















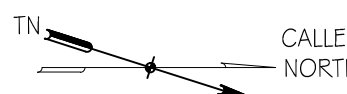
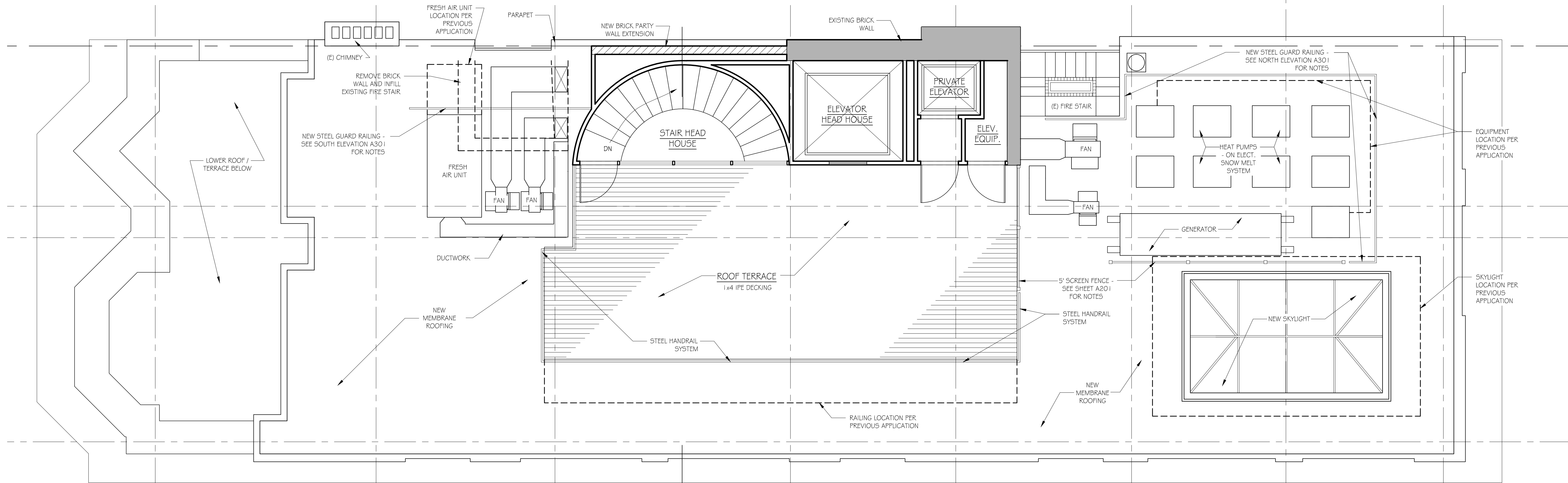
rigidCoil
SUITABLE FOR
OUTDOOR USE



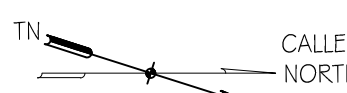
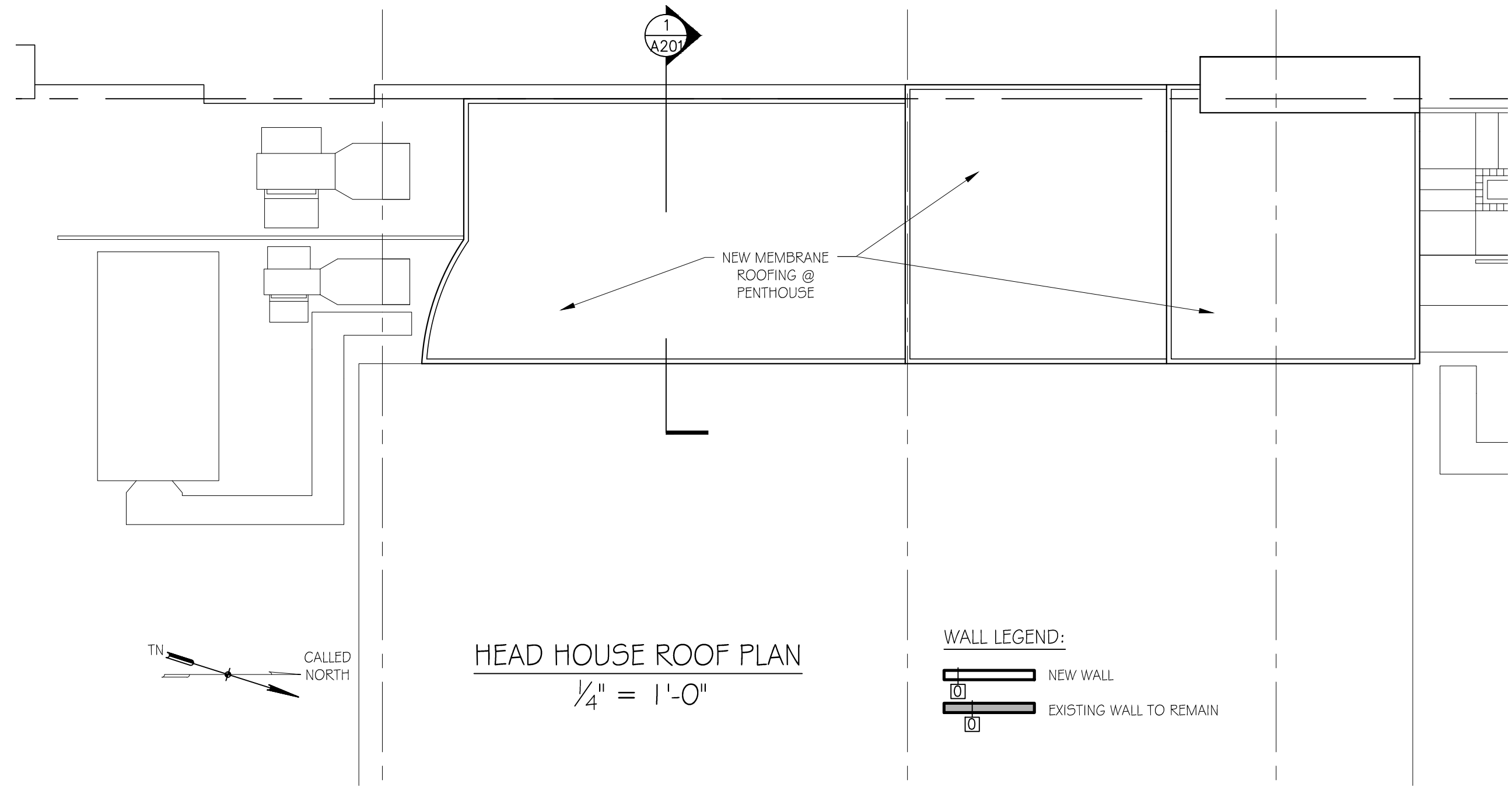
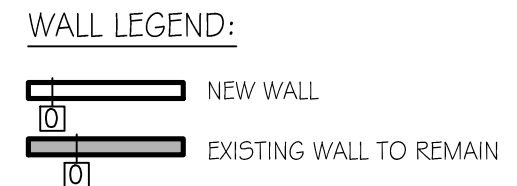




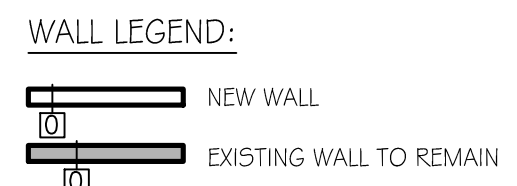




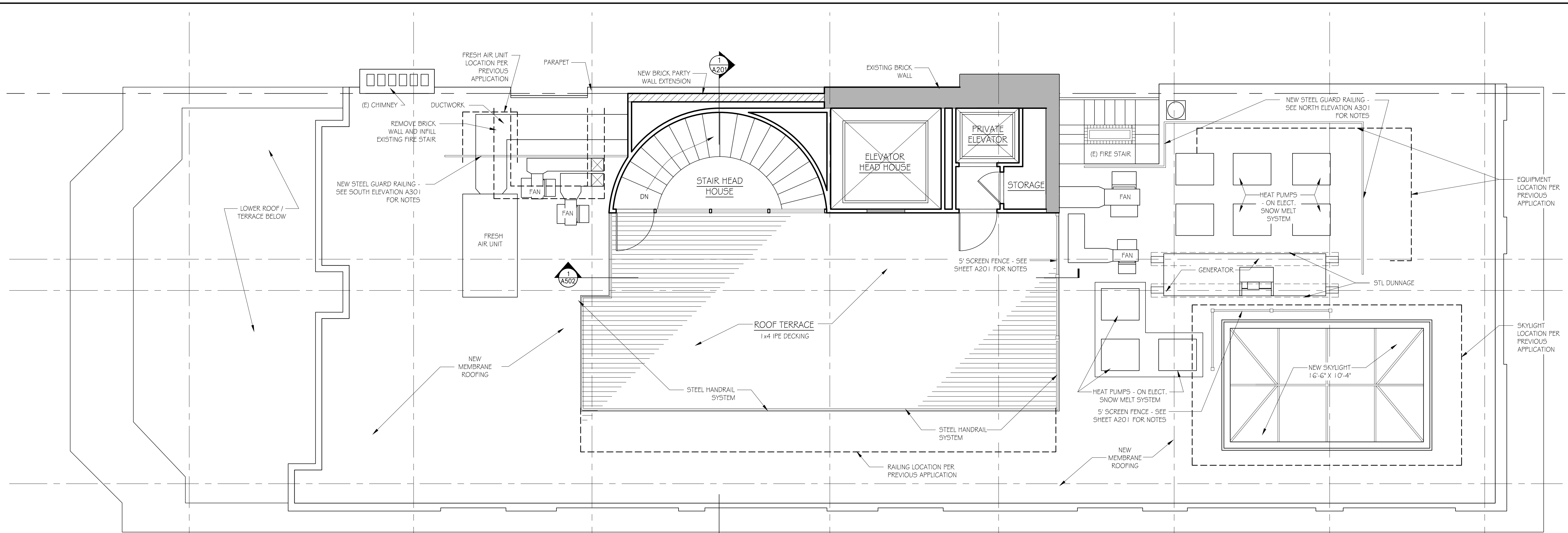
ROOF PLAN
 $\frac{1}{4}'' = 1'-0''$



HEAD HOUSE ROOF PLAN
 $\frac{1}{4}'' = 1'-0''$

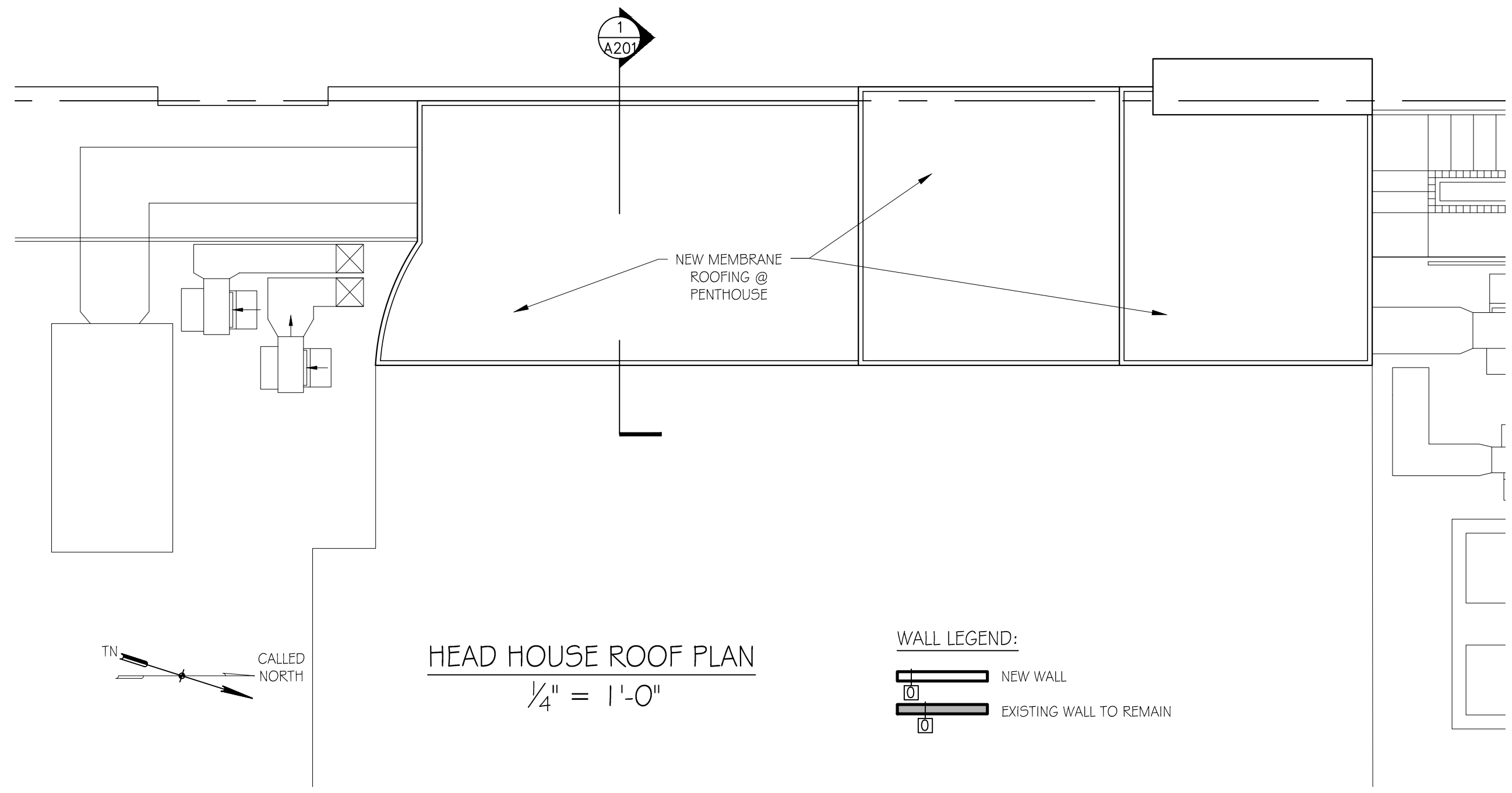


JOB NO. 1610
SCALE: $\frac{3}{4}'' = 1'-0''$
DATE: 06.18.18
REVISED



ALTERNATE ROOF PLAN
 $\frac{1}{4}'' = 1'-0''$

WALL LEGEND:
 NEW WALL
 EXISTING WALL TO REMAIN



HEAD HOUSE ROOF PLAN
 $\frac{1}{4}'' = 1'-0''$

WALL LEGEND:
 NEW WALL
 EXISTING WALL TO REMAIN

46 Waltham Street, Suite 2A
 Boston, MA 02118
 Phone: 617-956-9997
 Fax: 617-956-9993

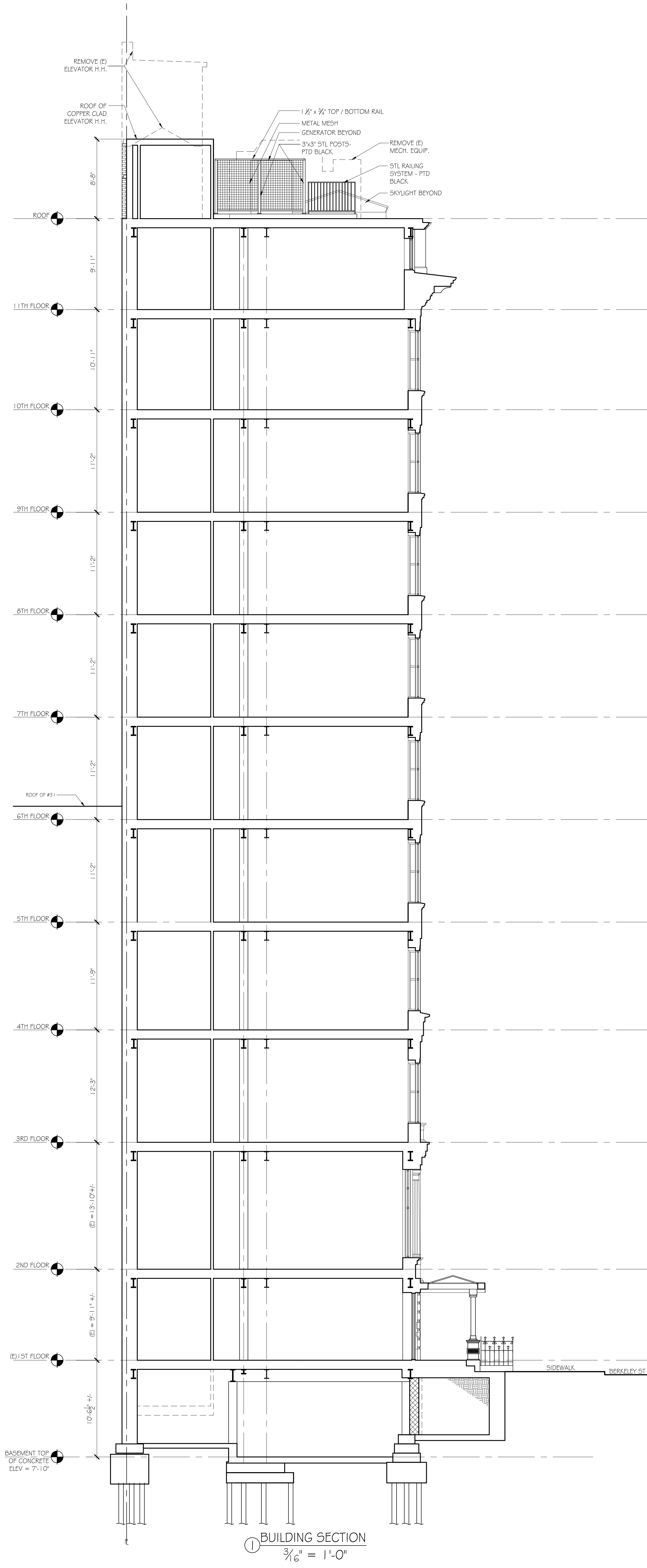
GD GRASSI DESIGN GROUP
BG BEAUCHEMIN GRASSI INTERIORS

JOB NO.: 1610
 SCALE: $\frac{1}{4}'' = 1'-0''$
 DATE: 09.06.18
 REVISIONS:

29 COMMONWEALTH AVE.
 BOSTON, MASSACHUSETTS

ALTERNATE ROOF PLAN
 AND HEAD HOUSE ROOF
 PLAN

A108



① BUILDING SECTION
 $\frac{3}{16}'' = 1'-0''$

A201

BUILDING SECTION

29 COMMONWEALTH AVE.
 BOSTON, MASSACHUSETTS

JOB NO:	1610
SCALE:	$\frac{3}{16}'' = 1'-0''$
DATE:	06.18.18
REVISIONS:	

GD GRASSI DESIGN GROUP
BG BEAUCHEMIN GRASSI INTERIORS

46 Waltham Street, Suite 3A
 Boston, MA 02118
 Phone 617-956-9992
 Fax 617-956-9993

REMOVE (E) ELEVATOR H.H.
 FLAT SEAM COPPER SIDING
 CURVED COPPER CLAD ELEVATOR HEAD HOUSE
 FRESH AIR UNIT BEYOND
 (N) PAINTED STEEL RAILING - HVAC EQUIPMENT SCREEN - 1" x 1/2" TOP / BOTTOM RAIL - 1/2" SQ. BALLUSTERS @ 6" O.C. - 1" SQ. STL POSTS @ 6'-0" O.C.
 (E) CHIMNEY

REMOVE (E) HVAC EQUIPMENT

(N) PAINTED STEEL RAILING SYSTEM - 1" x 1/2" TOP / BOTTOM RAIL - 1/2" SQ. BALLUSTERS @ 4" O.C.

REMOVE (E) HVAC EQUIPMENT

GENERATOR BEYOND

PTD STL RAILING BEYOND
 (N) SKYLIGHT

REMOVE (E) ELEVATOR HEAD HOUSE

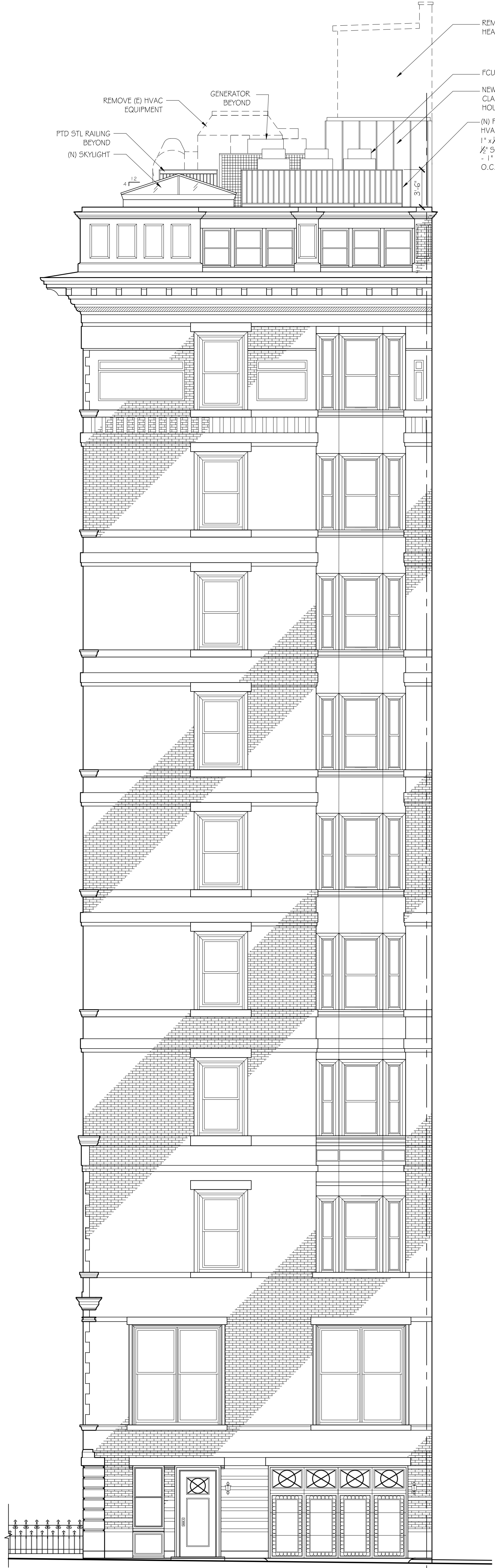
FCU BEYOND

NEW FLAT SEAM COPPER CLAD ELEVATOR HEAD HOUSE BEYOND

(N) PAINTED STEEL RAILING - HVAC EQUIPMENT SCREEN - 1" x 1/2" TOP / BOTTOM RAIL - 1/2" SQ. BALLUSTERS @ 6" O.C. - 1" SQ. STL POSTS @ 6'-0" O.C.



SOUTH ELEVATION
 SCALE: 3/16" = 1'-0"



NORTH ELEVATION
 SCALE: 3/16" = 1'-0"

A301

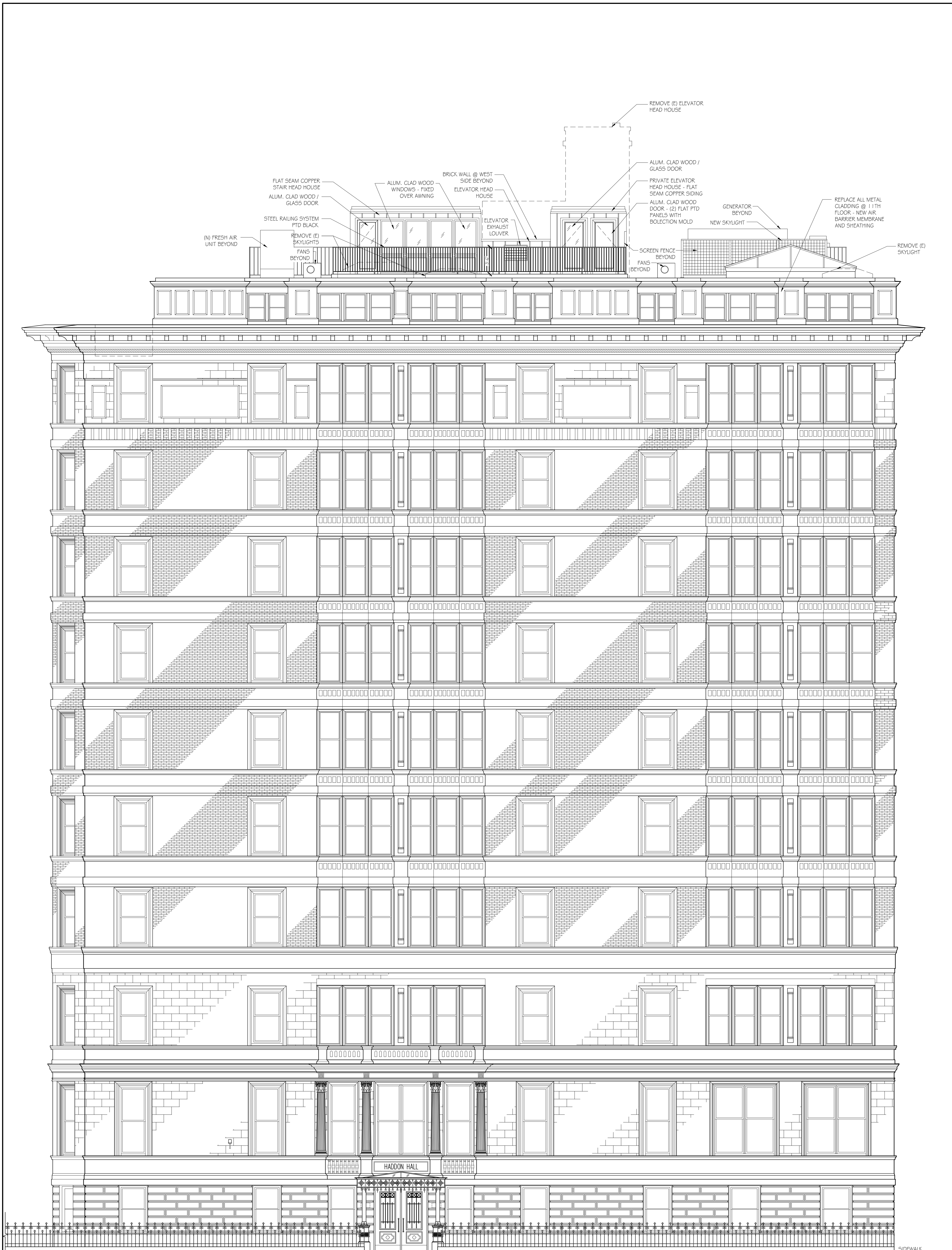
NORTH AND SOUTH ELEVATION

29 COMMONWEALTH AVE.
 BOSTON, MASSACHUSETTS

JOB NO: 1610
SCALE: 3/16" = 1'-0"
DATE: 06.18.18
REVISED

GD GRASSI DESIGN GROUP
BG BEAUCHEMIN GRASSI INTERIORS

46 Waltham Street, Suite 3A
 Boston, MA 02118
 Phone 617-956-9992
 Fax 617-956-9993



REMOVE (E) ELEVATOR HEAD HOUSE

ALUM. CLAD WOOD / GLASS DOOR

PRIVATE ELEVATOR HEAD HOUSE - FLAT SEAM COPPER SIDING

ALUM. CLAD WOOD DOOR - (2) FLAT PTD PANELS WITH BOLECTION MOLD

GENERATOR BEYOND

NEW SKYLIGHT

REPLACE ALL METAL CLADDING @ 11TH FLOOR - NEW AIR BARRIER MEMBRANE AND SHEATHING

REMOVE (E) SKYLIGHT

BRICK WALL @ WEST SIDE BEYOND ELEVATOR HEAD HOUSE

ELEVATOR EXHAUST LOUVER

FLAT SEAM COPPER STAIR HEAD HOUSE

ALUM. CLAD WOOD / GLASS DOOR

ALUM. CLAD WOOD WINDOWS - FIXED OVER AWNING

STEEL RAILING SYSTEM PTD BLACK

REMOVE (E) SKYLIGHTS

FANS BEYOND

(N) FRESH AIR UNIT BEYOND

SCREEN FENCE BEYOND

FANS BEYOND

EAST ELEVATION
 $\frac{3}{16}'' = 1'-0''$

A302

EAST ELEVATION

29 COMMONWEALTH AVE.
 BOSTON, MASSACHUSETTS

JOB NO: 1610
 SCALE: $\frac{3}{16}'' = 1'-0''$
 DATE: 06.18.18



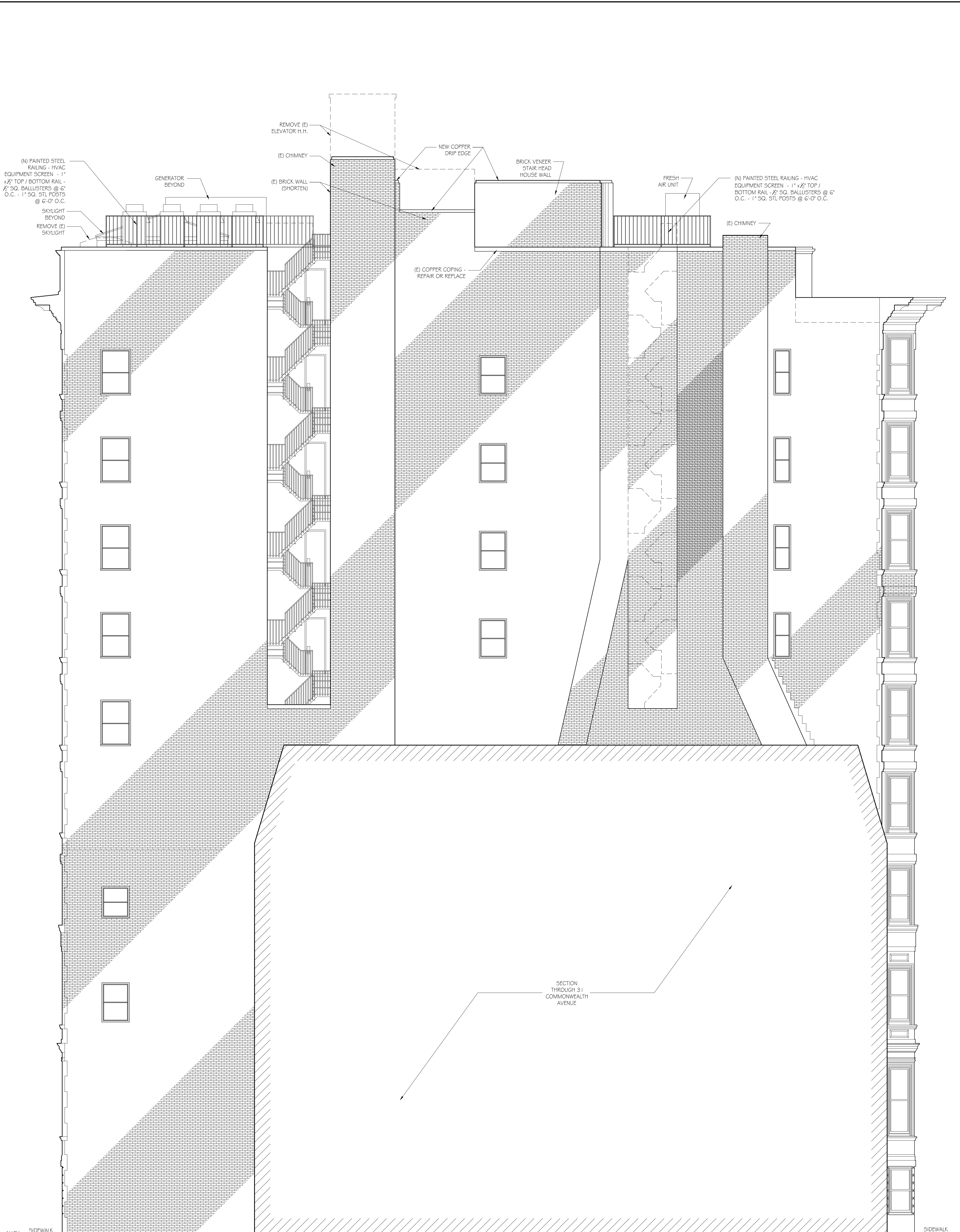
GRASSI DESIGN GROUP



BEAUCHEMIN GRASSI INTERIORS

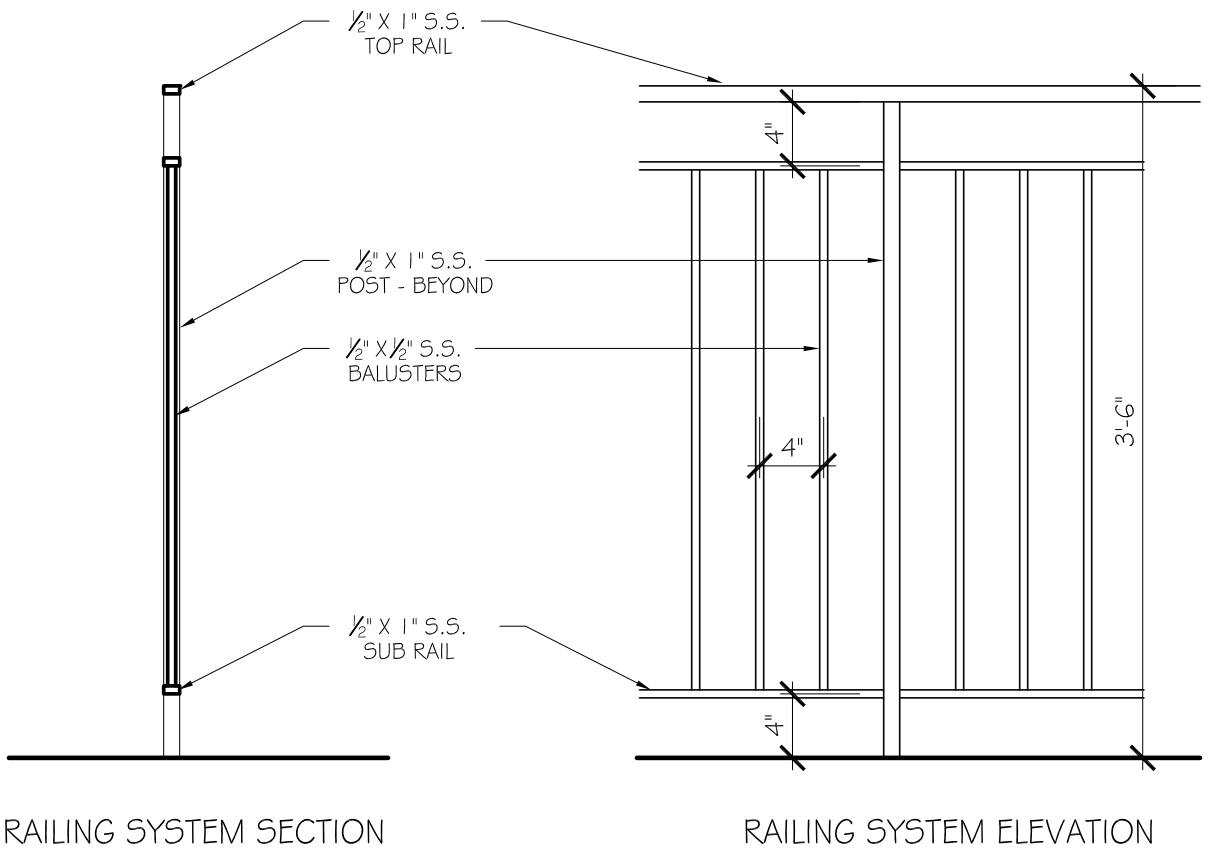
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 Boston, MA 02118

Phone 617-956-9992
 Fax 617-956-9993



WEST ELEVATION
 $\frac{3}{16}'' = 1'-0''$

ALLEY SIDEWALK SIDEWALK



JOB NO: 1610 SCALE: 1" = 1'-0" DATE: 07.12.18

RAILING SYSTEM

GD GRASSI DESIGN GROUP
 46 Waltham Street, Suite 3A
 Boston, MA 02118
 Phone 617-956-9992
 Fax 917-956-9993
BG BEAUCHEMIN GRASSI INTERIORS

29 COMMONWEALTH AVE
 BOSTON, MA

7

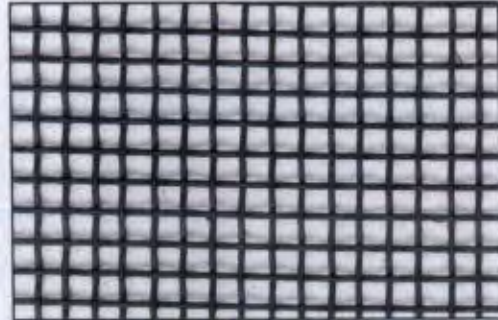


SCREEN FENCE@A301

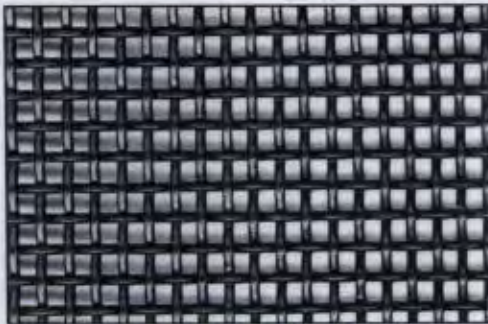
Square Mesh Wire Cloth Specifications



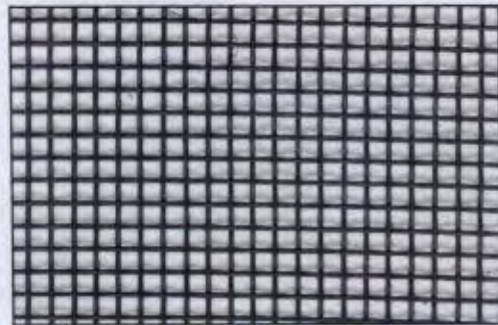
4 MESH .047" SS WOVEN



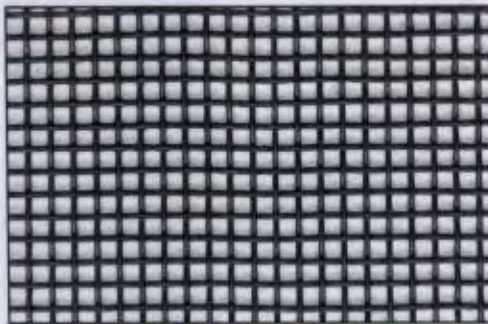
6 MESH .035" SS WOVEN



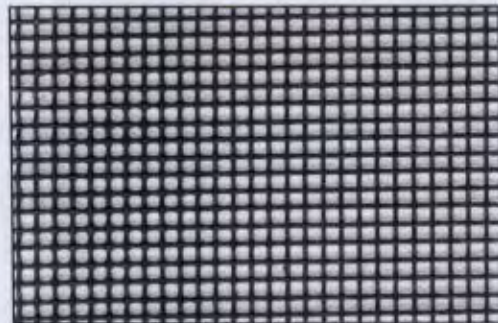
6 MESH .063" SS WOVEN



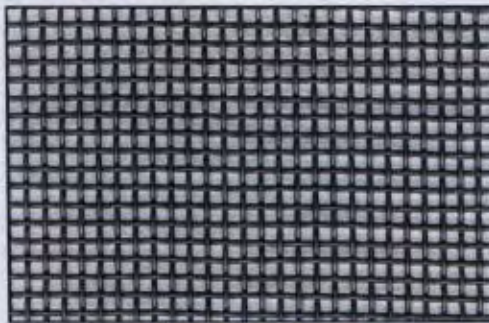
8 MESH .028" SS WOVEN



8 MESH .035" SS WOVEN



10 MESH .025" SS WOVEN



10 MESH .035" SS WOVEN



12 MESH .028" SS WOVEN

DATE: _____ TYPE: _____

NAME: _____

PROJECT: _____



Halogen

P5223-31WB

Deck Lighting

One-light die-cast aluminum low voltage landscape deck light. Black finish is powder-coat painted to resist chipping, fading and the effects of salt air. 12-volt. Mounts directly to vertical posts. Units must be wired to a 12V transformer with proper capacity.

- Black finish
- Mounts directly to vertical posts.
- Units must be wired to a 12V transformer with proper capacity.

Width: 3-1/8"
Height: 1-1/2"
Depth: 2"

Category: Landscape

Finish: Black (powdercoat)

Construction: Die-cast aluminum construction

MOUNTING	ELECTRICAL	LAMPING	ADDITIONAL INFORMATION
Deck mounted	Pre-wired 6 feet of wire supplied 12 V	Quantity: One 13w max. T5 wedge base(included) Wedge base ceramic socket	UL-CUL Wet location listed 1 year warranty

ENERVEX® BEF 200-800 BOX VENTILATOR

3932011 04.18

Product Information

Use

The BEF is designed to provide movement of air in exhaust and air supply systems. Suitable uses include comfort ventilation, make-up air for laundry and mechanical rooms, and exhaust and air supply in kitchens/bathrooms/laundries in multi-story, multi-family buildings.

Description

The BEF is a highly efficient box ventilator with an electronically commutated permanent magnet motor, that uses a backward curved centrifugal impeller to provide high capacity at a high static pressure. The ventilator cannot be used for transport of large particles.

The fan is designed to exhaust lint-laden air from single or multiple Type I and Type II residential and commercial clothes dryers. It can be installed indoors as well as outdoors.

The design meets Type B, Spark Resistant Construction, and is completely insulated against fire, noise, condensation and heat with 2" fiberglass insulation. A service door is provided to allow easy access to the impeller.

The unique design allows the fan to be oriented in multiple positions, standing on a flat surface or suspended from a ceiling. It can be installed indoors as well as outdoors. The box ventilator can operate with exhaust temperatures within 10°F (-12°C) and 400°F (200°C), and at ambient temperatures within -20°F (-30°C) and 120°F (50°C).

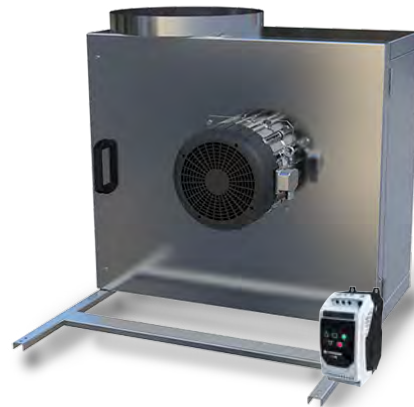
Material

The ventilator housing is galvanized steel while the impeller is welded aluminum.* The aluminum impeller is statically and dynamically balanced with permanently attached balancing weights.

* Stainless steel housing and impeller optional

Motor

The motor is an air cooled, maintenance-free variable speed permanent magnet motor with pre-lubricated and sealed ball bearings. The motor with controller is rated at 92% efficiency and able to operate as low as 50 RPM. It has integrated protection against overloading, blocking over and under voltage and over-heating. The motor shaft is internally isolated to eliminate the need for external shaft grounding. It is rated for outdoor installation.



The included EDrive motor control is factory programmed by ENERVEX for optimal operation of the ventilator.

Standard Equipment

- Support legs with vibration dampers
- 4" x 4" Junction box with cover and conduit
- EDrive Motor Controller w/mounting bracket

Optional Accessories

- MEC 24 Modulating Exhaust Control
- EBC 24 Modulating Pressure Controller
- EBC 30/31 Modulating Pressure Controller

Listings

The BEF 200 - 800 Box Ventilator is UL Listed in the U.S. and certified for Canada under Underwriters Laboratories Inc. file no. E479840:

- UL 705 Standard for Power Ventilators, Edition 6 - Revision Date 2013/12/17. With special consideration for venting lint-laden air from single or multiple dryers
- CSA C22.2 NO. 113-12 Fans and Ventilators Edition 9 - Revision Date 2012/10/01

Complies with and meets Type B, Spark Resistant Construction per AMCA standard 99-0401 classifications of Spark Resistant Construction.

Warranty

2-Year Factory Warranty. Complete warranty conditions are available from ENERVEX Inc.



ENERVEX Inc.
1685 Bluegrass Lakes Parkway
Alpharetta, GA 30004
USA

P: 770.587.3238
F: 770.587.4731
T: 800.255.2923
info@enervex.com
www.enervex.com

ENERVEX®
VENTING DESIGN SOLUTIONS

ENERVEX® BEF 200-800 BOX VENTILATOR

3932011 04.18

Product Information

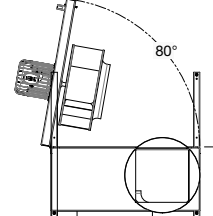
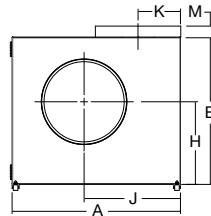
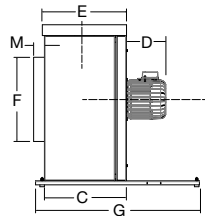
Specifications

NOTE: All published voltages relate to power supplied to the EDrive and NOT the motor.

Model	BEF 200	BEF 250	BEF 300	BEF 350	BEF 400	BEF 500	BEF 600	BEF 700	BEF 800	
Fan Type	Centrifugal Impeller (B-Wheel)									
Motor Type	ECM, Permanent Magnet									
Voltage *)	1x120 / 3x208-240 / 3x400-480			3x208-240 / 3x400-480			3x400-480			
Max. Amperage - EDrive A	2.3 / 2.3 / 2.2	2.3 / 2.3 / 2.2	4.3 / 4.3 / 2.2	5.8 / 7.0 / 4.1	10.5 / 5.8	10.5 / 5.8	18.0 / 9.5	18.0	24.0	
Motor Output	HP	0.5 / 0.5 / 1	0.5 / 0.5 / 1	1	2	3	3	5	10	15
	kW	0.38	0.38	0.76	1.5	2.2	2.6	3.7	7.5	11.25
RPM (see note below)	1740	1740	2000	2300	2300	1740	1740	1740	1740	
Weight	lbs / kg	98 / 44	110 / 50	126 / 57	150 / 68	167 / 76	227 / 103	310 / 141	320 / 145	390 / 145
Duct Connection	in / mm	8.0 / 203	12.0 / 305	14.0 / 356	16.0 / 406	16.0 / 406	18.0 / 456	20.0 / 508	22.0 / 558	22.0 / 558
Dimensions	A in / mm	20.1 / 510	24.6 / 625	27.2 / 690	30.3 / 770	30.3 / 770	36.3 / 921	38.5 / 978	41.0 / 1041	43.3 / 1041
	B in / mm	17.5 / 445	21.0 / 537	23.6 / 600	25.8 / 655	25.8 / 655	31.6 / 803	34.0 / 864	36.5 / 927	39.0 / 927
	C in / mm	9.2 / 234	11.5 / 293	12.2 / 309	13.1 / 333	13.1 / 333	16.6 / 422	18.6 / 473	20.5 / 521	21.6 / 521
	D in / mm	7.8 / 198	7.8 / 198	7.8 / 198	7.6 / 193	7.6 / 193	8.6 / 218	9.2 / 234	10.9 / 277	10.9 / 277
	E in / mm	7.9 / 201	11.9 / 302	13.9 / 353	15.9 / 404	15.9 / 404	17.9 / 454	19.9 / 505	21.9 / 555	23.9 / 555
	F in / mm	7.9 / 201	11.9 / 302	13.9 / 353	15.9 / 404	15.9 / 404	17.9 / 454	19.9 / 505	21.9 / 555	23.9 / 555
	G in / mm	18.5 / 470	24.4 / 620	32.3 / 820	32.3 / 820	32.3 / 820	35.8 / 909	38.8 / 986	41.8 / 1061	48.3 / 1061
	H in / mm	9.8 / 248	11.5 / 292	13.3 / 338	11.0 / 279	11.0 / 279	17.8 / 452	18.7 / 475	20.1 / 510	19.5 / 510
	J in / mm	11.5 / 292	14.3 / 362	16.3 / 414	17.8 / 452	17.8 / 452	20.8 / 528	22.0 / 559	24.6 / 625	21.7 / 625
	K in / mm	5.8 / 147	6.8 / 173	7.3 / 185	8.0 / 203	8.0 / 203	9.1 / 231	10.3 / 262	11.0 / 279	11.0 / 279
	M in / mm	2.0 / 50	2.0 / 50	2.0 / 50	2.0 / 50	2.0 / 50	2.0 / 50	2.0 / 50	2.0 / 50	2.0 / 50

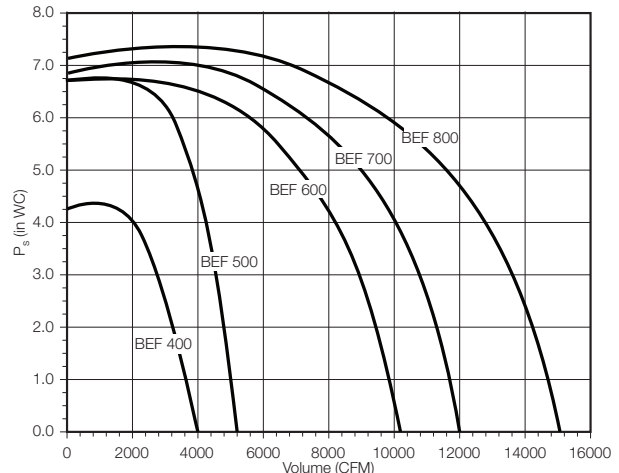
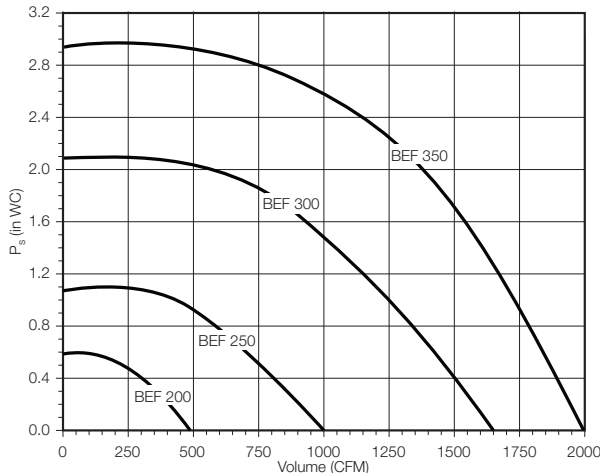
NOTE: Our ECM motor is a synchronous motor that is UL-listed to operate at speeds up to 4000RPM. The shown RPM and motor output data is the standard setup based on the standard control selection. RPM can be increased to provide higher performance, but a different EDrive model may be required. Please contact ENERVEX for assistance.

*) Select when ordering



minimum 1 each for dryer stack, bath exhaust stack and kitchen exhaust stack.

Capacity



ENERVEX Inc.
1685 Bluegrass Lakes Parkway
Alpharetta, GA 30004
USA

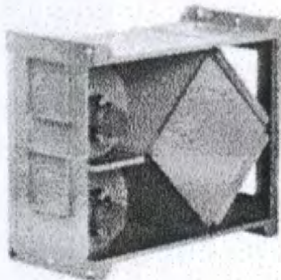
P: 770.587.3238
F: 770.587.4731
T: 800.255.2923
info@enervex.com
www.enervex.com

ENERVEX®
VENTING DESIGN SOLUTIONS

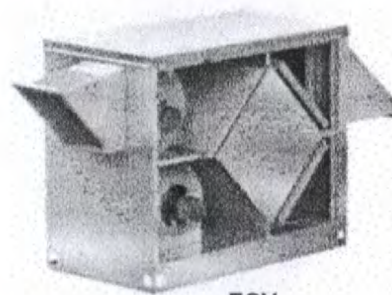
Greenheck's MiniCore and ECV models are air-to-air energy recovery ventilators that utilize a total energy core to reduce your building's heating and cooling loads on mechanical equipment. The MiniCore will provide your building with preconditioned, fresh outdoor air for indoor commercial applications ranging from 300-1,000 cfm. The model ECV is a solution available for indoor and outdoor commercial applications ranging from 500-3,300 cfm. Optional controls such as economizer bypass damper and BMS communication are also available on the ECV.

Energy-Saving Technologies

With the total energy core models, your building will be provided with durable energy recovery technology. Combined with the option for Vari-Green® motors, the MiniCore and ECV are cost-effective solutions that provide substantial energy savings.



MiniCore



ECV

Product Features and Benefits

Features	Function	Benefits
Total Energy Recovery	Precool and dehumidify outdoor air in the summer. Preheat outdoor air in the winter.	<ul style="list-style-type: none"> • Lower first costs on heating and cooling equipment • Annual energy savings due to reduced equipment size • Conforming with ASHRAE 90.1-2010, ASHRAE 90.1-2013 and 2012 IECC
Configuration and Installation Flexibility	Field-configurable intake and discharge connections with the MiniCore.	<ul style="list-style-type: none"> • Simplifies installation • Easily integrates into various duct configurations
Vari-Green® Motors	Highly efficient, electronically commutated (EC) motor with integral variable speed capabilities. (single-phase)	<ul style="list-style-type: none"> • Energy savings with highly efficient motor technologies • Straight-forward system balancing capabilities
Economizer Bypass Damper	When outdoor air conditions are suitable, a bypass damper in the ECV will be activated.	<ul style="list-style-type: none"> • Allows for free cooling and reduces supply-side pressure drop

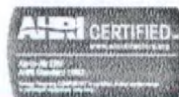
Product Certifications

Greenheck takes pride in offering a high-quality, reliable product. We invest our resources into designing, testing and manufacturing products to ensure customer satisfaction.



Intertek

ETL Listed for electrical and overall unit safety. Every unit is tested at the factory before it is shipped to the jobsite.



Energy recovery cores are certified by the AHRI Air-to-Air Energy Recovery Ventilation Equipment Certification Program in accordance with AHRI Standard 1060. Actual performance in packaged equipment may vary. Certified ratings are available in the Certified Product Directory at www.ahridirectory.org.

Model MiniCore



Models MiniCore-5 and MiniCore-10 are energy recovery ventilators that will provide your building with pre-conditioned fresh outdoor air for applications ranging from 300 to 1,000 cfm. Designed for indoor applications, its compact design and the capability to be mounted on its side, provide a ventilation solution for individual spaces such as school classrooms and small office spaces. The option for Vari-Green® motors provides additional energy savings with a highly efficient motor technology. Two removable panels on the unit provide easy access to filters, blowers and the total energy core technology.

Model	A	B	C	D	Approx. Weight (lbs.)	Airflow Range (cfm)
MiniCore-5	47.3	16.2	39.4	34.4	230	300 - 700
MiniCore-10	47.3	21.4	39.4	34.4	245	500 - 1,000

All dimensions shown in inches.

Available Intake/Discharge Positions				
Option	Bottom*	Top*	Side	End
Outdoor Air Intake		X		X
Supply Air Discharge	X			X
Return Air Intake	X			X
Exhaust Air Discharge		X		X

*End discharge and intake positions are standard. Bottom and top locations can be configured on site. Instructions are located in the MiniCore Installation, Operation and Maintenance manual.

Model Number Code

MiniCore - 5

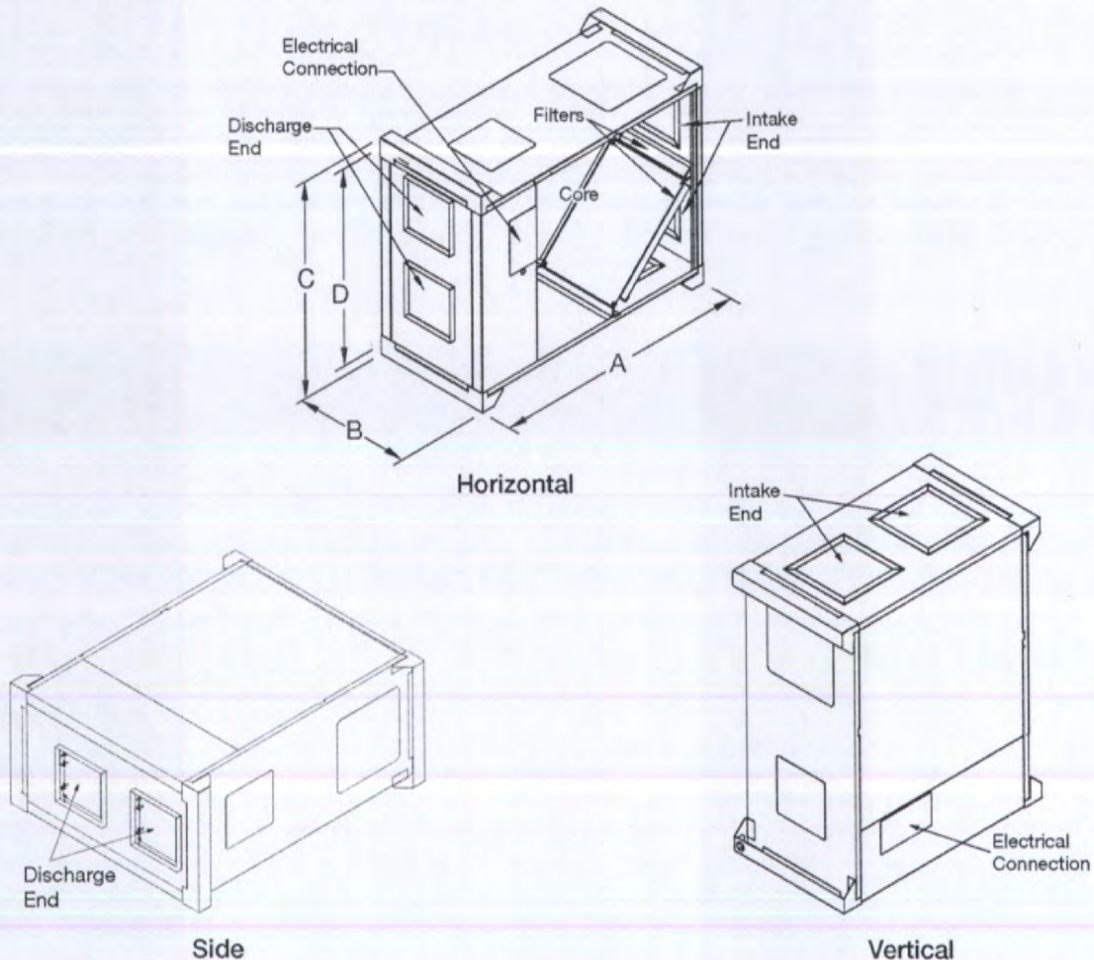
Model Parent ———

Nominal Airflow ———

5 (500 cfm)

10 (1,000 cfm)

Mounting Options



RV-25

CONSTRUCTION FEATURES AND ACCESSORIES

Unit Overview

Model	Supply (CFM)	Outside Air (CFM)	Recirc (CFM)	Exhaust (CFM)	Heating	Cooling	Electrical V/C/P
RV-25-7.5	1,200	1,200	0	0	Indirect Gas	Packaged DX	208/60/3

Features

- Exterior housing constructed of galvanized steel
- Direct-drive backward inclined plenum blowers with factory mounted VFDs
- Ball bearing motors
- Corrosion resistant fasteners
- Internally lined with galvanized steel metal creating a double wall
- Insulated with 2 in. 2.4# R13 density foam insulation
- Internally mounted control center with motor starters, 24 VAC control transformer(s), control circuit fusing
- Stainless steel condensate drain pan and connection.
- Low Sound Condenser Fan Package

Options and Accessories

- UL\cUL1995
- Weatherhood: Downturned Hood
- Supply Filters - 2" Pleated MERV 8 and MERV 13, 8-20x20x2
- Roof Curbs - GKD-48/94.01-G14"
- Outdoor Air Dampers - Motorized Low Leakage
- Painted Exterior - Permatector Concrete Gray (RAL 7023)
- Microprocessor Controls
- Supply Fan VFD Control - Constant Volume (on/off)
- Phase and Brown Out Protection
- Unit Disconnect - Mounted By Factory
- Power Venting
- Furnace Controls: High Turndown - 12:1 Modulating



Note: Unit is provided with factory mounted and wired disconnect switch.

PERFORMANCE AND SPECIFICATIONS

Description/Arrangement

Model	Qty	Unit Weight (lb)	Outdoor Air Discharge	Outdoor Air Intake	Exhaust Air Discharge	Return Air Intake
RV-25-7.5	1	2,660	Side	End	N/A	N/A

Design Conditions

Elevation (ft)	Summer DB (F)	Summer WB (F)	Winter DB (F)
30	91	74	6

Air Performance

Type	Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Motor Qty/Size (hp)	Size (in.)/Type
Supply	1,200	1	1.159	1477	0.36	Qty 1 (1)	14/Plenum

Electrical/Motor Specifications

V/C/P	Unit MCA (amps)	Unit MOP (amps)	Exh. MCA (amps)	Exh. MOP (amps)	Enclosure	Supply Motor RPM	Supply Efficiency	Exhaust Motor RPM	Exhaust Efficiency
208/60/3	39.4	60	N/A	N/A	ODP	1750	PE	N/A	N/A

Heating/Cooling Specifications

Heating Type	Gas Type	Input (MBH)	Output (MBH)	LAT (F)	Temp. Rise (F)	Furnace Size	Furnace Control
Indirect Gas	Natural	150.0	120.0	98.6	92.6	150	High Turndown - 12:1 Modulating

Cooling Type	Total Capacity (MBH)	Sensible Capacity (MBH)	Compressor Quantity	Lead Compressor Type	Condensing Unit By
Packaged DX	97.8	56.1	1	Standard Scroll	Greenheck

Sound Performance in Accordance with AMCA

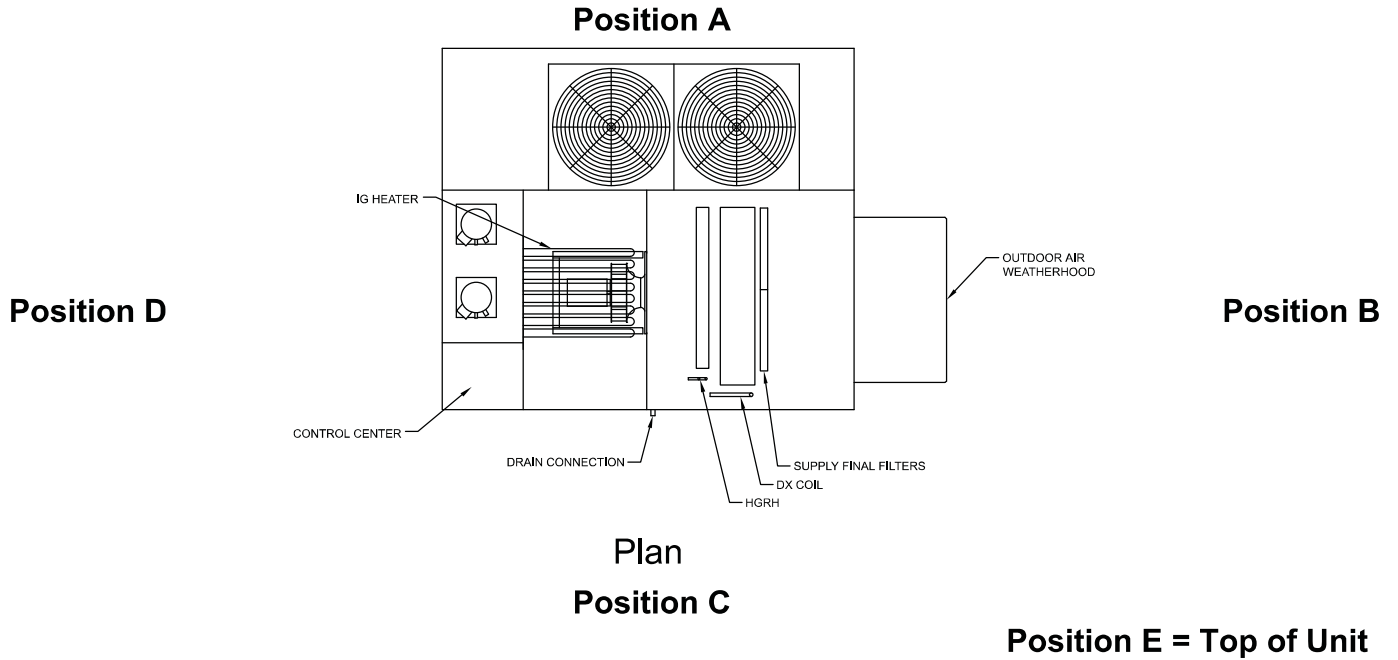
Fan	Sound Power by Octave Band								Lwa	dBA	Sones
	62.5	125	250	500	1000	2000	4000	8000			
Supply	66	66	84	70	66	64	60	57	77	65	13.0

Unit Pressure Drop (in. wg)

Air Stream	Weatherhood	Damper Section	Filter Section	Cooling Section	Heating Section
Supply	0.014	0.006	0.044	0.052	0.038
Exhaust	0	N/A	N/A	N/A	N/A

Note: Filter pressure drop is based off of clean filters.

RADIATED SOUND



RV-25: Supply Air Flow Nominal, Largest Tonnage Condensing Section Available, PDX units only

Free Field Plane	Octave Band (Sound Power Lw)								Lw	LwA
	1	2	3	4	5	6	7	8		
A	73	85	78	80	81	73	67	62	88	83
B	71	79	69	78	73	68	64	57	83	78
C	79	77	69	76	75	70	60	59	83	78
D	74	77	72	74	74	67	61	58	82	77
E	77	84	78	79	77	72	65	61	87	81
Total	83	89	82	85	84	78	71	67	93	87

AMCA 320-07 - Laboratory Methods of Sound Testing of Fans Using Sound Intensity
 Tests conducted in accordance with this standard.
 Free field measurement plane created 1 foot from unit on all sides and top.
 Sound Intensity measured in Watts/m².
 Sound data converted to Sound Power (Lw) for the chart above.
 A-Weighted Sound Power was determined using AMCA Standard 301-90 Clause 9.1.

COOLING PERFORMANCE

Packaged DX Cooling

Nominal Tonnage	Total Capacity (MBH)	Sensible Capacity (MBH)	Refrigerant Type	Lead Compressor Type	Compressor Quantity	Condensing Unit
7.5	97.8	56.1	R-410A	Standard Scroll	1	By Greenheck

Hot Gas Reheat

Type	Capacity (MBH)	LAT (F)
Modulating	49.0	86.3

Condensing Unit Details

The RV will come equipped with the following components:

- Hermetic scroll type compressors
- Compressors mounted in a compartment to be serviceable without affecting airflow and on neoprene vibration isolation to minimize vibration transmission and noise
- Crankcase heater on compressor(s)
- Thermal expansion valve for refrigerant flow control
- Hot gas bypass
- Multiple condensing fans to allow fan cycling for head pressure control
- Liquid-Line filter drier
- High pressure manual reset cutout
- Low-pressure auto-reset cutout
- Time delay relays for compressor protection
- Service/charging valves
- Moisture-indicating sight glass
- Direct drive condensing fans with external rotors and molded fan blades
- Condensing coils with 5/16" copper tubes mechanically bonded to aluminum fins

Packaged DX Coil Details

Face Area (ft ²):	11.8
Rows Deep (Evap Coil):	5
Fins Per Inch:	12
Face Velocity (ft/min):	102
Entering Dry Bulb (F):	91.0
Entering Wet Bulb (F):	74.0
Leaving Dry Bulb (F):	48.5
Leaving Wet Bulb (F):	48.4
Cool Coil SP (in. wg):	0.052
Refrigerant Velocity (ft/min):	1,279
Suction Temp. (F):	46.7
Refrigerant:	R-410A
Evaporator Cap. (MBH):	97.8
AHRI 920 ISMRE:	5.4
Ambient Condenser Temp. (F):	95.0

Compressor and Condenser Details

Compressor 1 RLA (amps):	25
Compressor 1 LRA (amps):	164
Condenser Fan QTY:	2
Condenser Motor 1 HP:	0.62
Condenser Motor 2 HP:	0.62
Condenser Motor 1 FLA:	1.9
Condenser Motor 2 FLA:	1.9

HEATING PERFORMANCE

Indirect Gas Heating

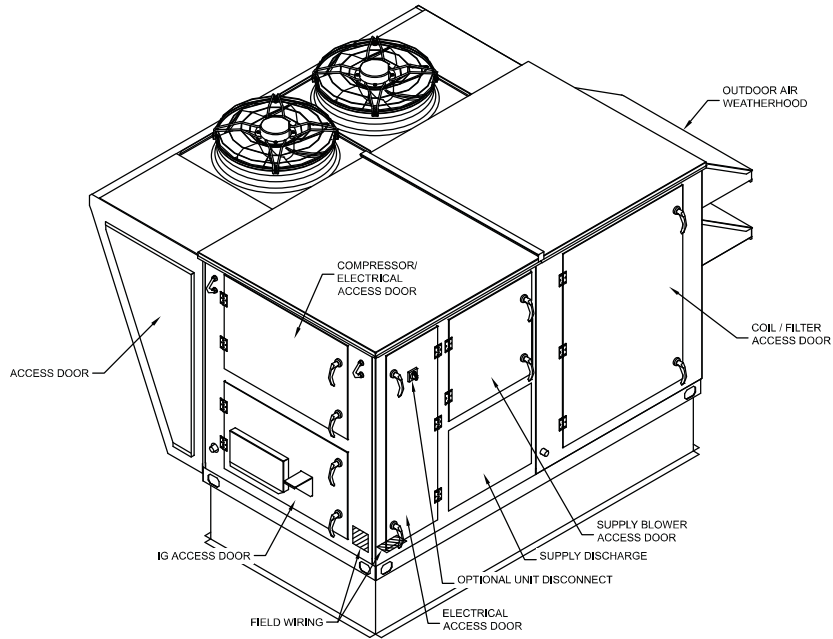
Heating Type	Gas Type	Input (MBH)	Output (MBH)	LAT (F)	Temp. Rise (F)	Furnace Control
Indirect Gas	Natural	150.0	120.0	98.6	92.6	High Turndown - 12:1 Modulating

Indirect Gas Unit Details

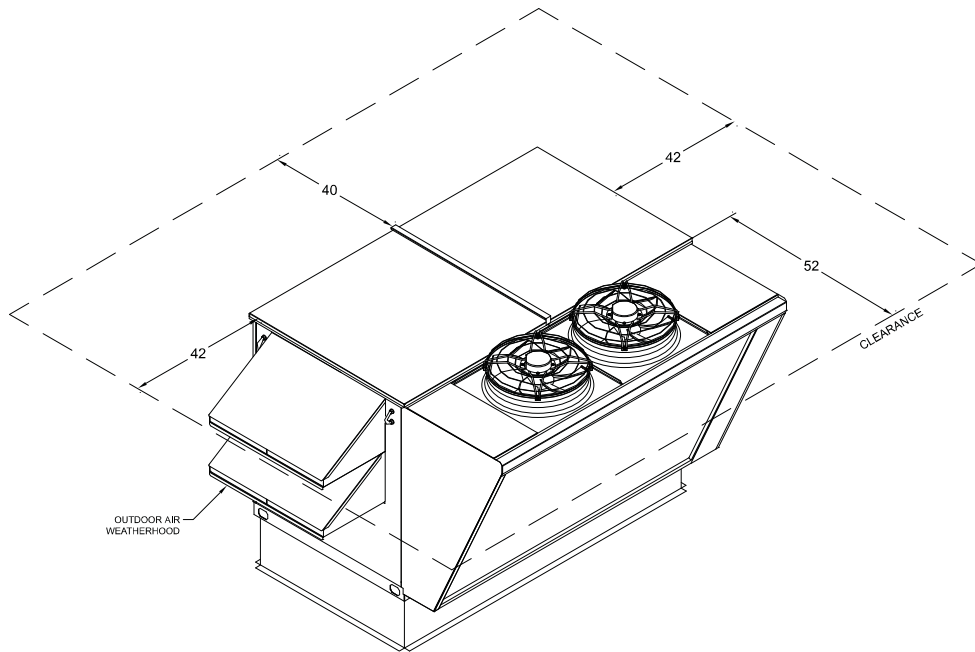
The RV will come equipped with the following:

- Power venting
- ETL listed to ANSI standard Z83.8 and CSA 2.6
- High Thermal efficiency
- Direct spark ignition
- Easy access burner controls
- 409 Stainless Steel heat exchange tubes
- 3/4" Gas Connection
- At least 6 in. wg of natural gas pressure (14 in. wg for LP) is required at the units gas connection in order to achieve maximum performance

ISOMETRIC DRAWINGS

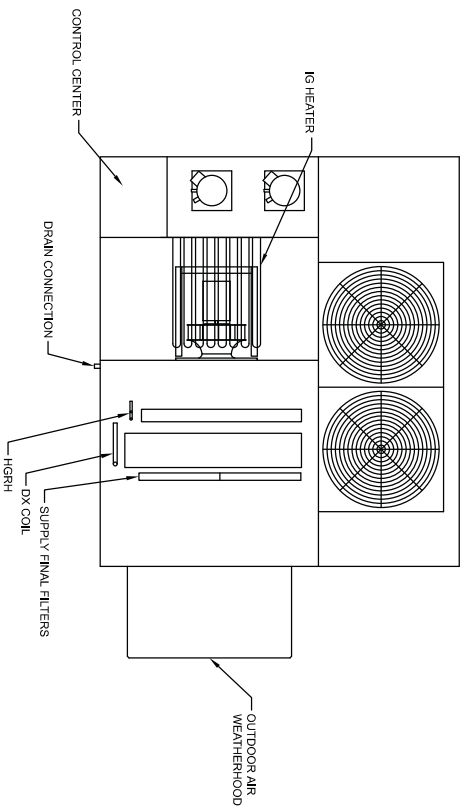


Back Right Isometric

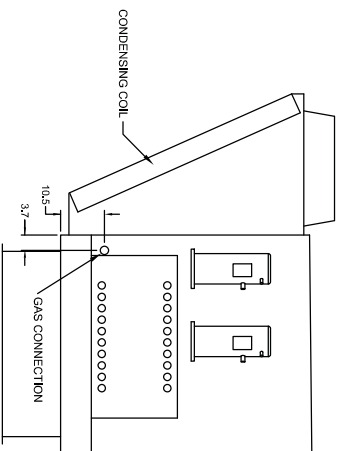


Front Left Isometric

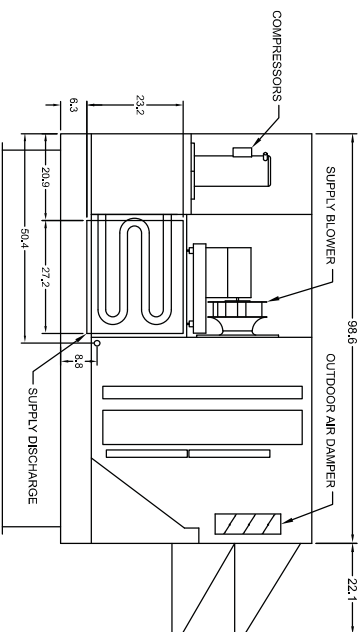
OVERVIEW DRAWINGS



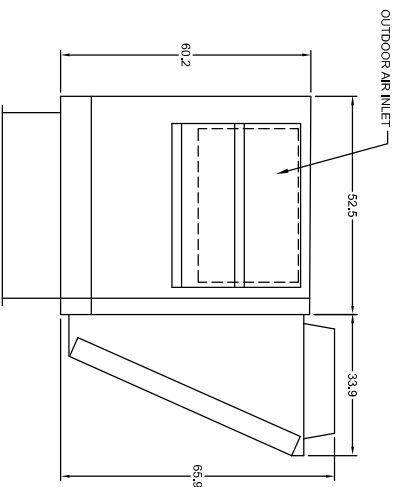
Plan



Left End



Elevation



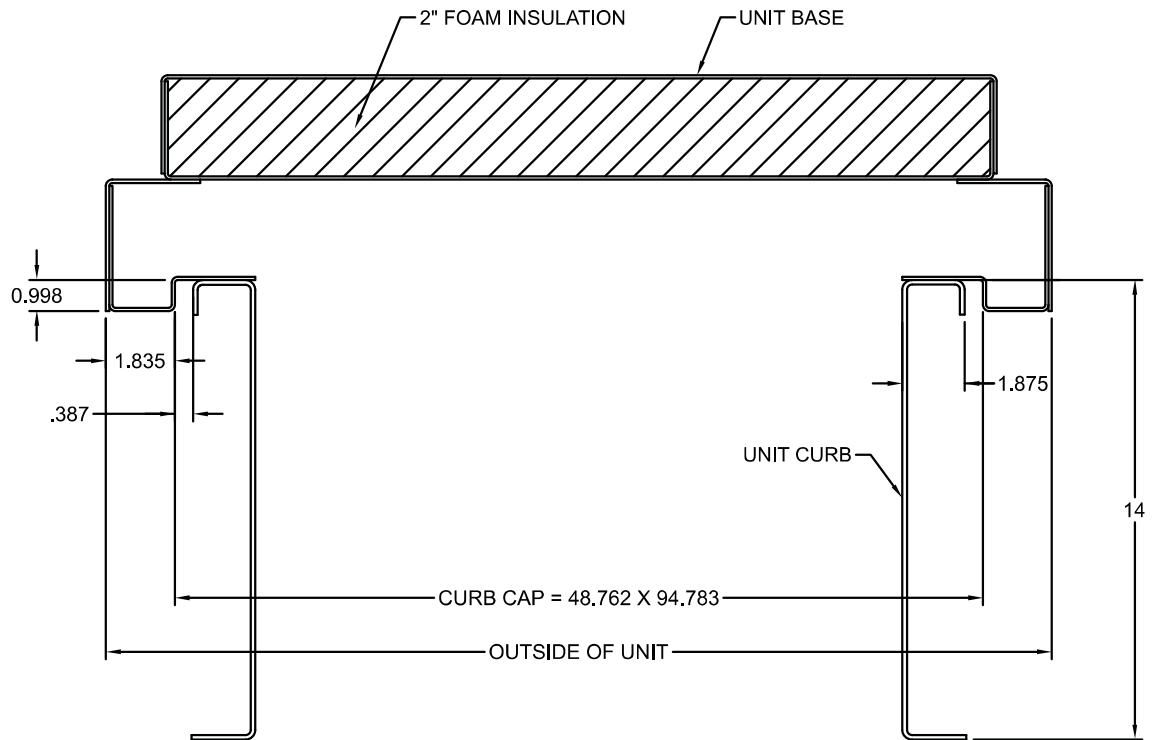
Right End

FOOTPRINT DRAWINGS

**Top View
of Curb**



**Cross-Section
View of Unit
on Curb**



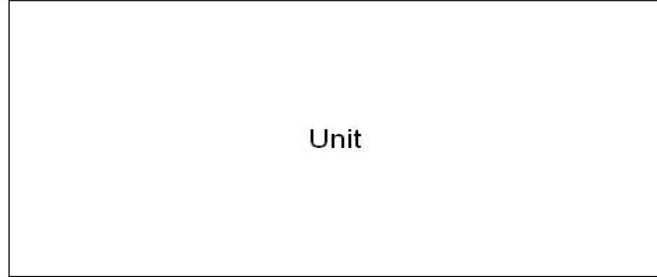
NOTES: All dimensions shown are in units of in.'s
If unit is selected with side or end discharge/return, there will not be bottom connections supplied with the curb.

Curb Weight: 159 lb

Unit Corner Weights

876 lb

931 lb

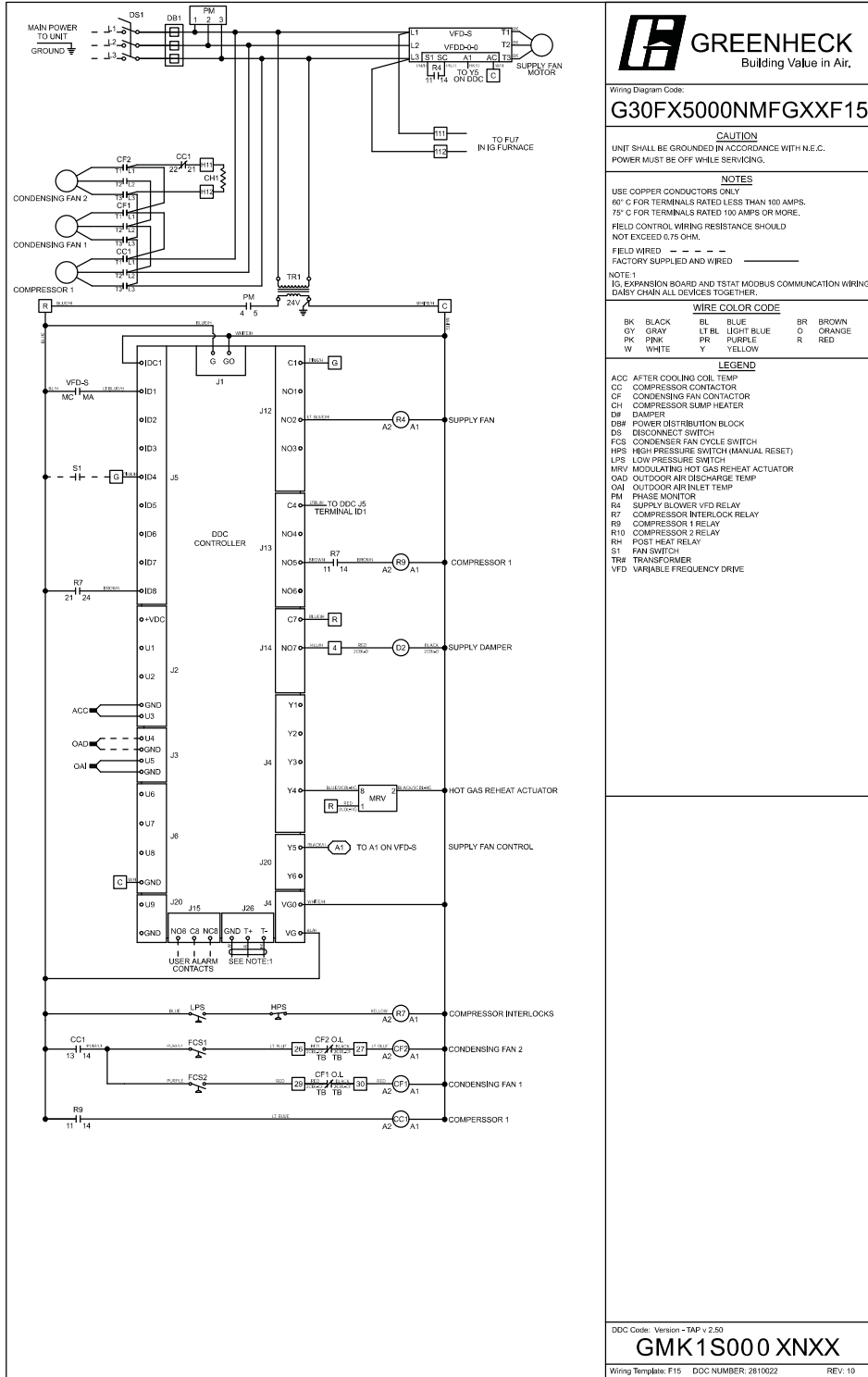


414 lb

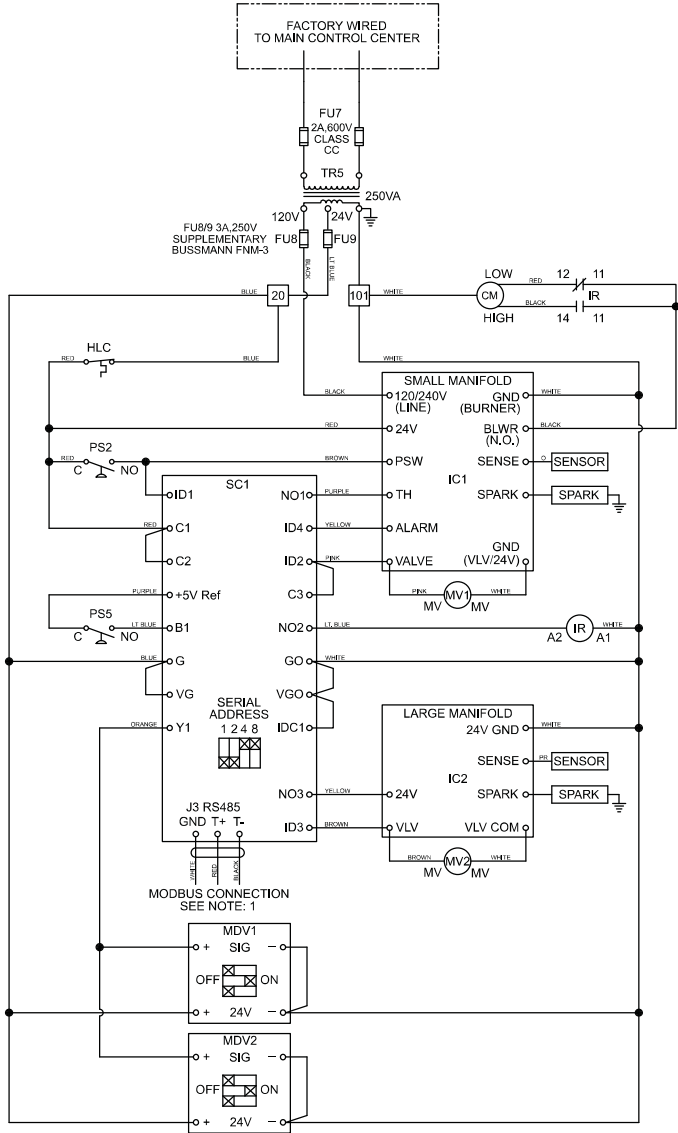
440 lb

Note: Estimated corner weights are shown looking down on unit and the outside air intake will be on the right. Weights are applied at the base of the unit. Images not drawn to scale.

WIRING DIAGRAM



INDIRECT GAS WIRING DIAGRAM
FURNACE 1 - HTD MODULATING



Wiring Diagram Code:
G4N51P1RX0000S06

CAUTION
UNIT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C.
POWER MUST BE OFF WHILE SERVICING.

NOTES
USE COPPER CONDUCTORS ONLY
60° C FOR TERMINALS RATED LESS THAN 100 AMPS.
75° C FOR TERMINALS RATED 100 AMPS OR MORE.
FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM.
FIELD WIRED - - - - -
FACTORY SUPPLIED AND WIRED _____

NOTE: 1
MODBUS COMMUNICATION WIRING, DAISY CHAIN TO ALL MODBUS DEVICES.

WIRE COLOR CODE

BK	BLACK	BL	BLUE	BR	BROWN
GY	GRAY	LT BL	LIGHT BLUE	O	ORANGE
PK	PINK	PR	PURPLE	R	RED
W	WHITE	Y	YELLOW		

LEGEND

CM	COMBUSTION BLOWER MOTOR
FU#	FUSE(S)
HLC	HIGH TEMPERATURE LIMIT CONTROL
IC1	IGNITION CONTROL - SMALL MANIFOLD
IC2	IGNITION CONTROL - LARGE MANIFOLD
IR	INDUCTION RELAY
MDV1	MODULATING VALVE - SMALL MANIFOLD
MDV2	MODULATING VALVE - LARGE MANIFOLD
MV1	MAIN GAS VALVE - SMALL MANIFOLD
MV2	MAIN GAS VALVE - LARGE MANIFOLD
PS2	COMBUSTION AIR PROVING SWITCH
PS5	HIGH SPEED PRESSURE SWITCH
SC1	STAGE CONTROLLER
TR#	TRANSFORMER(S)

DDC Code: Version - TAP v 2.40

GUSXSX

Wiring Template: S06

Microprocessor Controller Sequence of Operation

MICROPROCESSOR CONTROLLER: Controller shall be provided with required sensors and programming for rooftop unit. Controller shall be factory programmed, mounted and tested. Controller shall have a LCD readout for changing set points and monitoring unit operation.

UNIT START COMMAND (Unit will be enabled to start once a jumper is placed between R to G):

- Factory mounted and wired outdoor air damper actuator is powered
- Supply fan starts after 10 second delay.
- Tempering options to function as described below.

UNIT STOP COMMAND (OR DE-ENERGIZED):

- Supply fan, exhaust fan and tempering options de-energized.
- Outdoor air damper actuator is spring return close.

OCCUPIED/UNOCCUPIED MODES: Shall be based on a 7-day time clock internal to the controller. The schedule shall be set by the end user. When a user initiates an override input, the controller will switch from unoccupied to occupied mode. The controller will return to the scheduled occupied/unoccupied mode after the override time has expired (60 min, adj.). If internal time clock is disabled, a remote contact or a BMS can control the occupied/unoccupied mode.

Occupied Mode:

- Damper control per below.
- Supply fan ON.
- Heating per below.
- Cooling per below.

Unoccupied Mode (Unit Off): Unit remains off when in unoccupied mode.

- Supply fan OFF
- Tempering OFF
- Outdoor air damper closed.

Morning Warm-up: One hour prior to occupancy, the controller will reference the temperature differential between the current room temperature and the occupied temperature set point. The controller will then look at the amount of time required from the previous days morning warm up sequence and determine how far in advance the unit has to be started to meet the desired occupied set point by the time of occupancy.

SUPPLY BLOWER SEQUENCE: The supply blower is provided with a factory mounted variable frequency drive. The supply blower speed will be controlled with the following sequence.

Constant Volume (on/off): The supply blower will operate at a constant speed set point (adj.) during operation.

COOLING SEQUENCE: The cooling is controlled to maintain the supply temperature set point. The mechanical cooling will be locked out when the outside air is < 55°F - 2°F hysteresis (adj.).

Packaged DX Cooling (Standard Scroll): The controller will provide a digital signal for 1 stage of cooling to maintain the supply air set point (adj.).

Modulating Hot Gas Reheat Sequence: During dehumidification the modulating HGRH is controlled to maintain the supply temperature set point.

Standard Head Pressure Control: 2 condensing fans will stage on/off based upon condenser pressure.

DEHUMIDIFICATION SEQUENCE: The cooling is controlled to maintain the cooling-coil set point. The dehumidification sequence will be locked out when the OA is 10°F above the cold-coil set point (adj.).

Cold Coil Setpoint Reset Function: The controller will control the cooling to maintain an active set point. The active set point will set to local control (55° F, adj) from the factory and can be field adjusted to the following sequence:

REHEAT SEQUENCE: While the unit is in dehumidification mode the outdoor air will be reheated via Modulating Hot Gas Reheat for space neutral applications.

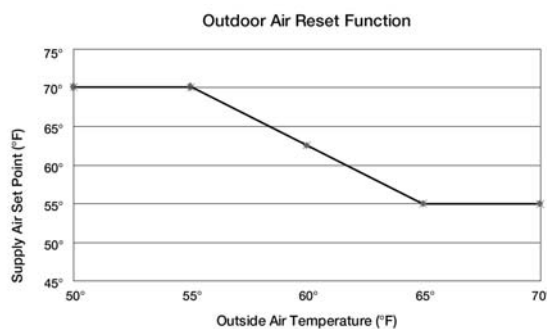
Modulating Hot Gas Reheat: The controller will modulate the hot gas reheat valve with a 0-10 V signal to maintain the supply temperature set point (adj.).

HEATING SEQUENCE: The heating is controlled to maintain the supply temperature set point. The heating will be locked out when the outside air is > $70^{\circ}\text{F} + 2^{\circ}\text{F}$ hysteresis, (adj.).

Indirect Gas Furnace: The controller will modulate the indirect gas furnace to maintain the supply temperature set point (adj.).

SUPPLY SET POINT RESET FUNCTION. The controller will modulate the heating and cooling to maintain an active set point. The active set point will be set to outdoor air reset from the factory and can be field adjusted to the following sequence:

OA Reset (Default): The controller will monitor the outdoor air temperature and adjusts the desired supply temperature set point accordingly. For example, when the outdoor air is below 55 °F, the controller will change the supply set point to 70 °F. If the outdoor air is above 65 °F, the controller will change the supply set point to 55°F. If the outdoor air temperature is between 55°F and 65°F, the supply set point changes according to the outdoor air reset function. A visual representation of this is shown below.



Local: The supply set point will be a constant temperature set from the controller (adj.).

BUILDING FREEZE PROTECTION: If the supply air temperature drops below 35°F (adj.) for 300s (adj.), the controller will de-energize the unit and activate the alarm output.

TEMPERATURE PROTECTION: The controller will enable the supply fan to modulate down to help the unit keep up with heating demand in the event of wheel failure or the unit operating outside design conditions. (This can be enabled under the manufacturer menu in the controller)

ALARMS INDICATION: The controller will display alarms and have one digital output for remote indication of an alarm condition. Possible alarms include:

Supply Air Alarm: The controller monitors the proving switch on supply blower and sends an alarm in the case of the blower proving switch not engaging for 30s (adj.).

DX Alarm: The controller monitors the refrigerant pressure. In the case of low refrigerant pressure the compressors will shut down until refrigerant pressure returns to normal values and the controller will send a alarm. In the case of high refrigerant pressure the compressors will shut down, requiring a manual reset and the controller will send a alarm.

Temperature Sensor Alarm: The controller sends an alarm in the case of a failed air temperature sensor.

Accessories: The following accessories will be included with the unit to expand the functionality or usability of the controller.

Phase and Brown Out Protection: Factory mounted and wired component which monitors the main power coming into the unit. If a phase drops out, or if the incoming voltage exceeds the acceptable range, the component will turn off the unit to help protect the electrical systems.

Unit Warranty

Limited Warranty

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of 1 year(s) from the purchase date. Any component which proves defective during the warranty period will be repaired, or replaced, at Greenheck's sole option when returned to our factory, transportation prepaid.

The warranty does not include labor costs associated with troubleshooting, removal, or installation. Greenheck will not be liable for any consequential, punitive, or incidental damages resulting from use, repair, or operation of any Greenheck product.

This warranty is exclusive, and is in lieu of all other warranties, whether written, oral or implied, including the warranty of merchantability and the warranty of fitness for a particular purpose.

SD130 | **6.7L** | **130 kW**

INDUSTRIAL DIESEL GENERATOR SET

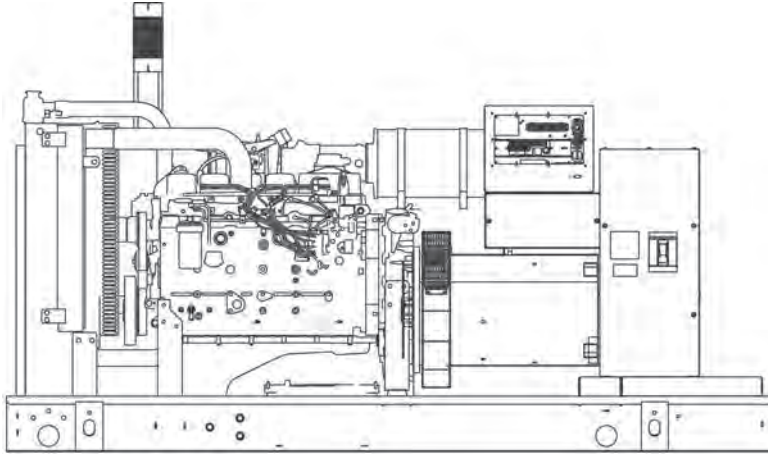
EPA Certified Stationary Emergency

STANDBY POWER RATING

130 kW, 163 kVA, 60 Hz

PRIME POWER RATING*

117 kW, 146 kVA, 60 Hz



*Built in the USA using domestic and foreign parts

*EPA Certified Prime ratings are not available in the U.S. or its Territories.


Image used for illustration purposes only

**Certain options or customization may not hold certification valid.


CODES AND STANDARDS

Generac products are designed to the following standards:

 UL2200, UL508, UL142, UL498

 NFPA70, 99, 110, 37

 NEC700, 701, 702, 708

 ISO9001, 8528, 3046, 7637, Pluses #2b, 4

 NEMA ICS10, MG1, 250, ICS6, AB1

 **ANSI**
American National Standards Institute
ANSI C62.41

POWERING AHEAD

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

STANDARD FEATURES

ENGINE SYSTEM

General

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Critical Exhaust Silencer (enclosed only)
- Factory Filled Oil
- Radiator Duct Adapter (open set only)

Fuel System

- Fuel lockoff solenoid
- Primary fuel filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene glycol antifreeze
- 120 VAC Coolant Heater

Engine Electrical System

- Battery charging alternator
- Battery cables
- Battery tray
- Solenoid activated starter motor
- Rubber-booted engine electrical connections

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- 12 leads (3-phase, non 600 V)
- Class H insulation material
- Vented rotor
- 2/3 pitch
- Skewed stator
- Auxiliary voltage regulator power winding
- Amortisseur winding
- Brushless Excitation
- Sealed Bearings
- Automated manufacturing (winding, insertion, lacing, varnishing)
- Rotor dynamically spin balanced
- Full load capacity alternator
- Protective thermal switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of circuits - high/low voltage
- Separation of circuits - multiple breakers
- Silencer Heat Shield
- Wrapped Exhaust Piping
- Silencer housed in discharge hood (enclosed only)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby rated Units)
- 1 Year Limited Warranty (Prime rated Units)
- Silencer mounted in the discharge hood (enclosed only)

ENCLOSURE (IF SELECTED)

- Rust-proof fasteners with nylon washers to protect finish
- High performance sound-absorbing material
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

TANKS (IF SELECTED)

- UL 142
- Double wall
- Vents
- Sloped top
- Sloped bottom
- Factory pressure tested (2 psi)
- Rupture basin alarm
- Fuel level
- Check valve in supply and return lines
- Rhino Coat™ - Textured polyester powder coat
- Stainless hardware

CONTROL SYSTEM



Control Panel

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)

- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection

- Single point ground
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

CONFIGURABLE OPTIONS

ENGINE SYSTEM

General

- Oil Heater
- Industrial Exhaust Silencer

Fuel System

- Flexible fuel lines
- Primary fuel filter

Engine Electrical System

- 10A UL battery charger
- 2.5A UL battery charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical coating
- Permanent Magnet Excitation

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breaker

GENERATOR SET

- Gen-Link Communications Software (English Only)
- IBC Seismic Certification
- 8 Position Load Center
- 2 Year Extended Warranty
- 5 Year Warranty
- 5 Year Extended Warranty

ENCLOSURE

- Weather Protected
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- 150 MPH Wind Kit
- 12 VDC Enclosure Lighting Kit
- 120 VAC Enclosure Lighting Kit
- AC/DC Enclosure Lighting Kit
- Door Alarm Switch

TANKS (Size on last page)

- Electrical Fuel Level
- Mechanical Fuel Level
- 8" Fill Extension
- 13" Fill Extension

CONTROL SYSTEM

- 21-Light Remote Annunciator
- Remote Relay Panel (8 or 16)
- Oil Temperature Sender with Indication Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- Remote Communication - Ethernet
- 10A Run Relay
- Ground Fault Indication and Protection Functions

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant heater ball valves
- Block Heaters
- Fluid containment pans

ALTERNATOR SYSTEM

- 3rd Breaker Systems

CONTROL SYSTEM

- Spare inputs (x4) / outputs (x4) - H Panel Only
- Battery Disconnect Switch

GENERATOR SET

- Special Testing

ENCLOSURE

- Motorized Dampers
- Door switched for intrusion alert
- Enclosure ambient heaters

TANKS

- Overfill Protection Valve
- UL2085 Tank
- ULC S-601 Tank
- Stainless Steel Tank
- Special Fuel Tanks (MIDEQ and FL DEP/DERM, etc.)
- Vent Extensions

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications. Power ratings in accordance with ISO 8528-1, Second Edition

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Iveco/FPT
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	6
Type	In-Line
Displacement - L (cu In)	6.7 (406.86)
Bore - mm (in)	104 (4.09)
Stroke - mm (in)	128 (5.2)
Compression Ratio	16.5:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head Type	2 Valve
Piston Type	Alloy Aluminum
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	+/- 0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (qts)	17 (18)

Cooling System

Cooling System Type	Closed Recovery
Water Pump	Belt Driven Centrifugal
Fan Type	Pusher
Fan Speed (rpm)	2538
Fan Diameter mm (in)	599 (23.6)
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120 V /240 V

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Injection	Stanadyne
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line mm (in)	12.7 (0.5) NPT
Fuel Return Line mm (in)	12.7 (0.5) NPT

Engine Electrical System

System Voltage	12 VDC
Battery Charging Alternator	Std
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<3%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Synchronous Brushless
Bearings	Single Seated Cartridge
Coupling	Direct, Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
All	All
Regulation Accuracy (Steady State)	± 0.25%

OPERATING DATA

POWER RATINGS

		Standby
Single-Phase 120/240 VAC @1.0pf	130 kW	Amps: 542
Three-Phase 120/208 VAC @0.8pf	130 kW	Amps: 451
Three-Phase 120/240 VAC @0.8pf	130 kW	Amps: 391
Three-Phase 277/480 VAC @0.8pf	130 kW	Amps: 195
Three-Phase 346/600 VAC @0.8pf	130 kW	Amps: 156

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

Alternator	kW	480 VAC						208/240 VAC					
		10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	130	116	174	232	290	348	406	87	131	174	218	261	305
Upsize 1	150	133	199	265	332	398	464	100	149	199	249	299	340
Upsize 2	200	187	280	373	467	560	653	140	210	280	350	420	490

FUEL CONSUMPTION RATES*

Diesel - gal/hr (l/hr)

Fuel Pump Lift - ft (m)	Percent Load	Standby
3 (1)	25%	2.9 (11.0)
	50%	5.4 (20.4)
Total Fuel Pump Flow (Combustion + Return)	75%	7.7 (29.1)
29.1 gal/hr	100%	9.6 (36.3)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow per Minute	gal/min (l/min)	44.6 (168.8)
Coolant System Capacity	gal (L)	5.65 (21.4)
Heat Rejection to Coolant	BTU/hr	353,900
Inlet Air	cfm (m³/hr)	7900 (223.7)
Max. Operating Radiator Air Temp	F° (C°)	122 (50)
Max. Ambient Temperature (before derate)	F° (C°)	104 (40)
Maximum Radiator Backpressure	in H ₂ O	0.5

COMBUSTION AIR REQUIREMENTS

		Standby
Flow at Rated Power	cfm (m³/min)	390 (11.05)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	198
Piston Speed	ft/min (m/min)	1559 (475)
BMEP	psi	213

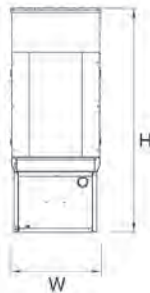
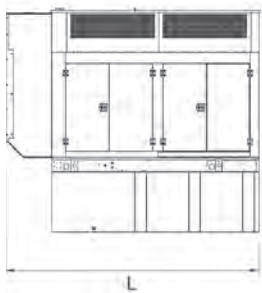
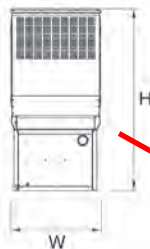
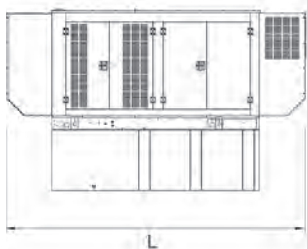
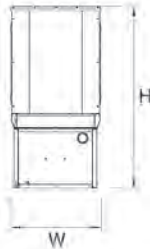
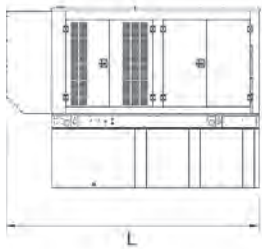
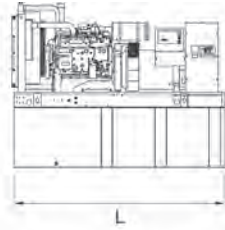
EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	910 (25.8)
Max. Backpressure (Post Silencer)	inHg (Kpa)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	960 (516)
Exhaust Outlet Size (Open Set)	mm (in)	101.6 (4)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

DIMENSIONS AND WEIGHTS*



YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

OPEN SET

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Tank & Open Set	
			Steel	Aluminum
NO TANK	-	110 (2794) x 40 (1016) x 65 (1651)	3104 (1408)	
9	90 (340.7)	110 (2794) x 40 (1016) x 77 (1955.8)	3813 (1730)	
23	220 (832.8)	110 (2794) x 40 (1016) x 89 (2260.6)	4146 (1881)	
36	350 (1324.9)	110 (2794) x 40 (1016) x 101 (2565.4)	4488 (2036)	
53	510 (1930.6)	110 (2794) x 40 (1016) x 105 (2667)	4469 (2029)	
61	589 (2229.6)	128 (3251.2) x 49 (1244.6) x 107 (2717.8)	4948 (2244)	
72	693 (2623.3)	136 (3454.4) x 53 (1346.2) x 107 (2717.8)	4667 (2117)	

STANDARD ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	133 (3378) x 40 (1016) x 64 (1625.6)	500 (227)	
9	90 (340.7)	133 (3378) x 40 (1016) x 77 (1956)	165 (75)	
23	220 (832.8)	133 (3378) x 40 (1016) x 89 (2261)	165 (75)	
36	350 (1324.9)	133 (3378) x 40 (1016) x 101 (2565)	165 (75)	
53	510 (1930.6)	133 (3378) x 47 (1194) x 105 (2667)	165 (75)	
61	589 (2229.6)	133 (3378) x 49 (1125) x 107 (2718)	165 (75)	
72	693 (2623.3)	133 (3378) x 53 (1346) x 107 (2718)	165 (75)	

LEVEL 1 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	154 (3912) x 40 (1016) x 64 (1626)	750 (340)	
9	90 (340.7)	154 (3912) x 40 (1016) x 77 (1956)	250 (112)	
23	220 (832.8)	154 (3912) x 40 (1016) x 89 (2261)	250 (112)	
36	350 (1324.9)	154 (3912) x 40 (1016) x 101 (2565)	250 (112)	
53	510 (1930.6)	154 (3912) x 47 (1194) x 105 (2667)	250 (112)	
61	589 (2229.6)	154 (3912) x 49 (1245) x 107 (2718)	250 (112)	
72	693 (2623.3)	154 (3912) x 53 (1346) x 107 (2718)	250 (112)	

LEVEL 2 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	145 (3683) x 40 (1016) x 81 (2057)	1000 (454)	
9	90 (340.7)	145 (3683) x 40 (1016) x 84 (2134)	330 (150)	
23	220 (832.8)	145 (3683) x 40 (1016) x 106 (2692)	330 (150)	
36	350 (1324.9)	145 (3683) x 40 (1016) x 118 (2997)	330 (150)	
53	510 (1930.6)	145 (3683) x 47 (1194) x 122 (3099)	330 (150)	
61	589 (2229.6)	145 (3683) x 49 (1245) x 124 (3150)	330 (150)	
72	693 (2623.3)	145 (3683) x 53 (1346) x 124 (3150)	330 (150)	

*All measurements are approximate and for estimation purposes only. Sound dBA can be found on the sound data sheet. Enclosure Only weight is added to Tank & Open Set weight to determine total weight.

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Job Name:	
System Reference:	Date:



OUTDOOR VRF HEAT PUMP WITH HEAT RECOVERY SYSTEM

UNIT OPTION

- Standard Model.....PURY-P72TLMU-A
- Seacoast (BS) Model.....PURY-P72TLMU-A-BS

ACCESSORIES

- Joint Kit.....for details see Pipe Accessories Submittal
- BC Controller (required).....for details see BC Controller Submittals
- Low Ambient Kitfor details see Low Ambient Kit Submittal
- Snow/Hail Guards Kit.....for details see Snow/Hail Guards Kit Submittal
- Base Pan Heater Kit.....for details see Base Pan Heater Kit Submittal

Specifications		Model Name
Unit Type		PURY-P72TLMU-A (-BS)
Nominal Cooling Capacity (208/230V)	Btu/h	72,000
Nominal Heating Capacity (208/230V)	Btu/h	80,000
Operating Temperature Range *1	Cooling (Outdoor) *2	23~126° F (-5~52° C) DB
	Heating (Outdoor)	-13~60° F (-25~15.5° C) WB
External Dimensions (H x W x D)	In. (mm)	64-31/32 x 36-1/4 x 29-5/32 (1,650 x 920 x 740)
Net Weight	Lbs. (kg)	444 (201)
External Finish		Pre-coated galvanized steel sheet
Electrical Power Requirements	Voltage, Phase, Hertz	208 / 230V, 3-Phase, 60Hz
Minimum Circuit Ampacity (MCA)	A	24 / 22
Maximum Overcurrent Protection (MOP)	A	35 / 35
Piping Diameter (Brazed) (In. / mm)	Liquid (High Pressure)	5/8 (15.88)
	Gas (Low Pressure)	3/4 (19.05)
Max. Total Refrigerant Line Length	Ft.	1,804
Max. Refrigerant Line Length (Between ODU & IDU)	Ft.	541
Max. Control Wiring Length	Ft.	1,640
Indoor Unit	Total Capacity	50~150% of outdoor unit capacity
	Model / Quantity	P06~P96/1~18
Sound Pressure Levels	dB(A)	58.0
<i>Fan</i>		
Type x Quantity		Propeller fan x 1
Airflow Rate	CFM	6,550
External Static Pressure	In. WG (Pa)	Selectable; 0, 0.12 or 0.24"WG; factory set to 0"W.G.
Compressor Operating Range		13% to 100%
Compressor Type x Quantity		Inverter scroll hermetic compressor
Refrigerant		R410A; 13 lbs. + 3 oz. (6.0 kg)
Protection Devices	High Pressure	High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter Circuit (Comp. / Fan)	Over-current protection
	Fan Motor	Thermal switch
AHRI Ratings (Ducted/Non-Ducted)	EER	13.5 / 14.8
	IEER	23.1 / 28.1
	COP	3.65 / 4.30
	SCHE	25.9 / 28.4

NOTES:

- *1. When applying product below -4° F, consult your design engineer for cold climate application best practices, including the use of a backup source for heating.
- *2. For details on extended cooling operation range down to -10° F DB, see Low Ambient Kit Submittal.

Model: PURY-P72TLMU-A (-BS) - DIMENSIONS

- <Accessories>
 Connecting pipe
 <Low pressure>
 Pipe (IDø28.58(1-1/8)×ODø22.2(7/8)) 1pc.
 Pipe (IDø22.2(7/8)×ODø19.05(3/4)) 1pc.
 Elbow(IDø28.58(1-1/8)×ODø28.58(1-1/8)) 1pc.
 <High pressure>
 Pipe (IDø25.4(1)×IDø15.88(5/8)) 1pc.
 Pipe (IDø25.4(1)×ODø15.88(5/8)) 1pc.

Note1. Please refer to the engineering manual for information regarding necessary spacing around the unit and foundation work. Outdoor unit must be mounted at least 12" off the ground or 12" above the highest average snow depth, whichever is greater.
 2. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248 °F).

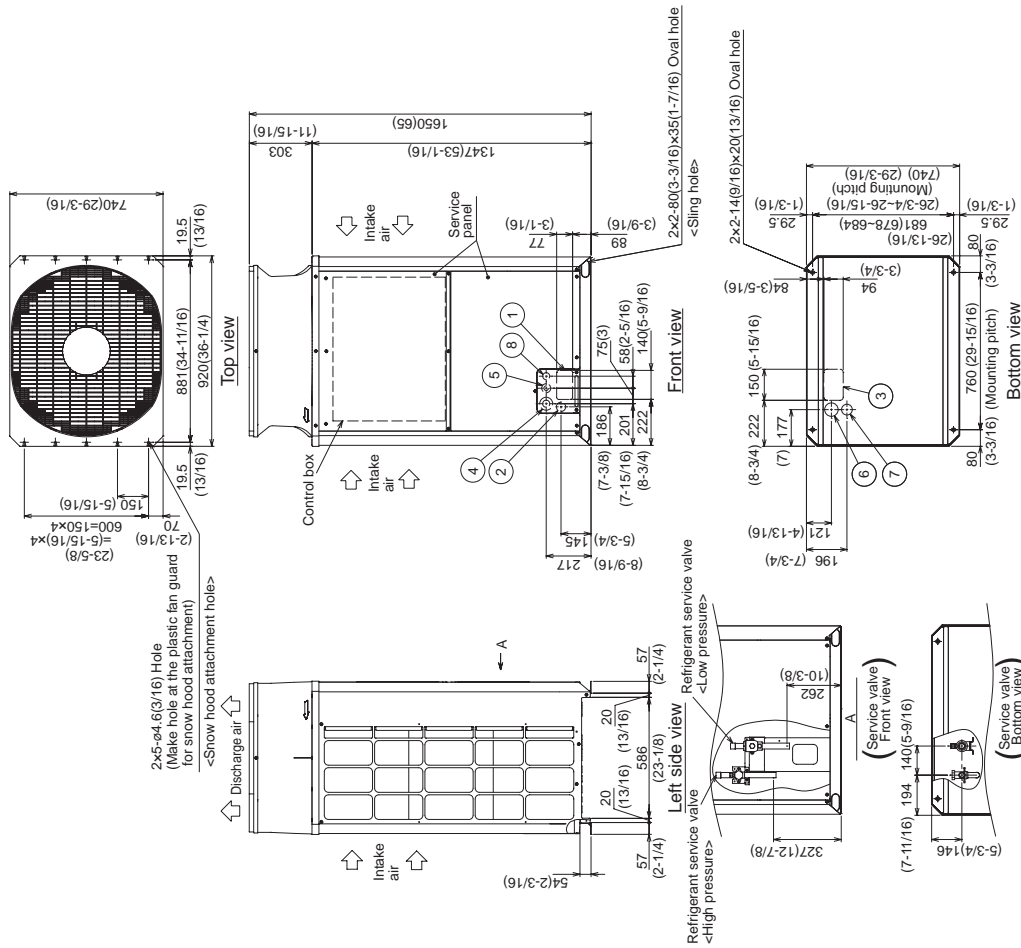
Connecting pipe specifications

Model	Refrigerant pipe		Diameter		Service valve
	High pressure	Low pressure	High pressure	Low pressure	
PURY-P72TLMU	ø15.88 Braze (5/8) *1	ø19.05 Braze (3/4) *1	ø25.4 (1)	ø28.58 (1-1/8)	

*1 Use the included connecting pipe and connect to the refrigerant service valve piping.

NO.	Usage	Specifications
①	Front through hole	140 x 77 Knockout hole (6-9/16)(3-1/16)
②	Front through hole (Uses when winning kit (optional parts) is mounted.)	ø45 Knockout hole (1-13/16)
③	Bottom through hole	150 x 94 Knockout hole (6-15/16)(3-3/4)
④	Front through hole	ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8)
⑤	Front through hole	ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8)
⑥	Bottom through hole	ø65 Knockout hole (2-9/16)
⑦	Bottom through hole	ø52 Knockout hole (2-1/16)
⑧	For transmission cables	ø34 Knockout hole (1-3/8)

Unit: mm (in.)



NOTES:

SEAFOAST PROTECTION

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



COOLING & HEATING

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



Performance	
Quantity	1
Volume (CFM)	7,500
External SP (in. wg)	1.5
Total SP (in. wg)	1.647
Operating Power (hp)	3.38
Start-Up Power (hp)	3.38
Fan RPM	1111
Max Fan RPM	1570
Oper. Frequency (Hz)	60
Elevation (ft)	30
Start-up Temp.(F)	70
Operating Temp.(F)	70

Fan Configuration	
Construction Type	PermaLock
Size	24
Arrangement	10
Rotation	CW
Discharge Position	TH
Spark Resistance	None
Scroll Material	Steel
Wheel Material	Steel
Inlet Cone Material	Steel
Pedestal Material	Steel

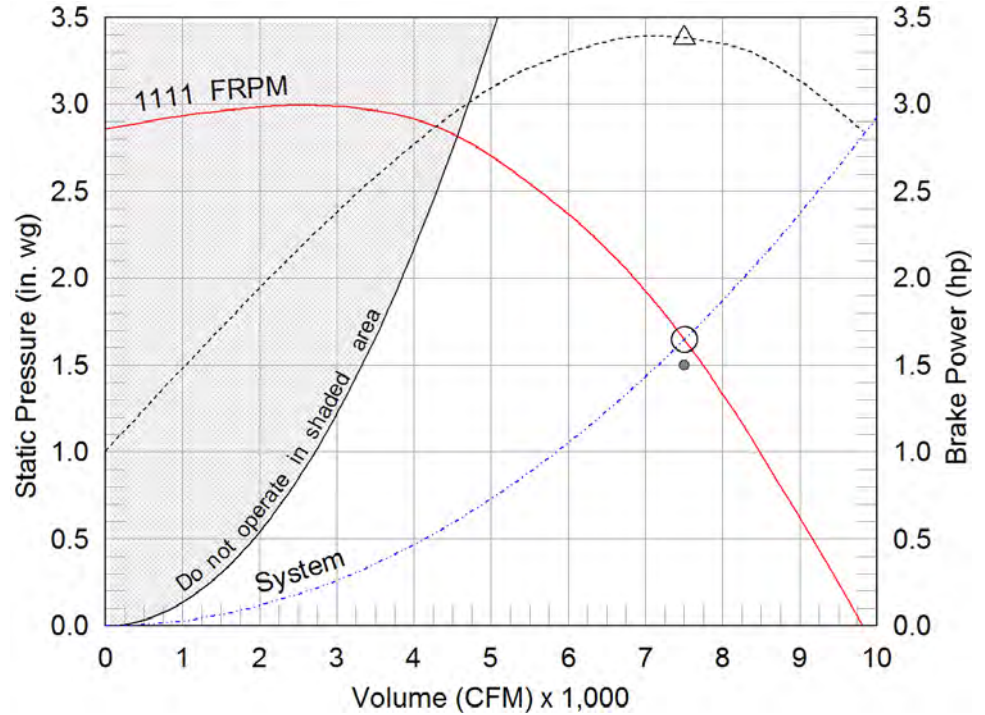
Equipment Weights	
Fan (LMD)(lb)	352
Motor/Drive (lb)	145
Accessories (lb)	12

Misc Fan Data	
Outlet Velocity (ft/min)	2,174
Static Efficiency (%)	60
Tip Speed (ft/min)	7,126

Motor and Drives	
Motor Supplier	Greenheck
Size (hp)	10
RPM	1725
Enclosure	ODP
Voltage	208
Cycle	60
Phase	3
Frame Size	215T
Max Frame Size	215
Location	Centered
Pulley Type	Constant
Drive Loss (%)	4.2
Drives	1.5 x Standard
Drive Service Factor	N/A

Model: USF-324-10-BI-100
Centrifugal Utility Fan - Backward Inclined Wheel

Operating Performance



- △ Operating Bhp point
- Operating point at Total SP
- Operating point at External SP
- Fan curve
- - - System curve
- · · Brake horsepower curve

External SP	1.5 in. wg
System Effect-Free Discharge	0.147 in. wg
Total SP	1.647 in. wg

Note: Using External SP only, the fan would have been incorrectly selected at:
1090 RPM 3.19 Bhp



Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	86	87	89	82	78	75	68	63	85	74	23
Outlet	96	93	90	83	82	77	70	65	87	76	27

LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5 ft- dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft

Model: USF-324-10-BI-100

Centrifugal Utility Fan - Backward Inclined Wheel

Standard Construction Features:

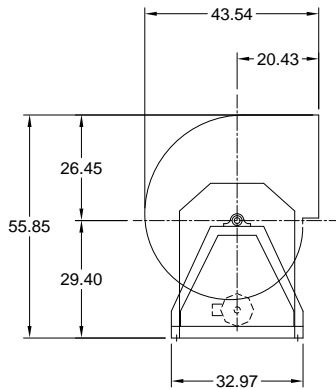
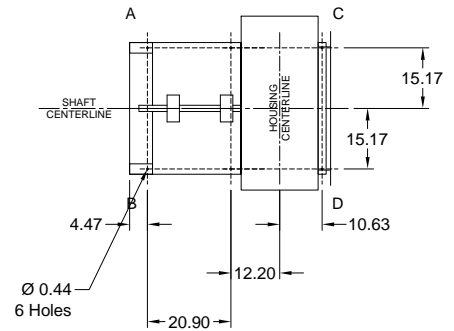
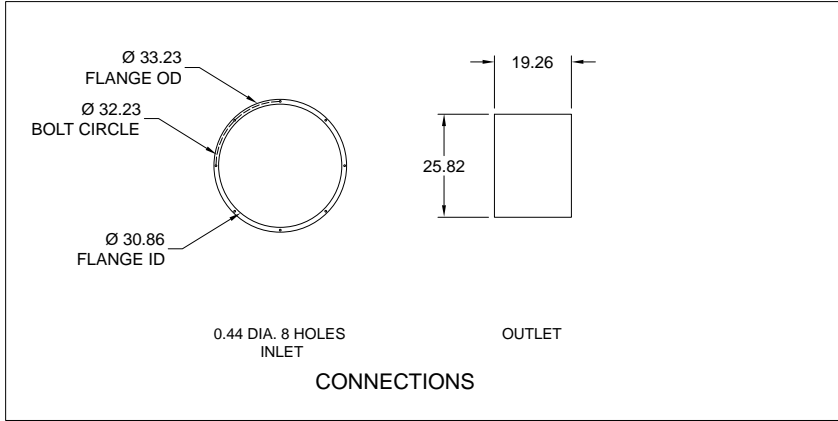
HOUSING: Steel housing with Perma-Lock construction - Unit support angles with pre-punched mounting holes - Adjustable motor plate - Corrosion resistant fasteners - Steel components are phosphatized and coated. BEARINGS, SHAFT, AND WHEEL: Air handling quality, self-aligning, ball bearing in pillow block housing - Polished, solid steel shafts - Backward inclined centrifugal wheel

Selected Options & Accessories:

NEMA Premium Efficient Motor - meets NEMA Table 12-12
Motor with Class B Insulation
1.5 times the minimum required number of belts
Coated with Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories
Discharge Position - TH
UL/cUL-705 - Power Ventilators
Bearings - L(10) Life of 80k Hours
Inlet Connection - Inlet Flange, Punched
Outlet Connection - Slip Fit
Weatherhood - Steel
Inlet Guard - Inlet Guard, galvanized
Unit Warranty: 1 Yr (Standard)

Model: USF-324-10-BI-100

Centrifugal Utility Fan - Backward Inclined Wheel

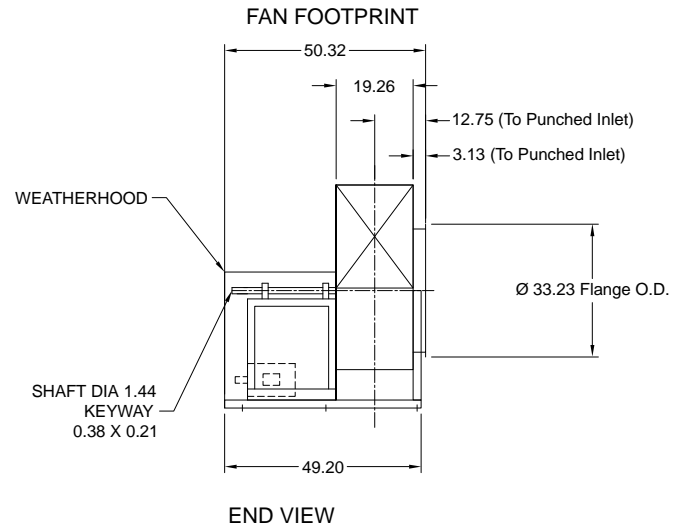


SIDE VIEW

*SIDE VIEW IS VIEWED FROM DRIVE SIDE

*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE

*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance Without Appurtenances (Accessories). Power rating (BHP/kW) includes transmission losses.

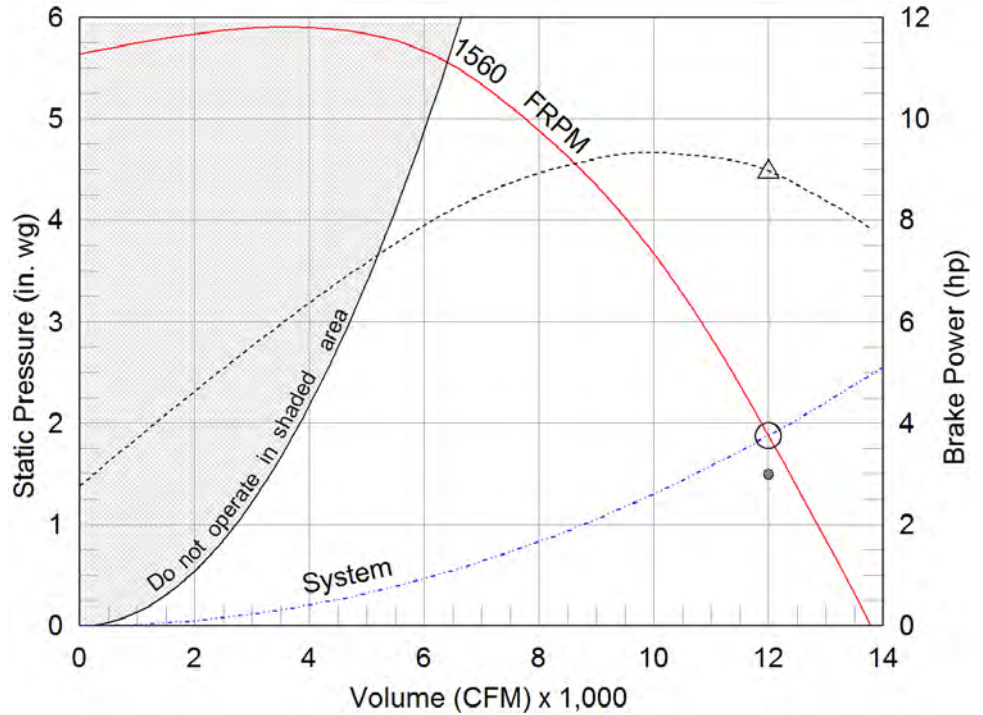
Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power ratings (BHP/kW) include transmission losses. The sound power level ratings shown are in decibels, referred to 10-12 watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet Lwi, LwiA, and outlet Lwo, LwoA sound power levels for installation type B: Free inlet, Ducted outlet. Outlet ratings include the effects of duct end correction.

The AMCA licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.

Performance	
Quantity	1
Volume (CFM)	12,000
External SP (in. wg)	1.5
Total SP (in. wg)	1.877
Operating Power (hp)	8.95
Start-Up Power (hp)	8.95
Fan RPM	1560
Max Fan RPM	1570
Oper. Frequency (Hz)	60
Elevation (ft)	30
Start-up Temp.(F)	70
Operating Temp.(F)	70

Model: USF-324-10-BI-100
Centrifugal Utility Fan - Backward Inclined Wheel

Operating Performance



Fan Configuration	
Construction Type	PermaLock
Size	24
Arrangement	10
Rotation	CW
Discharge Position	TH
Spark Resistance	None
Scroll Material	Steel
Wheel Material	Steel
Inlet Cone Material	Steel
Pedestal Material	Steel

Equipment Weights	
Fan (LMD)(lb)	352
Motor/Drive (lb)	145
Accessories (lb)	0

Misc Fan Data	
Outlet Velocity (ft/min)	3,478
Static Efficiency (%)	41
Tip Speed (ft/min)	10,007

Motor and Drives	
Motor Supplier	Greenheck
Size (hp)	10
RPM	1725
Enclosure	ODP
Voltage	208
Cycle	60
Phase	3
Frame Size	215T
Max Frame Size	215
Location	Centered
Pulley Type	Constant
Drive Loss (%)	3.6
Drives	Multiple
Drive Service Factor	1.5

△	Operating Bhp point	External SP	1.5 in. wg
○	Operating point at Total SP	System Effect-Free Discharge	0.377 in. wg
●	Operating point at External SP	Total SP	1.877 in. wg
—	Fan curve	Note: Using External SP only, the fan would have been incorrectly selected at: 1523 RPM 8.19 Bhp	
- - -	System curve		
· · ·	Brake horsepower curve		



Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	92	91	100	91	87	87	81	74	95	84	43
Outlet	102	100	101	94	93	91	85	78	99	87	55

LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5 ft- dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft

Model: USF-324-10-BI-100

Centrifugal Utility Fan - Backward Inclined Wheel

Standard Construction Features:

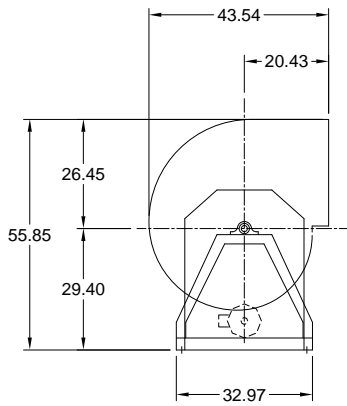
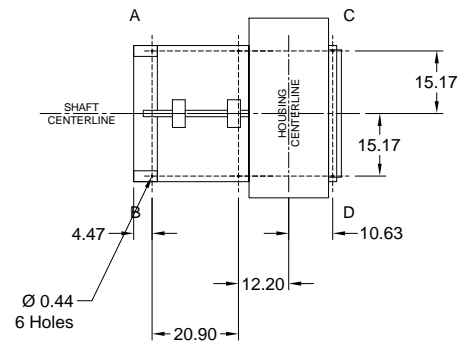
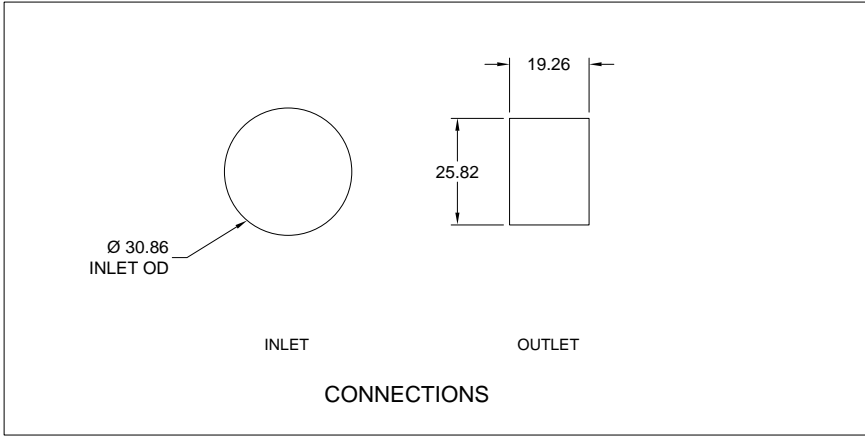
HOUSING: Steel housing with Perma-Lock construction - Unit support angles with pre-punched mounting holes - Adjustable motor plate - Corrosion resistant fasteners - Steel components are phosphatized and coated. BEARINGS, SHAFT, AND WHEEL: Air handling quality, self-aligning, ball bearing in pillow block housing - Polished, solid steel shafts - Backward inclined centrifugal wheel

Selected Options & Accessories:

Energy Efficient Motor - meets NEMA Table 12-11
Motor with Class B Insulation
Coated with Permatector, Concrete Gray-RAL 7023, Fan and Attached Accessories
Discharge Position - TH
UL/cUL-705 - Power Ventilators
Bearings - L(10) Life of 80k Hours
Inlet Connection - Slip Fit
Outlet Connection - Slip Fit
Weatherhood - Steel
Unit Warranty: 1 Yr (Standard)

Model: USF-324-10-BI-100

Centrifugal Utility Fan - Backward Inclined Wheel

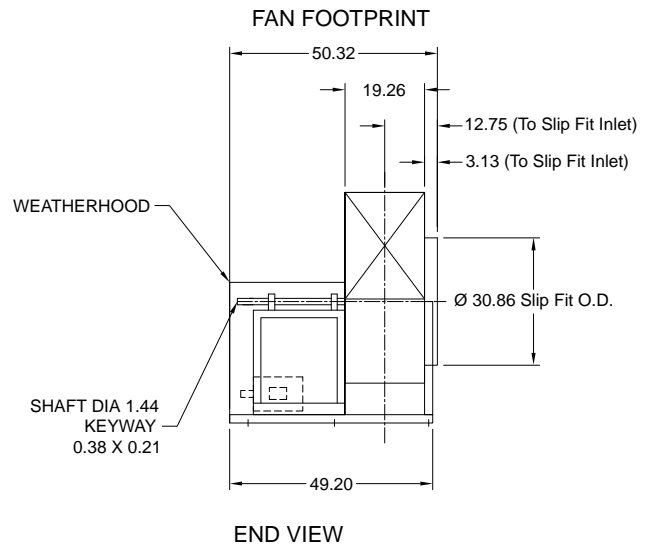


SIDE VIEW

*SIDE VIEW IS VIEWED FROM DRIVE SIDE

*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE

*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



Notes: All dimensions shown are in units of in.

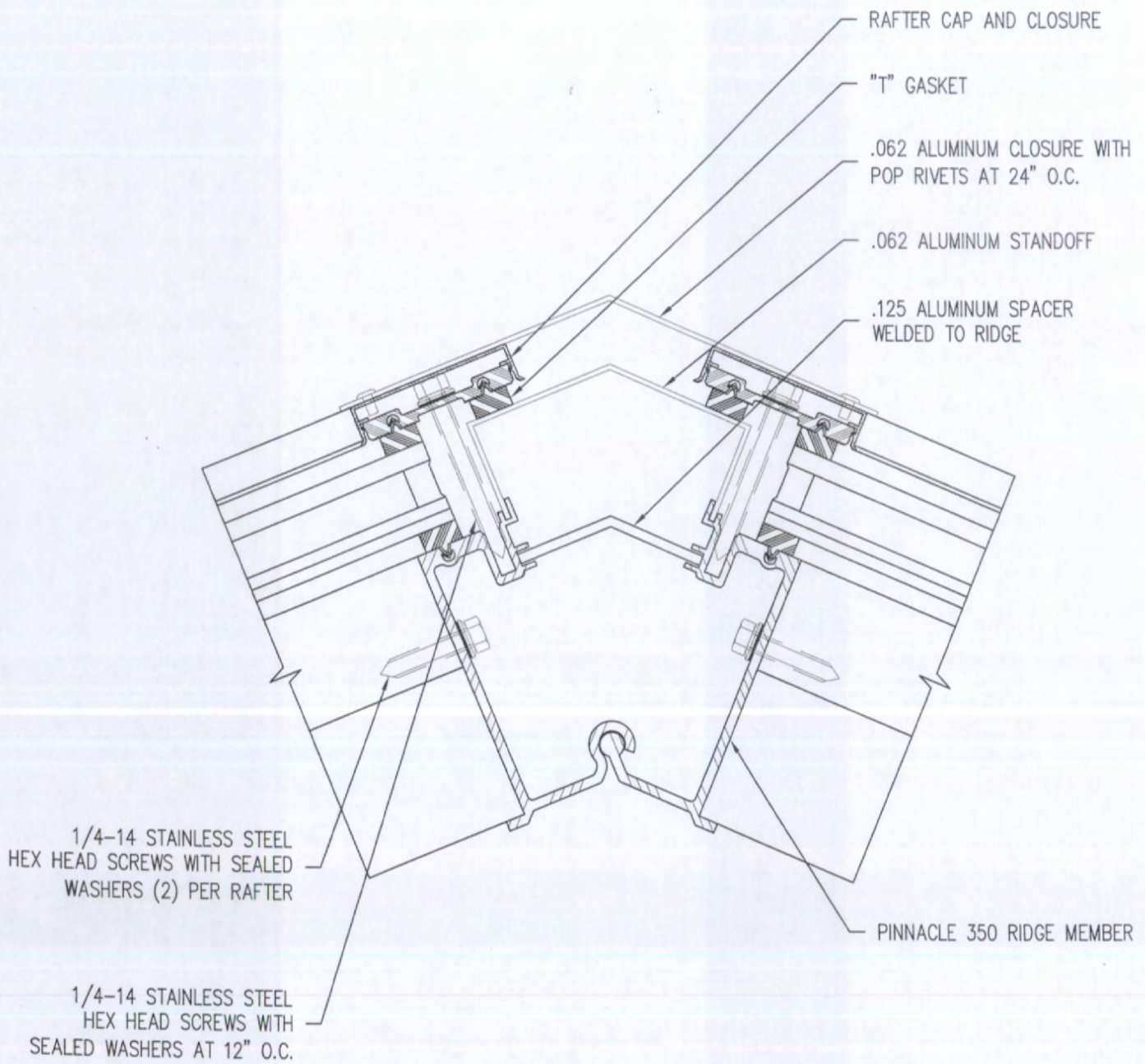
AMCA



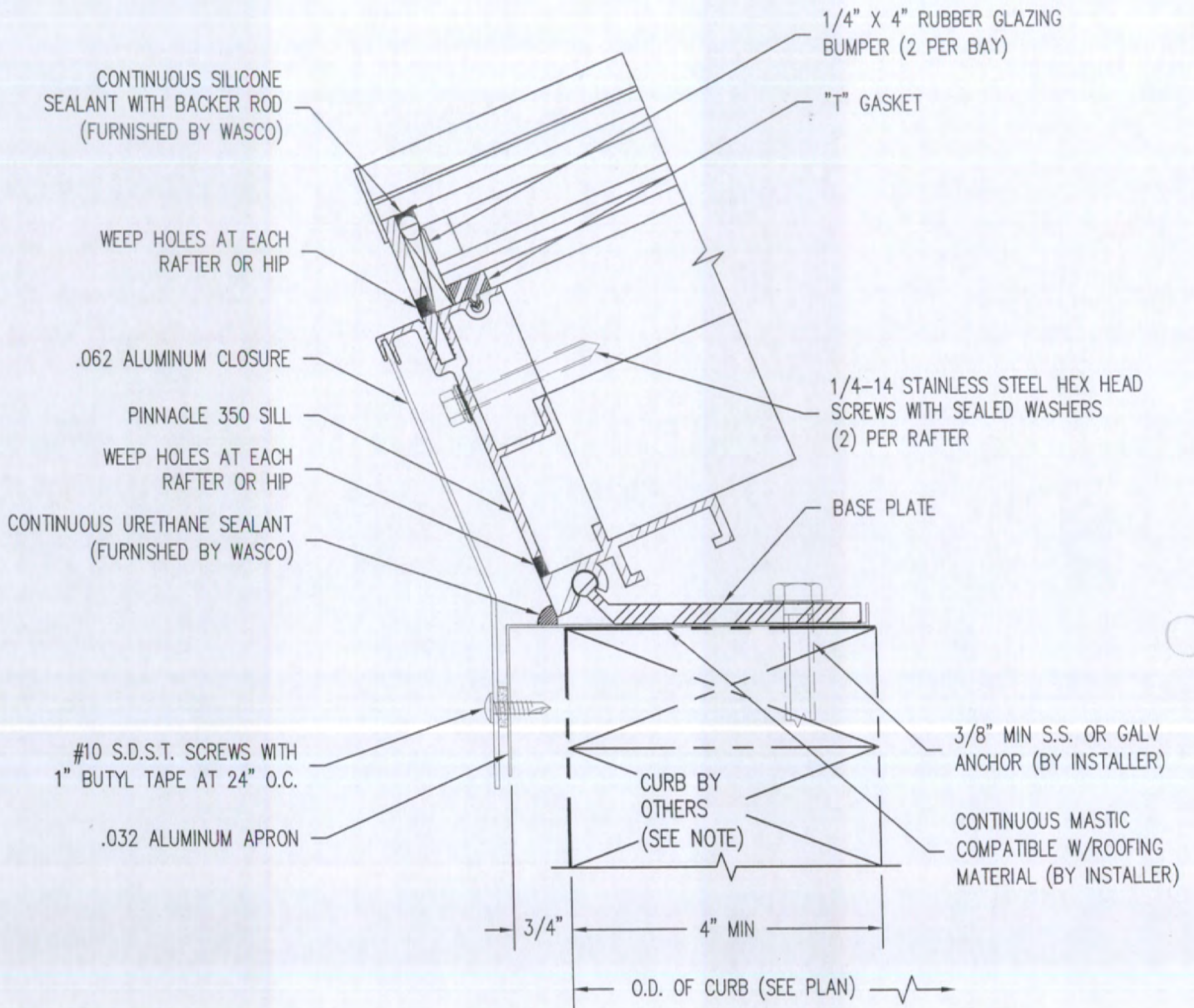
AMCA Licensed for Sound and Air Performance Without Appurtenances (Accessories). Power rating (BHP/kW) includes transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power ratings (BHP/kW) include transmission losses. The sound power level ratings shown are in decibels, referred to 10-12 watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet Lwi, LwiA, and outlet Lwo, LwoA sound power levels for installation type B: Free inlet, Ducted outlet. Outlet ratings include the effects of duct end correction.

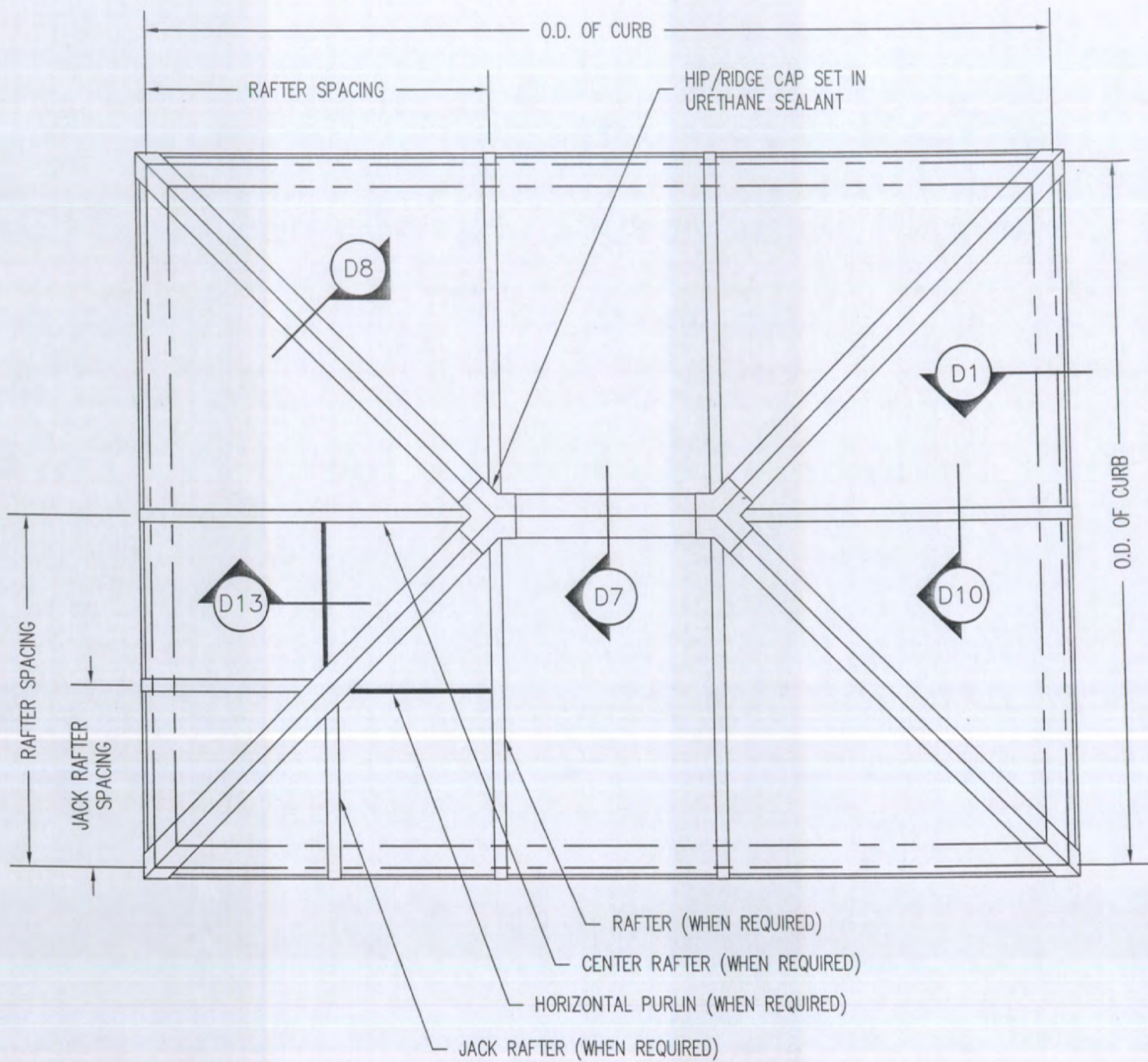
The AMCA licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.



<p>Since 1935</p>  <p>Wasco SKYLIGHTS</p>	<p>Wasco Products, Inc. 22 Pioneer Avenue, P.O. Box 351 Sanford, ME 04073 Fax: 207-490-5270 sales@wascoproducts.com 800-388-0293 www.wascoproducts.com</p>	<p>Pinnacle 350 Ridge Detail</p>	<p>D7</p>
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 <p>Since 1935 Wasco SKYLIGHTS</p>	<p>Wasco Products, Inc. 22 Pioneer Avenue, P.O. Box 351 Sanford, ME 04073 Fax: 207-490-5270 sales@wascoproducts.com 800-388-0293 www.wascoproducts.com</p>	<p>Pinnacle 350 Sill Detail</p>	<p>D1</p>
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GENERAL NOTES:

- 1) RAFTER LOCATION BASED ON WASCO'S RECOMMENDATIONS AND AAMA GLAZING GUIDELINES (BASED ON SIZE OF UNIT, TYPE OF GLAZING, CUSTOMER'S REQUEST, ETC.)
- 2) UNIT PITCHES ARE AVAILABLE FROM 3:12 TO 12:12



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**Pinnacle 350 or 600
 (PYH) Extended
 Pyramid Plan View**

PLN2

#43/45 COMMONWEALTH AVE: NO VISIBILITY



COMMONWEALTH & CLARENDON CORNER



#43 COMMONWEALTH BACK ALLEY (FAR SIDE) - NO HVAC VISIBLE



#43 COMM BACK ALLEY - NO HVAC VISIBLE



#51 COMM AVE. BACK ALLEY



CLARENDON & ALLEY CORNER



MARLBOROUGH & BERKELEY (FAR) CORNER



#21 COMM AVE. BACK ALLEY



#17 COMMONWEALTH BACK ALLEY: POINT OF VISIBILITY



COMMONWEALTH & BERKELEY ST



#17 COMMONWEALTH: POINT OF VISIBILITY





#9 COMMONWEALTH AVE (MALL SIDE)

COMMONWEALTH & BERKELEY (FAR) CORNER



BERKELEY & BOYLSTON STREET

