(4) Vertical exhaust pipes must be water-jacketed or suitably insulated as required by § 182.430(g).

(5) When the exhaust cooling water system is separate from the engine cooling water system, a suitable warning device, visual or audible, must be installed at the operating station to indicate any reduction in normal water flow in the exhaust cooling system.

(6) A suitable hull strainer must be installed in the circulating raw water intake line for the exhaust cooling system.

(c) Engine exhaust cooling system built in accordance with the requirements of ABYC P–1 (incorporated by reference; see 46 CFR 175.600) will be considered as meeting the requirements of this section.

[CGD 85–080, 61 FR 986, Jan. 10, 1996; 61 FR 20557, May 7, 1996, as amended by USCG–2003–16630, 73 FR 65207, Oct. 31, 2008]

§ 182.430 Engine exhaust pipe installation.

(a) The design of all exhaust systems must ensure minimum risk of injury to personnel. Protection must be provided in compliance with § 177.970 of this chapter at such locations where persons or equipment might come in contact with an exhaust pipe.

(b) Exhaust gas must not leak from the piping or any connections. The piping must be properly supported by noncombustible hangers or blocks.

(c) The exhaust piping must be so arranged as to prevent backflow of water from reaching engine exhaust ports under normal conditions.

(d) Pipes used for wet exhaust lines must be Schedule 80 or corrosion-resistant material and adequately protected from mechanical damage.

(e) Where flexibility is necessary, a section of flexible metallic hose may be used. Nonmetallic hose may be used for wet exhaust systems provided it is especially adapted to resist the action of oil, acid, and heat, has a wall thickness sufficient to prevent collapsing or panting, and is double clamped where practicable.

(f) Where an exhaust pipe passes through a watertight bulkhead, the watertight integrity of the bulkhead must be maintained. Noncombustible packing must be used in bulkhead penetration glands for dry exhaust systems. A wet exhaust pipe may be welded to a steel or equivalent bulkhead in way of a penetration and a fiberglass wet exhaust pipe may be fiberglassed to a fiberglass reinforced plastic bulkhead if suitable arrangements are provided to relieve the stresses resulting from the expansion of the exhaust piping.

(g) A dry exhaust pipe must:

(1) If it passes through a combustible bulkhead or partition, be kept clear of, and suitably insulated or shielded from, combustible material.

(2) Be provided with noncombustible hangers and blocks for support.

(h) An exhaust pipe discharge terminating in a transom must be located as far outboard as practicable so that exhaust gases cannot reenter the vessel.

(i) Arrangements must be made to provide access to allow complete inspection of the exhaust piping throughout its length.

(j) An exhaust installation subject to pressures in excess of 105 kPa (15 psig) gauge or having exhaust pipes passing through living or working spaces must meet the material requirements of part 56 of subchapter F (Marine Engineering) of this chapter.

(k) Engine exhaust pipe installations built in accordance with the requirements of ABYC P–1 (incorporated by reference; see 46 CFR 175.600), will be considered as meeting the requirements of this section.

[CGD 85–080, 61 FR 986, Jan. 10, 1996; 61 FR 20557, May 7, 1996; 61 FR 24464, May 15, 1996, as amended at 62 FR 51358, Sept. 30, 1997; USCG–2003–16630, 73 FR 65207, Oct. 31, 2008]

§ 182.435 Integral fuel tanks.

(a) Gasoline fuel tanks must be independent of the hull.

(b) Diesel fuel tanks may not be built integral with the hull of a vessel unless the hull is made of:

(1) Steel;

(2) Aluminum; or

(3) Fiber reinforced plastic when:

(i) Sandwich construction is not used; or

(ii) Sandwich construction is used with only a core material of closed cell polyvinyl chloride or equivalent.

(c) During the initial inspection for certification of a vessel, integral fuel tanks must withstand a hydrostatic