CENTRAL PUBLIC WORKS DEPARTMENT
OFFICE MEMORANDAM
DG/DSR/010
ISSUED BY AUTHORITY OF DIRECTOR GENERAL, CPWD

NIRMAN BHAWAN NEW DELHI DATED 24 /06/2016

Sub: -Correction slip No.5 to Delhi Schedule of Rates 2014.

OFFICE MEMORANDAM

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It has been decided with the approval of DG. CPWD to include following new technology items in Delhi Schedule of Rates 2014. The nomenclature of these new technology items and their relevant Analysis of Rates are also included in CPWD DAR-2014.

S.No	Item No	Particulars of technology	Number of items
I	New technology item No. 1	Expanded Polystyrene core panel system	2 items
II	New technology item No. 2	Light gauge steel framed structure	5 items
III	New technology item No. 3	Aluminium formwork for monolithic construction	1 item

Particulars and details of these items detailing their nomenclature and relevant Analysis of Rates are uploaded on CPWD website.

This issues with the approval of DG, CPWD.

24/6/16

(R.B.Garg)
Executive Engineer (TAS-II)
CSQ, CPWD, Nirman Bhawan, New Delhi

No.133/SE(TAS)/CS-DSR-2014/2015-16/ 172-E Dated: 24.06.2016

Copy to: All the SDG/ADG/CEs/CPMs through CPWD website http://cpwd.gov.in

24/6/2016

Executive Engineer (TAS-II)
CSQ, CPWD, Nirman Bhawan, New Delhi

Building Materials & Technology Promotion Council
Dy. No. 394
Date 9/8/16

(1/12)

Date: 31.05.2016

EXPANDED POLYSTYRENE CORE PANEL SYSTEM

Item no.	Description of item	Unit	Rate
1	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/m^2) 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	3278.70
2	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/m^2) 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	3448.30

(214)

Analysis of rates

11.1 : 2	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)) À 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

Code	Description	Unit	Quantity	Rate	Amount	Remarks
	Details of cost for 1.20x3.00=3.60 sqm					
	MATERIALS:-					
	EPS Core panel(Factory made)=3.60 sqm					
	Wastage 5% =0.18 sqm					
	Total =3.78 sqm	Sqm	3.78	1650.00	6237.00	
3.8	Cement mortar 1:3, 60mm thick on the bottom of roof slab =1x1.2x3.00x0.060= 0.216cum	cum	0.216	5003.35	1080.72	
5.3.1 (New)	Cement concrete 1.1.5.3, 70mm thick on the top of roof slab =1x1.20x3.00x0.07= 0.252 cum	cum	0.252	7282.50	1835.19	A
	Add for L-shape, U-shape & straight lap mesh	lump sum	1	350.00	350.00	
	LABOUR:-					
	For providing concreting, shotcreting, shoring, leveling, plastering and finishing the surface with trowel.	Lump sum	1	1440.00	1440.00	
				Total	10942.91	
				Add 1% water charges Excluding on 'A'	91.08	
				Total	11033.99	
				Add 15% CP & OH Excluding on 'A'	1379.82	
				Cost of 3.60 sqm Total	12413.81	
				Cost of 1.00 sqm	3448.28	
				Say	3448.30	

EE(TRD)

Analysis of rates

(3/12)

ern:- 1	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 thin 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)) A 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.

Code	Description	Unit	Quantity	Rate	Amount	Remarks
	Details of cost for 1.20x3.00m= 3.60 sqm					
	MATERIALS:-					
	Factory made EPS Core wall panel =3.60 sqm					
	Wastage 5% =0.18 sqm					
	Total =3.78 sqm	Sqm	3.78	1650.00	6237.00	
	Add for L-shape,U-shape & straight lap mesh	lump sum	1.00	360.00	360.00	
3.8	Cement mortar 1:3(1cement:3 coarse sand) 2x1.20x3.00x0.05= 0.36 cum	cum	0.360	5003.35	1801.21	
	10 mm TMT bars(2 nos.75 mm long) and Aluminium C-channels(100mmx150mm long) for fixing wall with foundation	lump sum	1.00	540.00	540.00	
	LABOUR(Man & Machinery):-					
	For carrying out shotcreting, shoring, leveling, and finishing the surface with trowel.	lump sum	1.00	1224.00	1224.00	
				Total	10162.21	
				Add 1% water charges	101.62	
				Total	10263.83	
				Add 15% CP & OH	1539.57	
				Cost of 3.60 sqm	11803.41	
				Cost of 1.00 sqm	3278.72	
					Say Rs.3278.70	

EE (TAD)

Sub analysis of rates

3.1	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size).

Code No	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum				
	MATERIAL:				
0295	Stone aggregate (single size) :20mm nominal size	cum	0.57	1175	669.75
0297	Stone aggregate (single size) :10mm nominal size	cum	0.28	1175	329
2202	Carriage of stone aggregate below 40mm nominal size	cum	0.85	106.49	90.52
0982	Coarse sand (ZoneIII)	cum	0.425	1200	510
2203	Carriage of Coarse sand	cum	0.425	106.49	45.26
0367	Portland cement (0.2225 cum)	tonne	0.4	6300	2520
2209	Carriage of cement	tonne	0.4	94.65	37.86
	LABOUR				
0155	Mason (average)	day	0.240	417.00	100.08
0114	Beldar	day	2.750	329.00	904.75
0101	Bhisti	day	0.9	363	326.7
0002	Hire charges of concrete mixure 0.25 to 0.40 cum with hopper	day	0.080	800.00	64
0012	Vibrator (Needle type 40mm)	day	0.080	350.00	28
9999	Sundries	L.S	14.300	1.78	25.45
0115	Extra labour for lifting material upto floor V level : Coolie (2.5 x 0.75) Coolie	day	1.880	329.00	618.52
				Total	6269.89
				Add 1% water charges	62.70
				Total	6332.59
				Add 15% CP & OH	949.89
				Cost of 1.00 cum Total	7282.48
				Say	7282.5

5/12

Light Gauge Steel Framed Structure (NEW TECHNOLOGY) dt 2.6.2016

Item no.	Description	Unit	Rate
1	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 architecture-2011 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. 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.	Kg	174.2
2	Providing and fixing of external wall system on Light gauge steel frame work with Outer face having 6mm thick heavy duty fiber cement board fixed on 9mm thick heavy duty fiber cement board conforming to IS 14862:2000, category IV type A (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make. A grove of 2 mm to 3mm shall be maintained and groves shall be sealed with silicon based sealant. The board shall be fixed in a staggered pattern.Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm and internal face 12.5mm thick gypsum plaster board fixed on 8mm thick fiber cement board confirming to IS 14862:2000 of category III type B (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make, proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish.(cost of frame work to be paid for separately).	Sqm	2787.25
3	Providing and fixing internal wall panels on Light gauge steel frame work with 12.5mm thick gypsum plaster board conforming IS 2095:2011 fixed on 8mm thick fiber cement board conforming to IS 14862:2000 of category III type B (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make. Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm. Proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish.(cost of frame work to be paid for separately)	Sqm	1596.65
4	Providing and fixing in all exterior face panels breathable vapour barrier underneath the cement fiber board as per National Building Code 2009 complete as per direction of Engineer-in-charge	Sqm	238.25
5	Supplying and installation of moisture resistant/fire resistant 6 mm thick Heavy duty fiber cement board (High pressure steam cured) conforming to IS 14862:2000 of category III type B as per standard sizes fixed with self-drilling / taping screws. Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm.	Sqm	869.30

(STAAD)

dt 2.6.16

(6/12)

Analysis of rates

Item 1:-	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 Architek V2.5.16/ Revit architecture-2011 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. 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

Code	Description	Unit	Quantity	Rate	Amount	
	Details of cost for 1.00 KG					
	MATERIALS:-					
	Cold form light gauge Steel C-section of thickness 0.75mm fe zink coating/sliting etc. =1.00kg					
	Wastage @ 5% =0.05 kg					
	Total=1.05 kg	kg	1.05	126.00	132.30	
9999	Carriage	L.S.	1.00	3.00	3.00	
	Deduct for					
	wastage of cold form light gauge steel	kg	0.05	17.00	0.85	(-)
	Total 'A'				134.45	A
	Labour for assembling/ fixing etc. For 1.00MT steel					
10.3	Black smith 2nd class	per day	10.00	448.00	4480.00	
11.4	Beldar	per day	30.00	368.00	11040.00	
	Total for 1000 kg				15520.00	
	Cost for 1.00 kg				15.52	B
				A -B=	149.97	
				Add 1% water charges	1.50	
				Total	151.47	
				Add 15% CH & OH	22.72	
				Cost of 1.00 kg Total	174.19	
				Say Rs.	174.20	

EE (TAD)

Analysis of rates

Item no.2:-	Providing and fixing of external wall system on Light gauge steel frame work with . Outer face having 6mm thick heavy duty fiber cement board fixed on 9mm thick heavy duty fiber cement board confirming to IS 14862:2000, category IV type A (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make. A grove of 2 mm to 3mm shall be maintained and groves shall be sealed with silicon based sealant. The board shall be fixed in a staggered pattern.Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick & of 10 gauge of length varying from 25 to 45 mm and internal face 12.5mm thick gypsum plaster board fixed on 8mm thick fiber cement board confirming to IS 14862:2000 of category III type B (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make, proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish.(cost of frame work to be paid for separately).

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00 sqm				
	MATERIALS:-				
	1) 6 mm thick heavy duty fiber cement board				
	1x10=10 sqm				
	Add Wastage 10% =1.00sqm				
	Total =11.00 sqm	Sqm	11	440.00	4840.00
	GI Screws of gauge 10, length 45 mm for fixing cement fibre board to C section	each	40	3.00	120.00
	2) 9 mm thick heavy duty fiber cement board				
	1x10=10 sqm				
	Add Wastage 10% =1.00sqm				
	Total =11.00 sqm	Sqm	11	659.00	7249.00
	GI Screws of gauge 10, length 25 mm for fixing cement fibre board to C section	each	40	2.75	110.00
	3) Taping and finishing cement board joints	L.S.	10	81.00	810.00
	4) 8mm thick heavy duty fiber cement board				
	1x10=10 sqm				
	Add Wastage 10% =1.00sqm				
	Total =11.00 sqm	Sqm	11	322.00	3542.00
	GI Screws of gauge 10, length 45 mm for fixing cement fibre board to C section	each	40	3.00	120.00
7009	5) 12.5 mm thick Gypsum board				
	1x10=10 sqm				
	Add Wastage 10% =1.00sqm				
	Total =11.00 sqm	Sqm	11	160.00	1760.00
	GI Screws of gauge 10, length 25 mm for fixing cement fibre board to C section	each	40	2.75	110.00
	6) Taping and finishing cement board joints	Sqm	10.00	220.30	2203.00
	LABOUR:-				
	For cutting and fixing of cement and gypsum board				
112	Carpenter 2nd class	each	2	448.00	896.00
114	Beldar	each	6	368.00	2208.00
				Total	23968.00
				Add 1% water charges	239.68
				Total	24207.68
				Add 15% CH & OH	3664.79
				Cost of 10.00 sqm Total	27872.47
				Cost of 1.00 sqm	2787.25
				Say	2787.25

EE (TAD)

Item no.3:-	Providing and fixing internal wall panels on Light gauge steel frame work with 12.5mm thick gypsum plaster board conforming IS 2095:2011 fixed on 8mm thick fiber cement board conforming to IS 14862:2000 of category III type B (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make. Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm. Proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish.(cost of frame work to be paid for separately)					
Code	Description	Unit	Quantity	Rate	Amount	
	Details of cost for 10.00 sqm					
	MATERIALS:-					
	1) 8mm thick heavy duty fiber cement board					
	2x10=20 sqm					
	Add Wastage 10% =2.00sqm					
	Total =22.00 sqm	Sqm	22.00	322.00	7084.00	
	GI Screws of gauge 10, length 25 mm for fixing cement fibre board to C section	each	80.00	2.75	220.00	
	2) 12.5 mm thick Gypsum board					
	2x10=20 sqm					
	Add Wastage 10% =2.00sqm					
7009	Total =22.00 sqm	Sqm	22.00	160.00	3520.00	
	GI Screws of gauge 10, length 25 mm for fixing cement fibre board to C section	each	80.00	2.75	220.00	
	3) Taping and finishing cement board joints	Sqm	10.00	220.30	2203.00	
	LABOUR:-				13247.00	A
	For cutting and fixing of cement and gypsum board 18.00 sqm (Skilled & semi skilled)					
112	Carpenter 2nd class	each	2.00	448.00	896.00	
114	Beldar	each	6.00	368.00	2208.00	
	Labour cost foe 10.00 sqm				499.44	B
			A - B=	Total	13746.44	
				Add 1% water charges	137.46	
				Total	13883.91	
				Add 15% CH & OH	2082.59	
			Cost of 10.00 sqm	Total	15966.50	
				Cost of 1.00 sqm	1596.65	
				Say	1596.65	

Item No. 4	Providing and fixing in all exterior face panels breathable vapour barrier underneath the cement fiber board as per IBC-2009 complete as per direction of Engineer-in-charge.					
Code	Description	Unit	Quantity	Rate	Amount	
	Details of cost for 10.00 sqm					
	MATERIALS:-					
	1) Vapour barrier =10.00 sqm					
	Add wastage @ 10%=1.00 sqm					
	Total =11.00 sqm	sqm	11.00	170.00	1870.00	A
	Labour:-					
	For fixing fixing 45 sqm vapour barrier					
112	Carpenter 2nd class	each	1.00	448.00	448.00	
114	Beldar	each	1.00	368.00	368.00	
	Labour for 10 sqm				181.33	B
	Total				2051.33	
	Add 1% water charges				20.51	
	Total				2071.85	
	Add 15% CP & OH				310.78	
	Cost for 10 sqm				2382.62	
	cost for 1.00 sqm				238.26	
				Say Rs	238.25	

Item no.5	Supplying and installation of moisture resistant/fire resistant 6 mm thick Heavy duty fiber cement board (High pressure steam cured) conforming to IS 14862.2000 of category III type B as per standard sizes fixed with self-drilling / taping screws. Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm.					
Code	Description	Unit	Quantity	Rate	Amount	
	Details of cost for 10.00 sqm					
	MATERIALS:-					
	1) 6mm thick heavy duty fiber cement board					
	1x10=10 sqm					
	Add Wastage 10% =1.00sqm					
	Total =11.00 sqm	Sqm	11.00	440.00	4840.00	
	GI Screws of gauge 10, length 25 mm for fixing cement fibre board to C section	each	40.00	2.75	110.00	
	Taping and finishing cement board joints	Sqm	10	81.00	810.00	
	LABOUR:-				5760.00	A
	For cutting and fixing of cement and gypsum board 18.00 sqm					
112	Carpenter 2nd class	each	2.00	448.00	896.00	
114	Beldar	each	6.00	368.00	2208.00	
	Labour cost foe 10.00 sqm				1724.44	B
				A+B	7484.44	
				Add 1% water charges	74.84	
				Total	7559.29	
				Add 15% CP & OH	1133.89	
				Cost for 10 sqm	8693.18	
				cost for 1.00 sqm	869.32	
				Say	869.30	

EE(TAD)

(10/12)

Aluminium Formwork for monolithic construction

Item no.	Description of item	Unit	Rate
1	Providing and fixing of costomized Aluminium formwork for monolithic construction RCC members with a repetative 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 componets 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) shall conform to IS 14687-1999. Pins and wedges to be made of high grade mild steel,all complete as per direction of Engineer-in-charge.(Cost of RCC work shall be paid seperately)	Sqm	140.50

EE (TAD)

Analysis of Rates of Aluminium formwork for monolithic construction

item no.	
1	Providing and fixing of costomized Aluminium formwork for monolithic construction RCC members with a repetative 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 componets 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) shall conform to IS 14687-1999. Pins and wedges to be made of high grade mild steel,all complete as per direction of Engineer-in-charge.(Cost of RCC work shall be paid seperately)

Code No.	Description	Unit	Quantity	Rate (Rs.)	Amount
	Det				
I	Aluminium Formwork System				
1	Wall Panels (W)				
a.)	2050X600mm, Qty. = 2 Nos	Sqm	2.460	8500	20910
b.)	2050X300mm, Qty. = 2 Nos	Sqm	1.230	8500	10455
c.)	2050X250mm, Qty. = 2 Nos	Sqm	1.025	8500	8713
d)	300X1150mm, Qty. = 1 Nos	Sqm	0.345	8500	2933
2	Vertical wall filler with bottom mitred (for 50 mm rocker) WRB Panels				
a.)	2325x350mm, Qty. = 1 Nos	Sqm	0.814	8500	6919
b.)	2325X250mm, Qty. = 2 Nos	Sqm	1.163	8500	9886
c.)	2100X600 mm,Qty. = 24 Nos	Sqm	30.240	8500	257040
d)	2100X450mm, Qty. = 4 Nos	Sqm	3.780	8500	32130
e.)	2100X300mm, Qty. = 2 Nos	Sqm	1.260	8500	10710
f.)	2100X250 mm,Qty. = 2 Nos	Sqm	1.050	8500	8925
g.)	350X1150mm, Qty. = 1 Nos	Sqm	0.403	8500	3426
3	Panels				
a.)	825X600mm, Qty. = 2 Nos	Sqm	0.990	8500	8415
b.)	825X300 mm,Qty. = 2 Nos	Sqm	0.495	8500	4208
c)	825X250 mm,Qty. =2 Nos	Sqm	0.413	8500	3511
d)	650X600 mm,Qty. = 24 Nos	Sqm	9.360	8500	79560
e)	650X450 mm,Qty. = 4 Nos	Sqm	1.170	8500	9945
f)	650X300 mm,Qty. = 2 Nos	Sqm	0.390	8500	3315
g)	650X250 mm,Qty. = 2 Nos	Sqm	0.325	8500	2763
4	Deck Panels (D)				
a.)	1100x450mm, Qty. = 14 Nos	Sqm	6.930	8500	58905
b.)	1100x250mm,Qty. =2 Nos	Sqm	0.550	8500	4675
c)	750x450mm,Qty. = 1 Nos	Sqm	0.338	8500	2873
5	Internal Corner (IC)				
a.)	2350 mm x 225 mm Qty. = 3 Nos	Sqm	1.586	11500	18239
b)	2250 mm x 225 mm Qty = 4 Nos	Sqm	2.025	11500	23288
c)	ICI 400x400 mm, Qty. = 10 Nos	Sqm	1.800	11500	20700
6	Mid Soldier				
a)	1000 mm x 100 mm Qty. = 2 Nos	Sqm.	0.2	32000	6400
7	End soldier				
a)	800 mm x1000mm Qty. = 2 Nos	Sqm.	0.16	32000	5120
b)	750 mm x 1000 mm Qty = 2 Nos	Sqm	0.15	32000	4800
8	Column Corners				
a.)	2100 mm x 200 mm Qty. = 6 Nos	Sqm	2.52	11500	28980
b.)	650 mm x 200 mm Qty. = 6 Nos	Sqm.	0.78	11500	8970
c.)	300 mm x 200 mm Qty. = 4 Nos	Sqm.	0.24	11500	2760
9	Kicker Panels				
a)	125 x 2300 Qty. = 2 Nos	Sqm	0.576	8500	4896
b)	125 x 1150 mm, Qty. = 2 Nos	Sqm.	0.288	8500	2448

de No.		Description	Unit	Quantity	Rates (Rs.)	Amount
	10	Door Closing Panel (DCRB)				
	a.)	1975 x 150mm, Qty. = 2 Nos	Sqm.	0.593	8500	5041
	b.)	2325x150 mm, Qty. = 1 Nos	Sqm	0.340	8500	2967
		Total I		75.998		684821
	II	Accessories				
	a)	External Corner 2050 mm	Nos.	2	1400	2800
	b)	External Corner 825 mm	Nos	2	565	1130
	c)	Soldier Tie 370 mm	Nos	8	274	2192
	d)	Adjustable Prop - 2.00 x 2.00m	Nos.	8	1080	8640
	e)	Pin-50	Nos.	936	15	14040
	f)	Pin-127	Nos	8	52	416
	g)	Wedge	Nos.	944	14	13216
	h)	Wall Tie 150 (355)mm	Nos	168	45	7560
	i)	Polythene Sleeve 90 x 150mm	Nos	168	3	504
	j)	Polythene Roll - 150mm Long.	Nos.	168	6	1008
	k)	Vertical Soldier -1100mm	Nos.	4	351	1404
	l)	Wall Attached Bracket 600x1000mm	Nos.	8	936	7488
	m)	Allignment Pipe - 3.00 Mtr	Nos.	2	960	1920
	n)	Allignment Bracket	Nos.	6	450	2700
	o)	Tie Rod for Bracket - 500mm	Nos.	12	108	1296
	p)	Anchor Wing Nut Ø100 mm	Nos.	17	60	1020
	q)	Debit Pin - 250mm	Nos.	5	56	280
	r)	PVC Pipe Ø20mm - 150mm long	Nos.	12	5	60
	s)	PVC Cone	Nos.	10	5	50
	t)	Bolt+Nut - 16 x 80 mm	Nos.	10	30	300
	u)	Flat Washer Ø16, 3mm thick	Nos.	16	5	80
	v)	Bolt+Nut - 16 x 30 mm	Nos.	50	18	900
	w)	Door Spacer-45x45x5mm-1135mm Long	Nos.	2	340	680
	x)	Door Spacer-45x45x5 mm- 985mm long	Nos.	2	295	590
Total II						70274
		Total (I+II)] (Material Cost for 75.998 sqm.)				755095
		Material Cost per sqm.				9936
		Less Salvage value 35%				3478
		Material cost / sq.m				6458
		Assuming 100 repetitions, Material cost per sqm.				64.58
		Add maintenance at 10%				6.46
	1					71.04
		LABOUR (For 75.998 sqm.):				
0116		Fitter (Grade-1)	Day	2	435.00	870.00
0117		Fitter (Grade-2)	Day	2	399.00	798.00
0114		Beldar	Day	3	329.00	987.00
	2	Labour Cost per sqm. = (For 75.998 sqm.):				2655.00
	3	Shuttering Oil	L.S	1	34.94	34.94
	4	Cleaning of Formwork	L.S	1	5.00	5.00
		Material + Labour Cost per sqm. /1 repetition (1+2+3+4)	L.S	1	10.00	10.00
		Add Water Charges @ 1%				120.98
		TOTAL				1.21
		Add CPOH @ 15%				122.19
		Aluminium shuttering Cost for 1 Sq. Mtr.				18.33
					Say	140.51
						140.50

(12-1-12)

Et (TAD)