

CHAPTER 10: STRUCTURAL STEEL WORKS, SHEET ROOFING AND SAFETY CANOPY						
Item No.	Description of Item	Unit	Unit Rate (Dhaka, Mymensingh)	Unit Rate (Chattogram, Sylhet)	Unit Rate (Khulna, Barisal, Gopalgonj)	Unit Rate (Rajshahi, Rangpur)
10.1	Supply and fixing of galvanized <b>anchor bolts</b> of variable dia for rigid frame conforming to ASTM F1554 Grade 55, Galvanized to A153, Class C or equivalent with minimum yield strength of 380 MPa, manual of steel construction by American Institute of Steel Construction (AISC) etc. including the cost of washer & bolts, material testing etc. all complete as per drawing, specification and direction of the Engineer-in-charge.	kg	Tk. 192.00	Tk. 192.00	Tk. 192.00	Tk. 192.00
10.2	Supply, fabrication and installation of <b>built-up sections</b> i.e. columns, beams, rafters, bracings, struts etc. (up to level-4) from steel plates conforming to ASTM A572, with a minimum <b>yield strength of 345 MPa</b> , including the cost of testing of plates, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 137.00	Tk. 137.00	Tk. 137.00	Tk. 137.00
10.3	Supply, fabrication and installation of <b>built-up sections</b> i.e. columns, beams, rafters, bracings, struts etc (up to level-4) from steel plates conforming to ASTM A36, with a minimum <b>yield strength of 250 MPa</b> , including the cost of testing of plates, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 134.00	Tk. 134.00	Tk. 134.00	Tk. 134.00
10.4	Supply, fabrication and installation of <b>hot-rolled sections</b> (W, H, I-shape etc.) for columns, beams, rafters, bracings etc. (up to level-4) conforming to ASTM A36, with a minimum yield strength of <b>250 MPa</b> , including the cost of testing of plates, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 131.00	Tk. 131.00	Tk. 131.00	Tk. 131.00
10.5	Supply, fabrication and installation of hot rolled structural grade steel pipe and tube of any thickness conforming to ASTM A283 with a minimum yield strength of 275 MPa, including the cost of testing, application of red/grey-oxide primer etc. (up to level-4) all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 200.00	Tk. 200.00	Tk. 200.00	Tk. 200.00
10.6	Supply, fabrication and installation of hot rolled structural grade steel channel and angle in <b>roof truss or any form of structure</b> of any thickness conforming to ASTM A36 with a minimum yield strength of 250 MPa, including the cost of testing, application of red/grey-oxide primer etc. (up to level-4) all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 129.00	Tk. 129.00	Tk. 129.00	Tk. 129.00

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10.7	Supply and fabrication of <b>built-up sections for shore piles</b> from steel plates conforming to ASTM A36, with a minimum <b>yield strength of 250 MPa</b> , including the cost of testing of plates, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge (Salvage materials shall be the contractors property after completion of the work, rate is excluding the cost of driving and taking out).	kg	Tk. 68.00	Tk. 68.00	Tk. 68.00	Tk. 68.00
10.8	Supply and fabrication of <b>hot rolled structural grade steel Sections of any thickness conforming to ASTM A36 with a minimum yield strength of 250 MPa for shore piling</b> , including the cost of testing, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge( Salvage materials shall be the contractors property after completion of work, rate is excluding the cost of driving and taking out).	kg	Tk. 53.00	Tk. 53.00	Tk. 53.00	Tk. 53.00
10.9	Supply ,fabrication, installation and de-installation of <b>built-up sections for shore pile bracing at any level basement work</b> from steel plates conforming to ASTM A36, with a minimum <b>yield strength of 250 MPa</b> , including the cost of testing of plates, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge( Salvage materials shall be the contractors property after completion of work).	kg	Tk. 88.00	Tk. 88.00	Tk. 88.00	Tk. 88.00
10.10	Supply ,fabrication, installation and de-installation of <b>built-up sections for shore pile bracing at any level basement work</b> from steel plates conforming to ASTM A572, with a minimum <b>yield strength of 345 MPa</b> , including the cost of testing of plates, application of red/grey-oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge( Salvage materials shall be the contractors property after completion of work).	kg	Tk. 89.00	Tk. 89.00	Tk. 89.00	Tk. 89.00
10.11	Supply and fixing of <b>connection bolts</b> of variable diameter with nut and washer according to " <b>ASTM A325 Type 1</b> or equivalent" with $F_u = 720$ Mpa, including the cost of testing of bolts, all complete as per drawing, specification and direction of Engineer-In-Charge.	kg	Tk. 361.00	Tk. 361.00	Tk. 361.00	Tk. 361.00
10.12	Supply and fixing of <b>connection bolts</b> of variable diameter with nut and washer according to " <b>ASTM A307 Type A</b> or equivalent" with $F_u = 414$ Mpa, including the cost of testing of bolts, all complete as per drawing, specification and direction of Engineer-In-Charge.	kg	Tk. 324.00	Tk. 324.00	Tk. 324.00	Tk. 324.00
10.13	Supply and installation of <b>GI purlin &amp; girt</b> of any size (up to level-4) conforming to "ASTM A653" grade 45, with a minimum yield strength of 310 MPa, including the cost of testing of materials, all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 164.00	Tk. 163.00	Tk. 164.00	Tk. 164.00
10.14	Supply and fixing of <b>sag rod</b> (up to level-4) conforming to grade 40, with a minimum yield strength of 275 MPa, including the cost of making threads, nuts and washers, red oxide primer etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 139.00	Tk. 139.00	Tk. 139.00	Tk. 139.00



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10.15	Supply and fixing of <b>cable/wire bracing</b> conforming to "ASTM A475" with a minimum yield strength of 1193 MPa, with I-bolt and hill side washer, all complete as per drawing, specification and direction of Engineer-in-charge.	meter	Tk. 223.00	Tk. 223.00	Tk. 223.00	Tk. 223.00
10.16	Supplying and fixing of <b>shear stud</b> of variable dia conforming to ASTM A108 or equivalent with minimum yield strength of 275 MPa, including the cost testing, welding etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 169.00	Tk. 169.00	Tk. 169.00	Tk. 169.00
10.17	Supply and installation of <b>0.70 mm thick galvanized decking panel</b> according to ASTM A653, with minimum yield strength of 345 MPa, including all necessary accessories (sheeting screws with washers, sealants etc.), testing of materials etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 186.00	Tk. 186.00	Tk. 186.00	Tk. 186.00
10.18	Supply, fabrication and installation of <b>6 mm thick Chequer Plate</b> conforming to ASTM A572, with minimum yield strength of 345 MPa (up to level-4), including all necessary accessories ,testing of materials etc. all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 196.00	Tk. 196.00	Tk. 196.00	Tk. 196.00
10.19	Supply and installation of <b>0.47 mm thick zinc alum color coated profile sheet</b> from local source/China with minimum warranty period of 5 years after installation for roof, wall, caping, flashing, trimming, gutter etc. (up to level-4) conforming to ASTM A792, Grade: 80, AZ150 gm/m <sup>2</sup> , including the cost of necessary accessories (sheeting screws with washers, silicon sealant etc.), testing of materials etc. all complete as per drawing specification and direction of Engineer-in-charge.	kg	Tk. 200.00	Tk. 200.00	Tk. 200.00	Tk. 200.00
10.20	Supply and installation of <b>0.47 mm thick zinc alum color coated profile sheet</b> of durability class 2 with minimum warranty period of 10 years of durability, for roof, wall, caping, flashing, trimming, gutter etc. conforming to ASTM A792, Grade: 80, AZ150 gm/m <sup>2</sup> , including the cost of necessary accessories (sheeting screws with washers, silicon sealant etc.), testing of materials etc. all complete as per drawing specification and direction of Engineer-in-charge (supplier has to produce papers to proof the source of material).	kg	Tk. 322.00	Tk. 322.00	Tk. 322.00	Tk. 322.00
10.21	Supply and installation of <b>0.457 mm thick corrugated galvanized iron</b> sheet (Bangladesh made) having min weight 63-65 kg per bundle (2'-6" width, 70 – 72 rft long) fitted and fixed on M.S. sections with 'J' hook or wooden purlin with screws, limpet washers and putty etc. (up to level-4) all complete and accepted by the Engineer-in-charge.	sqm	Tk. 578.00	Tk. 577.00	Tk. 569.00	Tk. 569.00
10.22	0.27 mm thick <b>galvanized iron plain sheet ridging</b> with 300 mm lap on either side fitted and fixed with galvanized bolts and nuts etc. all complete and accepted by the Engineer-in-charge.					
10.22.1	Galvanized	meter	Tk. 472.00	Tk. 471.00	Tk. 459.00	Tk. 459.00
10.22.2	Colored	meter	Tk. 523.00	Tk. 522.00	Tk. 510.00	Tk. 510.00

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10.23	Supply and installation of 2.0 mm thick <b>fiber glass sheet</b> (transparent sheet) for roof, wall etc. on M.S. purlin, angle etc. with 'J' hook or screws with washer and putty, all complete as per drawing, specification and direction of Engineer-in-charge (up to level-4).	sqm	Tk. 1,437.00	Tk. 1,436.00	Tk. 1,428.00	Tk. 1,428.00
10.24	1.5 mm thick plain <b>fiberglass sheet ridging</b> with 300 mm lap on either side fitted and fixed with galvanized bolts and nuts etc. all complete and accepted by the Engineer-in-charge.	meter	Tk. 875.00	Tk. 874.00	Tk. 862.00	Tk. 862.00
10.25	Supply and installation of <b>double bubble foil insulation</b> at wall and roof of nominal thickness of 8 mm conforming to Class A in accordance with the ASTM-E84-09 fire test standard, including the cost of lapping, costape, adhesive and necessary accessories, all complete as per drawing, specification and direction of Engineer-in-charge.	sqm	Tk. 251.00	Tk. 251.00	Tk. 251.00	Tk. 251.00
10.26	<b>Premium Synthetic Enamel paint</b> of approved best quality and colour delivered from authorized local agent of the manufacturer(Berger robbialac supergloss synthetic enamel/Elite lucky seven/ Asian apcolipe premium paint or equivalent brand) in a sealed container, having highly water resistant, high bondibility, flexibility property; using specified brand thinner applying to metallic surface by spray in two coats over single coat anti-corrosive coating including cleaning drying, making free from dirt, grease, wax, removing all chalked and scaled materials, all complete in all floors accepted by the Engineer-in-charge. (payment shall be made on structural steel weight basis)	kg	Tk. 9.00	Tk. 9.00	Tk. 9.00	Tk. 9.00
10.27	Supply and application of Epoxy based <b>corrosion protection paint</b> to the surface of the structural steel members conforming to SA 2.5; the corrosion class shall be -C3 in accordance with BS EN ISO 12944-2 and durability class in accordance with BS EN ISO 12944-5; the Steel members to be shot blasted inside the enclosed shot blasting chamber, final coat paint must be applied on site after installation, including the cost of primer, testing and necessary accessories, all complete as per drawing, specification and direction of Engineer-in-charge.	kg	Tk. 26.00	Tk. 26.00	Tk. 26.00	Tk. 26.00
10.28	Supply and pouring of <b>non-shrink grout</b> to steel column bases conforming to ASTM C 109 having compressive strength not less than 45 MPa, including the cost of shutter and necessary accessories, all complete as per drawing, specification and direction of Engineer-in-charge.	cum	Tk. 147,568.00	Tk. 147,568.00	Tk. 147,568.00	Tk. 147,568.00
10.29	<b>Safety Canopy:</b> Supplying temporary safety canopy around construction work place where public safety is likely to be endangered due to construction activities; which shall be made of truss system of steel sections (main frame) at 1800 mm c/c with purlins @ 750 mm c/c, making flooring system by corrugated galvanized iron sheets of thickness 0.45 mm, laying wire mesh net on iron sheets, providing continuous gutter along the edges of the building with downpipe @ 6000 mm c/c, including fitting and fixing in position providing necessary anchors, cables, wires, ties etc. by standard anchoring and welding, nut-bolts etc, all complete and accepted by the Engineer-in-charge	sqm	Tk. 2,421.00	Tk. 2,416.00	Tk. 2,398.00	Tk. 2,398.00

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10.30	<b>Safety net with G.I Wire:</b> Supply, fabrication, installation and taking out temporary <b>horizontal safety net</b> around construction work place where public safety is likely to be endangered due to construction activities; which shall be made of Chain link net with 24 BWG wire fitted at 15'-0" height horizontally of the outer periphery of the building with 75mmx40mmx5mm MS Chanel post and purlin, 20mm MS Rod and 40mmx40mmx6mm MS Angle as ties etc. by standard anchoring and welding, nut-bolts etc, all complete and accepted by the Engineer-in-charge( Salvage materials shall be the contractors property after completion of work.)	sqm	Tk. 1,515.00	Tk. 1,502.00	Tk. 1,482.00	Tk. 1,482.00
10.31	<b>Safety shed over drive way :</b> Supply, fabrication, installation and taking out temporary <b>horizontal safety shed over the drive way</b> around construction work place where public safety is likely to be endangered due to construction activities; which shall be made of 0.27 mm thick galvanized iron plain sheet fitted at 15'-0" height horizontally over the drive way or path way at the outer periphery of the building with 75mm x 40mm x 5 mm M.S Chanel post and purlin, 20mm MS Rod and 40mmx40mmx6mm MS Angle as ties etc. by standard anchoring and welding, nut-bolts etc, all complete and accepted by the Engineer-in-charge( Salvage materials shall be the contractors property after completion of work.)	sqm	Tk. 1,638.00	Tk. 1,631.00	Tk. 1,603.00	Tk. 1,603.00
10.32	<b>Scaffolding for outside netting of building:</b> Supplying, fitting & fixing <b>scaffolding for outside netting</b> of building with single layer 38 mm dia MS pipe connected each other with minimum 4'-0" centre to centre both direction with 38 mm dia swivel clamp, including fitting and fixing in position providing necessary anchors, wires, ties etc. all complete and accepted by the Engineer-in-charge. (Rate is excluding the cost of netting)	sqm	Tk. 348.00	Tk. 348.00	Tk. 348.00	Tk. 348.00
10.33	<b>Safety net:</b> Supplying temporary <b>safety net (hessian cloth)</b> around construction work place (along the height of the building) where public safety is likely to be endangered due to construction activities; which shall be supported using scaffolding around the building for brick work/ plaster; including fitting and fixing in position providing necessary anchors, wires, ties etc. all complete and accepted by the Engineer-in-charge. (Rate is excluding the cost of scaffolding)	sqm	Tk. 51.00	Tk. 51.00	Tk. 50.00	Tk. 50.00
10.34	Supply, fabrication, installation and taking out of <b>1.2 m high temporary safety fencing</b> at different floor during construction work around the outer periphery of building or around the punch in the floor slab for safety of the worker during construction, which shall be made of 10mm dia MS Rod @ 450mm C/C both way welded at each point together with a 12mm Dia MS Rod as top rail drilled anchored to the floor and sides as necessary all complete and accepted by the Engineer-in-charge( Salvage materials shall be the contractors property after completion of work.)	sqm	Tk. 380.00	Tk. 380.00	Tk. 380.00	Tk. 380.00

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10.35	Providing <b>bearing joints</b> fixed or free with 250 mm x 375 mm x 10 mm M.S. (Grade - A36) plate fitted in the truss angles with 16 mm diameter M.S. rod counter sunk rivets, welded and anchored to 250 x 375 x 10 mm. M.S. plate by two Nos. 19 mm dia M.S. "U" rod embedded in the bed of the lintel around the reinforcement, cleaning and greasing the joints for all floors etc. all complete and accepted by the Engineer-in-charge	each	Tk. 2,942.00	Tk. 2,934.00	Tk. 2,903.00	Tk. 2,903.00
10.36	<b>Galvanization:</b> Galvanization of finished structural steel built-up and hot rolled finished materials of any shape and size (average thickness not more than 8 mm) conforming to the requirement of the corrosion class C3 and Galvanization shall be performed in accordance with ASTM A123 all complete as per drawing, specification and direction of engineer in charge	kg	Tk. 71.00	Tk. 71.00	Tk. 71.00	Tk. 71.00
10.37	Additional Erection and installation charge for items 10.2-10.6 and 10.18 shall be 2% of the gross item rate for every four floor above level-4					
..... END OF CHAPTER TEN .....						

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