

BUREAU OF INDIAN STANDARD

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भारतीय मानक मसौदा

कंक्रीट कार्यों में शटरिंग/फॉर्मवर्क की इकाई दर विश्लेषण के लिए प्रोफार्मा

(IS 10421 का पहला पुनरीक्षण)

Draft Indian Standard

PROFORMA FOR ANALYSIS OF UNIT RATE OF SHUTTERING / FORMWORK FOR CONCRETE WORKS

(First Revision of IS 10421)

Measurement and Cost Analysis of Works for River Valley Projects Sectional Committee, WRD 23

**Last Date for Comments:
20/09/2022**

FOREWORD (*Formal clauses will be added later*)

The shuttering/formwork constitutes a major portion of the expenditure in a project and therefore its uniform and precise estimation plays a significant role in estimating the cost of any project. The material used for shuttering in most of the cases is either steel or timber. Shuttering provided for concrete works may be plain formwork or shuttering of special shapes such as circular, horse-shoe, conic and other shapes as required for the structure. Shuttering/formwork for concrete works for river valley projects can be broadly classified of the following types:

- a) Panel forms,
- b) Built-in-place forms,
- c) Mobile forms, and
- d) Special forms.

This standard was first published in 1983. The first revision of this standard has been brought out to adopt the latest field practices observed while using the standard and to bring it in the latest style and format of the Indian Standards. The major changes incorporated in revision of this standard are:

- a) Relevant taxes and duties, wherever applicable, have been updated in calculation of unit rates to include building and other construction works (BOWC) Cess and GST.
- b) Provisions for contractor's overheads and profits have been indicated.
- c) The number of reuse for steel and wooden shuttering/formwork has been added.

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.

Draft Indian Standard

PROFORMA FOR ANALYSIS OF UNIT RATE OF SHUTTERING / FORMWORK FOR CONCRETE ITEMS

(First Revision of IS 10421)

**Measurement and Cost Analysis of Works for River
Valley Projects Sectional Committee, WRD 23**

**Last Date for Comments:
20/092022**

1 SCOPE

This standard lays down the proforma for analysis of unit rate of steel and wooden shuttering/formwork for concrete items in river valley projects.

2 DETAILS REQUIRED FOR UNIT RATE ANALYSIS

The details of plan, elevation and sections of the work and full dimensional sketches of the formworks for the complete work as well as for individual units should be made available. The quantity of struts, braces and ties required in a single or multi-stage shuttering/formwork depends upon the requirements of project and site specific conditions. The following information may be assimilated at a place for full appreciation of the type and nature of the shuttering work involved:

- a) Name of project,
- b) Name of work,
- c) Layout plan of project,
- d) Location of work,
- e) Purpose of work,
- f) Longitudinal and cross-section,
- g) Construction agency,
 - i) Departmental or contract
 - ii) Name of department/contractor
- h) Volume of concrete work,
- j) Approximate area for shuttering,
- k) Average lead and lift for the formwork,
- m) Type of shuttering,

- n) Normal size of shuttering units used, and
- p) Detailed dimension sketches of special shapes.

3 PROFORMA

The proforma for analysis of unit rate of shuttering/ formwork for concrete items is as given in Table 1 and Table 2.

Table 1 Proforma for Analysis of Unit Rate of Steel Shuttering/Formwork*(Clause 3.1)*

Name of work for which shuttering is required:

Quantity of concrete:

Type and shape of shuttering:

S. No.	Item	Unit	Quantity	Rate	Amount	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	<i>Materials</i>					
	a) Steel plates					
	b) Steel sections					
	c) Pipes					
	d) Miscellaneous materials including that required for welding, riveting, etc.					
ii)	<i>Labour charges for fabrication</i>					
	a) Foremen/supervisors					
	b) Welders					
	c) Fitters					
	d) Helpers					
	e) Skilled/ordinary labour					
	f) Others					
iii)	<i>Charges for machinery and equipment including charges for power/gas/diesel</i>					
	a) Cutting machine					
	b) Welding/riveting machine					

- c) Rolling machine
- d) Air compressors
- e) Others

- iv) *Maintenance charges of items under (iii) above*

- v) *Ancillaries and incidentals* (proportional cost of the following job facilities):
 - a) Labour and staff quarters
 - b) Service roads and transportation arrangements for staff and laborers
 - c) Electric supply
 - d) Water supply
 - e) Sanitary facilities
 - f) Drainage facilities
 - g) Medical facilities
 - h) Other amenities

- vi) *Maintenance cost of items under clause (v) above*
- vii) *Proportional cost of supervisory work establishment*
- viii) *Contingencies*
- ix) *Overheads and Miscellaneous*
 - a) Total cost of shuttering
 - b) Area of shuttering
 - c) Number of reuse*
 - d) Cost of shuttering/unit/use
- x) *Erection cost*

- a) Transportation charges
 - b) Labour charges with details
 - c) Materials including oiling, sealing, etc.
 - d) Scaffoldings
 - e) Machinery charges, if any
- xi) *Dismantling/stripping cost*
- a) Transportation charges
 - b) Labour charges with details
 - c) Machinery charges, if any
- xii) *Taxes and duties:*
- a) BOCW CESS
 - b) GST
- xiii) *Total Charges of formwork per square meter chargeable to work*

NOTES

1. Overheads shall include establishment, office stationery, general tools and plants staff cars, their running and maintenance, insurance, workman's compensation" telephone and telecommunication facilities, consultation services, social activity, etc.
2. Contractors overheads and profit may be decided suitably in the project.
3. The taxes given in the standard are indicative.
4. *Steel shuttering is recommended for 40 times of reuse.

Table 2 Proforma for Analysis of Unit Rate of Wooden Shuttering/Formwork
(Clause 3.1)

Name of work for which shuttering is required:

Quantity of concrete:

Type and shape of shuttering:

S. No.	Item	Unit	Quantity	Rate	Amount	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	<i>Materials</i>					
	a) Type of timber					
	b) Wooden joists					
	c) Jigs and joists					
	d) Miscellaneous material					
ii)	<i>Labour charges for fabrication</i>					
	a) Foremen/supervisors					
	b) Carpenters					
	c) Labour for creating in position					
	d) Helpers					
	e) Other labour, if any.					
iii)	<i>Charges for machinery and equipment including charges for power/gas/diesel</i>					
	a) Band/circular/trolley saw					
	b) Planer					

- c) Shaper
- d) Others
- e) Others

iv) *Ancillaries and incidentals (proportional cost of the following job facilities):*

- a) Labour and staff quarters
- b) Service road and transportation arrangements for staff and labourers
- c) Electric supply
- d) Water supply
- e) Sanitary facilities
- f) Drainage facilities
- g) Medical facilities
- h) Other amenities

v) *Maintenance of items under iv)*

vi) *Proportional cost of supervisory work establishment*

vii) *Contingencies*

viii) *Overheads and Miscellaneous*

- a) Total cost of shuttering
- b) Area of shuttering
- c) Number of reuse[#]
- d) Cost of shuttering/unit/use

ix) *Erection cost*

- a) Transportation charges

- b) Labour charges with details
 - c) Materials including oiling sealing, etc.
 - d) Scaffoldings
 - e) Machinery charges, if any
- x) *Dismantling/stripping cost*
- a) Transportation charges
 - b) Labour charges with details
 - c) Machinery charges, if any
- xi) *Taxes and duties:*
- a) BOCW CESS
 - b) GST
- xii) *Total Charges of formwork per square meter chargeable to work*

NOTES

1. Overheads shall include establishment, office stationery, general tools and plants staff cars, their running and maintenance, insurance, workman's compensation, telephone and telecommunication facilities, consultation services, social activity etc.
2. Contractors overheads and profit may be decided suitably in the project.
3. The taxes given in the standard are indicative.
4. #Steel shuttering is recommended for 8 times of reuse.