Information Sheet # 12

Concrete Platforms and Mounting Arrangements for Generator Sets

Your Reliable Guide for Power Solutions

This information sheet is a guide to the location and mounting of engine-driven generator set systems. Correctly mounted stationary generator systems will give years of dependable service. The system designer has the responsibility to follow good practice, codes and any local ordinances.

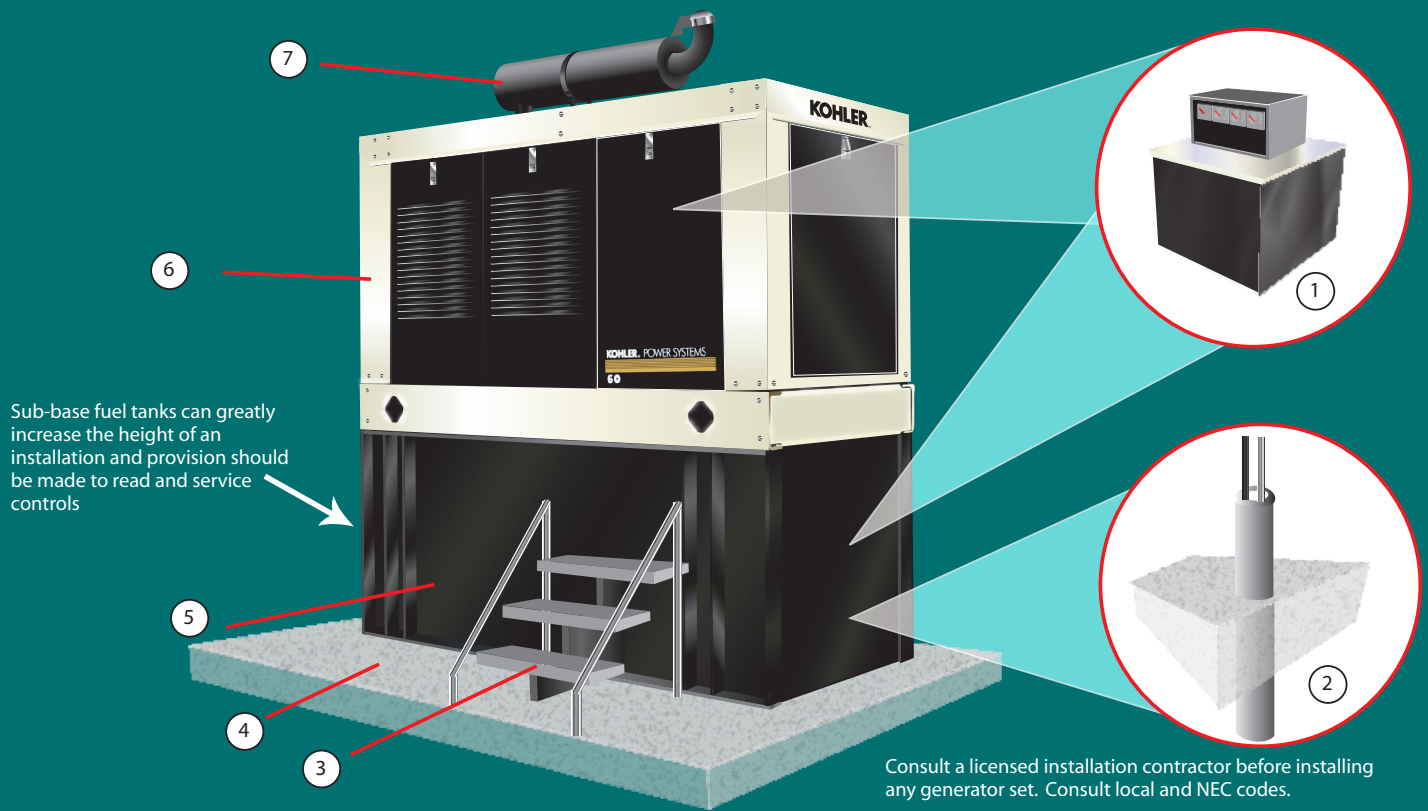
A system designer must consider the following factors when designing the mounting system:

Location: If the generator set cannot be placed on the ground, the site's building engineer must confirm the structure is able to support the weight of the generator set and address the following considerations.

Load bearing requirements: The total weight of the fuel tanks, batteries, radiators, mounting pads and other accessories must be included in addition to the weight of the generator set. An outside installation will likely have mounted accessories. (Diagram 1)

Diagram 1 Key issues to note with outside installations

1) When mounted on a sub-base, tank access should be provided to operate and service controls. Consult local codes for platform and stairs access.
2) Stub-up for electrical conduits has to be provided and access allowed through sub-base tank.
3) Access steps to controls for operation and service are required due to sub base tank height.
4) Concrete pad should meet local codes and allow full service access around the generator set.
5) Sub-base tank has to meet required UL codes and be rated to carry the generator set weight
6) Housing should provide adequate weather protection to generator equipment plus ventilation for cooling.
7) Exhaust muffler should meet local sound ordinance codes and safely vent to atmosphere.



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Fire codes: Follow good practice plus NFPA and applicable local fire codes.

Protection from flooding: Indoor and outdoor locations should be protected against flooding and other potential water damage. Outdoor installations should include an appropriate weather-protected enclosure and be mounted on a pad that sits above known flood levels. Check all code requirements.

Access: Ensure there is access to the generator set to perform checks, maintenance and overhauls.

Security: The installation should be placed where public or unauthorized access is minimized.

Mounting Surface: All mounting surfaces should be level and be able to bear the combined weight of the generator set and accessories. (Diagrams 1 and 3 illustrate outdoor and indoor installations respectively.)

Mounting Pad: A concrete pad is commonly used to provide a firm, level surface for the installed generator and to prevent any distortion of the base. (Diagram 2)

Pad weight: Standard practice dictates that the weight of the pad is at least equal to the total weight of the generator and its mounted accessories. To determine the weight of a pad, multiply the number of cubic feet in its volume by 150 pounds. The designer must verify that the combined weight of the pad, the generator set and its accessories is within the load bearing limits of the site.

Pad specifications: Reinforcement specifications for the mounting pad should follow approved practice for the required load. The specification with 2500-3000 psi is for concrete reinforced with eight-gauge wire mesh of #6 reinforcing bars on 12-inch center, plus a concrete mixture comprised of the necessary mixture of cement, sand and aggregate.

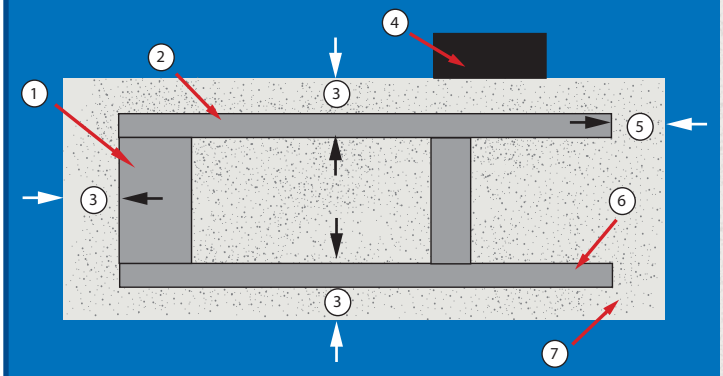
Anchoring: Requirements vary based on equipment size, weight and construction. Good engineering practices must be followed when specify a anchoring system. Hilti-type anchor system are the most frequently used.

Vibration Isolators: These are used to protect the site around the generator set.

Conduit entry: When the generator set is mounted on a concrete pad, provisions must be made to receive the electrical conduit to which the set is to be connected. The area where the cables come through the pad is called the stub-up. The stub-up pad location should allow easy access to the generator set's load and control terminal locations through the unit's sub-base fuel tank. The manufacturer's drawings will provide details and locations and sizes required. (See Diagram 1 for details of sub-base fuel tank and stub-up locations.)

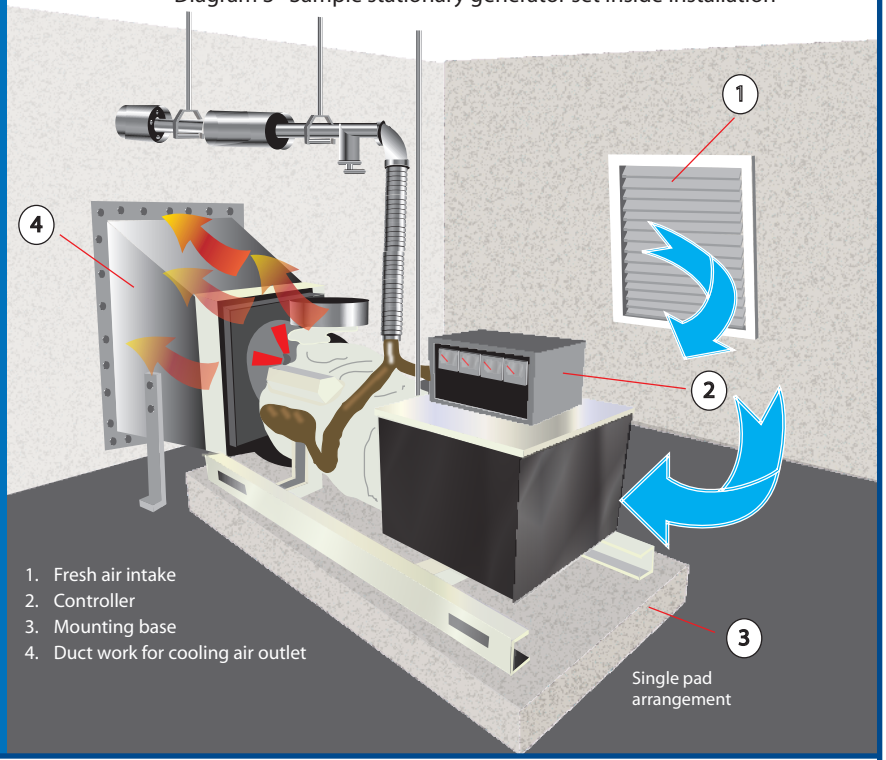
Access to controls on units mounted on sub-base tank: Overall height can increase significantly when the generator is mounted on a sub-base fuel tank. The designer must ensure that controls and other equipment can be easily reacher for operation and service. If this can be achieved only by ladder or access platform, the designer is responsible for seeing that local access codes are met. This information usually is not supplied by the generator set supplier. (See Diagram 1 for details.)

Diagram 2 Mounting surface



1. Engine end
2. Generator set skid
3. Concrete should extend 6" outside skid
4. Battery rack (Outside installation will have set inside base frame)
5. Allow at least 18" access around the set to assist service
6. Alternator end
7. Mounting pad (concrete surface)

Diagram 3 Sample stationary generator set inside installation



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