LG

LG Concealed Duct Air Conditioner

INSTALLATION MANUAL

IMPORTANT

- Please read this installation manual completely before installing the product.
- When the power cord is damaged, replacement work shall be performed by authorized personnel only.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

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Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.
■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠WARNING	This symbol indicates the possibility of death or serious injury.
⚠CAUTION	This symbol indicates the possibility of injury or damage.

■ Meanings of symbols used in this manual are as shown below.

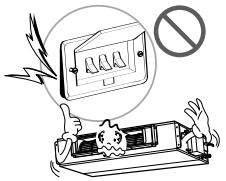
⃠	**Be sure not to do.**
❗	**Be sure to follow the instruction.**

⚠WARNING

■ Installation

Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.

• There is risk of fire or electric shock.

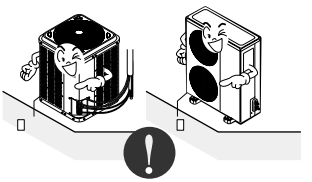


For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.

• Do not disassemble or repair the product. There is risk of fire or electric shock.

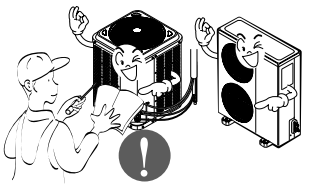
Always ground the product.

• There is risk of fire or electric shock.



Install the panel and the cover of control box securely.

• There is risk of fire or electric shock.

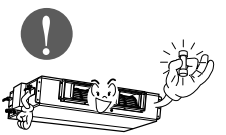


Always install a dedicated circuit and breaker.

• Improper wiring or installation may cause fire or electric shock

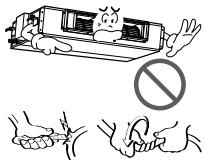
Use the correctly rated breaker or fuse.

• There is risk of fire or electric shock.



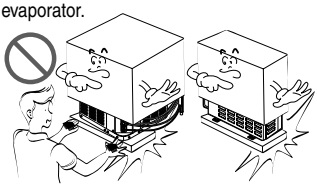
Do not modify or extend the power cable.

• There is risk of fire or electric shock.



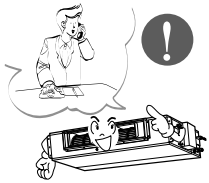
Be cautious when unpacking and installing the product.

• Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.



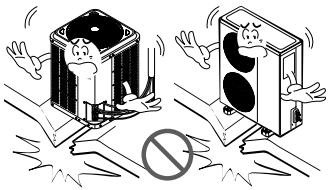
For installation, always contact the dealer or an Authorized Service Center.

• There is risk of fire, electric shock, explosion, or injury.



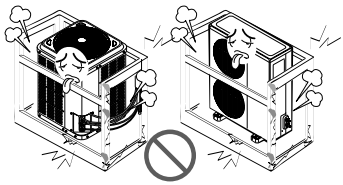
Do not install the product on a defective installation stand.

• It may cause injury, accident, or damage to the product.



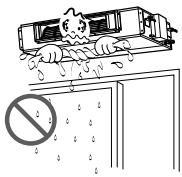
Be sure the installation area does not deteriorate with age.

• If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.



Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.

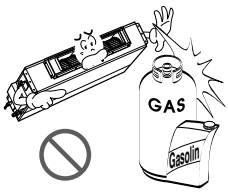
• Moisture may condense and wet or damage furniture.



■ Operation

Do not store or use flammable gas or combustibles near the product.

• There is risk of fire or failure of product.

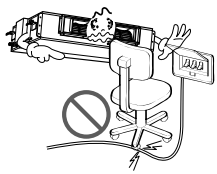


Take care to ensure that power cable could not be pulled out or damaged during operation.

• There is risk of fire or electric shock.

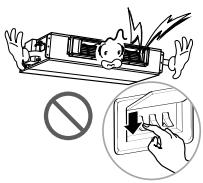
Do not place anything on the power cable.

• There is risk of fire or electric shock.



Do not plug or unplug the power supply plug during operation.

• There is risk of fire or electric shock.

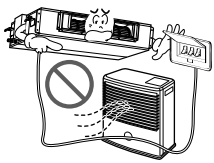


Do not touch(operate) the product with wet hands.

• There is risk of fire or electrical shock.

Do not place a heater or other appliances near the power cable.

• There is risk of fire and electric shock.

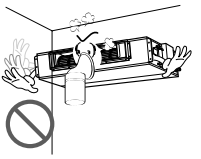


Do not allow water to run into electric parts.

- It may cause There is risk of fire, failure of the product, or electric shock.

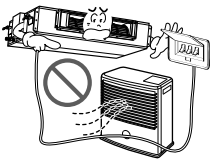
Do not use the product in a tightly closed space for a long time.

- Oxygen deficiency could occur.



When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.

- Do not use the telephone or turn switches on or off. There is risk of explosion or fire

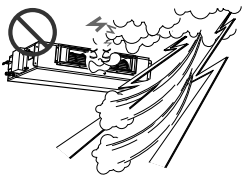


If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.

- There is risk of electric shock or fire.

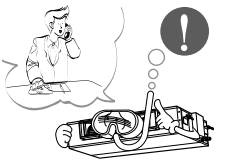
Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.

- There is risk of property damage, failure of product, or electric shock.



When the product is soaked (flooded or submerged), contact an Authorized Service Center.

- There is risk of fire or electric shock.

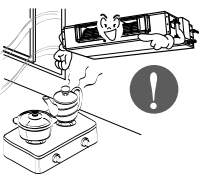


Be cautious that water could not enter the product.

- There is risk of fire, electric shock, or product damage.

Ventilate the product from time to time when operating it together with a stove, etc.

- There is risk of fire or electric shock.

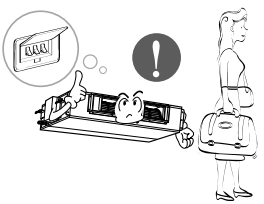


Turn the main power off when cleaning or maintaining the product.

- There is risk of electric shock.

When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.

- There is risk of product damage or failure, or unintended operation.



Take care to ensure that nobody could step on or fall onto the outdoor unit.

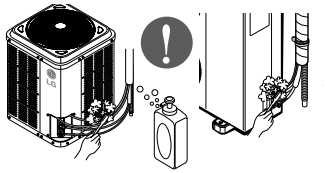
- This could result in personal injury and product damage.

⚠CAUTION

■ Installation

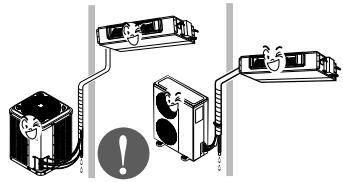
Always check for gas (refrigerant) leakage after installation or repair of product.

• Low refrigerant levels may cause failure of product.



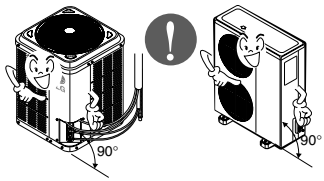
Install the drain hose to ensure that water is drained away properly.

• A bad connection may cause water leakage.



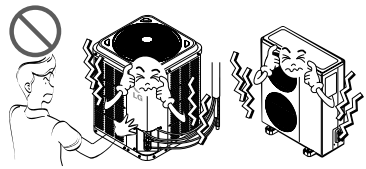
Keep level even when installing the product.

• To avoid vibration or water leakage.



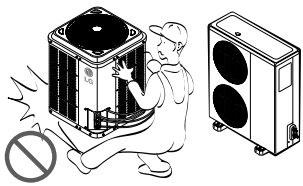
Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.

• It may cause a problem for your neighbors.



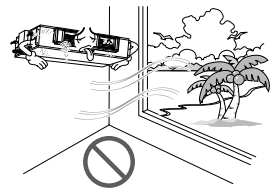
Use two or more people to lift and transport the product.

• Avoid personal injury.



Do not install the product where it will be exposed to sea wind (salt spray) directly.

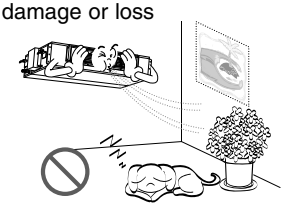
• It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.



■ Operation

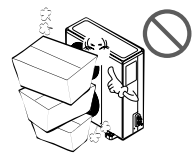
Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigeration system.

• There is risk of damage or loss of property.



Do not block the inlet or outlet of air flow.

• It may cause product failure.

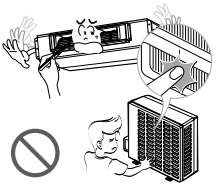


Do not step on or put anyting on the product. (outdoor units)

- There is risk of personal injury and failure of product.

Do not insert hands or other objects through the air inlet or outlet while the product is operated.

- There are sharp and moving parts that could cause personal injury.

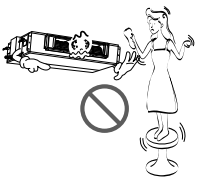


Do not drink the water drained from the product.

- It is not sanitary and could cause serious health issues.

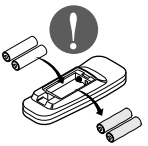
Use a firm stool or ladder when cleaning or maintaining the product.

- Be careful and avoid personal injury.



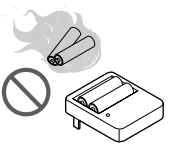
Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.

- There is risk of fire or explosion



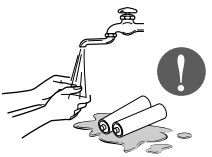
Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.

- They may burn or explode.



If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.

- The chemicals in batteries could cause burns or other health hazards.



Introduction

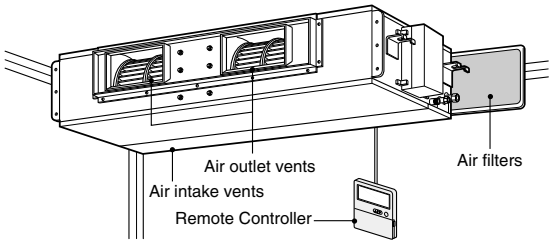
Symbols Used in this Manual

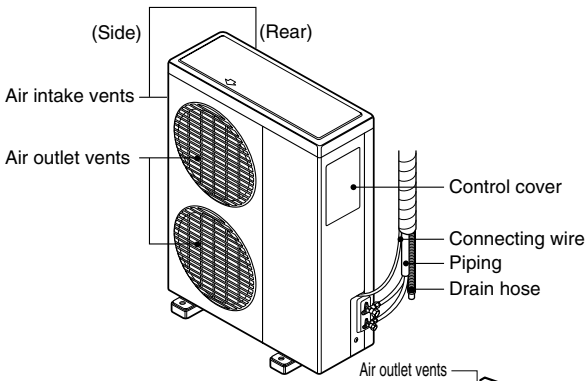
This symbol alerts you to the risk of electric shock.

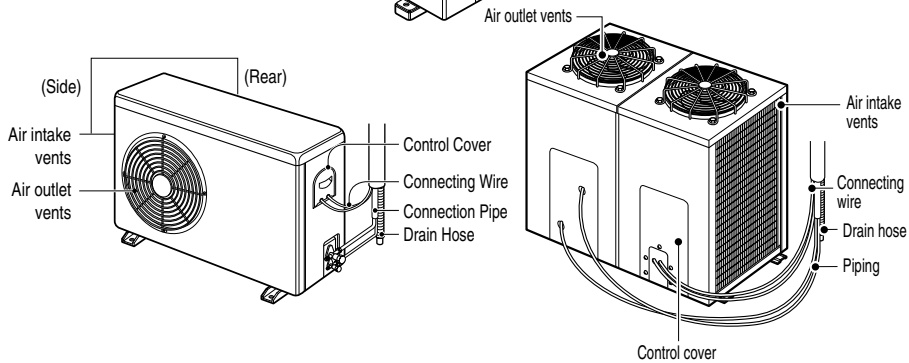
This symbol alerts you to hazards that could cause harm to the air conditioner.

NOTICE **This symbol indicates special notes.**

Features







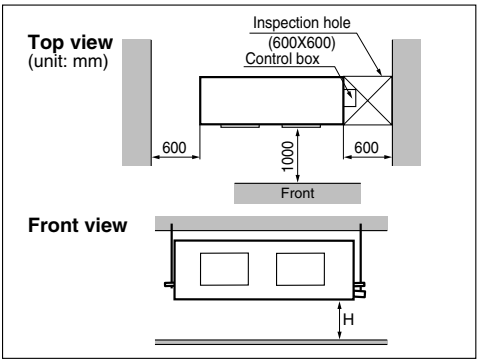
Installation of Indoor, Outdoor Unit

Selection of the best location

Indoor unit

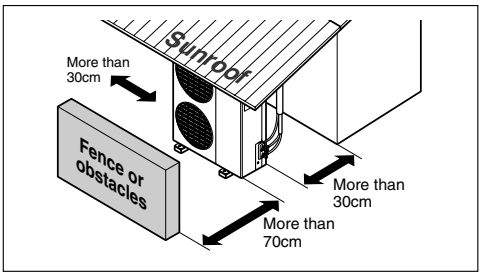
Install the air conditioner in the location that satisfies the following conditions.

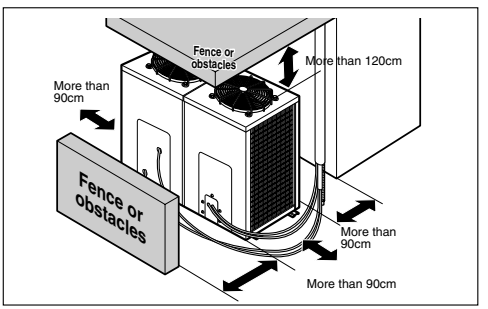
- The place shall easily bear a load exceeding four times the indoor unit's weight.
- The place shall be able to inspect the unit as the figure.
- The place where the unit shall be leveled.
- The place shall allow easy water drainage.(Suitable dimension "H" is necessary to get a slope to drain as figure.)
- The place shall easily connect with the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where air circulation in the room will be good .
- There should not be any heat source or steam near the unit



Outdoor unit

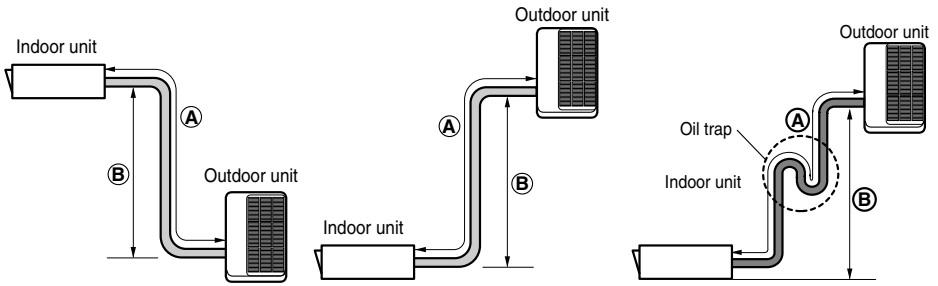
- If an awning is built over the unit to prevent direct sunlight or rain exposure, be careful that heat radiation from the condenser is not restricted.
- There should not be any animals or plants which could be affected by hot air discharged.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Take the weight of the air conditioner into account and select a place where noise and vibration are minimum.
- Select a place where the warm air and noise from the air conditioner do not disturb neighbors.





Piping length and the elevation

Capacity	Pipe Size (Diameter:Ø)		Length A(m)		Elevation B(m)		*Additional refrigerant(g/m)
	Gas	Liquid	Standard	Max.	Standard	Max.	
30k Btu/h	15.88(5/8")	6.35(1/4")	7.5	50	5	30	45
36k Btu/h(1Ø)	15.88(5/8")	6.35(1/4")	7.5	50	5	30	60
36k Btu/h(3Ø)	15.88(5/8")	6.35(1/4")	7.5	50	5	30	40
42k Btu/h	19.05(3/4")	9.52(3/8")	7.5	50	5	30	60
48k Btu/h	19.05(3/4")	9.52(3/8")	7.5	50	5	30	70
60k Btu/h	19.05(3/4")	9.52(3/8")	7.5	50	5	30	80



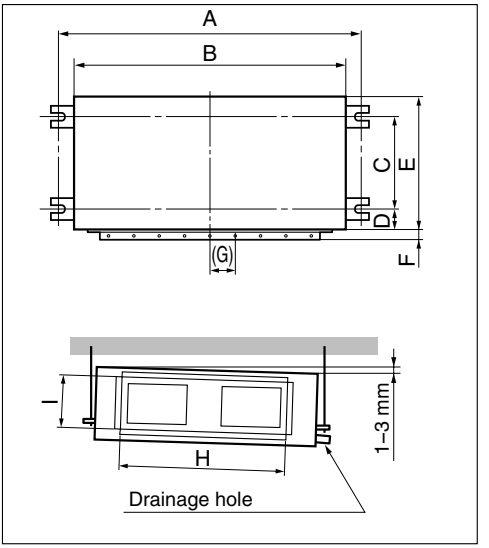
CAUTION:

- **If 60k Model is installed at a distance of 15m, 600g of refrigerant should be added (15-7.5) x 80g = 600g**
- **Capacity is based on standard length and maximun allowance length is on the basis of reliability.**
- **Improper refrigerant charge may result in abnormal cycle.**
- **Oil trap should be installed every 10 meters.**

Indoor unit installation

Installation of Unit

Install the unit above the ceiling correctly.



CASE 1

POSITION OF SUSPENSION BOLT

- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Apply a filter Accessory at air return hole.

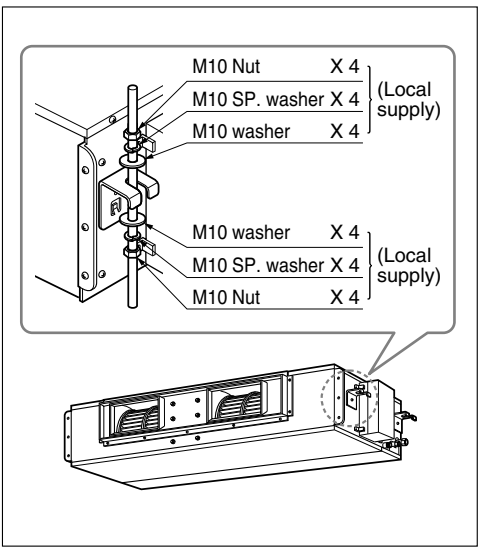
(Unit:mm)

Dimension / Capacity	A	B	C	D	E	F	(G)	H	I
30k/36k/42k Btu/h	1232	1180	355	45.5	450	30	87	830	186
48k/60k Btu/h	1282	1230	477	56	590	30	120	1006	294

CASE 2

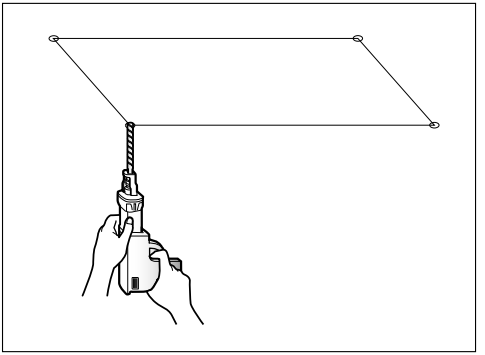
POSITION OF CONSOLE BOLT

- Install the unit leaning to a drainage hole side as a figure for easy water drainage.

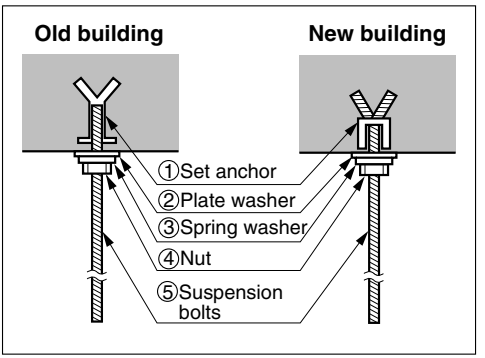


- A place where the unit will be leveled and that can support the weight of the unit.
- A place where the unit can withstand its vibration.
- A place where service can be easily performed.

- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.



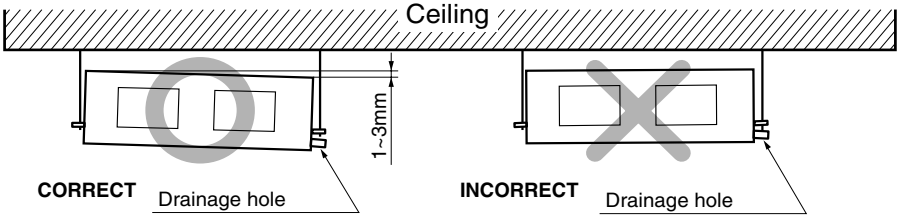
CAUTION:
Tighten the nut and bolt to prevent unit falling.

CAUTION

1. Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 5mm.

Front of view

• The unit must be horizontal or declined to the drain hose connected when finished installation.

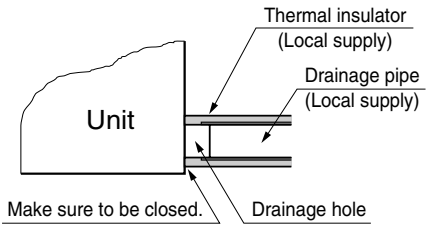


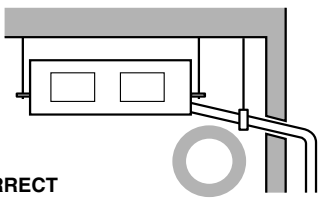
CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

Lay the drain hose with a downward inclination so water will drain out.

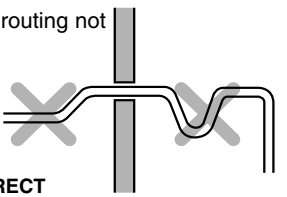
• Always lay the drain with downward inclination (1/50 to 1/100).
Prevent any upward flow or reverse flow in any part.

• 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.





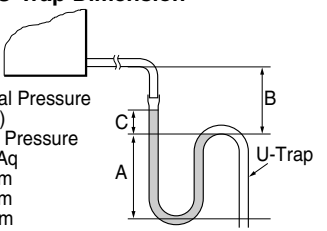
• Upward routing not allowed



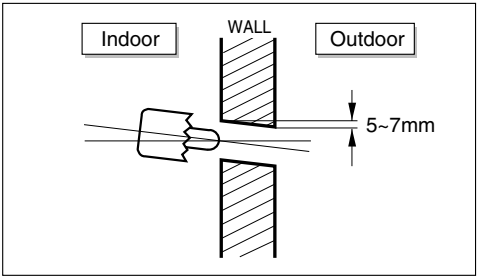
• Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.

Applied U-Trap Dimension

A ≥ 70mm
B ≥ 2C
C ≥ 2 x SP
SP = External Pressure (mmAq)
Ex) External Pressure
= 10mmAq
A ≥ 70mm
B ≥ 40mm
C ≥ 20mm



- Drill the piping hole with 70mm dia, hole core drill.
- Piping hole should be slightly slant to the outdoor side.

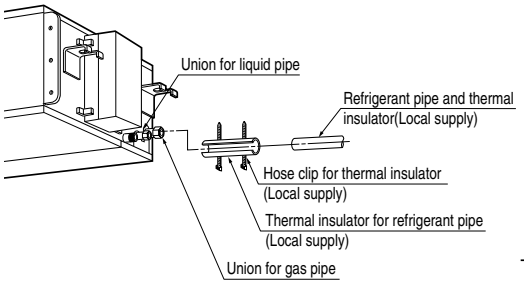


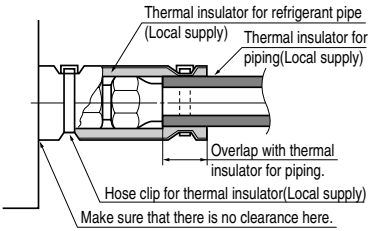
INSULATION, OTHERS

Insulate the joint and tubes completely.

THERMAL INSULATION All thermal insulation must comply with local requirement.

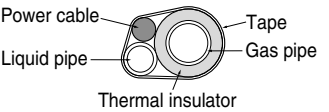
INDOOR UNIT





REFRIGERANT PIPE

- Insulate and tape the gas piping.



CAUTION: Cutting line of insulation must look upper direction. Thickness of insulation is 7mm or over.

NOTICE Recommended Insulation material
Meterial: FOAM PE
Thickness : 10mm
Density : less than 0.032±0.005(g/cm²)

Thermal conductivity : less than 0.03(kcal/m.hr.°C)

TEST AND CHECK

■ *After all workings are finished, check the working and operation.*

- Air distribution ——— Is the air circulation good?
- Drain ——— Is the drainage smoothly and no sweating?
- Gas leakage ——— Is the piping connection correctly?
- Wiring ——— Is the wiring connection correctly?
- Lock-bolt ——— Is the lock-bolt of compressor loosened?

INSTALLATION OF REMOTE CONTROL BOX

Install the remote control box and cord correctly.

POINT OF REMOTE CONTROLLER INSTALLATION

• Although the room temperature sensor is in the indoor unit, the remote control box should be installed in such places away from direct sunlight and high humidity.

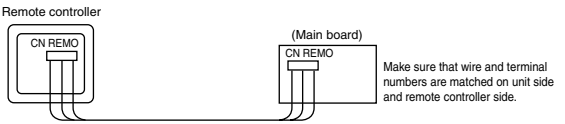
INSTALLATION OF THE REMOTE CONTROL BOX

- Select places that is not splashed by water.
- Select control position after receiving customer approval.
- The room temperature sensor of the thermostat for temperature control is built in the indoor unit.
- This remote controller equipped with liquid crystal display. If this position is higher or lower, display is difficult to see. (The standard height is 1.2~1.5m high)

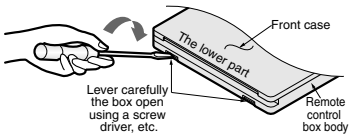
ROUTING OF THE REMOTE CONTROL CORD

- Keep the remote control cord away from the refrigerant piping and the drain piping.
- To protect the remote control cord from electrical noise, place the cord at least 5cm away from other power cables. (Audio equipment, Television set, etc)
- If the remote control cord is secured to a wall, provide a trap at the top of the cord to prevent water droplets from running.

ELECTRICAL WIRING TO THE INDOOR UNIT



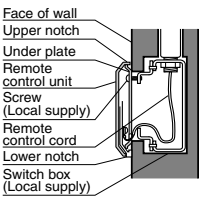
DISASSEMBLING OF THE REMOTE CONTROLLER



WHEN THE REMOTE CONTROL BOX IS INSTALLED WITH THE CORD BURIED.

PROCEDURE OF INSTALLATION

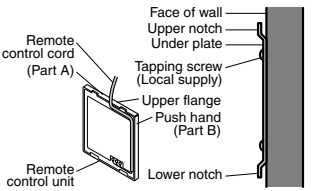
1. Fix the under plate on the switch box by screws(Local supply). In this case, fit the under plate on the wall, and be careful of deformation.
2. Receive the remote control cord in the switch box.
3. Hook the remote control unit on the under plate.



WHEN THE REMOTE CONTROL BOX IS INSTALLED WITH THE CORD EXPOSED.

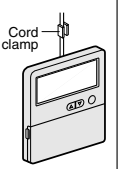
PROCEDURE OF INSTALLATION

1. Fix the under plate on the wall by self tapping screws (accessory).
2. Make a slit (Part A) at the top side of the remote control box by nipper.
3. Rout the cord as shown in the following figure. In this case, push the cord into the around of case(Part B).
4. Hook the remote control unit on the under plate.



FIXING OF REMOTE CONTROL CORD

1. Fix the cord clamps on the wall by ø3 tapping screws(Local supply).
2. Fix the remote control cord.



WIERED REMOTE CONTROLLER INSTALLATION

• Since the room temperature sensor is in the remote controller, the remote controller box should be installed in a place away from direct sunlight, high humidity and direct supply of cold air to maintain proper space temperature.
Install the remote controller about 5ft(1.5m) above the floor in an area with good air circulation at an average temperature.

Do not install the remote controller where it can be affected by:

- Drafts, or dead spots behind doors and in corners.
- Hot or cold air from ducts.
- Radiant heat from sun or appliances.
- Concealed pipes and chimneys.
- Uncontrolled areas such as an outside wall behind the remote controller.
- This remote controller is equipped with a seven segment LED. display. For proper display of the remote controller LED's, the remote controller should be installed properly as shown in Fig.1.
(The standard height is 1.2~1.5 m from floor level.)

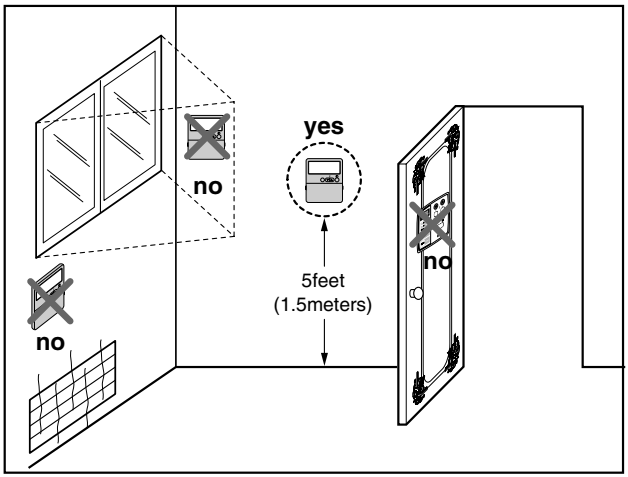


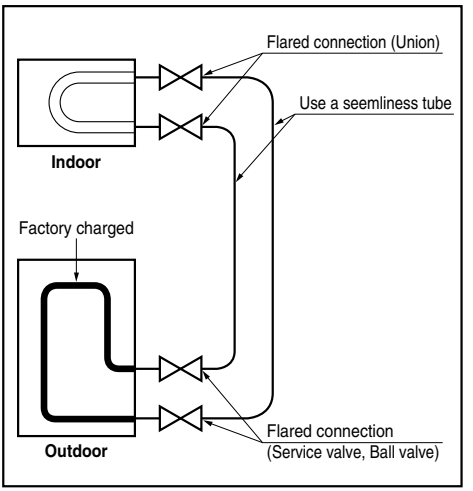
Fig.1 Typical locations for remote controller

REFRIGERANT PIPING

Perform the work according to the Service Manual or Installation Guide.

- Use two spanners when connecting the refrigerant pipe to the unit.
- Make a bend with a radius as large as possible.
- Perform air purge with R-22 or vacuum drying.
- When piping work is finished, check all joints.

Capacity	Additional refrigerant(g/m)
30k Btu/h	45
36k Btu/h(1Ø)	60
36k Btu/h(3Ø)	40
42k Btu/h	60
48k Btu/h	70
60k Btu/h	80



INSTALLATION OF OUT DOOR UNIT

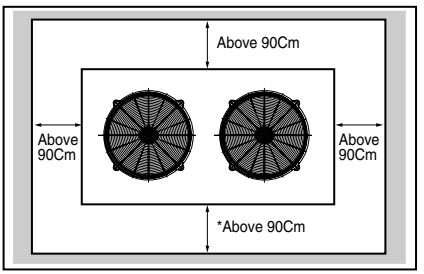
Select a location that satisfies the following conditions. Install the unit firmly in place.

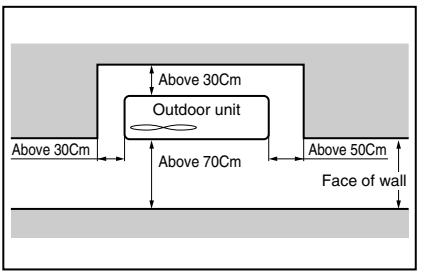
■ Select the following location

- A place where the air conditioner can get good ventilation.
- A place where it shall not annoy the neighbors.
- A place where the unit shall be leveled and that can support the weight of unit and withstand its vibrations.

■ Keep a maintenance space

*** One side must be 90Cm for service.**
Two of the remaining three sides may be 30Cm.



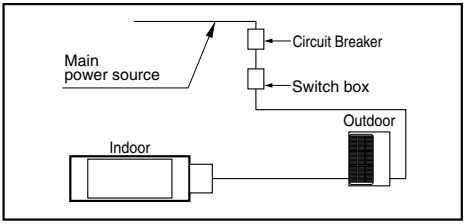


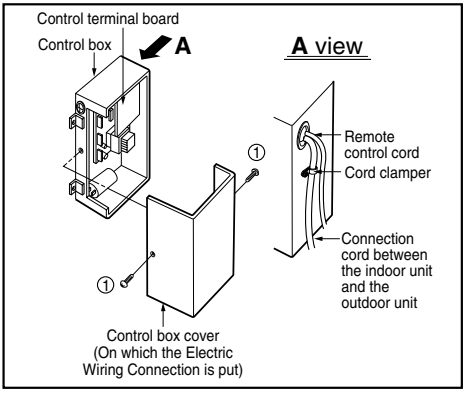
ELECTRICAL WIRING

Perform the electrical wiring work according to the electrical wiring connection.

- All wiring must comply with local requirements.
- Select a power source that is capable of supplying the current required by the air conditioner.
- Use a recognized circuit breaker between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.
- Capacity of circuit breaker

Capacity	1 Phase	3 Phase
30k Btu/h	30A	-
36k Btu/h	35A	25A
42k Btu/h	-	25A
48k Btu/h	-	25A
60k Btu/h	-	30A

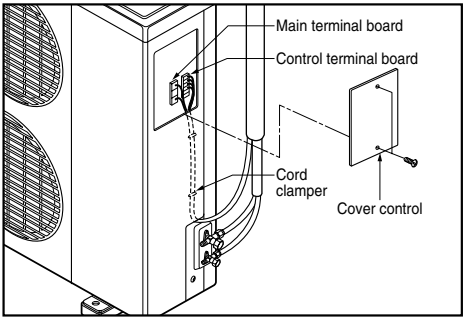




WIRING CONNECTION

Indoor unit

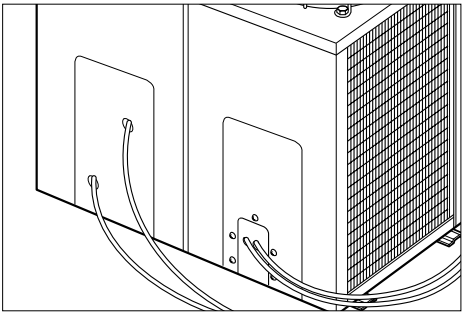
- Remove the control box cover for electrical connection between the indoor and outdoor unit. (Remove crews ①.)
- Use the cord clamper to fix the cord.



Outdoor unit

- Remove the control cover for wiring connection.
- Use the cord clamper to fix the cord.
- Earthing work
  Connect the cable of diameter 1.6mm2 or more to the earthing terminal provided in the control box and do earthing.

※ **Please check !!**



Connecting Pipes to the Indoor Unit

Preparation of Piping

Main cause of gas leakage is defect in flaring work. Carry out correct flaring work in the following procedure.

Cut the pipes and the cable.

- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1.5m longer than the pipe length.

Burrs removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the tubing.

Putting nut on

- Remove flare nuts attached to indoor and outdoor units, than put them on pipe/tube having completed burr removal.
  (Not possible to put them on after flaring work)

Flaring work

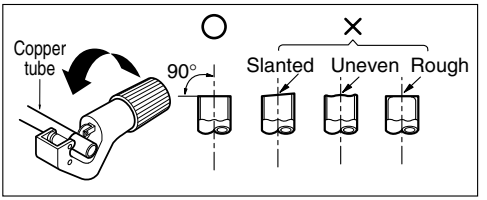
- Carry out flaring work using flaring tool as shown below.

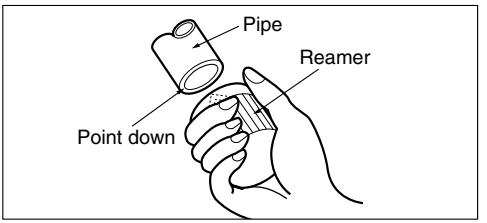
Outside Diameter	"A"
6.35(1/4")	1.1~1.3
9.52(3/8")	1.5~1.7
12.70(1/2")	1.6~1.8
15.88(5/8")	1.6~1.8
19.05(3/4")	1.9~2.1

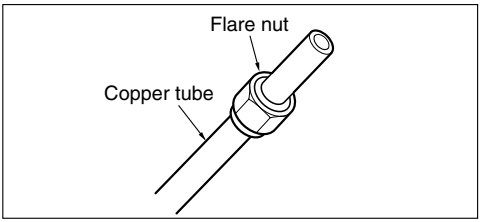
Firmly hold copper tube in a bar(or die) as indicated dimension in the table above.

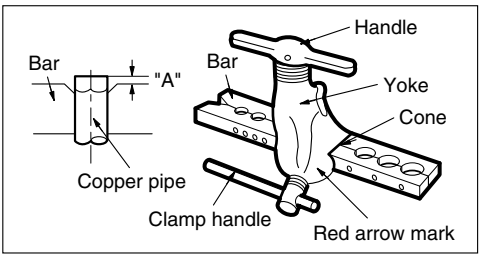
Check

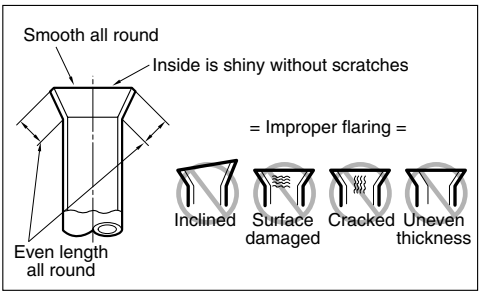
- Compare the flared work with figure.
- If flare is noted to be defective, cut off the flared section and do flaring work again.











Pipe bending

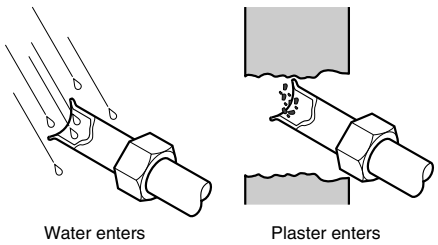
Annealed copper pipe with small diameter (ø6.35 or ø9.52) can be easily bent manually. In this case, secure large R(radius) for the bend section and gradually bend pipe. If annealed copper pipe is large in diameter (ø15.88 or ø19.05), bend pipe with bender. Use bender appropriate for the pipe diameter.

Brazing

In refrigerant piping, bending (in particular, acute bending) must be minimized to reduce piping resistance. Bending is, however, necessary in some places by virtue of the installation position of devices auxiliary to the packaged air conditioner, or of the building structure, piping distance or finishing appearance. If a more acute bend is required than that attainable by pipe bender, perform brazing using ready-made elbow. Aside from this function, brazing also serves to connect straight pipes, generally using ready-made sockets. While brazing, protect piping against heat with wet cloth to avoid damaging valve packing or burning thermal insulator with burner heat. While brazing, blow inert gas (nitrogen gas or carbonic gas) to prevent formation of oxidation film in copper piping; otherwise, the refrigerant circuit will clog. The blowing of nitrogen gas (or carbonic gas) through 3-way valves is described in the following:

Refrigerant piping(Flare piping)

When connecting piping, be sure to keep piping dry(keep piping away from water), clean (keep piping away from dust) and airtight (avoid refrigerant leakage).
When connecting piping on rainy days or making a through-hole in wall, take due care to prevent water or plaster from entering piping.



CAUTION:

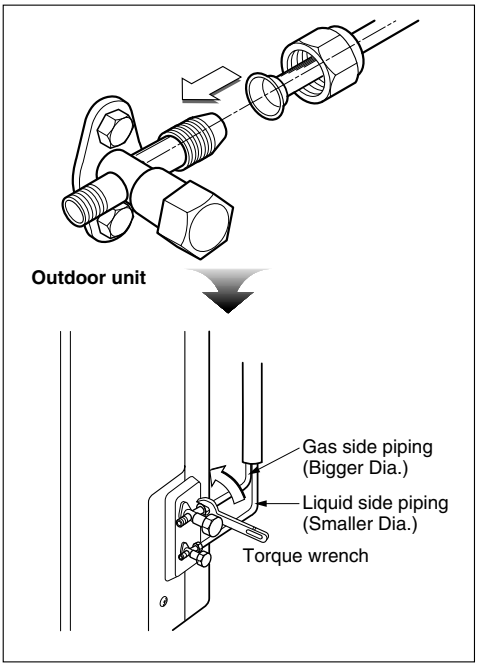
- **This procedure is designed to prevent formation of oxidation film by filling piping with inert gas. Note that excessive gas pressure will generate pinholes at brazed points.**
  (Nitrogen gas: Supply pressure 0.05~0.1kg/cm²G)
- **When supplying inert gas, be sure to open one end of piping.**

Connecting Pipes to the Outdoor Unit

Connecting the pipes to the Outdoor unit

- Align the center of the pipings and sufficiently tighten the flare nut with fingers.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
  - When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

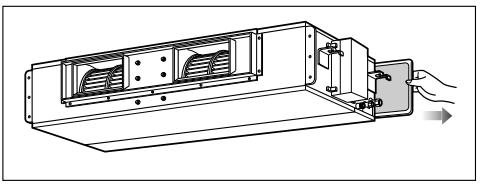
Pipe size	kgf·m	N·m
6.35(1/4")	1.8~2.5	14~18
9.52(3/8")	3.4~4.2	36~42
12.70(1/2")	5.5~6.6	49~61
15.88(5/8")	6.3~8.2	68~82
19.05(3/4")	9.9~12.1	100~120



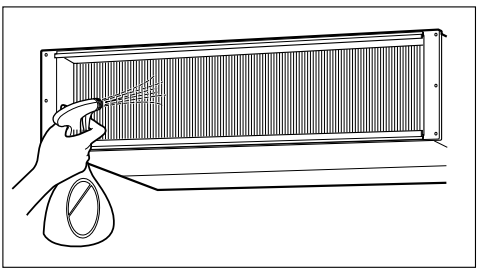
Checking the Drainage

Checking the Drainage

- Remove the Air Filter.



- Check the drainage.
  - Spray one or two glasses of water upon the evaporator.
  - Ensure that water flows drain hose of indoor unit without any leakage.



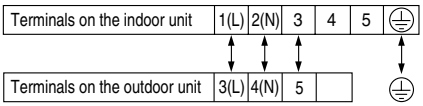
Connecting Cables between Indoor Unit and Outdoor Unit

Connecting cables to the Indoor Unit

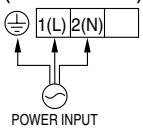
■ Connect the wires to the terminals on the control board individually according to the outdoor unit connection.
- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively

■ 30/36(1Ø)k Btu/h

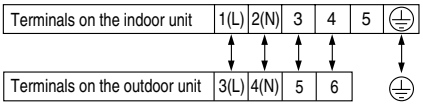
• Cooling only type



(220-240V~)

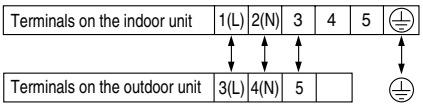


• Cooling & Heating type

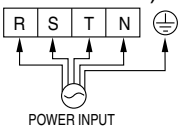


■ 36(3Ø)k Btu/h

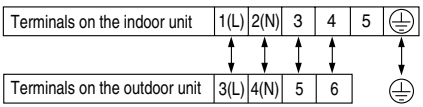
• Cooling only type



(380-415V3N~)

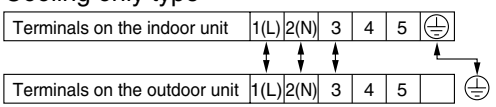


• Cooling & Heating type

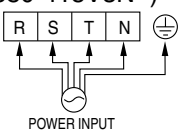


■ 42/48/60k Btu/h

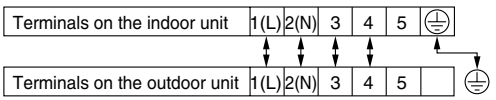
• Cooling only type



(380-415V3N~)



• Cooling & Heating type

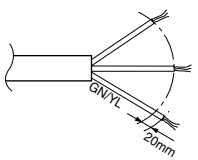


CAUTION

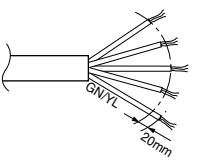
The power cord connected to the outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).

NORMAL CROSS-SECTIONAL AREA

Capacity	1 Phase	3 Phase
30k Btu/h	5.5mm²	-
36k Btu/h	5.5mm²	2.5mm²
42k Btu/h	-	2.5mm²
48k Btu/h	-	3.5mm²
60k Btu/h	-	3.5mm²



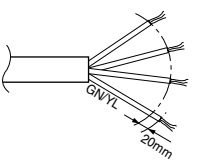
1 Phase(1P)



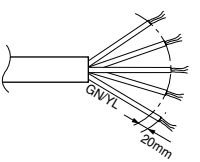
3 Phase(3P4W)

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).

NORMALCROSS-SECTIONA AREA 0.75mm² (30/36/42k)
1.25mm² (48/60k)



Cooling Only



Heat Pump

If the supply cord is damaged, it must be replaced by a special cord or assembly availible from the manufacturer of its service agent.

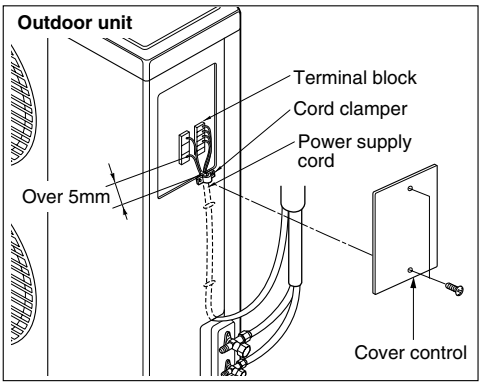
CAUTION: Make sure that the screws of the terminal fixed tightly.

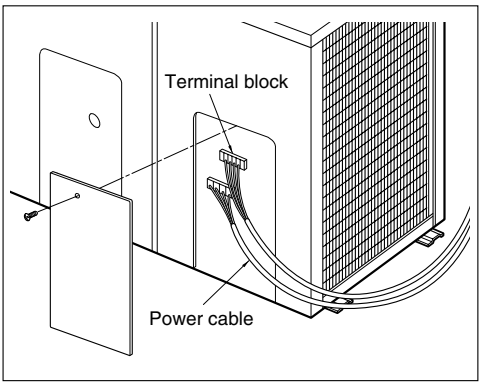
Clamping of cables

- Arrange 2 power cables on the control panel.
- First, fasten the steel clamp with a screw to the inner boss of control panel.
- For the cooling model, fix the other side of the clamp with a screw strongly.
  For the heat pump model, put the 0.75mm^2 cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
- In Australia, the length of power supply cord measured from the entry of the power supply cord to the middle of live pin on the power plug should be over 1.8m.

Connecting the cable to the Outdoor Unit

- Remove the Cover control from the unit by loosening a screw.
  Connect the wires to the terminals on the control board individually as following.
- Secure the cable onto the control board with the holder (clamper).
- Refix the cover control to the original position with the screw.





CAUTION: After the confirmation of the above conditions, prepare the wiring as follows:

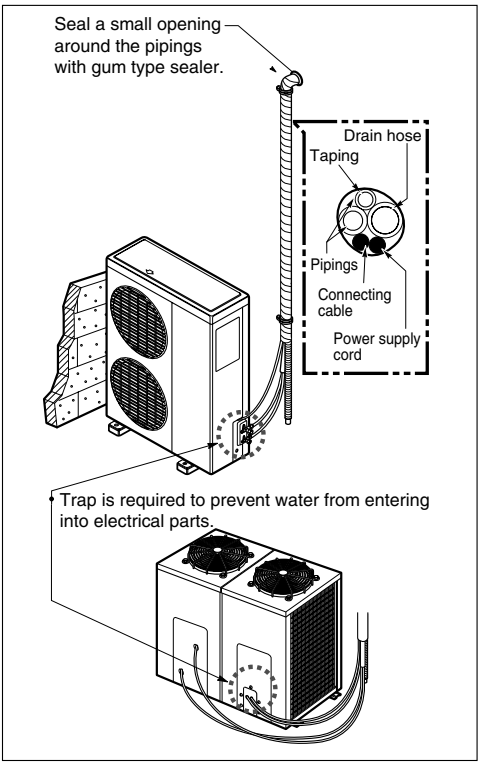
1) Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.
2) Provide a circuit breaker switch between power source and the unit.
3) The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)
4) Specification of power source
5) Confirm that electrical capacity is sufficient.
6) Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
7) Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)
8) Never fail to equip a leakage breaker where it is wet or moist.
9) The following troubles would be caused by voltage drop-down.
- Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
- Proper starting power is not given to the compressor.

Form the pipings

- Wrap the connecting portion of indoor unit with the Insulation material and secure it with two Plastic Bands. (for the right pipings)
  - If you want to connect an additional drain hose, the end of the drain-outlet should keep distance from the ground. (Do not dip it into water, and fix it on the wall to avoid swinging in the wind.)

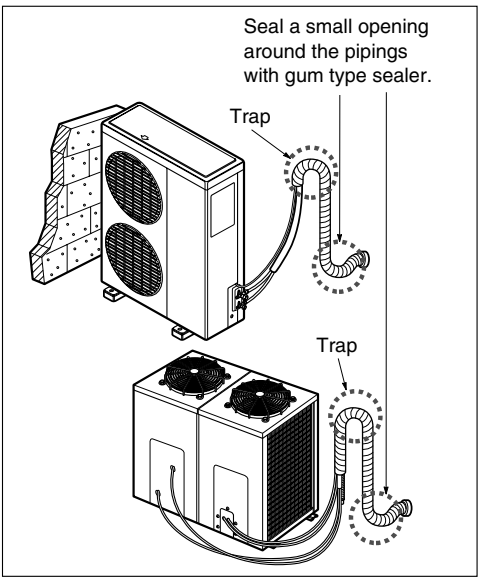
In case of the Outdoor unit being installed below position of the Indoor unit.

- Tape the Pipings, drain hose and Connecting Cable from bottom to top.
- Form the pipings gathered by taping along the exterior wall and fix it onto the wall by saddle or equivalent.



In case of the Outdoor Unit being installed above position of the Indoor Unit.

- Tape the Pipings and Connecting cable from bottom to top.
- Form the pipings gathered by taping along the exterior wall, and make the trap prevent water from entering into the room.
- Fix the pipings onto the wall by saddle or equivalent.



Air Purging and Evacuation

Air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

1. Pressure in the system rises.
2. Operating current rises.
3. Cooling(or heating) efficiency drops.
4. Moisture in the refrigerant circuit may freeze and block capillary tubing.
5. Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor/outdoor unit and connecting tube must be checked for leak tight, and vacuumed to remove incondensible gas and moisture in the system.

Checking method

Preparation

- Check that each tube(both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Check that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

Leakage test

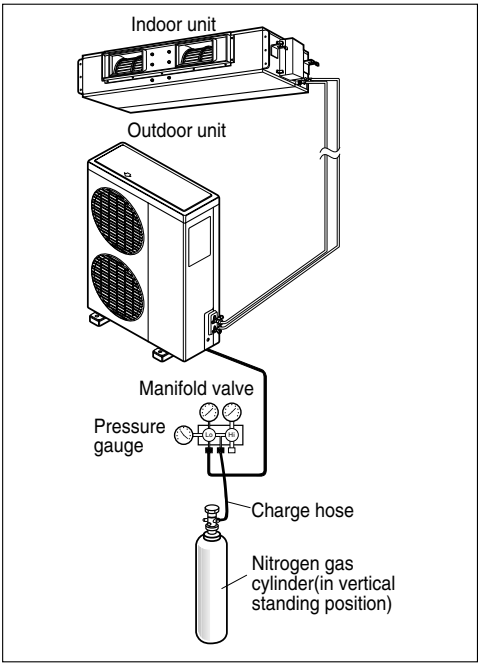
- Connect the manifold valve(with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.

⚠ CAUTION: Be sure to use a manifold valve for leakage test. If it is not available, use a stop valve for this purpose. The "Hi" knob of the manifold valve must always be kept close.

- Pressurize the system to no more than 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reached 150 P.S.I.G. Next, test for leaks with liquid soap.

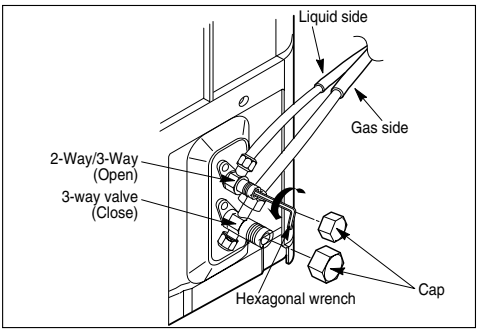
⚠ CAUTION: To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.

1. Do a leakage test of all joints of the tubing(both indoor and outdoor) and both gas and liquid side service valves.
   Bubbles indicate a leak. Be sure to wipe off the soap with a clean cloth.
2. After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.



Soap water method

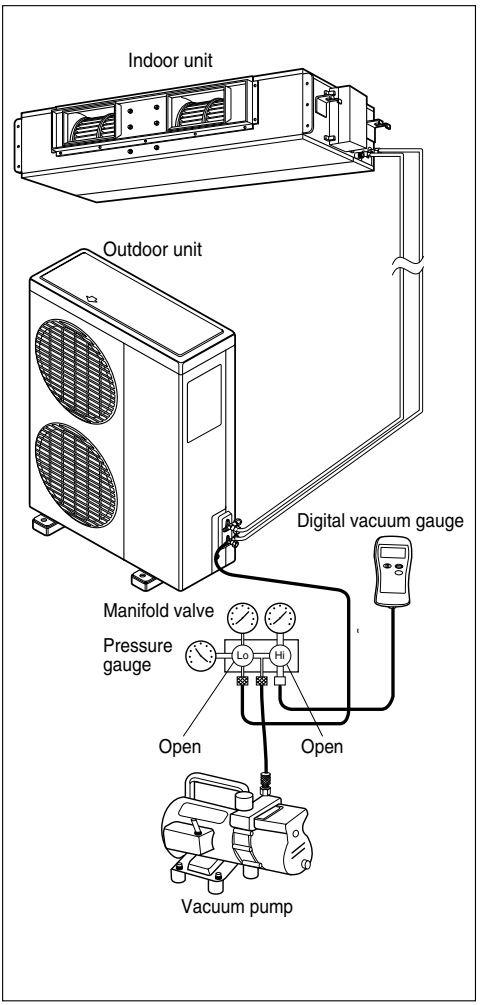
1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valve.
3. To open the 2-way valve turn the valve stem counterclockwise approximately 90°, wait for about 2~3 sec, and close it.
4. Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping.
5. If bubbles come out, the pipes have leakage



Evacuation

1. Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit.
   Confirm the "Lo" knob of the manifold valve is open. Then, run the vacuum pump.
   The operation time for evacuation varies with tubing length and capacity of the pump.
   After the vacuum state is 0.8 torr,
   continue to vacuumize over 10 minutes more.

2. When the desired vacuum is reached, close the "Lo" knob of the manifold valve and stop the vacuum pump.



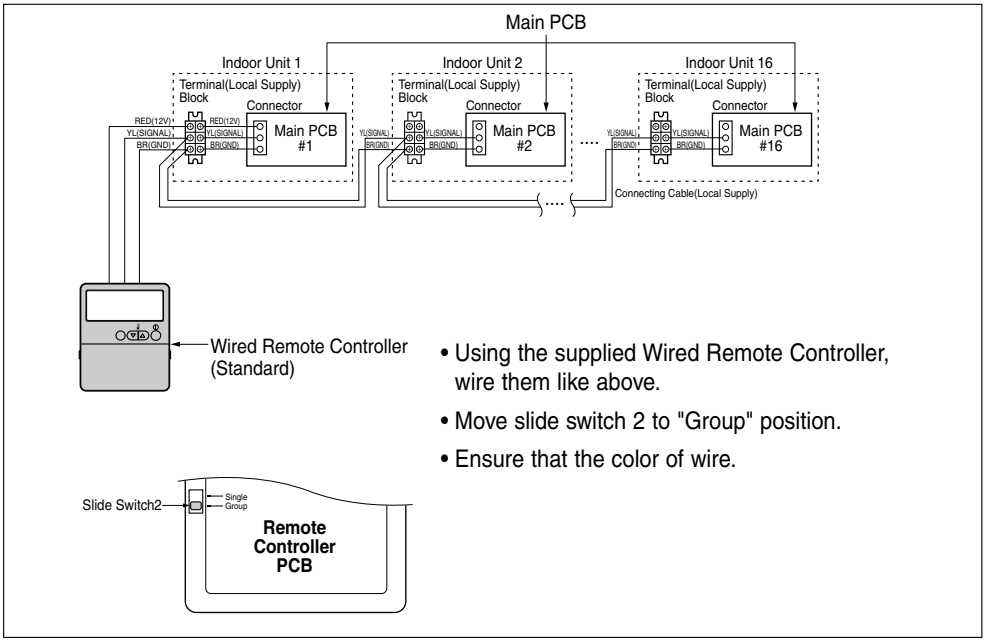
Finishing the job

1. With a service valve wrench, turn the valve stem of liquid side valve counter-clockwise to fully open the valve.
2. Turn the valve stem of gas side valve counter-clockwise to fully open the valve.
3. Loosen the charge hose connected to the gas side service port slightly to release the pressure, then remove the hose.
4. Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This process is very important to prevent leakage from the system.
5. Replace the valve caps at both gas and liquid side service valves and fasten them tight.

This completes air purging with a vacuum pump.
The air conditioner is now ready to test run.

Group Control

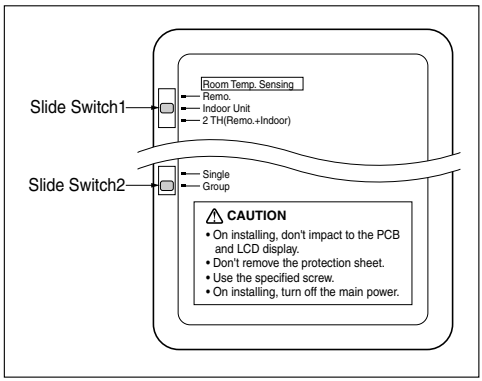
It operates maximum 16 Units by only one Wired Remote Controller, and each Unit starts sequentially to prevent overcurrent.



- Using the supplied Wired Remote Controller, wire them like above.
- Move slide switch 2 to "Group" position.
- Ensure that the color of wire.

Two Thermistor system

- Open the rear cover of Remote Controller to set up the mode.
- Selectable options are three as follows.
  - Remo: Sensing the room Temperature.
  - Indoor Unit: Sensing the intake air into indoor Unit.
  - 2 TH: Sensing the lower temperature of the two thermistors.
- To set up the mode, adjust the slide switch to desired mode position on installing.



E.S.P.(External Static Pressure) Setting

Open the rear cover of the wired remote-controller to set the mode.
Select one of three selectable modes as follows.

■ **Without Zone System**

1. Position V-H, F-H:
   • This position sets the maximum E.S.P as a default set.
2. Position V-L:
   • This position sets the minimum E.S.P as a default set.

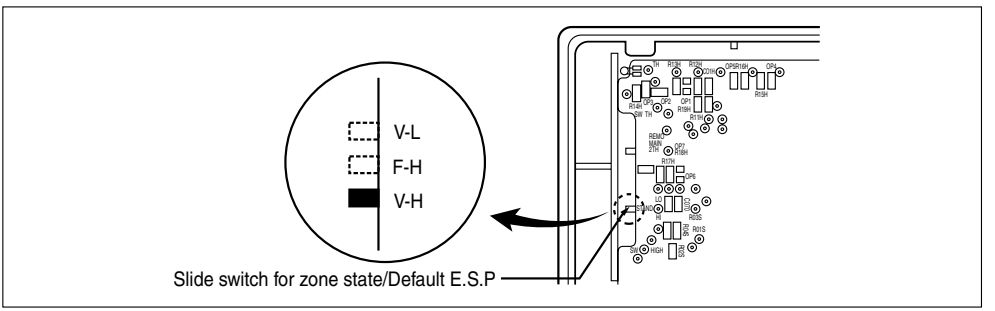
■ **With Zone System**

1. Position V-H:
   • Maximum E.S.P setting & Fan speed is varied according to the state of dampers by micom.
2. Position F-H:
   • Maximum E.S.P setting & Fan speed doesn't vary according to the opening & Closing of dampers.
3. Position V-L:
   • Minimum E.S.P setting & Fan speed is varied according to the state of dampers by micom.

*Maximum: 30k(H/P)-10mmAq, 30k(C/O)/36k/42k-8mmAq, 48k/60k-15mmAq

Minimum: All-0mmAq

Move the slide switch to set position.



Close the rear cover and check if it works normally.

CAUTION:
• Select the position after checking duct work and E.S.P of the unit.
• Maunfactured in the position F-H.

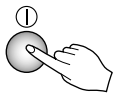
How to Set E.S.P?

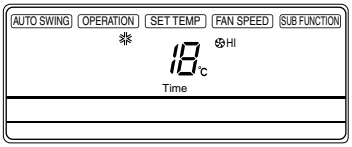
Procedure of RPM change:

Ex) External Static Pressure is 6mmAq for Model Name "LB-C306GSS0"

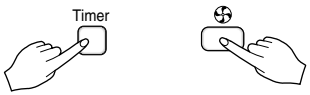
• To protect the unit, compressor is designed to be off during E.S.P. setting.

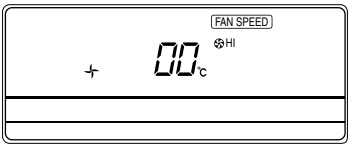
1 Push the "On/Off" button.
The unit will start.



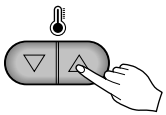


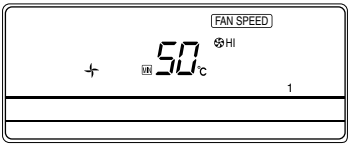
2 Push the "Timer" and "Wind" button simultaneously for more then 3 seconds.





3 Push the "Up" of "Down" button for E.S.P adjustment.
And, adjust the number which you want.(In this example, the number is "150". Refer to the table 1 on the next page.)

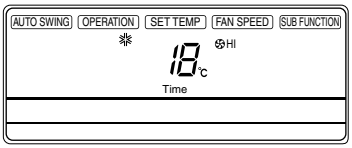




NOTICE The range of selection is from 1~254. Since, the display is two Digit only.
If the range selection is above 100 then the third digit will appear in the screen as shown.

4 Shift the fan speed mode by pressing the fan speed button.
And then, Adjust numbers of next steps by repeating the stage 3.
(In this example, the numbers are "235" and "250" respectly)

5 Push the "Timer" and "Wind" button simultaneously for more than 3 seconds.
Then, Wind Data is memorized by the EEPROM of the main PCB.



External Static Pressure & air Flow

[Table 1]

Static Pressure(mmAq)		0	2	4	6	8	10	12	14	15
Model Name	Step(Hi/Med/Lo) CMM	Setting Value								
LB-H306GSS0	26.5	153	150	150	148	130	1	-	-	-
	23	173	173	175	175	170	155	-	-	-
	20	190	190	190	190	190	190	-	-	-
LB-C306GSS0 LB-C366GSS0 LB-H366GSS0 LB-C368GSS0 LB-H368GSS0 LB-C428GSS0 LB-H428GSS0	32	235	230	230	150	1	-	-	-	-
	29	247	245	245	235	230	-	-	-	-
	26.5	254	253	253	250	248	-	-	-	-
LB-H488RSS0 LB-C488RSS0	45	210	205	199	191	189	180	155	138	110
	40	230	225	219	215	210	205	193	180	171
	35	240	235	230	220	215	210	200	190	185
LB-H608RSS0 LB-C608RSS0	50	185	180	174	162	154	140	90	5	1
	45	210	205	199	191	189	180	155	138	110
	40	230	225	219	215	210	205	193	180	171

NOTICE : **1. Be sure to set the value refering table 1.Unexpected set value will cause malfunction.**
2. Table 1 is based at 230V. According to the fluctuation of voltage, air flow rate varies.

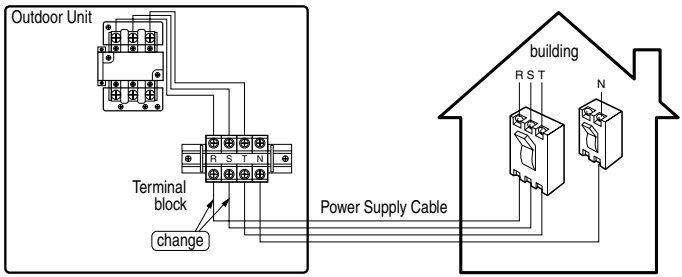
Checking the Power Cord

If the main cable for power supply is connected incorrect or wrong, it shall cause strange noise from the compressor and cooling operation does not work.

Troubles and Solutions

Troubles	Solutions
➲ Occurrence of strange noise from compressor ➲ No variation of pressure gages.	➲ Change the R,S wires to the terminal block.

Outdoor unit circuit



Test Running

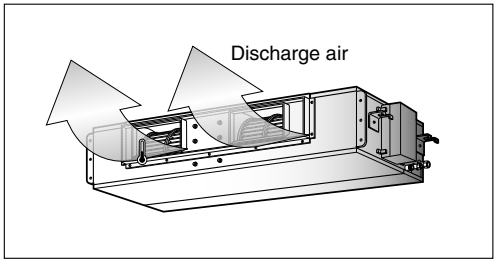
1. Check that all tubing and wiring have been properly connected.
2. Check that the gas and liquid side service valves are fully open.

Evaluation of the performance

Operate unit for 15~20 minutes, then check the system refrigerant charge:

1. Measure the pressure of the gas side service valve.
2. Measure the temperature of the intake and discharge of air.
3. Ensure the difference between the intake temperature and the discharge is more than 8°C
4. For reference, the gas side pressure of optimum condition is as below.(Cooling)

Refrigerant	Outside ambient TEMP.	The pressure of the gas side service valve.
R-22	35°C (95°F)	4~5kg/cm²G(56.8~71.0 P.S.I.G.)
R-410A	35°C (95°F)	8.5~9.5kg/cm²G(120~135 P.S.I.G.)



NOTICE : If the actual pressure are higher than shown, the system is most likely over-charged, and charge should be removed. If the actual pressure are lower than shown, the system is most likely undercharged, and charge should be added.
The air conditioner is now ready for use.

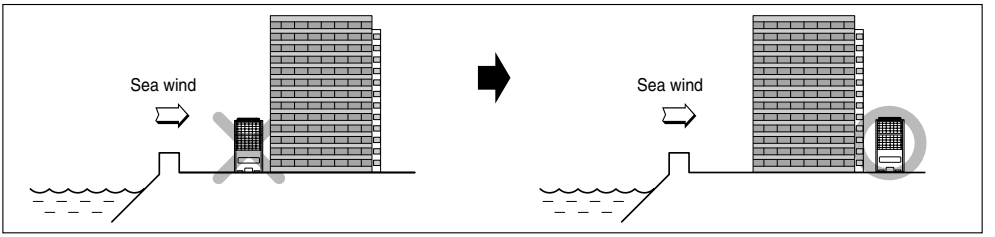
Installation Guide at the Seaside

CAUTION:

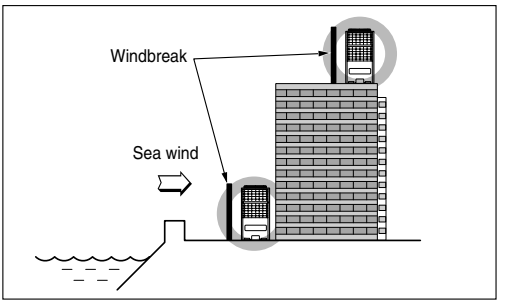
1. **Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.**
2. **Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.**
3. **If outdoor unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise it needs additional anticorrosion treatment on the heat exchanger.**

Selecting the location(Outdoor Unit)

1) If the outdoor unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided. Install the outdoor unit on the opposite side of the sea wind direction.



2) In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the sea wind.



- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150% of the outdoor unit.
- It should be keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

3) Select a well-drained place.

1. If you can't meet above guide line in the seaside installation, please contact LG Electronics for the additional anticorrosion treatment.
2. Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water

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