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Measuring methods for building — General principles and procedures for the verification of dimensional compliance

Méthodes de mesurage pour la construction — Principes généraux pour la vérification de la conformité dimensionnelle

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

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It has been approved by the member bodies of the following countries :

Australia	Finland	Korea, Rep. of
Belgium	France	Norway
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Bulgaria	Hungary	Romania
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The member body of the following country expressed disapproval of the document on technical grounds :

Netherlands

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Measuring methods for building — General principles and procedures for the verification of dimensional compliance

0 Introduction

International Standards dealing with the application of these principles are currently being prepared.

1 Scope

This International Standard indicates the principles to be applied for carrying out dimensional compliance control measurements in building construction. It deals with compliance measurements for setting out component manufacture and assembly, and the building as a whole.

2 Field of application

This International Standard applies to all types of building construction.

3 References

ISO 1803, *Tolerances for building — Vocabulary.*[1]

ISO 4463, *Measurement methods in building — Setting out and measurement — Permissible deviations.*

ISO 4464, *Tolerances for building — Relationship between the different types of deviation.*

4 Definitions

4.1 compliance measurement : Measurement carried out to verify compliance with the specified permitted deviation of a completed stage of the construction process (for example, building components, setting out and constructed work).

NOTE — Compliance measurements are not synonymous with informal check measurements as defined in ISO 4463.

4.2 measurement accuracy check : Set of measurements carried out to check the accuracy of a compliance measuring method.

5 General

5.1 Compliance measurements for the operation of setting out the location of the building (or other projects) as a whole are carried out to confirm the relationship between the building and the physical features in the immediate environment.

Compliance measurements for all other operations including setting out within the building are carried out to verify compliance with the specified permitted deviation.

5.2 The following items shall be listed in the inspection schedule :

a) all operations to be subjected to compliance measurements;

b) information about the time of these measurements;

c) information about the physical reference conditions;

d) description and details of methods of measurements;

e) any other matters pertaining to compliance measurements.

5.3 The list of items given in the inspection schedule should not prevent the addition of other operations if it should prove necessary to obtain compliance measurements of them.[2]

6 Procedures

6.1 Accuracy of compliance measurements

When carrying out compliance measurements, it is necessary to ensure that the measurement procedure will give a sufficiently accurate result.

6.1.1 For all operations within the building, the compliance measurements should be significantly more accurate than the specified permitted deviations of the operation to be checked.

NOTE — The actual value chosen depends on technical and economical factors and should be given in the verification schedule. Generally the standard deviation inherent to the measuring procedure should be of the order of 1/10 of the specified permitted deviation i.e. 2,5 times the standard deviation inherent to the measuring procedure should be of the order of 0,25 times the specified permitted deviation.

1) At present at the stage of draft. (Revision of ISO 1803-1973.)

2) For economical reasons it may be convenient to decide which are the important dimensions to be specified.

6.1.2 The accuracy of the compliance measurement method for setting out of the building (or other project) as a whole shall be that given in ISO 4463. On occasion, however, an increased accuracy may be necessary.

6.2 Planning of the appliance measurements

Compliance measurements shall be carried out sufficiently early so that where they indicate that specified permitted deviations have been exceeded, possible remedial action can be considered. In the drafting of the inspection schedule (see 6.2) particular attention shall be paid to the need to carry out control measurements in time to facilitate the correction of excessive deviations, thus limiting interference with the progress of successive operations. It is recommended that a person be designated to be responsible for the compliance measurements.

6.3 Measurement methods

6.3.1 Setting out

The recommended compliance measurement methods are those given in ISO 4463.

To ensure that the compliance measurements for setting out of the building (or other project) as a whole will not reproduce errors obtained in the original setting out, due for example, to mistaking a remote-target, they should be carried out by a different surveyor using a different instrument of the same order of accuracy as the original instrument.

For setting out within a building, a similar procedure should be adopted but, where applicable, improved equipment should be used. Where possible, a different measurement method should be used such that the sequence of individual measurements is different. However, the compliance measurements must have the same reference point and reference direction of the local net as used in the original setting out.

6.3.2 Building components

The measurements methods to be adopted for the verification of compliance of building components shall be included in the inspection schedule[1].

6.3.3 The building as a whole (including assemblies)

The measurement methods to be adopted for the verification of compliance of constructed work shall be included in the inspection schedule[1].

6.4 Measurement accuracy check

Prior to any compliance measurements being carried out, the accuracy in use of the compliance measurement method to be used shall be checked[1]. They shall be carried out by the surveyor making the compliance measurements under similar conditions.

1) An International Standard is currently under preparation.