



## **GUIDE FOR BUILDING AND CLASSING**

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# **LNG REGASIFICATION VESSELS**

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**American Bureau of Shipping  
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the State of New York 1862**

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## Foreword

The industry and ABS share a large and successful body of experience with Liquefied Natural Gas (LNG) carriers.

This Guide provides criteria that can be applied to LNG Carriers and LNG Barges proposed to be classed by utilizing the *ABS Rules for Building and Classing Steel Vessels* and/or *ABS Rules for Building and Classing Steel Barges* and fitted with regasification systems and components.

Floating storage and regasification units (FSRUs) provide solutions to meet the energy demands of an ever-changing global market. Floating regasification is a flexible, cost-effective way to receive and process shipments of LNG. Floating regasification is increasingly being used to meet natural gas demand in smaller markets, or as a temporary solution until onshore regasification facilities are built. Floating regasification involves the use of a specialized vessel often referred to as an FSRU, which is capable of transporting, storing, and regasifying LNG onboard. An FSRU can be purpose-built or be converted from a conventional LNG vessel by installing a regasification plant.

Regasification plants are installed to vaporize the liquid gas onboard a vessel, this may include self-propelled LNG carriers or Non-Self-Propelled LNG barges. The gas may be delivered to the shore side facility via various arrangements, such as turret system with delivery through an offshore buoy piping system or vessel manifold system to facility on platform, quay or similar.

This Guide is to be used in conjunction with other ABS Rules and IMO Regulations.

This Guide is for the use of designers, builders, owners and operators of liquefied gas carriers/tank barges and specifies the ABS requirements for obtaining the optional classification notation **(LNG) R**.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website [www.eagle.org](http://www.eagle.org) to verify that this version of this Guide is the most current.

*We welcome your feedback. Comments or suggestions can be sent electronically by email to [rsd@eagle.org](mailto:rsd@eagle.org).*

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## GUIDE FOR BUILDING AND CLASSING LNG REGASIFICATION VESSELS

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## SECTION 1 Scope and Conditions of Classification

### 1 Scope and Application

This Guide has been developed to provide guidance for the design, construction, and survey of Liquefied Natural Gas (LNG) vessels utilizing regasification systems. The Guide focuses on systems and arrangements provided for the safe delivery of natural gas by means of regasification systems. The Guide applies to LNG vessel types that fall under the scope of the IGC Code and associated ABS requirements for Vessels Intended to Carry Liquefied Gases in Bulk under Part 5C, Chapter 8 of the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)* or the *ABS Rules for Building and Classing Steel Barges (Barge Rules)*.

In general, vessels are to comply with the requirements contained in the ABS requirements for Vessels Intended to Carry Liquefied Gases in Bulk under Part 5C, Chapter 8 of the *Steel Vessel Rules* or the *Barge Rules*, as applicable, and the requirements of this Guide to receive the notations listed in Section 1/3.

This Guide applies to both new construction and existing vessel conversions, regardless of size, utilizing regasification systems.

### 3 Classification Notations

Vessels that comply with this Guide and are intended to operate in a regasification and gas discharge role, are eligible for ABS classification which will be denoted with the additional notation **(LNG) R**, so that the class notation as it appears in the *Record* will be:

**✕ A1 Liquefied Gas Carrier, (LNG) R** or **✕ A1 Liquefied Gas Tank Barge, (LNG) R**

### 5 Definitions

The definitions contained in 5C-8-1/2 of the *Steel Vessel Rules* are applicable. The following definitions are applied to the terms used in this Guide:

**Cargo Machinery Spaces.** The spaces where cargo compressors or pumps, cargo processing units, are located, including those supplying gas fuel to the engine-room.

**Floating Storage and Regasification Unit (FSRU).** A vessel that has LNG storage as well as regasification equipment for LNG vaporizing.

**Gas Process Unit.** Booster pumps, process pressure vessel, regasification plant.

**Regasification Plant.** All systems and components for removing liquefied gas from the storage tanks, pressurizing, heating and vaporizing liquefied gas and discharge ashore of vaporized gas through an off-loading system. If there are compressors or odorizers in the discharge system, they would be considered part of the Regasification Plant.

**Turret Compartments.** Those spaces and trunks that contain equipment and machinery for retrieval and release of the disconnectable turret mooring system, high-pressure hydraulic operating systems, fire protection arrangements and cargo transfer valves.

**Upset Condition.** Interruptions in the regular running of the work process or other planned activity. Any distraction or break in the normal work routine is considered an Upset Condition.

## 7 Materials of Construction

Materials in general are to comply with the requirements of the *ABS Rules for Materials and Welding (Part 2)*.

Materials used in gas tanks, gas piping, process pressure vessels, and other components in contact with cryogenic liquids or gases are to be suitable for the intended purpose and in compliance with Section 5C-8-6 of the *Steel Vessel Rules*.

## 9 Certification

Design review, survey, testing, and the issuance of reports or certificates constitute the certification of machinery, equipment and systems; see also 4-1-1/3 of the *Steel Vessel Rules*.

## 11 Alternatives

Equipment, components, and systems for which there are specific requirements in this Guide, or its associated references, may incorporate alternative arrangements or comply with the requirements of alternative recognized standards, in lieu of the requirements in this Guide. These alternative arrangements or standards are to be determined by ABS as being not less effective than the overall safety and strength requirements of this Guide or associated references. Where applicable, requirements may be imposed by ABS in addition to those contained in the alternative arrangements or standards so that the intent of this Guide is met. In all cases, the equipment, component or system is subject to design review, survey during construction, tests and trials, as applicable, by ABS for purposes of verification of its compliance with the alternative arrangements or standards. The verification process is to be to the extent as intended by this Guide.