

Detailed Specification

Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha	
Spect.- 1	Specification For Item No. 1
	Clearing and grubbing road land including uprooting rank vegetation grass bushes, shrubs, sapling and trees girth up to 300 mm removal of stumps of trees cut earlier and disposal of unserviceable materials (C) By mechanical means in area of light jungle
# 1.1	Material
	Jcb machine, tractor
# 1.2	Workmanship
	The contractor shall clean the site of any trees including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared. Jungle clearance shall comprise uprooting of rank vegetation, grass, brushwood, shrubs, stumps, trees and saplings of girth up to 30 cm measured at a height of one metre above the ground level. Where only clearance of grass is involved it shall be measured and paid for separately. The roots of trees and saplings shall be removed to a depth of 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower. All holes or hollows formed due to removal of roots shall be filled up with earth rammed and levelled. Trees, shrubs, poles, fences, signs, monuments, nine lines, cable etc. within or adjacent to the area which
# 1.2	Mode of measurement and payment:
	The rate shall be for a unit of One Sq.Mtr. Incl. Complete the Job Describe Above, in all respected manners. # The rate shall be for a unit of Square Meter.
Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha	
Spect.- 2	Specification For Item No. 42
	Providing & Fixing chicken mesh jali at R.C.C. masonry joints at any height with all labour & material, etc. Complete, as per detailed & directed by EIC.
# 2.1	Materials
	24 gauge Chicken wire mesh jali as per IS Specification & M-34, Nails Fixing of chicken wire mesh of 24 gauge of 230mm width at the junction of brick work and RCC work fixing it with nail and raw plugs etc before applying plaster as per drawing/instruction of Clerk- Of-Work etc. complete. For all levels, heights and leads of works.
# 2.2	Mode of measurement and payment
	The rate include the cost of all materials, labour, wastage, Scaffolding, tools, tolerance, etc. complete. to finish job in all respected manners, as per detailed by Consultant, EIC. For involved in all operations described Above # The rate shall be for a unit of Square Meter.
Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha	
Spect.- 3	Specification For Item No. 52
	Add for plaster groove in plastered surface or moulding to R.C.C. projections.
# 3.1	Workmanship
	Where specified in the drawings, rectangular grooves of the dimensions indicated shall be provided in external plaster by means of timber battens when the plaster is still in green condition. Battens shall be carefully removed after the initial set of plaster and the broken edges and corners made good. All grooves shall be uniform in width and depth and shall be true to the lines and levels as per the drawings.
# 3.2	Mode of measurement and payment
	Measurement shall be done in Running meter # The rate shall be for a unit of Rmt
Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha	
Spect.- 4	Specification For Item No. 61
	Providing and fixing sandwich type platform including supplying and fixing granite stone 18 mm thick mirror polished stones in top and side position and vertical strip at front over 25 mm thick polished kota stone platform fixing in top and sides and intermediates supports fixing with cement mortar and adhesive and finishing including making recess for Kitchen/ Laboratory sink etc. complete as approved and directed by Consultant / EIC.
# 4.1	Materials
	The Relevant specification of item No.- 14.36(a), shall be followed But accept Approved quality, colour & style granite stone, instead of marble stone with all types of moulding & polishing, groove work, texture & polishing work in all respected manners Page No.- 98 shall be followed from 'General Technical Specifications For BUILDING WORKS' Book Vol. I & II. , Water shall be confirm to M – 2 & Cement mortar shall be confirm to M – 11 as per specification booklet of tender.& The Relevant specification of chapter 8.0 for "MARBLEWORK" page- 443- 480 shall be followed from CPWD. specification book

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	Water shall confirm to M - 1 cement shall confirm to M - 3 sand shall confirm to M - 6 polished kota stone slab shall confirm to M- 52 Granite shall confirm to M - 49 stainless steel sink of standard Nirali or equivalent make of size (600 x 450 x 150 mm) 2" x 6" size extension steel nipple, 15 mm size swan neck fancy by bib cock 40 mm dia C.P. waste coupling & flexible PVC waste outlet pipe The cooking platform of size as directed shall be constructed on 70 Cm width and 80cmt height. The vertical support shall be of polished kota stone sandwich type up to full depth in cement mortar (1:3).The granite top stone slab shall be provided in a single piece up to 1.5 mt. in length & specified light. The same shall be sandwich with bottom PKS slab. The horizontal & vertical sandwich partition shall be provided with granite /PKS single piece facia. All exposed edges of stones shall be machine cut and rounded of smoothly.
	B) 25mm thick Kota stone Top Sandwich type platform Same as above Item no 35(A) but top stone is 25mm thick polished kota stone instead of granite stone.
# 4.2	Mode of measurement and payment
	The work of cooking platform shall be measured for finished work. The rate includes cost of all labour and materials etc. required for satisfactory completion of this item as described above. --The rate shall be for a unit of per Sq.meter. (only plan area shall be considered)
	# The rate shall be for a unit of Square Meter of Plan Area.
Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha	
Spect.- 5	Specification For Item No. 65
	Providing & Fixing Walnut anodized Aluminum Hi-Profile sections (JINDAL-DOMAL Series OR Equivalent), hi-performance Sliding/ Openable window/door with Required thick toughened designer glass of Saint Gobain or equieilent, is used for Aluminum Hi-Profile Section with necessary accessories and with additional shutter with Stainless Steel Mosquito net. [In Opening Position always one of Mosquito net shouter should be in Close Position], captive bead, extremely difficult to remove once glazed, high performance weather stripping, internal wedge gasket, Bottom, side and top section including necessary filling up the gaps at junctions, with required EPDM rubber/ etc. and ISI ebco make,"Lx. Premium" Required Finish door fixture Accessories As per Architect Concept, High security interlocking bead, Sheet membrane flashing , 2" over jamb flashing, New Blocking with new backer rod and sealant, channel glide with runner, slide fold hinge when ever need of sufficient capacity, with warranty, all types of material, labour, transportation, tools tolerance and matching required level with Flooring etc. complete as per Architect concept and as per detailed by Architect / consultant & Directed by EIC.
	Specification For Item No. 66
	Providing and fixing standared extruded of alluminium section of size 63mm x 38.10mm x 1.2mm @ Wt. 0.643 Kg/mt with colour anodized alluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation
# 5.1	Materials & workmanship
	<p>In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D., And relevant drawings and as per the instructions of Architect & Engineer in Charge. The work shall be carried out as per item description and relevant IS specification.</p> <p>General :</p> <p>Aluminium Sections : Aluminium sections used for fixed / open able windows, ventilators, partitions, frame work & doors etc., shall be suitable for use to meet architectural designs to relevant works and shall be subject to approval of the Engineer-in-Charge for technical, structural, functional and visual considerations. The aluminium extruded sections shall conform to IS 733 and IS 1285 for chemical composition and mechanical properties. The stainless steel screws shall be of grade AISI 304. The permissible dimensional tolerance of the extruded sections shall be as per IS 6477 and shall be such as not to impair the proper and smooth functioning / operation and appearance of door and windows & ventilators. Aluminium glazed doors, windows & ventilators etc. shall be of sizes, sections and details as shown in the drawings. The details shown in the drawings may be varied slightly to suit the standards adopted by the manufacturers of the aluminium work, with the approval of Engineer-in-Charge. Before proceeding with any fabrication work, the contractor shall prepare and submit, complete fabrication and installation drawings for each type of glazing doors, windows, ventilators and partition etc. for the approval of the Engineer-in-Charge. If the sections are varied, the contractor shall obtain prior approval of Engineer-in-Charge and nothing extra shall be paid on this account.</p>

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Anodizing: Standard Aluminium extrusion sections are manufactured in various sizes and shapes in wide range of solid and hollow profiles with different functional shapes for architectural, structural glazing, curtain walls, doors, window and ventilators and various other purposes. The anodizing of these products is required to be done before the fabrication work by anodizing/electro coating plants which ensures uniform coating in uniform colour and shades. The extrusions are anodized up to 30 micron in different colours. The anodized extrusions are tested regularly under strict quality control adhering to Indian standard.

EPDM GASKETS : The EPDM Gaskets shall be of size and profile as shown in drawings and as called for to render the glazing, doors, windows, ventilators etc., air and water tight. Samples of gaskets shall be submitted for approval and the EPDM gasket approved by Engineer-in-Charge shall only be used. The contractor shall submit documentary proof of using the above material in the work to the entire satisfaction of Engineer-in-Charge. Description Standard Follow Specification

Fixing of Frames : The holes in concrete/masonry/wood/any other members for fixing anchor bolts/fasteners/screws shall be drilled with an appropriate electric drill. Windows/ doors/ ventilators etc. shall be placed in correct final position in the opening and fixed to Sal wood backing using stainless steel screws of star headed, counter sunk and matching size groove of required size at spacing not more than 250 mm c/c or dash fastener. All joints shall be sealed with approved silicone sealants. In the case of composite windows and doors, the different units are to be assembled first. The assembled composite units shall be checked for line, level and plumb before final fixing is done. Engineer-in-Charge in his sole discretion may allow the units to be assembled in their final location if the situation so warrants. Snap beadings and EPDM gasket shall be fixed as per the detail shown in the shop drawings. Where Aluminium comes into contact with stone masonry, brick work, concrete, plaster or dissimilar metal, it shall be coated with an approved insulation lacquer, paint or plastic tape to ensure that electrochemical corrosion is avoided. Insulation material shall be trimmed off to a clean flush line on completion. The contractor shall be responsible for the doors, windows etc. being set straight, plumb, level and for their satisfactory operation after fixing is complete.

DOOR, WINDOWS AND VENTILATOR SHUTTERS: Material, fabrication and dimensions of Aluminium doors, windows and ventilators manufactured from extruded Aluminium alloy sections of standard sizes and designs complete with fittings, ready for being fixed into the buildings shall be as per IS 1948.

Standard Sizes, Tolerances and Designations : The types and the overall sizes of Aluminium doors, windows and ventilators shall be as given as per drawings. Their sizes shall be derived after allowing 1.25mm clearances on all the four sides for the purpose of fitting the doors, windows and ventilators into modular openings.

Tolerances : The sizes for doors, windows and ventilators frames shall not vary by more than + 1.5mm.

Material : Aluminium alloy extruded sections used in the manufacture of extruded window sections shall conform to IS 733. Hollows Aluminium alloy sections used shall conform to IS 1285. Dimensions and weight per metre run of the extruded sections shall be as given as per design / drawings Fabrication.

Frame : Frames shall be square and flat, the corners of the frame being fabricated to a true right angle. Both the fixed and opening frames shall be constructed of sections which have been cut to length, metered and

Tensile strength kg. f/cm² ASTM-D 412 70 Min.

Elongation at break % ASTM-D 412 250 Min.

Modulus 100% kg. f/cm² ASTM-D 412 22 Min.

Compression set % at 00 CC 22 Hrs. ASTM-D 395 50 Max.

Ozone resistance ASTM-D 1149 No visible cracks

SEALANT : The sealants of approved grade and colour shall only be used. The silicon for perimeter joints (between Aluminium section and RCC/Stone masonry) shall be of make as approved by Engineer-in-Charge.

Method of Application : Surface Preparation : Clean all joints and glazing pockets by removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

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Masking : Areas adjacent to joint shall be masked to ensure neat sealant lines. Masking tape shall not be allowed to touch clean surfaces to which the silicone sealant is to adhere. Tooling shall be completed in one continuous stroke immediately after sealant application and before a skin forms and masking shall be removed immediately after tooling.

Application : Install backer rod of appropriate size and apply silicone sealant in a continuous operation using a positive pressure adequate to properly fill and seal the joint. The silicone sealant shall be tooled with light pressure to spread the sealant against backing material and the joint. Soap or water shall not be used as a tooling aid. Remove masking tape as soon as silicone joint is tooled.

Tolerance : A tolerance of + 3 mm shall be allowed in the width of silicone joints. The depth of the joints at throat shall not be less than 6 mm.

DOOR, WINDOW, VENTILATOR AND PARTITION FRAMES

First of all shop drawings for each type of doors/windows/ventilators etc. shall be prepared by using suitable sections based on architectural drawings, adequate to meet the requirement/specification and by taking into consideration varying profiles of Aluminium sections being extruded by approved manufacturers. The shop drawings shall show full size sections of glazed doors, windows, ventilators etc. The shop drawings shall also show the details of fittings and joints. Before start of the work, all the shop drawings shall be got approved from the Engineer-in-Charge Actual measurement of openings left at site for different type of door/window etc. shall be taken. The fabrication of the individual door/windows/ ventilators etc. shall be done as per the actual sizes of the opening left at site. The frames shall be truly rectangular and flat with regular shape corners fabricated to true right angles. The frames shall be fabricated out of section which have been cut to length, metered and joined mechanically using appropriate machines. Metered joints shall be corner shall be corner crimped or fixed with self tapping stainless steel screws using extruded Aluminium cleats of required length and profile. All Aluminium work shall provide for replacing damaged/broken glass panes without having to remove or damage any member of exterior finishing material.

The fixing screws and lugs shall be as given in table :

Sr. No.	Place of Fixing	Size of Screw or Lug
(i)	To wooden frames rebated on the outside	30mm x No. 10 galvanized wood-screws.
(ii)	To plugs in concrete, stone or brick work rebated on the outside	-Do -
(iii)	To plugs in concrete, stone or brick work not rebated on the outside (that is plain or square jambs)	45mm x No. galvanized wood-screws
(iv)	Direct to brick work or masonry (that is plain or square jambs)	Slotted steel adjustable lugs (natural finish) not less than 100 x 16 x 3mm countersunk galvanized machine screws and nuts 19.0 x 6.3 mm.
(v)	To steel work	Standard clip and 8 mm galvanized bolts with hexagonal nuts.

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Finish : Aluminium doors, windows and ventilators may be supplied in either matt, scratch-brush or polished finish. They may, additionally, also be anodized, if specified. If colour anodizing is to be done then only approved light-fast shades should be used. A thick layer of clear transparent lacquer based on methacrylates or cellulose butyrate, shall be applied on Aluminium doors, windows and ventilators by the supplier to protect the surface from wet cement during installation. This lacquer coating shall be removed after installation is completed.

Glazing : Glazing shall be provided on the outside of the frames. If required, glazing clips may be provided as extra fittings. Four / Six glazing clips may be provided per glass pane as specified. In case of doors, windows and ventilators without horizontal glazing bars the glazing clips shall be spaced according to the slots in the vertical members, otherwise the spacing shall be 30 cm.

Note : Glazing clips are not usually provided for normal size glass panes. Where large size glass panes are required to be used or where the door or the window is located in heavily exposed situation, holes for glazing clips have to be drilled prior to fabrication and cannot be done at any later stage. Use of glazing clips, where necessary, shall be specified while placing the order.

Stainless Steel Friction Stay : The stainless steel friction stays of make approved by the Engineer-in-Charge shall be used. The SS friction stays shall be of grade AISI-304 and of sizes specified in nomenclature of item.

Lockable Handles : The lockable handles shall be of make approved by the Engineer-in-Charge and of required colour to match the colour of powder coated / anodized Aluminium window sections. Hydraulic

Floor Spring : The hydraulic floor spring shall be heavy duty double action floor spring of make approved by the Engineer-in-Charge suitable for door leaf of weight minimum 100 kg. The top cover plate shall be of stainless steel, flushing with floor finish level. The contractor shall cut the floor properly with stone cutting machine to exact size & shape. The spindle of suitable length to accommodate the floor finish shall be used. The contractor shall give the guarantee duly supported by the company for proper functioning of floor spring at least for 10 years.

Tubular Handle : The tubular handle bar shall be Aluminium polyester powder coated minimum 50 micron to required colour or anodized AC 15 or as specified. Outer dia of tube thickness 3.0 mm and centre to centre length 2115 mm + 5 mm.

Actual measurement of openings left at site for different type of door/window etc. shall be taken. The fabrication of the individual door/windows/ ventilators etc. shall be done as per the actual sizes of the opening left at site. The frames shall be truly rectangular and flat with regular shape corners fabricated to true right angles. The frames shall be fabricated out of section which have been cut to length, metered and joined mechanically using appropriate machines. Metered joints shall be corner shall be corner crimped or fixed with self tapping stainless steel screws using extruded Aluminium cleats of required length and profile. All Aluminium work shall provide for replacing damaged/broken glass panes without having to remove or damage any member of exterior finishing material.

GLAZING : Glass in doors, windows, glazing and ventilators shall be 5 mm thick or as specified float glass, clearer ,tinted or reflective as mentioned in the item, and shall be approved quality stains, scratches, bubbles and flaws of any kind and shall be properly cut to fit framed and mullions. All windows and ventilators shall be glazed from outside with snap fit anodized Aluminium heading and EDPM/ gasket lining complete. The buildings, shall be snap fit and shall be fitted without use of screws. No screws other than those on some of the hardware shall be visible.

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Rate are Incl. of making provision for drainage of moisture/ water that enters the Aluminium frame, door, window, vent, curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (whenever specified & if not specified it must be use whenever 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. The rate include the cost of all materials and labour involved in all operations described Above. The door frame shall be measured on sq.m. Basis. Rates also include fixing frame at location, approved quality and style door accessories, wastage, etc. complete.
The rate shall be for a unit of Square Meter.

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Spect.- 6	Specification For Item No. 69
	<p>Providing, supplying, fixing, fabricating, erecting, aligning the structural steel like pivot ,tubular 'T', 'I' section, angle, plate, beam, channel section, Bar , hollow box or Z purloins, Round or Square Pipes, of approved make, for built up purloins, roof trusses, columns, side runners, tie beams, sag rods, base plates gusset plates, cap plates, bearing bracing, gantry girders, rails, require support, pipes, including all welded or bolted steel structures of various types with approved I.S.I. mark electrodes, bolts, anchor bolts including cost of thread, Anchor plate cleats etc. in RCC or masonry work, including cutting, bending, welding ,fixing, supplying , Fabricating Decorative fevisted section or any structured member required to complete the job for Bridge, Trusses, Canopy, doors, Frame, Railing, Entrance gate, pergola, Decorative hanging light , New window, parking shed or space frame or any other required specified area as shown on drawing and detailed specification or as per design incl. three coats of approved brand primer and two coats of paints, necessary scaffolding, tools tolerance etc. complete as directed by Engineer In Charge. (payment will be made for weight of metal used in the work)</p>
# 6.1	<p>Material & Workmanship</p> <p>The structured steel work shall conform to M-22. Red lead paint primer shall conform to I.S.: 102-1962. Chapter 10. for Steel Work for Staircases, Chequered Plate, Grating, Ladder, Railings, Bracket and Gate etc. work from CPWD SPECIFICATION BOOK VOL.-I Shall be followed. The steel sections as specified or required shall be cut, square and to correct lengths, as per drawings and design. The cut ends exposed to view shall be finished smooth. No. two pieces shall be welded or otherwise jointed to make up the required length of member, except as indicated in the drawing or as directed. All straightening and shaping to form shall be done by application of pressure and not by hammering. Any bending or cutting shall be carried out in such a inner as not to impair the strength of the metal. All operations shall be done in cold state unless otherwise directed/permitted. Steel riveted or bolted in built up sections, frame work</p> <p>The Specified article shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be riveted or welded as shown in the plan or as directed. The grill so formed shall be fixed into the frames of the windows etc., before they are erected in position. The outside strip frame of the grill shall be housed to its full thickness into the recess cut into the frame of the windows etc. The grill shall be fixed to the frame with Number. of bolts and nuts of screws viz. bolt nut/screw per 30 cm. of the length of outer strip subject to a minimum of 2 Nos. on each side of the frame or as indicated in the drawings or as directed. The bolts and nuts or screws shall be counter sunk and shall be fixed with the top of their heads flush with the face of frame strips.</p> <p>Welding shall generally be done by electric process. Gas welding shall be resorted to using oxyacetylene flame with specific approval. (Gas welding shall not be permitted for structural steel work. The work shall be done as shown in the shop drawings which should clearly indicate various .details of the joints to be welded, shop and site welders as well as type of electrodes to be used. Symbol for welding on plans and shop drawing shall be according to I.S. 813-1961. As far as possible every effort shall be made to limit the welding that must be done after improper welding that is likely to be done due to heights and difficult position on scaffoldings etc. The welding work shall conform to I.S. 81.6-1969. Preparation of surfaces : Surfaces which are to be welded together shall be free from loose mill scale, rust, paint, grease or other foreign matter. A coating of boiled linseed oil shall be permitted. Assembly for welding : Before welding is commenced, the plates shall first be brought together and firmly clamped or spot welded at specified distance. The temporary connection has to be strong enough to hold the plates accurately in place without displacement.</p>

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All stiffeners shall be formed by pressure and where practicable, the metal shall not be cut and welded in making, these. In major works or where so specified, shop drawings giving complete details and information for the fabrication of the component parts of the structure, including location type size, length and details of rivets, bolts, or weld shall be prepared in advance of the actual fabrication and as approved. The drawings shall indicate the shop and field rivets and bolts. The steel members shall be distinctly marked or stencilled with paint with the identification mark as given in the shop drawings.

The bars shall be thickened at the ends, so as to provide for screwed threads and gradually tapered off to meet their normal section. Great accuracy shall be observed in fabrication of various member, so that these can be assembled without being unduly packed, strained or forced into position and when built up, shall be true and free from twists, brisks, buckles, or open joints. Before making holes individual members for fabrication, the steel work intended to be riveted or bolted together shall be assembled or clamped properly and tightly so as to ensure close abutting or lapping of the different members. All stiffeners shall bear lightly both at top and bottom without being drawn or caulked. The abutting joints shall be cut or dressed true and straight and fitted close together. Web splice plates and fillers under stiffeners shall be cut to fill within 3 mm. or flange Angles, web plates of Girders shall have not cover plates, shall have their ends flush with the top of angles forming the flanges unless otherwise required. The web plates when spliced shall have clearance of more than 6 mm.

The erection, clearance for cleared ends of members connecting steel to steel shall preferably be not greater than 1.5 mm. The erection clearance at the ends of beams without web cleats shall not be more than 3 mm. at each end but where for a practical reason greater clearance is necessary, suitably designed seating shall be provided. Pins and rollers shall be accurately turned to gauge. These shall be straight and smooth and free from flaws. The roller bearing shall be provided with adequate arrangement for holding the girders or truss resting on it. In columns caps and bases, the ends to shafts together with the attached gussets Angles, channels etc., after riveting together shall be accurately mechanized so that the parts connected butt against each other over the entire surfaces of contact connecting angles or channels shall be fabricated and placed in position with greater accuracy so that they are not unduly reduced in thickness by machining. The ends of bearing stiffeners shall be mechanized or ground to fit tightly both at the top and bottom. All holes shall generally be drilled to the required size and at required position. Sub punching shall be permitted, provided it is done 3 mm. or less in diameter and remained thereafter to the required size. The holes for rivets and bolts shall be larger by 0.4 to 8 mm. than the nominal diameter of rivets or black bolts depending upon the diameter of rivets.

Holes shall have their axis perpendicular to the surface bored through. The drilling or reaming shall be free from butts, and the holes should be clean and accurate. Holes for counter sunk bolts shall be made in such a manner that their heads fit flush with the surface after fixing. The parts assembled for riveting shall be in close contact with each other and the bearing stiffeners shall bear tightly both at top and bottom without being drawn or caulked. Members to be riveted shall be properly pinned or bolted and rigidly held together while riveting. Drifting of holes shall not be permitted except to draw the parts together and the drifting tools so used shall have maximum diameter not exceeding the nominal diameter of rivets or bolts. Drifting done during assembling shall not distort the metal or enlarge the holes. The shanks of rivets shall project beyond the plate-surface sufficiently so as to fill the hole thoroughly and form the required head after riveting.

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The riveting shall be done by hydraulic or pneumatic process. However, where such facilities are not available, hand riveting may be permitted. The rivet shall be heated red hot, care being taken to control the temperature of heating so as not to burn the steel. Rivets of diameter less than 10 mm. may be fitted cold. Rivets shall be of heat finish with heads full and of equal size. All loose, burnt or badly formed rivets with concentric or diffident heads shall be cut out and replaced. The heads of rivets shall be central to shanks and shall grip the assembled. Members firmly. In cutting out rivets, care shall be taken so as not to injure the assembled, members, caulking or recapping shall not be permitted. For testing rivets, hammer weighing approximately 0.25 kg. shall be used. Both heads of the rivets shall be tapped, slack rivets will give a hollow sound and a jar. All rivet heads shall be painted with red lead paint within a week of their fixing

Bolting all bolt heads and nuts shall be hexagonal and of equal size unless specified otherwise. The screwed heads shall conform to I.S. : 1363-1960 and the threaded surface shall not be tapered. The bolts shall be of such length so as to project two clear threads beyond the nuts when fixed in position and these shall fit in the holes without any shakes. The nut shall be fit in the threaded ends of bolts properly. Where turned and fitted bolts are required to be used in place of rivets they shall be provided with washers not less than 6 mm. thick so that the nut when tightened shall not bear on the unthreaded body of the bolt. Tapered washers shall be provided for all heads and nuts bearing on levelled surfaces. The threaded portion of the bolts shall not be within the thickness of the parts bolted together. The faces of the bolt heads and nuts abutting against steel members shall be machine finished. Where there is a risk of the nut being removed or becoming loose due to vibrations or reversal of stresses, these shall be secured from slackening by the use of locknuts, spring washers, cross-culling or hammer run down of threads as directed. Bolts, nuts and washers shall be thoroughly cleaned and dipped in double boiled linseed oil before use. The whole steel work shall be painted with a coat of priming coat of red lead, as per relevant specifications of painting.

6.2

Mode of measurement and payment:

All work shall be measured on the basis of finished dimensions as fixed at site and measured net unless specified otherwise.

(b) The weight of steel sections, steel strips in finished work shall be calculated from standard weight on the same basis on which steel is supplied to the Contractor by department or those given in relevant I.S. if steel is arranged by the contractor.

(c) The weight of steel plates and strips shall be taken from relevant I.S. based on 7.85 Kg/sq. meter for every millimetre sheet thickness if steel is supplied by the contractor, otherwise, the weight shall be calculated on the basis on which steel is supplied to the contractor by department

(d) Unless otherwise specified weight of clearest, brackets, packing pieces, bolts, nuts, washers, distance pieces, separators, diaphragm gusset (taking over all square dimensions) fish plates etc. shall be added to the weight of respective items.

(e) In riveted work allowance to be made of weight of rivet heads. No deductions shall be made for rivet or bolt holes excluding holes for anchor or holding down bolts.

(f) For forged steel and steel castings, weight shall be calculated on the basis of 7850 kg/cum.

(g) Unless otherwise specified an addition of 2.5 percent of the weight of structure shall be made for shop and site rivet heads in riveted steel structure.

(h) Unless otherwise specified, no allowance shall be made for the weld metal in case of welded steel!

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(i) Dimensions other than cross sections and thickness of plates shall be measured to nearest 0.001 m. (j) Mill tolerance shall be ignored when weight is determined by calculation.

The rate includes cost of all material, labours, erection, hoisting, scaffolding scaffolding protective measure, required for proper completion of the item of work. This shall also included conveyance and delivery handling, loading, unloading and storing etc. required for completing the item described above including necessary wastage involved.

The rate shall be for a unit of one Kg, required for proper completion of the item of work. This shall also included conveyance and delivery handling, loading, unloading and storing etc. required for completing the item described above including necessary wastage involved.

The structured steel work shall conform to M-22. Red lead paint primer shall conform to I.S.: 102-1962.

The steel sections as specified or required shall be cut, square and to correct lengths, as per drawings and design. The cut ends exposed to view shall be finished smooth. No. two pieces shall be welded or otherwise jointed to make up the required length of member, except as indicated in the drawing or as directed. All straightening and shaping to form shall be done by application of pressure and not by hammering. Any bending or cutting shall be carried out in such a inner as not to impair the strength of the metal. All operations shall be done in cold state unless otherwise directed/permitted. Steel riveted or bolted in built up sections, frame work

The rate shall be for a unit of Kilogram.

Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha

Spect. - 7	Specification For Item No. 75
	<p>SS RAILING : Providing and fixing stainless steel (Grade 304) railing Horizontal top pipe of 50mm dia., verticle Sq pipe 32X32 mm 900 mm c/c and 16 mm Dia. 3 Nos. Horizontal Pipe equval Spacing Hollow Pipes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts, Plates and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in charge, (for payment purpose only weight of stainless steel members shall be considered including fixing accessories such as nuts, bolts, fasteners etc.). as per Drawing and Approve by Engineer In Charge</p>
	Specification For Item No. 76
	<p>SS RAILING (HAND RAIL) : Providing & Fixing Stainless steel 304 grade pipe railing Horizontal 50 mm dia. 1 Nos. and Supprt pipe from wall 16mm Dia. at everymax 0.90mtr C/C including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts, Plates and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., fixed on Concrete or brick work . Rate including of all materials.labour, fixing & polishing etc. comp. as per Drawing and Approve by Engineer In Charge</p>
# 7.1	Material & Workmanship
	<p>STAINLESS STEEL RAILING OF AISI-304 grade, BS EN 10263-1, BS EN 10263-5. Stainless steel anchors and inserts shall be of grade 316S31, A4 to BS EN ISO 3506 Glass -as per CPWD SPECIFICATIONS 2009 962, (1) Advani High-Strength 'ORGON" Welding rods, S.S. Bolt-nuts, Anchor fasteners, as required, angles, square, flats, polished round bars, square/round pipe, Ornamental article, all types of Accessories, etc. as per design. S.S.- 304 Grade Accessories, Fastenings like Screws, bolts etc. as required for complete job as per Architect Concept., Required thick.(Max. 10mm.) toughened (as per CPWD SPECIFICATIONS 2009 962) designer glass with work. Stainless Steel shall be prepared from fresh rolled Zincked structural steel sections (not re-rolled or scrap materials) as per design, using angles, flats, square bars, & Polished round bars, accessories, like cap, buttons, pivot, shall be using riveted joints as far as possible, & minimizing use of welding. The design and dimensions should be matched with those in the existing structure, or modified as directed. Samples selected from each lot should be tested at designated laboratory. Materials brought on site should be inspected for straightness, distortion, rusting and other defects. If the material is found defective, excessively rusted or if it does not comply with the test requirement it will be rejected and shall be immediately removed from site.</p>

Detailed Specification

Material shall be cut, bent and welded as per given profile on drawings. Welding of stainless steel shall be by inert-gas arc welding to BS EN 1011-3 or other method subject to approval. [Organ Welding should be used.] Welded joints should be provided with sleeves, slots, plugs as per drawing. All weld slag should be carefully removed, and total weld size specified on drawing be made with multiple runs of weld, taking care to avoid distortion during and after welding. All protrusions from welded junctions will be ground off for smooth appearance. For cutting the member, use sawing or shearing machine. Gas cutting be resorted only as a last resort. All bearing plates should be profile cut and machined. All holes be drilled and files smooth for easy bolting. For foundation bolts and other connections, no gas-cut holes are permitted. In general the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D., & relevant drawings and as per the Detailed by Architect / Consultant & Directed or instructions of Engineer in Charge. The work shall be carried out as per item description and relevant IS specification. All fabricated elements be transported to site, lifted to the required level and placed in position, connected with the structure with anchor fasteners, bolts etc. as per design and as directed on site.

Final coat of enamel paint shall be given either after fixing other elements like sheets, glass or prior to it as directed. The fabricated Railing be inspected at the manufacturing premises prior to application of buffing or zinc chromate primer and Zink electroplating. All joints should be neatly finished. Welding slag should be removed fully and finished with grinder prior to application of red-oxide or zinc chromate primer. Holes be drilled appropriately in the steel frame for fixing with framing in the existing structure. Grills or railing should be fixed in position as directed, using fasteners or site welding, The fabricated Railing be inspected at the manufacturing premises prior to application of buffing or zinc chromate primer and Zink electroplating. All joints should be neatly finished. Welding slag should be removed fully and finished with grinder prior to application of red-oxide or zinc chromate primer. Holes be drilled appropriately in the steel frame for fixing with framing in the existing structure. Grills or railing should be fixed in position as directed, using fasteners or site welding,

7.2 Mode of measurement and payment:

The rate include the cost of all Materials, Steel, Steel rod, Ornamental Article for designer grill, Railing, Connectors, all types of welding, primer, Electroplating, paint, powder coating, required thick.(Max. 10mm.) toughened designer glass with work, S.S. required finished accessories, as Architect Concept, scaffolding and all labour for fabrication, transportation and erection etc complete.

The rate shall be for a unit of Rmt

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Spect.- 8 Specification For Item No. 94

Providing erecting and fixing double coated ISI water tank of required capacity each with all necessary fittings and connection etc. complete on terrace

8.1 Materials & Workmanship

[1.] Water storage tank shall be as per IS 12701, this material should be light Weight, non toxic all fitting materials shall be H.D.P.E. indicating the BIS license No. [2.] The P.V.C. tank shall be of I.S.I. mark and approved quality and brand like infra or Sintex or equivalent. It shall be approved by Architect / Consultant & Engineer in charge. [3.] The thickness of P.V.C. materials shall be as per Company's specification. The size of tank shall be decided by Engineer in charge. [4.] The fixtures as shown in items of work shall be of IS approved. [5.] Water tank shall be installed on perfectly planed and smooth surface. [6.] Outlet pipe shall be 7.5 cm high then bottom surface. [7.] Diameter of overflow pipe shall be bigger then inlet pipe diameter. [8.] Unions shall be used in inlet and outlet pipe. [9.] For connection in water tank required washer, and check-nuts shall be used. Fitting shall be done by G.I. / P.V.C. (Grade & Quality as per prescribe in tender or detailed by Architect / Consultant & directed by EIC.) pipes as per instruction of Engineer in charge in each tank. All joints shall be leak proof.

8.2 Mode of measurement and payment:

2.1 This shall be measured in litters and rates are as per litters of tank for the provided capacity of the water tank. 2.2 Rate shall be inclusive of providing, placing, lifting, storing and making connection for fixtures as shown in item of work, inlet, outlet, overflow pipe, out pipe with all necessary plumbing work and material. For complete work.

The rate shall be for a unit of Liter

Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha

Spect.- 9 Specification For Item No. 109

Providing & Fixing handicap toilet set with Wall-mounted European Closet & wash basin & all handicap requirement with dual flush tank, seat & lead (heavy duty) including C.I. Brackets, C.P. brass hinges, M.S. / C.I. painted brackets, Waste Coupling, 32mm size bottle trap etc. all Internal fittings complete with grab rails, swin type grab bar etc. rubber buffers, C.P nuts, bolts etc making holes in walls & floors, & finishing for ready to use. The rate includes all necessary connection charges as per product detail to the satisfaction of Architect / engr. in-charge where required & the final handing over etc. complete as per specifications, drawings & as directed by the Engineer-in-charge. The scope includes Providing and fixing all the necessary fittings of approved brand and as per directed by Architect/EIC.

Detailed Specification

# 9.1	Materials & Workmanship
	The Relevant specification of Chapter No.- 23 [But Use approved quality Style, System & Grade Handicap toilet complete set as per standard and fixing at location in all respected manners.] Page No.- 140-180 shall be followed from 'General Technical Specifications For BUILDING WORKS' Book. ., The relevant Specification from CPWD. Specification book Chapter -17 For SANITARY INSTALLATIONS, Page No- 747-796 shall be followed in all respected manners Contractor have to must follow manufacturer instruction for fixing in all respected manners.
# 9.2	Mode of measurement and payment:
	The rate shall include the cost of all types of material, M.S. Clamps, Bolts, accessories, Tee. Elbow etc., Adhesive, tools tolerance, labour and scaffolding involved in all the operation as described above # The rate shall be for a unit of Number.
Name Of Work- Construction of Nagarpalika Library at Thara, Dist. Banaskantha	
Spect.- 10	Specification For Item No. 112
	Providing and fixing Kitchen / Laboratory sink with C.I. or M.S. brackets, painted white including cutting holes in walls and making good the same but excluding fittings.
# 10.1	Materials & Workmanship
	The kitchen sink shall be supported on a Recess hole of Platform and also pair of M.S. or C.I. brackets fixed in cement mortar 1:3 (1 cement : 3coarse sand). The M.S. or C.I. brackets shall conform to I.S. 775-1962. The wall plaster on the rear shall be cut to rest over the top edge of the sink. After fixing the sink, plaster shall be made good and the surface finished to match with the existing one. The C.P. brass trap and union shall be connected to 40 mm. nominal bore galvanized mild steel waste pipe which shall be suitably bent towards the wall and which shall discharge into an open drain leading to gully-trap or direct into the gully-trap on the ground on floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where surface drain or a floor trap is placed directly under the sink and the waste is discharged to it vertically. The rate includes cost of all labour, materials, tools and plant and other equipment required for satisfactory completion of this item as described in workmanship.
# 10.2	Mode of measurement and payment:
	Specification for this item shall conform to item No. 23.130 (C) Page No. 148 of General Technical specifications for building work. Except S.S. 304 Grade, Designer Approved by Consultant as per describe above kitchen sink shall be used instead of M.S. Use ORGANIC Liner Welding instead of general M.S. Welding. # The rate shall be for a unit of Number.