CICIND

Model Code
for
Steel Chimneys

Revision 1 - 1999
Amendment A – March 2002

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and

Commentaries and Appendices
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FOREWORD

When it was formed in 1973, the "Comite International Des Cheminees Industrielles" (CICIND) adopted as a major goal the harmonisation of national codes for the design of industrial chimneys. As a means to this end, a subcommittee was appointed in 1981, charged with drafting a proposal for a model code for steel chimneys which reflected the current "state-of-the-art" and a consensus of views, internationally. This document was published in 1988, with Commentaries being published the following year.

Since 1988, the science and technology of chimneys has advanced and in 1995, CICIND appointed a committee to revise the Model Code, recognising current best international practice and knowledge.

The committee comprises:

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0. INTRODUCTION

0.1 General

Chimneys are required to carry vertically and discharge to the atmosphere, gaseous products of combustion, chemical waste gases, exhaust air or for the combustion (flaring off) of industrial waste gases.

This Model Code contains guide-lines which reflect the current state of art in the design and construction of steel chimneys. Nevertheless, the design, fabrication and erection of steel chimneys require a thorough knowledge of these structures, the properties of the materials used, the actions occurring upon the structure and the recognised rules of the relevant technologies. The design of steel chimneys should therefore only be entrusted to appropriately qualified and experienced engineers. The construction and erection should be carried out by firms competent in this class of work. At all times the work should be under the direction of appropriately qualified supervisors.

CICIND will continue to try to improve the understanding of the behaviour of chimneys. Further revisions of this model code will therefore be published from time to time.

0.2. Appendices and Commentaries

This Model Code is accompanied by extensive appendices and commentaries. The appendices provide information which the committee believes will be of use to a steel chimney designer, even though its inclusion in a chimney design code could not be justified. The commentaries have the following objectives:

a) Justification of the regulations of the model code.
b) Simplification of the use of the model code.
c) Understanding of the meaning of the regulations of the model code.
d) Documentation of the areas in the model code where the present knowledge is sparse so that the regulations are possibly or probably not optimal.

The following items are **not** objectives of the CICIND commentaries:
e) Change of the meaning of certain regulations of the model code where these are falsely expressed or obviously wrong.
f) Definition of the meaning of certain regulations of the model code which are so badly formulated that they could easily be misinterpreted even by experts.

Certain information from the model code is repeated in the commentaries when this simplifies the presentation of the ideas.

0.3 Philosophy

One of the main objectives of any code governing construction is the creation of a model which resembles as far as possible, the real situation. The model should be sufficiently "safe, simple and true". It is very rarely that simplicity and truth are compatible, so a model must be used which provides an optimum compromise between truth, simplicity, safety and economy.

While the judgements of 'sufficiently true' and 'sufficiently simple' are subjective, 'sufficiently safe' is capable of rational judgement. This code interprets 'sufficiently safe' in terms of the social and economic consequences of failure. It does this by comparing the probabilities of failure for given safety factors during its design life with the failure probabilities required to satisfy accepted social and economic criteria. This leads to the development of safety factors which ensure that a chimney will have a probability of failure during its design lifetime between 10^{-3} and 10^{-4}, depending upon its reliability category.

CICIND has departed from generally accepted principles of steelwork design and construction only when this was required by the philosophy outlined above or by specific chimney requirements.