

## Horizontal Exposed and Concealed Fan Coil Unit (Model FH)

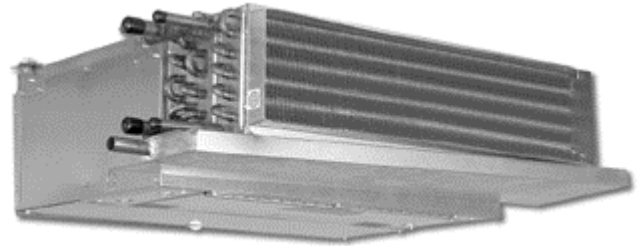


Figure 1: Model FHP Horizontal Concealed

*Model FH Horizontal Exposed and Concealed fan coil units are designed to maximize flexibility of selection and installation.*

*The units are designed to exceed the stringent quality standards of the institutional market, while remaining cost competitive in the light commercial segment of the market.*



Figure 2: Model FHF Horizontal Free Return

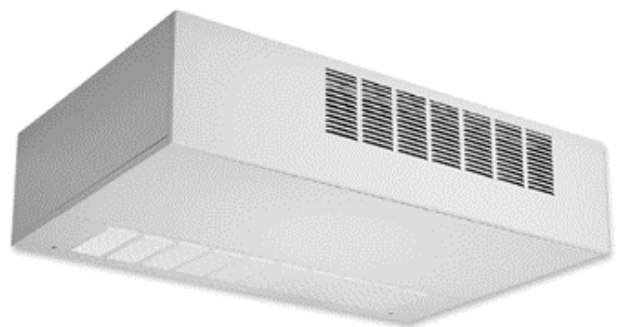


Figure 3: Model FHX Horizontal Exposed

## Physical Data

Table 1: ARI Standard Ratings

Model	Unit Size	Coil		Airflow CFM (Dry Flow)	Cooling Capacity		Water		Power Input (Watts)
		Rows	FPI		QT (BTUH)	QS (BTUH)	Flow Rate GPM	WPD ft. wg	
FHF	20	3	10	330	7800	6100	1.8	1.6	81
	25	3	10	450	11500	8500	2.6	3.4	138
	30	3	10	640	13900	11000	3.2	7.6	152
	40	3	10	800	18500	14300	4.2	3.7	263
	50	3	10	1140	24000	19300	5.4	7.4	402
	60	3	10	1590	34000	26500	7.6	14.6	489
	20	4	10	320	8500	6000	1.8	3.1	77
	25	4	10	430	11600	8600	2.6	6.6	135
	30	4	10	610	16900	12600	3.9	10.9	151
	40	4	10	780	21900	16400	4.9	7.2	261
	50	4	10	1040	28500	22500	6.4	12.9	380
	60	4	10	1510	41400	31300	9.2	27.1	466
FHP	20	3	10	270	6900	5300	1.6	1.2	81
	25	3	10	420	10900	8100	2.5	3.1	132
	30	3	10	540	12600	9800	2.8	6.1	152
	40	3	10	770	18100	13900	4.1	3.5	263
	50	3	10	1010	22300	18200	5.0	7.1	372
	60	3	10	1460	32300	25600	7.2	13.3	489
	20	4	10	260	7400	5200	1.6	2.5	77
	25	4	10	410	10900	8100	2.5	6.0	130
	30	4	10	520	15600	11500	3.5	10.0	151
	40	4	10	740	21300	15900	4.8	6.9	261
	50	4	10	970	27200	21400	6.1	11.9	361
	60	4	10	1370	38600	29700	8.6	23.8	466
FHX	20	3	10	240	6300	4800	1.5	1.1	75
	25	3	10	310	8900	6500	2.0	2.2	127
	30	3	10	450	11100	8600	2.5	4.9	135
	40	3	10	650	16300	12400	3.7	2.9	245
	50	3	10	820	19500	15700	4.4	5.6	337
	60	3	10	1130	27500	21500	6.1	10.0	402
	20	4	10	240	6300	4700	1.5	2.1	65
	25	4	10	300	8700	6300	2.0	4.0	125
	30	4	10	440	13600	10000	3.1	7.9	130
	40	4	10	630	18900	14000	4.2	5.5	235
	50	4	10	780	23400	18300	5.3	9.1	321
	60	4	10	1040	31900	24200	7.1	16.8	383

**Note:** Based on 80°F Dry Bulb (DB) and 67°F Wet Bulb (WB) Entering Air Temperature (EAT), 45°F Entering Water Temperature (EWT), 10°F temperature rise, high fan speed. Motor type is Permanent Split Capacitor (PSC) and motor voltage is 115/1/60. Airflow under dry coil conditions. Model FH tested at 0.0" External Static Pressure (ESP). Models FHF and FHP tested at 0.05" ESP.

**Table 2: Heating Capacity**

Model	Unit Size	Nominal CFM	1 Row			2 Row			3 Row			4 Row		
			QS (MBH)	GPM	WPD	QS (MBH)	GPM	WPD	QS (MBH)	GPM	WPD	QS (MBH)	GPM	WPD
FHP FHF	20	250	8.6	0.4	0.2	15.7	0.8	0.9	19.7	1.0	0.3	22.9	1.2	0.5
	25	400	15.0	0.6	0.6	21.0	1.1	3.1	30.0	1.5	1.1	28.3	1.4	1.8
	30	500	16.1	0.8	0.6	29.2	1.5	3.2	38.3	2.0	1.2	43.4	2.2	0.7
	40	750	23.6	1.2	1.5	40.5	2.1	1.6	55.2	2.8	1.1	64.9	3.3	1.8
	50	1000	28.7	1.5	0.7	53.7	2.7	2.9	73.7	3.8	2.0	86.5	4.4	3.4
	60	1400	36.1	1.9	1.1	66.9	3.4	4.7	92.4	4.7	3.4	108.3	5.5	5.6
FHX	20	250	7.9	0.4	0.3	14.0	0.8	1.5	19.2	1.0	0.5	17.4	0.9	0.8
	25	350	10.8	0.6	0.5	19.3	1.0	2.6	27.2	1.4	0.9	25.4	1.3	1.5
	30	450	13.5	0.7	0.9	24.0	1.3	4.8	30.7	1.6	1.7	34.4	1.8	1.0
	40	650	20.4	1.1	2.0	34.0	1.8	1.7	46.0	2.4	1.2	49.6	2.6	1.9
	50	850	22.5	1.2	0.7	40.7	2.1	3.1	53.0	2.8	2.1	59.4	3.0	3.3
	60	1200	30.9	1.6	1.2	55.4	2.9	5.5	72.6	3.8	3.9	80.0	4.1	6.0

**Note:** Based on 70°F DB EAT, 180°F EWT, 40°F temperature drop, high fan speed.

**Table 3: Unit Weight Data**

Component		Unit Size					
		20	25	30	40	50	60
FHF Base Unit		40 (18)	51 (23)	59 (27)	69 (31)	91 (41)	111 (50)
FHP Base Unit		45 (20)	56 (25)	65 (30)	80 (36)	103 (47)	123 (56)
FHX Base Unit		119 (54)	138 (63)	155 (70)	181 (82)	220 (100)	257 (117)
Coil Rows	1 Row - Dry	8 (4)	10 (5)	11 (5)	13 (6)	15 (7)	18 (8)
	1 Row - Wet	10 (5)	12 (5)	13 (6)	15 (7)	18 (8)	21 (10)
	2 Row - Dry	11 (5)	13 (6)	15 (7)	18 (8)	22 (10)	26 (12)
	2 Row - Wet	14 (6)	16 (7)	18 (8)	22 (10)	27 (12)	32 (15)
	3 Row - Dry	14 (6)	17 (8)	19 (9)	24 (11)	29 (13)	34 (15)
	3 Row - Wet	17 (8)	21 (10)	24 (11)	30 (14)	36 (16)	42 (19)
	4 Row - Dry	17 (8)	20 (9)	23 (10)	29 (13)	36 (16)	42 (19)
	4 Row - Wet	21 (10)	25 (11)	29 (13)	36 (16)	45 (20)	53 (24)

**Note:** Unit weight data is in pounds (kilograms).

## Fan Performance Curves

Fan curves on the following pages depict actual performance of each motor tap without any additional fan balance adjustment. Actual capacities that fall below each curve can be obtained by adding an adjustment device. Do not run units prior to installation of downstream ductwork; otherwise, damage to the motor may result.

FH fan coil units are equipped with PSC motors with three separate windings (High, Medium, and Low) that provide variable horsepower outputs. Most often, size selections are conservative and actual CFM requirements and/or external static pressure requirements are lower than those specified. In this case, the unit fan motor can run at low or medium tap, substantially reducing the operating cost of the unit.

All fan curves are for 115/1/60 motors and include pressure losses for cabinets, electric heaters, and 3- or 4-row coils. Plenum units include a clean 1" throwaway filter. For other coil configurations, adjust performance curves based on pressure losses for the coils.

For additional high static pressure applications and rating points, contact your local representative.

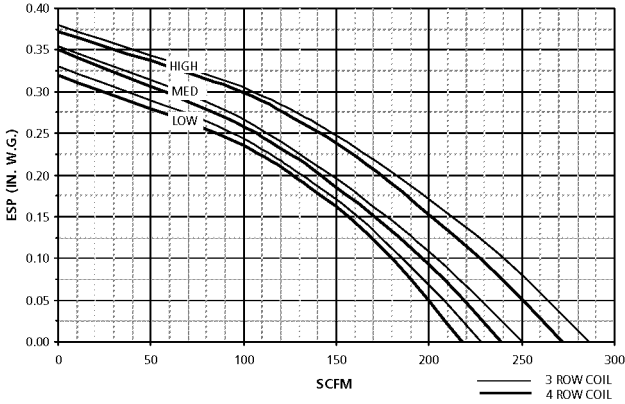


Figure 4: Model FHP (Plenum) Size 20

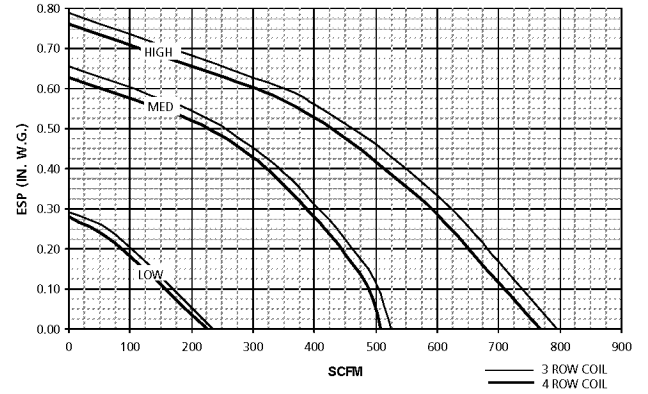


Figure 7: Model FHP (Plenum) Size 40

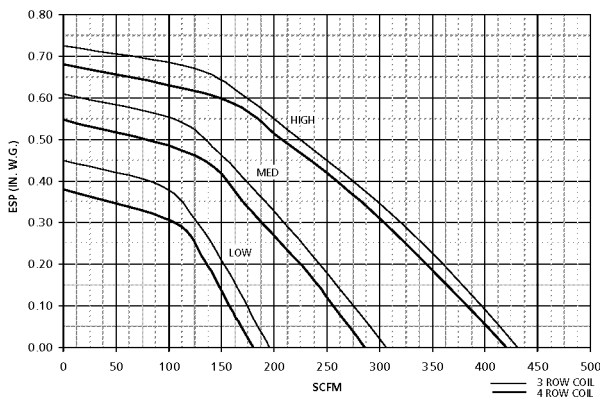


Figure 5: Model FHP (Plenum) Size 25

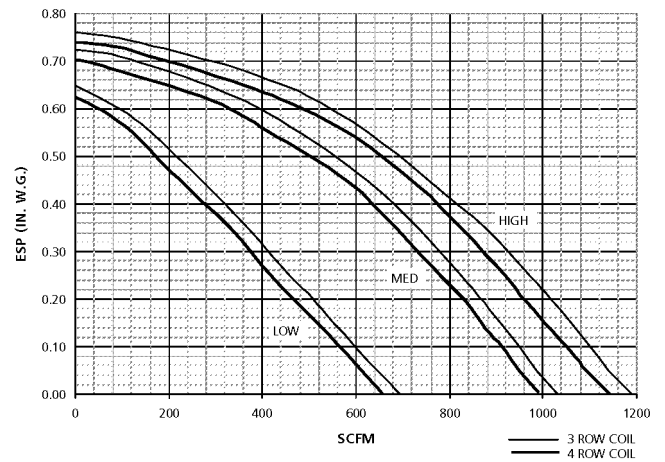


Figure 8: Model FHP (Plenum) Size 50

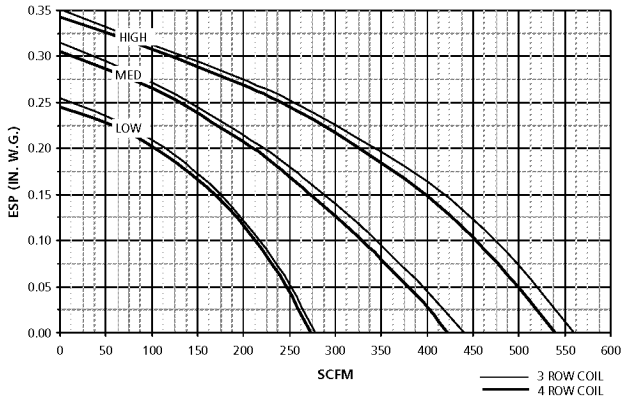


Figure 6: Model FHP (Plenum) Size 30

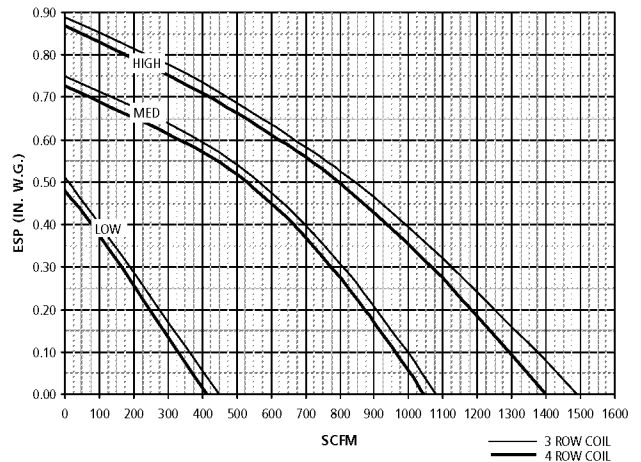


Figure 9: Model FHP (Plenum) Size 60

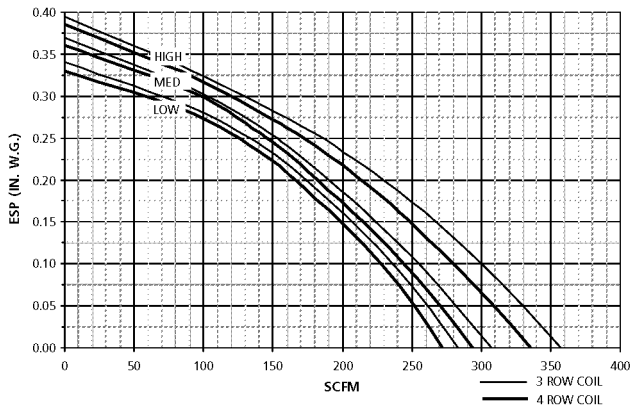


Figure 10: Model FHF (Free Return) Size 20

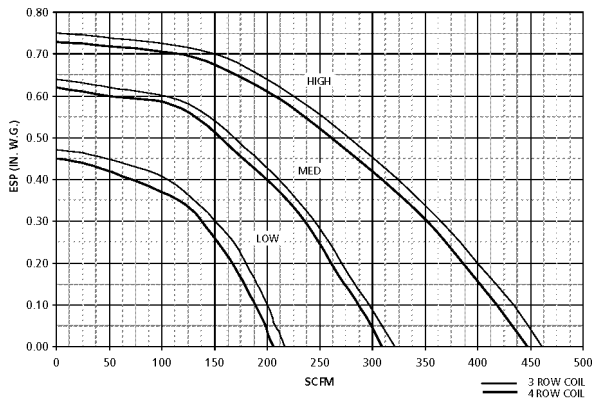


Figure 11: Model FHF (Free Return) Size 25

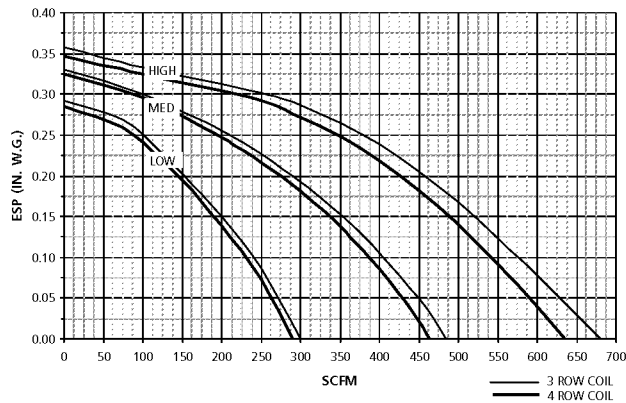


Figure 12: Model FHF (Free Return) Size 30

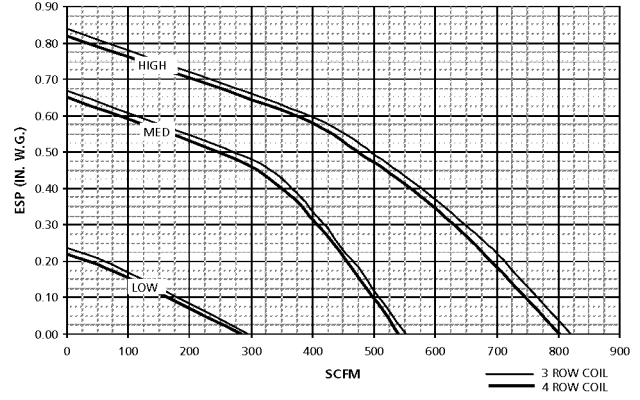


Figure 13: Model FHF (Free Return) Size 40

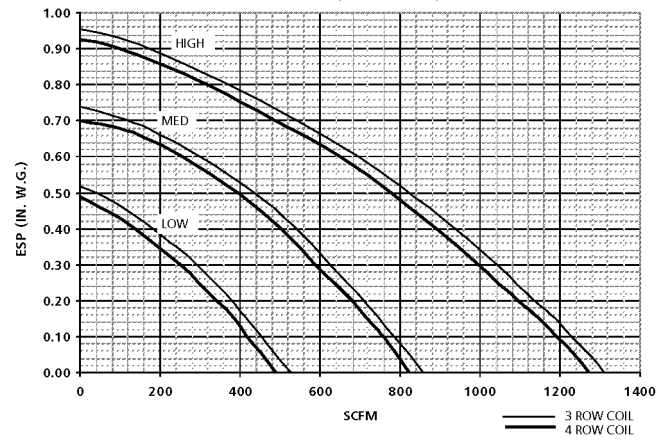


Figure 14: Model FHF (Free Return) Size 50

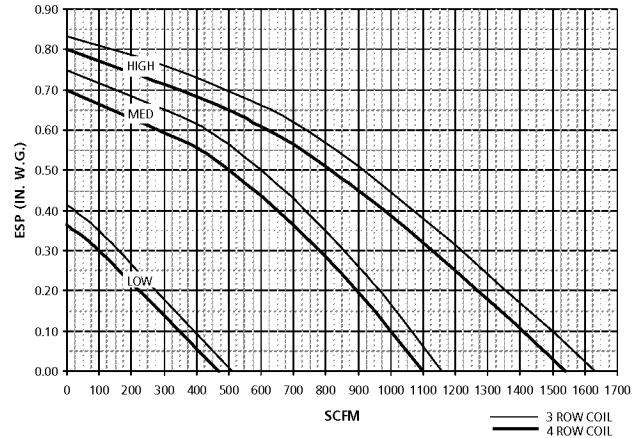


Figure 15: Model FHF (Free Return) Size 60

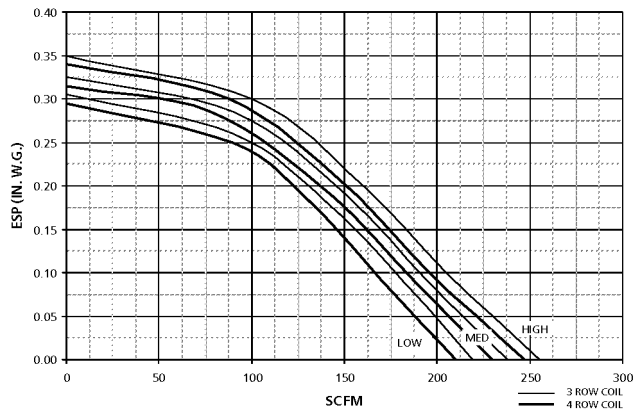


Figure 16: Model FHX (Exposed Cabinet) Size 20

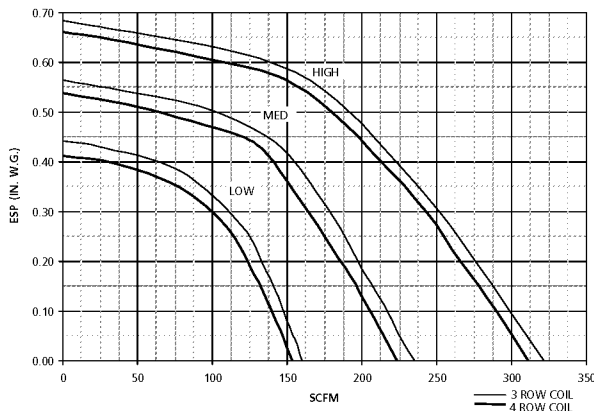


Figure 17: Model FHX (Exposed Cabinet) Size 25

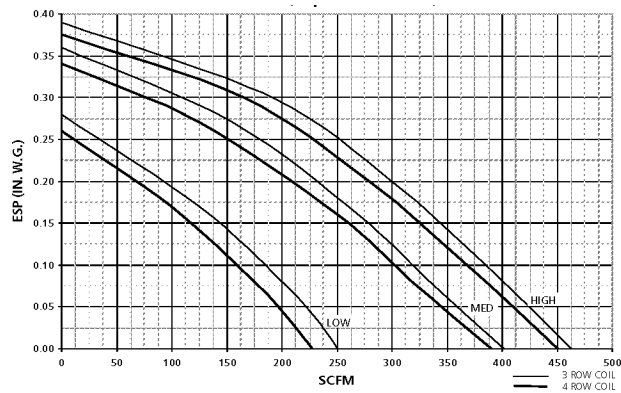


Figure 18: Model FHX (Exposed Cabinet) Size 30

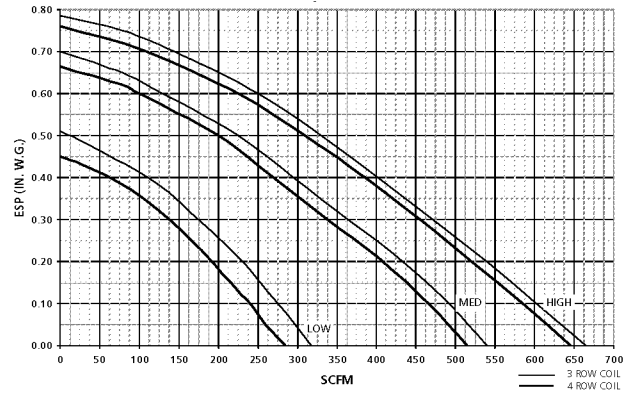


Figure 19: Model FHX (Exposed Cabinet) Size 40

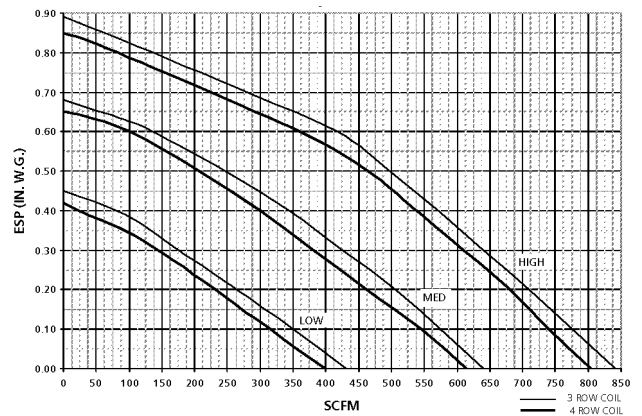


Figure 20: Model FHX (Exposed Cabinet) Size 50

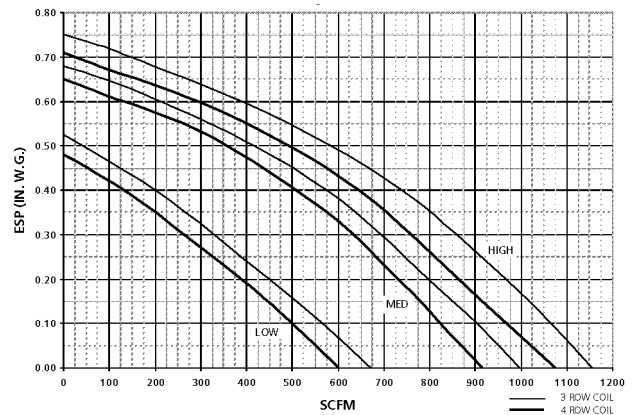


Figure 21: Model FHX (Exposed Cabinet) Size 60

## Motor, Fan, and Sound Data

**Table 4: Motor and Fan Data (All Models)**

Unit Size	Fan Speed	Motor hp (Qty.)	# Of Fans	115 Volts		208/230 Volts		277 Volts	
				Amperes	Watts	Amperes	Watts	Amperes	Watts
20	High	(1) 1/30	1	0.5	57	0.4	77	0.3	71
	Medium	(1) 1/50		0.4	39	0.2	49	0.2	48
	Low	(1) 1/60		0.3	33	0.2	43	0.2	41
25	High	(1) 1/15	1	1.0	125	0.5	120	0.5	120
	Medium	(1) 1/30		0.7	90	0.3	80	0.3	80
	Low	(1) 1/60		0.5	60	0.2	60	0.2	60
30	High	(1) 1/10	2	1.7	165	0.8	158	0.6	162
	Medium	(1) 1/30		0.8	76	0.4	75	0.3	65
	Low	(1) 1/60		0.5	47	0.3	54	0.2	41
40	High	(1) 1/6	2	2.5	261	1.4	284	1.0	254
	Medium	(1) 1/12		1.6	162	0.8	171	0.6	152
	Low	(1) 1/40		0.8	75	0.4	79	0.3	74
50	High	(1) 1/8	3	1.6	215	0.9	216	0.7	214
		(1) 1/6		2.1	257	0.9	233	0.9	255
	Medium	(1) 1/15		1.3	145	0.5	109	0.5	132
		(1) 1/12		1.3	156	0.5	106	0.6	151
	Low	(1) 1/40		0.7	69	0.3	63	0.3	86
		(1) 1/40		0.6	75	0.3	62	0.3	84
60	High	(2) 1/6	4	5.0	522	2.8	568	2.0	508
	Medium	(2) 1/12		3.2	324	1.6	342	1.2	304
	Low	(2) 1/40		1.6	150	0.8	158	0.6	148

**Notes:** Motor electrical data is nameplate data. Actual data varies with application.

230 volt motor is nameplated for 208/230/1/60. Use 230 volt motor data for 208 volt applications.

Unit size 30, 208/230, and 277 volt motors are 1/12 hp at high tap.



**Table 5: Sound Data (All Models)**

Unit Size	Fan Speed	SCFM	Total Sound Power Level						
			Octave Band/Center Frequency (Hz)						
			2/125	3/250	4/500	5/1000	6/2000	7/4000	8/8000
20	High	282	55	59	53	50	46	38	36
	Medium	216	50	52	47	44	38	31	32
	Low	175	47	48	43	39	32	27	31
25	High	420	58	62	57	54	51	44	39
	Medium	286	53	53	49	45	41	34	29
	Low	180	48	42	38	36	33	27	27
30	High	522	60	60	57	56	50	44	40
	Medium	458	57	55	54	52	46	40	36
	Low	269	48	44	43	39	32	27	31
40	High	810	65	68	64	60	55	51	47
	Medium	565	59	59	57	51	46	40	35
	Low	300	51	46	41	36	28	27	30
50	High	1050	61	66	68	62	56	52	49
	Medium	840	56	61	63	55	49	44	40
	Low	490	48	53	59	46	39	33	32
60	High	1400	67	72	70	68	59	54	51
	Medium	1050	61	65	67	57	52	47	42
	Low	500	50	56	48	40	33	28	31

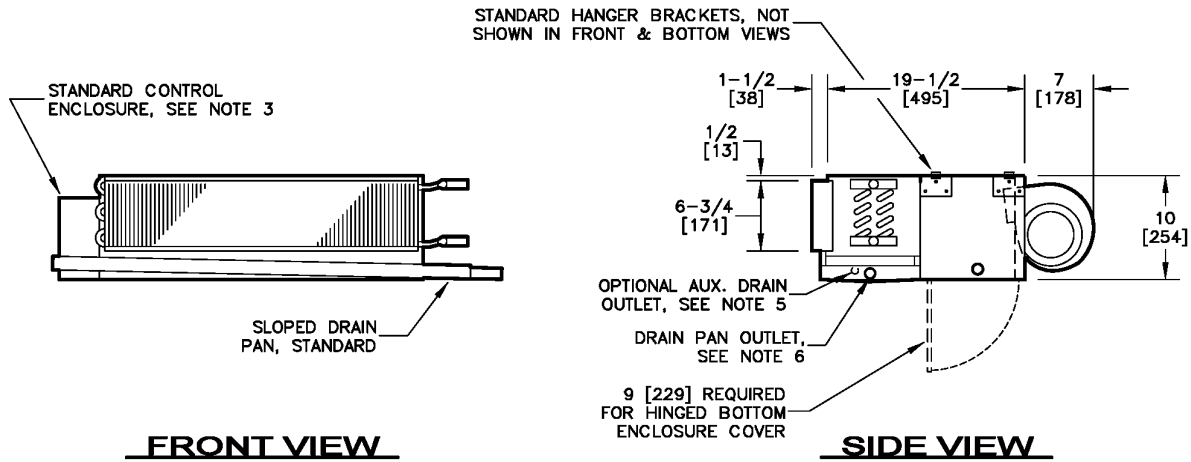
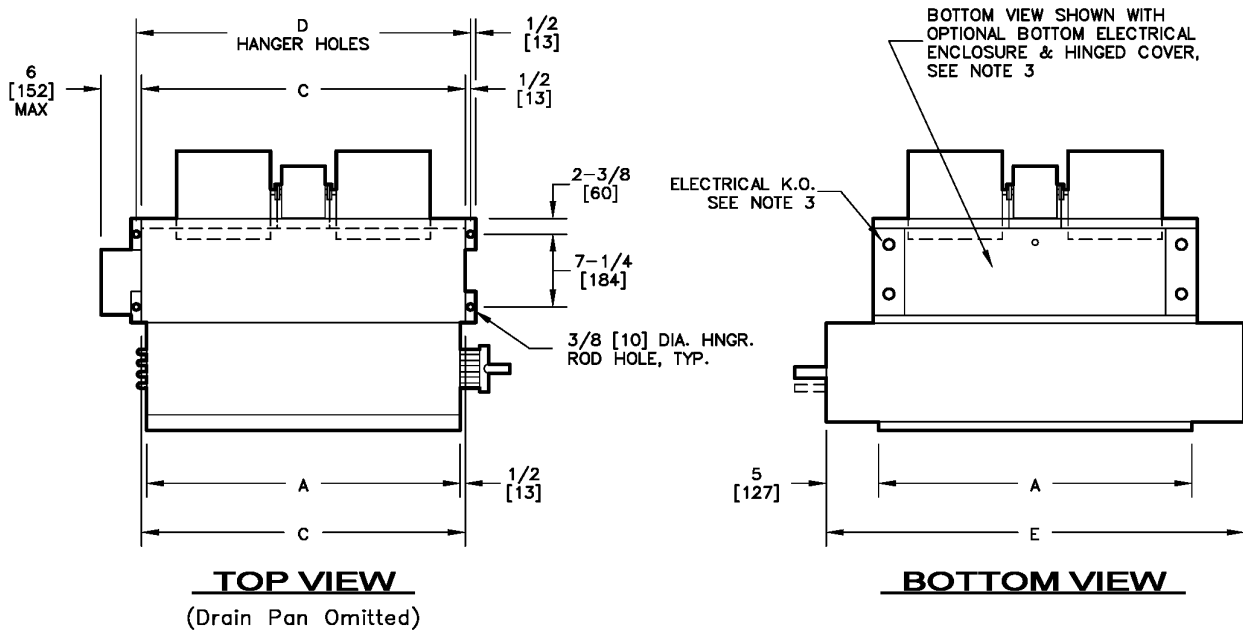
**Notes:** Sound data tested in accordance with ARI 350-86.

Sound levels are expressed in decibels, dB RE:  $1 \times 10^{-12}$  watts.

Total sound power level data is based on Model FHP with fan CFM at corresponding motor tap with 115/1/60 volt motor, 3- or 4-row coil, 1" throwaway filter, 0.0" external static pressure, and standard rated internal pressure losses.

## Dimensional Data

Drawings are not to scale and are not for installation purposes.



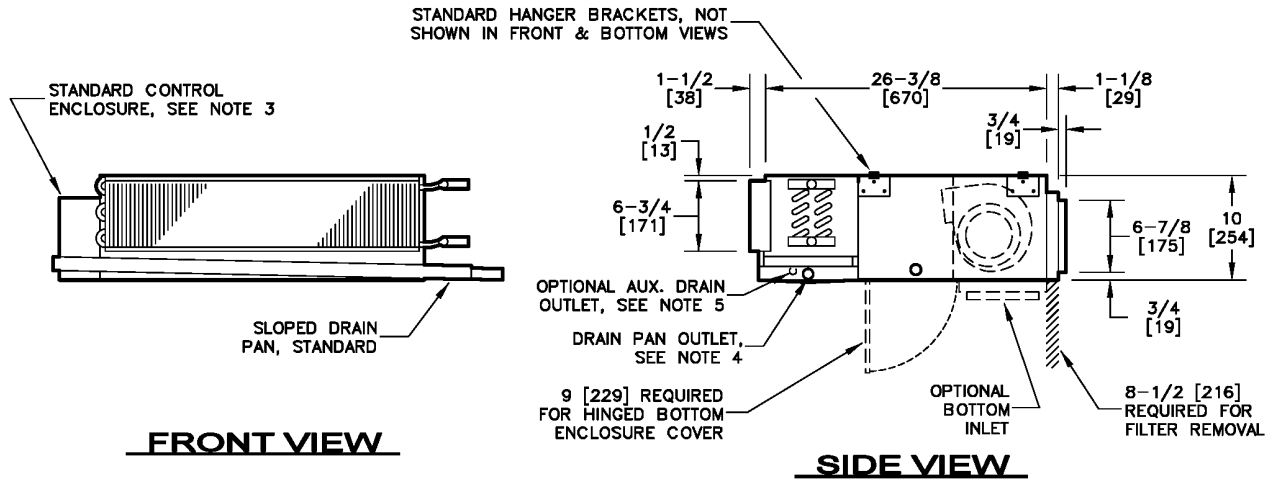
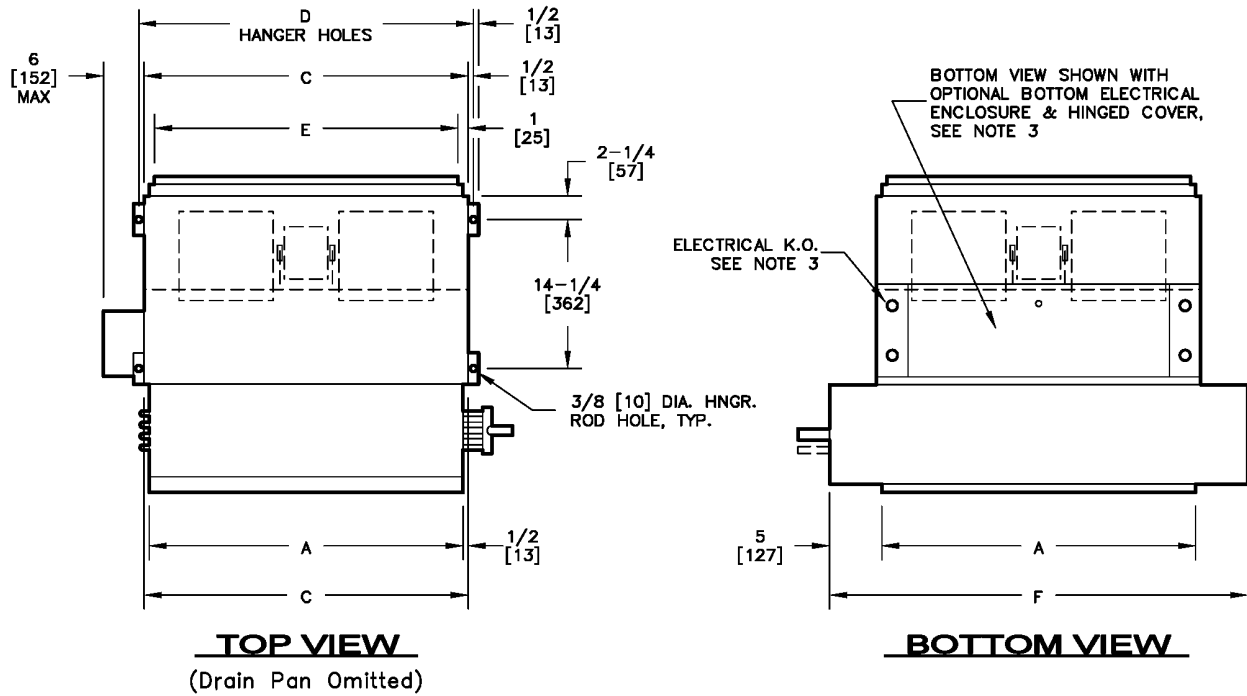
### DIMENSIONS - In [mm]

UNIT SIZE	A	C	D	E
20	20 [508]	21 [533]	22 [559]	30 [762]
25	26 [660]	27 [686]	28 [711]	36 [914]
30	30 [762]	31 [787]	32 [813]	40 [1016]
40	40 [1016]	41 [1041]	42 [1067]	50 [1270]
50	50 [1270]	51 [1295]	52 [1321]	60 [1524]
60	60 [1524]	61 [1549]	62 [1575]	70 [1778]

#### NOTES:

- All dimensions in inches [millimeters]. All dimensions  $\pm 1/4"$  [6mm]. Metric values are soft conversion.
- Left hand unit shown, right hand unit opposite.
- Standard control enclosure location is opposite side from cooling coil connections. Optional bottom control enclosure with hinged cover and electrical K.O.'s replaces standard side mounted control enclosure. K.O.'s are qty (2) on unit sizes 20, & 25, and qty (4) on units size 30 & up. 36" service clearance below unit required by NEC.
- Standard internally foam coated galvanized steel drain pan has 7/8" ODM copper outlet. 304 stainless steel drain pan has 3/4" MPT galvanized steel outlet.
- Aux. drain outlet is 5/8" ODM copper or 3/8" MPT galvanized steel respectively.
- See coil connection drawings for coil connection sizes and locations.

Figure 22: Model FHF – Free Return Units



**DIMENSIONS - In [mm]**

UNIT SIZE	A	C	D	E	F
20	20 [508]	21 [533]	22 [559]	19 [483]	30 [762]
25	26 [660]	27 [686]	28 [711]	25 [635]	36 [914]
30	30 [762]	31 [787]	32 [813]	29 [737]	40 [1016]
40	40 [1016]	41 [1041]	42 [1067]	39 [991]	50 [1270]
50	50 [1270]	51 [1295]	52 [1321]	49 [1245]	60 [1524]
60	60 [1524]	61 [1549]	62 [1575]	59 [1499]	70 [1778]

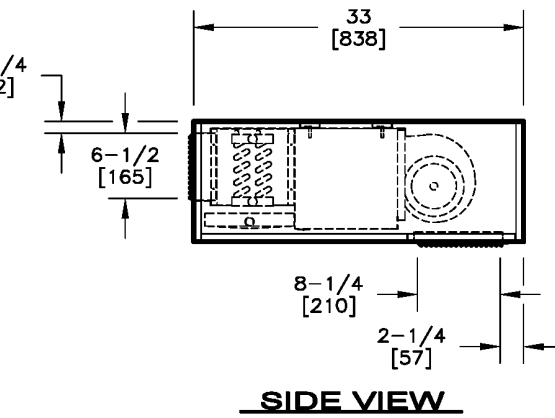
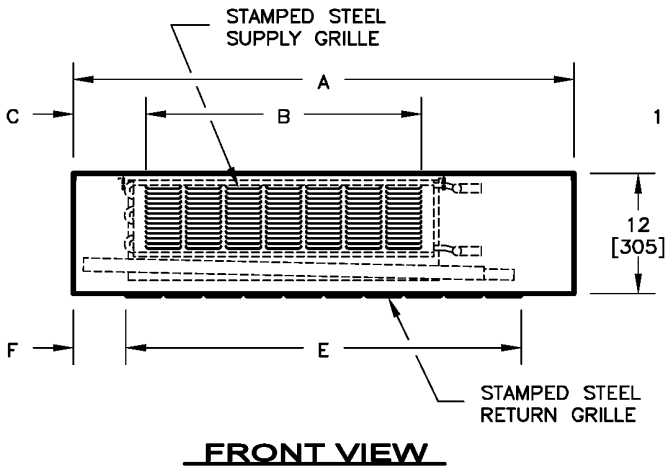
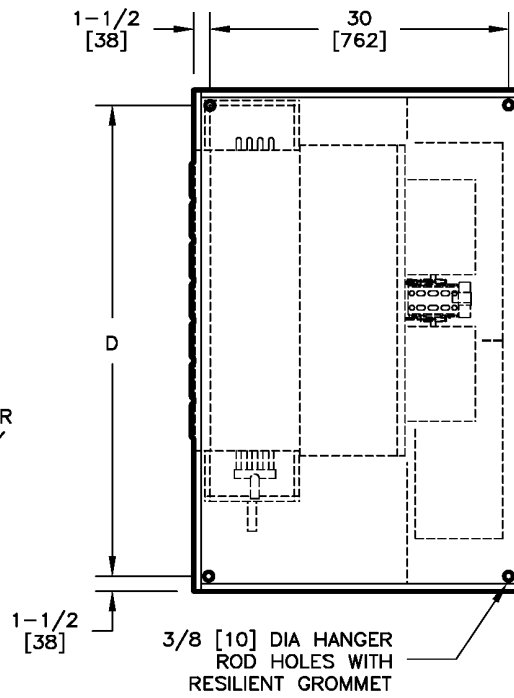
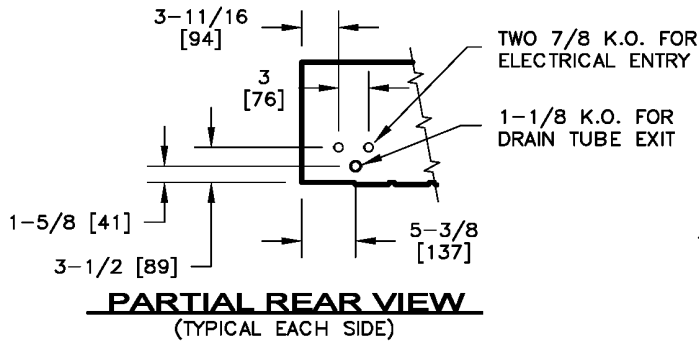
**NOTES:**

1. All dimensions are inches [millimeters]. All dimensions  $\pm 1/4"$  (6mm). Metric values are soft conversion.
2. Left hand unit shown, right hand unit opposite.
3. Standard control enclosure location is opposite side from cooling coil connections. Optional bottom control enclosure with hinged cover and electrical K.O.'s replaces standard side mounted control enclosure. K.O.'s are qty (2) on unit sizes 20 & 25, and qty (4) on unit size 30 & up. Provide sufficient clearance to access electrical controls and comply with applicable codes and ordinances.
4. Standard externally foam coated G90 galvanized steel drain pan has 7/8" ODM copper outlet. 304 stainless steel drain pan 3/4" MPT galvanized steel outlet.
5. Aux. drain outlet is 5/8" ODM copper or 3/8" MPT galvanized steel respectively.
6. See coil connection drawings for coil connection sizes and locations.

**Figure 23: Model FHP – Plenum Units**

**NOTES:**

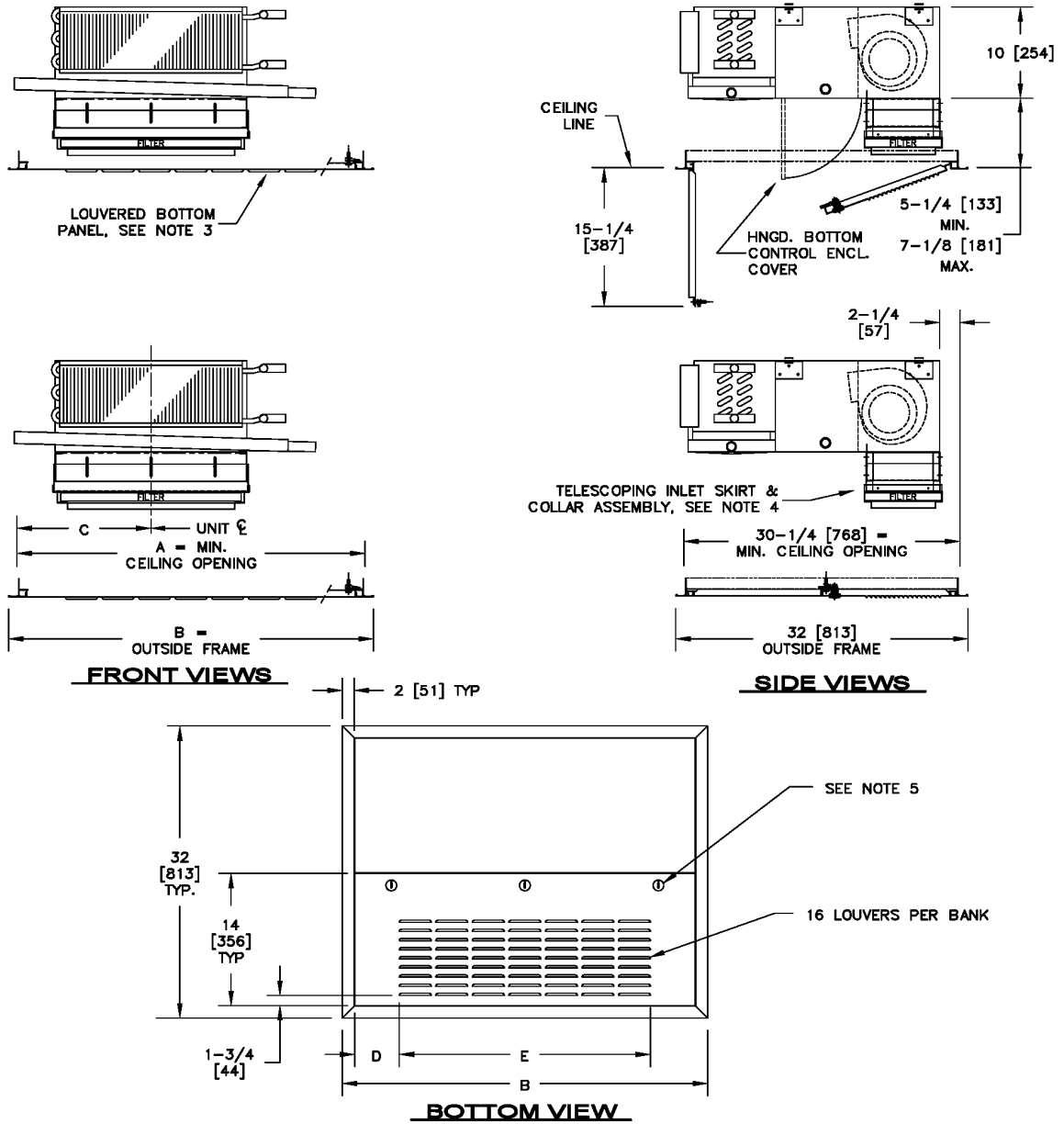
1. All dimensions are inches [millimeters]. All dimensions  $\pm 1/4"$  [6mm]. Metric values are soft conversion.
2. Left hand unit shown, right hand unit opposite.
3. Electrical enclosure size and location may vary with optional features.  
Provide sufficient clearance to access electrical controls and comply with applicable codes and ordinances.
4. Drain piping should be routed through casing opening indicated to provide proper drain slope.
5. Louvered bottom panel is hinged and removable for access to filter and fan assembly.
6. Fixed bottom panel is removable for access to optional electrical enclosure, coil, and drain pan.
7. Internal insulation of field piping may be required.
8. Field piping casing penetrations must be cut in the field to match individual job requirements.



**DIMENSIONS - In [mm]**

UNIT SIZE	A	B	C	D	E	F
20	40 [1016]	19-1/2 [495]	6-1/4 [159]	37 [940]	27-1/2 [699]	6-1/4 [159]
25	46 [1168]	23-1/2 [597]	6-1/4 [159]	43 [1092]	35-1/2 [902]	5-1/4 [133]
30	50 [1270]	27-1/2 [699]	7-1/4 [184]	47 [1194]	39-1/2 [1003]	5-1/4 [133]
40	60 [1524]	39-1/2 [1003]	6-1/4 [159]	57 [1448]	47-1/2 [1207]	6-1/4 [159]
50	70 [1778]	47-1/2 [1207]	7-1/4 [184]	67 [1702]	59-1/2 [1511]	5-1/4 [133]
60	80 [2032]	59-1/2 [1511]	6-1/4 [159]	77 [1956]	67-1/2 [1715]	6-1/4 [159]

**Figure 24: Model FHX – Exposed Cabinet Units**



**DIMENSIONS - In [mm]**

UNIT SIZE	STANDARD PANEL				
	A	B	C	D	E
20	38-1/8 [968]	40 [1016]	14-1/2 [368]	4-1/4 [108]	27-1/2 [699]
25	44-1/8 [1121]	46 [1168]	17-1/2 [445]	3-1/4 [83]	35-1/2 [902]
30	48-1/8 [1222]	50 [1270]	19-1/2 [495]	3-1/4 [83]	39-1/2 [1003]
40	58-1/8 [1476]	60 [1524]	24-1/2 [622]	4-1/4 [108]	47-1/2 [1207]
50	68-1/8 [1730]	70 [1778]	29-1/2 [749]	3-1/4 [83]	59-1/2 [1511]
60	78-1/8 [1984]	80 [2032]	34-1/2 [876]	4-1/4 [108]	67-1/2 [1715]

**NOTES:**

1. All dimensions are inches [millimeters]. All dimensions  $\pm 1/4"$  [6mm]. Metric values are soft conversion.
2. Left hand unit shown, right hand unit opposite.
3. Portions of the inlet louver not directly below unit inlet may require covering in the field on applications where infiltration of ceiling plenum air into space is undesired.
4. Telescoping skirt and collar assembly must be field adjusted to assure a proper fit between filter frame and louvered inlet panel assembly.
5. 1/4 Turn latch, (2) qty for standard sizes, (3) qty for sizes 40-60.

**Figure 25: Telescoping Bottom Panel**



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