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CSA S826 Series:01
(reaffirmed 2021)

Ferry Boarding Facilities

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Ferry Boarding Facilities

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Development of these Standards on Ferry Boarding Facilities was initiated at the request of a committee of experts representing the major operators of public access ferry boarding facilities in Canada.

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British Columbia Ferries Corporation;
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Transport Canada; and
Transports Québec.

Contents

CSA S826.2:01, *Ferry Boarding Facilities — Operations (Guideline)*

CSA S826.3:01, *Ferry Boarding Facilities — Inspection*

CSA S826.4:01, *Ferry Boarding Facilities — Maintenance (Guideline)*

Preface

This is the first edition of the CSA S826 Series of Standards, *Ferry Boarding Facilities*. It consists of the following four documents:

a) CSA S826.1, *Ferry Boarding Facilities — Design*;
b) CSA S826.2, *Ferry Boarding Facilities — Operations (Guideline)*;
c) CSA S826.3, *Ferry Boarding Facilities — Inspection*; and
d) CSA S826.4, *Ferry Boarding Facilities — Maintenance (Guideline)*.

These Standards and Guidelines have been developed as a resource for designers and owners of ferry boarding facilities operated in Canadian waters. Their purpose is to provide a consolidated standard of minimum requirements and guidelines for the design, operation, inspection, and maintenance of such facilities. Additionally, they are intended to encompass items not addressed in other standards.

These Standards reflect the diversity of ferry boarding facilities and their operating environments throughout Canada and are therefore based on general principles and objectives. Requirements are expressed in broad terms so that they may have the widest possible national application.

To accommodate the diversity of applications in Canada, the provisions set out by these Standards combine both code requirements and guidelines. In general, the design Standard (CSA S826.1) and the inspection Standard (CSA S826.3) are Standards expressed in mandatory language. The operations (CSA S826.2) and maintenance (CSA S826.4) Guidelines are expressed in recommendatory language.

These Standards and Guidelines were prepared by the Technical Committee on Ferry Boarding Facilities and its related subcommittees under the jurisdiction of the Standards Steering Committee on Structures (Design), and have been formally approved by these Committees.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include "Request for interpretation" in the subject line:*
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   b) *provide an explanation of circumstances surrounding the actual field condition; and*
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   a) *Standard designation (number);*
   b) *relevant clause, table, and/or figure number;*
   c) *wording of the proposed change; and*
   d) *rationale for the change.*

0 Introduction

This series of Standards and Guidelines has been developed to promote the design and construction of top-quality ferry boarding facilities that will permit safe and efficient passenger and vehicle ship-to-shore transfers.

Ferry boarding facilities comprise a wide range of components and systems whose complexity and number vary considerably between facilities, the ultimate design being dictated by the site (tides, access conditions, and ice buildup and/or impact), configuration of vessels served, traffic type and density, service frequency, etc. Experience has shown that ferry boarding facility design, except for very small facilities, requires various skilled resources, each with their own field of expertise and methods. Hence the importance of a “common language”, which was a primary impetus behind this project.

This series of Standards and Guidelines is unique. Because it has been drafted by and for specialists in many fields, it covers both very general and highly specialized topics. Rather than merely providing a compilation of requirements specific to certain disciplines, directed towards the assembly of separate systems, they were written to establish a set of interrelated requisites for an integrated whole. The need for everyone involved in ferry boarding facilities projects to adopt this perspective cannot be overemphasized, nor can the importance of effective, clear communications between specialists from many different disciplines.

CSA S826.1:01
Ferry Boarding Facilities — Design

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CSA S826.1:01
Ferry Boarding Facilities — Design

1 Scope

1.1
This Standard specifies requirements that are consistent with current practice for the design of new, or the replacement of existing, boarding facilities, including
a) vehicular and foot passenger ramps and support structures;
b) access interfaces between shore/ramp and ramp/vessel; and
c) operating systems.

Note: *Existing installations are exempt from this Standard until major structural, mechanical, or electrical modifications are undertaken.*

1.2
The provisions of this Standard apply to single-level and multilevel boarding facility ramps with a shore-based hinged connection and seaward end conditions in accordance with one of the following:
a) the seaward end of the ramp is supported by shore-connected structures, and transition to the ferry (vessel) decks is achieved by an apron attached to either the vessel or the ramp;
b) the seaward end of the ramp is supported by the vessel for traffic loading and off-loading periods. Support at other times is provided by fixed or floating shore-connected structures; or
c) the seaward end of the ramp is supported by a floating structure at all times.

Note: *Appendices A and B contain information and illustrations on geometry and ramp supporting systems.*

1.3
This Standard establishes specific requirements for two operating conditions:
a) Condition I, in which the ramp is adjusted only when completely cleared of vehicular or pedestrian traffic; and
b) Condition II, in which the ramp is adjusted with full live load.

1.4
Vehicular design loads are based on highway traffic loadings listed in CSA Standard CAN/CSA-S6 and on provincial highway loading limits. For vehicles to which these Standards do not apply, the design principles may be applied to the actual vehicle loading.

1.5
This Standard does not include provisions for the design of ancillary wharf, trestle, or berthing structures.

1.6
This Standard does not apply to the design of railroad boarding ramps.

1.7
The provisions of this Standard are not intended to preclude the advent or introduction of new technology, processes, or materials that conform to sound design principles and are not covered in this Standard.

1.8
The requirements of this Standard assume that the provisions set out in CSA Standards CSA S826.2, CSA S826.3, and CSA S826.4 will be applied.

1.9
The values given in SI (metric) units are the standard. The values given in parentheses are for information only and are used mainly to identify nominally sized components.

2 Definitions
The following definitions apply in this Standard:

Abutment — a structure at the shore end of the ramp that supports ramp hinges.

Adjustment (ramp) — the action of raising or lowering the unhinged end of a ramp in accordance with water level and vessel freeboard variations.

Apron fingers — plate flaps that are hinged on the end of the apron to provide a let-down onto the vessel deck from the end structural edge of the apron. Apron fingers are usually reinforced plate, approximately 1 m in length, and segmented, but combined for full-width coverage.

Boarding apron — the structural span that provides the link between the seaward end of a ramp and the deck of the ship. It may be hinge-connected to the ramp or the ship.

Boarding facility — the complete set of components installed between shore and vessel for the purpose of embarking/disembarking vehicles or passengers.

Boarding profile — the complete set of planes constituting the transition from the fixed elevation of the boarding facility approach to the variable elevation of the vessel deck or decks.

Commercial-standard components — components currently available on the market from manufacturer's stock, as opposed to components that are manufactured in accordance with designer specifications and are not available as stock items.

Counterweight — a mass that is secured to the ramp or apron by wire ropes, chains, or structural arms in such a way that its mass partially or fully balances the dead load of a structure (usually a ramp or apron). Counterweights are used to limit the size and power requirement of lift systems for large structures or components that are actively adjusted.

Deck — the running surface or walking surface of a ramp, apron, or elevated structure. The deck is the primary contact surface between live load and the structure. It is usually required to withstand high concentrated loads and to provide a friction surface for traffic.

Freeboard — the vertical distance between the waterline and a particular deck of a vessel or the deck surface of a ramp or apron.

Girder — the main load-carrying component that spans between primary reaction points.

