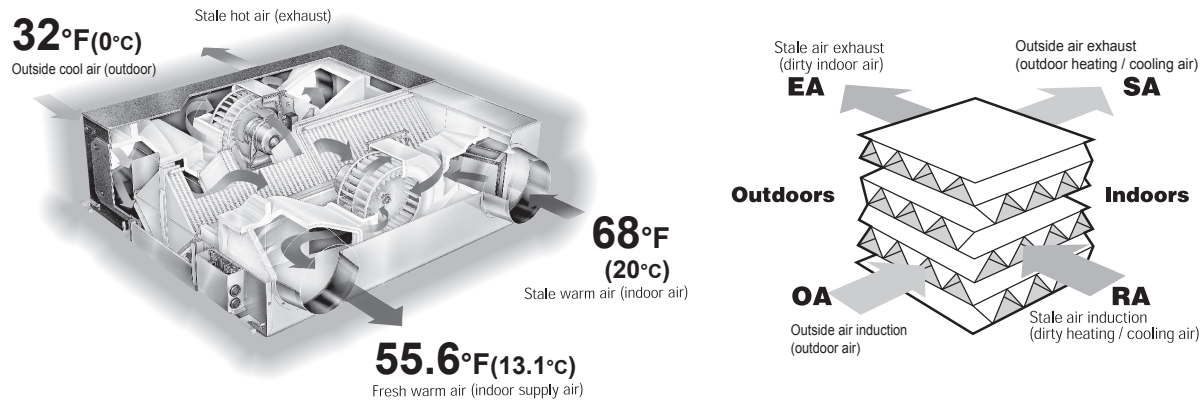


## LGH-F-RX5-E1

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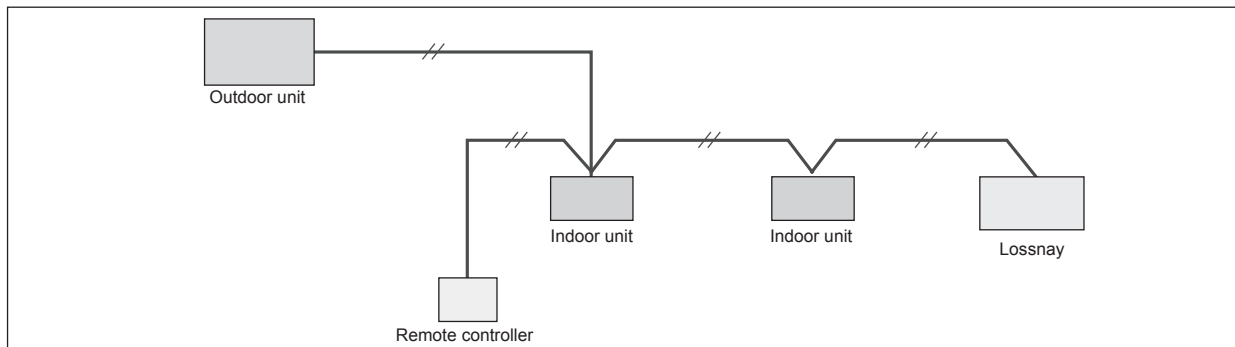
LOSSNAY is a perfect combination of heat recovery and ventilation, which is a leading edge product in the ventilation and air-conditioning field.

The LOSSNAY core is a special preserved paper made cross-flow and plate-fin structure, which is referable below.



\* LGH-F300RX5-E1 (High fan speed)

CITY MULTI can combine LOSSNAY into the air conditioning system, performing the best solution to ventilation and air-conditioning.



### Line up of LOSSNAY units



LGH-F300RX5-E1	300 CFM	1-phase 208-230V, 60Hz
LGH-F470RX5-E1	470 CFM	1-phase 208-230V, 60Hz
LGH-F600RX5-E1	600 CFM	1-phase 208-230V, 60Hz
LGH-F1200RX5-E1	1200 CFM	1-phase 208-230V, 60Hz

# 1. SPECIFICATIONS

## LGH-F300RX5-E1

Model		LGH-F300RX5-E1							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current	(A)	1.33/1.35	1.12/1.18	0.81/0.86	0.32/0.36	1.33/1.35	1.12/1.18	0.81/0.86	0.32/0.36
Input	(W)	274/300	232/268	168/197	67/82	274/300	232/268	168/197	67/82
Air volume	(CFM)	300/300	260/300	203/235	91/112	300/300	260/300	203/235	91/112
External static pressure	(In. W.G.)	0.60/0.78	0.46/0.54	0.28/0.33	0.06/0.08	0.60/0.78	0.46/0.54	0.28/0.33	0.06/0.08
Temperature recovery efficiency (%)		65.5/65.5	67.5/65.5	71/69	81/79	-	-	-	-
Enthalpy recovery efficiency (%)	Heating	63/63	65/63	68/66	79/77	-	-	-	-
	Cooling	50/50	52/50	55/53	63/61	-	-	-	-
Sound pressure (Measured at 1.5m under level the center of the unit)		34/37	30.5/33	25.5/27.5	18/18	35/37.5	31.5/34.5	25.5/28.5	18/18.5
Weight	(lbs)	73							
Starting current		2.5A							
Filter Specification		Standard Filter Provided (MERV 6)							

## LGH-F470RX5-E1

Model		LGH-F470RX5-E1							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current	(A)	2.40/2.50	2.10/2.20	1.59/1.71	0.60/0.64	2.40/2.50	2.10/2.20	1.59/1.71	0.60/0.64
Input	(W)	485/538	425/490	330/393	120/145	485/538	425/490	330/393	120/145
Air volume	(CFM)	470/470	420/470	330/365	147/177	470/470	420/470	330/365	147/177
External static pressure	(In. W.G.)	0.80/0.96	0.54/0.66	0.33/0.40	0.07/0.09	0.80/0.96	0.54/0.66	0.33/0.40	0.07/0.09
Temperature recovery efficiency (%)		69/69	70.5/69	74/72	82/80	-	-	-	-
Enthalpy recovery efficiency (%)	Heating	64/64	66/64	70/68	80/78	-	-	-	-
	Cooling	51/51	53/51	58/55	69/67	-	-	-	-
Sound pressure (Measured at 1.5m under level the center of the unit)		36/38	33/35.5	28.5/31	18/18.5	36/39	33/36	28.5/31.5	18/18
Weight	(lbs)	119							
Starting current		4.5A							
Filter Specification		Standard Filter Provided (MERV 6)							

## LGH-F600RX5-E1

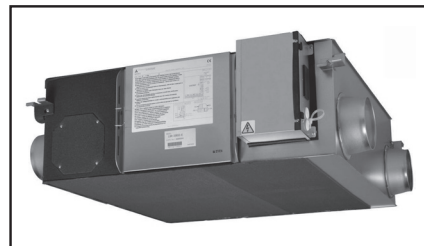
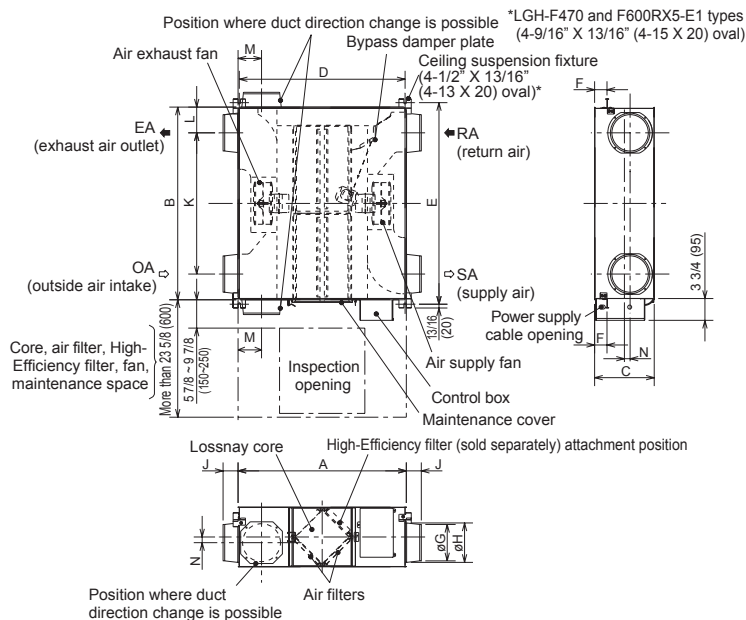
Model		LGH-F600RX5-E1							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current	(A)	2.80/2.90	2.50/2.70	1.56/1.69	0.72/0.79	2.80/2.90	2.50/2.70	1.56/1.69	0.72/0.79
Input	(W)	577/637	517/605	324/387	146/180	577/637	517/605	324/387	146/180
Air volume	(CFM)	600/600	520/600	370/430	200/235	600/600	520/600	370/430	200/235
External static pressure	(In. W.G.)	0.56/0.80	0.48/0.48	0.24/0.24	0.07/0.07	0.56/0.80	0.48/0.48	0.24/0.24	0.07/0.07
Temperature recovery efficiency (%)		67/67	68/67	75/73	80/78	-	-	-	-
Enthalpy recovery efficiency (%)	Heating	64/64	65/64	71/68	79/77	-	-	-	-
	Cooling	50/50	53/50	59/56	68/67	-	-	-	-
Sound pressure (Measured at 1.5m under level the center of the unit)		36/38	34/36.5	26.5/29	19/21	37/39	35/37.5	27/30	18.5/20
Weight	(lbs)	132							
Starting current		5.0A							
Filter Specification		Standard Filter Provided (MERV 6)							

## LGH-F1200RX5-E1

Model		LGH-F1200RX5-E1							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra high	High	Low	Extra high	High
Current	(A)	5.7/5.8	5.0/5.3	3.1/3.4	5.8/5.8	5.1/5.4	3.1/3.4	5.8/5.8	5.1/5.4
Input	(W)	1185/1303	1040/1219	639/765	1185/1303	1040/1219	639/765	1185/1303	1040/1219
Air volume	(CFM)	1200/1200	1012/1200	695/824	1200/1200	1012/1200	695/824	1200/1200	1012/1200
External static pressure	(In. W.G.)	0.43/0.75	0.43/0.43	0.20/0.20	0.43/0.75	0.43/0.43	0.20/0.20	0.43/0.75	0.43/0.43
Temperature recovery efficiency (%)		67/67	68/67	75/73					
Enthalpy recovery efficiency (%)	Heating	64/64	65/64	71/68					
	Cooling	50/50	53/50	59/56					
Sound pressure (Measured at 1.5m under level the center of the unit)		38/40.5	36/39	29/32	40/42.5	38/41	30.5/33.5	40/42.5	38/41
Weight	(lbs)	265							
Starting current		10.0A							
Filter Specification		Standard Filter Provided (MERV 6)							

## 2. DIMENSION DRAWINGS

### LGH-F300,470,600RX5-E1



### Accessory parts

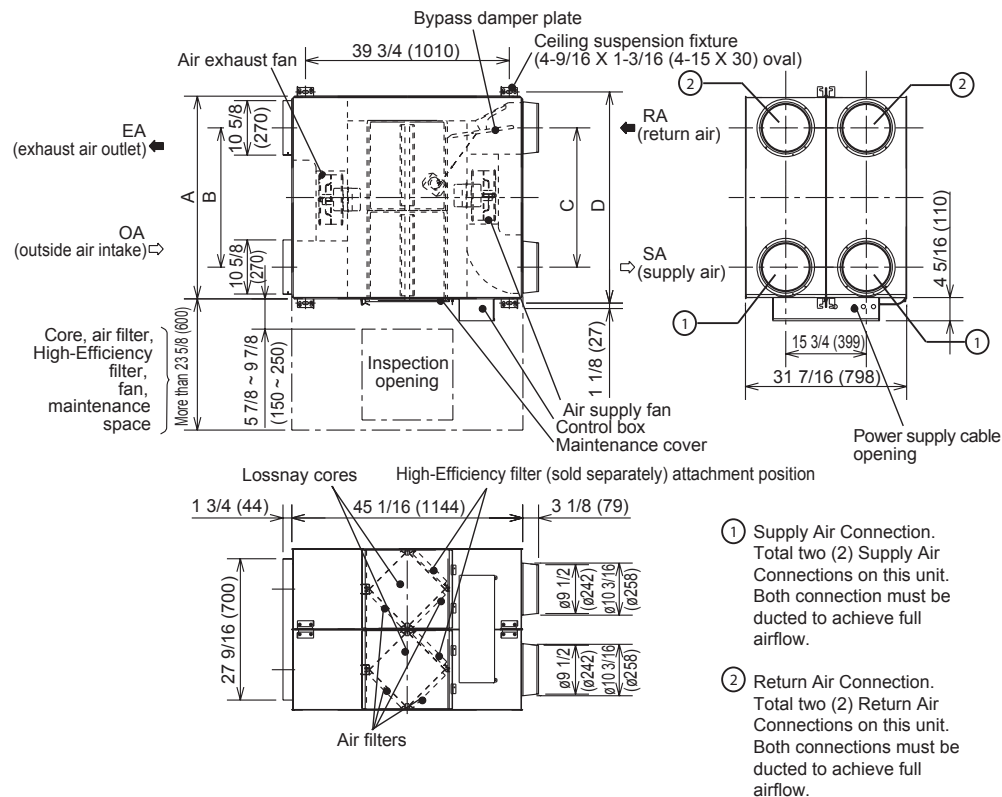
- Mounting screws ..... x16
- Duct connecting flanges ..... x4  
(double flanges at SA and EA sides)
- P-Series - Lossnay connection cable  
(gray: two wires) ..... x1

Unit: Inch (mm)

Model	Dimensions			Ceiling suspension fixture pitch			Nominal diameter	Duct connecting flange			Duct pitch				Weight
	A	B	C	D	E	F		G	H	J	K	L	M	N	
LGH-F300RX5-E1	34 15/16 (888)	40 (1016)	12 3/8 (315)	34 1/2 (875)	41 7/8 (1063)	2 9/16 (65)	7 7/8 (200)	7 9/16 (192)	8 3/16 (208)	3 1/8 (79)	29 3/8 (745)	5 5/16 (135.5)	4 7/8 (124)	1 3/16 (30)	73 lbs (33 kg)
LGH-F470RX5-E1	45 1/16 (1144)	39 1/2 (1004)	15 3/4 (399)	39 3/4 (1010)	40 13/16 (1036)	15 5/16 (389)	9 7/8 (250)	9 1/2 (242)	10 3/16 (258)	3 1/8 (79)	27 3/16 (690)	6 3/16 (157)	6 1/2 (165)	—	119 lbs (54 kg)
LGH-F600RX5-E1	45 1/16 (1144)	48 1/2 (1231)	15 3/4 (399)	39 3/4 (1010)	49 3/4 (1263)	15 5/16 (389)	9 7/8 (250)	9 1/2 (242)	10 3/16 (258)	3 1/8 (79)	36 1/8 (917)	6 3/16 (157)	6 1/2 (165)	—	132 lbs (60 kg)

## 2. DIMENSION DRAWINGS

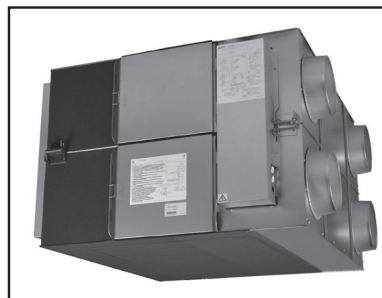
### LGH-F1200RX5-E1



### Accessory parts

- Duct connecting flanges ..... x4
- Mounting screws ..... x16
- P-Series - Lossnay connection cable (gray: two wires) ..... x1

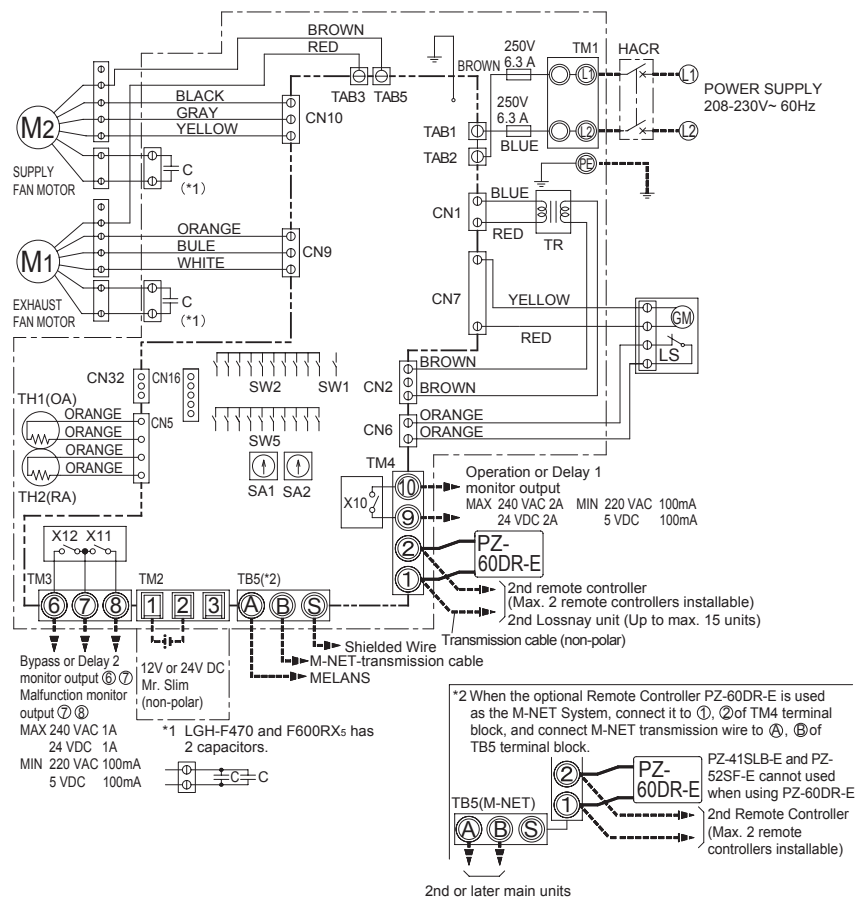
Unit: Inch (mm)					
Model	A	B	C	D	Weight
LGH-F1200RX5-E1	48 1/2 (1231)	36 1/8 (917)	36 1/8 (917)	50 1/8 (1272)	265 lbs (120 kg)



## 3. WIRING DIAGRAMS

### 3-1. Wiring Diagrams

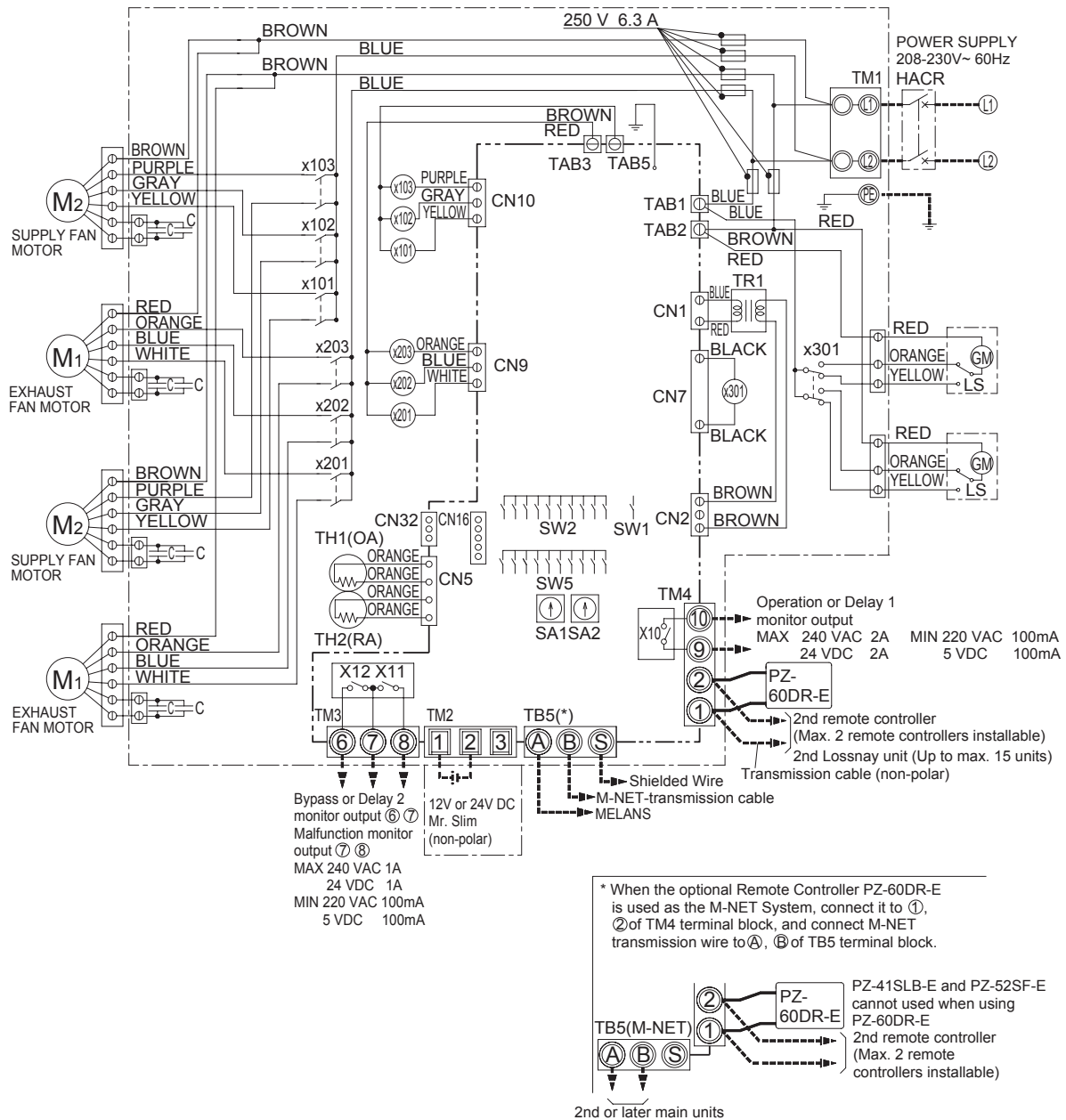
LGH-F300, 470, 600RX5-E1



## 3. WIRING DIAGRAMS

### 3-1. Wiring Diagrams

LGH-F1200RX5-E1

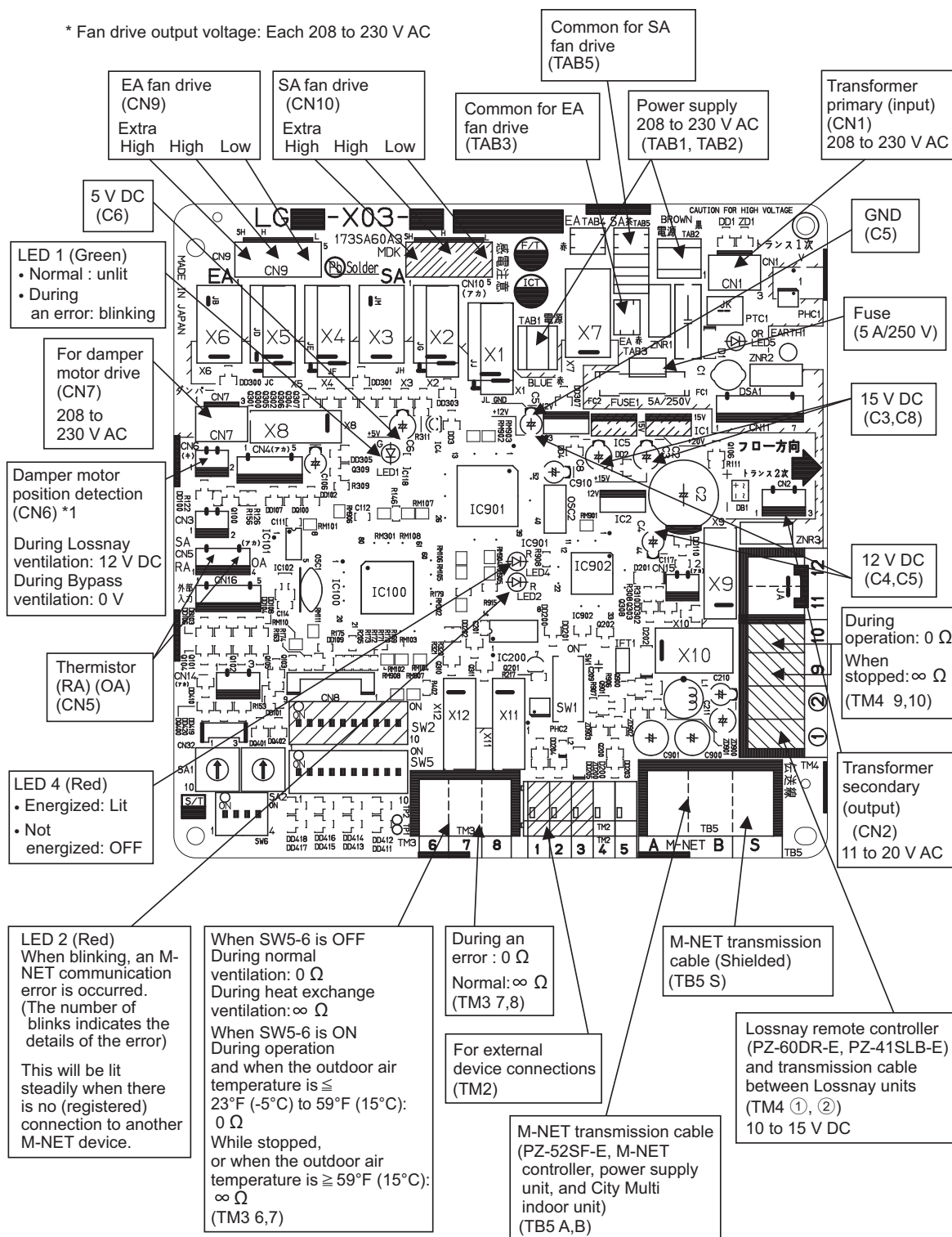




### 3. WIRING DIAGRAMS

#### 3-2. Circuit board diagram

##### ● Circuit board diagram and check points



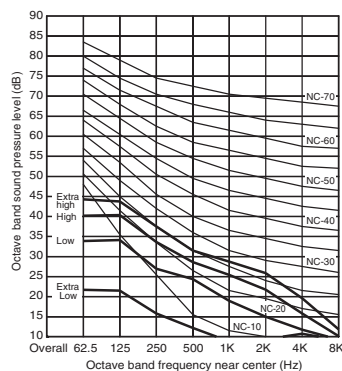
\*1: Damper position detection input is only for the LGH-F300 to F600 types, and not for the LGH-F1200 type.



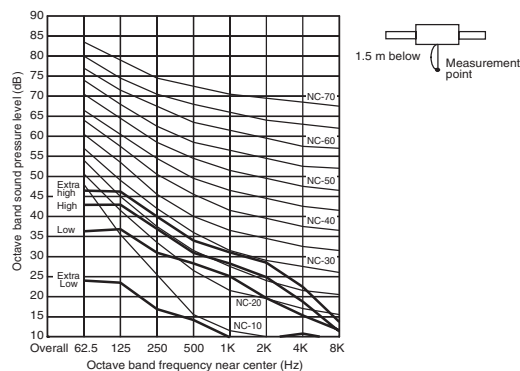
## 4. SOUND NC CURVES

### LGH-F300RX5-E1

Background noise : 25 dB or less (A range)  
 Measurement site : Anechoic chamber  
 Operation conditions : Lossnay ventilation  
 Power supply : 208 V 60 Hz

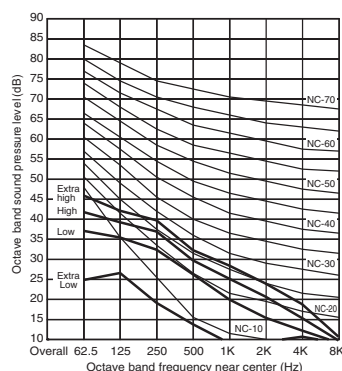


Background noise : 25 dB or less (A range)  
 Measurement site : Anechoic chamber  
 Operation conditions : Lossnay ventilation  
 Power supply : 230 V 60 Hz

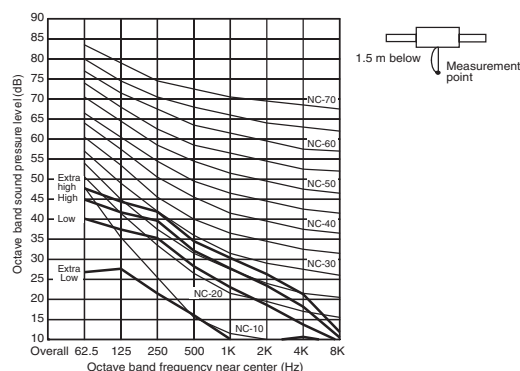


### LGH-F470RX5-E1

Background noise : 25 dB or less (A range)  
 Measurement site : Anechoic chamber  
 Operation conditions : Lossnay ventilation  
 Power supply : 208 V 60 Hz

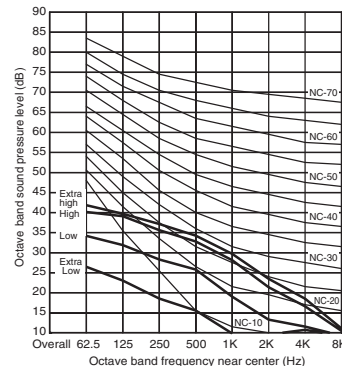


Background noise : 25 dB or less (A range)  
 Measurement site : Anechoic chamber  
 Operation conditions : Lossnay ventilation  
 Power supply : 230 V 60 Hz

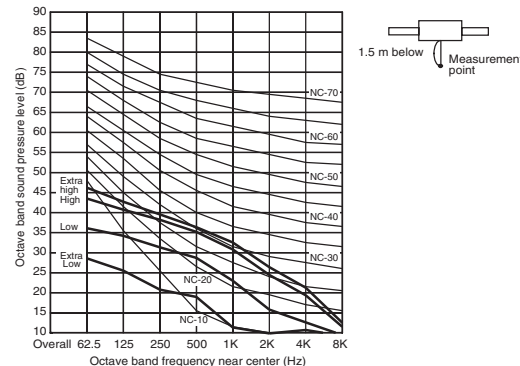


### LGH-F600RX5-E1

Background noise : 25 dB or less (A range)  
 Measurement site : Anechoic chamber  
 Operation conditions : Lossnay ventilation  
 Power supply : 208 V 60 Hz



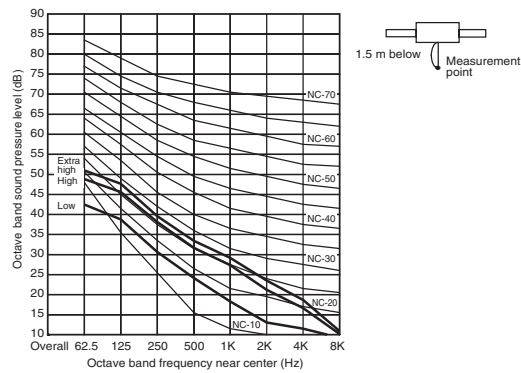
Background noise : 25 dB or less (A range)  
 Measurement site : Anechoic chamber  
 Operation conditions : Lossnay ventilation  
 Power supply : 230 V 60 Hz



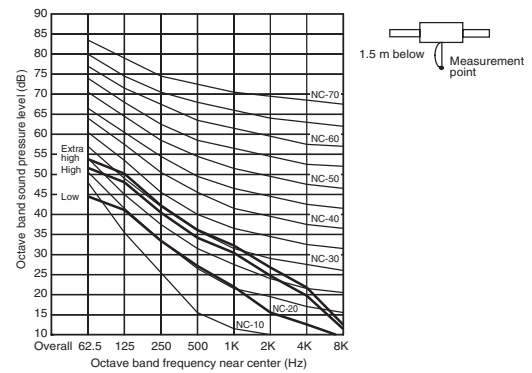
## 4. SOUND NC CURVES

### LGH-F1200RX5-E1

Background noise : 25 dB or less (A range)  
Measurement site : Anechoic chamber  
Operation conditions : Lossnay ventilation  
Power supply : 208 V 60 Hz



Background noise : 25 dB or less (A range)  
Measurement site : Anechoic chamber  
Operation conditions : Lossnay ventilation  
Power supply : 230 V 60 Hz



## 5. EFFICIENCY AND FAN CURVES

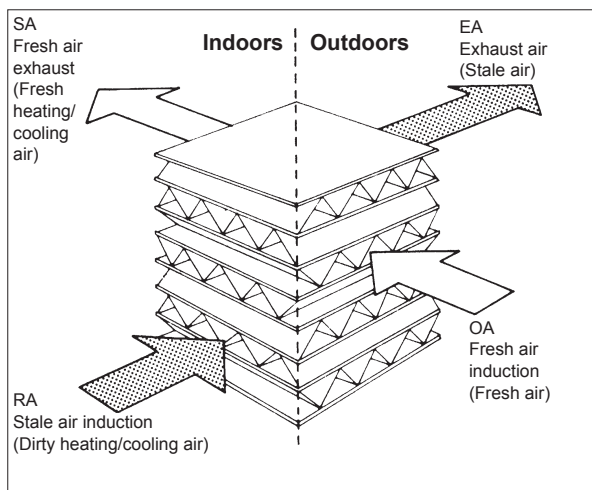
### 5-1. Efficiency Calculation

The Lossnay Core's energy recovery efficiency can be considered using the following three transfer rates:

- (1) Temperature (sensible heat) recovery efficiency
- (2) Humidity (latent heat) recovery efficiency
- (3) Enthalpy (total heat) recovery efficiency

The energy recovery effect can be calculated if two of the above efficiencies are known.

- Each energy efficiency can be calculated with the formulas in the table.
- When the supply and exhaust air volumes are equal, the energy recovery efficiencies on the supply and exhaust sides are the same.
- When the supply and exhaust air volumes are not equal, the total energy recovery efficiency is low if the exhaust volume is lower, and high if the exhaust volume is higher.



Item	Formula
Temperature recovery efficiency (%)	$\eta t = \left( \frac{t_{OA} - t_{SA}}{t_{OA} - t_{RA}} \right) \times 100$
Enthalpy recovery efficiency (%)	$\eta i = \left( \frac{i_{OA} - i_{SA}}{i_{OA} - i_{RA}} \right) \times 100$

$\eta$ : Efficiency (%)

$t$ : Dry bulb temperature (°F, °C)

$i$ : Enthalpy (Btu/lb, kJ/kg)

#### Calculation of Supply Air Condition After Passing Through Lossnay

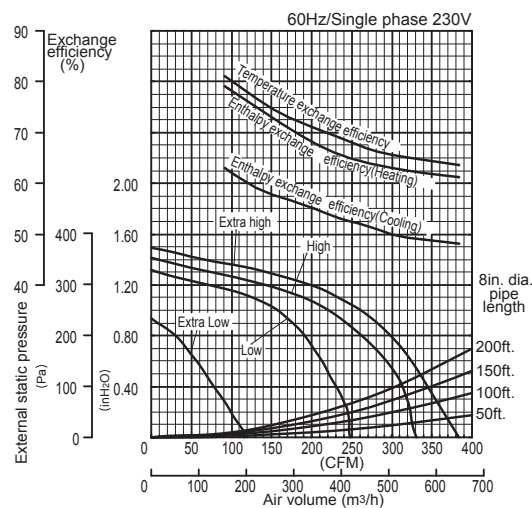
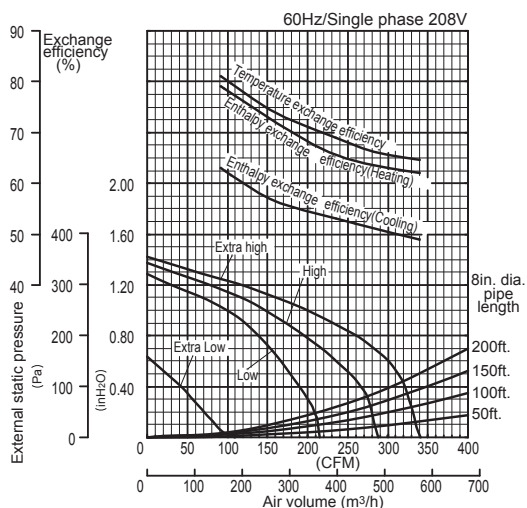
If the Lossnay energy recovery efficiency and the conditions of the room and outdoor air are known, the conditions of the air entering the room and the air exhausted outdoors can be determined with the following formulas in the following table.

	Supply Side	Exhaust Side
Temperature	$t_{SA} = t_{OA} - (t_{OA} - t_{RA}) \times \eta t$	$t_{EA} = t_{RA} + (t_{OA} - t_{RA}) \times \eta t$
Enthalpy	$i_{SA} = i_{OA} - (i_{OA} - i_{RA}) \times \eta i$	$i_{EA} = i_{RA} + (i_{OA} - i_{RA}) \times \eta i$

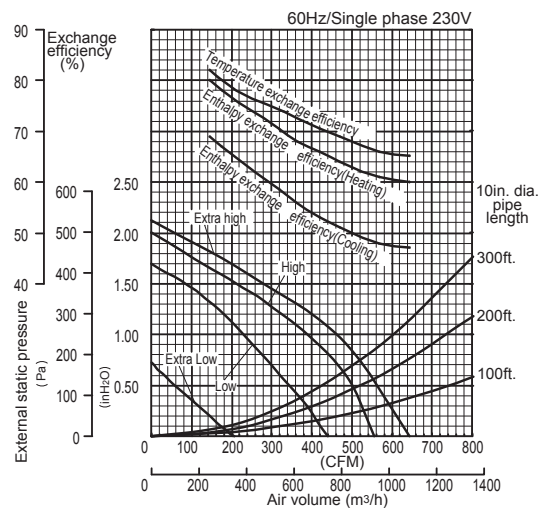
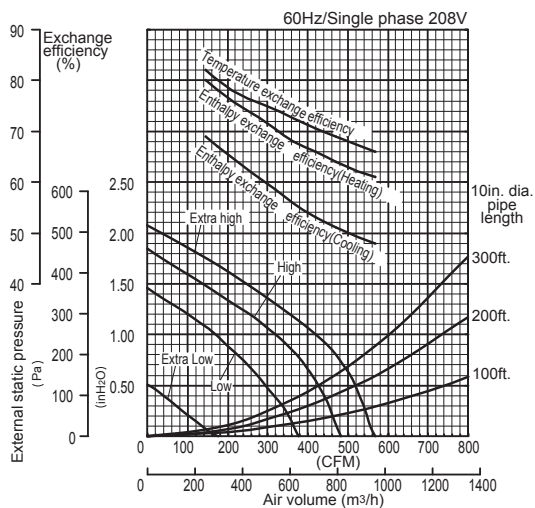
## 5. EFFICIENCY AND FAN CURVES

### 5-2. Efficiency Curve

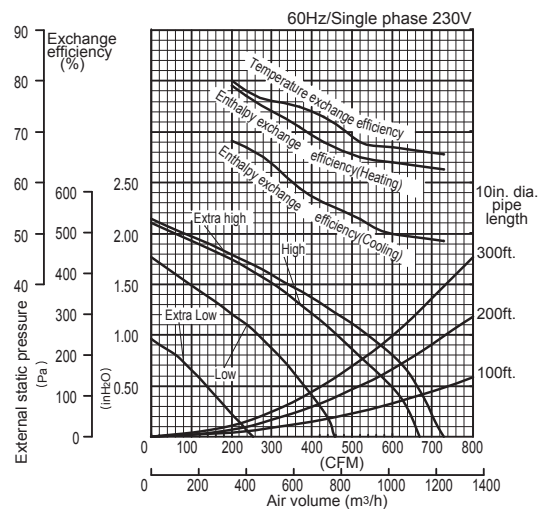
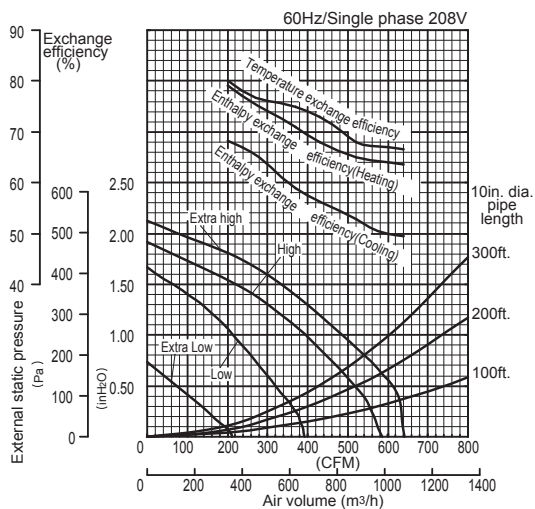
LGH-F300RX5-E1



LGH-F470RX5-E1

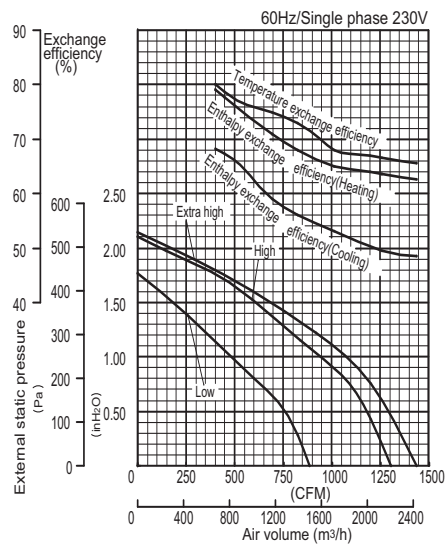
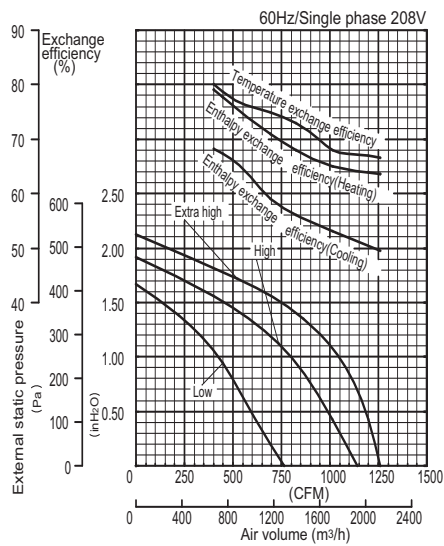


LGH-F600RX5-E1



## 5. EFFICIENCY AND FAN CURVES

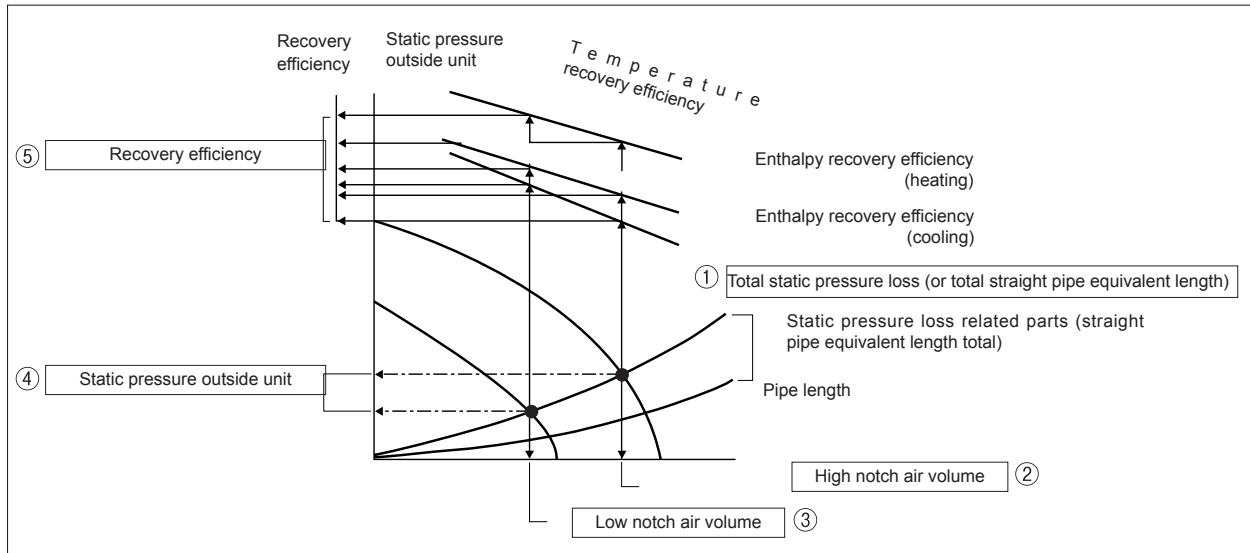
**LGH-F1200RX5-E1**



## 5. EFFICIENCY AND FAN CURVES

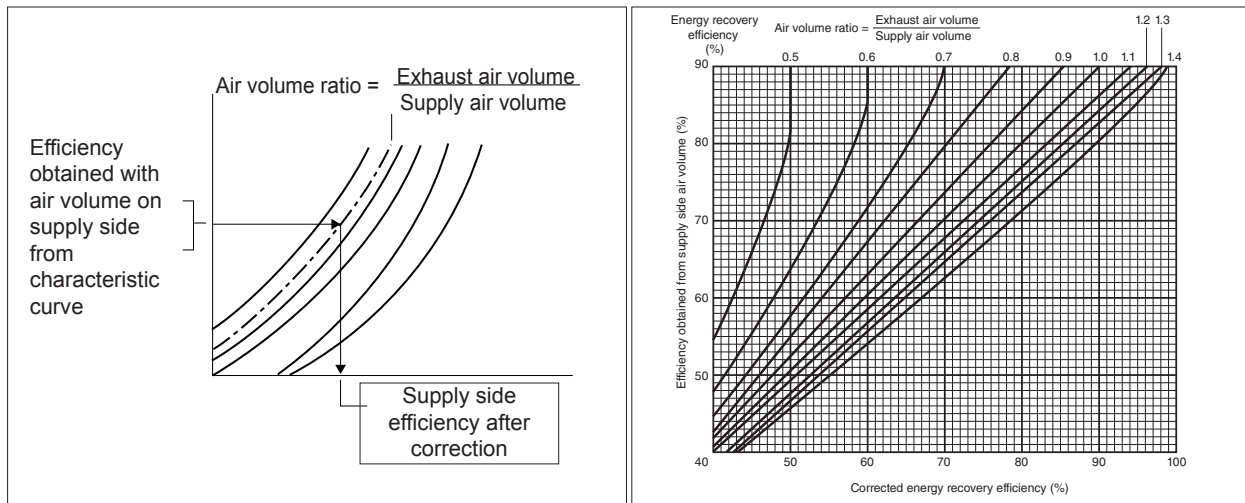
### 5-3. Exhaust Flow Correction

#### How to Read Characteristic Curve



- Obtaining the efficiency when supply air and exhaust air volumes are different.  
The efficiency obtained from the intake side air volume in each characteristic curve can be corrected with the air volume ratio in the bottom right chart.  
If the intake side and exhaust side duct lengths are greatly different or if a differential air volume is required, obtain the intake side efficiency from the bottom right chart.

#### Energy Recovery Efficiency Correction Curve



## 5. EFFICIENCY AND FAN CURVES

### 5-4. Exhaust Airflow Efficiency Corrections - Tabulated

#### LGH-F300RX5-E1

Supply Volume = 300 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	420	55.2%	70.5%	73.4%
1.3	390	53.7%	68.2%	71.0%
1.2	360	52.6%	66.8%	69.5%
1.1	330	50.8%	64.9%	67.6%
<b>1</b>	<b>300</b>	<b>50.0%</b>	<b>63.0%</b>	<b>65.5%</b>
0.9	270	47.6%	59.8%	61.8%
0.8	240	46.0%	56.4%	58.4%
<b>Low Speed</b>	<b>235</b>	<b>45.7%</b>	<b>56.0%</b>	<b>58.0%</b>
0.7	210	44.2%	54.0%	55.8%
0.6	180	41.5%	49.6%	51.0%
0.5	150	37.8%	43.8%	44.8%

#### LGH-F470RX5-E1

Supply Volume = 470 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	658	56.4%	71.6%	77.4%
1.3	611	54.8%	69.3%	74.8%
1.2	564	53.7%	67.8%	73.2%
1.1	517	51.9%	65.9%	71.4%
<b>1</b>	<b>470</b>	<b>51.0%</b>	<b>64.0%</b>	<b>69.0%</b>
0.9	423	48.6%	60.7%	64.4%
0.8	376	46.8%	57.2%	61.3%
<b>Low Speed</b>	<b>365</b>	<b>46.4%</b>	<b>56.6%</b>	<b>60.6%</b>
0.7	329	45.0%	54.7%	58.2%
0.6	282	42.2%	50.1%	52.9%
0.5	235	38.3%	44.2%	46.1%

#### LGH-F600RX5-E1

Supply Volume = 600 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	840	55.2%	71.6%	75.1%
1.3	780	53.7%	69.3%	72.6%
1.2	720	52.6%	67.8%	71.1%
1.1	660	50.8%	65.9%	69.2%
<b>1</b>	<b>600</b>	<b>50.0%</b>	<b>64.0%</b>	<b>67.0%</b>
0.9	540	47.6%	60.7%	63.0%
0.8	480	46.0%	57.2%	59.6%
<b>Low Speed</b>	<b>430</b>	<b>44.5%</b>	<b>55.1%</b>	<b>57.3%</b>
0.7	420	44.2%	54.7%	56.8%
0.6	360	41.5%	50.1%	51.8%
0.5	300	37.8%	44.2%	45.4%

#### LGH-F1200RX5-E1

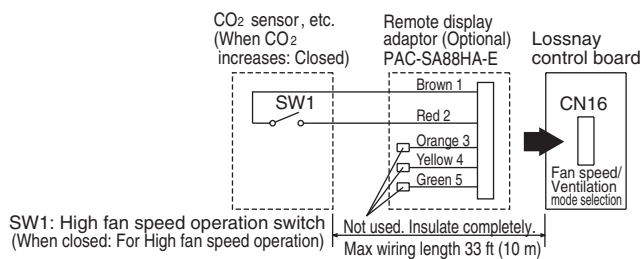
Supply Volume = 1200 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	1680	55.2%	71.6%	75.1%
1.3	1560	53.7%	69.3%	72.6%
1.2	1440	52.6%	67.8%	71.1%
1.1	1320	50.8%	65.9%	69.2%
<b>1</b>	<b>1200</b>	<b>50.0%</b>	<b>64.0%</b>	<b>67.0%</b>
0.9	1080	47.6%	60.7%	63.0%
0.8	960	46.0%	57.2%	59.6%
0.7	840	44.2%	54.7%	56.8%
<b>Low Speed</b>	<b>824</b>	<b>43.8%</b>	<b>54.1%</b>	<b>56.1%</b>
0.6	720	41.5%	50.1%	51.8%
0.5	600	37.8%	44.2%	45.4%



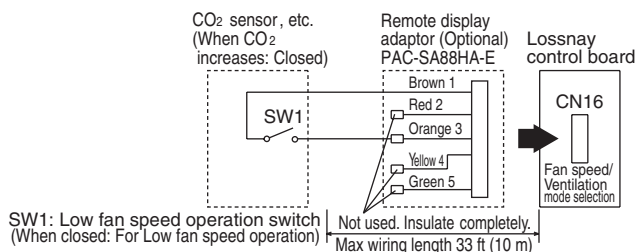
## 6. EXTERNAL CONTROL OF FAN SPEED / CO<sub>2</sub> CONTROL

When Switching High/Low/Extra-Low fan speed extern (when CO<sub>2</sub> sensor or other equipment is connected)

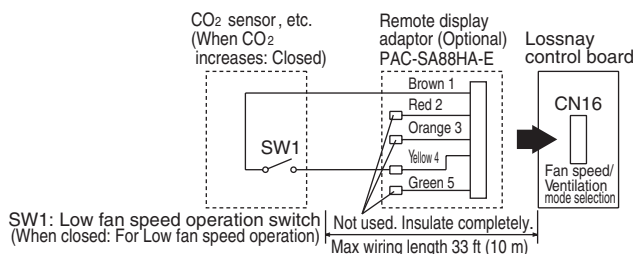
- To force High fan speed externally



- To force Low fan speed externally



- To force Extra-Low fan speed externally



## 7. ENTERING AIR TEMPERATURE OPERATING RANGE

	Main Unit Installation Conditions	OA ( Outdoor Air ) conditions	RA ( Return Air ) conditions
Commercial use Lossnay	14° F to 104° F -10° C to 40° C RH80% or less	5° F to 104°F -15° C to 40° C RH80% or less	14° F to 104° F -10° C to 40° C RH80% or less

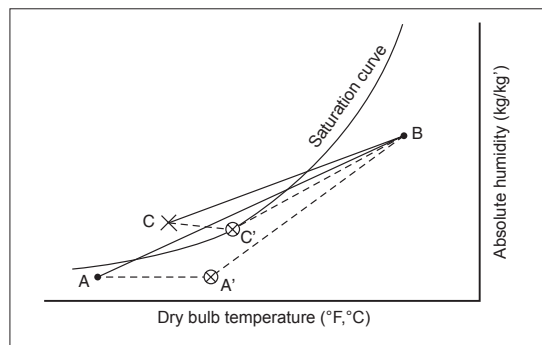
Pay special attention to extreme operating conditions.

### Cold Weather Area Intermittent Operation

When the OA temperature falls below 14° F (-10° C) during operation, the SA-fan will change to intermittent operation. OFF for 10 minutes, ON for 60 minutes. Operation below 14° F is not recommended without the use of a preheat coil to maintain outdoor air inlet conditions above 14° F. When outdoor temperature falls below 5° F the unit will cycle off. The unit will cycle back on 5 minutes out of every 60 minutes to determine if outdoor air temperature is above 5° F.

### In Cold Climates with Outdoor Temperature of 23° F (-5° C) or Less

Plot the Lossnay intake air conditions A and B on a psychrometric chart (see right). If the high temperature side air B intersects the saturation curve such as at C, moisture condensation or frost will build on Lossnay. In this case, the low temperature side air A should be warmed up to the temperature indicated by Point A' so that Point C shifts to the Point C'.



### In High Humidity Conditions with Relative Humidity of 80% or More

When using the system in high humidity conditions such as heated indoor pools, bathrooms, mushroom cultivation houses, high-fog areas etc., moisture will condense inside the Core, and drainage will occur. Lossnay units should not be used in these types of applications.

### Other Special Conditions

- Lossnay units cannot be installed in locations where toxic gases and corrosive elements such as acids, alkalis, organic solvents, oil mist or paints exist.
- Cannot be installed where heat is recovered from odiferous air and supplied to another area.
- Avoid installing in a location where unit could be damaged by salt or hot water.

## 8. VENTILATION CONSIDERATIONS

Room air ventilation requirements are often governed by local state code. State codes typically reference the International Mechanical Code (IMC). This standard defers to and references within "ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality".

Standard 62.1 prescribes through its prescriptive compliance path ventilation rates for specific types of building spaces in order to maintain contaminant levels from off gassing of materials and bio-effluents from building occupants at acceptable levels as governed by the standard. Contaminants controlled by this standard include Ammonia, Benzene, Carbon Monoxide, Formaldehyde, TVOC, and several others.

It is important in any HVAC system design to ensure that these minimum ventilation rates are maintained or controlled based on occupancy during occupied hours in order to comply with this standard and maintain acceptable indoor air quality for building occupants.

A sample of typical ventilation rates required for some common building spaces per ASHRAE Standard 62.1-2010 are listed in the table below. Always consult local code / jurisdiction for specific requirements at location of project.

**Ventilation Rate Excerpt**  
**ASHRAE 62.1-2010, Table 6-1**

Exh Air Vol Ratio (Exh/Sup)	People Rate (CFM)	Area Rate (CFM/ft <sup>2</sup> )
Classroom (age 5-8)	10	0.12
Classroom (age 9 plus)	10	0.12
Media Center / Library	10	0.12
Restaurant Dining	7.5	0.18
Conference Room	5	0.06
Corridors	0	0.06
Hotel Room	5	0.06
Office Space	5	0.06
Bank Lobbies	7.5	0.06
Pharmacy	5	0.18
Auditorium	5	0.06
Retail Sales Floor	7.5	0.12
Gym (play area)	0	0.30
Gym (spectator area)	7.5	0.06

The uncorrected ventilation rate (Breathing Zone Outdoor Air – Per ASHRAE 62.1) for a give space per this standard, referencing the above table, would then be:

$$\text{Uncorrected Space Ventilation (CFM)} = (\# \text{ of People}) \times (\text{CFM/person from table}) + (\text{Space Area, ft}^2) \times (\text{Area rate, CFM/ft}^2 \text{ from table})$$

Other corrections to this ventilation rate must be made per the ASHRAE 62.1 standard for Air Distribution Effectiveness, Multiple-Zone Correction, as well as Occupant Diversity. Consult Chapter 6 of ASHRAE 62.1 for a complete explanation of these corrections.

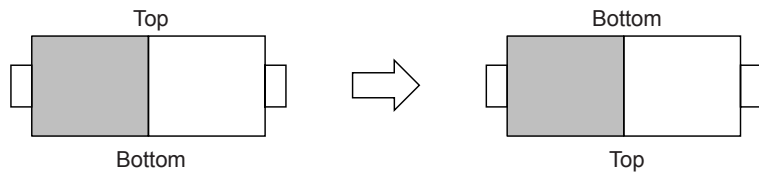
## 9. INSTALLATION

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### 9-1. Orientation

#### Top/bottom Reverse Installation

All LGH-RX5-E1 models can be installed in top/bottom reverse.



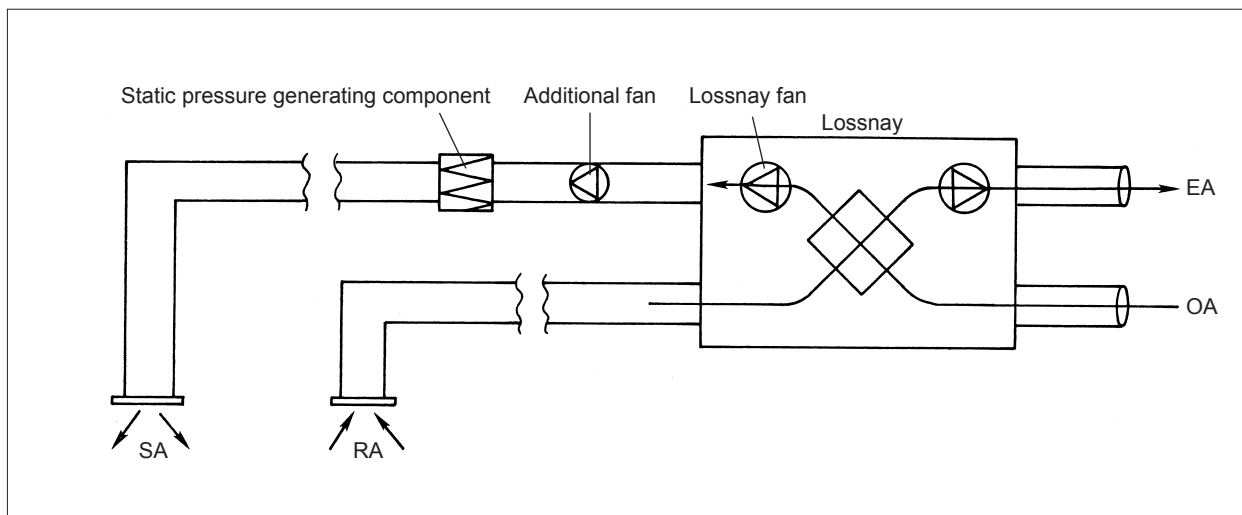
#### Vertical and Slanted Installation

All LGH-RX5-E1 models should not be used in either vertical and slanted installation to avoid any problems (motor noise, water incoming etc).

## 9. INSTALLATION

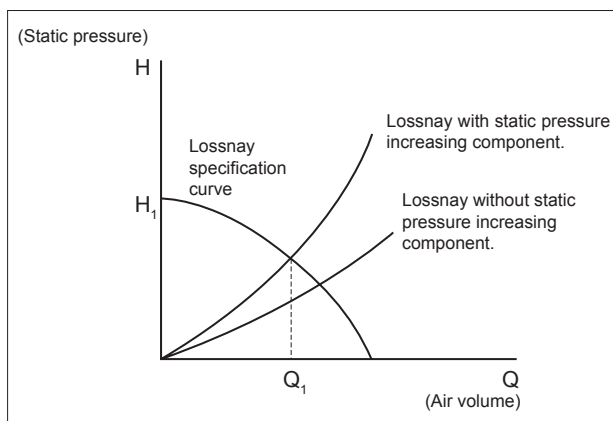
### 9-2. Supplemental Fan Devices

On occasions it may be necessary to install additional fans in the ductwork following LGH-type Lossnay units because of the addition of extra components such as control dampers, high-efficiency filters, sound attenuators, etc. which create a significant extra static pressure to the airflow. An example of such an installation is as shown below.

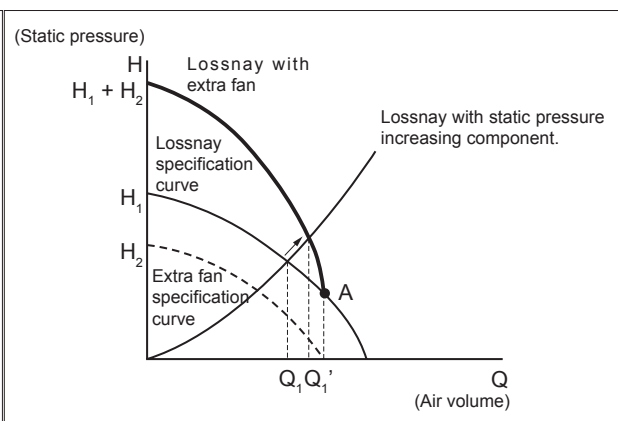


For such an installation, avoid undue stress on the fan motors. Referring to the diagrams below, Lossnay with extra fans should be used at the point of left side from A.

**Q-H for Lossnay Without Extra Fan**



**Q-H for Lossnay With Extra Fan**



## 9. INSTALLATION

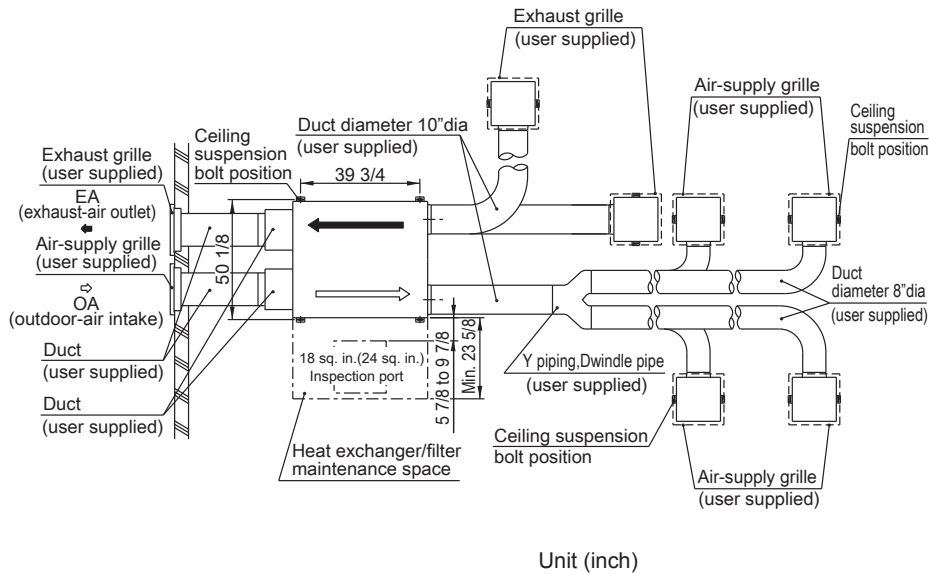
### 9-3 Ductwork Installation with LOSSNAY®

LGH-Series Lossnay Ceiling Embedded-Type

(LGH-RX5-E1 Series)

LGH- F300 · F470 · F600RX5-E1

■ Installation diagram



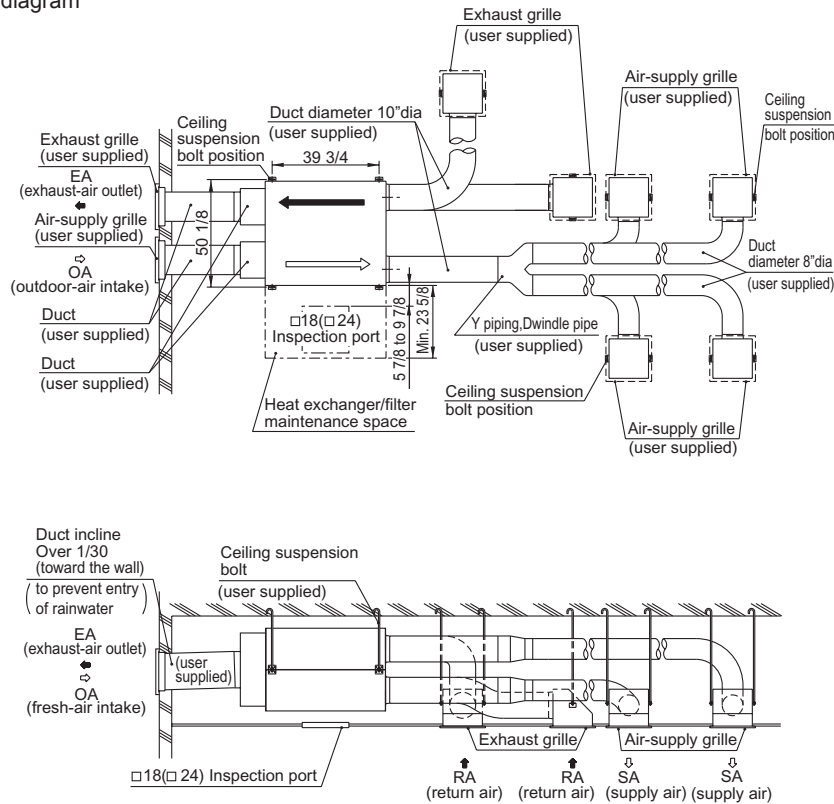
- Always leave inspection holes (18 sq. in. or 24 sq. in.) on the air filter and Lossnay Core removal side.
- Always insulate the two ducts outside the room (intake air and exhaust air ducts) to prevent condensation.
- It is possible to change the direction of the outside air ducts (OA and EA side).
- Do not install the vent cap or round hood where it will come into direct contact with rain water.

Air volume (CFM)	Model	Dimension	
		A	B
300	LGH-F300RX5-E1 type	34 1/2	41 7/8
470	LGH-F470RX5-E1 type	39 3/4	40 13/16
600	LGH-F600RX5-E1 type	39 3/4	49 3/4

## 9. INSTALLATION

### LGH- F1200RX5-E1

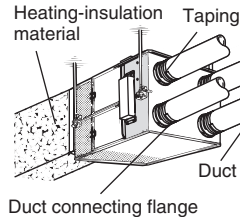
#### ■ Installation diagram



- Always leave inspection holes ( 18 sq. in. or 24 sq. in.) on the air filter and Lossnay Core removal side.
- Always insulate the two ducts outside the room (intake air and exhaust air ducts) to prevent condensation.
- If necessary, order a weather cover to prevent rain water from direct contact or entering the unit.

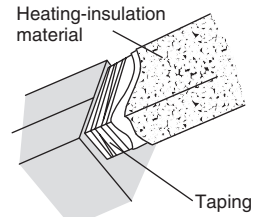
#### Ducting

##### Indoor

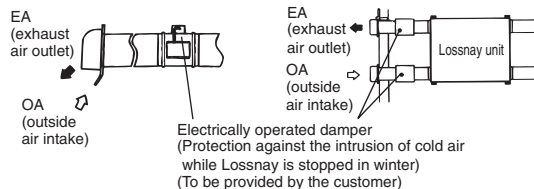


Should secure with airtight tape to prevent air leakage.

##### Outdoor



Should secure with airtight tape to prevent air leakage. Cover duct with insulation foam prevent condensation.



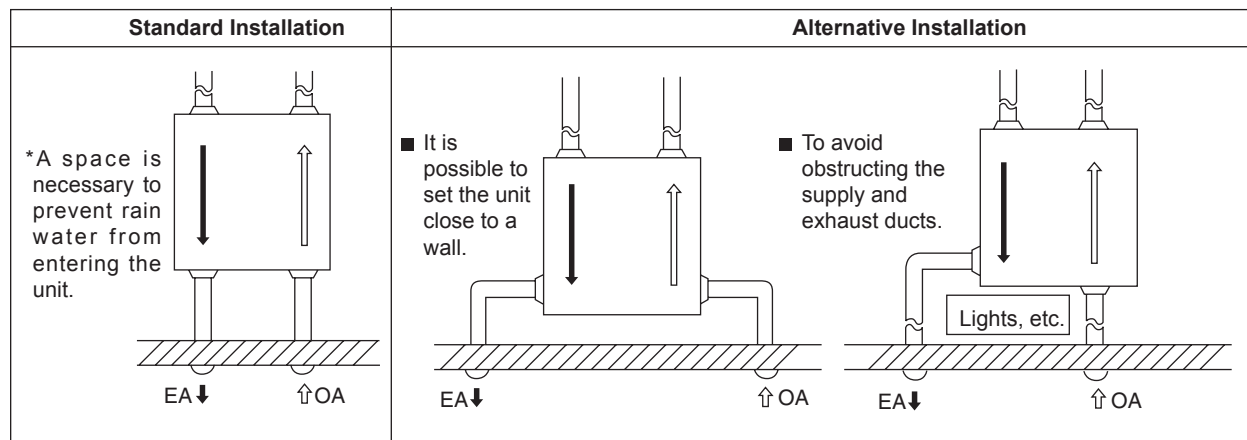
- In a region where there is risk of freezing in winter, it is recommended to install an Electrically operated damper, or the like, in order to prevent the intrusion of (cold) outdoor air while Lossnay is stopped.



## 9. INSTALLATION

### 9-3.1 Choosing the Duct Attachment

Choose between two directions for the outside duct (OA, EA) piping direction for alternative installation.



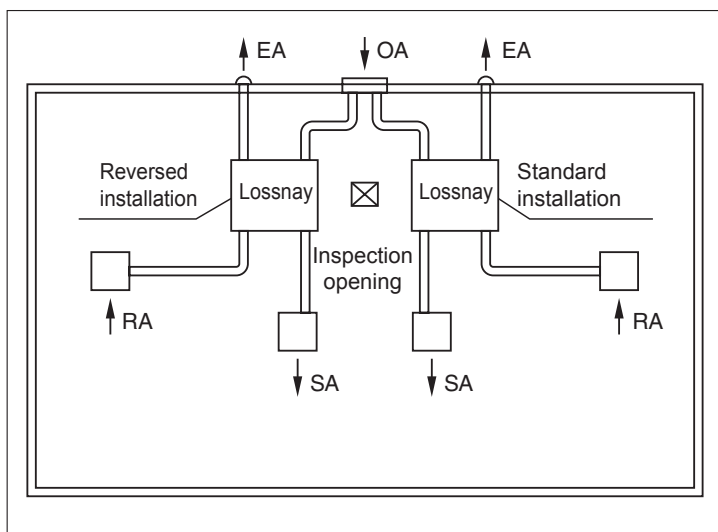
### 9-3.2 Installation and Maintenance

- (1) Always leave an inspection hole (18 sq. in.) to access the filter and Lossnay Core.
- (2) Always insulate the two ducts outside the room (intake air and exhaust air ducts) to prevent frost from forming.
- (3) Prevent rainwater from entering.
  - Apply a slope of 1/30 or more towards the wall to the intake air and exhaust air ducts outside the room.
  - Do not install the vent cap or round hood where it will come into direct contact with rainwater.
- (4) Use the optional "control switch" (Ex. PZ-60DR-E, etc.) for the RX5-type.  
A MELANS centralized controller can also be used.

### 9-3.3 Installation Applications

#### (1) Installing Two Units to One Outside Air Duct

The main unit's supply outlet and suction inlet and the room side and outdoor side positions cannot be changed. However, the unit can be installed upside-down, and installed as shown below. (This is applicable when installing two units in one classroom, etc.)

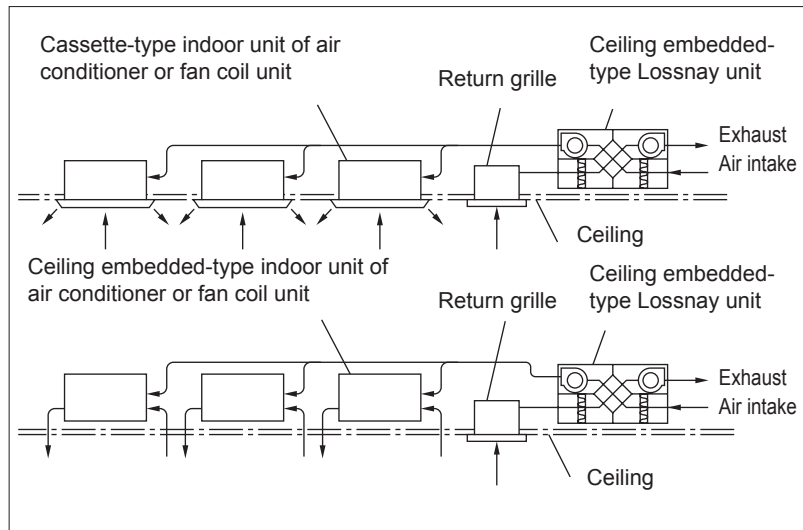


## 9. INSTALLATION

### (2) System Operation with Indoor Unit of Air Conditioner

There is an increased use of air conditioning systems with independent multiple air-conditioner unit due to their features such as improved controllability, energy conservation and saving space.

For these types of air conditioning systems, combining the operation of the dispersed air conditioners to Lossnay is possible.



## 10. FROST PREVENTION

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Under the following conditions, Lossnay will force stop of the air supply fan. However, when the following conditions are met while operating at Extra Low fan speed, the air supply fan will stop, and the exhaust fan will operate at Low fan speed.

(When operating at Extra Low fan speed, the air supply fan and the exhaust fan cannot be stopped separately.)

- When P-Series is in defrost or stopped due to a fault, in an interlocked system with P-Series that has a duct connection with Lossnay.  
(For cold inrush prevention, or falling dust prevention)
- When the indoor unit is in defrost, in an interlocked system with a CITY MULTI indoor unit that has a duct connection with Lossnay.  
(For cold inrush prevention)
- When the outside temperature is 14° F (-10° C) or lower, the air supply fan is stopped periodically for approximately 10 minutes to 55 minutes. Operation below 14° F is not recommended without the use of a preheat coil to maintain outdoor air inlet conditions above 14° F. When outdoor temperature falls below 5° F the unit will cycle off. The unit will cycle back on 5 minutes out of every 60 minutes to determine if outdoor air temperature is above 5° F. Operation below 14° F is not recommended without the use of a pre heat coil to maintain outdoor air inlet conditions above 14° F.  
When outdoor temperature falls below 5° F the unit will cycle off. The unit will cycle back on 5 minutes out of every 60 minutes to determine if outdoor air temperature is above 5° F.  
(To prevent freezing of the Lossnay core)

## 11. VENTILATION MODES

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Lossnay (heat exchange) ventilation or bypass (normal) ventilation is achieved by switching the air duct inside the Lossnay unit with a damper.

### 11.1 Ventilation Mode

There are three control modes.

- Lossnay ventilation (heat exchange ventilation) mode:  
Heat exchange ventilation is performed regularly via the Lossnay core.
- Bypass ventilation (normal ventilation) mode:  
Ventilation is performed regularly without going through the Lossnay core.
- Automatic ventilation mode:  
A temperature sensor built into the unit provides automatic ventilation to a suitable ventilation mode.  
In addition, energy saving ventilation is provided by interlocking with a P-Series or CITY MULTI indoor unit.

## 11. VENTILATION MODES

### 11.2 Damper control for each system

The control indicated below can be performed according to the system that is paired.

#### Caution

- Up to two of the Lossnay remote controllers PZ-60DR-E, PZ-41SLB-E, and PZ-52SF-E can be used in the same group, but they cannot be used together with a different remote controller. When using two remote controllers, be sure to use the same model of the remote controller.
- PZ-41SLB-E cannot be used in M-NET control. When controlling Lossnay in M-NET control, use PZ-60DR-E or PZ-52SF-E.

	System	Remote controllers System controllers	Ventilation mode
Basic System	Stand-alone/multiple Lossnay and Lossnay remote controller: PZ-60DR-E	Lossnay remote controller PZ-60DR-E	The "Function selector" button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation. Bypass ventilation is set at the time of night purge operation, and ventilation mode switching is not possible.
	Stand-alone/multiple Lossnay and Lossnay remote controller: PZ-41SLB-E	Lossnay remote controller PZ-41SLB-E	The "Function selector" button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation.
	System interlocked with Mr. Slim	A-control remote controller K-control remote controller (Remote controller connection prohibited with Lossnay )	Fixed to automatic ventilation.
	Level signal/pulse signal output device and external device only	None	Fixed to automatic ventilation.
M-NET Control	Stand-alone/multiple Lossnay and Lossnay remote controller: PZ-60DR-E	Lossnay remote controller PZ-60DR-E	The "Function selector" button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation. Bypass ventilation is set at the time of night purge operation, and ventilation mode switching is not possible.
	Stand-alone/multiple Lossnay and Lossnay remote controller: PZ-52SF-E	Lossnay remote controller PZ-52SF-E	The "Function selector" button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation.
	M-NET Lossnay central control system	M-NET controller	The "Operation mode" button of the system remote controller and the centralized controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation. (The schedule timer, ON/OFF remote controller, and the group remote controller do not permit ventilation mode selection.)
	M-NET System interlocked with City Multi indoor units	ME remote controller PAR-F27MEA, MA remote controller PAR-20/21MAA	Fixed to automatic ventilation.

## 11. VENTILATION MODES

### 11.3 Bypass ventilation prohibited

When the conditions described below are applicable, the ventilation mode will be fixed at Lossnay ventilation. When bypass ventilation has been set from the remote controller or the system controller, damper operation will be set to Lossnay ventilation, even though bypass ventilation is displayed on the ventilation mode display.

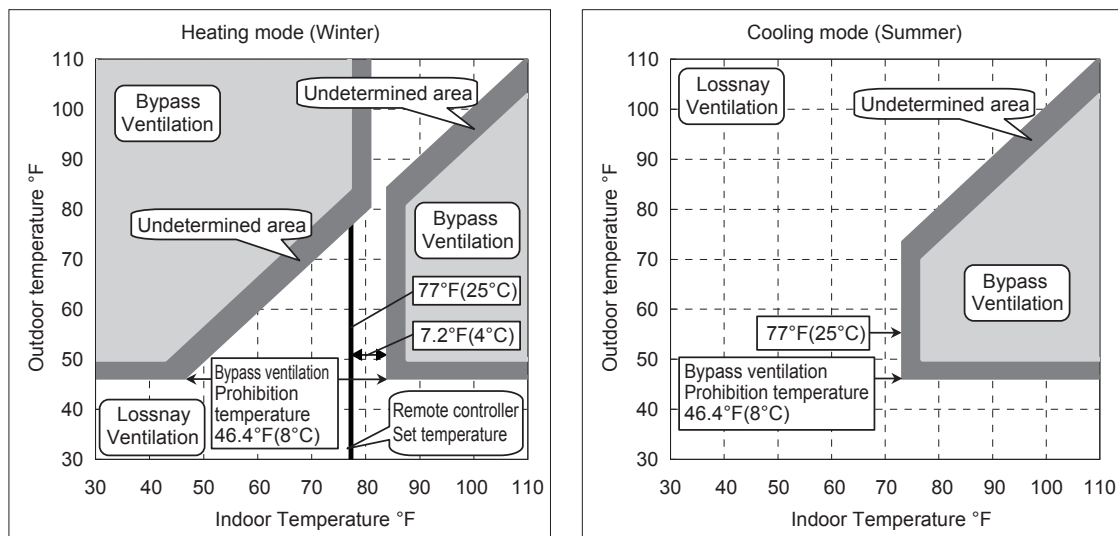
- When the outdoor temperature is 46.4°F (8°C) or lower. (Condensation prevention)  
When bypass ventilation prohibition has been set under this condition, the prohibition will be cancelled when the outdoor temperature goes from a temperature of less than 50°F (10°C) to one higher than 50°F (10°C).
- When there is an outdoor temperature (Outdoor Air) thermistor fault.
- When, in the automatic ventilation mode, there is an outdoor temperature (Outdoor Air) or indoor temperature (Return Air) thermistor fault.
- When Lossnay is set to the automatic ventilation mode and interlocked with P-Series or CITY MULTI indoor units set to the fan operation mode.

### 11.4 Automatic ventilation algorithm temperature map

Ventilation mode switching of Lossnay ventilation/Bypass ventilation in the automatic ventilation mode is in accordance with the following map.

#### a. Systems interlocked with P-Series and CITY MULTI indoor units

The map will differ depending on the operation mode that has been set with the A-control remote controller or the K-control remote controller for P-Series, or the MA remote controller or the ME remote controller for City Multi indoor units. The ventilation mode will be switched in conjunction with the set temperature of the air conditioner remote controller. Note that the “b” map will be followed while P-Series and CITY MULTI indoor units are stopped.



Lossnay ventilation area

Bypass ventilation area

Undetermined area

When operation starts under this condition, Lossnay ventilation will be activated.

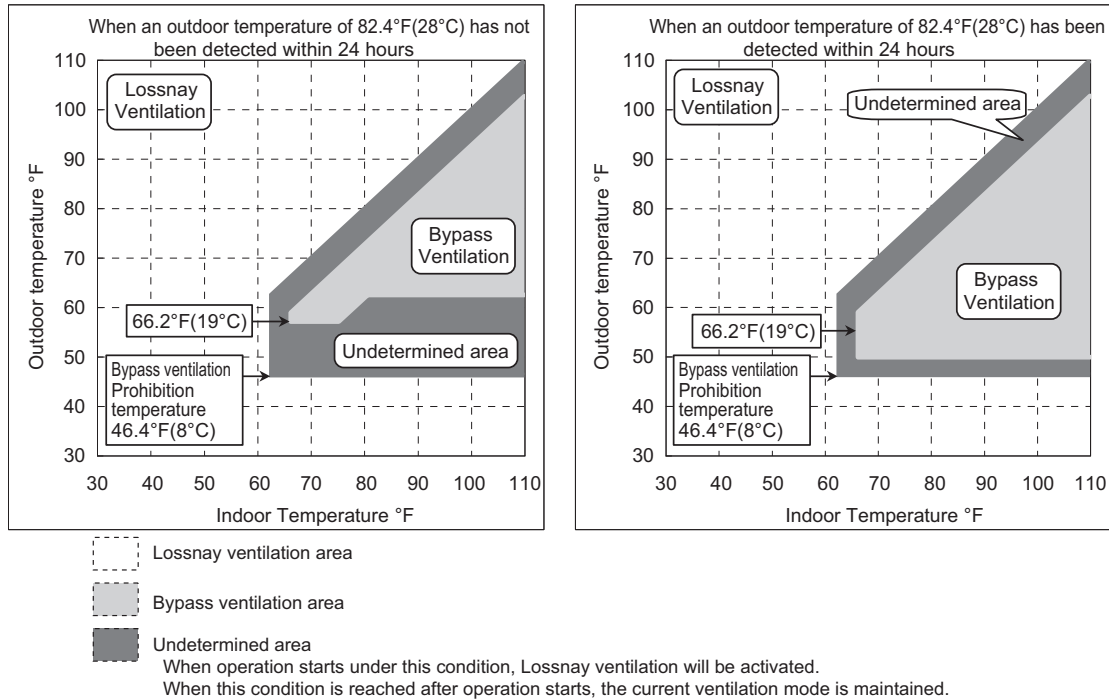
When this condition is reached after operation starts, the current ventilation mode is maintained.

## 11. VENTILATION MODES

b. When there is no interlocking with P-Series and CITY MULTI indoor units

### Pattern 1. Normal ventilation mode

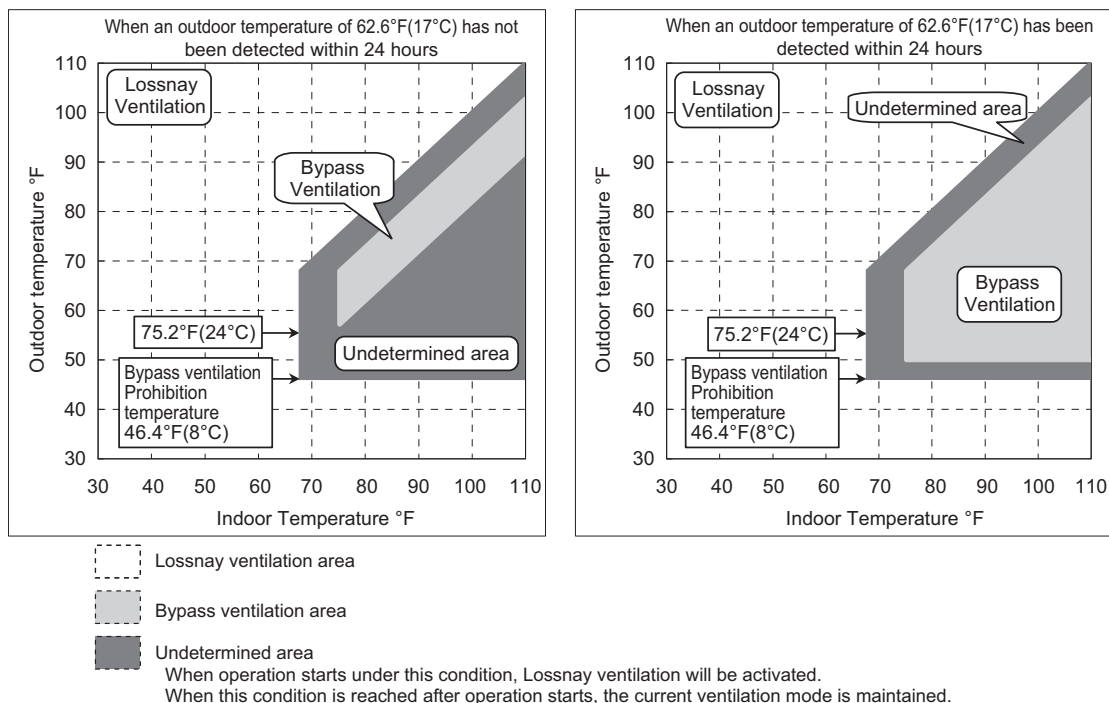
When PZ-60DR-E is used, operation will be at the setting of automatic ventilation adjustment pattern “1” of the remote controller function selection. When PZ-60DR-E is not used, operation will be at the OFF setting of function selection switch (SW2-7) on the Lossnay circuit board.



### Pattern 2. Outdoor cooling priority mode

When the outdoor temperature is lower than the indoor temperature, this mode actively takes in the outdoor air for cooling.

When PZ-60DR-E is used, operation will be at the setting of automatic ventilation adjustment pattern “2” of the remote controller function selection. When PZ-60DR-E is not used, operation will be at the ON setting of function selection switch (SW2-7) on the Lossnay circuit board.





## 11. VENTILATION MODES

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### 11.5 Ventilation mode change recommendation display

When PZ-60DR-E is used and the ventilation mode is set to Lossnay ventilation or bypass ventilation, "RECOMMENDED" and "VENTILATION MODE" may be displayed alternately (for 10 minutes maximum). This function informs the user of the suitable ventilation mode according to the automatic ventilation algorithm. When a ventilation mode change recommendation has been displayed, more comfortable ventilation can be provided by pressing the "Function selector" button of the remote controller and switching to another ventilation mode.

(We recommend that "AUTO" be selected for the ventilation mode; however, there is no problem in leaving the ventilation mode unchanged with "RECOMMENDED" "VENTILATION MODE" displayed.)