



BUILDING RESEARCH NOTE

B.R.N. 91

QUALITY ASSURANCE PLAN (CIVIL WORK)

A periodic check is to be carried out by site supervisor/ engineer to ensure quality in the construction. The checks are to be carried out essentially by filling the proforma (enclosed) for each item at the following stages:

- (1) Start of every new item of work
- (2) Once every week (or earlier if the execution of the item is at a faster speed) for each relevant item. The Engineer in-charge may also decide to carry out the check at shorter interval.
- (3) Apart from above, the supervisors / engineers are advised to follow the check lists during their daily or routine supervision/ inspection/ site visits to ensure strict adherence for quality control measures.

CHECK LIST

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
General				
➤ Complete set of the following working drawings is available:				
<ul style="list-style-type: none"> • Layout • Architectural drawings • Structural design, drawings & detailing • Water supply network • Drainage layout • Septic tank and soak pit location & connection • Tube-well/ bore-well location • Rain/storm water gutter details • Electrical layout • Telephone/ TV cable connections conduit layout 	Y/N Y/N Y/N Y/N Y/N Y/N Y/N Y/N Y/N			
➤ Assessment of land has been done (is it natural, filled or reclaimed)	Y/N			
➤ Information procured regarding depth of water level & seasonal variation.	Y/N			
➤ Verified the location of north direction.	Y/N			
➤ Information procured regarding seismic zone of that locality/ place.	Y/N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ Has the provision been incorporated into the project planning, design, and development to protect lives and properties from damages caused by natural hazards such as windstorms, floods, earthquakes, landslides and other hazards?	Y / N			
➤ Has the field laboratory been set up at site to take up testing of construction materials?	Y / N			
➤ Have the minimum performance standards for energy efficiency in a building on the recommendation of 'Energy Conservation Building Code (ECBC)' been considered for the following item of work(s):				
<ul style="list-style-type: none"> • Covering building envelope, • Mechanical systems & equipment, • Service hot water heating, • Interior & exterior lighting and • Electrical power & motors etc. 	Y / N Y / N Y / N Y / N Y / N			
➤ Are the safety measures pertaining to construction works followed such as excavation, centring and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and gas welding, use of hoisting and construction machinery governed by relevant safety codes and the direction of Engineer-in-Charge?	Y / N			
➤ Are personal safety equipments being used as prescribed for each job, such as: safety glasses for eye protection, gloves, safety shoes, hard hats at all times within the construction area where there is a potential for falling materials or tools?	Y / N			
Earth Work				
➤ Geo-Technical Investigations carried out for the following: (Enclose brief report & the date of testing)				
<ul style="list-style-type: none"> • Bearing Capacity of soil • Soil Composition/ Characterization • Incidence of termites in the area 	Y / N Y / N Y / N			
➤ Designers have taken into account the findings of Geo-Tech. Investigations.	Y / N			
➤ Bearing Capacity has been mentioned on the drawing.	Y / N			
➤ Layout correlated with architectural drawings	Y / N			
➤ Dimensional accuracy of layout has been checked	Y / N			
➤ Proper level of excavated foundation. (Mention level)	Y / N			
➤ Proper depth of excavation/ foundation	Y / N			
➤ Chemicals for anti-termite treatment (if carried out) confirmed to relevant standard.	Y / N			
➤ Proper concentration/ dilution of chemical were used for treatment. (Mention the name of chemical)	Y / N			
➤ Proper backfill in foundation has been done in layers and consolidated.	Y / N			
➤ Filling in plinth has been done in layers of specified thickness and consolidated.	Y / N			
➤ Earth/ sand used for filling is free from all impurities i.e. roots, grass, rank vegetables, saplings, rubbish etc.	Y / N			
➤ Elevation of plinth level vis-a-vis road level & contour bench mark.	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
Pile Work				
➤ The following tests have been carried out as per IS : 2911: (Enclose brief report & the date of testing)				
<ul style="list-style-type: none"> • Initial load test (before execution of pile work) • Cyclic Vertical Load Test (if required) • Routine Test (after execution of pile work) • Integrity Test (after execution of pile work) 	Y / N Y / N Y / N Y / N			
➤ The piling work has been carried out through authorised/ certified agency.	Y / N			
Cement Concrete and Reinforced Cement Concrete				
➤ Testing of the following materials done: (Enclose brief report & the date of testing)				
(i) Water <ul style="list-style-type: none"> • Organic/inorganic • Sulphate • Chloride • Suspended matter • PH-value 	Y / N Y / N Y / N Y / N Y / N			
(ii) Cement <ul style="list-style-type: none"> • Manufacturer's Certificate • Fineness • Initial/ Final Setting Time • Soundness • Compressive Strength 	Y / N Y / N Y / N Y / N Y / N			
(iii) Sand <ul style="list-style-type: none"> • Silt contents • Particle size distribution • Deleterious constituents • Moisture Contents • Bulking of sand 	Y / N Y / N Y / N Y / N Y / N			
(iv) Coarse Aggregate <ul style="list-style-type: none"> • Percentage of soft/deleterious materials • Ten per cent fine value • Particle size distribution 	Y / N Y / N Y / N			
(v) Steel <ul style="list-style-type: none"> • Manufacturer's Certificate • Ultimate tensile stress • Proof stress (0.2%)/ Yield stress • Percentage elongation • Bend test • Dimensions 	Y / N Y / N Y / N Y / N Y / N Y / N			
(vi) Pre-cast Component (if any) <ul style="list-style-type: none"> • Dimensional test • Deflection recovery test • Failure load test 	Y / N Y / N Y / N			
➤ Concrete work to confirm IS 456 - 2000	Y / N			
➤ Cement is properly stored in dry shed of stacked above ground level & covered with plastic sheets.	Y / N			
➤ Concrete mix design has been done. (Mention the Code in remarks)	Y / N			
➤ Structural drawings correlated with architectural drawings.	Y / N			
➤ Layout of the columns have been done as per structural drawings	Y / N			
➤ Centre line of the columns & beams checked with reference to gridline as per drawings.	Y / N			
➤ Expansion joints properly provided.	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ Expansion joint filler material is as per specification	Y / N			
➤ Formwork properly designed (Enclose brief report)	Y / N			
➤ Formwork correctly done with proper levels and alignment	Y / N			
➤ The props or supports should be in plumb and not cross braced.	Y / N			
➤ Formwork neatly cleaned and oiled	Y / N			
➤ Reinforcement placed and checked strictly according to structural drawings. (Mention the date(s) of correction & re-correction)	Y / N			
➤ Spacing of hooks and overlaps checked. Laps shall be staggered.	Y / N			
➤ Adequate Spacers and chairs placed in position.	Y / N			
➤ Proper gauge of binding wire is used with full cross binding and tightening of bars with stirrups.	Y / N			
➤ Minimum cover as per code maintained Arrangement of electrical /mechanical /Fire fighting services placed according to drawings.	Y / N			
➤ Construction joints planned properly. The hardened surface has been roughened then swept clean and thoroughly wetted.	Y / N			
➤ Concrete of approved mix design being used.	Y / N			
➤ An admixture, if any, was used in right proportion.	Y / N			
➤ Quality of appropriate admixture is ascertained.	Y / N			
➤ Concreting to start from farthest point to nearest point w.r.t. batching/ RMC plant. (Mention the distance of plant)	Y / N			
➤ Concrete was used within 30 minutes after mixing water.	Y / N			
➤ Retardant was used or not. (Mention the dose, if used)	Y / N			
➤ Cement slurry being applied on construction joints.	Y / N			
➤ Technical supervision at batching/ RMC plant/ mixer is ascertained.	Y / N			
➤ Concrete was placed within initial setting time.	Y / N			
➤ Proper compaction has been done before the initial setting started.	Y / N			
➤ Concrete has been thoroughly compacted and fully worked around embedded fixtures and into corners of the formwork.	Y / N			
➤ Concreting was done in a lift not exceeding 1.5 m.	Y / N			
➤ Slump tests at regular intervals carried out to ensure proper workability. (Mention the Slump Height)	Y / N			
➤ Cubes were casted for testing at the interval of 7 and 28 days. (Mention the number of cubes)	Y / N			
➤ Sufficient number of mixers and vibrators were available while concreting.	Y / N			
➤ Trained masons were available at the time of concreting.	Y / N			
➤ The concreting work has been done when the atmospheric temperature was in between 4.5° C to 38° C. (Mention the temperature)	Y / N			
➤ Specified Grade of Bitumen has been used for DPC/ water proofing work.	Y / N			
➤ Heating temperature for bitumen was proper as per specification.	Y / N			
➤ Surface properly cleaned before laying bitumen	Y / N			
➤ Proper water curing carried out for required number of days. (Mention the name of curing compound, if used)	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ Removal of formwork has been done as per schedule.	Y / N			
➤ Stripping period of centring and shuttering of various members adhered to hacking of RCC surface is done by proper hacking tools.	Y / N			
➤ The Rebound Hammer Test carried out for each & every RCC structure at each floor on attaining 28 days strength. (Enclose brief report & the date of testing)	Y / N			
➤ Rebound Hammer has been calibrated as per site conditions, before testing.	Y / N			
Brick/ Block Work				
➤ Testing of the following materials done: (Enclose brief report & the date of testing)				
(i) Bricks/ Blocks				
• Dimensions	Y / N			
• Water absorption	Y / N			
• Compressive strength	Y / N			
• Efflorescence	Y / N			
• Warpage	Y / N			
➤ Brick work to confirm IS 2212 – 1991.	Y / N			
➤ Mix for concrete stone masonry blocks is not leaner than 1:13 (1 cement : 13 fine & coarse aggregate) as well as not richer than 1:9 (1 cement : 9 fine & coarse aggregate).	Y / N			
➤ Centre line of brick/ block work with reference to gridline as per Architectural drawings	Y / N			
➤ Soaking of bricks/ block in water before use for sufficient period.	Y / N			
➤ Queen closers have been used at junctions of walls.	Y / N			
➤ Brick/ block work in true plumb.	Y / N			
➤ Each brick/ block work course is truly horizontal.	Y / N			
➤ Height of brick/ block work of daily progress restricted to one metre.	Y / N			
➤ Parts of walls left at different levels are raked back at an angle of 45° or less with the horizontal. (Toothing is not to be permitted).	Y / N			
➤ All pipe fittings, specials and other fixtures correctly placed.	Y / N			
➤ Top course of all plinths, parapets, steps and top of walls below floor and roof slabs laid with brick on edge.	Y / N			
➤ The following bonds have been used in masonry work unless otherwise specified:				
• Brick work in super structure – English bond	Y / N			
• Half brick wall – Stretcher bond	Y / N			
• In curved plan – Header bond	Y / N			
• In foundation/ Footing – Header bond.	Y / N			
➤ Bonding of brick/ block work is between cross walls.	Y / N			
➤ Thickness of joints in brick/ block work is kept 1 cm + 20%.	Y / N			
➤ Vertical joints in brick/ block work are properly filled.	Y / N			
➤ All bricks have been laid with frog up.	Y / N			
➤ Staggering of vertical joints has been done.	Y / N			
➤ Mortar is of approved mix, with in maximum permissible water cement ratio.	Y / N			

Remarks	Follow-up Action	If No then mention reasons	Yes/No	Yes/No	If No then mention reasons	Follow-up Action	Remarks
>	Cement mortar is used within 30 minutes after adding water.		Y/N				
>	Scaffolding strong enough to withstand dead and live load.		Y/N				
>	The masonry work has been constantly kept moist on all faces for a minimum period of 7 days.		Y/N				
>	Cavity wall was constructed with necessary weep & vent holes and bitumastic coated MS ties 800 mm long of 25-x 3-mm section have been placed @ 3 ties per sq.m.		Y/N				
>	Vertical reinforcement (if required) at the corners and junctions of walls and jamb opening doors, windows etc. is enclosed with cement mortar 1:4 91 cement : 4 coarse sand).		Y/N				
>	In retaining walls and the like, where water is likely to accumulate, weep holes (50 – 75 sq.mm) have been provided at 2 m vertically & horizontally.		Y/N				
Stone Work							
>	Testing of the following materials done: (Enclose brief report & the date of testing)		Y/N				
(i)	Stones		Y/N				
	• Water absorption		Y/N				
	• Compressive strength		Y/N				
>	Construction of stone masonry to confirm IS 1597 (I & II) – 1992.		Y/N				
>	Stones were wetted before use for sufficient period.		Y/N				
>	Stones are hard, sound, durable and free from weathering decay & defects like cavities, cracks, flows, sand holes, injurious veins, patches of loose or soft materials etc.		Y/N				
>	Stones are of desired compressive strength and water absorption is not exceeding the desired limit.		Y/N				
>	The thickness of the mortar joints between two faces is not more than the recommended value.		Y/N				
>	Bond or through stones were placed right through the thickness of walls.		Y/N				
>	Bond or through stone is one per 0.5 sqm of wall surface.		Y/N				
>	The quantity of chips is not more than the specified limit of stone masonry.		Y/N				
>	Sufficient numbers of metallic cramps (if required) have been used to hold/ support the units in position.		Y/N				
Marble Work							
>	Testing of the following materials done: (Enclose brief report & the date of testing)		Y/N				
(i)	Marble		Y/N				
	• Moisture absorption		Y/N				
	• Mohs scale hardness test		Y/N				
>	Marble blocks, slabs and tiles to confirm IS 1130 – 1969.		Y/N				
>	Before commencement of work samples of marbles have been procured/ approved by the engineer-in-charge.		Y/N				
>	Marbles are hard, sound, dense and homogeneous in texture with crystalline texture free from, stains, cracks, decay, weathering etc.		Y/N				

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
Joinery Work				
➤ Testing of the following materials done: (Enclose brief report & the date of testing)				
(i) Timber • Moisture absorption	Y / N			
(ii) Flush Door Shutters • End immersion test • Knife test • Adhesion test • Manufacturer's test certificate	Y / N Y / N Y / N Y / N			
(iii) Aluminium door & window fittings • Thickness of anodic coating	Y / N			
(iv) Mortice Locks • Testing of spring	Y / N			
➤ Timber is of appropriate class as per specifications or approved by the engineer-in-charge.	Y / N			
➤ Timber is free from decay, fungal, growth, boxed heart, pitch pockets or streaks on the exposed edges, splits and cracks.	Y / N			
➤ Seasoning of timber has been done.	Y / N			
➤ The edges and surface finished properly	Y / N			
➤ Wood particle boards are ISI marked and of appropriate thickness i.e. 12 mm, 18 mm, 25 mm etc.	Y / N			
➤ Glass pens/ panels fitted properly cleaned and crack free.	Y / N			
Flush Door Shutters				
(i) Dimensional tolerance is within limit as given below : • Height of shutter + 3 mm • Width of shutter + 3 mm • Thickness of shutter ± 1.2 mm	Y / N Y / N Y / N			
➤ Flush shutters to confirm IS 2202 (I & II)	Y / N			
➤ The shutter's thickness is uniform throughout and variation at any two points is not more than 0.8 mm.	Y / N			
➤ Shutters are free from defects like warps, twist and are also good in appearance.	Y / N			
➤ Face finish of shutters is as per specifications	Y / N			
➤ Fixtures and fittings have been provided as per Specifications and drawings.	Y / N			
Wire Gauze Shutters				
➤ The thickness of shutters is either 35 mm or 30 mm as per requirement/ specifications.	Y / N			
➤ Galvanized M.S. wire gauze of average width of aperture 1.4 mm with wire of dia 0.63 mm has been used.	Y / N			
Polyvinyl Chloride (PVC) & Glass Fiber Reinforced Plastic (FRP) Door Frames/ Shutters				
➤ UPVC door frames are of approved profile/ size of extruded section.	Y / N			
➤ PVC door shutters have been provided as per standard specification. (The thickness should be 24/25/30 mm)	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ FRP door frames are of approved profile/ size of section.	Y / N			
➤ 30 mm thick FRP door paneled/ flush shutters have been provided as per standard specification.	Y / N			
Pressed Steel Doors/ Windows/ Ventilator Frame				
➤ Steel manufacturer's certificate w.r.t. provisions made in IS 226-1975 and 4351-1976	Y / N			
➤ Gauge of mild steel sheet and Profile of HMPS Frame as per drawing	Y / N			
➤ Hinges, lock jamb, lock strike plate and base tie are properly welded or rigidly fixed.	Y / N			
➤ Fabrication work is done in the approved workshop	Y / N			
➤ Fixing of lugs and its length is as per specifications	Y / N			
➤ The surface of frame is free from rust, mill scale, dust, oil etc.	Y / N			
➤ Shock absorber of rubber or other suitable materials are properly provided	Y / N			
➤ Frames are fixed in right plumb	Y / N			
➤ Concrete of specified grade is filled in the hollow section	Y / N			
➤ Pre-treatment of surface has been done with a coat of approved primer.	Y / N			
Doors, Windows and Ventilator with Standard Rolled Steel Section				
➤ Steel manufacturer's certificate w.r.t. provisions made in IS 7452-1990	Y / N			
➤ Weight, size of sections and material used is as per drawing and specifications	Y / N			
➤ Tolerance in thickness of section's shall be + 0.2 mm	Y / N			
➤ Fabrication work is done in the approved workshop	Y / N			
➤ Doors/windows/ventilators are as per specified size and design	Y / N			
➤ Joints of frame are well mitered and properly welded	Y / N			
➤ Fittings and fixtures are provided as per specifications	Y / N			
➤ Number and size of lugs as per specifications	Y / N			
➤ Glass panes have been fixed of specified grade and thickness with specified beading	Y / N			
➤ Putty is of approved make confirming to IS 419-1967	Y / N			
➤ Number of glazing clips is as prescribed.	Y / N			
➤ Primer coat has been done after pre-treatment.	Y / N			
Rolling Shutter				
➤ Rolling Shutter to confirm IS 6248-1976	Y / N			
➤ Cold rolled steel strips used in fabrication are of proper gauge and size.	Y / N			
➤ Interlocking of strips is properly done and end clips are provided as specified	Y / N			
➤ The latch section and latch provided are of specified size and grade	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ Springs, ball bearing, brackets, guide channel, cover for rolling shutter and other accessories are of specified grade.	Y / N			
➤ A proper type of operating system for opening and closing the shutter is provided.	Y / N			
M.S. Sheet & Collapsible Doors				
➤ Manufacture as per drawing and specification.	Y / N			
➤ M.S. sheet and angle iron used as specified.	Y / N			
➤ Frames are properly welded or riveted.	Y / N			
➤ Gusset plates of specified thickness are used for welding and riveting at joints of proper thickness.	Y / N			
➤ Angle iron, flat, MS sheet, pin clamps are of specified size.	Y / N			
➤ Doors are properly cleaned off rust, scales, dust etc. before applying primer or paint.	Y / N			
➤ Shutters and frames are in its true shape.	Y / N			
➤ Collapsible steel shutters have been fixed of appropriate sizes & specifications (i.e. steel pulleys with bolts, nuts, locking arrangement, stoppers, handles etc.)	Y / N			
Miscellaneous Items				
➤ The thickness of wall lining is as per specifications i.e. 40, 25, 20, 12 mm thick.	Y / N			
➤ Pelmet & curtain rods have been provided of approved quality and as per requirement.	Y / N			
➤ The quality of fly proof galvanized M.S. wire gauze is satisfactory.	Y / N			
➤ Sufficient number of hold fasts (40 x 5 mm flat; 40 mm long) has been fixed to the frame.	Y / N			
➤ The following fittings are ISI marked and of approved quality, size & material: <ul style="list-style-type: none"> • Hinges (Butt/Spring/ Piano) • Bolts (Sliding/ Tower) • Pull bolt lock • Latches (Mortice/ Night) • Handles • Knobs • Magnetic Catchers • Hasp & Staple • Stays & Fastener • Locks • Stoppers • Hydraulic Door Closer 	Y / N Y / N Y / N Y / N Y / N Y / N Y / N Y / N Y / N Y / N Y / N Y / N			
➤ All the above fittings like locks, bolts, stoppers, hinges, handles etc. are working smoothly.	Y / N			
➤ All doors/ windows/ ventilators are opening and closing smoothly	Y / N			
➤ Aluminum work for doors, windows, ventilators have been carried out as per drawing & specification.	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
Steel Work				
(i) Steel manufacturer's certificate w.r.t. following: (Enclose brief report & the date of testing)	Y / N			
• Ultimate tensile stress	Y / N			
• Proof stress (0.2%)/ Yield stress	Y / N			
• Percentage elongation	Y / N			
• Bend test	Y / N			
• Dimensions	Y / N			
• Chemical composition	Y / N			
➤ Dimensions, weight and finishing of steel section within permissible tolerances.	Y / N			
➤ The steel section used is free from cracks, surface flaws, laminations, rough and imperfect edges and all other harmful defects.	Y / N			
➤ Steel section used free from excessive rust, scaling and pitting etc.	Y / N			
➤ Straightening and shaping to form done properly.	Y / N			
➤ A proper type of welding is used for built-up section.	Y / N			
➤ Welding size and quality of weld is proper.	Y / N			
➤ Electrodes are confirmed to IS 814-1991.	Y / N			
➤ Joint surface free from loose mill scale, rust, paint, grease or other foreign matters.	Y / N			
➤ Alignment, placing and fixing of steel member is proper and is free from twist, kinks buckle or open joints.	Y / N			
➤ Fabrication work is done as per drawings, design and specifications.	Y / N			
➤ Operation, workmanship and process of welding followed as per standard specification.	Y / N			
➤ All surface before applying primer /painting are free from loose scale, rust and are properly cleaned.	Y / N			
➤ Assembly of trusses, purlins, ties etc. are strictly as per drawing.	Y / N			
➤ Trusses were lifted from nodes only and placed in position with full bearing on support.	Y / N			
Flooring Work				
➤ Testing of the following materials done: (Enclose brief report & the date of testing)				
(i) Kota Stone/ Ceramic Tiles	Y / N			
• Compressive strength	Y / N			
• Water absorption	Y / N			
(ii) Terrazzo/ Precast Cement Concrete Tiles	Y / N			
• Transverse strength	Y / N			
• Water absorption	Y / N			
• Abrasion test	Y / N			
(iii) Glazed Tiles	Y / N			
• Chemical resistant test	Y / N			
• Water absorption	Y / N			
• Cracking test	Y / N			
• Impact strength laboratory test	Y / N			
➤ Proper mix of concrete was used.	Y / N			
➤ Base concrete was laid in required thickness and slope (ensure that no water accumulates at floors)	Y / N			
➤ Flooring work to start from farthest point to nearest point with respect to entry point/ batching or mixing plant	Y / N			

Action/Measure	Yes/No	If No then mention reasons	Follow-up Action	Remarks
Concrete was laid within 30 minutes i.e. within initial setting time after mixing water.	Y/N			
Floor thickness/ thickness of Kota stone is as per drawing/ specifications.	Y/N			
Masons were well trained in flooring work.	Y/N			
Sub-surface has properly been roughened and cleaned with steel wire brush before laying the top layer of flooring.	Y/N			
No dimension of the panel is exceeding 2 m also area of a panel is not exceeding 2 sq.m.	Y/N			
Sufficient water curing was done for specified period	Y/N			
Strips are of specified quality, thickness, depth and in the approved pattern	Y/N			
Floor surface is properly finished with cement slurry in case of cement concrete flooring.	Y/N			
Junctions of floor and wall plaster/ skirting/ dado are properly rounded off.	Y/N			
Hacking of wall surface is done properly by hacking tool for skirting/ dado.	Y/N			
Base of 20 mm thick mortar below stone slab was properly laid.	Y/N			
Marble chips of approved size & colour have been used after washing.	Y/N			
Kota stone is used of the required quality like, size, shape, texture, density, hardness, free from cracks, decay, weathering effect, flaws etc.	Y/N			
Tolerance of ± 5 mm for hand cut stone and ± 2 mm for machine cut stone in length and width and ± 2 mm in thickness has been checked	Y/N			
Floor top surface and skirting/ dado is properly finished/ polished.	Y/N			
The surface has been cleaned thoroughly, washed with water & kept wet before skirting/dado.	Y/N			
Colouring pigment to match the shade of stone in desired ratio has been mixed in the mortar to fill the joints of stone flooring.	Y/N			
Floor topping of ready to use factory processed grade of non-metallic and non-magnetic mineral aggregate dry shade surface hardener was checked as per specifications.	Y/N			
The above hardener was laid in two layers as specified.	Y/N			
Power float was properly used in 1 st layer during laying of hardener as per specialist's instructions.	Y/N			
Finishing of top layer of hardener was properly done by hand toweling.	Y/N			
1 st quality ceramic glazed/ vitrified tiles for wall & floor are conforming to IS:15622.	Y/N			
Fixing and laying of tile work neatly (having no visual defects like uneven surface, broken/ cracked tiles etc.)	Y/N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
Roofing Work				
Sloppy Roof				
➤ Corrugated G.S./ pre-coated galvanized iron profile sheets are free from cracks, split edges, twists, surface flaws etc.	Y / N			
➤ C.G.S./ pre-coated galvanized iron profile sheet are of approved quality & conforming to IS : 277.	Y / N			
➤ A.C. corrugated sheets are free from cracks, chipped edges or corners and other damages	Y / N			
➤ A.C. sheet are of approved quality and conforming to IS : 459.	Y / N			
➤ Non- asbestos high impact polypropylene reinforced cement corrugated sheets are of approved quality and conforming to IS : 14871.	Y / N			
➤ UV stabilized fiberglass reinforced plastic sheet are of approved quality and conforming to IS : 10192 & 12866.	Y / N			
➤ Roof pitched to a specified slope.	Y / N			
➤ Purlins rafters and other members are as per design drawings and specifications.	Y / N			
➤ Maximum spacing of purlins under the sheet is not more than 1.40 m.	Y / N			
➤ Ridge purlins are fixed in the range of 75 mm to 115 mm from the apex of the roof.	Y / N			
➤ The top bearing surface of all purlins and other roof members are leveled in one plane to rest the sheet properly.	Y / N			
➤ Finished roof is in the uniform slope and corrugations are in straight and true in line and shape.	Y / N			
➤ Side laps are laid on the side facing away from the prevailing monsoon winds.	Y / N			
➤ Free overhang of the sheets at the eaves are not exceeding 30 cm.	Y / N			
➤ Corners of sheet have properly cut and mitered as per specifications.	Y / N			
➤ Sheets are fixed with specified J or L hooks, bolts, nuts, bitumen, GI washers etc. proper in order to maintain proper slope and leak proof joints.	Y / N			
➤ Holes for hooks, bolts etc. were drilled and are not punched through the crown of the corrugations.	Y / N			
➤ No hole is made nearer to 40 mm to any edge of the sheet or accessories.	Y / N			
➤ Wind ties of appropriate size have been fixed at the eaves of the sheets.	Y / N			
Water Proofing Treatment over RCC Roof/ Plastered Surface				
➤ Select the Water Proofing Treatment carried out as per the following: <ul style="list-style-type: none"> • Integrated Cement Based with Brick Bat Coba. • With Armourcrete or Tapecrete. • With Armourcrete or Tapecrete, 2nd layer of Fiber Glass Cloth. • With Bitumen Felts. • With Glass Fiber Tissue Reinforced Bitumen. • Grading with cement concrete 1:2:4. • With Atactic Polypropylene (APP). • With Rigid Polyurethane Foam. 				
➤ Water proofing treatment has been done as per relevant standard specification (ensure the average thickness of the treatment)	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ The work has been carried out as per specifications and details provided in the bill of quantity and recommendation of manufacturer.	Y / N			
➤ The whole treatment carried out as an integral one i.e. it should be homogeneous.	Y / N			
➤ Lime concrete/ mud phuska terracing work carried out as per specification				
➤ Painting on top of roof has been done with bitumen @ of 17 kg per 10 sq.m area.	Y / N			
Cement Concrete Gola				
➤ Chase of 75 mm x 75 mm was cut in the parapet wall joint above the junction of water proofing treatment and filled with cement concrete 1:2:4 as specified.	Y / N			
➤ Finish of gola is in the slope of 1:0.75.	Y / N			
➤ Gola is finished with 1:3 (1 cement : 3 fine sand).	Y / N			
➤ Expansion joint in gola has been provided at every 3.5 m to 4.5 m and filled with bitumen filler.	Y / N			
➤ Bitumen filler has been prepared by mixing bitumen, cement and coarse sand in the ratio of 80:1:0.25 (80 kg of hot bitumen : 1 kg of cement and 0.25 cum of coarse sand).	Y / N			
➤ Curing of gola has been done at least for 7 days.	Y / N			
Khurras				
➤ Khurras have been constructed before parapet wall construction.	Y / N			
➤ PVC sheet of 1 m x 1 m of 400 micron has been laid under the concrete of khurras.	Y / N			
➤ Top surface of Khurras is lower than the level of adjoining roof surface (after treatment)	Y / N			
➤ Water proofing treatment of roof is not less than the thickness of Khurras and it covered the khurras at least 7.5 cm from three sides.	Y / N			
➤ Concrete is sloped from edges to outlet having maximum slope and at the outlet end thickness of concrete is not less than 20 mm.	Y / N			
➤ Khurras and sides of outlet were rendered with 12 mm coat of cement plaster 1:3 and finished with floating coat of neat cement.	Y / N			
Ceiling				
➤ False ceiling has been provided as per specification and with the prior approval of engineer-in-charge.	Y / N			
➤ Proper arrangement of thermal insulation for false ceiling has been done as per specification.	Y / N			
Rain Water Pipes and Spouts				
➤ Rain water pipes are conforming to IS : 1230 (for Cast Iron) and IS : 13592(for Un-plasticized Rigid PVC).	Y / N			
➤ Pipes are true, smooth and cylindrical in shape.	Y / N			
➤ Pipes are used of the specified diameter, length, thickness and weight with in specified tolerance.	Y / N			
➤ Pipes on wall face have been secured to the wall at all joints with MS holder bat clamps.	Y / N			
➤ Pipes have been fixed perfectly vertical or to the lines as specified.	Y / N			
➤ The spigot of upper pipe has been properly fitted in the socket of the lower pipe such that there is a uniform annular space for filling with the jointing materials.	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ The annular space between the socket and the spigot has been filled with a few turns of spun yarn soaked in neat cement and pressure by caulking tool.	Y / N			
➤ The joints have been filled with stiff cement mortar 1:2 and well pressed with caulking tool & finished smooth at top at an angle of 45° slopping up.	Y / N			
➤ Curing of joints has been done at least for 7 days by tying a piece of gunny bag, four fold, to the pipe and keeping it moist constantly.	Y / N			
➤ Pipes are to be embedded in masonry, has been fixed in masonry work as it processed.	Y / N			
➤ 12 mm minimum thickness of mortar was placed at every portion of the external surface of pipe/ surrounding of pipe.	Y / N			
➤ Joints have been caulked with lead as soon as the next length of pipe was placed in position.	Y / N			
➤ The open end (socket ends) of pipe is kept closed till the next length is fitted and jointed, to prevent any brick bats or concrete or pieces of wood falling in and choking the pipe.	Y / N			
➤ C.I. fittings such as bends of various degrees, heads, offsets of different projections, branches and shoes is conforming to IS : 1230.	Y / N			
➤ The fitting has been factory painted with a tar basis composition both inside and outside.	Y / N			
➤ The fitting is used in standard size and their individual weights.	Y / N			
Finishing Work				
Plastering				
➤ Double scaffolding was used to plaster on exposed brick work.	Y / N			
➤ For single scaffolding, holes for horizontal support were provided in header course only. No hole in the column /pillar of less than one meter width was provided.	Y / N			
➤ Loose mortar & dust has been properly brushed out.	Y / N			
➤ Masonry joints are racked out properly.	Y / N			
➤ Efflorescence, if any has been removed by scraping & brushing.	Y / N			
➤ The surface for plastering has been cleaned with water and wet before the commencement of plastering work.	Y / N			
➤ Ceiling plaster was completed before the wall plaster.	Y / N			
➤ Plastering was done form top of wall to down to the floor side.	Y / N			
➤ Finishing of plastered surface is true and in plumb with a proper degree of smoothness.	Y / N			
➤ The average thickness of plaster is not less than specified thickness.	Y / N			
➤ Curing of plaster has been done at least for 7 days from its application.	Y / N			
White/ Colour Washing				
➤ Double scaffolding was used for washing.	Y / N			
➤ If the ladder was used for washing old gunny bag pieces were tied on their tops to avoid damage and scratches to wall.	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ The surface has been made free from mortar dropping & foreign matters.	Y / N			
➤ Lime cream was prepared with fresh lime stone & water, screened through a clean coarse cloth & proper quantity of adhesive & indigo was added.	Y / N			
➤ For new surface three or more coats have been applied & the surface finish is uniform & smooth.	Y / N			
➤ Splashing of white wash on door, windows, floors & other items was protected & if any have been removed properly.	Y / N			
Oil Bound Distemping				
➤ Oil emulsion (oil bound) washable distemper is conforming IS : 428 & of approved brand & make.	Y / N			
➤ Primer used on new surface was of the same manufacture as that of distemper.	Y / N			
➤ Distemper was diluted with water or any other thinner as prescribed by the manufacturer.	Y / N			
➤ Distemper prepared for the day work was used on the same day.	Y / N			
➤ Surface has been properly cleaned before distemping/ priming.	Y / N			
➤ Undulations on the surface have been filled by plaster of paris putty & sand papered properly.	Y / N			
➤ Oil distemping was done at least after six months of wall plastering or a coat of alkali resistant primer conforming to IS : 109 has been applied & allowed to dry at least for 48 hrs.	Y / N			
➤ Distemping has been applied after the primer has dried for at least 48 hrs. & the surface of primer on drying has been lightly sand papered.	Y / N			
➤ A time interval of at least 24 hrs. has been allowed between successive coat.	Y / N			
➤ Cement primer coat is applied by the brush not by spraying.	Y / N			
Cement Paint				
➤ Cement paint is conforming to IS : 5410 & of approved brand & make.	Y / N			
➤ The surface has been thoroughly cleaned of all mortar dropping, dirt, dust, alges, grease & other foreign matters by brushing & washing.	Y / N			
➤ Pitting in plaster is made good & a coat of waterproof cement paint has been applied over patches after wetting them properly.	Y / N			
➤ Mixture of cement paint & water was used within an hour of mixing.	Y / N			
➤ Cement paint was mixed with water as prescribed by the manufacturer.	Y / N			
➤ The cement paint was not air set before use.	Y / N			
➤ Cement paint was applied on the cleaned wet surface.	Y / N			
➤ The cement paint was applied on the surface which was on the shady side of the building so that the direct heat of sun on the surface was avoided.	Y / N			
➤ Second & subsequent coat was applied after 24 hrs. & the surface of previous coat was not wet.	Y / N			
Ready Mix Primer & Synthetic Enamel Paint				
➤ Primer is conforming to IS : 3536 & of approved brand & make.	Y / N			

Action/Measure	Yes/ No	If No then mention reasons	Follow- up Action	Remarks
➤ The surface has been cleaned thoroughly by removing all unevenness with sand paper.	Y / N			
➤ Knots/ gap if any was filled by appropriate filler materials conforming to IS : 345 & indentation on the surface was filled with glaziers putty or wood putty conforming to IS : 419 & rubbed smooth before applying primer.	Y / N			
➤ Synthetic enamel paint is conforming to IS : 2932 & by approved brand make & shade.	Y / N			
➤ Top coat of synthetic enamel paint of required shade has been applied after the undercoat was thoroughly dried.	Y / N			
Miscellaneous Work				
Fire Fighting & Fire Safety				
➤ Have fire fighting & fire safety measures been considered as per recommendation of Fire Safety Sectional Committee, CED 36 of BIS/ NBC 2005 ?	Y / N			
HVAC				
➤ Installed HVAC system/ equipment has been checked to ensure that all associated components and accessories are in place and the system is performing as expected, and that all sensors and other system control devices are properly calibrated ?	Y / N			
➤ Is the relative humidity in the desired area between 30% and 60% and indoor air quality good?	Y / N			
➤ Can air filters be quickly and easily accessed without the use of tools?	Y / N			
➤ Are ducts clean, and if ducts are lined with insulation, is the insulation dry? There are no visible signs of water damage in that area?	Y / N			
Green Building				
➤ Are passive measures incorporated as part of green features?	Y / N			
➤ Is the building designed as per the GRIHA rating system and NBC: 2005 & 2013?	Y / N			
➤ Has the building-envelope insulated to minimize the heat load?	Y / N			
➤ Has the structural glazing work carried out with energy efficient glass?	Y / N			
➤ Is the day-lighting a part of the project to allow the natural light to reduce the load on internal lighting of the building?	Y / N			
Rainwater Harvesting				
➤ Has the rainwater harvesting system been set up as per BIS/ NBC guidelines?	Y / N			
➤ Performance of RWH has been checked for roof slope, filter etc.?	Y / N			

N.B.: Detailed specifications/ methodology of treatment for any item of work shall be reckoned as given in relevant code(s).

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