

Custom Hull Pressure Design

Kitimat terminal, British Columbia, Canada



Application
LNG Terminals

Type
SPC Cone Fenders

Date 2024

Reference 0902, 0873

A CLOSER LOOK AT THE CASE

The Kitimat LNG facility represents the **largest private sector investment in Canadian history**. Spread over 430 hectares, this export terminal operates numerous process plant and marine installations to export 26 million tons of Liquefied Natural Gas (LNG). A 550-metre-long Material Offloading Facility (MOF) was developed to facilitate the receipt of building materials and support the construction of this terminal.

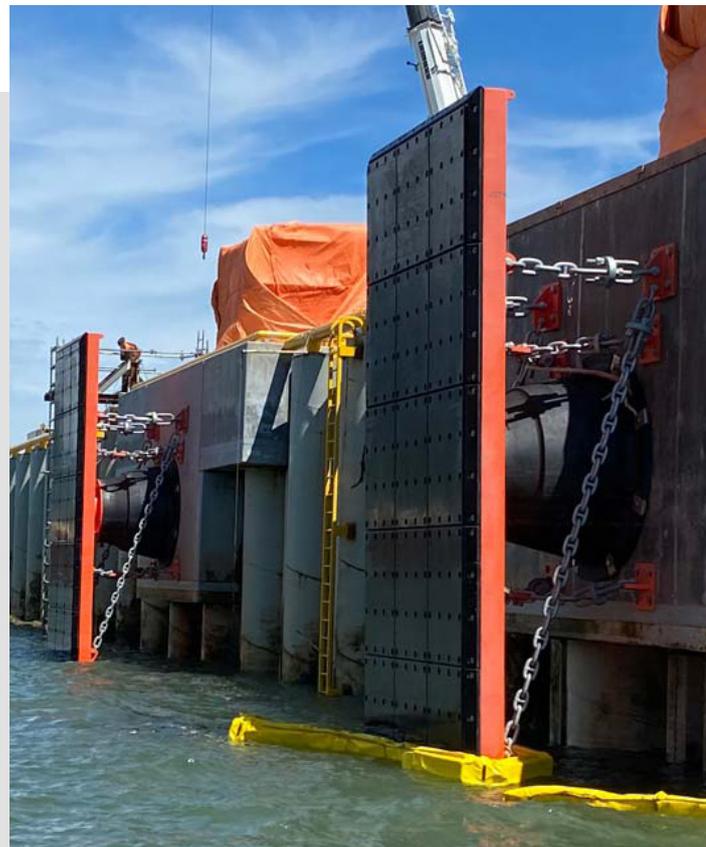
Project Scope

- ▶ 35 double Cone Fender Systems, each consisting of 1 Cone Fender (SPC 800, G1.5) and 1 Cone Fender (SPC 800, G2.5) with closed box panels (1850x7300 mm)
- ▶ 4 double Cone Fender Systems (SPC 1000, G1.1) with closed box panels (2300x8550 mm)
- ▶ 4 Cone Fender Systems (SPC 1600, G1.2 and G2.0) with closed box panels (3450x7500 mm)

CHALLENGE AND SOLUTION

A significant obstacle encountered during the MOF development involved the combi wall, which required a **customized flange integrating the system chain's attachments**. This approach eliminated the need for welding additional components to the combi wall, simplifying and accelerating the installation.

Another significant challenge was the Ro-Ro terminal's design, particularly the hull pressure (HP) requirement for smaller vessels. This posed a unique problem as these vessels do not make full contact with the fender panel, affecting the HP calculations. Complicating things further, SPC fenders are buckling type fenders, meaning that the first peak of reaction force occurs early in the deflection process. The provided solution – wider panels – **ensures sufficient contact area to meet the HP requirements**.



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The design of the fenders for the LNG terminal required **accommodation of several different load cases and berthing angles**, known during the design stage. This complexity led to LNG fenders with two distinct setups G1.2 and G2.0, the latter being for the first fender, which absorbs higher berthing energy and consequently requires a harder fender.

SFT is proud to have accomplished this challenging project developing a customized solution; yet another great example of the SFT holistic approach endorsed by the new PIANC Guidelines 2024. Explore more SFT Case Studies or Contact Your Nearest Office.

