



Single- and Multi-Zone Outdoor Unit Installation for Winter Conditions

LG single- and multi-zone outdoor units are engineered to be installed outdoors, and include technology designed to minimize the negative effects of winter weather's freezing rain, sleet, and snow. Some precautions may be taken, however, to ensure optimal outdoor unit heating performance in winter conditions.

Note:

Verify that the heating operating range for the chosen outdoor unit will be appropriate for the climate zone in which the system is installed. If not, or in anticipation for the occasional times where the temperature may fall below what is usual for that climate zone, auxiliary heat may also need to be included.

Choosing the Installation Area for Winter Conditions

Select a location for installing the outdoor unit that will meet the following general conditions:

- A location strong enough to bear the weight of the outdoor unit.
- A location that allows for optimum inlet and outlet air flow, and is easily accessible for inspection, maintenance, and service.
- Include space for drainage to ensure condensate flows properly out of the unit when it is in heating mode. Avoid placing the outdoor unit in a low-lying area where water could accumulate.

CAUTION

When deciding on a location to place the outdoor unit, choose an area where run-off from defrost will not accumulate and freeze on sidewalks or driveways, which may create unsafe conditions.

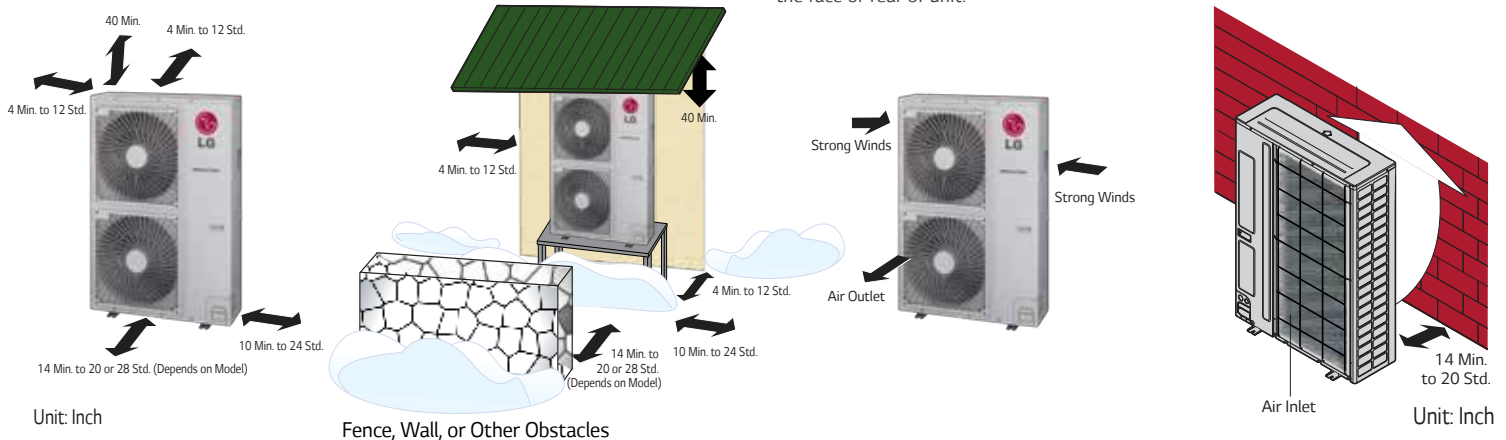
Do not install the outdoor unit:

- Where it will be subjected to direct thermal radiation from other heat sources, or an area that would expose the outdoor unit to heat or steam like discharge from boiler stacks, chimneys, steam relief ports, other air conditioning units, kitchen vents, plumbing vents, and other sources of extreme temperatures that may degrade performance or cause damage to the unit.
- Where the unit will be exposed to direct, strong seasonal winds. Strong seasonal winds affect outdoor unit performance.
- When installing multiple outdoor units, avoid placing the units where discharge of one outdoor unit will blow into the inlet side of an adjacent unit.

Outdoor Unit Service Access and Allowable Clearances

Appropriate airflow through the outdoor unit coil is critical for proper operation. Clearances ensure that heat radiation and discharge air flow isn't restricted around the outdoor unit (see diagrams below for recommended clearances). When placing the outdoor unit under an overhang, awning, field-fabricated hood, or other "roof-like structure" to block snow, observe the clearance requirements as shown for height in relation to the unit.

- ⊘ No obstacles to air circulation around the unit; keep proper distances from ceilings, fences, floor, walls, etc. (Install a fence to prevent pests from damaging the unit or unauthorized individuals from accessing it.)
- ⊘ Do not mount the outdoor unit in a position where strong prevailing winds blow into the face or rear of unit.



Ensure that the space at the back of the outdoor unit is 4 (minimum) to 12 (standard) inches, and include 10 (minimum) to 24 (standard) inches at the right side of the unit for service. Include a minimum clearance of 40 inches if there is an overhang.

If the outdoor unit discharge side faces a wall, include 14 (minimum) to 20 (standard) inches between the outdoor unit and the wall. Install the outdoor unit so that the discharge port is set at a right angle to the wind direction.

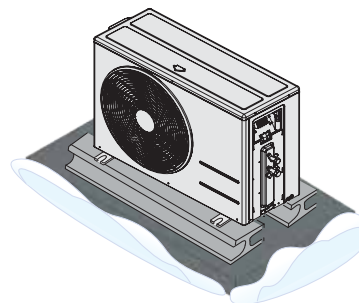
Note:

If the outdoor unit is installed between standard and minimum clearances, capacity decreases approximately 10%.

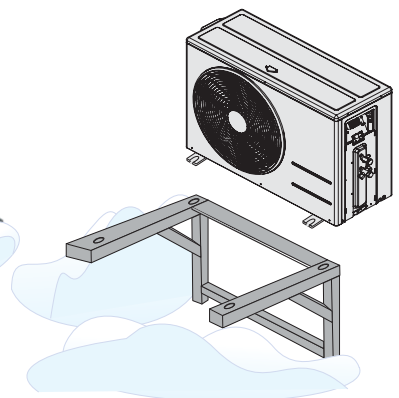
Outdoor Unit Mounting Recommendations

- Ensure that the underlying mounting base, structure, foundation, or platform will not degrade easily; is of appropriate height; and has enough strength to bear the weight of the unit.
- Firmly attach the corners of the outdoor unit to the mounting base with bolts and nuts, otherwise the support will bend.
- Add anti-vibration material when applicable.
- Include enough space around the foundation for condensate drainage.
- When installing the outdoor unit on a wall, or rooftop, securely anchor the mounting base to account for wind or vibration.
- Mount the unit on a field-provided stand that is higher than the maximum anticipated snowfall for the location.
- Seal all wiring and piping access holes to prevent snow from entering the unit.

Outdoor Unit Mounted to an H-Beam on a Concrete Slab



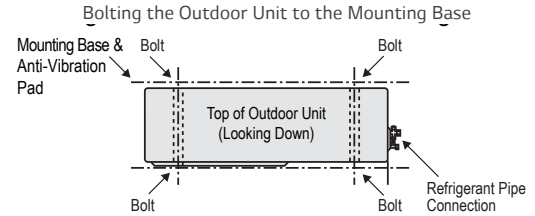
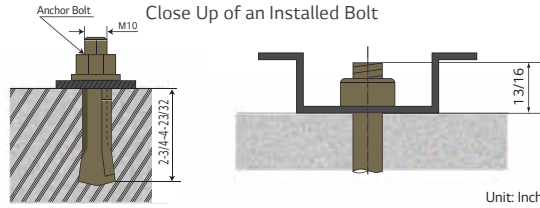
Outdoor Unit Mounted to a Platform



Note:

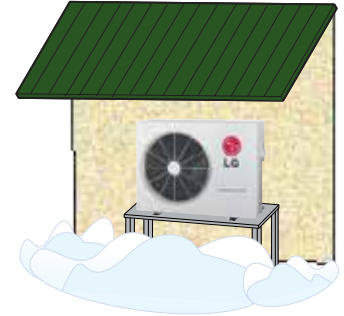
Always refer to the applicable product engineering or installation manual, and follow applicable local codes for clearance, mounting, anchor and vibration attenuation requirements.

Outdoor Unit Mounting Recommendations, Continued



Planning for Snow and Ice

- In climates that may experience significant snow buildup, place the outdoor unit on a raised, field-provided platform or stand to ensure proper outdoor unit coil airflow. The raised support platform must be high enough to allow the unit to remain above possible snow drifts, and is higher than the maximum anticipated snowfall for the location
- Best practice prevents snow from accumulating on top of the unit. Clean off the top of the outdoor unit if the snow has accumulated 4 inches or more.
- Design the mounting base to prevent snow accumulation on the platform in front or back of the unit frame.
- If necessary, provide a field-fabricated hood to keep snow and ice and / or drifting snow from accumulating on the coil surfaces.
- Use inlet and discharge duct or hoods to prevent snow from accumulating on the outdoor unit fan inlet and outlet guards.
- Install the outdoor unit air inlet and discharge areas away from prevailing winter winds.



Note:

If snow accumulates and freezes on the air inlet, the system may malfunction.

Tie-Downs and Wind Restraints

- Consider tie-down requirements in case of high winds, wall, rooftop installations, or where required by local codes (area must be checked for stability and strength before installation).
- The frames of LG outdoor units are adequate to be used with field-provided wind restraint tie-downs.
- Securely anchor the mounting base using a field-provided tie-down configuration approved by a local professional engineer.
- Verify the outdoor unit is level, and adheres to all clearance requirements.

Note:

Always refer to local code when rooftop mounting requirements and / or designing a wind restraint system.

Condensate Drain Piping

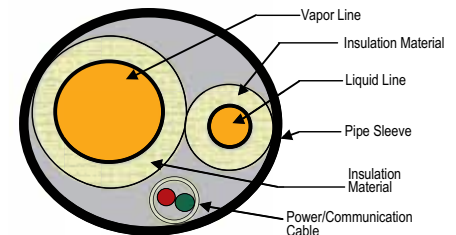
- Outdoor units require condensate drain piping.
- Depending on the complexity of the system, indoor units may drain condensate directly outside, or individual indoor unit drain pipes may need to be connected to one common, dedicated indoor unit drainage system that would carry all condensate outside. If the indoor unit drainage system is shared with a rainwater drain, waste water, or any other type of building drain system, back flow, leaks, ice may form, or noxious odors may be present.
- Design all drain systems to plan for winter operation (line[s] may freeze if condensate does not properly drain away).
- Install condensate drain pipes constructed with materials approved by local code.
- To prevent condensate from forming on the outdoor unit drain piping, install a minimum of field-supplied 0.4 inch thick polyethylene. The insulation should be securely fastened with all seams tight and connected joints and ends properly covered.

CAUTION

When deciding on a location to place the outdoor unit or the end of the indoor unit condensate drain line, choose an area where run-off from defrost will not accumulate and freeze on sidewalks or driveways, which may create unsafe conditions.

Refrigerant Piping System Insulation

- All refrigerant piping — including connections, service valves, and elbows — should be completely and correctly insulated with closed cell pipe insulation.
- To prevent heat loss / heat gain through the refrigerant piping, all refrigerant piping including liquid lines and vapor lines should be insulated separately. Insulation should be a minimum of 1/2 inch thick; thickness may need to be increased based on ambient conditions and local codes.
- All insulation joints should be glued tight with no air gaps. Insulation material must fit snugly against the refrigeration pipes with no air space between it and the pipes.
- The design engineer should perform calculations to determine if the factory-supplied insulation jackets are sufficient to meet local codes and avoid sweating. Additional insulation can be installed if necessary.
- All pipe insulation exposed to outdoor elements should be properly protected with PVC, aluminum vapor barrier, conduit, wide vinyl tape, or alternatively placed in a weather-resistant enclosure such as a pipe rack with a top cover, and meet local codes.



Typical Piping, Insulation, Power Wire and Communications Cable Arrangement in a Conduit

WARNING

Properly insulate all cold surfaces to prevent "sweating."

Cold surfaces such as uninsulated piping can generate condensate that could drip and freeze in cold weather, causing a slippery surface that creates a risk of slipping, falling, and personal injury.

Accessories for Winter / Cold Weather Conditions

LG offers some outdoor unit accessories for use in winter / cold weather conditions. For more information, see www.lg-dfs.com.

Drain Pan Heater

Model No.	For Use With
PQSH1200	All Multi F Outdoor Units
PQSH1201	LSU180HSV4 and LAU240HSV3

Wind Baffles for Low Ambient Cooling Applications.

Model No.	For Use With
ZLABGP01A	9,000 and 12,000 Btu Single Zone ODUs
ZLABGP02A	18,000 to 36,000 Btu Single Zone ODUs
ZLABGP03A	18,000 and 24,000 Btu Multi Zone ODUs
ZLABGP04A	18,000 to 60,000 Btu large frame Single Zone and Multi Zone ODUs (some models require two wind baffles)

For more detailed installation and specification information, see the Engineering and Installation Manuals specific to the chosen system. If it is possible to install the outdoor unit in an indoor environment, see the Engineering Manual specific to the chosen system for information.