

Part 1 General

1.1 MEASUREMENT AND PAYMENT

- .1 Fenders will be paid for as unit item.
- .2 Measure fenders by units supplied and incorporated into work.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM D412-06ae2, Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
 - .2 ASTM D429-08, Standard Test Methods for Rubber Property - Adhesion to Rigid Substrates.
 - .3 ASTM D2240-05(2010), Standard Test Method for Rubber Property - Durometer Hardness.

1.3 ACTION/INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Indicate items as follows:
 - .1 General arrangement of fender units.
 - .2 Location and sizes of anchor bolts.
 - .3 Arrangement and attachment
 - .4 Supporting system and connection
- .3 Test and Evaluation Reports: submit reports signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean area.
 - .2 Store and protect materials from nicks, scratches, and blemishes and others damages.
 - .3 Replace defective or damaged materials with new.
- .4 Waste Management: separate waste materials for reuse, recycling or elimination in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Fender type D, D bored, one piece fender
- .2 Material: SBR ou EPDM
- .3 Physical properties:

Property	Test Method	Requirements
Minimum Tensile Strength	ASTM D412	10 MPa
Minimum Elongation at Break	ASTM D412	300%
Hardness, Shore (A) Durometer	ASTM D2240	70 +/-5

- .4 Minimum energy absorption capacity at 50 % deflection: 4.5 kN-m
- .5 Maximum allowable reaction at minimum energy absorption capacity: 90 kN
- .6 To be monolithic construction.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for rubber marine fender installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- .2 Fender will be located in splash zone, and may in addition be partially submerged in sea-water.
- .3 Mean annual maximum and minimum temperatures are 20 degrees C and -15 degrees C.¹

3.2 INSTALLATION

- .1 Install in accordance with manufacturer's instructions and drawings as indicated.
- .2 Alter system components in accordance with written permission of Departmental Representative.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.

¹ <http://legacyweb.meteomedia.com/statistics/temperature/cl7051055/caqc5310>

- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse, recycling or elimination in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION