General Update On ASCE Piers and Wharves Design Code Development

O. Jaradat, PHD, PE, DPE, MASCE

Vice President & Technical Director for Structures, Moffatt & Nichol, Long Beach, CA

Tuesday, June 26, 2018    Port Special Session from 3:30 - 5:00 PM
Container terminals alone contribute:

- Roughly $4.8 trillion to the economy yearly
- Over 23 million jobs
- $320 billion annually in federal, state and local tax revenues

Source: AAPA 2017
Port of Long Beach
Wharf Design Criteria

The Port of Los Angeles
Code for Seismic Design, Upgrade and Repair of Container Wharves

POLB WDC Version 4.0
May 20, 2015

City of Los Angeles Harbor Department
March 2010
CHAPTER 31F [SLC]  
MARINE OIL TERMINALS

SECTION 3101F [SLC]  
INTRODUCTION

3101F.1 Authority. The Commission, in cooperation with the State of California, has adopted the Oil Terminal Control Program (OTCP) to regulate the operation of marine terminals and offshore terminals

3101F.2 Purpose. The purpose of this code is to establish minimum engineering, inspection and maintenance criteria for marine terminal facilities to protect public safety, health and property. This code does not specifically address terminal siting or operational requirements. Relevant provisions from existing codes, industry standards, recommended practices, regulations and guidelines have been incorporated directly or through reference, as part of this code.

3101F.3 Scope. This code applies to all terminal facilities and operations as defined in the California Public Resources Code (40250). This code does not specifically address terminal siting or operational requirements. Relevant provisions from existing codes, industry standards, recommended practices, regulations and guidelines have been incorporated directly or through reference, as part of this code.

3101F.4 Adoption. This code is adopted in accordance with the provisions of the California Public Resources Code (40250).

3101F.5 Enforcement. The enforcement of this code is the responsibility of the California Public Resources Code (40250).
Seismic Design of Piers and Wharves

This document uses both the International System of Units (SI) and customary units.
Minimum Design Loads for Buildings and Other Structures

This document uses both the International System of Units (SI) and customary units.
2014

Manual for Railway Engineering

Volume 1

Track

Introduction

Foreword

Table of Contents

Chapter 1 Roadway and Ballast

(Chapters 3 and 10 were combined in 2000 to form Chapter 30)

Chapter 4 Rail

Chapter 5 Track

Chapter 30 Ties

General Subject Index
<table>
<thead>
<tr>
<th>Facility</th>
<th>Public access</th>
<th>Building Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container terminals</td>
<td>No</td>
<td>POLA/ POLB/ ASCE 61</td>
</tr>
<tr>
<td>Marine oil terminals</td>
<td>No</td>
<td>MOTEAMS/ CBC/ ASCE 61</td>
</tr>
<tr>
<td>Military terminals</td>
<td>No</td>
<td>UFC/ ASCE 61</td>
</tr>
<tr>
<td>Cruise/ Ferry terminals</td>
<td>Yes</td>
<td>LABC/ CBC/ IBC/ ASCE 7</td>
</tr>
<tr>
<td>Recreational piers</td>
<td>Yes</td>
<td>LABC/ CBC/ IBC/ ASCE 7</td>
</tr>
<tr>
<td>Marinas</td>
<td>Yes</td>
<td>LABC/ CBC/ IBC/ ASCE 7</td>
</tr>
<tr>
<td>Buildings</td>
<td>Yes</td>
<td>LABC/ CBC/ IBC/ ASCE 7</td>
</tr>
<tr>
<td>Highway Bridges</td>
<td>No</td>
<td>AASHTO/ Caltrans Design Criteria</td>
</tr>
<tr>
<td>Railroad Bridges</td>
<td>No</td>
<td>AREMA</td>
</tr>
</tbody>
</table>
Design of Piers & Wharves

ASCE/COPRI 61-14 Seismic Design of Piers & Wharves

NEW ASCE/COPRI Design Standards for Piers & Wharves
New ASCE/COPRI Design Standards for Piers and Wharves

Standards Need, Purpose, and Objective

◦ To address lacking comprehensive standard or guidance for the analysis and design of piers and wharves in the United States
◦ Currently 25 + existing guidance and recommended practice documents
◦ Establish comprehensive and consistent national Standard for the analysis and design of pier and wharves
◦ Provide a consensus-driven, single resource document
# Proposed Schedule

<table>
<thead>
<tr>
<th>Item</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft proposal discussed with ASCE</td>
<td>March 2016</td>
</tr>
<tr>
<td>Ports &amp; Harbor Committee Presentation/Approval</td>
<td>June 2106</td>
</tr>
<tr>
<td>Final proposal submitted to ASCE/COPRI</td>
<td>July 2016</td>
</tr>
<tr>
<td>COPRI Governing Board Approval</td>
<td>September 2016</td>
</tr>
<tr>
<td>Ports &amp; Harbor Sub-Committee first meeting</td>
<td>October 2016</td>
</tr>
<tr>
<td>ASCE Codes &amp; Standards Committee Approval</td>
<td>March 30, 2017</td>
</tr>
<tr>
<td>ASCE/ ANSI formal announcement for New Standards Committee</td>
<td>July 30, 2017</td>
</tr>
<tr>
<td>ASCE Call for members</td>
<td>September 2017</td>
</tr>
<tr>
<td>First official ASCE Standards Committee meeting</td>
<td>October 11, 2018</td>
</tr>
<tr>
<td>Draft Standard completed</td>
<td>Spring 2022</td>
</tr>
<tr>
<td>Publish Standard</td>
<td>Spring 2023</td>
</tr>
</tbody>
</table>
New ASCE Standards Committee Membership

Minimum number of voting members for a standard committee is 12

Current number of members = 31

Membership breakdown consist of:

<table>
<thead>
<tr>
<th>Target</th>
<th>Design Standards (7/18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-40% Consumers</td>
<td>45% Consumers</td>
</tr>
<tr>
<td>0-15% Regulators</td>
<td>10% Regulators</td>
</tr>
<tr>
<td>20-40% Producers</td>
<td>0% Producers</td>
</tr>
<tr>
<td>20-40% General</td>
<td>45% General</td>
</tr>
</tbody>
</table>
Standards Working Groups Chapter Details

Group 1: Introduction to Standards
- Jurisdiction Applicability (Federal, State, and Local)
- Structure type
- Use/production
- Regulations applicability by Geography

Group 2: Loads and Loads Combination
- Criteria for metocean and other environmental loads
- Water level fluctuation and surges (sea level rise, tsunami,...)
- Mooring and breasting loads
- Berthing loads
- Load combinations for vacant, berthing and moored conditions
Standards Working Groups by Chapter Detail

**Group 3: Analysis and Design**
- Methods of structural analysis
- Geotechnical criteria
- Design procedures
- Design for extreme events such as hurricanes, earthquakes, tsunami, man-made disaster
- Design codes (steel, concrete, timber, synthetics)

**Group 4: Sustainable Design**

**Group 5: Marina Design**
Action Items

- Identify existing useful Standards and other source information
- Identify gaps and research needed from design engineers
- Assign committee members to select Working Groups
- Identify team leader for each Working Group

Join:

http://www.asce.org/codes-and-standards/standards-committee-application-form/
Thank you!