamb Seal:	304 SS	Sizing:	Nominal
Transition:	None	Blade Indicator:	None	Temp. Rating (°F):	180
Actuator Sizing:	Default SqFt	Ext. Shaft Length (in.):	Standard		

### Actuator

Actuator Type:	120 VAC	Actuator Operation:	Spring Return	Fail Position:	Closed
Actuator Mfr.:	All	Actuator Mounting:	External	NEMA Enclosure:	Least Cost
Operating Mode:	Two Position	Actuator Location:	Left Side	Auxiliary Switch:	No



### Application & Design

The VCD-23 is a ruggedly built low leakage control damper intended for application in low to medium pressure and velocity systems. A wide range of electric and pneumatic actuators are available.

### Ratings

Pressure:	Up to 5 in. wg pressure differential
Velocity:	3,000 ft/min
Leakage:	Class 1A @ 1 in. wg, Class 1 @ up to 5 in. wg
Temperature:	Up to 250°F

Greenheck Fan Corporation certifies that the model VCD-23 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.



Notes: All dimensions shown are in units of inches.  
Width & Height furnished approximately 0.25 under size.  
Installation instructions available at [www.greenheck.com](http://www.greenheck.com).

Row ID	Tag	Qty	Opening W (in.)	Opening H (in.)	Drive Arrangement	Actuator Model	Act. Qty.
2-1		1	20.000	20.000	Drive-CC-11-1FEL-0	TFB120	1

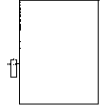
Total Qty: 1  
Total Number of Actuators: 1

---

Damper Drive Arrangements Job Summary -Start-

---

Drive Arrangement: Drive-CC-11-1FEL-0



---

Damper Drive Arrangements Job Summary -End-

---

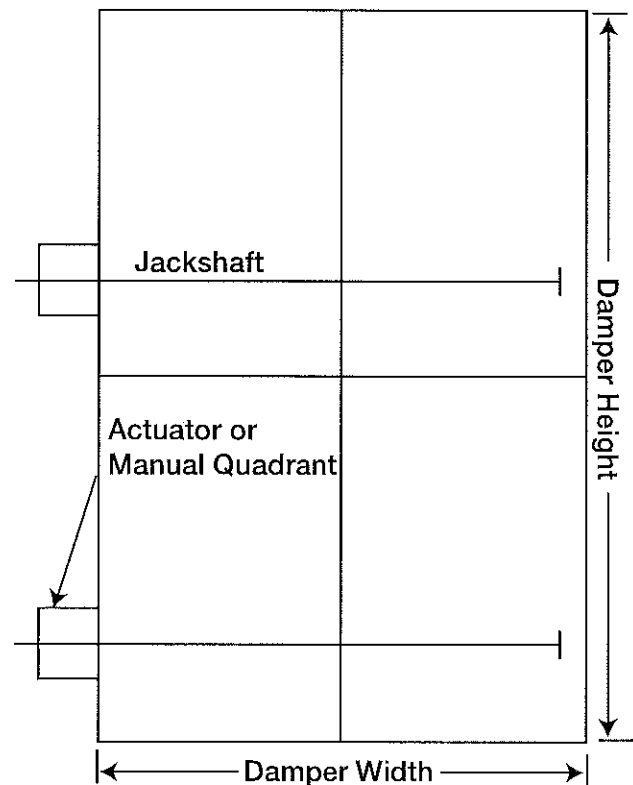
# Drive Arrangement Definition

On multi-blade dampers (except vertical blade and Face & Bypass), they are given a drive arrangement code that helps describe the construction of the damper. The following breaks down what each number and letter represents.

**22-2FEL-2**

① ② ③ ④ ⑤ ⑥ ⑦

- ① Number of sections wide
- ② Number of sections high
- ③ Number of actuators or manual quadrants
- ④ Who supplies the actuators or manual quadrants  
F - Factory  
C - Customer Supplied (field mounted)
- ⑤ Actuator or manual quadrant mounting  
E - External  
I - Internal  
B - Both internal and external
- ⑥ Actuator or manual quadrant location  
L - Left hand drive  
R - Right hand drive  
B - Both right and left
- ⑦ Number of jackshafts



Vertical blade and face & bypass dampers are given a configuration ID number that helps describe the construction of the damper. See the following examples:

Model	Drive Arrangement Prefix
AMD-23, 33, 42	AMD
AMD-42V	VB
DFD-210, 230; DFDAF-310; DFDAF-330; SEDFD-210	MLS
FBH & FBV	FB
FSD, OFSD, CFSD, SMD, SEFSD, SSFSD, SESMD, SSSMD series (except vertical blade models)	MLS
FSD-311V, SMD-301V	VB
GFSD series	GFSD
ICD series	CC
IMO series	MLS
MBD-15 & VCD series (except vertical blade models)	CC
VCD-xxV (vertical blade models)	VB

## Belimo TFB120, 120-S, 24, and 24-S Actuators

### Application

The TFB series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provides consistent torque to the damper with and without power applied to the actuator. The TFBxxx-S version is provided with one built in auxiliary switches.

### Torque rating (at rating voltage)

22 in. lb (2.5N•m) constant

### Timing (at rated torque and voltage)

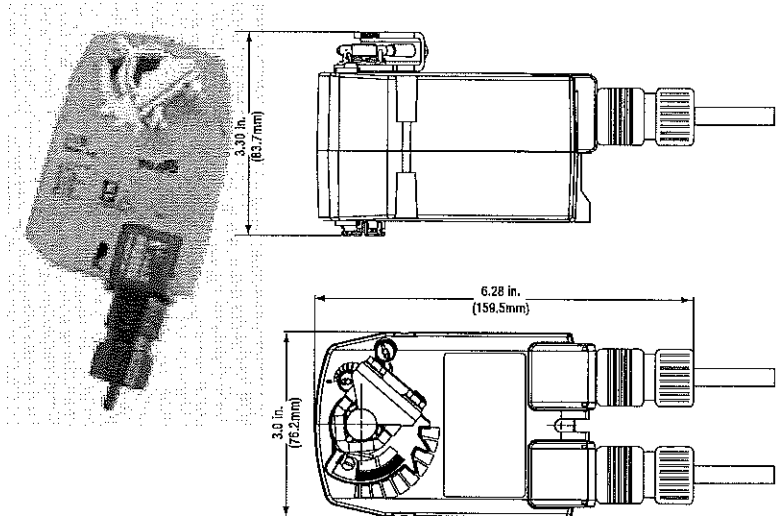
Motor: Less than 75 seconds

Spring : Less than 25 seconds @ -4° to 122°F

Less than 60 seconds @ -22°F

### Environmental Protection Ratings:

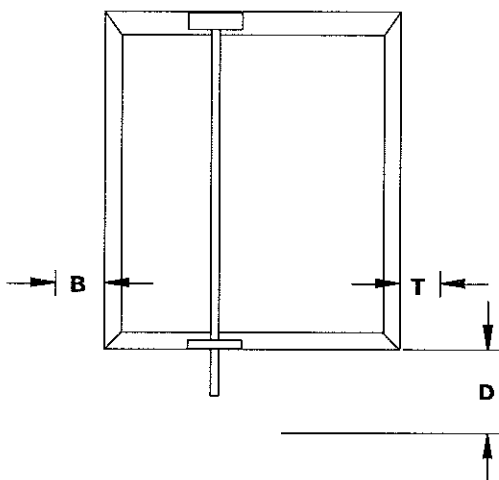
Nema 2



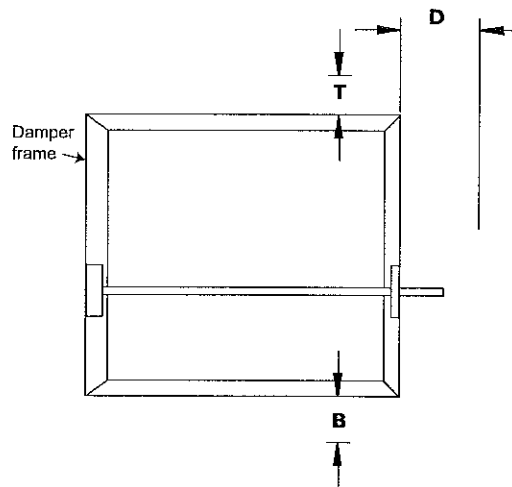
Model	Auxiliary Switch	Power Consumption		Voltage Input in Vac
		Running	Holding	
TFB24	No	2W	1.3W	24 VAC, 24 VDC
TFB24-S	Yes			
TFB120	No	2.5W	1.3W	100-240 VAC
TFB120-S	Yes			

### Space Envelopes for VCD Series

#### For Vertical Blade



#### For Horizontal Blade



Width	"T"	"B"	"D"
≥6 (152) to <10 (254)	0	3.5 (89)	6 (152)
≥10 (254)	0	0	6 (152)

Dimensions are in inches (mm).

Height	"T"	"B"	"D"
≥6 (152) to <10 (254)	0	3.5 (89)	6 (152)
≥10 (254)	0	0	6 (152)

Dimensions are in inches (mm).

Due to continuous product improvement, the actuator manufacturer reserves the right to change specifications without notice. For the most up-to-date information and maintenance, go to [www.belimo.us](http://www.belimo.us)



Phone: 503-234-5071  
2220 SE Ninth Ave., Portland, OR 97214  
Fax: 503-233-0451  
800-848-5199

## SUBMITTAL

PROJECT: ASIAN HEALTH & SERVICE CENTER  
LOCATION: PORTLAND, OR  
ARCHITECT: \_\_\_\_\_  
ENGINEER: \_\_\_\_\_  
CONTRACTOR: ANDERSEN HEATING  
DATE SUBMITTED: June 7, 2017  
PROJECT MANAGER: JD ROGERS EMAIL: jrogers@johnsonair.com  
ACCOUNT MANAGER: JD ROGERS EMAIL: jrogers@johnsonair.com  
PLAN DATE: July 22, 2016  
ADDENDUMS: NA

WE ARE PLEASED TO SUBMIT THE FOLLOWING LIST OF EQUIPMENT FOR APPROVAL. BASED UPON INFORMATION RECEIVED WE BELIEVE THIS MATERIAL CONFORMS TO THE SPECIFICATIONS. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SIZES AND QUANTITIES PRIOR TO ORDER RELEASE. MATERIAL WILL BE RELEASED TO PRODUCTION UPON RETURN OF APPROVED SUBMITTALS TO JOHNSON AIR PRODUCTS AT 2220 S.E. 9TH AVE., PORTLAND, OREGON 97214.

MATERIAL SUBMITTED: AIR DISTRIBUTION

SPECIFICATIONS: \_\_\_\_\_

MANUFACTURER: PRICE INDUSTRIES

\*\* PLEASE VERIFY QUANTITY AND SIZE PRIOR TO ORDERING \*\*

\*\* PLEASE VERIFY IF T/BAR OR SURFACE MOUNT CEILING DIFFUSERS PRIOR TO ORDERING \*\*

(Please see attached literature)



# Grilles/Registers/Diffusers Submittals

**Job Name:** ASIAN HEALTH & SERVICE CENTER

**Date Printed:** 6/7/2017

**Spec Section:** 15 - HVAC

**Contact:** 2220 SE NINTH AVENUE  
PORTLAND,, OR 97214





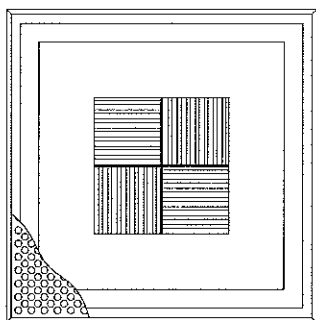
**All-In-One**  
**Detailed Submittal Schedule**  
**Grilles/Registers/Diffusers**

#	Qty	Model	Tag	Unit Size	Inlet Size	Border	Pattern	Panel Size	Accessories
1	36	PDMC	SA	6		3		24, 24	
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat T Applications									
2	7	PDMC	SA	8		3		24, 24	
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat T Applications									
3	1	PDMC	SA	10		3		24, 24	
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat T Applications									
4	29	PDDR	RA	6		3		24, 24	DCT
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat Tee									
5	1	PDDR	RA	8		3		24, 24	DCT
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat Tee									
6	5	PDDR	RA	12		3		24, 24	DCT
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat Tee									
7	2	PDDR	EA	6		3		12, 12	DCT
Desc: 3 - T-Bar Lay-In for 1" and 9/16" Flat Tee									
8	8	520D	SSW	6.000, 6.000		F	L		SW
Desc: F - 1 1/4" (32) Flat Frame   L - Front Louver Blades parallel to Long Dimension									
9	2	530D	RSW	24.000, 24.000		F	L		SW
Desc: F - 1 1/4" (32) Flat Frame   L - Front Louver Blades parallel to Long Dimension									
10	2	530D	RSW	32.000, 30.000		F	L		SW
Desc: F - 1 1/4" (32) Flat Frame   L - Front Louver Blades parallel to Long Dimension									
11	1	530	TG	18.000, 18.000		F	L		SW
Desc: F - 1 1/4" (32) Flat Frame   L - Front Louver Blades parallel to Long Dimension									
12	23	RCDA	RCD	12	12				
Desc:									
13	44	SPF	SA	24, 24					
Desc:									
14	35	SPF	RA	24, 24					
Desc:									
15	2	SPF	EA	12, 12					
Desc:									
16	8	ASP210	FIRST FLOOR	48, 2	10	1	STRAIGHT	10	
Desc: 10 - 10" Round Inlet   1 - Plenum with Side Plenum Clips mounts to Type 21 22   STRAIGHT - Straight Section									
17	8	AS210	FIRST FLOOR	48.000, 2		21	STRAIGHT	0.00	XX, MP
Desc: 21 - Exposed Frame for ASP/ASPI/ISP/ISPI/OTHERS (order separately)   STRAIGHT - Straight Section									
18	2	TBD2100	2ND FLOOR	48, 1	4x7			4x7	BFS
Desc: 4x7 - Oval (6" Round Equivalent)									
19	3	SDS100	3RD FLOOR #8	48.000, 3		2			XX
Desc: 2 - Flange Frame Concealed Mounting									
20	3	SDB100	3RD FLOOR #8	48, 3	10	2		10	
Desc: 10 - Round Inlet   2 - Drywall Mounted Fits 1 Through 8A									
21	1	SDR100	3RD FLOOR #7	36.000, 5		2			XX
Desc: 2 - Flange Frame Concealed Mounting									
22	1	SDB100	3RD FLOOR #7	36, 5	14	2		14	
Desc: 14 - Round Inlet   2 - Drywall Mounted Fits 1 Through 8A									
23	2	SDS100	3RD FLOOR #9	48.000, 4		2			XX
Desc: 2 - Flange Frame Concealed Mounting									
24	2	SDB100	3RD FLOOR #9	48, 4	6x15.218	2		6x15.218	
Desc: 6x15.218 - Oval Inlet (12" Round Equivalent)   2 - Drywall Mounted Fits 1 Through 8A									
25	1	530	SA CEILING	58.000, 58.000		F	L		SW
Desc: F - 1 1/4" (32) Flat Frame   L - Front Louver Blades parallel to Long Dimension									

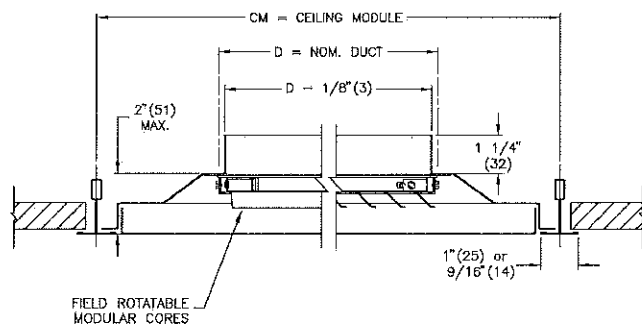
The order and sale are made pursuant to the terms of the Sales Agreement and the Sales Policies set out in the latest Customer Service Handbook.

H:\AIO Jobs\JD\Secured 2017\ASIAN HEALTH & SERVICE CENTER.aio-projx

**PDMC: Steel Perforated Diffuser with Rotatable Module Core**



**Border:** 3: T-Bar Lay-In for 1" and 9/16" Flat T Applications

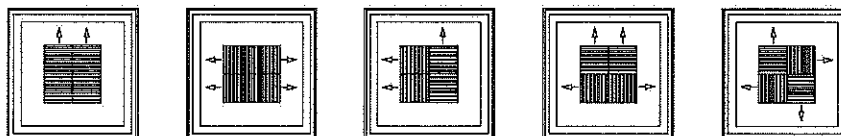


**Material:** • Steel Construction

**Finish:** • B12: White Powder Coat

**Notes:**

- Four Rotatable Module Cores Allow 1-Way, 2-Way, 2-Way Corner, 3-Way & 4-Way Air Patterns
- Core Modules are field rotatable
- Core Modules are factory preset to a 4-Way Air Deflection Pattern
- Backpan Height is 2" (51) for 24" x 24" Nominal Size
- Factory Tolerance:  $\pm 1/32$ (1)

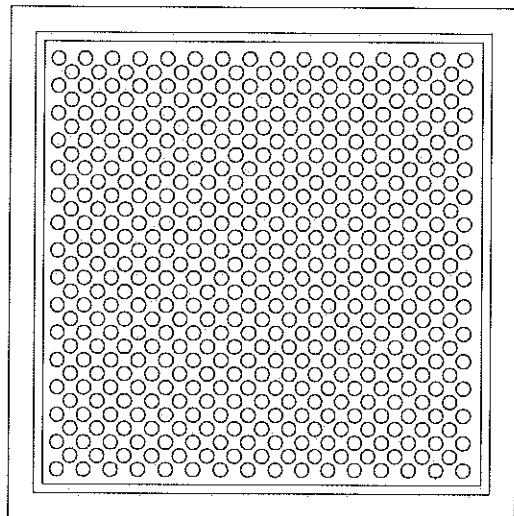


**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Perf Diff W/Modular Core(Rotatable)-Steel  
PDMC///6,8,10//3//24/24///B12

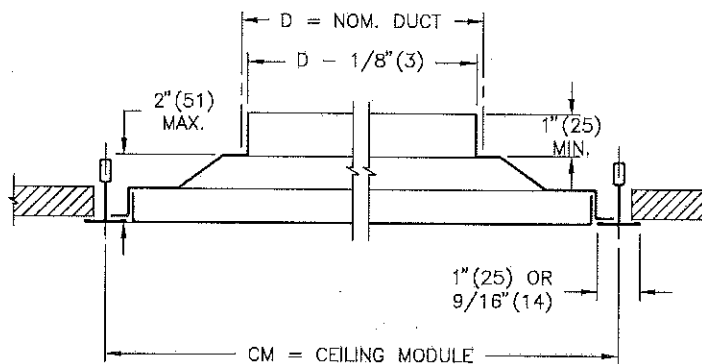
**SUBMITTAL NO:** 261214  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

**PDDR Ducted Steel Perforated Flush Face Return Diffuser**



**Ducted Return**



**Material:**

- Steel Construction

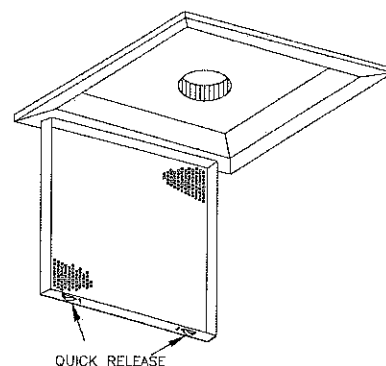
**Finish:**

- B12: White Powder Coat

**Notes:**

- Hinged, removable perforated faceplate with quick-release spring latches
- Frame 3: T-bar lay-in for 1" and 9/16" flat tee
- Maximum backpan height is 2" (51)
- Factory tolerance  $\pm 1/32"$  (1)

**Detail View:**



**PROJECT:** ASIAN HEALTH & SERVICE CENTER

**ENGINEER:**

**DESCRIPTION:** Perfor Diffuser,(Non)/Ducted Return-Flush Face,Stl

PDDR///6,8,12///3/DCT/24,12/24,12///B12

**SUBMITTAL NO:** 258531-A

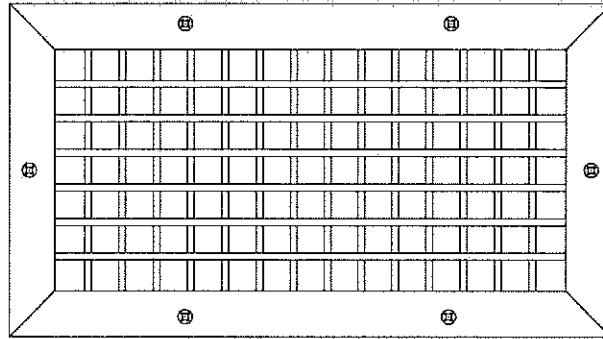
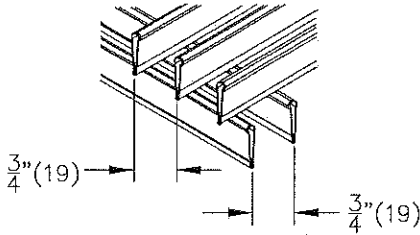
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

## 520D Louvered Steel Supply Register – 3/4" Blade Spacing, Double Deflection

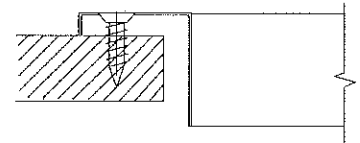
### Core Style:

Double Deflection



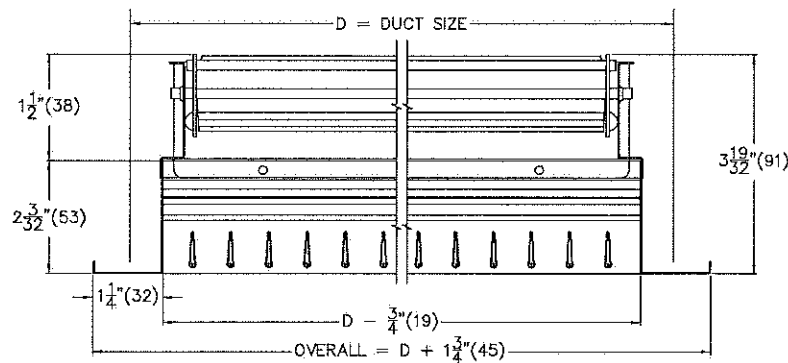
### Fastening:

A: Countersunk Screwholes with Screw



### Border: F

1 1/4" (32) Flat Frame



### Material:

- Steel

### Finish:

- B12 - White Powder Co

### Notes:

- Front blades parallel to Long dimension
- Individually adjustable roll formed blades on 3/4" (19) centers
- VCS3 opposed blade damper, coated steel
- Factory tolerance  $\pm 1/32"$  (1)

**PROJECT:** ASIAN HEALTH & SERVICE CENTER

**ENGINEER:**

**DESCRIPTION:** Louvered Steel Dbl Deflec Reg W/Damp, 3/4" Spacing

520D///6.000/6.000/F/L///A/SW/B12

**SUBMITTAL NO:** 258306

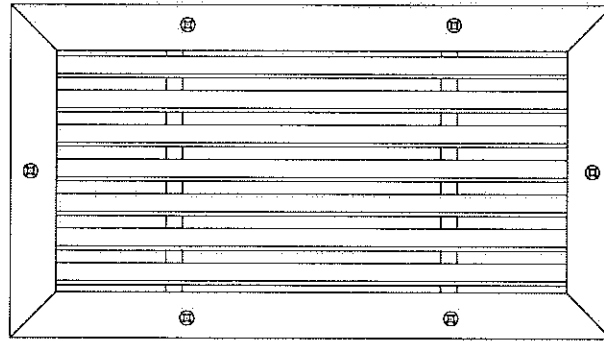
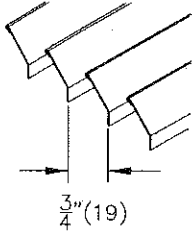
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

## 530D Louvered Steel Return Register – 3/4" Blade Spacing, 45° Single Deflection

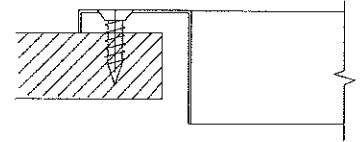
### Core Style:

Single Deflection



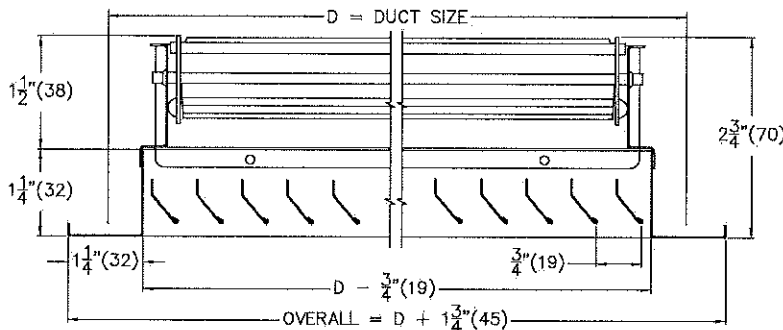
### Fastening:

A: Countersunk Screwholes with Screws



### Border: F

1 1/4" (32) Flat Frame



### Material:

- Steel

### Finish:

- B12 - White Powder Co

### Notes:

- Blades parallel to Long dimension
- 45° Deflection roll formed blades on 3/4" (19) centers
- VCS3 opposed blade damper, coated steel
- Factory tolerance  $\pm 1/32"$  (1)

PROJECT: ASIAN HEALTH & SERVICE CENTER

ENGINEER:

DESCRIPTION: Steel Return Reg W/Damp, 45 Deg Blades, 3/4" Spcng

530D///24.000,32.000/24.000,30.000/F/L///A//SW/B12

SUBMITTAL NO: 258306

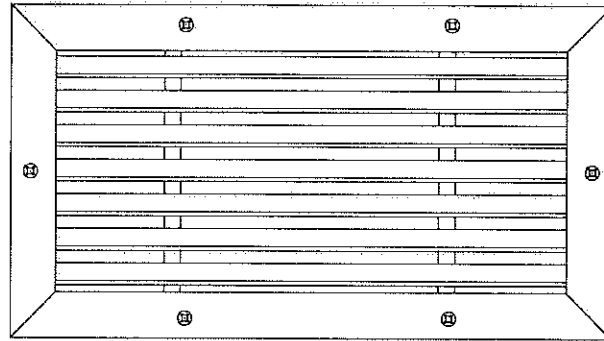
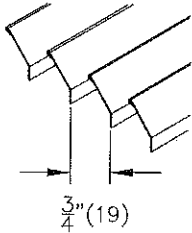
CUSTOMER:

SUBMITTAL DATE: 6/7/2017

**530 Louvered Steel Return Grille – 3/4" Blade Spacing, 45° Single Deflection**

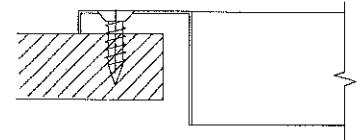
**Core Style:**

Single Deflection



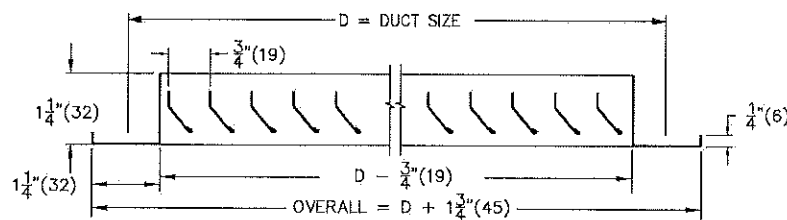
**Fastening:**

A: Countersunk Screwholes with Screws



**Border:** F

1 1/4" (32) Flat Frame



**Material:**

• **Steel**

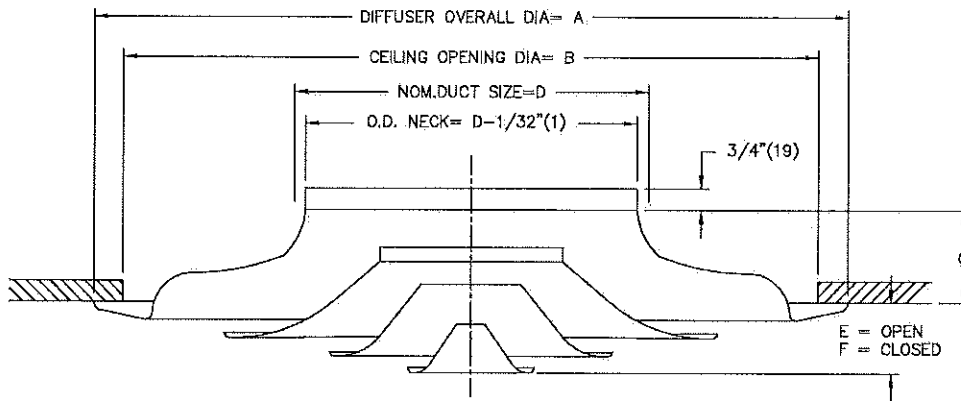
**Finish:**

• **B12 - White Powder Co**

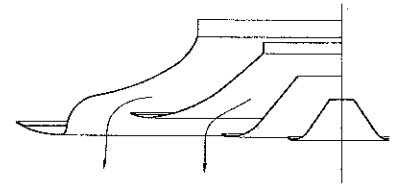
**Notes:**

- Blades parallel to Long dimension
- 45° Deflection roll formed blades on 3/4" (19) centers
- Factory tolerance  $\pm 1/32"$  (1)

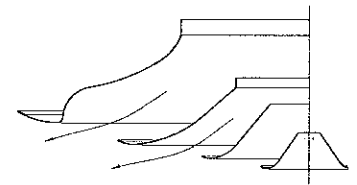
## RCDA Steel Round Cone Diffuser, Fully Adjustable



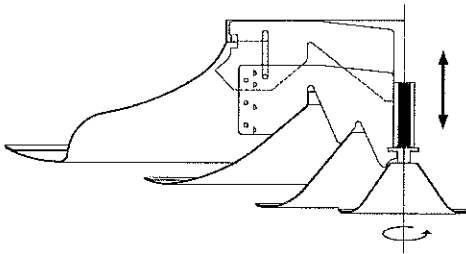
### Vertical Airflo



### Horizontal Airflo



### Detail View:



### Notes:

- Air pattern is adjustable from full horizontal to full vertical by turning the small center cone
- Tool free removal of inner cone
- Factory Tolerance:  $\pm 1/32"$  (1)

### Material:

- Heavy Gauge Spun Steel

### Finish:

- B15: Aluminum Powder Coat

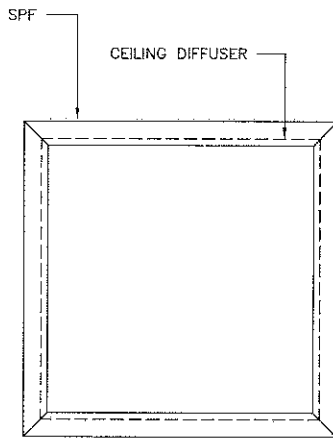
Dimensions- inches						
Inlet Size	A	B	C	D	E	F
12	27	24	3 1/4	12	3 1/8	1 5/8

**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Round Cone Diffuser - Fully Adjustable, Steel  
 RCDA///12/////////B15

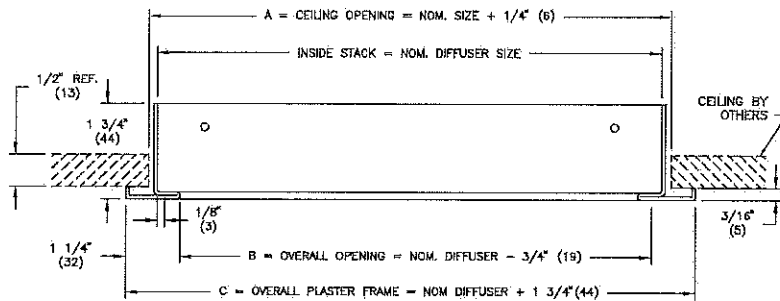
**SUBMITTAL NO:** 260677  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

**SPF Steel Lay-In Type Plaster Frame**



Nom. Diffuser Size	A	B	C
24 x 24	24 1/4 x 24 1/4	23 1/4 x 23 1/4	25 3/4 x 25 3/4



**Notes:**

- Factory Tolerance  $\pm 1/32"$  (1)

**Material:**

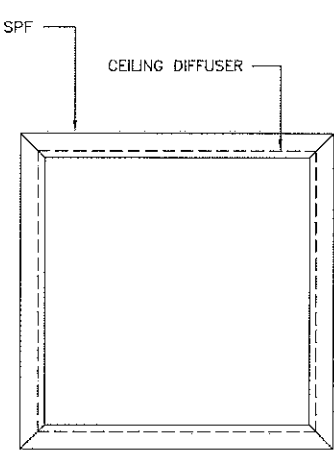
- Heavy Gauge **Steel**

**Finish:**

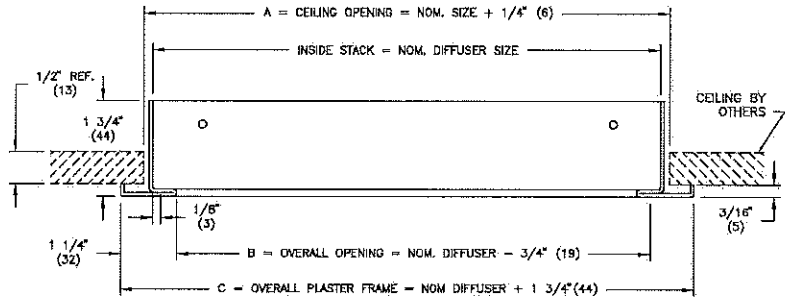
- **B12: White Powder Coat**



SPF Steel Lay-In Type Plaster Frame



Nom. Diffuser Size	A	B	C
12 x 12	12 1/4 x 12 1/4	11 1/4 x 11 1/4	13 3/4 x 13 3/4



Notes:

- Factory Tolerance  $\pm 1/32"$  (1)

Material:

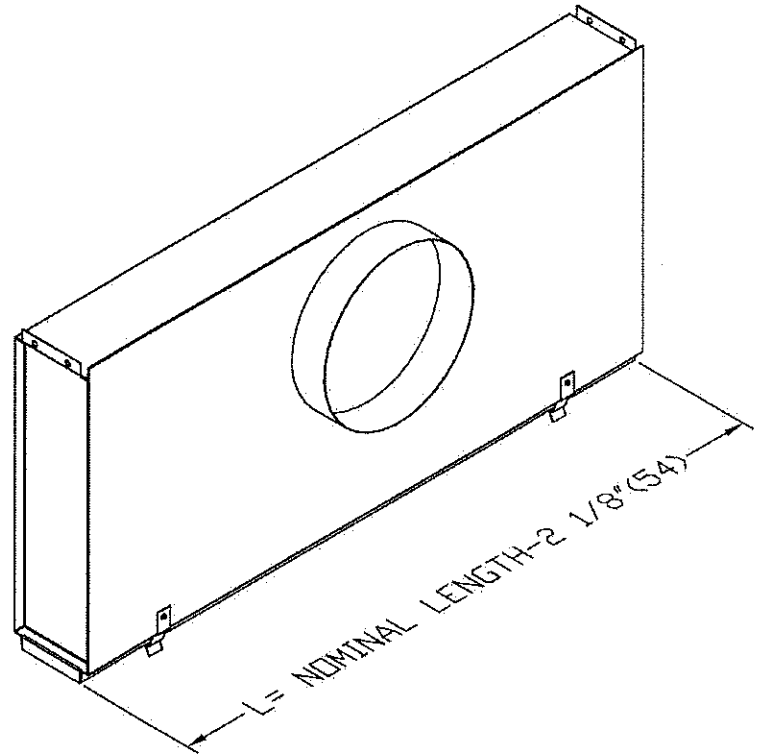
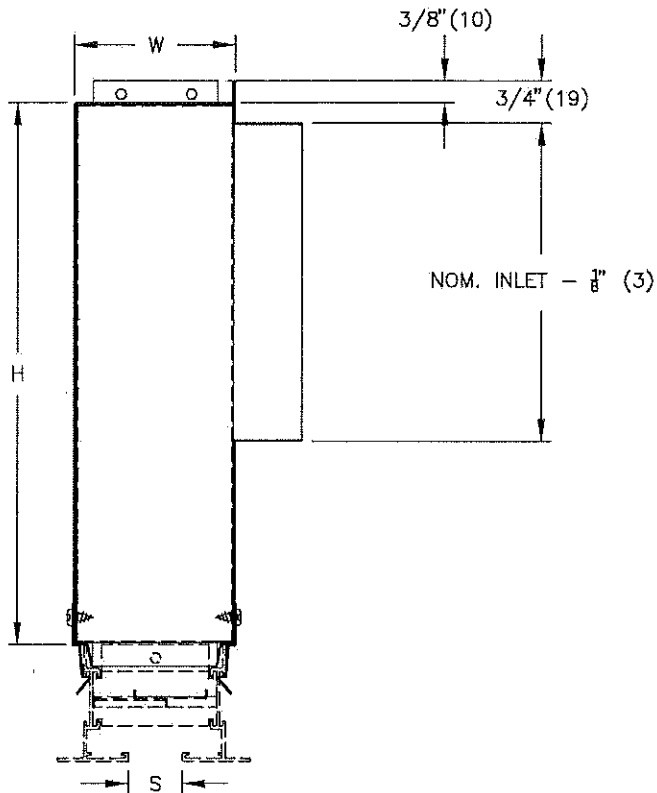
- Heavy Gauge Steel

Finish:

- B12: White Powder Coat

## ASP210 Custom Flow Engineered Plenum For AS210

### Plenum Type 1



S	Slots	H	W
1"	2 Slot	16"	5 5/16"

**Nominal Length**  
48"

**Nominal Inlet Size**  
10" Round Inlet

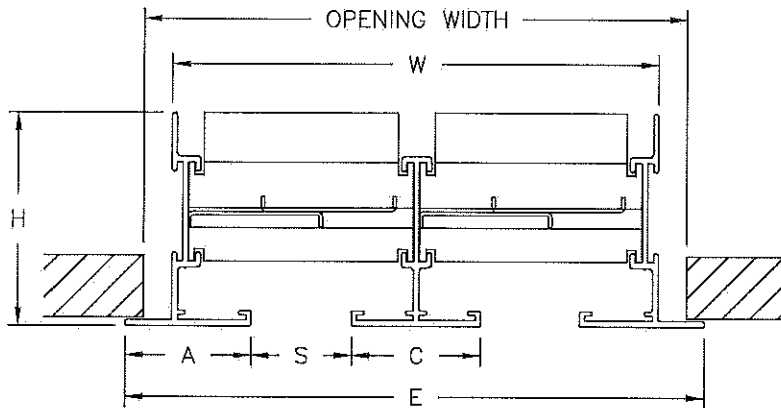
Material	Finish	Notes
<ul style="list-style-type: none"> <li>Coated Steel</li> </ul>	<ul style="list-style-type: none"> <li>Mill Finish</li> </ul>	<ul style="list-style-type: none"> <li>When plenum endcaps are not positioned directly over the diffuser spacer bar, install MB blankoff from plenum endcap to next spacer bar</li> <li>Use with AS/JS Types 21 or 22</li> <li>See Installation instruction I100033 for installation in drywall ceilings</li> </ul>

**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Custom Flow Engineered Plenum For AS210  
ASP210//1/48/2/1/STRAIGHT/10/0.000//1/

**SUBMITTAL NO:** 258087-A  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

**AS210 Custom Flow Adjusta-Slot Linear Diffuser with 1" Slot**



**2 Slot**

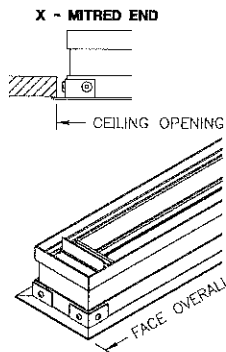
S	SlotQty	E	W	OpeningWidth*	A	C	H
1"	2 Slot	5 15/16"	5"	5 9/16"	1 9/32"	1 5/16"	2 3/16"

\*Opening width dimension is outside of field built plenum with hemmed seam. If no plenum is used, this may be reduced by up to 1/4" (6). For Type P mounting see also ASP/JSP submittal.

Nominal Length = 48.000"

**End Conditions**

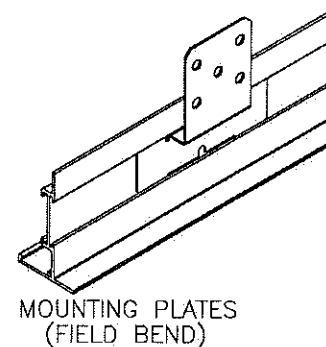
**XX** Factory Mitered both ends



**Border/Mounting**

**21** Exposed Frame

**MP** Mounting Plate - Field Bent



End Condition	Face Overall Length	Ceiling Opening
XX	Nominal Length + 1 1/16" (27)	Nominal Length + 3/4" (19)

**Material**

- Extruded Aluminum Frame and Spacers
- Pattern Controllers are Heavy Gauge Steel

**Finish**

- Pattern Controllers: B17 Black
- Upper Frame to match diffuser face finish
- Diffuser Face: B12 White Powder Coat

**Notes**

- Minimum Length 12" (305)
- Maximum Section Length 120" (3048)
- For ASP/JSP plenums use type 21 or 21
- DPC: Dual layer pattern controllers (pattern and volume adjustable)
- For T-Bar installation see I100035
- For drywall applications see installation instruction I100033

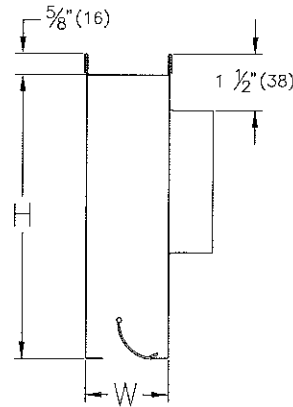
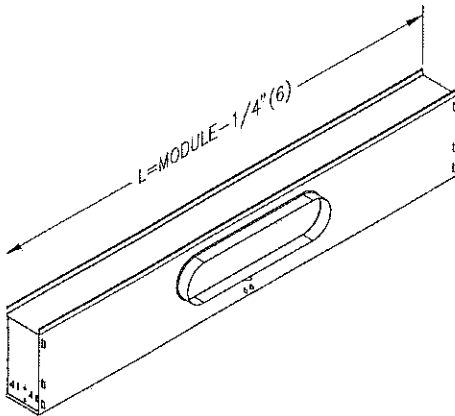
**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Custom Flow Adjusta-Slot Linear, 1" Slot  
AS210///48.000/2/21/STRAIGHT/0.000//XX/MP///DPC//B12

**SUBMITTAL NO:** 258086-A  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

**TBD2100 1" Slot with Curved Pattern Controller**

Module Length	Slot Quantity	Width (W)	Nom. Inlet	Height (H)
48"	1	2"	6" OVAL = 4" x 7"	8"



**Material:**

- Plenum: Coated Steel
- Pattern Controllers: Extruded Aluminum

**Finish:**

- Blades - B17 Black
- BFS - Black Face Surfaces

**Notes:**

- 1 Slot Diffuser
- 1" (25) Slot Width
- Pattern controllers are field removable for air pattern adjustment
- For use with 1" (25) flat tee ceiling grid
- Factory tolerance  $\pm 1/32"$  (1)

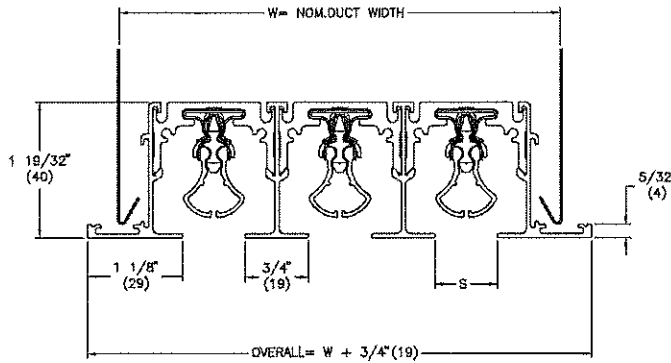
**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** T-Bar, Curved Extruded Blade, 1" Slot  
TBD2100//I/48/1//IMP/4x7//BFS//

**SUBMITTAL NO:** 258603-B  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

**SDS100 1" Slot Linear Supply**

**2 – Flange Frame, Concealed Mountin**



Slot Quantity	W
3	6

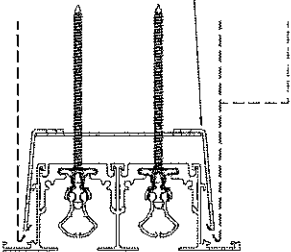
**Face Overall Length = Nom. Length + 3/4"**

**Finish:**

- B12: White Powder Coat

**Mounting:**

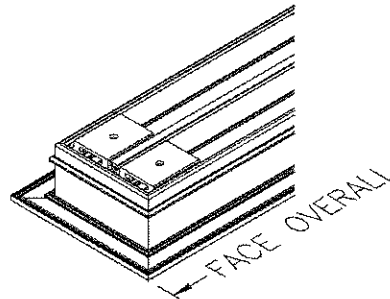
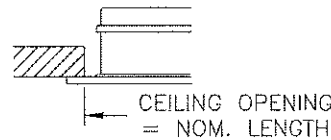
CONCEALED MOUNTING  
BRACKETS (INCLUDED)



**End Conditions:**

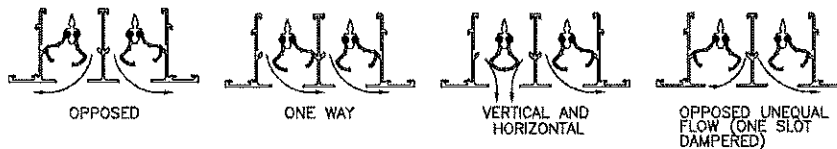
XX

Mitred



**Notes:**

- Extruded aluminum frame
- For use with Type 2 SDB/SDA series plenums, or with UP/UPL plenums
- Factory tolerance  $\pm 1/32"$  (1)
- Rollformed steel or extruded aluminum pattern controllers, B17 Black
- 180° air pattern adjustment available
- Hemmed duct (by others)
- See installation instruction II00042



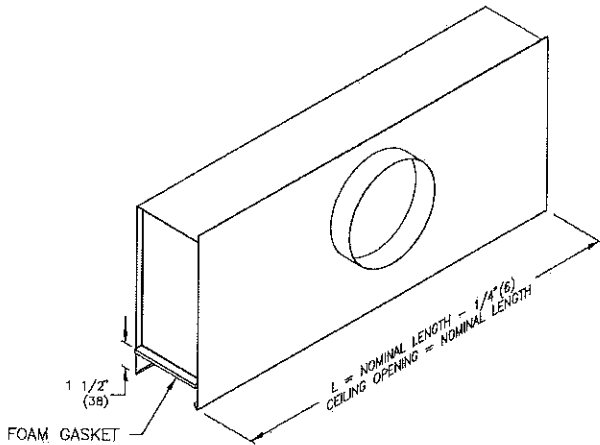
**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Linear Slot Supply, 1" Slot  
SDS100///48.000/3/2///XX///B12

**SUBMITTAL NO:** 258375-B  
**CUSTOMER:**

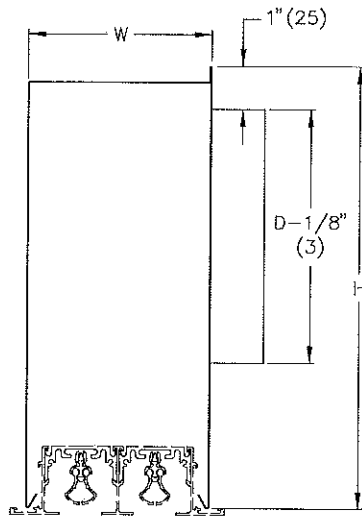
**SUBMITTAL DATE:** 6/7/2017

**SDB100**

Selected Sizes				
Slots	Length	Inlet Size	Height	Width
3	48"	10"	13 1/4"	6"



**Border:** Type 2 - Drywall mounted, fits SDS diffuser type 1 through 8A



**Notes**

- Associated SDS diffusers must be specified and ordered as separate items
- Install unit during drywall ceiling construction unless access is provided for post installation
- Use with surface mount type SDS/SDR
- 10" - Round Inlet
- Factory tolerance  $\pm 1/32"$  (1)

**Material:** Coated Steel

**Finish:** MILL Finish

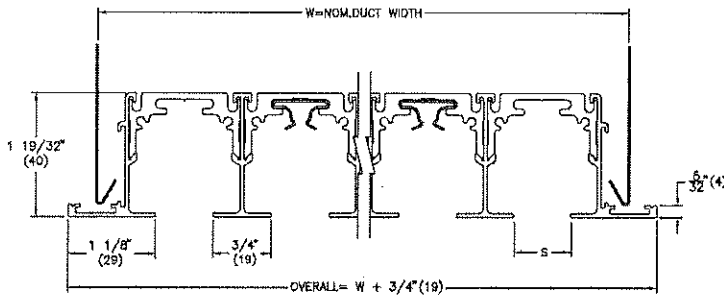
**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Square Shoulder Plenum For SDS100  
SDB100//1/48/3/2//10/////

**SUBMITTAL NO:** 258527-A  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017

**SDR100 1" Slot Linear Return**

**2 – Flange Frame, Concealed Mountin**



Slot Quantity	W
5	9 1/2

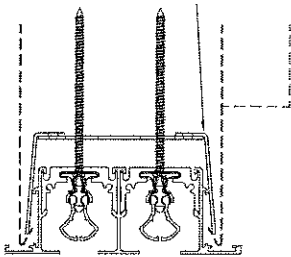
**Face Overall Length = Nom. Length + 3/4"**

**Finish:**

- B12: White Powder Coat

**Mounting:**

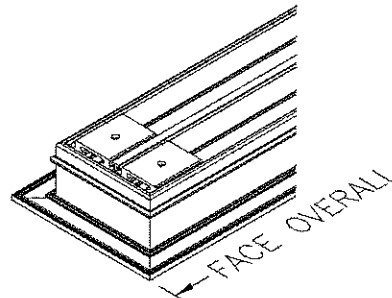
CONCEALED MOUNTING  
BRACKETS (INCLUDED)



**End Conditions:**

XX

Mitred



**Notes:**

- Extruded aluminum frame
- Factory tolerance  $\pm 1/32"$  (1)
- For use with Type 2 SDB/SDA series plenums, or with UP/UPL plenums
- Hemmed duct (by others)
- See installation instruction I100042

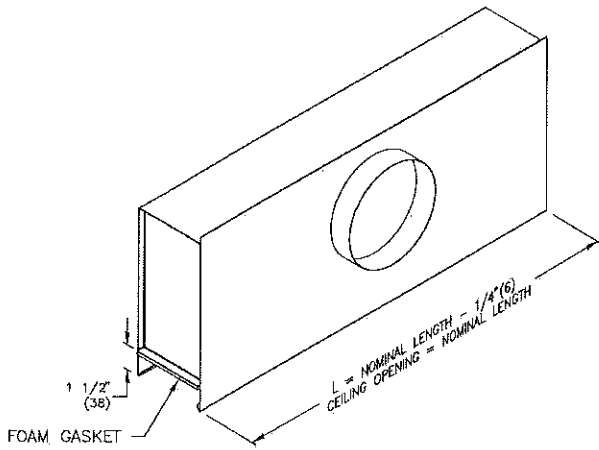
**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Linear Slot Return, 1" Slot  
SDR100///36.000/5/2///XX///B12

**SUBMITTAL NO:** 258375-B  
**CUSTOMER:**

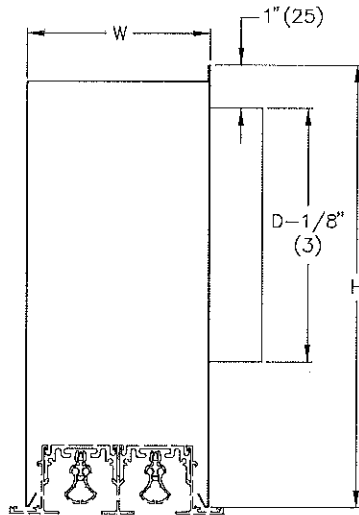
**SUBMITTAL DATE:** 6/7/2017

**SDB100**

Selected Sizes				
Slots	Length	Inlet Size	Height	Width
5	36"	14"	17 1/4"	9 1/2"



**Border:** Type 2 - Drywall mounted, fits SDS diffuser type 1 through 8A



**Notes**

- Associated SDS diffusers must be specified and ordered as separate items
- Install unit during drywall ceiling construction unless access is provided for post installation
- Use with surface mount type SDS/SDR
- 14" - Round Inlet
- Factory tolerance  $\pm 1/32"$  (1)

**Material:** Coated Steel

**Finish:** MILL Finish

**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Square Shoulder Plenum For SDS100  
SDB100/11/36/5/2/14/11/11

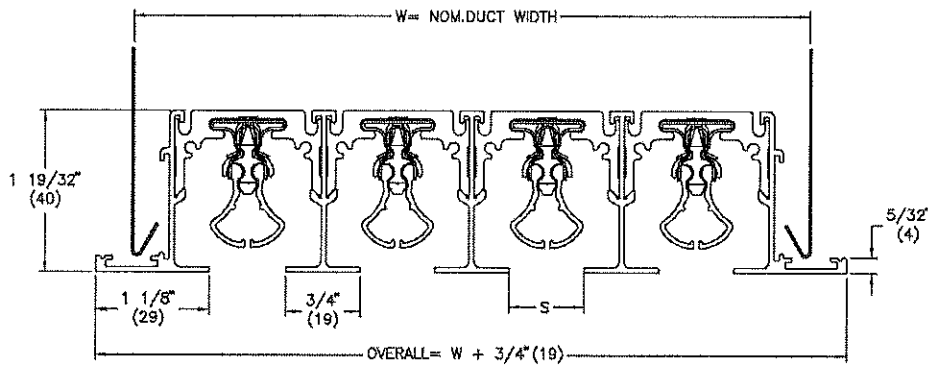
**SUBMITTAL NO:** 258527-A  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017



**SDS100 1" Slot Linear Supply**

**2 – Flange Frame, Concealed Mountin**



Slot Quantity	W
4	7 3/4

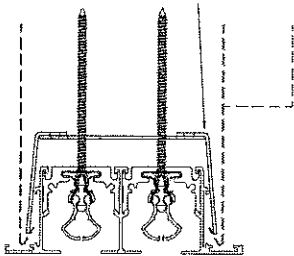
**Face Overall Length = Nom. Length + 3/4"**

**Finish:**

- B12: White Powder Coat

**Mounting:**

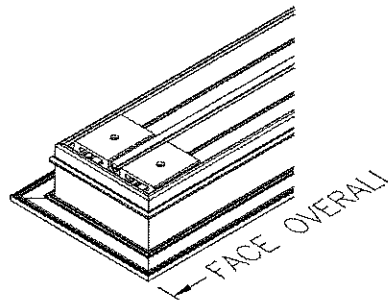
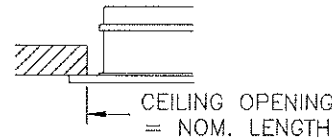
CONCEALED MOUNTING  
BRACKETS (INCLUDED)



**End Conditions:**

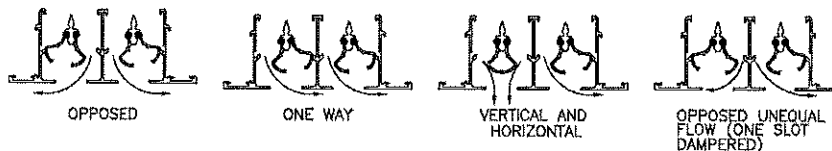
XX

Mitred



**Notes:**

- Extruded aluminum frame
- For use with Type 2 SDB/SDA series plenums, or with UP/UPL plenums
- Factory tolerance  $\pm 1/32"$  (1)
- Rollformed steel or extruded aluminum pattern controllers, B17 Black
- 180° air pattern adjustment available
- Hemmed duct (by others)
- See installation instruction I100042



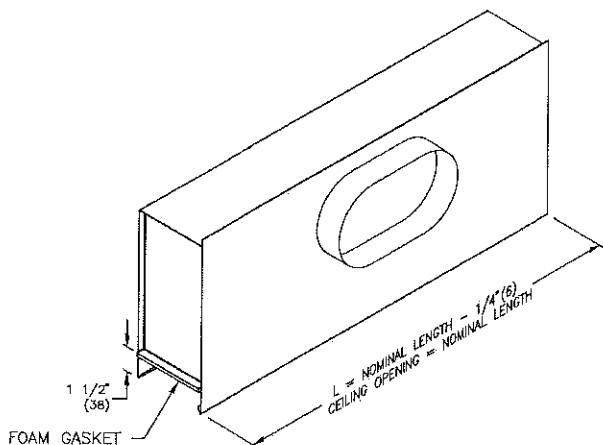
**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Linear Slot Supply, 1" Slot  
SDS100/I148.000/4/2/XX/B12

**SUBMITTAL NO:** 258375-B  
**CUSTOMER:**

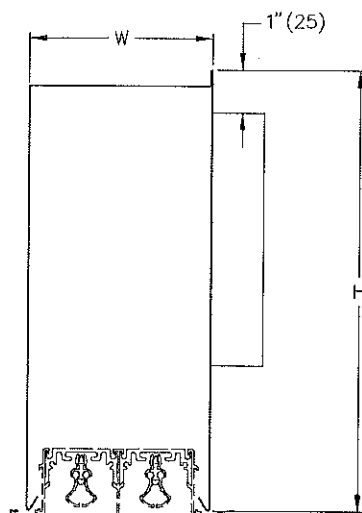
**SUBMITTAL DATE:** 6/7/2017

**SDB100**

Selected Sizes				
Slots	Length	Inlet Size	Height	Width
4	48"	6x15.218	13 1/4"	7 3/4"



**Border:** Type 2 - Drywall mounted, fits SDS diffuser type 1 through 8A



**Notes**

- Associated SDS diffusers must be specified and ordered as separate items
- Install unit during drywall ceiling construction unless access is provided for post installation
- Use with surface mount type SDS/SDR
- 6x15.218 - Oval Inlet (12" Round Equivalent)
- Factory tolerance  $\pm 1/32"$  (1)

**Material:** Coated Steel

**Finish:** MILL Finish

**PROJECT:** ASIAN HEALTH & SERVICE CENTER  
**ENGINEER:**  
**DESCRIPTION:** Square Shoulder Plenum For SDS100  
SDB100//1/48/4/2//6x15.218/////

**SUBMITTAL NO:** 258527-A  
**CUSTOMER:**

**SUBMITTAL DATE:** 6/7/2017