

Coast Guard, DOT

§ 174.015

CALCULATIONS

- 174.310 General.
- 174.315 Extent and character of damage.
- 174.320 Damage survival.
- 174.325 Equalization.
- 174.330 Jettisoning of spoil.

DESIGN

- 174.335 Watertight doors.
- 174.340 Collision bulkhead.

Subpart J—Special Rules Pertaining to Dry Cargo Ships

- 174.350 Specific applicability.
- 174.355 Definitions.
- 174.360 Calculations.

AUTHORITY: 42 U.S.C. 9118, 9119, 9153; 43 U.S.C. 1333; 46 U.S.C. 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGD 79-023, 48 FR 51048, Nov. 4, 1983, unless otherwise noted.

Subpart A—General

§ 174.005 Applicability.

Each of the following vessels must comply with the applicable provisions of this part:

- (a) Deck cargo barge.
- (b) Mobile offshore drilling unit (MODU) inspected under subchapter IA of this chapter.
- (c) Tugboat and towboat inspected under subchapter I of this chapter.
- (d) Self-propelled hopper dredge having an assigned working freeboard.
- (e) Ongoing ships of 500 gross tons or over, as calculated by the International Convention on Tonnage Measurement of Ships, 1969, designed primarily for the carriage of dry cargoes, including roll-on/roll-off ships.
- (f) Offshore supply vessel inspected under subchapter L of this chapter.
- (g) Liftboat inspected under subchapter L of this chapter.

[CGD 95-012, 60 FR 48052, Sept. 18, 1995; 60 FR 50120, Sept. 28, 1995, as amended by CGD 82-004 and CGD 86-074, 60 FR 57671, Nov. 16, 1995; CGD 82-004 and CGD 86-074, 62 FR 49353, Sept. 19, 1997]

§ 174.007 Incorporation by reference.

- (a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other

than that specified in paragraph (b) of this section, the Coast Guard must publish notice of change in the FEDERAL REGISTER and make the material available to the public. All approved material is on file at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC, and at the U.S. Coast Guard, Office of Design and Engineering Standards (G-MSE), 2100 Second Street SW., Washington, DC 20593-0001 and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this part and the sections affected are:

American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM F 1196-94, Standard Specification for Sliding Watertight Door Assemblies—174.100

ASTM F 1197-89 (1994), Standard Specification for Sliding Watertight Door Control Systems—174.100

[CGD 88-032, 56 FR 35828, July 29, 1991, as amended by CGD 95-072, 60 FR 50468, Sept. 29, 1995; CGD 96-041, 61 FR 50734, Sept. 27, 1996; CGD 97-057, 62 FR 51049, Sept. 30, 1997; USCG-1999-5151, 64 FR 67186, Dec. 1, 1999]

Subpart B—Special Rules Pertaining to Deck Cargo Barges

§ 174.010 Specific applicability.

Each barge that carries cargo above the weather deck must comply with this subpart.

§ 174.015 Intact stability.

(a) Except as provided in § 174.020, in each condition of loading and operation, each barge must be shown by design calculations to have an area under the righting arm curve up to the angle of maximum righting arm, the downflooding angle, or 40 degrees, whichever angle is smallest, equal to or greater than—

(1) 15 foot-degrees (4.57 meter-degrees) for ocean and Great Lakes winter service; and

(2) 10 foot-degrees (3.05 meter-degrees) for lakes, bays, sounds, and Great Lakes summer service.

(b) For the purpose of this section, downflooding angle means the static

§ 174.020

angle from the intersection of the vessel's centerline and waterline in calm water to the first opening that does not close watertight automatically.

§ 174.020 Alternate intact stability criterion.

A barge need not comply with §174.015 and subparts C and E of part 170 of this chapter if it has the following characteristics:

- (a) The weather deck is watertight.
- (b) The barge's hull proportions fall within any one of the ratios in categories (A) through (D) in Table 174.020.
- (c) The maximum cargo height is 30 feet (9.25 meters) or a value equal to the depth of the barge amidships, whichever is less.

TABLE 174.020

Category	Beam/depth ratio	Draft/depth ratio
A	3.00 to 3.74	Equal to or less than 0.70.
B	3.75 to 3.99	Equal to or less than 0.72.
C	4.00 to 4.49	Equal to or less than 0.76.
D	4.50 to 6.00	Equal to or less than 0.80.

Subpart C—Special Rules Pertaining to Mobile Offshore Drilling Units

§ 174.030 Specific applicability.

Each mobile offshore drilling unit (MODU) inspected under Subchapter IA of this chapter must comply with this subpart.

§ 174.035 Definitions.

(a) For the purpose of this subpart the following terms have the same definitions as given in Subchapter IA of this chapter:

- (1) *Column stabilized unit.*
- (2) *Mobile offshore drilling unit.*
- (3) *Self-elevating unit.*
- (4) *Surface type unit.*

(b) For the purpose of this subpart—

- (1) *Downflooding* means the entry of seawater through any opening that cannot be rapidly closed watertight, into the hull, superstructure, or columns of an undamaged unit due to heel, trim, or submergence of the unit.
- (2) *Downflooding angle* means the static angle from the intersection of

46 CFR Ch. I (10–1–02 Edition)

the unit's centerline and waterline in calm water to the first opening through which downflooding can occur when subjected to a wind heeling moment (Hm) calculated in accordance with §174.055.

(3) *Normal operating condition* means a condition of a unit when loaded or arranged for drilling, field transit, or ocean transit.

(4) *Severe storm condition* means a condition of a unit when loaded or arranged to withstand the passage of a severe storm.

§ 174.040 Stability requirements: general.

Each unit must be designed to have at least 2 inches (50mm) of positive metacentric height in the upright equilibrium position for the full range of drafts, whether at the operating draft for navigation, towing, or drilling afloat, or at a temporary draft when changing drafts.

§ 174.045 Intact stability requirements.

(a) Each unit must be designed so that the wind heeling moments (Hm) and righting moments calculated for each of its normal operating conditions and severe storm conditions, when plotted on GRAPH 174.045, define areas that satisfy the equation:

$$\text{Area (A)} \geq (K) \times (\text{Area (B)})$$

where—

- (1) K=1.4 except that if the unit is a column stabilized unit K=1.3;
- (2) Area (A) is the area on GRAPH 174.045 under the righting moment curve between 0 and the second intercept angle or the angle of heel at which downflooding would occur, whichever angle is less; and
- (3) Area (B) is the area on GRAPH 174.045 under the wind heeling moment curve between 0 and the second intercept angle or the angle of heel at which downflooding of the unit would occur whichever angle is less.

(b) Each righting moment on graph §174.045 must be positive for all angles greater than 0 and less than the second intercept angle.

(c) For the purposes of this section, openings fitted with the weathertight closing appliances specified in §174.100(b) are not considered as openings through which downflooding could occur if they can be rapidly closed and would not be submerged below the