CO-CONSTRUCT

Supporting Services from Structure

Guidance for a defect-free interface

Compiled by Roderic Bunn and Martin Heywood

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What is Co-Construct?

Co-Construct is a network of five leading construction research and information organisations - Concrete Society, BSRIA, CIRIA, TRADA and SCI - who are working together to produce a single point of communication for construction professionals.

BSRIA covers all aspects of mechanical and electrical services in buildings, including heating, air conditioning, and ventilation. Its services to industry include information, collaborative research, consultancy, testing and certification. It also has a worldwide market research and intelligence group, and offers hire calibration and sale of instruments to the industry.

The Construction Industry Research and Information Association (CIRIA) works with the construction industry to develop and implement best practice, leading to better performance. CIRIA's independence and wide membership base makes it uniquely placed to bring together all parties with an interest in improving performance.

The Concrete Society is renowned for providing impartial information and technical reports on concrete specification and best practice. The Society operates an independent advisory service and offers networking through its regions and clubs.

The Steel Construction Institute (SCI) is an independent, international, member-based organisation with a mission to develop and promote the effective use of steel in construction. SCI promotes best practice through a wide range of training courses, publications, and a members advisory service. It also provides internet-based information resources.

TRADA provides timber information, research and consultancy for the construction industry. The fully confidential range of expert services extends from strategic planning and market analysis through to product development, technical advice, training and publications.

For more information on Co-Construct visit www.construction.co.uk.

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Introduction

Most new buildings require a labyrinth of ducts and pipes, together with miles and miles of cables. All of these need to be supported in a way that safely transfers the load without causing damage to the services or to the structure.

The numerous locations from which the services can be suspended provide the building services engineer with many options at the design stage and offer the flexibility to overcome unforeseen difficulties that may arise during installation. However, achieving the time and cost saving benefits of innovative suspension systems requires close and early co-ordination between the building services design and that of the structure. As is often the case in building design and construction, the success or failure of a project depends as much on the design of the interface as it does on the design of the individual beams, columns and building services systems.

This guide, the fourth in a series called Interface Engineering Publications, aims to provide guidance on the best ways to engineer the interface between structural design and services distribution. BSRIA and the SCI have pooled their technical knowledge to provide structural and services engineers with consistent, interlocking advice.

Much of the material in the publication is repackaged from existing BSRIA and SCI guidance. Details of the original publications, relevant European and British Standards and other references for further reading are provided at the end of this publication.

The publication begins with an introduction to the design issues faced by structural and building services engineers and examines the implications of certain key design decisions on the integration of the building services into the structure. There are many ways in which the services may be attached to the structure and several of the most common options are discussed in detail. These include fixings to beam flanges, steel decking and solid concrete slabs.

Many proprietary support systems have been developed in recent years to cater for all shapes, sizes and weights of building services. This publication does not give specific advice on the installation of particular systems or components, as most manufacturers produce comprehensive guidance for the design and installation of their products. However, much of the guidance presented in this publication will be applicable to the common types of support system available in the UK and elsewhere.

Martin Heywood, The Steel Construction Institute
Roderic Bunn, BSRIA

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How to use this guide

Advice about the requirements of the structure to facilitate the suspension of mechanical and electrical services will be found in yellow-tinted boxes.

Advice about suspending mechanical and electrical services from structural elements will be found in the blue-tinted boxes.

Comments marked by ■ link to structural engineering sections listed under *also see*.

Comments marked by ■ link to services engineering sections listed under *also see*.

Comments marked by ■ denote a link common to both specialisms.

Key services watchpoints

☐ Essential services engineering messages from the guide

Key structural watchpoints

☐ Essential structural messages from the guide

See also

1 **Links** to services sections
2 **Links** to structural sections
3 **Links** to common sections

Further reading to support this guide

Standards for structural and services design

Glossary for definitions of terms

Contents

Introduction 1

Clients' guide to services issues 4
Key services issues 4
The design process 4
Suspension elements 4
Load calculations 5

Clients' guide to structural issues 6
Structural perspectives 6
Member resistance 6
Deflection 6
Choice of floor type 7
Fire protection 7

Essential fastening issues 8
Key design factors 8
Component load limits 8

Fixing services to structure 10
Primary steelwork 10
Secondary steelwork 10
Steel decking 11
Concrete decking 12
Voided construction 12

Innovative fastening methods 14
Wire rope fixing systems 14
Powder-actuated fastenings 15
Adhesive fasteners 16
Channel support systems 17
Hilti MQ channel system 17
Cast-in channel system 18
Halfen channel system 18
Sheet metal brackets 18
Polymer pipe clips 19

Further reading and standards 20

Glossary 21