सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

केन्द्रीय लोक निर्माण विभाग

CENTRAL PUBLIC WORKS DEPARTMENT

दर अनुसूची 2018

SCHEDULE OF RATES 2018

For New & Innovative TECHNOLOGIES

महानिदेशक

के. लो. नि. वि., नई दिल्ली

के प्राधिकार के अधीन प्रकाशित

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Government of India

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निर्माण भवन, नई दिल्ली–110011
Central Public Works Department
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FOREWORD

In the present day context, it has become essential to adopt modern, innovative & green technologies and building materials for faster, ecofriendly and quality construction. The ideal construction systems must optimize the use of cement, sand & steel with less dependence on water, sand, aggregates during construction, zero construction & demolition waste, dust free technologies, materials & systems based on renewable resources.

Keeping in view the above, the Ministry of Housing and Urban affairs, vide OM dated 30.05.2016, decided that CPWD shall adopt three new technologies validated by BMTPC a namely, Monolithic Concrete Construction, EPS Core Panel System and Light Gauge Steel Framed Structure in its construction works initially in Metropolitan cities for works exceeding Rs. 100 crores and shall also bring Schedule of Rates for these technologies. Ministry, vide OM dated 28.12.2016, has further mandated use of these new emerging technologies for all projects across the country from 01.04.2017, irrespective of location and project cost. Accordingly, the items for these technologies were developed and included in the DSR 2016 and use of these technologies was introduced in CPWD works.

Number of new emerging technologies to be adopted by CPWD was increased from three to eight by the Ministry, vide OM dated 20.03.2018. CPWD in its endeavor to ensure smooth and uniform adoption of these technologies, has brought out schedule of rates for all eight new emerging technologies in a Booklet from along with other supplementary details.

I am sure that this Schedule of Rates will be quite useful to all concerned in the Building construction industry in general and CPWD in particular.

I wish to place on record my deep appreciation for the efforts put in by Shri A S Arora ADG (TD), Shri G. C. Kabi CE (CSQ) (Civil) and his team of officers in bringing out this publication.

(Prabhakar Singh)

Introduction

1. Ministry of Housing and Urban Affairs vide its OM No. 28012/7/2016-W-3 dated 20.03.2018 decided that CPWD shall adopt following new emerging technologies, which have been validated by Building Materials and Technology Promotion Council (BMTPC) in execution of its projects.

Sl. No.	Description of Technology
1	Monolithic Concrete Construction System using aluminium formwork.
2	Monolithic Concrete Construction System using plastic aluminium formwork.
3	Expanded Polystyrene Core Panel System
4	Light Gauge Steel Framed Structure (LGSF) System
5	Industrialized 3-S System using RCC precast with or without shear walls columns beams. Cellular Light weight concrete slab/ semi precast slab
6	Speed Floor System
7	Glass Fiber Reinforced Gypsum (GFRG) Panel Building System
8	Factory Made Fast Track Modular System

2. It was also decided by the Ministry that above modern Technologies may be incorporated in the Schedule of Rates (SOR) issued by CPWD.

3. BMTPC has already brought a compendium of above new technologies in April 2017 for use of these innovating systems by all stakeholders involved into construction including State Agencies in their future housing projects.

Brief Description of New Technologies

S. No.	DESCRIPTION OF TECHNOLOGY
1.	**Monolithic Concrete Construction System using aluminum formwork** • In this system, in place of traditional RCC framed construction of columns and beam all walls, floors, slabs, columns, beams, stairs, together with door and window openings are cast-in-place monolithically using appropriate grade of concrete in one operation. The specially custom designed modular formwork made up of Aluminium Composite is easy to handle with minimum labour & without use of any equipment. Being modular formwork system, it facilitates in rapid construction of multiple/mass unit scale. This technology is durable, has better thermal transmittance and reasonable acoustic insulation.
2.	**Monolithic Concrete Construction System using plastic- aluminum formwork** • Same as Sl. No 1 using Aluminium plastic composite formwork
3.	**Expended Polystyrene Core Panel System** • Reinforced Expanded Polystyrene Core (EPC) panel system is a factory produced panel system for the construction of low rise buildings upto G+3 and as filler walls in high rise RCC and steel frame buildings. In this technique, a core of undulated polystyrene is covered with interconnected zinc coated welded wire mesh on both sided reinforcement and shortcrete concrete. • Compare to traditional products, panels achieve far better results at considerably reduced cost. The speedy construction represents additional savings.
4.	**Light Gauge Sheet Framed Structures (LGSF) System** • LGSF is typically ideal for one to three storey high buildings, especially for residential and commercial buildings. Due to its flexibility fast construction and durability, this technology has great potential for countries like India. • Cold formed sections are widely used in construction including residential floors, industrial buildings, commercial buildings, hotels and are gaining greater acceptance in the residential sector.

S. No.	DESCRIPTION OF TECHNOLOGY
5	**Industrialized 3-S System using RCC precast with or without shear walls columns beams. Cellular Light Weight Concrete Slabs/Semi-Precast solid Slab** • The industrialized total prefab construction technology is based on factory mass manufactured structural prefab components conforming to provisions of relevant Indian Standards. • This technology is durable, fire and impact resistant, fast, economical and used in project of minimum 5000 dwelling units.
6	**Speed Floor System** • The Speed Floor System is durable, speedy and economical suspended concrete flooring system using a roll formed steel joist as an integral part of the final concrete and steel composite floor. The Speed floor composite floor system is suitable for use in all types of construction. The Speed floor joists are designed and custom manufactured to suit particular job conditions.
7	**Glass Fiber Reinforced Gypsum (GFRG) Panel Building System** • It is an integrated composite building system using factory made prefab load bearing cage panels & monolithic cast-in situ RC infilled for walling & floor/roof slab, suitable for low rise to medium rise (single to 10 storeys) building. This system is water resistant, green technology, reduces built-up area, light weight structure and speedy in construction.
8	**Factory Made Fast Track Modular System** • Factory Made Fast Track Modular Building System comprises of prefabricated steel structure with different walling components. The uniqueness of system is the efficient and simultaneous activities of site preparation and building construction in factory.

SCHEDULE OF RATES

Sl. No.	Description of Item	Unit	Rate
	A. MONOLITHIC CONCRETE CONSTRUCTION SYSTEM USING ALUMINIUM/PLASTIC ALUMINIUM FORMWORK		
1	Providing and fixing of customized Aluminium formwork for monolithic construction RCC members with a repetitive usage of 100 times using grade 5052 aluminium for panel sheets of minimum 4 mm thick and grade 6061 (Type-6) aluminium for extruded sections. The form work includes of beam components i.e. beam side panel, prop head for soffit beam, beams soffit panel, beam soffit bulk head and deck components i.e. deck panel, deck prop, prop length, deck mid, soffit length, deck beam bar and wall components i.e. wall panel, rocker, kiker and internal soffit corner, external soffit corner, external corner, internal corner etc., The panels are held in position by a simple pin and wedge system that passes through holes in the out side rib of each panel. The tolerance of finished panels to be (-1 mm), and shall conform to IS 14687-1999. Pins and wedges to be made of high grade mild steel, all complete as per direction of Engineer-incharge. (Cost of RCC work shall be paid separately)	sqm	149.45
	B. EXPANDED POLYSTYRENE CORE PANEL SYSTEM		
2	Providing and fixing in position, 200 mm thick factory made Expanded Polystyrene Core (EPS Core) wall panels consisting of EPS core sandwiched between two Engineered sheets of welded wire fabric mesh duly finished with shortcrete materials on outer faces. The fabric mesh shall be made of 3 mm dia G.I. wire mesh with 50 mm pitch in both the directions and on both faces of the wall, kept at 120-135 mm gap and connected by the zig zag G.I. wire of 3 mm dia at alternate row by welding (at an angle ranging from 50-70 degree) . The EPS core shall consist of 100 mm thick EPS of density not less than 20 kg/ per cum. Both the outer faces of the panel shall be finished by applying the layer of 50 mm thick cement mortar 1:3 {1 cement: 3 coarse sand (not having more than 40% stone chips of size upto 6 mm)} with the help of shotcreting / guniting equipment etc at a pressure not less than 1 bar (100Kn/m2) and both surfaces finished with trowel. Fixing operations of wall panels shall be completed in all respect as per drawings and specifications and under the overall direction of the Engineer-in-charge.	sqm	3246.15

Sl. No.	Description of Item	Unit	Rate
3	Providing and fixing in position, 230mm thick factory made Expanded Polystyrene Core (EPS Core) roof/floor panels made of 3 mm dia G.I. wire mesh with 50 mm pitch in both the directions and on both faces of panel, kept at 120-135 mm gap and connected by the zig zag G.I. wire of 3 mm dia at alternate row by welding (at an angle ranging from 50-70 degree). The EPS core shall consist of 100 mm thick EPS of density not less than 20kg/ per cum. The bottom side of the panel shall be finished by applying a layer of 60-65 mm thick cement mortar 1: 3 {1 cement: 3 coarse sand (not having more than 40% stone chips of size upto 6 mm)} with the help of shotcreting equipment etc at a pressure of not less than 1 bar (100Kn/m2) and surface finished with trowel. The top face of the panel shall be provided and finished by applying 70-75 mm thick layer of cement concrete 1:1.5: 3 (1 cement :1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size). Fixing operations of roof/floor panels shall be completed in all respect as per drawings and specifications and under the overall direction of the Engineer-in-charge.	sqm	3436.35
	C. LIGHT GAUGE STEEL FRAMED STRUCTURE (LGSF) SYSTEM		
4	Designing, providing, installing and fixing factory finished custom designed cold form Light Gauge Steel Framed super structure comprising of steel wall panel, trusses, purlins etc manufactured out of minimum 0.75 mm thick steel sheet as per design requirements. The steel sheet shall be galvanized (AZ-150 gms Aluminium Zinc Alloy coated steel having minimum yield strength 300- 550 Mpa) conforming to AISI specifications and IBC 2009 for cold formed steel framing and construction and also as per IS: 875- 1987, ISO 800-1984 and IS: 801- 1975. The wind load shall be as per provisions of IS 875 (part -III). LGSFS frame shall be designed as per IS: 801 using commercially available software such as Frame CAD Pro-11.7/ STAAD PRO-V8i/ArchitekV2.5.16/ Revit architecture2011 or equivalent. Proper usage of Connection Accessories like Heavy Duty Tension Ties, Light Duty Hold-ons, Twist Straps (to connect truss with wall frames), Strong Tie, Tie Rod, H-Brackets, Boxing Sections, L-Shaped Angles for better structural stability.	kg	174.10

Sl. No.	Description of Item	Unit	Rate
	The framing section shall be cold form C-type having minimum web depth 89 mm x 39mm flange x 11mm lip in required length as per structural design requirement duly punched with dimple/slot at required locations as per approved drawings. The slots will be along centre line of webs and shall be spaced minimum 250mm away from both ends of the member. The frame can be supplied in panelized or knock down condition in specific dimensions and fastened with screws extending through the steel beyond by minimum of three exposed threads. All self drilling tapping screws for joining the members shall have a Type II coating in accordance with ASTM B633(13) or equivalent corrosion protection of gauge 10 & 12, TPI 16 & 8 of length 20mm. The frames shall be fixed to RCC slab or Tie beam over Neoprene rubber using self expanding carbon steel anchor bolt of dia as per approved drawings, design subject to minimum 12mm diameter and 121mm length conforming to AISI 304 and 316 at 500mm c/c with minimum embedment of 100mm in RCC (RCC to be paid separately) and located not more than 300mm from corners or termination of bottom tracks complete in all respects. The item also includes the submission of stability reports duly examined and issued by any NIT/IIT.The rate includes the concept design, detailed design, fabrication of sections, transportation, installation and all required fixing arrangement at site as described above.		
	D. PRECAST ITEMS (3-S SYSTEM)		
5	Fabrication & Manufacturing of Prestressed Hollow Core slab (Hollow area 25 to 30%) of different thickness & modular width 1200 mm in Controlled Factory Environment with approved methodology by using long line casting method having arrangement of proper steel bed. Concreting should be done by batch mixing plant capable of producing zero slump concrete, transported through automatic shuttels of standard make & layed on bed with the help of extruder/Slipformer, finishing, curing and also provision of steam curing. Cutting, making necessary cutout/holes of required sizes for services in slab element after achieving required strength, yard handling & stacking all complete as per approved shop drawings & design mix as per the direction of the Engineer-in-charge. (Cost of strands should be paid separately).		

Sl. No.			Description of Item	Unit	Rate
	Note: Excess/less cement over the specified cement content used as per design mix is payable/recoverable separately)				
	5.1	Concrete Grade-M-40 (cement content 400 kg)			
		5.1.1	100 mm thick hollow core slab	metre	878.65
		5.1.2	120 mm thick hollow core slab	metre	1032.55
		5.1.3	150 mm thick hollow core slab	metre	1263.45
		5.1.4	200 mm thick hollow core slab	metre	1546.55
		5.1.5	250 mm thick hollow core slab	metre	1905.95
		5.1.6	300 mm thick hollow core slab	metre	2265.30
		5.1.7	350 mm thick hollow core slab	metre	2624.70
		5.1.8	400 mm thick hollow core slab	metre	2984.10
	5.2	Extra for using M-50 (Cement content 425 kg) instead of M-40			
		5.2.1	100mm thick hollow core slab	metre	17.10
		5.2.2	120mm thick hollow core slab	metre	20.55
		5.2.3	150mm thick hollow core slab	metre	25.70
		5.2.4	200mm thick hollow core slab	metre	31.95
		5.2.5	250mm thick hollow core slab	metre	39.95
		5.2.6	300mm thick hollow core slab	metre	47.95
		5.2.7	350mm thick hollow core slab	metre	55.95
		5.2.8	400mm thick hollow core slab	metre	63.95
	5.3	Extra for using M-60 (Cement content 440 kg) instead of M-40			
		5.3.1	100mm thick hollow core slab	metre	27.40
		5.3.2	120mm thick hollow core slab	metre	32.90
		5.3.3	150mm thick hollow core slab	metre	41.10
		5.3.4	200mm thick hollow core slab	metre	51.15
		5.3.5	250mm thick hollow core slab	metre	63.95
		5.3.6	300mm thick hollow core slab	metre	76.70
		5.3.7	350mm thick hollow core slab	metre	89.50
		5.3.8	400mm thick hollow core slab	metre	102.30

Sl. No.		Description of Item	Unit	Rate
6		Fabrication and manufacturing of solid precast concrete element with provisions of shear keys, connecting loops, dowel tubes and proper lifting accessories for walls, beams, slabs, stairs, column etc, of various thickness, shape and size of different concrete grades manufactured in controlled factory environment with approved methodology including moulds (Pallet system, Tilts form, table moulds, battery moulds, vertical moulds, beam moulds, column moulds, staircase moulds, Facade mould, etc.), mixing, transporting and placing of concrete, vibrating, curing, finishing, making necessary cutout/holes of required sizes for services, yard handling & stacking all complete as per IS 11447:1985 and as per approved shop drawings and design mix as per the direction of Engineer-in-Charge (Cost of reinforcement, Mechanical, Electrical and Plumbing inserts will be paid separately).		
		Note: Excess/less cement over the specified cement content used as per design mix is payable/recoverable separately)		
	6.1	Concrete grade M-35 (Cement content 370 kgs)	cum	13765.10
	6.2	Extra for using M-40 (Cement content 400 kg) instead of M-35	cum	228.30
	6.3	Extra for using M-50 (Cement content 425 kg) instead of M-35	cum	418.55
	6.4	Extra for using M-60 (Cement content 440 kg) instead of M-35	cum	532.75
7		Providing & laying in position Prestressing steel strands (low relaxation) on hollow core bed by using mechanical pulling arrangement like Rabbit/ Bed master including all accessories for Stressing & destressing operations as per approved make conforming to IS1343 & grade FY-1860 etc, complete as per drawings and direction of Engineer -in-charge.	kg	130.75
8		Transportation of Precast Elements by flat bed Trailor (Double / Triple axle 40ft Length with proper accessories like A frame etc) from factory, including the cost of loading , unloading & stacking at site with the help of required capacity cranes.		
	8.1	Lead within 15km	MT	389.85
	8.2	Add/Deduct over item 5.1 for every additional lead of 5 km	MT	73.00

Sl. No.		Description of Item	Unit	Rate
9		Erection & Installation of Precast/Prestressed Concrete elements in correct & final position with proper line level and plumb at site making all arrangements (i.e cranes, push-pull jacks & all another T & P for lifting Placing & Alignment of elements, within erection tolerance as per IS 15916 as per approved shop drawings and all complete as per the direction of Engineer-in-Charge but excluding the cost of sim pads, non shrink grout and steel works i.e hangers. All work up to fifth floor.		
	9.1	Prestressed hollow core Slab up to 200 mm thickness	sqm	217.45
	9.2	Prestressed hollow core slab above 200 mm up to 400 mm thickness	sqm	367.15
	9.3	Solid concrete wall elements	cum	2642.60
10		Providing & Applying weather proof sealant on outer joints of approved make confirming to IS & directed by Engineer-in-charge.		
	10.1	Sealant 25mmx10mm at joints	metre	460.45
11		Providing & Laying of levelling sim pads required sizes (5x5cm to 10x10cm) of PVC / Rubber to adjust level of bearing surface of supporting members as per the direction of Engineer in charge.		
	11.1	2mm thick	each	17.55
	11.2	5 mm thick	each	23.40
	11.3	10 mm thick	each	35.00
12		Providing & Grouting of dowel tubes / Shear keys / Joints of precast members with M-60 grade cementitious grout (Non Shrink) of approved make by suitable means (Free flowing /pump),curing etc. Complete as per directions of Engineer-in-charge. (The payment shall be made on the basis of actual weight of approved grout injected.)		
	12.1	Stirrer mixed cementitious grout (non shrink) of approved make in dowel tubes / Shear keys / Joints of precast members.	kg	65.00

Sl. No.	Description of Item		Unit	Rate
	E. SPEED FLOOR SYSTEM			
13	Designing, Providing, installing and fixing factory finished customed design pregalvanized high tensile steel joists manufactured from G350 Z275 confirming to IS:277-1992, minimum coating of galvanizing 275 gm/ sqm, minimum yield stress 35 MPa & minimum tensile strength of 380 MPa placed 1.23 metre apart to support the load of slab etc as per the design & directions of Engineer-in-Charge.		kg	133.10
14	Providing and fixing special adjustable lock bars of mild steel E-250 to support the temporary plywood for work between joists during construction as per design & directions of the Engineer-in-charge.		kg	14.00
15	Centering and shuttering with 12mm thick shuttering plywood confirming to IS 4990:2011 and removal of form at all heights. Plywood will be supported on lock bars.			
	15.1	Suspended floors, roofs, landings, balconies and access platform.	sqm	82.75
	F. GLASS FIBRE REINFOECED GYPSUM (GFRG) PANEL BUILDING SYSTEM			
16	Supplying of standard quality GFRG panel of 124 mm thickness with modular cavities purchased from GFRG panel manufacturing plant in the country, cut to required wall sizes and floor/ roof slab sizes in correct length and height, including cutting of door, window and ventilator opening as per the cutting drawing prepared by architects /design engineers for the construction of GFRG building and loaded in stillages for transportation to the construction site. Cost of panel includes security deposits, hire charges of stillages & jaws, cost of transportation in trucks/ lorries without any damages upto 300kms including all leads and lifts from GFRG manufacturing plant to construction site and unloading at site using suitable fork lift/ crane. (Payment shall be made on the basis of area of one side of panel without reduction of opening of door/ window / ventilator). For transportation above 300kms, additional charges to be paid.		sqm	1290.05

Sl. No.	Description of Item	Unit	Rate
17	Erection of GFRG Panels in walls in all floors using suitable crane as per instructions of Engineer-in-Charge, as per cutting drawings and structural drawings, in perfect line and plumb, above RCC plinth beam/GFRG panel below and provide necessary lateral/ slanting support to keep the wall panel in safe position, providing & tieing of Reinforcement as per structural drawings and applying a coat of water repellant coating Zycosil/equivalent or equivalent product (1 Zycosil/equivalent compound: 10 water) to saturation level over RCC plinth beam to provide water proofing treatment to joint between wall panel & plinth beam as per the guide lines / instruction by the engineer in charge. (Cost of reinforcement, water proofing of walls and plinth beam/GFRG panel below joints and installation of door/ window frames before filling of concrete shall be paid separately). The rate quoted shall include making provision for laying of lintels, beams, sunshades, staircase beams, lofts, plumbing work, electrical conduits and any structural insertion etc., as per the drawing and direction of the engineer in charge. The payment shall be made based on the actual exposed area (one side only) of the panel. The work shall be carried out as per the Special Conditions For Glass Fibre Reinforced Gypsum (GFRG) Structures mentioned in NIT. Note: i. When cutting panel, “A” side is to be for outside or external surface of respective external wall and B side is to be for internal surface of wall ii. Erection of panel is to be with reference to both building plan & cutting drawing by following notational mark indicated in the cutting drawing as well as notional mark written on each panel cut as per cutting drawing	sqm	213.70

Sl. No.	Description of Item	Unit	Rate
18	Filling of empty cavities (as shown in the structural design drawing) with quarry dust mixed with 5% cement (by volume). After initial infill of 50 mm thick with M25 concrete at base/bottom of cavities to seal off, infill wall panel cavities in 3 stages as detailed below, i. 1st pour / infill to be limited to 0.3 to 0.50 m height from bottom of the panel. (ii) 2nd Pour/ infill: infilling shall be done only after 90 minutes interval between successive pours. The maximum height of infill shall be restricted to 1.5m height or up to the top level of door / window. ii. 3rd pour/infill: After an interval of 90 minutes of second pour, infill or pour the balance height up to the bottom of embedded RCC tie beam. Pour enough water just required to dampen the dry mix enough to form cake form after each stage. (cost of laying M25 concrete shall be paid separately) (If any rain falls in between any stages of concrete pour, make sure to cover the panel top to prevent ingress of water or water falling into the cavities. In case of water collection over the concrete inside the panel, drill 10mm hole in GFRG panel immediately above concrete filled level to drain out water before pour/in-fill of balance concreting)	cum	2021.75
19	Laying of GFRG panel as roof / floor slab panel and staircase panel using suitable crane as per instructions of Engineer-in-Charge, including providing support system with 25mm x 300mm-400 mm wide plywood, as runner with proper prop below proposed micro beams including a. Cutting of top flange of panel to 180 mm wide (leaving 25mm projection on either side) to provide RCC embedded micro beam as per cutting drawings and structural drawings. b. Reinforcement for micro beams and tie beams to be provided in position with proper anchorage as per structural drawings. c. Provision for Electrical cabling, fan hooks and laying of pipes for plumbing work. d. Concreting of Tie beam, micro beam and top of GFRG panels (50 mm thick) with M-25 cement concrete mix using coarse aggregate of size less than 20 mm including laying of 10 gauge 100mmx100mm size weld mesh with 25 mm effective cover from the panel top.	sqm	237.30

Sl. No.	Description of Item	Unit	Rate
20	Supplying and fixing 10 Gauge weld mesh of size 100mm x100 mm for floor/roof slab concrete screed over the micro beams as reinforcement. The weld mesh shall be fixed as per drawing.	sqm	225.90
21	Application of ZMB 60/equivalent solution (100 Kg ZMB 60/equivalent, 1 litre ZMB Nano Thinner, 20 litre water & 1 Litre Zycoprime/equivalent = 122 litre/kg) over already applied coat of Zycosil/equivalent & Zycoprime/ equivalent solution on the top of all the RCC plinth beams by brush/spray coat before erection of GFRG over RCC plinth beams in GF. In the case of upper floors 150 mm wide on floor slab for all the external walls, bath/toilet/ wet areas (3 hrs drying time) before erection of wall panel on upper floors including erection of parapet wall.	sqm	229.80
22	After erection of GFRG wall panels, seal all GFRG wall joints with paper tape temporarily. Water proofing treatment of vertical joints with Zycosil/equivalent water proofing Solution (1 litre of Zycosil/equivalent & 20 litres of water stirred first & 2 litres of Zycoprime/equivalent added and stirred (total 23 litres)) with 50 ml syringe till the gap and in filled concrete is completely saturated. After removing the paper seal, seal off the vertical joints with water proofing material "Grout RW/equivalent" (Sealing cost excluded.)	metre	65.30
23	Filling of joints between RCC plinth beam / floor slab and wall panel of external walls, toilet / bath room / wet areas walls on all floor and parapet wall over roof slab, stair case head room at the time of erection of GFRG panels with Grout RW/equivalent sealant compound after the erection of panel before the infill of concrete in panel cavities and fine finish. This applies for all horizontal and vertical joints between GFRG wall and slab panels.	metre	29.10
24	Water proofing treatment of Vertical joints (of external side and internal side) between door frame, window & ventilator frames (on all four sides) of outer wall over the Zycosil/equivalent & Zycoprime/equivalent solution already applied (before the installation of door / window / ventilator frames in position) and fine finish with Grout RW/equivalent.	metre	29.90

Sl. No.	Description of Item	Unit	Rate
25	Water proofing treatment of RCC sunshade with Zycosil/ equivalent water proofing Solution (1 litre of Zycosil/ equivalent & 20 litres of water stirred first & 2 litres of Zycoprime/equivalent added and stirred (total 23 litres)) till it meets the saturation level and testing as per RILEM or by water drops test in which water drops do not absorb but drops remain or rolls.	sqm	112.10
26	In-filling / sealing of joint between RCC lintel cum sunshade and wall (on external side) in all floors by pushing in Grout RW/equivalent in paste form and coving 20 mm x 20 mm after applying a coat of Zycosil/equivalent & zycoprime/equivalent solution before cement plastering of top, bottom and sides of RCC sunshade.	metre	29.90
	G. FACTORY MADE FAST TRACK MODULAR BUILDING SYSTEM		
27	Providing and fixing roofing consist of 0.8 mm thick galvanized steel deck sheet confirming to IS 277:1992 used as permanent shuttering over which MS wire mesh 3mm laid at 100x100 mm grid including edge trim covered with concrete. This metal deck will be supported on structural steel beam with shear studs. (Structural steel like Beam, column, joists etc. & concrete of different grade as per design will be paid separately).	sqm	1394.95
28	Providing and fixing in position, 130 mm thick factory made Expanded Polystyrene Core (EPS Core) wall panels consisting of EPS core sandwiched between two Engineered sheets of welded wire fabric mesh duly finished with shortcrete materials on outer faces. The fabric mesh shall be made of 3 mm dia zinc coated G.I. wire mesh with 50 mm pitch in both the directions and on both faces of the wall and connected by GI wire of 3mm dia at alternate row by welding. The EPS core shall consist of 60 mm thick EPS of density not less than 16 kg/ per cum. Both the outer faces of the panel shall be finished by applying the layer of 35 mm thick cement mortar 1:3 {1 cement: 3 coarse sand (not having more than 40% stone chips of size upto 6 mm)} with the help of shotcreting/ guniting equipment etc, at a pressure not less than 1 bar (100KN/m2) and both surfaces finished with trowel. Fixing operations of wall panels shall be completed in all respect as per drawings and specifications and under the overall direction of the Engineer-in-charge.	sqm	2171.30

Adoption of

New Technologies

by **CPWD**

Precast 3-S Concrete Technology, Vice President House, New Delhi

Monolithic Construction, CRPF, Pappankalan, New Delhi

Adoption of

New Technologies

by CPWD

Quarters with Monolithic Construction, Chennai

Monolithic Construction, CRPF, Kadarpur, Gurugram