

Containers as load-bearing structures for buildings

Ohr Notes 002 / Revision 01 · July 2021

First published October 2015



Can any container be used as a load-bearing structure for a building? It is crucial that when a container is used as a load-bearing structure (i.e. it is the primary frame holding the building up), it is designed and specified accordingly by a professional structural engineer to meet code and UBBL requirements. Even if it is only a temporary structure, it should be designed, specified and built to be safe for occupancy and its intended use.

What is normally used

Offshore freight containers.

Typical dimensions

Container	Imperial dimensions	Metric dimensions
40-foot container	40 ft L × 8 ft W × 8 ft H	12.19 m L × 2.44 m W × 2.44 m H
20-foot container	20 ft L × 8 ft W × 8 ft H	6.1 m L × 2.44 m W × 2.44 m H

Standard code of practice

BS EN 12079-1:2006 — Offshore containers and associated lifting sets: Design, manufacture and marking.

DNV 2.7-1 — DNV Certification Note 2.7-1: Offshore freight containers.

Requirements for using a container for structural purposes

The container has to have its structural drawings with certification confirming compliance with the standard code of practice.

The structural documentation should identify the container's dimensions and load ratings, material specifications, welding methods and sizes, any other fastening methods, special material treatments, corner fittings and mandatory markings.

Which part of the container is load-bearing

Primary frame. The four vertical corner posts and the connecting horizontal beams form the container frame.

Floor plate. The floor plate forms part of the container construction.

Corrugated walls. The corrugated sheet walls can be considered for additional vertical load-bearing capacity.

The container structure can be reinforced with additional steel elements to increase its capacity, as needed for the intended use and form.

How should the structural design be undertaken

The design should be undertaken using the information obtained from the structural drawings and documentation supplied with the container.

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