

ECCS TC7 TWG 7.9
Sandwich panels and Related structures

CIB Working Commission
W056 Sandwich Panels

ECCS/CIB Joint Committee

Preliminary European Recommendations for the
Testing and Design of Fastenings for Sandwich
Panels

1st Edition, 2009



Preliminary European Recommendations for the Testing and Design of Fastenings for Sandwich Panels

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PREFACE

The European product standard for sandwich panels, EN 14509, covers the requirements and verification methods for the essential properties of factory made sandwich panel products. Fastenings are typically made at a building site outside the factory. Thus, fastenings are not a subject for a European product standard. The European Recommendations, CIB Publication No. 257 and ECCS Publication No. 115, published in 2000 and 2001, give loading arrangements and procedures with which to determine the tensile and shear resistance of both direct and concealed fastenings. These new recommendations update the previously published procedures for fastenings and extend the concept to include also fastenings fixed in a face layer.

The sources of information taken into account in the writing of these recommendations have included the previously published recommendations, relevant new research results and the current practice with regard to the available screw fastenings and concealed fastenings. The resulting recommendations are believed to be particularly applicable to the typical metal sheet-faced sandwich panels with cores of polyurethane or polystyrene foam or mineral wool which are on the market today. However, the rules and methods can be applied to other and new types of fastenings and sandwich panel products. When applying these recommendations, the user shall take into account the mechanical behaviour of the fastening in practice and shall take care to ensure the correspondence of the observed behaviour and resistance of the fastening in the tests and the actual behaviour in practice.

The recommendations are published as “Preliminary European Recommendations for the Testing and Design of Fastenings for Sandwich Panels”. There are two reasons for the prefix “preliminary”. The status of full-scale tests, when compared to tests using small-size specimens requires clearer definition. The rules for the adjustment of test results to nominal values of the essential properties of the face and core materials require more detailed study in order to cover more reliably all types of core materials. Research anticipated in near future may provide the required information and make possible the publication of this document as “European Recommendations”.

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The technology of structural sandwich panels continues to advance, and this requires that the guidelines for the design, testing and use of sandwich structures and their fastenings will continue to develop. ECCS TC7 and CIB W56 will, therefore, welcome critical comments and proposals to improve this document.

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