



Lightweight Aggregate Concrete

**Recommended extensions to Model Code 90
Guide**

Identification of research needs
Technical report

Case studies
State-of-art report

FOREWORD

The report “Structural Lightweight Aggregate Concrete: Recommended extensions to Model Code 90” is a Guidance Report, approved by the Council of *fib* in its meeting of 25th of March 2000.

In the report it is shown which part of the rules given in the Model Code'90, which has principally been written for normal weight concrete (NWC), can be applied as well to lightweight aggregate concrete (LWAC) and where modifications are necessary. Modified formulations, to enable application to LWAC, have principally been formulated as extensions of existing equations in the Model Code, often by adding conversion factors. In this way design recommendations have been obtained which are consistent with those for normal weight concrete, which is in favour of practical use. Where extensions have been given in the report, these are based on experimental evidence. In this respect there was a liaison with the work carried out in the Brite-Euram Project EuroLightCon, in which part of the members of TG 8.1 were involved. Due to the lack of sufficient experimental evidence in some areas, extensions could not be given for all recommendations of the Model Code. The areas for which this applies, are mentioned in the text. In this respect the report is also a guide for the necessity of further research as well.

The Steering Committee of *fib* thanks the members of TG 8.1 who contributed to the valuable work reported in this document.

Shortly before printing this document the sad news was spread that Ivar Holand, Chairman of TG 8.1, and inspirator of the work, passed away. Ivar Holand was a highly estimated person, with excellent capabilities with regard to motivating and leading people. Although retired for already a substantial period, he was still very active in research, specially in high strength concrete and lightweight concrete. He was co-initiator of a number of large conferences and symposia in those areas, including the Symposium on Structural Lightweight Aggregate Concrete to be held in Kristiansand, Norway, on 18-22 June. We are grateful for his many contributions in extending the frontier of knowledge and for the friendship we shared with him.

Joost Walraven

May 2000

Chairman of the Steering Committee of *fib*

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Remark: The arrangement of the contents is based on the objective that the report shall provide suggested extensions to Model Code 90. Thus, all the headings in the report are the same as in Model Code 90. CEB Bulletin 228 [17] was edited according to the same principle, and thus headings in the present report also correspond with those used in Bulletin 228 and allow an easy reference also to Bulletin 228.

Since the suggested extensions refer only to selected chapters and sections in Model Code 90, all headings in MC 90 are not included. Thus, the numbering in the list of contents is in many cases discontinuous, and even more so in the detailed paragraphs.

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