

## BILL OF QUANTITY

**Providing & Fixing of Aluminum Doors/Window Frames and Shutters, Structural glazing and aluminium composite panels For the Basohli boys Hostel block C& D and connecting Dining Hall Block (G+4) at SMVDU University Campus, Katra.**

S.no	Ref.DSR 2014/non.Scheme Item	Particular	QUANTITY	UNITS	RATES	AMOUNT
1	21.1.1.2	<p><b>(a) Aluminum Doors/Window Frames and Shutters</b>                      Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top. bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snab beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, panelling and desh fasteners to be paid for separarely)</p>				
		a) for fixed portion:10 Guage. Powder coated aluminium (minium thickness of powder coating 50 micron).	16970	kgs		
		b) For shutters of door, windows & ventilators 10 Guage including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)Powder coated aluminium (minium thickness of powder coating 50 micron).	20000	kgs		

2	9.20	Providing and Fixing ISI marked flush door shutters conforming to IS:2202 (Part I) decorative type, core of blockboard construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters. 30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	350	sqm			
3	21.3.2	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge With float glass panes of 5.50mm thickness	990	sqm			
4	9.118.1	Providing and fixing PVC Panels to existing door frames. 24 mm thick factory made PVC door shutters made of styles and rails of a UPVC hollow section of size 59x24 mm and wall thickness 2 mm( $\pm 0.2$ mm) with in built edging on both side. The style and rails mitred and joint at the corner by means of M.S. galvansed/plastic brackets of size 75x220mm having wall thickness 1.0 mm and stainless steel screws.The style of the shutter rainforced by inserting galvanised M.S. tube of size 20x20 mm and 1 mm ( $\pm 0.1$ mm) walls thickness. The lock rail made up of 'H' section, a uPVC hollow section of size 100x24 mm and 2mm( $\pm 0.2$ mm) walls thickness, fixed to the shutter style by means of plastic/galvanised M.S.'U' cleats. The shutter frame filled with a UPVC multi-chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm ( $\pm 0.1$ mm) walls thickness. The panels filled vertically and tie bar at two places by inserting horizontzllly 6 mm galvansied M.S. rod and fasterned with nuts and washers, complete as per manufacturer's specifications and direction of Engineer-in - charge.(For W.C. and bathroom doors shutter)	114	sqm			

5	NIS	Providing and fixing galvanised M.S. wire gauge 85G 9 wire dia. 0.56mm & av. width of aperature 1.4mm ) to the windows and clearstory window with necessary s.s. screw.	643	sqm			
6	9.71.2	Providing and fixing IS : 12817 marked stainless steel butt hinges (heavy weight)with stainless steel screws etc. Complete : 100x60x 2.50 mm.	10438	each			
7	NIS	Providing and fixing stainless steel towers bolts with necessary S.S screws etc. complete :					
		a) 200x10 mm	711	each			
		b)125 x64 x1.9 mm	50	each			
		c) 100x10 mm	7185	each			
8	NIS	Providing and fixing stainless steel handle with necessary s.s screws etc. complete:					
		a) 300mm	136	each			
		b) 200mm	610	each			
		c) 100mm	3484	each			
9	NIS	Providing and fixing stainless steel stopper with necessary screws etc. complete. Single rubber stopper.	267	each			
10	NIS	Providing and fixing stainless steel sliding doors bolts,with s.s nuts and screws etc. Complete : 100x16 mm.	204	each			

11	21.14.1	Providing and fixing double acton hydraulic floor spring of approved brands and manufacture conforming to IS : 6315, having brand logo embossed on the body / plates with double spring mechanism and door weight upto 125kg, for doors, including cost of cutting floors,embedding in floors as required and making good the same, matching to the existing floors finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge. With stainless steel cover plate minimum 1.25 mm thickness.	68	each			
<b>(b) STRUCTURAL GLAZING AND ALUMINIUM COMPOSITE PANEL</b>							
12	1.0391	Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawings,the aluminium quality as per grade 6063 T5 or T6 as per BS 1474,including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer-in-Charge. (The item includes cost of material such as cleats, sleeves, screws etc. necessary for fabrication of extruded aluminium frame work. Nothing extra shall be paid on this account).	800	Kg			
13	1.0392	Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels, including. As per Drawing Enclosed	100	Sqm			

	1.0393	a) Structural analysis & design and preparation of shop drawings for the specified design loads conforming to IS 875 part III (the system must passed the proof test at 1.5 times design wind pressure without any failure), including functional design of the aluminum sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants, flashings, fire stop (barrier)-cum-smoke seals, microwave cured EPDM gaskets for water tightness, pressure equalisation & drainage and protection against fire hazard included:					
	1.0394	b) Fabricating and supplying serrated M.S. hot dip galvanised / Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimensional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/ masonry/structural steel framework of building structure using stainless steel anchor fasteners/ bolts, nylon seperator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.					
	1.0395	c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment , including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture,as per the approved sealant design, within and all around the perimeter for holding glass.					
	1.0396	d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.					

1.0397	e) Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved by Engineer-in-charge. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified,						
1.0398	Cleaning and protection till the handing over of the building for occupation. In the end, the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineerin- Charge.						
1.0399	Note:- 1. The cost of providing extruded aluminium frames, shadow boxes, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this subhead. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves ) on the external face shall be measured in sqm. up to two decimal places.						

	1.04	Note:-2. The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 Sqm from the certified laboratories accredited by NABL(National Accreditation Board for Testing and Calibration laboratories),Department of Science & Technologies, India. Cost of testing is payable separately. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work. Performance Testing of Structural glazing system Tests to be conducted in the NBL Certified laboratories					
	1.0401	1. Performance Laboratory Test for Air Leakage Test (-50pa to – 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr”					
	1.0402	2. Static Water Penetration Test. (50pa to 1500pa) as per ASTM E- 331-09 testing method for a range up to 2000 ml.”					
	1.0403	3.Dynamic Water Penetration (50pa to 1500pa) as per AAMA 501.01-05 testing method for a range upto 2000 ml”					
	1.0404	4.Structural Performance Deflection and deformation by static air pressure test (1.5 times desing wind pressure without any failure) as per ASTM E-330-10 testing method for a range upto 50 mm”					
	1.0405	5.Seismic Movement Test (upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test” Tests to be conducted on site					
	1.0406	6.Onsite Test for Water Leakage for a pressure range 50 kpa to 240kpa (35psi) upto 2000ml”					
<b>14</b>	1.0407	Providing and supplying Spandrel Glass Panels comprising of 6 mm thick heat strengthened monolithic float glass of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade so as to match the colour and shade of the IGUs in the vision panels etc. ,all complete for the required performances as specified, as per the Architectural drawings, as per the approved shop drawings, as specified, and as directed by the Engineer- in-Charge. For payment, only the actual area of glass on face # 1 of the glass panels (but excluding the area of grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm.(Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevent Item*).					

	1.0408	(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, having properties as visible Light transmittance (VLT) of 25 to 35%, Light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.	100	Sqm		
15	1.0427	Supplying & fixing Aluminium Powder Coated Sliding Door for physically challenged persons as per detailed architectural drawings, made of 100x44 mm rectangular box section ,85x44mm door vertical section,95x44mm door top and middle section and finished with 12mm prelaminated partical board ,glazing clips , 2 no touch lock (Handle cum lock),1 baby latch 3" & standard accessories for the easy accessibility of physically challenged persons etc complete., Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	10	Sqm		
16	21.17	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS:1868 with minimum anodic coating of grade AC 15 ) of approved design / pattern, with approved stander section and fix to the existing window frame with C.P braas/ stainless steel screws @ 200mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium stander section around the opening, all complete as per requiremint and direction of engineer in charge (only weight of grill to be measured for payment)	900	Kg		
17	1.0212	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :				
	1.0213	150x10 mm	100	Each		
18	1.0214	Providing and fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete.	200	Each		
19	1.0215	Providing and fixing ISI marked aluminium butt hinges anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete:				
	1.0216	125x75x4 mm	1000	Each		

20	1.0217	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade, with necessary screws etc. complete :				
	1.0218	300x10 mm	2000	Each		
21	1.0219	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :				
	1.022	125 mm	1500	Each		
22	1.0221	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.				
	1.0222	Twin rubber stopper	500	Each		
23	1.0227	Providing and fixing bright finished 100 mm mortice lock with 6 levers without pair of handles of approved quality for aluminium door, with necessary screws etc complete as per direction of Engineer-in-charge.	100	Each		
24	1.0437	Providing and fixing pair of 'D' type SS Pull handles (pair)(304 grade) with necessary screws/ fixing accessories (as approved by engineer in-charge) Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.				
	1.0438	300mm	100	Each		
	1.0439	150 mm	100	Each		
25	1.044	Providing and fixing SS Pull handles (304 grade) with necessary screws/ fixing accessories (as approved by engineer in-charge) Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.				
	1.0441	100mm	200	Each		
26	1.0442	Providing and fixing pair of 'H' type SS handles(pair) (304 grade) with necessary screws/ fixing accessories (as approved by engineer in-charge) Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.				
	1.0443	600 mm long 32mm dia	200	Each		
	1.0444	450 mm long 25mm dia	200	Each		

27	1.0445	Providing and fixing bright finished SS lever handle with lock (304 grade) (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc to complete.	400	Each			
28	1.0446	Providing and fixing bright finished SS Mortice lock (304 grade) (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	400	Each			
29	1.0447	Providing and fixing bright finished Rim lock (night latch) (304 grade) (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	100	Each			
30	1.045	Providing and fixing SS magnetic catcher (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	400	Each			
31	1.0451	Providing and fixing Eye piece for all type of doors (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	400	Each			
32	1.0452	Providing and fixing hydraulic door closer of rack and pinion type with standard arm, silver finish (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	400	Each			
33	1.0456	Providing and fixing SS security chain for all type of doors (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	400	Each			
34	1.0457	Providing and fixing SS BABY LATCH of 125 mm for doors (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	100	Each			

35	1.0461	Providing and fixing stainless steel (SS-304 grade) friction hinges to the side/ top hung windows / ventilators of approved quality, with necessary stainless steel screws etc. Rate including all material, all labour charges, all lead, lift, transportation, taxes etc complete.				
	1.0462	300 x 19 x 1.9 mm	400	Each		
36	1.0465	Providing and fixing Brass tower bolts with necessary screws, fixing accessories . Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.				
	1.0466	300x10mm	100	Each		
37	1.0467	Providing and fixing Pair of 'D' type Brass handles (pair) with necessary screws, fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.				
	1.0468	150 mm	800	Each		
38	1.0469	Providing and fixing brass BABY LATCH of 125 mm for doors with necessary screws, fittings accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	100	Each		
39	1.047	Providing and fixing Brass Mortice lock with necessary screws, fittings accessories . Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.	100	Each		
40	1.0471	Providing and fixing bright finished Brass aldrop (as approved by engineer in-charge) with necessary screws / fixing accessories. Rate including all material, all labour charges,all lead, lift, transportation, taxes etc complete.				
	1.0472	250x16mm	400	Each		
41	NSI	Providing and fixing Stainless Steel Railing on stairs and Balconies.				
		Providing and fixing of 304 grade stainless steel railing (powder coated finish) on stairs (folding/conventional) and entrance ramp to required design and pattern ( as per drawings ) with the following technical specifications.	250	Rmtr		
		Top rail/ runner shall be of 50mm Ø-16 G stainless steel pipe.				
		Three no horizontal runner shall be of 16mmdia-18G stainless steel pipe.				
		Vertical posts/Balusters shall be of 40mm dia-16G Stainless steel pipe at an average distance of 2'8".				

		All other fittings shall be of standard quality as per direction of engineer in charge.					
					<b>Total</b>		