



# BUILDING RESEARCH NOTE

B.R.N. 92

## QUALITY ASSURANCE PLAN (SERVICES)

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
<b>Sanitary Installation Works</b>				
➤ Following are conforming to relevant Indian Standards/ CPWD Specifications/ desired specifications:				
<ul style="list-style-type: none"> <li>• Water closets squatting pans Indian type/ Pedestal type</li> <li>• Urinal basin</li> <li>• Flushing cistern</li> <li>• Wash basin</li> <li>• Sink</li> <li>• Draining board</li> <li>• Seat with lid</li> <li>• Seat cover</li> <li>• Foot rest</li> <li>• Bathing tub</li> <li>• Mirror of superior glass</li> <li>• Glass shelf</li> <li>• Toilet paper holder</li> <li>• Liquid soap container</li> <li>• Towel ring/ rail</li> </ul>	<p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p> <p>Y / N</p>			

Action/Measure	Yes/ No	If No then Mention Reasons	Follow- up Action	Remarks
➤ Waste pipes & fittings for wash basin, sink etc. provided.	Y / N			
➤ Waste coupling/ bottle trap for wash basin, sink etc. provided.	Y / N			
➤ Grating for gully trap provided.	Y / N			
➤ Mosquito proof coupling of approved municipal design provided.	Y / N			
➤ Soil, waste and vent pipes and fittings.	Y / N			
➤ Sufficient number of holder-bat clamps provided.	Y / N			
➤ Bends with access door and junctions provided as per requirement.	Y / N			
➤ Terminal guards & collars provided as per requirement.	Y / N			
➤ Sufficient number of stays and clamps for pipes provided.	Y / N			
➤ Traps of self- cleansing design are as per inlet/ outlet diameter.	Y / N			
➤ Painting on pipes & fittings carried out with approved brand & colour.	Y / N			
➤ Depth of water seal in trap sufficient	Y / N			
➤ Flow of water is continuous through WC and trap, when tested for at least 5 minutes.	Y / N			
➤ Height of mirror (bottom) is about 1.25 m from toilet floor.	Y / N			
➤ Ensured the following :				
<ul style="list-style-type: none"> <li>• Work according to drawings &amp; specifications</li> <li>• All pipe brackets, clips, etc. are securely fixed</li> <li>• Bat clamps are correctly spaced</li> <li>• Embedded pipe work is properly protected before sealing-in.</li> </ul>	Y / N Y / N Y / N Y / N			
➤ All access covers, caps or plugs are:				
<ul style="list-style-type: none"> <li>• Accessible so made that the internal face truly complete the internal bore</li> <li>• Cause no obstruction in the pipe bore</li> <li>• Well jointed.</li> </ul>	Y / N Y / N Y / N			
➤ Following tests carried out: (Enclose brief report & the date of testing)				
<ul style="list-style-type: none"> <li>• Testing of System</li> <li>• Water Test</li> <li>• Air Test</li> <li>• Smoke Test</li> <li>• Testing the efficiency of the Design.</li> </ul>	Y / N Y / N Y / N Y / N Y / N			

Action/Measure	Yes/ No	If No then Mention Reasons	Follow- up Action	Remarks
<b>Water Supply Works</b>				
➤ Following pipes & fittings are conforming to relevant Indian Standards/ CPWD Specifications/ desired specifications:				
PIPES				
• Polyethelene-Aluminium_Polyethelene (PE-AL-PE) composite pressure pipes	Y / N			
• Poly Propylene Random Copolymer (PP-R) pipes	Y / N			
• Chlorinated polyvinyl Chloride (CPVC) pipes	Y / N			
• G.I. pipes	Y / N			
FITTINGS (Brass\ CP Brass\ PTMT)				
• Bib cock (long/ short body)	Y / N			
• Stop cock	Y / N			
• Pillar/ push cock	Y / N			
• Mixer	Y / N			
• Angle valve	Y / N			
• Gate valve	Y / N			
• Ball valve	Y / N			
• Non-return valve	Y / N			
• Ferrule	Y / N			
• PVC connection with unions	Y / N			
• Shower rose	Y / N			
➤ All fixtures like bib cock, mixer etc. fixed properly at proper height from FFL.	Y / N			
➤ There is no leakage from fixtures.	Y / N			
➤ The pressure is proper in all the taps.	Y / N			
➤ Spigot and socket centrifugally cast (spun) iron pipes are of appropriate class	Y / N			
➤ Flanged spigot & socket tail pieces are of appropriate class	Y / N			
➤ S & S standard specials such as tees, bends, collars, crosses, tapers/reducers, plugs, caps etc.	Y / N			
➤ Joints to pipes and specials are flexible & tested also.	Y / N			
➤ Fire hydrant/ Sluice valves (with cap) complete with all accessories are of appropriate class	Y / N			
➤ Masonry chambers of desired size have been constructed as per specifications for the following:				
• Stop cocks,	Y / N			
• Sluice valves,	Y / N			
• Fire hydrants,	Y / N			
• Water meter	Y / N			
➤ Painting on pipes & fittings carried out with approved brand & colour.	Y / N			
➤ Testing of hand pump/ tube well has been done.	Y / N			
➤ Polyethylene water storage tanks with proper base support have been placed.	Y / N			
➤ Water meter with all accessories has been fixed & tested by Municipal board.	Y / N			

Action/Measure	Yes/ No	If No then Mention Reasons	Follow- up Action	Remarks
➤ The lines found leak proof when tested for at least 15 minutes with continuous water flow.	Y / N			
➤ Disinfection operation has been done for water main by flushing with water containing bleaching power	Y / N			
➤ Testing of all pipelines, fittings and appliances done after laying/ installation w.r.t:				
<ul style="list-style-type: none"> <li>• Water tightness of joints of water supply pipe lines under working condition of pressure and flow before these are covered/ concealed.</li> <li>• Water tightness of joints of water supply pipelines, valves etc. under test pressure i.e. 0.5 N/mm<sup>2</sup> or the maximum working pressure plus 50 per cent, whichever is the greater.</li> <li>• All taps and ball valves checked for water tightness.</li> <li>• All overflow pipes are free from any obstruction.</li> </ul>	Y / N  Y / N  Y / N  Y / N			
<b>Drainage</b>				
➤ Following pipes & fittings are conforming to relevant Indian Standards/ CPWD Specifications/ desired specifications:				
<ul style="list-style-type: none"> <li>• Salt glazed Stoneware pipe grade 'A'</li> <li>• Non-pressure NP2 class(light duty) R.C.C. pipe</li> <li>• Square mouth SW gully trap grade 'A'</li> </ul>	Y / N Y / N Y / N			
➤ Cement concrete has been provided all-round the pipes including bed concrete as per standard design.	Y / N			
➤ Brick masonry manholes (rectangular/ circular) of desired size have been constructed as per specifications.	Y / N			
➤ C.I. covers with frame/ precast steel fibre reinforced concrete (SFRC) covers of appropriate weight have been provided.	Y / N			
➤ M.S. foot rests provided as per standard design & specifications provided.	Y / N			
➤ Pre-cast RCC manhole covers & frames (if required) are of approved quality and shape i.e. LD-2.5, MD-10, HD – 20, EHD – 35 etc.	Y / N			
➤ Appropriate connections have been made for drains or sewer lines with manholes (ensure the necessary channels for drain).	Y / N			
➤ The depth & level of manhole is as per drawing & specifications.	Y / N			
➤ Road gully chambers (if required) have been constructed with pre-cast RCC horizontal/ vertical grating as per standard design.	Y / N			
➤ Septic tank (if required) has been constructed according to the drawing/ specifications.	Y / N			

Action/Measure	Yes/ No	If No then Mention Reasons	Follow- up Action	Remarks
➤ Soak pit has been constructed as per the following standard design:				
<ul style="list-style-type: none"> <li>• Circular: 2.5 m (dia), 3.0 m (deep) with 45x45 cm dry brick honey comb shaft and 1.8 m long drain pipe.</li> <li>• Square: 1.2 x 1.2 x 1.2 m filled with brick bats and 1.8 m long drain pipe.</li> </ul>	Y / N			
	Y / N			
➤ All pipes are laid in slope as recommended	Y / N			
➤ Ensure the continuous flow of water without any choke-up in the drain chamber, pipes, trap etc. when tested for at least 5 minutes	Y / N			
➤ Hydraulic test of all pipelines after laying (mention the date of testing).	Y / N			
<b>Water Conservation &amp; Recycling</b>				
➤ Has the water requirement studied at the plan stage and likely future requirements & the pipelines for drinking water, hot water, waste water from kitchen and shower designed accordingly?	Y / N			
➤ Are there separate lines for soil water and recycled water?	Y / N			
➤ Are the filters attached to the waste water pipe from showers, wash basin, and washing machine (can be reused in gardens - drip irrigation system)?	Y / N			
➤ Is there separate pipeline for the waste water from the kitchen sink and dishwasher?	Y / N			
➤ Is there a provision for water efficient & sanitation fixtures?	Y / N			
<b>Electrification</b>				
➤ Following electric wire, appliance etc. are conforming to relevant Indian Standards/ desired specifications (ISI Marked):				
<ul style="list-style-type: none"> <li>• Wire</li> <li>• Switches</li> <li>• MCB/ MCCB</li> <li>• Fuses</li> <li>• Other accessories</li> </ul>	Y / N Y / N Y / N Y / N Y / N			
➤ Working drawing is available and the work has been carried out as per drawing.	Y / N			
➤ The main switch has been fixed in meter cabinet.	Y / N			
➤ The energy meter has been fixed at prominent place and also tested/ sealed by municipal board.	Y / N			
➤ All the electric switches, kit-kat, fuses etc. are working properly.	Y / N			
➤ For lighting per circuit not more than 10 points of lighting or total 800 watt which is less has been given.	Y / N			
➤ Minimum size of wire for lighting circuit is 1.5 sq.mm and for power circuit is 4 sq.mm.	Y / N			
➤ Plug sockets installed at the following heights:				
<ul style="list-style-type: none"> <li>• For kitchen 23 cm above platform.</li> <li>• For bathroom not socket MCB/ IC at 2.1 m</li> </ul>	Y / N			

from fixed appliance and at least 1 m away from shower. • For non residential building 23 cm above floor.	Y / N Y / N				
<b>Action/Measure</b>	<b>Yes/No</b>	<b>If No then Mention Reasons</b>	<b>Follow-up Action</b>	<b>Remarks</b>	
➤ Earthing Pit (size not less than 30 x 30 x 30 cm) is not closer than 1.5 meter from Building.	Y / N				
➤ The earthing connection has been tested for working condition.	Y / N				
➤ All the switch boards have been fixed neatly in proper line and level.	Y / N				
➤ Ensure that no screw is missing from boards/ switches/ plug etc.	Y / N				
➤ Has the building protection system been installed against lightning as per IS 2309 (2010)?	Y / N				
➤ Testing report of electrical points has been given by the contractor (mention the date of testing).	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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