

**[ DOLE DEPARTMENT ORDER NO. 15, S. 2001,  
DECEMBER 18, 2001, December 18, 2001 ]**

**DOLE DEPARTMENT ORDER NO. 15, S. 2001, RULES ON  
INTERNAL COMBUSTION ENGINE AND POWER PIPING LINES**

Pursuant to Article 162 of Presidential Decree No. 442, otherwise known as the Labor Code of the Philippines, as amended, the following Rules on Internal Combustion Engine and Power Piping Lines are hereby promulgated and issued as follows:

**RULE 1180**

**Internal Combustion Engine**

**1181: Definition of Terms**

1. "Internal Combustion Engine" can be a two or four stroke cycle piston engine wherein heat energy is developed by burning the air-fuel mixture (gas, diesel, oil, etc.) inside the combustion chamber which in turn produces mechanical energy in the form of reciprocating and rotating forces of expanding gases during combustion to drive a piston, shaft or propeller. Diesel engine is the principal internal combustion engine for stationary power plant.
2. "Horsepower" (hp) is the amount of energy or work required to raise, create or force a weight of 33,000 pounds to a height or distance of one-foot in one-minute time; a standard unit of power equivalent to 746 watts or 746 joules/second.

**1181.01: Application/Coverage**

The Rule on internal combustion engine shall cover or apply to the following:

1. Portable/mobile generating units which may be moved from site to site where electrical power is required.
2. Standby units, normally idle, which can be activated when there is a failure of central station power where an interruption would mean a financial loss or danger to life and property (such as in tunnel lighting, operating rooms, key industrial processes, etc.).
3. Engine driven generator units installed in power plants where they are the normal primary source of electrical power generated for industrial and general utilities services.
4. Prime movers for industrial manufacturing processes and services.

5. All internal combustion engines used in construction and agricultural services and other similar applications, except those engines used in transportation such as automobile, aircraft engine, gas or liquid compressor engine, marine or ship motor engines.

#### 1182: General Provisions

1. No internal combustion engine shall be installed and/or operated in the Philippines without the permit issued for the purpose by the Secretary of Labor and Employment or his duly authorized representative.

2. Application for installation of an internal combustion engine shall be filed through the Regional Labor Office concerned for processing or verification, accompanied by the manufacturer's data sheets, working drawing, foundation with design computation, installation and site location plan and vicinity map, all in five (5) copies in white or blue print duly signed and sealed by a professional mechanical engineer and duly signed by the owner.

3. A permit to operate an internal combustion engine issued by the Secretary of Labor and Employment or his duly authorized representative shall be valid during the period covered by the permit unless revoked for justifiable reasons (e.g., unsafe to operate).

4. Any removal and/or change of location of an internal combustion engine shall be reported to the Regional Labor Office concerned and shall be considered as a new installation.

5. Change of ownership of an internal combustion engine shall be reported to and applied with the Regional Labor Office concerned.

6. The personnel requirement in the operation of internal combustion engine shall be in accordance with Republic Act No. 8495 (Mechanical Engineering Law).

#### 1182.01: Standards Requirement

As a minimum requirement for purposes of installation, plan checking, inspection, and other considerations prior to the clearance of any installation and use of internal combustion engine, Chapter 2 of the Philippine Society of Mechanical Engineering (PSME) Code and Rule 1060 of the Occupational Safety and Health Standards shall be applied.

#### 1182.02: Inspection

1. The Regional Labor Office through its duly authorized representative shall conduct inspection of internal combustion engine accompanied by the representative of the owner and/or the supervising plant mechanical engineer for operation and maintenance and those who installed the internal combustion engine on the following phases of work:

a. During the construction phase of the foundation and/or installation of the internal combustion engine;

- b. Before being placed into service after installation;
  - c. Before being placed into service after modification; and
  - d. Periodically at intervals not exceeding 12 months.
2. Upon receipt of Notice of Annual Inspection, the owner or user shall order the responsible plant mechanical engineer for operation and maintenance to prepare the internal combustion engine and its surrounding facilities for the inspection.
3. While the internal combustion engine is running, the following shall be noted:
- a. crack on base foundation;
  - b. noise level;
  - c. excessive vibration;
  - d. exhaust gas emission level;
  - e. heat level; and
  - f. ventilation system.

#### 1183: Internal Combustion Engine Room/Building

- 1. All buildings, permanently or temporarily used, shall be structurally safe and sound to prevent their collapse.
- 2. Roof shall be of sufficient strength to withstand normal design load, typhoon and strong winds in addition to carrying suspended loads.
- 3. Floors over which any person is likely to walk shall be sufficiently even to afford safe walking.
- 4. Floors shall be free from holes and splinters, improperly fitted gutters or conduits, protruding nails and bolts, projecting valves or pipes or other obstructions which create stumbling hazards.
- 5. Floors shall not be slippery under any condition.
- 6. Engine room shall be at a minimum of 3.0 meters in height or as specified by the manufacturers.
- 7. Adequate spaces shall be provided between engine or equipment to allow normal operation, maintenance and repair. Clearance around the engine to the engine room wall or any equipment shall be at a minimum of 1.0 meter. Engine room shall have two independent doors for easy access.
- 8. Engine room/building shall be suitably or adequately lighted for the operation and other type of work performed.

9. Normal atmospheric conditions shall be maintained in the engine room by natural or artificial ventilation to avoid insufficient air supply, stagnancy of air, excessive heat, toxic gases, excessive dryness and other objectionable odors.

10. Engines with "weatherproof" housings which are installed outdoors or on roofs of structures shall be located at a minimum of 1.5 m from openings in walls and at least 1.0 m from structures having combustible adjacent walls.

11. Engines rated at more than 50 hp shall be located in accordance with no. 10 or shall be installed in detached structures reserved exclusively for the purpose with equipment and processes having similar hazard, or in rooms within or attached to other structures.

12. Detached structures shall be of noncombustible or fire-resistive construction. Provision shall be made for venting a fuel explosion with minimum structural damage. Ventilation adequate to prevent a hazardous accumulation of flammable vapors or gases shall be provided both when the engine is operating or shut down.

13. Rooms located within structures shall have interior walls, floors and ceilings of at least one hour fire resistance rating. (The ceiling of such a room located on the top floor of a structure need not be fire-resistive but shall be non combustible or protected with automatic sprinklers).

a. These rooms shall have provision for venting a fuel explosion with minimum structural damage; or, ventilation adequate to prevent a hazardous accumulation of flammable vapors or gases shall be provided both when the engine is operating or shut down.

b. Openings in the engine room that open into other sections of the structure shall be provided with automatic or self closing fire doors or dampers to confine a fire to the engine room.

14. Rooms attached to structures shall comply with no. 12 except that the common wall shall have a fire resistance rating of at least one hour. Openings in the engine room shall preferably be in outside walls, but if they open into other sections of the structure, they shall be provided with automatic or self-closing fire doors or dampers.

15. In areas where flammable gases or liquids, combustible dusts or flying normally exists, engines not compressing a flammable gas or not pumping a flammable liquid shall be installed in an enclosure of fire-resistive construction, with outside access only and well ventilated from a non-hazardous outside area.

16. Gasoline or liquefied petroleum gas fueled engines shall not be installed in rooms or locations containing fired equipment or open flames.

17. Appropriate fire protection equipment shall be provided for the engine and the location, e.g. fire extinguishers, fire hoses and pumps.

18. Appropriate exhaust silencer shall be provided to minimize or maintain noise level.

19. All exhausts from internal combustion engine shall be directed outside to a safe area in accordance with the requirements of the Department of Environmental and Natural Resources (DENR).

20. Safety signages shall be posted on prominent position at strategic location and, as far as practicable, be in the language understandable to all the workers.

#### 1183.01: Internal Combustion Engine Foundation Requirements

1. Foundations shall be of sufficient strength, structurally designed to sustain safely the loads for which they are designed. Under no condition shall they be overloaded.

2. Floor slabs or building footings shall be isolated from foundation base by at least 25 mm. around its perimeter to eliminate transmission of vibration. Opening shall be filled with watertight insulation.

3. Foundation shall be concrete, at least class A mixture of 1 part cement, 2 parts sand and 4 parts broken stone or gravel (50 mm. max.) or at least 211.36 kg/cm<sup>2</sup> (3000 psi).

4. Foundation shall be poured monolithically, with no interruption, for spading and ramming purposes.

5. Engine should be placed on the foundation only after seven days have elapsed from pouring of base and should be operated only after 20 days have elapsed from placement or as per specifications of the manufacturer/installer.

6. Additional vertical and horizontal steel bars shall be placed on concrete foundations as reinforcement to avoid thermal cracking.

7. Specified size of foundation bolts shall be used and surrounded by a pipe sleeve.

8. Minimum foundation bolts shall be at least 12 mm. in diameter.

9. The weight of the engine plus the weight of the concrete foundation shall be distributed over a sufficient soil base area large enough to cause a bearing stress within the safe bearing capacity of the soil with a factor of safety of five (5), as minimum.

#### 1183.02: Machine Guarding

All moving parts of the engines, transmission equipment and all dangerous parts of driven machinery shall be effectively guarded in accordance with the provisions of Rule 1200 of the Occupational Safety and Health Standards.

Hot surfaces shall be provided with insulation or guarding.

#### 1183.03: Personal Protective Equipment

On-duty personnel for engines requiring regular attendants shall be provided with personal protective equipment appropriate for the hazard present.