



MECHANICAL PERMIT APPLICATION

City of Portland, Oregon - Bureau of Development Services

1900 SW 4th Avenue, Portland, Oregon 97201 • 503-823-7363 • TTY 503-823-6868 • www.portlandoregon.gov/bds

This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.

Commercial Fee Schedule - Use Checklist

Mechanical permit fees* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar of all mechanical materials, equipment, labor, overhead and profit.

Value: \$ 13,140

Residential Equipment / Systems Fees

For special information use checklist

Description	Qty.	Fee	Total
Heating / cooling			
Air conditioner (site plan required)		\$26	
Furnace / burner including duct work / vent / liner		\$55	
Heat pump (site plan required)		\$51	
Air handling unit		\$26	
Hydronic hot water system		\$32	
Residential boiler (radiator or hydronic) includes piping		\$32	
Unit heaters (fuel type, not electric) in-wall, in-duct, suspended, etc.		\$26	
Vent for appliance other than furnace		\$22	
Alteration of existing HVAC system		\$32	
Other fuel appliances			
Decorative gas fireplace		\$26	
Flue vent for water heater or gas fireplace		\$22	
Wood / pellet stove		\$57	
Gas or wood fireplace / insert		\$57	
Chimney / liner / flue / vent		\$22	
Other:		\$32	
Environmental exhaust and ventilation			
Range hood / other kitchen equipment		\$14	
Clothes dryer exhaust		\$14	
Single-duct exhaust (bathrooms, toilet compartments, utility rooms)		\$14	
Attic / crawl space fans		\$14	
Other:		\$32	

Gas fuel piping

\$14 for the first four, \$2.57 for each additional. Please indicate number of fuel gas piping outlets below:

Furnace, etc.			
Gas heat pump			
Wall / suspended / unit heater			
Water heater / boiler			
Fireplace			
Range			
Barbecue			
Clothes dryer			
Other:			

Other appliances

Including oil tanks, gas and diesel generators, gas and electric kilns, gas appliances / equipment not included above		\$32	
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Mechanical permit fees

	Subtotal	
	Minimum permit fee (\$95)	
	Commercial plan review (60% of permit fee)	
	State surcharge (12% of permit fee)	
	TOTAL PERMIT FEE	

Type of work

New construction Addition/alteration/replacement

Demolition Other:

Category of construction

1 & 2 family dwelling Commercial/industrial Accessory building

Multifamily Master builder Other:

Job site information and location

Job no.: Job address: 700 SE Hawthorn St

City/State/ZIP: Portland OR 97211

Suite/bldg./apt. no.: Project name: Michael / Pawns

Cross street/directions to job site:

Subdivision: Lot no. Tax map/parcel no.

Description of work (example: upstairs bath fan/dryer exhaust)

Install two new mini-split heat pumps

Provide RS permit no.

Property owner **Tenant**

Name: E-mail:

Address:

City/State/ZIP:

Phone: FAX:

Owner installation: This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.

Owner signature: Date:

Contractor **Subcontractor**

Business name: Pyramid Heating E-mail: OSalholm & Pyramid heating .com

Address: 9407 NE Colfax

City/State/ZIP: Portland OR

Phone: 971-227-4054 FAX:

Lic. no. CCB lic. no. 59382

Authorized signature: Dave Salholm

Print name: Date:

Applicant **Contact Person**

Business name: Pyramid Heating & Cooling

Contact name:

Address:

City/State/ZIP:

Phone: FAX:

E-mail: OSalholm & Pyramid heating .com

RS Permit/No Fees Due

Residential Combo permit subcontractor submittals only can be faxed to 503-823-7693 or e-mailed to bdscombinspec@portlandoregon.gov.

Michel / Downs building
700 SE Hawthorne
Portland, Or 97214

Three office spaces.

Corner space

840 Square feet.

Remove and replace an oil furnace with a electric air handler

Remove and replace an existing 4 ton AC unit with a 4 ton HP

Carrier 25HBC348A (ODU 1)

Carrier FB4CNF048 (IDU 2)

7.7 HSPF, 13 SEER

Reconnect to existing ductwork

General office space

$V_{bz} = (R_p * P_z) + (R_a + A_z)$

$156 = 105 + 51$

$156 / .8 = 195 \text{ CFM}$

Smaller office spaces

540 Square feet each

Install two 2-zone mini split heat-pumps. One head up & one down

Leave in place a common Cooling only unit with existing outdoor air.

Daikin 4MXS32GVJU (ODU 2 and 3)

9.3 HSPF, 19.3 SEER

Outdoor air by natural means. Openable door in excess of 4% of the floor area.

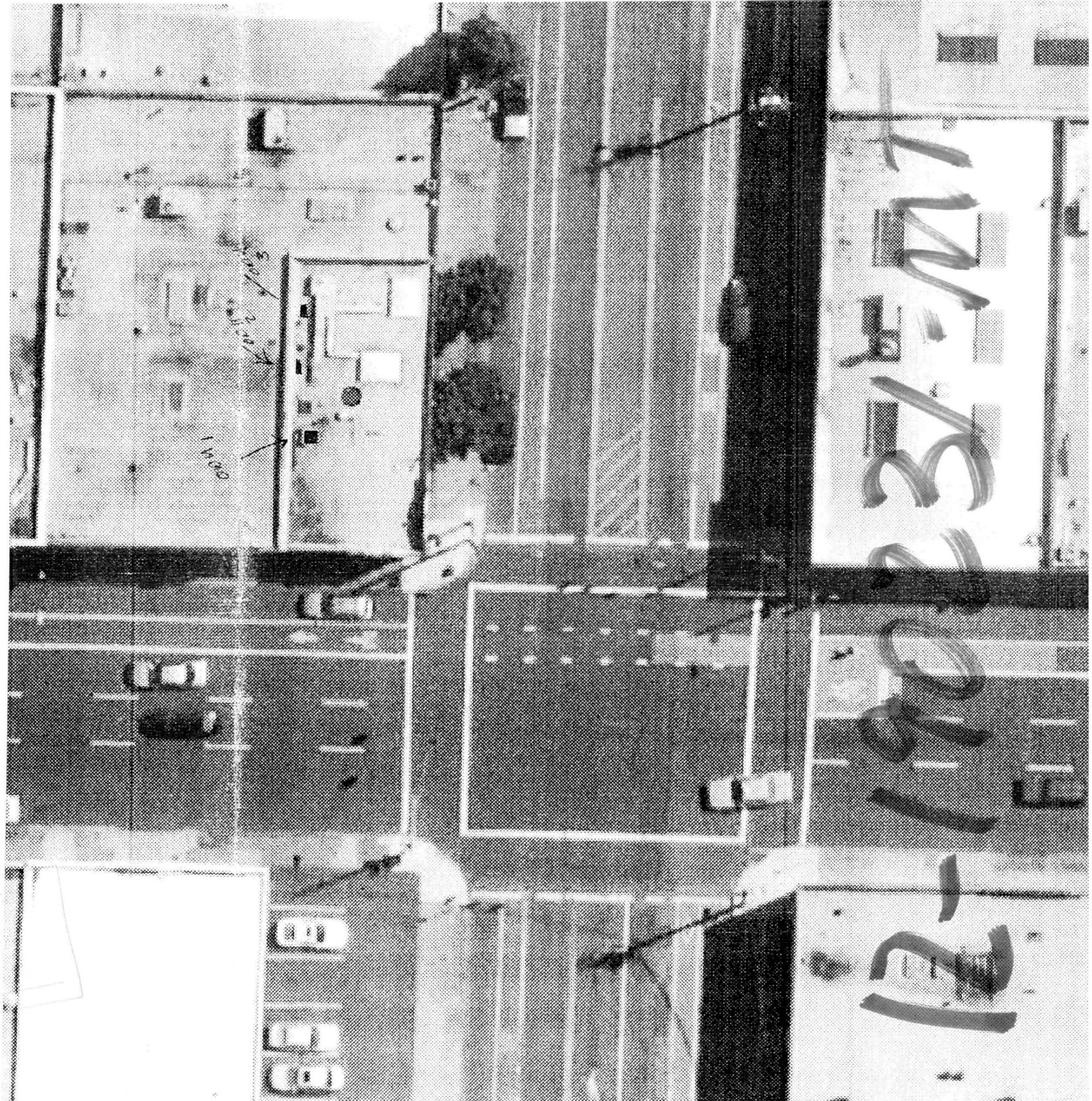
PYRAMID
HEATING & COOLING



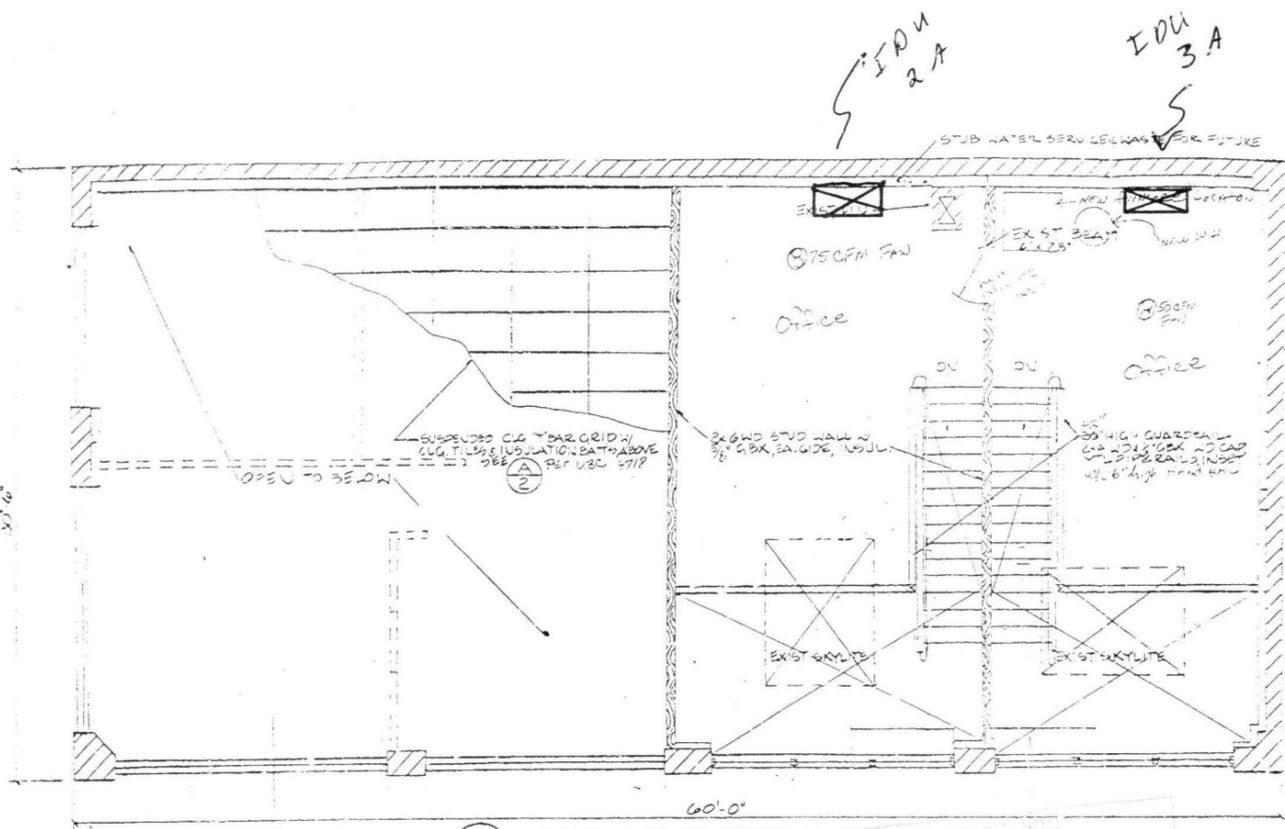
withstanding the test of time

(503) 786-9522 / 1-866-Mor-Heat

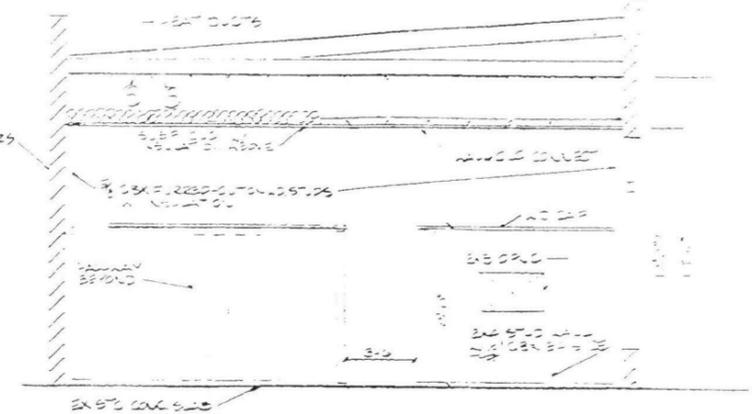
www.pyramidheating.com



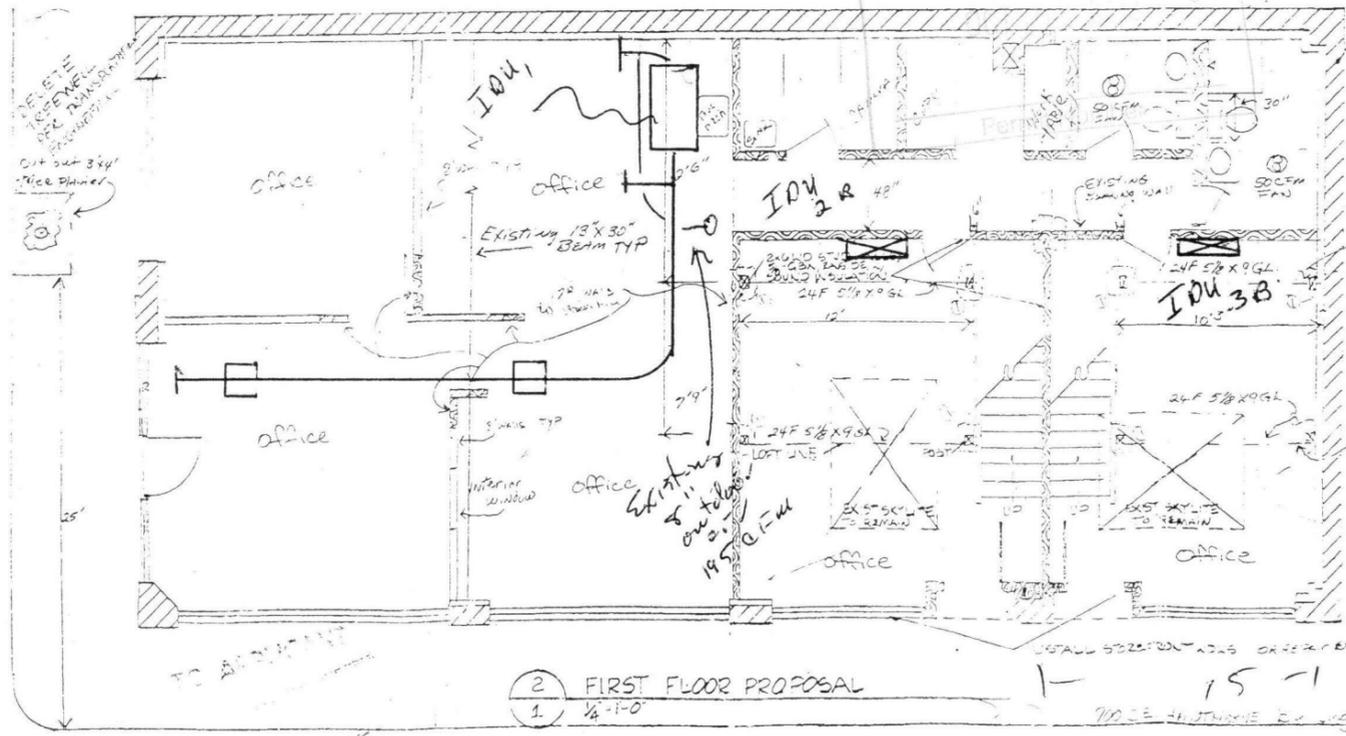
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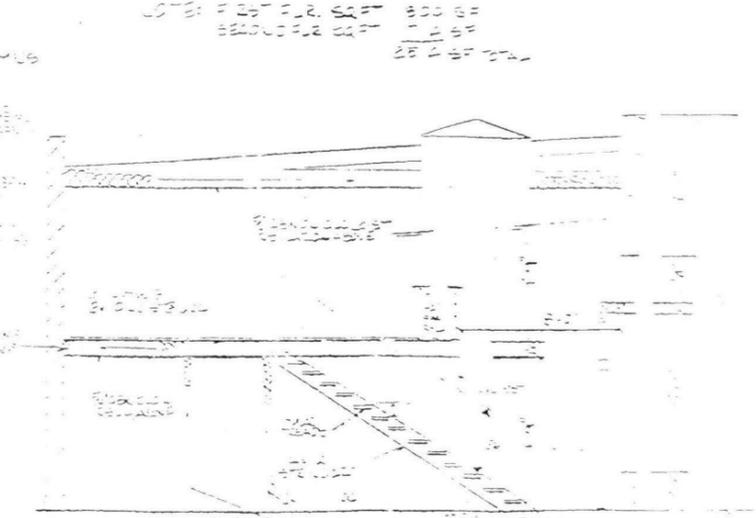
1 SECOND FLOOR PROPOSAL
1/4" = 1'-0"



A SECTION A
1/2" = 1'-0"



2 FIRST FLOOR PROPOSAL
1/4" = 1'-0"



B SECTION B
1/2" = 1'-0"

NOTE - CLOSE UP OF EXISTING DIA. AND RECONSTRUCT WITH CONC. CURB, S.W. AND INTERIOR FINISH.

SE 7TH AVE

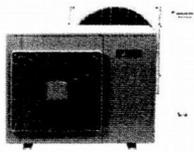
700 SE Hawthorn St
Portland, OR



withstanding the test of time
(503) 786-9522 / 1-866-Mor-Heat
www.pyramidheating.com

16049
11-14-90

1990



MXS



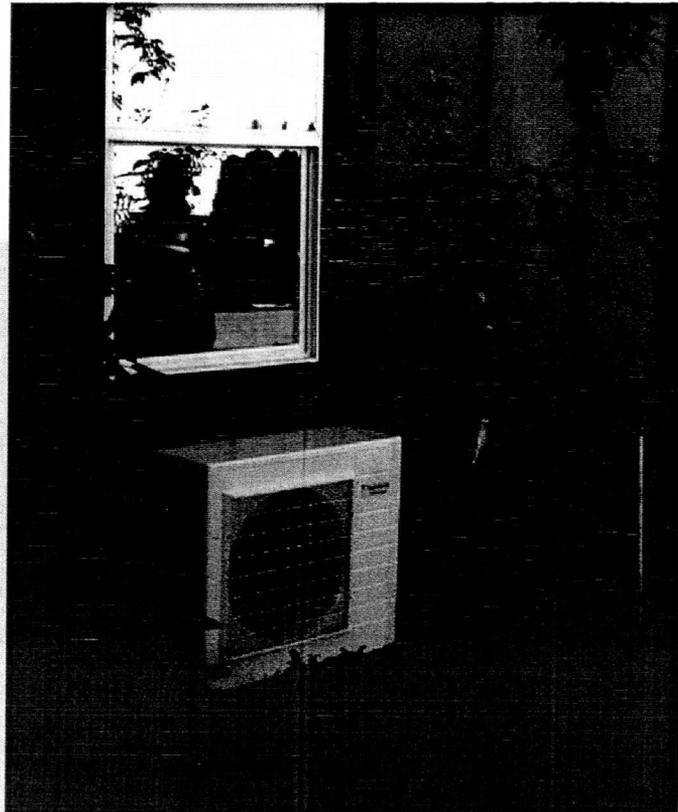
CDXS_LVJU
FDXS_LVJU



CTXS_HVJU
CTXS_LVJU
FTXS_LVJU

Key features include:

- Ability to connect up to four indoor units to a single outdoor unit.
- Energy efficient systems up to SEER 19.5 and HSPF 9.5.
- Reduced installation space.
- Individual temperature and zone control.
- Long piping lengths up to 230 ft.
- Up to 131 ft. of pre-charged refrigerant.



2MXS18GVJU and 3MXS24JVJU in non ducted combinations are Energy Star rated.

Indoor Units - CTXS_HVJU, CTXS_LVJU, and FTXS_LVJU Wall Mounted Units

Model Name		CTXS07LVJU	CTXS09HVJU	CTXS12HVJU	FTXS15LVJU	FTXS18LVJU
Airflow-Wet (H/M/L/SL)	CFM	332/261/194/145	388/335/283/-	388/335/283/-	568/477/385/360	583/484/385/360
Airflow-Dry (H/M/L/SL)	CFM	350/290/233/219	400/357/314/-	400/357/314/-	593/505/417/371	625/526/431/399
Sound Pressure - Cooling (H/M/L/SL)	dB(A)	38/32/25/22	44/40/35/-	45/41/36/-	45/40/35/32	46/41/36/33
Sound Pressure - Heating (H/M/L/SL)	dB(A)	38/33/28/25	44/39/34/-	45/40/35/-	43/38/33/30	45/40/35/32
Piping Connections	Liquid (O.D.)	in. Ø 1/4	Ø 1/4	Ø 1/4	Ø 1/4	Ø 1/4
	Gas (O.D.)	in. Ø 3/8	Ø 3/8	Ø 1/2	Ø 1/2	Ø 1/2
	Condensate Drain	in. Ø 5/8	Ø 11/16	Ø 11/16	Ø 5/8	Ø 5/8
Dimensions (H x W x D)	in.	11-5/8 x 31-1/2 x 8-7/16	11-7/16 x 31-5/16 x 9-3/8		13-3/8 x 41-5/8 x 9-3/4	
Net Weight	lbs.	20.0	20.0	20.0	31.0	31.0

Indoor Units - FDXS_LVJU and CDXS_LVJU Slim Duct Units

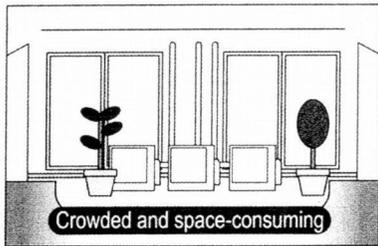
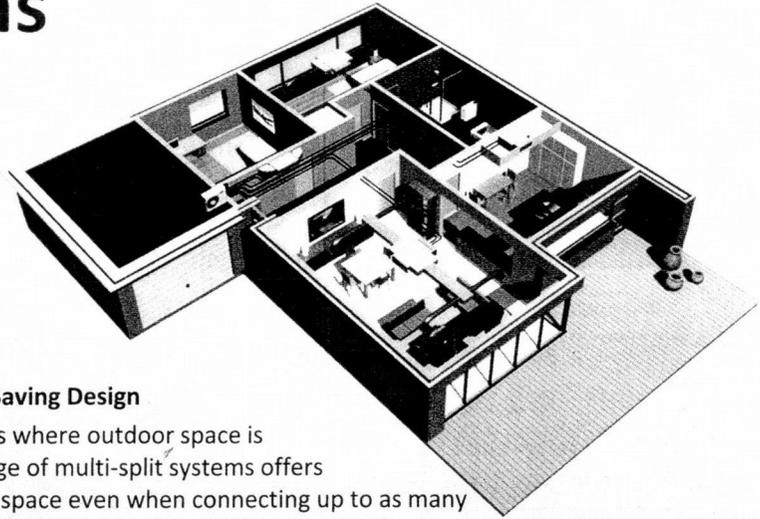
Model Name		FDXS09LVJU	FDXS12LVJU	CDXS15LVJU	CDXS18LVJU
External Static Pressure	"W.G.	0.12	0.12	0.16	0.16
Airflow-Wet (H/M/L/SL)	CFM	305/280/260/235	305/280/260/235	424/388/353/297	424/388/353/297
Airflow-Dry (H/M/L/SL)	CFM	305/280/260/235	305/280/260/235	424/388/353/297	424/388/353/297
Sound Pressure - Cooling (H/M/L/SL)	dB(A)	35/33/31/-	35/33/31/-	37/35/33/31	37/35/33/31
Sound Pressure - Heating (H/M/L/SL)	dB(A)	35/33/31/-	35/33/31/-	37/35/33/31	37/35/33/31
Piping Connections	Liquid (O.D.)	in. Ø 1/4	Ø 1/4	Ø 1/4	Ø 1/4
	Gas (O.D.)	in. Ø 3/8	Ø 3/8	Ø 1/2	Ø 1/2
	Condensate Drain	in. Ø 25/32	Ø 25/32	Ø 25/32	Ø 25/32
Dimensions (H x W x D)	in.	7-7/8 x 27-9/16 x 24-7/16		7-7/8x35-7/16x24-7/16	
Net Weight	lbs.	47.0	47.0	60.0	60.0

Outdoor Units

Model Name		2MXS18GVJU	3MXS24JVJU	4MXS32GVJU
Maximum Capacity	Btu/h	18,000	24,000	30,600
Power Supply	V/ph/Hz	208-230/1/60		
Minimum Circuit Amps	A	11.1	17.8	18.0
Maximum Overcurrent Protection	A	20.0	20.0	20.0
Sound Pressure - (Cooling/Heating)	dB(A)	50/51	52/54	52/54
Operating Range - Cooling	°F DB	14 - 115	14 - 115	14 - 115
Operating Range - Heating	°F DB	0 - 77	0 - 77	0 - 77
Max. Piping Length	ft.	164	230	230
Max. Piping Height	ft.	82	82	82
Max. Piping Height	ft.	49.2	49.2	49.2
Dimensions (H x W x D)	in.	28-15/16 x 32-1/2 x 11-13/16	30-5/16 x 35-7/16 x 12-5/8	
Net Weight	lbs.	139.0	168.0	168.0

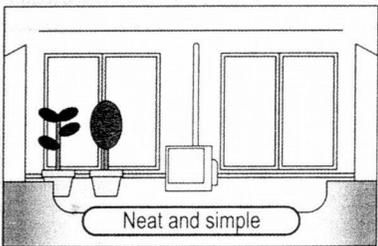
Multi-Split Systems

Daikin's 2-port, 3-port, and 4-port multi-split systems can serve up to four rooms from a single outdoor unit. With indoor unit options consisting of streamlined wall mount units, built-in slim duct units, or a combination of both, multi-split systems offer over 1,000 possible connection combinations, creating a flexible, powerful and energy efficient system.



Flexible in a Space Saving Design

Ideal for installations where outdoor space is limited, Daikin's range of multi-split systems offers reduced installation space even when connecting up to as many as four indoor units, maintaining a beautiful home exterior.



Connecting each indoor unit by a pair of refrigerant lines, few electrical connections, and little to no ductwork, indoor and outdoor units can be easily installed in existing spaces with minor disruption and often in a single day's work. The compact and lightweight designs combined with flexible piping and minimal wiring allow installation with minimal time and costs.

Priority Room Setting

During initial installation, a priority room may be set to deliver preferential conditioning and control over the functions: operation mode, powerful operation, and quiet outdoor operation.

Operation mode priority

Cooling or heating operation mode in the selected room is given priority. When a different operation mode from another unit is selected, the unit is placed on standby until the priority room unit stops operating.



Priority during powerful operation

When the priority room is operating in powerful mode, cooling or heating capacities from other indoor units may be temporarily reduced to shift room capacities to the prioritized room.

Quiet operation priority

Quiet operation for the outdoor unit can be initiated by a single command from the priority room controller.

Certified Efficiency Performance Values

System	AHRI Number	Combined With	Nominal Cooling Capacity	EER	SEER	Nominal Heating Capacity	COP	Low Heating Capacity	COP	HSPF
			Btu/h	95 °F		Btu/h	47 °F	Btu/h	17 °F	
2MXS18GVJU	3059249	Non Ducted Indoor Unit	18,000	12.60	19.50	22,000	3.40	13,500	2.70	9.20
	3059247	Ducted Indoor Unit	16,000	9.00	13.00	22,000	2.90	13,100	2.20	7.70
	3059248	Mixed Ducted and Non Ducted Indoor Unit	17,000	10.80	16.30	22,000	3.15	13,300	2.45	8.50
3MXS24JVJU	3697115	Non Ducted Indoor Unit	24,000	12.50	16.60	30,000	3.20	19,300	3.20	9.00
	3699491	Ducted Indoor Unit	23,400	9.70	13.00	29,000	2.70	18,100	2.70	7.70
	3759750	Mixed Ducted and Non Ducted Indoor Unit	23,600	11.10	14.80	29,400	2.95	18,600	2.95	8.35
4MXS32GVJU	3059253	Non Ducted Indoor Unit	30,600	10.30	17.20	32,000	3.40	22,200	2.30	9.30
	3059251	Ducted Indoor Unit	29,000	8.40	13.30	30,400	3.00	21,000	2.10	7.90
	3059250	Mixed Ducted and Non Ducted Indoor Unit	29,800	9.35	15.25	31,200	3.20	21,600	2.20	8.60

* Per AHRI, the certified ratings for variable-speed, multi-split systems are valid for all combinations of indoor units (based on combination types) with the specific outdoor unit listed above and in the AHRI Directory of Certified Equipment. Visit www.AHRIDirectory.org for further details and independent verification.

**25HBC3
Comfort 13 Heat Pump
with Puron® Refrigerant
1-1/2 to 5 Nominal Tons**



turn to the experts 

Product Data



Comfort
SERIES

Carrier heat pumps with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 25HBC has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows consumers to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 13 SEER/ 10.5 - 12.5 EER/ 7.7 - 8.2 HSPF
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 72 dBA
- Sound levels as low as 72 dBA with accessory sound blanket

Comfort

- System supports Edge® Thermidistat™ or standard thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- High pressure switch
- Loss of charge switch
- Filter drier
- Balanced refrigeration system for maximum reliability

Durability

WeatherArmor™ protection package:

- Solid, durable sheet metal construction
- Dense wire coil guard available
(3-phase units come standard with dense wire coil guard)
- Baked-on powder paint

Applications

- Long-line - up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C) with accessory kit

25HBC3

DIMENSIONS - SI

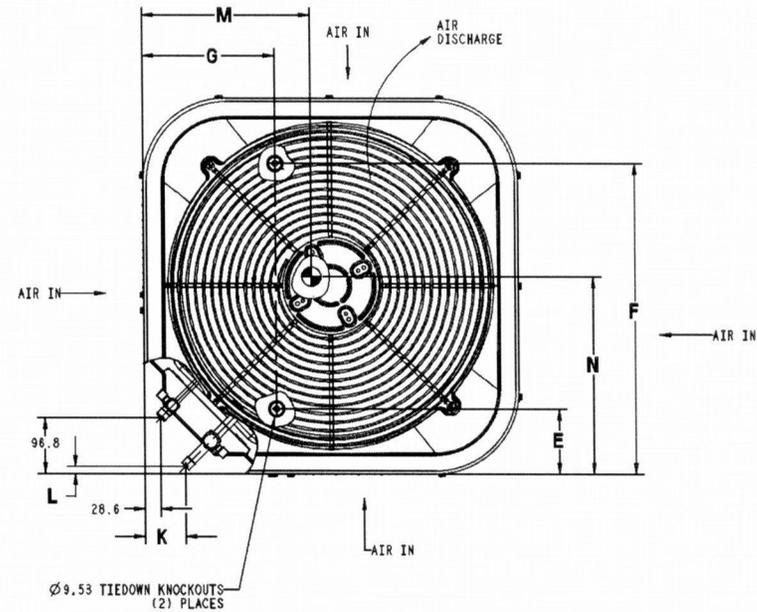
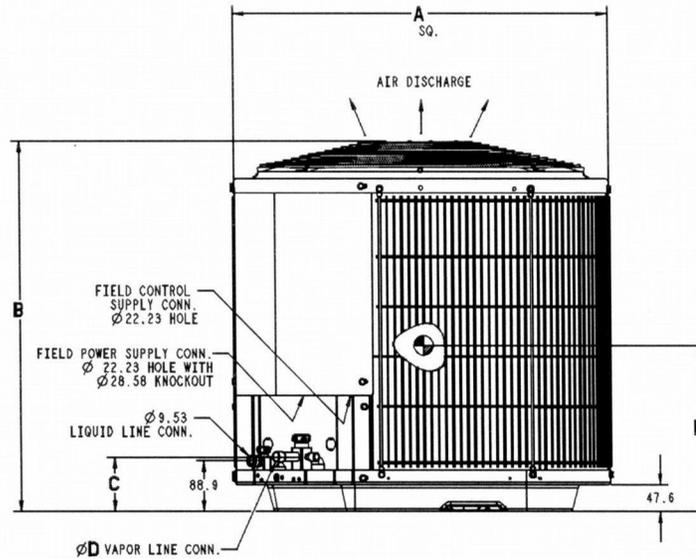
UNIT	SERIES	ELECTRICAL CHARACTERISTICS					A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (Kgs)	SHIPPING WEIGHT (Kgs)	SHIPPING DIMENSIONS (L x W x H)
25HBC318	0	X	0	0	0	654.0	643.0	95.2	15.9	112.7	539.8	231.8	71.4	12.7	349.3	355.6	317.5	57.6	69.4	682.8 X 762.8 X 826.8	
25HBC324	0	X	0	0	0	654.0	820.8	95.2	15.9	112.7	539.8	231.8	71.4	12.7	330.2	323.9	330.2	60.3	71.6	682.8 X 762.8 X 913.2	
25HBC330	0	X	0	X	0	792.2	643.0	95.2	19.0	166.7	627.1	231.8	71.4	12.7	393.7	374.7	317.5	66.2	81.6	821.2 X 901.2 X 826.8	
25HBC336	0	X	0	X	X	792.2	820.8	95.2	19.0	166.7	627.1	231.8	71.4	12.7	381.0	393.7	355.6	69.0	80.7	821.2 X 901.2 X 913.2	
25HBC342	0	X	0	X	0	792.2	643.0	98.4	22.2	166.7	627.1	231.8	74.6	15.9	393.7	400.1	317.5	87.5	103.8	821.2 X 901.2 X 826.8	
25HBC348	0	X	0	X	X	792.2	908.0	98.4	22.2	166.7	627.1	231.8	74.6	15.9	400.1	412.8	381.0	98.0	113.8	821.2 X 901.2 X 1000.1	
25HBC360	0	X	0	X	X	889.0	735.0	98.4	22.2	166.7	722.3	231.8	74.6	15.9	431.8	406.4	304.8	113.4	127.9	917.6 X 998.6 X 827.1	

208-230-460
230-460
208/230-3-60
460-3-60

X = YES
O = NO

NOTES:

1. ALLOW 762.0 CLEARANCE TO SERVICE SIDE OF UNIT, 1219.2 ABOVE UNIT, 152.4 ON ONE SIDE, 304.8 ON REMAINING SIDE, AND 609.6 BETWEEN UNITS FOR PROPER AIRFLOW.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 13°C, MAX. 52°C.
3. SERIES DESIGNATION IS THE 13TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY 
5. ALL DIMENSIONS ARE IN *MM* UNLESS NOTED.



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24	660.4 X 660.4
30,36,42,48	800.1 X 800.1
60	889.0 X 889.0

01

PHYSICAL DATA



UNIT SIZE SERIES	18-30	24-30	30-30, 50	36-30, 50, 60	42-30, 50	48-30, 50, 60	60-30, 50, 60
Operating Weight lb (kg)	127 (57.6)	133 (60.3)	146 (66.2)	152 (69.0)	193 (87.5)	216 (98.0)	250 (113.4)
Shipping Weight lb (kg)	153 (69.4)	158 (77.6)	180 (81.6)	178 (80.7)	229 (103.8)	251 (113.8)	282 (127.9)
Compressor Type	Scroll						
REFRIGERANT	Puron R-410A						
Indoor Control	Piston 52	Piston 57	Piston 67	Piston 70	Piston 76	Piston 80	TXV (Puron Hard Shutoff)
Outdoor Heating Piston #	40	46	55	57	65	65	76
Charge lb (kg)	5.16 (2.34)	5.95 (2.70)	6.40 (2.90)	6.34 (2.88)	8.88 (4.03)	10.41 (4.72)	11.00 (4.99)
COND FAN	Propeller Type, Direct Drive						
Air Discharge	Vertical						
Air Qty (CFM)	1881	2196	3167	3167	2614	3365	4046
Motor HP	1/12	1/10	1/5	1/5	1/10	1/4	1/4
Motor RPM	1100	1100	1100	1100	1100	1100	800
COND COIL	Propeller Type, Direct Drive						
Face Area (Sq ft)	11.49	13.13	15.09	17.25	15.09	19.40	17.60
Fins per In.	25	25	20	20	20	20	20
Rows	1	1	1	1	2	2	2
Circuits	4	4	5	5	6	8	8
VALVE CONNECT. (In.) ID	3/8						
Vapor	5/8	5/8	3/4	3/4	7/8	7/8	7/8
Liquid	3/8						
REFRIGERANT TUBES* (In.) OD	3/8"						
Rated Vapor*	5/8	5/8	3/4	3/4	7/8	7/8	1-1/8
Liquid	3/8"						

25HBC3

*Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.
 Note: See unit Installation Instruction for proper installation.

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for HP systems with Puron refrigerant:

Vapor Line Sizing and Cooling Capacity Losses - Puron® Refrigerant 1- Stage Heat Pump Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In.) OD	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)								
			Standard Application		Long Line Application Requires Accessories						
			26-50 (7.9-15.2)	51-80 (15.5-24.4)	81-100 (24.7-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-50.3)	176-200 (53.6-60.0)	201-225 (61.3-68.6)	226-250 (68.9-76.2)
18,000 1-Stage HP with Puron	3/8	1/2	1	2	3	4	6	7	8	9	10
		5/8	0	0	1	1	1	2	2	3	3
24,000 1-Stage HP with Puron	3/8	5/8	0	1	1	2	3	3	4	4	5
		3/4	0	0	0	0	1	1	1	1	1
30,000 1-Stage HP with Puron	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
36,000 1-Stage HP with Puron	3/8	5/8	1	2	4	5	6	7	9	10	11
		3/4	0	0	1	1	2	2	3	3	4
		7/8	0	0	0	0	1	1	1	1	2
42,000 1-Stage HP with Puron	3/8	3/4	0	1	2	2	3	4	4	5	6
		7/8	0	0	1	1	1	2	2	2	3
48,000 1-Stage HP with Puron	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
60,000 1-Stage HP with Puron	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1-1/8	0	0	0	1	1	1	1	1	1

Standard Length = 80 ft. (24.4 m) or less total equivalent length

Applications in this area are long line. Accessories are required as shown recommended on Long Line Application Guidelines

Applications in this area may have height restrictions that limit allowable total equivalent length, when outdoor unit is below indoor unit. See Long Line Application Guidelines