

# इंटरनेट

# मानक

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IS 15345 (2003): Installation of Frameless Door and Window Shutters - Code of Practice [CED 13: Building Construction Practices including Painting, Varnishing and Allied Finishing]



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भारतीय मानक  
फ्रेम रहित दरवाजे और खिड़कियों के  
संस्थापन — रीति संहिता

*Indian Standard*

INSTALLATION OF FRAMELESS DOOR  
AND WINDOW SHUTTERS — CODE OF PRACTICE

ICS 91.060.50

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**BUREAU OF INDIAN STANDARDS**  
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NEW DELHI 110002

## FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Building Construction Practices Sectional Committee had been approved by the Civil Engineering Division Council.

Due to an urgent need for providing a large number of low cost residential units to lower income groups of the society, innovative techniques and new materials of construction need to be used to reduce the cost of construction.

One such technique of construction is installation of doors and windows without frames. Cost of doors and windows normally forms about 7 percent of the total cost of a house, out of which frames account for about 1.5 to 2 percent of the total cost. Hence, installation of frameless doors and windows can bring some economy in construction.

Such techniques involve some special fixtures which are easy to fabricate which could be done by local artisans also.

Considerable assistance has been rendered in the formulation of this standard by the Central Buildings Research Institute, Roorkee.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## Indian Standard

# INSTALLATION OF FRAMELESS DOOR AND WINDOW SHUTTERS — CODE OF PRACTICE

## 1 SCOPE

This standard lays down recommendations for installation of frameless doors and windows including the requirements for fixtures used for this purpose.

## 2 REFERENCES

The Indian Standard IS 6198 : 1992 'Ledged, braced and battened timber door shutters (*second revision*)' is necessary adjunct to this standard. At the time of publication, the edition indicated above was valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard.

## 3 FIXTURES

**3.1** The fixtures to be used for installation of frameless doors and windows shall be either pivot type or fork type as described in **3.1.1** and **3.1.2** respectively.

### 3.1.1 Pivot Type Fixtures

The pivot type fixture shall consist of two components, that is, a pivot and a socket. The pivot shall be fabricated either from angle iron or by welding mild steel flats at right angles to form an 'L' shaped bracket. A mild steel bar shall be welded to the shorter leg of the pivot as shown in Fig. 1E and 1F. Required screw holes shall be provided, for fixing with the shutter, in the longer leg (*see* Fig. 1G). The socket shall be fabricated for welding a piece of G.I. pipe over a mild steel square plate as shown in Fig. 1A to 1D. The required dimensions of both the components, for light as well as heavy type of door and window shutters shall be as given in Table 1.

#### 3.1.1.1 Alternative pivot type

Alternative pivot type of fixture as described in Fig. 2 may also be used.

### 3.1.2 Fork Type

This fork type fixture shall be fabricated from mild steel flat by bending it into a U shape clamp and a mild steel bar shall be welded to the fork at the inside face of the bend (*see* Fig. 3A). Alternatively, a single mild steel flat bracing having one edge bent into the shape of a loop and a mild steel bar pin welded inside this loop (*see* Fig. 3A) may be used, together with a wooden batten on the other face of the shutter. Holdfast

in the case of U shaped clamp shall consist of a mild steel pin of diameter 16 mm bent in the shape shown in Fig. 3B, embedded in the wall as shown in Fig. 3C. In case of mild steel flat bracing, the holdfast shall be fabricated from mild steel flat having one edge split and bent in opposite directions and the other end having a hole to receive the pin (*see* Fig. 3B). The dimensions of all the components shall be as given in Table 2 read with Fig. 3 and 4.

**Table 1 Dimension Details for Pivot Fixtures**

(Clause 3.1.1)

All dimensions in millimetres.

Name of Part	Ref to, Fig. 1	Light Door	Heavy Door	Window
(1)	(2)	(3)	(4)	(5)
Bottom pivot	A	80	80	50
	B	60	75	40
	C	30	30	25
	D	50	50	25
	D	10	18	10
Top pivot	T	4	4	3
	A	30	30	30
	B	60	75	40
	C	30	30	25
	D	50	50	25
Floor socket	d	10	18	10
	t	4	4	3
	E	50	50	50
	F	80	80	50
	d <sub>1</sub>	12	20	12
Top socket	t <sub>1</sub>	6	6	4
	G	30	30	30
	d <sub>1</sub>	12	20	12

## 4 FIXING

### 4.1 Pivot Type Fixture

The top socket shall be embedded in the lintel either at the time of casting, or, a hole shall be left in the lintel, of a diameter slightly bigger than that of socket, at the time of casting and the socket embedded later at the time of fixing the shutter. Similarly, the bottom socket shall also be embedded at sill level or floor level for windows and doors respectively. The mild steel bar of the pivots shall be inserted in the respective sockets after putting a steel ball in the lower socket to ensure frictionless operation of the shutter. The pivots at the top and bottom of the shutter shall hold the shutter in position temporarily by screws and the plumb and smooth rotation of the shutter shall be checked. Once this is done and smooth operation ensured, the pivots

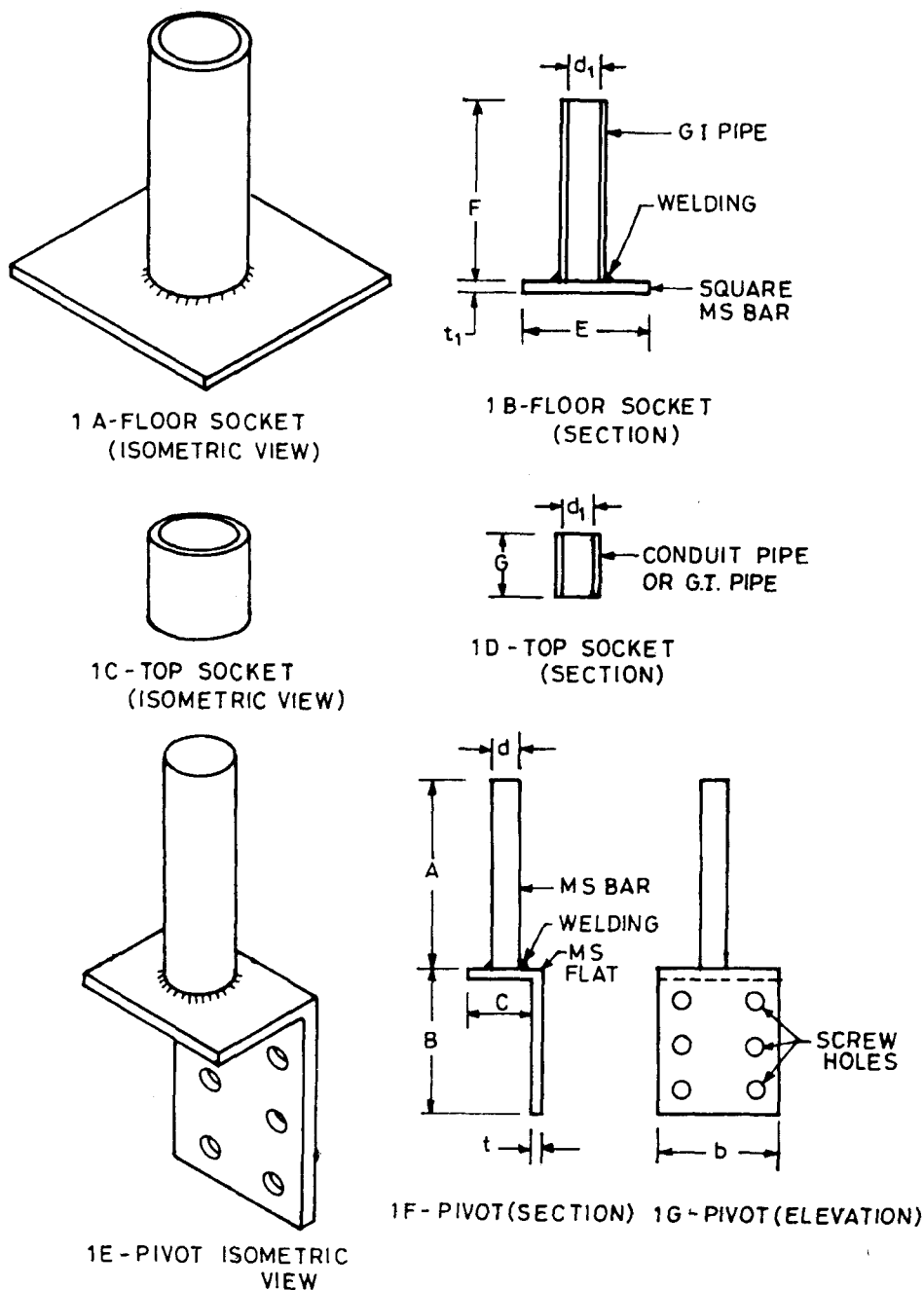


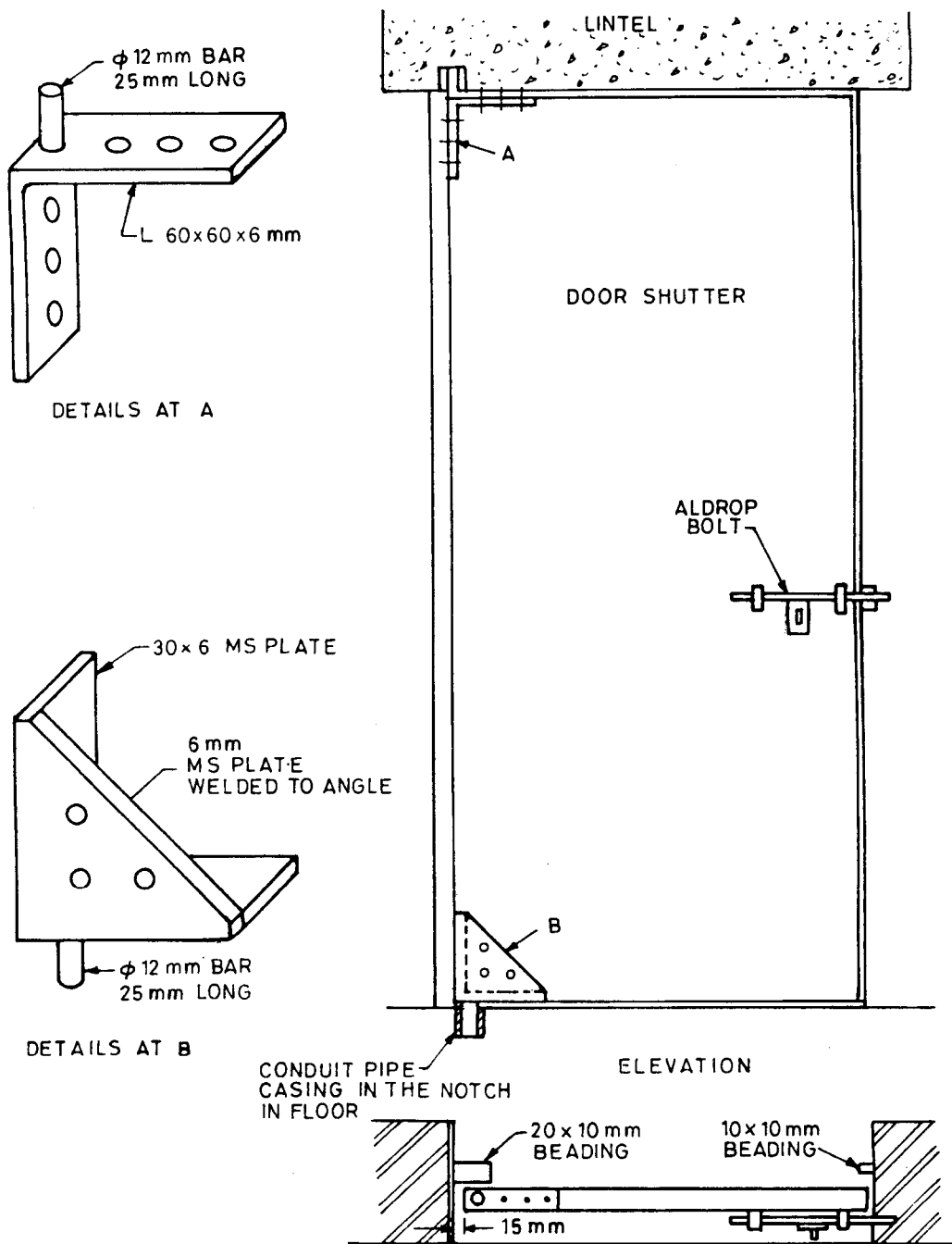
FIG. 1 COMPONENTS FOR PIVOT SYSTEM FIXTURES

shall be screwed firmly to the shutter. The fixtures shall be provided at the corner in case of door shutters. In case of single leaf window shutters, the fixtures may be provided either at corner or at centre, while for double leaf window shutter, the fixtures shall be provided at the corner. Fig. 5A and 5B illustrate the sectional detail of fixing.

#### 4.2 Fork Type Fixtures

Holes shall be provided on the fork-cum-bracing at

the specified spacing (see Fig. 3D). A short groove shall be cut in the shutter at the edge at the points where fixtures are to be provided so that the bent portion of the bracing-cum-hinge remains within the width of the shutters. This avoids any gap which otherwise may remain between the shutter and the joint. The holdfasts shall be embedded in the concrete in masonry at specified position at the time of construction. The projected portion of the holdfast having hole shall also be housed in the groove in the shutter. The bracing



All dimensions in millimetres.

FIG. 2 ALTERNATE PIVOT TYPE FIXTURES

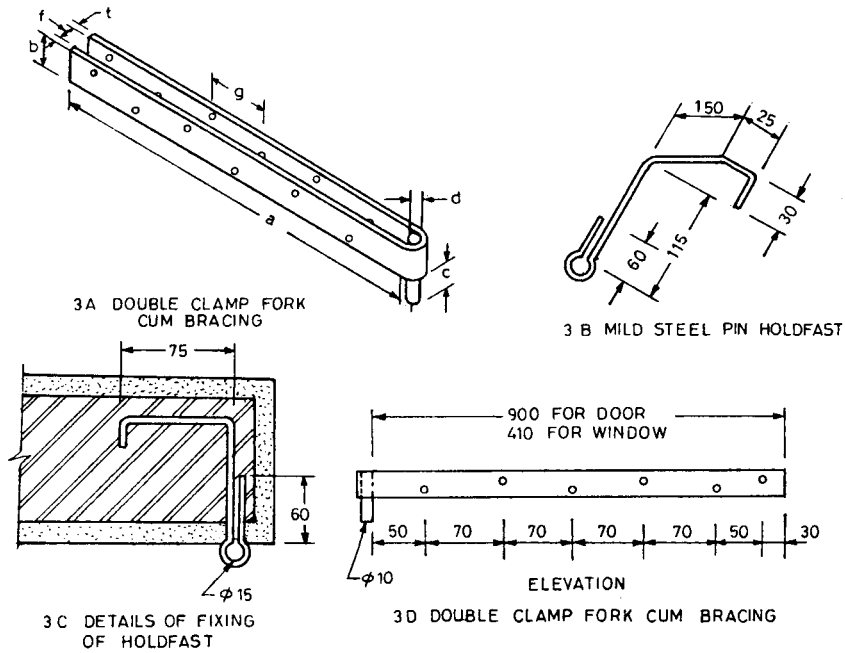
shall be loosely screwed on to the shutter at specified positions. The shutter shall now be placed in position and aligned so that the bracing-cum-hinge are fixed correctly over the shutter keeping the pin downward in the groove so that it sits over the hole of the holdfast. Two such bracing-cum-hinges are provided for a single door shutter, one each near the top and the bottom. After checking the smooth operation of the shutter, the bracing shall be screwed firmly to the shutter.

4.3 For fixing frameless door and window shutters, jamb shall be rebited either in the masonry or in the plaster to cover the gap likely to be formed in such installation between the edge of the shutter and jamb.

## 5 TYPE OF SHUTTER

This installation shall generally be used for fixing ledged, braced and battened timber door and window shutters, conforming to IS 6198.





All dimensions in millimetres.

FIG. 3 COMPONENTS FOR FORK SYSTEM FIXTURES

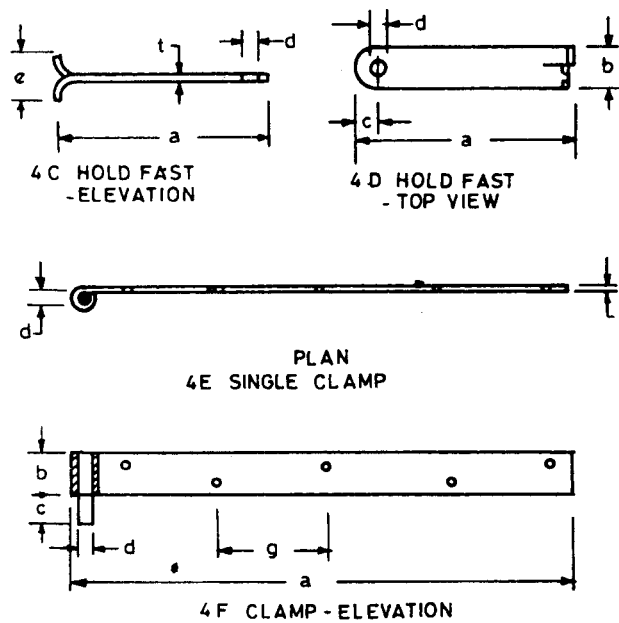
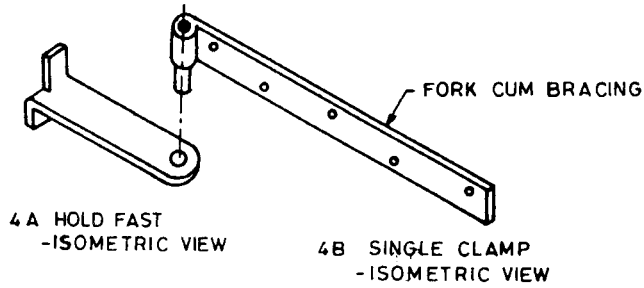


FIG. 4 COMPONENTS FOR FORK SYSTEM FIXTURES

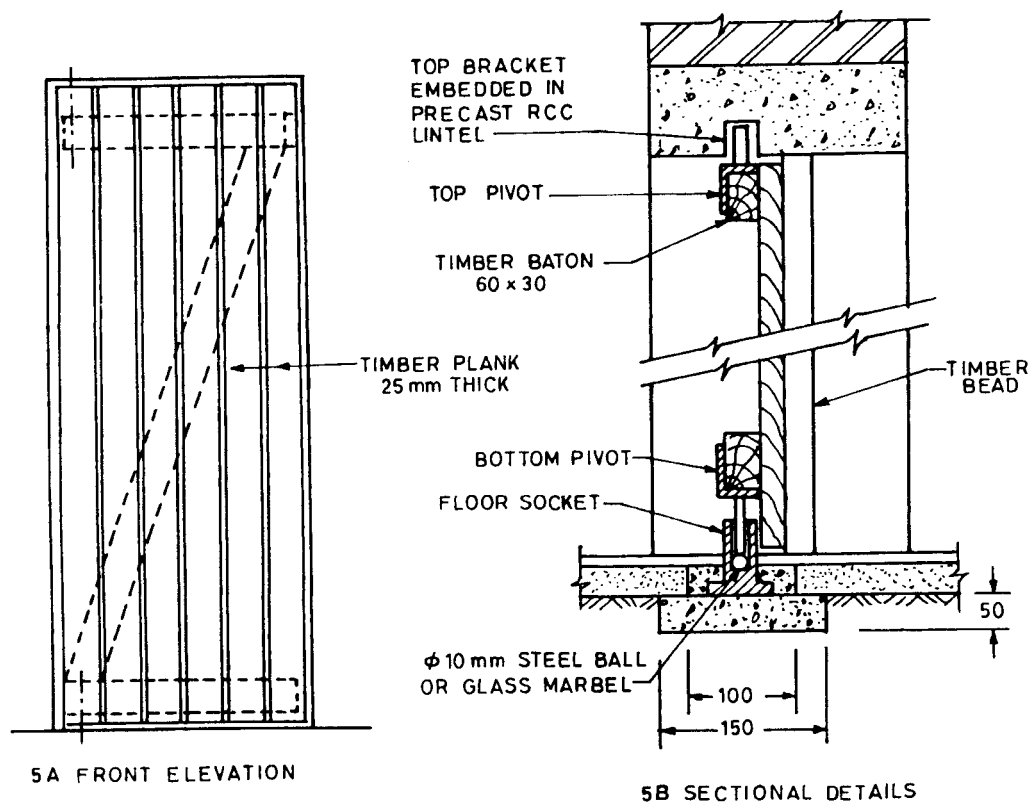
**Table 2 Dimensions of Components for Fork Type Fixture**  
(Clause 3.1.2)

Bracing Component	Total Length								Bracing Length						
		a	b	c	t	d	f	g		a	b	c	t	d	e
Double Clamp	OD2a +2f +2t	900	40	50	5	12	25	70	a+ e	200	40	35	6	15	50
Single Clamp	a+ +2f +2t	900	40	50	5	12	25	70	a+ e	200	40	35	6	15	50
Double Clamp	OD2a +2f +2t	900	40	30	5	10	25	70	a+ e	200	40	35	3	12	50
Single Clamp	a+ +2f +2t	900	40	50	5	10	25	70	a+ e	200	40	35	3	12	50
Double Clamp	OD2a +2f +2t	400	25	50	5	10	25	70	a+ e	180	25	35	3	12	50
Single Clamp	a+ +2f +2t	400	25	50	5	10	25	70	a+ e	180	25	35	3	12	50

## NOTES

1 Dimension 'f' shall be slightly less than the thickness of shutter.

2 All dimensions are in millimetres.



All dimensions in millimetres.

FIG. 5 PIVOT TYPE DOOR FIXING

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**Amendments Issued Since Publication**

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