



21ST EUROPEAN COLD CHAIN CONFERENCE

14-16 MARCH 2018 | ANTWERP

Global Cold Chain Alliance

Improving Construction & Design To Meet
Today's Cold Chain Challenges

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Presented by



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Background

- The first edition of the guide published in 1999
- Second edition of the guide published in 2008
- Both guides gained wide international recognition
- Referenced in various documents, including the Building Regulations (England / Wales) Approved Document B (Appendix F) in respect of Fire Regulations

Considered an informative guidance document



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Problem

- No European Standard for the design of temperature controlled environments
- Too many Industry guidance documents that do not address the grey areas
- Scale and complexity of facilities
- Historical considerations – *The 25 Year Rule*
- The perception of what constitutes a “*design*”



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Aim

- The aim of the new Code of Practice is:-
 - Provide designers with a framework for assessing the suitability of products to be used for the construction works as a whole and separate components
 - Clear & concise design guidance
 - Establish minimum recommendations
 - Holistic approach NOT Single element approach



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Framework

- Based on Essential Requirements that construction works must comply.
 - Mechanical Resistance and Stability
 - Safety in case of Fire
 - Hygiene, health and the Environment
 - Safety and Accessibility in Use
 - Protection against noise
 - Energy Economy and Heat Gain
 - Aspects of Durability, Serviceability and Identification
- Then listing the corresponding aspects of performance requirements in more detail.



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MECHANICAL RESISTANCE AND STABILITY

REQUIREMENTS

The envelope must be designed and built in such a way to ensure that it remains stable under the loadings that are likely to act on it during its construction and use and will not lead to any of the following:

- collapse of the whole or part of the works
- major deformations to an inadmissible degree
- damage by an event to an extent disproportionate to the original cause



Example

REQUIREMENTS FOR STABILITY

Adequate provision shall be made to ensure that the building or envelope is stable under the likely imposed and wind loading conditions. This will commonly necessitate meeting the following requirements:

- a. That the overall size and proportioning of the building or envelope are limited.
- b. That a suitable layout of walls (both internal and external) forming a robust 3 dimensional box structure in plan is constructed.
- c. That the internal and external walls are adequately connected by using mechanical connections.
- d. That the ceilings are of such construction and interconnection with the walls that they provide local support to the walls and also act as horizontal diaphragms capable of transferring the wind forces to supporting elements.



Example

SIZING OF STRUCTURAL ELEMENTS - WALLS

Loading on Walls

Walls should not be subjected to lateral loads other than from wind.

The designer shall calculate the wind loadings acting on the walls and should be derived from BS EN 1991-1-4:2005+A1:2010 Eurocode 1: Actions on structures – Part 1.4: General actions – Wind actions; with UK National Annex to BS EN 1991-1-4:2005+A1:2010.

In any event, the minimum recommended design wind pressure and suction should not be less than 0.30 kN/m².

Where the walls are required to support other fixtures and fittings, account should be taken of the loads and forces arising from such fixtures and fittings



Thank You



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