IS 10714-23 (2006): Technical drawings - General principles of presentation : 23 Lines on construction drawings [PGD 24: Drawings]

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IS 10714 (Part 23) : 2006
ISO 128-23 : 1999

भारतीय मानक

तकनीकी ड्रांइग — प्रस्तुतीकरण के सामान्य सिद्धांत

भाग 23 निर्माण ड्राइंग पर रेखाएँ

Indian Standard

TECHNICAL DRAWINGS — GENERAL PRINCIPLES OF PRESENTATION

PART 23 LINES ON CONSTRUCTION DRAWINGS

ICS 01.100.30

BUREAU OF INDIAN STANDARDS
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NATIONAL FOREWORD

This Indian Standard (Part 23) which is identical with ISO 128-23 : 1999 'Technical drawings — General principles of presentation — Part 23 : Lines on construction drawings' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Drawings Sectional Committee and approval of the Production and General Engineering Division Council.

ISO 128 was published in 1982 and was accordingly adopted as IS 10714 : 1983. ISO 128 : 1982 was withdrawn and published again in several parts. In view of this, Drawings Sectional Committee decided to adopt ISO 128-23 : 1999 as IS 10714 (Part 23).

This standard specifies types of lines and their application in construction documentation comprising architectural drawings, structural engineering drawings, building service engineering drawings, civil engineering drawings, landscape drawings and town planning drawings.

The other parts in this series are:

Part 1	Introduction and index
Part 20	Basic conventions for lines
Part 21	Preparation of lines by CAD systems
Part 22	Basic conventions and applications for leader lines and reference lines
Part 30	Basic conventions for views
Part 40	Basic conventions for cuts and sections

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their places are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 128-20 : 1996 Technical drawings — General principles of presentation : Part 20 Basic conventions for lines	IS 10714 (Part 20) : 2001 Technical drawings — General principles of presentation: Part 20 Basic conventions for lines	Identical
ISO 129 : 1985[1)] Technical drawings — Dimensioning — General principles, definitions, methods of execution and special indications	IS 11669 : 1986 General principles of dimensioning on technical drawings	do
ISO 6428 : 1982 Technical drawings — Requirements for microcopying	IS 10164 : 1985 Requirements to execute technical drawings for microcopying	do

[1)] Now revised as ISO 129-1 : 2004.

(*Continued on third cover*)

Indian Standard

TECHNICAL DRAWINGS — GENERAL PRINCIPLES OF PRESENTATION

PART 23 LINES ON CONSTRUCTION DRAWINGS

1 Scope

This part of ISO 128 specifies types of lines and their application in construction documentation comprising architectural drawings, structural engineering drawings, building service engineering drawings, civil engineering drawings, landscape drawings and town planning drawings.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 128. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 128 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 128-20:1996, *Technical drawings — General principles of presentation — Part 20: Basic conventions for lines.*

ISO 129:1985, *Technical drawings — Dimensioning — General principles, definitions, methods of execution and special indications.*

ISO 3766:1995, *Construction drawings — Simplified representation of concrete reinforcement.*

ISO 4068:1978, *Building and civil engineering drawings — Reference lines.*

ISO 4069:1977, *Building and civil engineering drawings — Representation of areas on sections and views — General principles.*

ISO 4463-1:1989, *Measurement methods for building — Setting-out and measurement — Part 1: Planning and organization, measuring procedures, acceptance criteria.*

ISO 6428:1982, *Technical drawings — Requirements for microcopying.*

ISO 7519:1991, *Technical drawings — Construction drawings — General principles of presentation for general arrangement and assembly drawings.*

ISO 8048:1984, *Technical drawings — Construction drawings — Representation of views, sections and cuts.*

ISO 8560:1986, *Technical drawings — Construction drawings — Representation of modular sizes, lines and grids.*

ISO 11091:1994, *Construction drawings — Landscape drawing practice.*

3 General principles

The types of lines, their designations and their dimensions as well as general rules for draughting of lines are specified in ISO 128-20.

The requirements for microcopying are specified in ISO 6428.

4 Types of lines and their applications

The first part of the number is the number of line type in ISO 128-20.

Examples of applications are shown in annex A.

Table 1 — Types of lines and their application

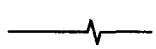
No.	Description and representation	Application	Reference to ISO
01.1	Continuous narrow line	.1 boundaries of different materials in view, cut and section (alternatively, see 01.2.2)	7519
		.2 hatching	4069
		.3 diagonals for indication of openings, holes and recesses	7519
		.4 arrow lines in stairs, ramps and sloping areas	7519
		.5 modular grid lines, first stage (if necessary, other colour than outlines)	8560
		.6 short centrelines	—
		.7 extension lines	129
		.8 dimension lines and their terminators	129
		.9 leader lines	129
		.10 existing contours on landscape drawings (alternatively, see 02.1.1)	11091
		.11 visible outlines of parts in view (alternatively, see 01.2.3)	—
		.12 simplified representation of doors, windows, stairs, fittings etc. (alternatively, see 01.2.4)	7519
		.13 framing of details	—
	Continuous narrow lines with zigzags 	.14 limits of partial or interrupted views, cuts and sections, if the limit is not a line 04.1 (alternatively, see 04.1.6)	—

Table 1 *(continued)*

No.	Description and representation	Application	Reference to ISO
01.2	Continuous wide line	.1 visible outlines of parts in cut and section when hatching is used	7519
		.2 boundaries of different materials in view, cut and section (alternatively, see 01.1.1)	—
		.3 visible outlines of parts in view (alternatively, see 01.1.11)	7519
		.4 simplified representation of doors, windows, stairs, fittings etc. (alternatively, see 01.1.12)	7519
		.5 modular grid lines, second stage (if necessary other colour than outlines)	8560
		.6 arrow lines for marking of views, cuts and sections	8048
		.7 proposed contours on landscape drawings	11091
01.3	Continuous extra-wide line	.1 visible outlines of parts in cut and section when hatching is not used	7519
		.2 reinforcing bars (see 02.3.1)	3766
		.3 lines of special importance	—
02.1	Dashed narrow line	.1 existing contours on landscape drawings (alternatively, see 01.1.10)	11091
		.2 subdivision of plant beds/grass	11091
		.3 hidden outlines (alternatively, see 02.2.1)	—
02.2	Dashed wide line	.1 hidden outlines (alternatively, see 02.1.3)	—
02.3	Dashed extra-wide line	.1 reinforcing bars in bottom layer on plan and far face layer in elevation when bottom and top layers and near and far face layers are shown on the same sketch	3766
04.1	Long dashed dotted narrow line	.1 cutting planes (line 04.2 at ends and changes of direction)	—
		.2 centrelines	—
		.3 lines of symmetry (identified at the ends by two narrow short parallel lines drawn at right angle)	—
		.4 framing of enlarged details	—
		.5 reference lines	—
		.6 limits of partial or interrupted views, cuts and sections (especially for short lines and in narrow situations; see examples 01.1.2, 01.2.1, 01.3.1, etc., in annex A; alternatively, see 01.1.14)	—

Table 1 *(continued)*

No.	Description and representation	Application	Reference to ISO
04.2	Long dashed dotted wide line	.1 cutting planes (at ends and changes of direction; see 04.1.1)	—
		.2 outlines of visible parts situated in front of the cutting plane	—
04.3	Long dashed dotted extra-wide line	.1 secondary lines for setting out and arbitrary reference lines	4463-1;4068
		.2 indication of lines or surfaces to which a special requirement applies	—
		.3 boundary lines for contracts, stages, zones etc.	—
05.1	Long dashed double-dotted narrow line	.1 alternative and extreme positions of movable parts	—
		.2 centroidal line	—
		.3 outlines of adjacent parts	—
05.2	Long dashed double-dotted wide line	.1 outlines of hidden parts situated in front of the cutting plane	—
05.3	Long dashed double-dotted extra-wide line	.1 reinforcing prestressed bars and cables	3766
07.1	Dotted narrow line	.1 outlines of parts not included in the project	—

5 Line widths

On a construction drawing three line widths, narrow, wide and extra-wide, are normally used (see Table 2).

The proportions between the line widths are 1:2:4.

A special line width is used for representation and lettering of graphical symbols. This line width is situated between the width of the narrow and the wide line.

Table 2 — Line widths

Dimensions in millimetres

Line group	Narrow line	Wide line	Extra-wide line	Line widths for graphical symbols
0,25	0,13	0,25	0,5	0,18
0,35	0,18	0,35	0,7	0,25
0,5	0,25	0,5	1	0,35
0,7	0,35	0,7	1,4	0,5
1	0,5	1	2	0,7

The line widths shall be chosen according to the type, size and scale of the drawing and the requirements at microcopying and other methods of reproduction.

Annex A
(informative)

Examples of application

Examples of the application of the different types of lines, along with the corresponding reference numbers from clause 4, are given in Table A.1.

Table A.1 — Examples of application

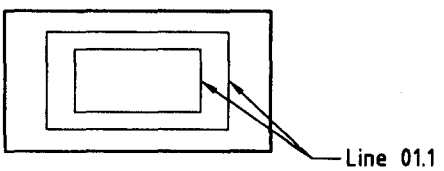
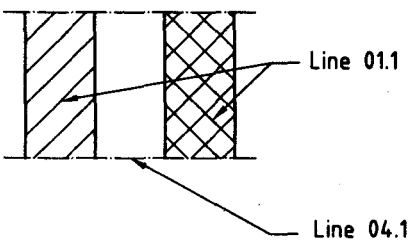
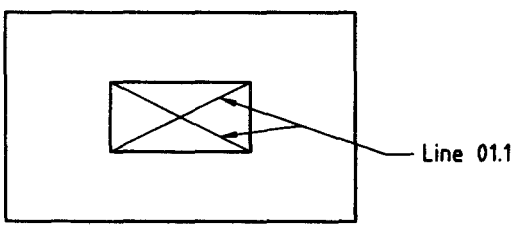
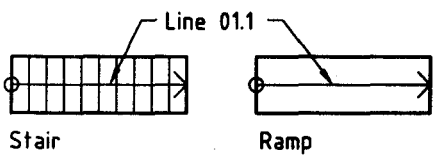
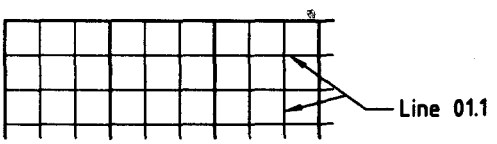
No.	Line type	Example of application
01.1	**Continuous narrow line**	
01.1.1	Boundaries of different materials in view, cut and section	 View of a floor with different materials
01.1.2	Hatching	 Vertical section of a wall
01.1.3	Diagonals for indication of openings, holes and recesses	 View of a wall with an opening
01.1.4	Arrow lines in stairs, ramps and sloping areas	
01.1.5	Modular grid lines, first stage	

Table A.1 *(continued)*

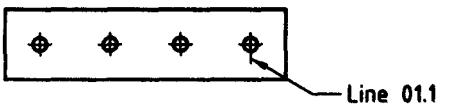
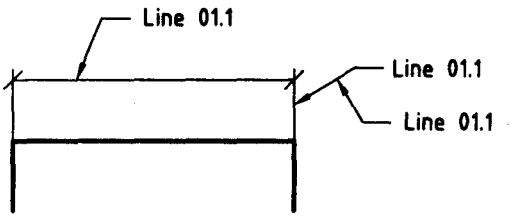
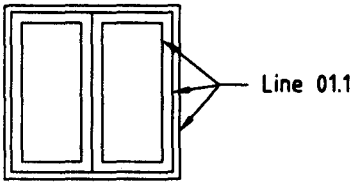
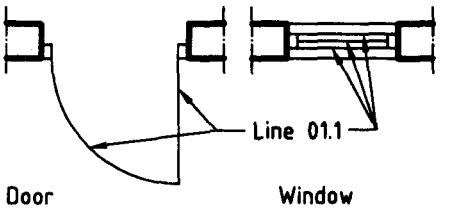
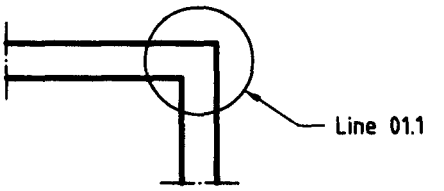
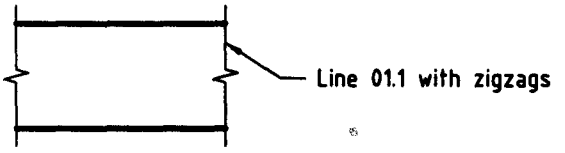
No.	Line type	Example of application
01.1.6	Short centrelines	
01.1.7 01.1.8 01.1.9	Extension lines Dimension lines and their terminators Leader lines	
01.1.10	Existing contours on landscape drawings	
01.1.11	Visible outlines of parts in view (alternatively, see 01.2.3)	
01.1.12	Simplified representation of doors, windows, stairs, fittings etc. (alternatively, see 01.2.4)	
01.1.13	Framing of details	
01.1.14	Limits of partial or interrupted views, cuts and sections, if the limit is not a line 04.1	

Table A.1 *(continued)*

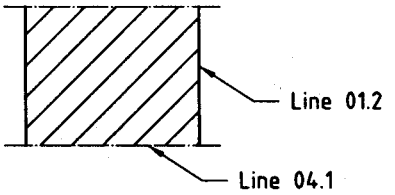
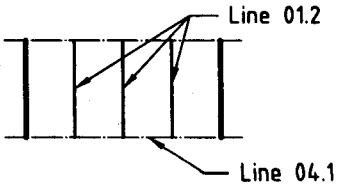
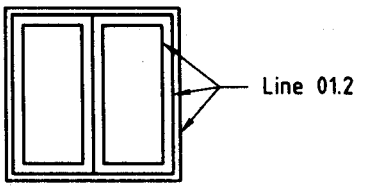
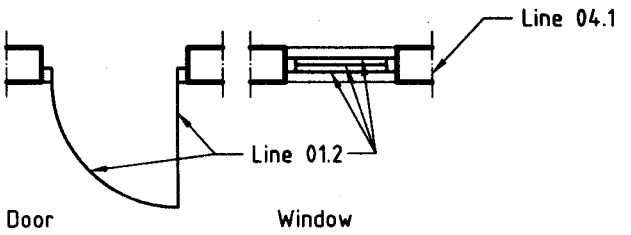
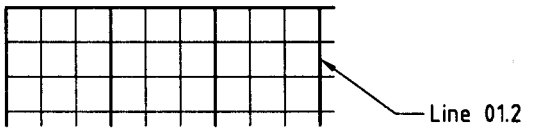
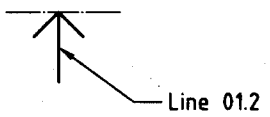
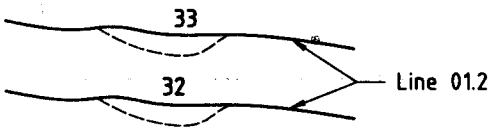
No.	Line type	Example of application
01.2	**Continuous wide line**	
01.2.1	Visible outlines of parts in cut and section when hatching is used	
01.2.2	Boundaries of different materials in view, cut and section	
01.2.3	Visible outlines of parts in view (alternatively, see 01.1.11)	
01.2.4	Simplified representation of doors, windows, stairs, fittings etc. (alternatively, see 01.1.12)	
01.2.5	Modular grid lines, second stage	
01.2.6	Arrow lines for marking of views, cuts and sections	
01.2.7	Proposed contours on landscape drawings	

Table A.1 *(continued)*

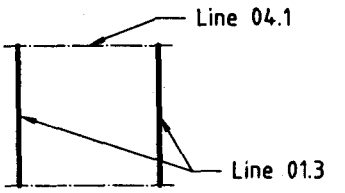
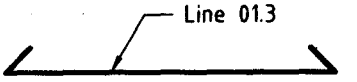
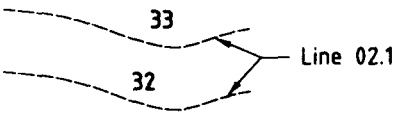
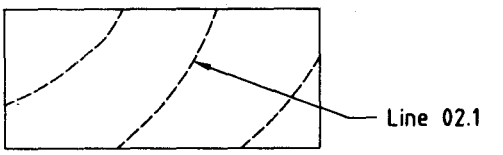
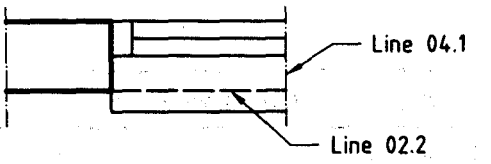
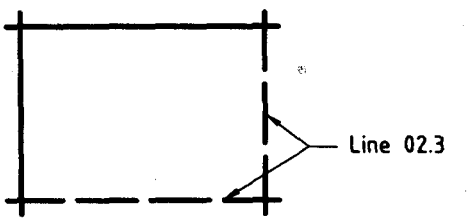
No.	Line type	Example of application
01.3	**Continuous extra-wide line**	
01.3.1	Visible outlines of parts in cut and section when hatching is not used	 Vertical section of a wall
01.3.2	Reinforcing bars	
02.1	**Dashed narrow line**	
02.1.1	Existing contours on landscape drawings (alternatively, see 01.1.10)	
02.1.2	Subdivision of plant beds/grass	
02.2	**Dashed wide line**	
02.2.1	Hidden outlines	
02.3	**Dashed extra-wide line**	
02.3.1	Reinforcing bars in bottom layer on plan and far face layer in elevation when bottom and top layers are shown on the same sketch	

Table A.1 *(continued)*

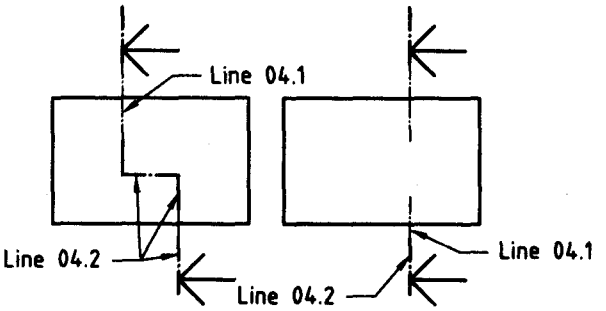
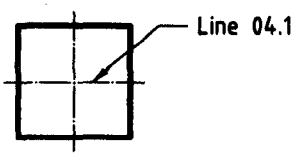
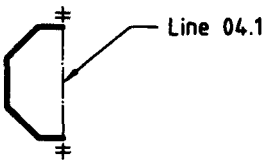
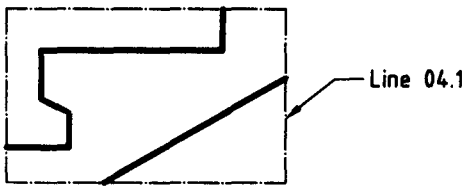
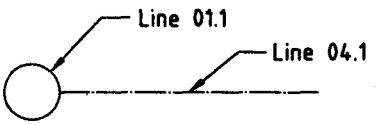
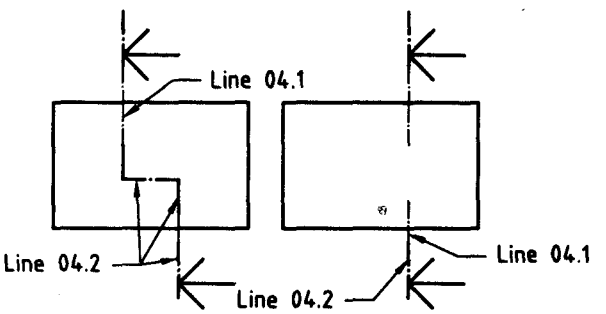
No.	Line type	Example of application
04.1	**Long dashed dotted narrow line**	
04.1.1	Cutting planes (drawn with line 04.2 at ends and changes of direction)	
04.1.2	Centrelines	
04.1.3	Lines of symmetry	
04.1.4	Framing of enlarged details	
04.1.5	Reference lines	
04.2	**Long dashed dotted wide line**	
04.2.1	Cutting planes (drawn with line 04.2 at ends and changes of direction; the rest is drawn with line 04.1)	

Table A.1 *(continued)*

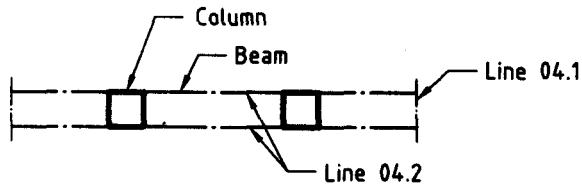
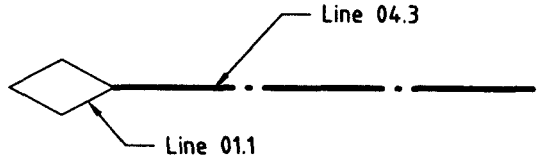
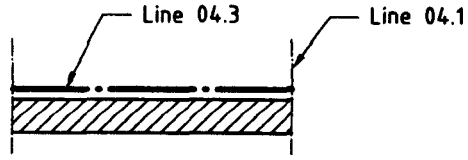
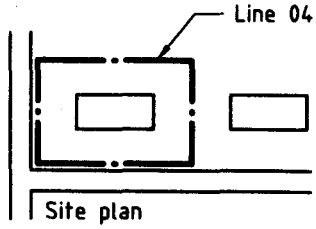
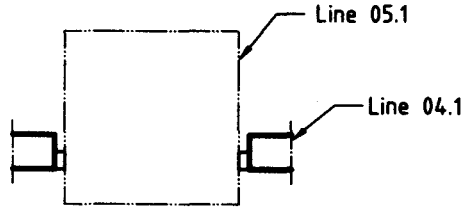
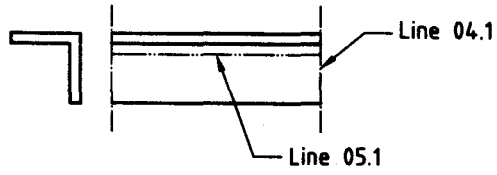
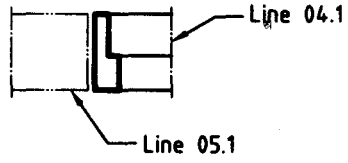
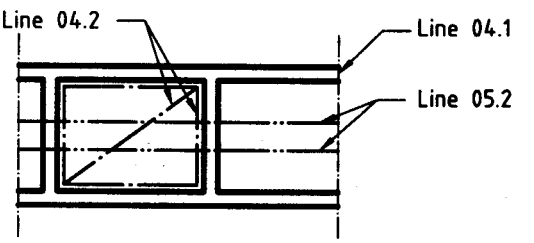
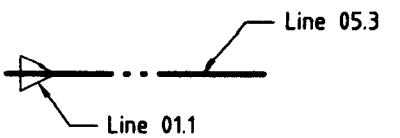
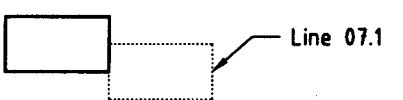
No.	Line type	Example of application
04.2.2	Outlines of visible parts situated in front of the cutting plane	
04.3	**Long dashed dotted extra-wide line**	
04.3.1	Secondary lines for setting out and arbitrary reference lines	
04.3.2	Indication of lines or surfaces to which a special requirement applies	
04.3.3	Boundary lines for contracts, stages, zones, etc.	
05.1	**Long dashed double-dotted narrow line**	
05.1.1	Alternative and extreme position of movable parts	
05.1.2	Centroidal lines	
05.1.3	Outlines of adjacent parts	

Table A.1 *(continued)*

No.	Line type	Example of application
05.2	**Long dashed double-dotted wide line**	
05.2.1	Outlines of hidden parts situated in front of the cutting plane	
05.3	**Long dashed double-dotted extra-wide line**	
05.3.1	Reinforcing prestressed bars and cables	
07	**Dotted narrow line**	
07.1	Outlines of parts not included in the project	

(*Continued from second cover*)

The technical committee has reviewed the provisions of the following International Standard referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 3766 : 1995	Construction drawings — Simplified representation of concrete reinforcement
ISO 4068 : 1978	Building and civil engineering drawings — Reference lines
ISO 4069 : 1977	Building and civil engineering drawings — Representation of areas on sections and views — General principles
ISO 4463-1 : 1989	Measurement methods for building — Setting out and measurement : Part 1 Planning and organization, measuring procedures, acceptance criteria
ISO 7519 : 1991	Technical drawings — Construction drawings — General principles of presentation for general arrangement and assembly drawings
ISO 8048 : 1984	Technical drawings — Construction drawings — Representation of views, sections and cuts
ISO 8560 : 1986	Technical drawings — Construction drawings — Representation of modular sizes, lines and grids
ISO 11091 : 1994	Construction drawings — Landscape drawing practice

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Amendments Issued Since Publication

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