



RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LTD.

(Corporate identity Number

(CIN):U40109RJ2000SGCO16485)

(AN ISO 9001-2015 CERTIFIED CO.)

OFFICE OF THE CHIEF ENGINEER (CIVIL),

CHAMBAL GSS: HAWA SARAK: JAIPUR.

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NO.RRVPNL/CE/CIVIL/F./JPR/D. 29

4 April, 2019

**The Superintending Engineer (Civil),
RVPN, Jaipur/Kota/Ajmer/Udaipur/Jodhpur/Bikaner.**

Sub: Revised specifications for construction of Residential, Non-Residential buildings and other Work.

The general specifications for various residential, Non Residential buildings etc. were issued vide this office during January 2014.

It was felt to revise the above specifications, keeping in view the present building construction in Government & Private sectors.

As per discussions held at various levels, the "Specifications of various Residential, Non-Residential Buildings and other works" have been finalized and termed as "specifications April 2019 are enclosed herewith.

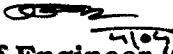
Specifications April 2019 will come into force with immediate effect. The Running contract shall not be effected.

Encl: As above.


(Atul Sharma)
Chief Engineer (Civil)

Copy to the following for information and necessary action:

1. The Director (Technical/Operations), RVPN, Jaipur.
2. The Addl. Chief Engineer (Civil), RVPN, Jaipur/ Ajmer/ Jodhpur
3. The Superintending Engineer (Civil-QC), RVPN, Jaipur.
4. The Executive Engineer (Civil)/(Civil-QC), RVPN, _____.
5. The Assistant Engineer (Civil)/(Civil-QC),RVPN, _____


Chief Engineer (Civil)

SPECIFICATIONS (APRIL 2019) FOR RESIDENTIAL BUILDINGS

S.No	Item	TYPE OF BUILDINGS				Remarks
		R-2 Type	R-3 Type	R-4 Type	R-5 Type	
1.	2.	3.	4.	5.	6.	7.
A-Building Work						
1(a)	Base concrete (foundation)	Cement Concrete 1:4:8 using 40 mm crusher broken aggregate	Same as in R-2	Same as in R-2	Same as in R-2	i) Thickness of base-concrete should not be more than 150mm. ii) In case of abnormal soil strata specific treatment shall be given as per approval of S.E.(Civil).
(b)	Base concrete (under floor)	Cement Concrete 1:4:8 using 40 mm crusher broken aggregate	Same as in R-2	Same as in R-2	Same as in R-2	i) Thickness of base-concrete should not be more than 100mm. ii) In case of abnormal soil strata specific treatment shall be given as per approval of S.E.(Civil).
2.	Foundation masonry	RR stone masonry in cement sand mortar 1:6	Same as in R-2	Same as in R-2	Same as in R-2	If good quality stone is not available, S.E. (Civil) may permit the use of Bricks/Fly ash bricks masonry only in exception cases.
3.	RCC band at plinth level.	M-20 grade RCC-150 mm thick.	Same as in R-2	Same as in R-2	Same as in R-2	Integral water proofing compound may be used with permission of S.E.(Civil).
4.	Super Structure Masonry.	RR stone/brick masonry in cement mortar 1:6 and pillar masonry in CM 1:4	Same as in R-2	Same as in R-2	Same as in R-2	i) In case of brick masonry thickness should be 230mm for load bearing walls. ii) Fly ash bricks for masonry may also be used. iii) C.R. Stone masonry 1 st sort on outer wall and 2 nd sort on inner wall with rock facing may be permitted by S.E.(Civil) for important buildings as per local practice.
5.	Lintel/ sun sheds	RCC lintel/ chhajas in M-20 grade concrete	Same as in R-2	Same as in R-2	Same as in R-2	Integral admixture may be used with permission of S.E.(Civil).
6.	Roofing	RCC roofing M-20 grade concrete	Same as in R-2	Same as in R-2	Same as in R-2	(i) Integral water proofing compound/admixture may be used with permission of S.E.(Civil).
7.	Flooring/Skirting/Dado					
(a)	Main rooms with Verandah	Vitrified tiles	Polished Kota Stone	Same as in R-3	Same as in R-3	(i) In R3, R4 & R5 type qtrs, other polished Stone flooring may be allowed if locally available as finalized by ACE (Civil). (ii) For front verandah steps green & other shades of marble may be permitted in R-2 Qtr. irrespective of location. (ii) For front verandah

						steps Polished Kota Stone is permitted in R-3, R-4 & R-5 Qtr. irrespective of location. (iii) Min area for each slab of Kota stone for flooring should be 2000 sqcm.
(b)	Toilet	Floor- Mat finished Ceramic tile Dado- Glazed Tile	Same as in R-2	Same as in R-2	Same as in R-2	The height of dado should be restricted up to 900 mm in WC & upto lintel level in bath/ toilet.
(c)	Court yard	25 mm thick polished Kota stone flooring	Same as in R-2	Same as in R-2	Same as in R-2	I) Min area for each slab of Kota stone for flooring should be 2000 sqcm. (ii) In R3, R4 & R5 type qtrs, other polished Stone flooring may be allowed if locally available, as finalized by ACE (Civil).
(d)	Approach path	Rough Kota stone with under layer of 100 mm PCC 1:4:8	Same as in R-2	Same as in R-2	Same as in R-2	
(e)	Garage	Rough Kota stone with under layer of 100 mm PCC 1:4:8	N. A.	N.A.	N. A.	
8.	Risers/ treads in stair case	Green Marble	Polished Kota Stone	Same as in R-3	Same as in R-3	
9.	Window sill	Green Marble	Polished Kota Stone	Same as in R-3	Same as in R-3	
10.	Almirah Shelves	Polished Kota Stone Machine cut with equal thickness	Same as in R-2	Same as in R-2	Same as in R-2	
11.	Kitchen platform	Green Marble (Kesriaji)/ Black Marble (Bhainslana) top with stainless steel sink having size 37"x18"x7" with drain board	Green Marble (Kesriaji)/ Black Marble (Bhainslana) top with stainless steel sink having size 22"x18"x7" without drain board	Same as in R-3	Same as in R-3	Height of glazed tiles should be 600 mm above platform.
12.	Coping	Precast cement concrete coping M-15 (1:2:4) 50 mm thick	Same as in R-2	Same as in R-2	Same as in R-2	
13	Finishing work					
(a)	Plaster (i) Inner/Outer Walls (ii) Ceiling	20 mm thick plaster in cement sand mortal 1:6 followed by POP on inner walls & white cement putty on outer walls 12 mm thick plaster with cement mortar 1:4 followed by POP	Same as in R-2 Same as in R-2	Same as in R-2 Same as in R2	Same as in R-2 Same as in R2	In case of brick masonry, 12 mm plaster should be allowed for one face.
(b)	Exterior finish	Weather proof paint	Same as in R-2	Same as in R-2	Same as in R-2	
(c)	Interior surface	Oil bound	Same as in R-2	Same as in R-2	Same as in R-2	

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	finish	Distemper on all interior walls & ceiling				
(d)	Doors & Windows	Enamel paint	Same as in R-2	Same as in R-2	Same as in R-2	
14.	Wood Work					
(a)	Door Shutter	30 mm thick flush doors with commercial veneer both sides	Same as in R-2	Same as in R-2	Same as in R-2	i) in case of flush door in toilet, inner surface may be treated with P/F aluminum sheet at bottom half.
(b)	Wire Gauge Shutter	30 mm thick Sheesham /Hollock /Nigeria wood door with wire gauge	Same as in R-2	Same as in R-2	Same as in R-2	
(b)	Curtain roads	20 mm dia C.P. Curtain Roads with C.P. brackets	Same as in R-2	Same as in R-2	Same as in R-2	As per available BSR item
(c)	Almirah shutter	19 mm thick BWP board with 4 mm thick teak veneer at front & 0.8 mm thick approved shade mica in back face with teak wood beading with brass SS fittings and all exposed surface complete with melamine polishing as per design & drawing as approved by Engineer In charge.	NA	NA	NA	(i) Item as per pre approved item rate. (ii) Plain board shutter be used in kitchen while in Drawing/ Dining Lounge Shutter with combination of glass may be used.
15.	Steel work					
(a)	Ward robe shutter	CRC sheets 20 SWG shutter in Bed Rooms.	Same as in R-2	Same as in R-2	Same as in R-2	Almirah shutters to be provided up to lintel level only.
(b)	Windows	Metal Pressed Windows/ M.S. Rolled Steel frame & panels with glass & wire gauge/ Steel section window as per approved design with plain glass panes and wire gauge.	Steel section window as per approved design with plain glass panes and wire gauge.	Same as in R-3	Same as in R-3	
(c)	Window Grills	10 mm Sq. bars as per design	Same as in R-2	Same as in R-2	Same as in R-2	Window safety bars @ 150mm C/C to be provided as per drawing
(d)	Door Frame	Metal Pressed Doors Frame/ M.S. Rolled Steel Tube	T Section/EZ-7 section	Same as in R-3	Same as in R-3	
(e)	Staircase Railing	S/S Railing	Brick Masonry	Same as in R-3	Same as in R-3	
16.	Roof Treatment	Mosaic tile terracing with under base of CC 1:3:6	CC (1:2:4) grading with water proofing compound	Same as in R-3	Same as in R-3	(i) Average thickness of CC grading should not be more than 90 MM. (ii) Integral water proofing

						compound/ synthetic fiber may be used with permission from SE(Civil) iii) In Jodhpur Zone, item of Glazed Tile Tukri/ Mud Puska may be allowed by SE (Civil) as per local practice prevailing in PWD.
17.	Rain water pipes	Rigid PVC Pipe	Same as in R-2	Same as in R-2	Same as in R-2	Approved make pipes should be used
B. SANITARY ITEMS						
1.	Waste water disposal	Economical scheme for waste water disposal of bath/ wash basin /kitchen may be developed as per site conditions and requirement	Same as in R-2	Same as in R-2	Same as in R-2	Scheme shall be approved by ACE (Civil)
2.	Man Hole covers	Ferro Cement Concrete	Same as in R-2	Same as in R-2	Same as in R-2	
3.	W.C. Seat	EWC & ORRISA pan WC with CP fittings as per drawing	Same as in R-2	Same as in R-2	Same as in R-2	(i) Only PVC Cistern & Jet spary shall be provided with WC/EWC.
3.	Sanitary fittings	CP Brass	Same as in R-2	Same as in R-2	Same as in R-2	(i) Provision in pipeline for geyser fittings shall be provided In bath rooms.
4.	Water Supply line.	GI pipe "B" Class (Approved make)	Same as in R-2	Same as in R-2	Same as in R-2	(i) PL-AL-PE/CPVC water pipeline may be used in case of saline water or rusting prone area. (ii) For geyser, GI pipe to be used up to tap In bath rooms.
5.	Water Tank	300L/500 L PVC water tank with white enamel paint on outer surface.	Same as in R-2	Same as in R-2	Same as in R-2	As per approved drawing.
C. ELECTRIC WORK						
1.	Wiring work	i) PVC insulated copper wiring in PVC recessed conduit ii)Wiring provision for Geysers in toilets and A.C.s in bedroom to be provided	Same as in R-2	Same as in R-2 without AC wiring provision	Same as in R-4	Group-2 wiring to be used
2.	Light Fixtures & accessories	As per approved drawing	As per approved drawing	As per approved drawing	As per approved drawing	Energy saving fixtures to be provided as per prevailing BSR. (LED/5 star rating)
3.	Earthing	Earthing with G.I. earth plate 600x600x6mm as per IS 3043	Same as in R-2	Same as in R-2	Same as in R-2	
4.	MCB & Distribution Board	MCB & Isolators of suitable rating with steel sheet distribution board.	Same as in R-2	Same as in R-2	Same as in R-2	Group-2 MCB/DB to be used

5.	Ceiling fans	Ceiling fans may be provided in rooms as per approved drawing	Same as in R-2	Same as in R-2	Same as in R-2	Energy saving 1200mm sweep fans as per prevailing BSR to be provided. (5 star rating)
6.	Geyser	In two Bathrooms	In one bathroom	N.A	N.A.	Energy saving 15 L geyser as per prevailing BSR to be provided (4/5 star rating)
7.	Fresh air Fans	300 mm sweep fans with louvers to be provided in Kitchen & Toilets	Same as in R-2	300 mm sweep fans with louvers to be provided in Kitchen only	Same as in R-4	Group 1 fresh air fans to be used

Note:

- (i) For R1 type quarters, specifications shall be approved by CE (Civil) separately.
- (ii) Minimum required development works i.e. lawn etc. may be carried out in R-2 type quarters, as per approval of ACE (Civil)
- (iii) The above guidelines shall be adopted for repair & maintenance works also.
- (iv) Colour scheme for quarters may be decided by the concerned ACE (Civil).
- (v) Feasible & economic Scheme for development works in colony shall be approved by the concerned ACE (Civil).
- (v) Clarifications & variations, if any, may be brought to the notice of this office.


(Atul Sharma)
Chief Engineer (Civil)

SPECIFICATIONS (APRIL 2019) FOR NON-RESIDENTIAL BUILDINGS

(C.R. = Control Room, N.A.= Not Applicable)

S.No.	Item	TYPE OF NON RESIDENTIAL BUILDINGS		Remarks
		CONTROL ROOM	STORE, GARRAGE & GUARD HUT	
1.	2.	3.	6.	7.
A.	BUILDING WORKS			
1.	(a) Base concrete (foundation)	Cement Concrete 1:4:8 using 40 mm crusher broken aggregate	Same as in C.R.	i) Thickness of base-concrete should not be more than 150mm. ii) In case of abnormal soil strata specific treatment shall be given as per approval of S.E.(Civil).
	(b) Base concrete (under floor)	Cement Concrete 1:4:8 using 40 mm crusher broken aggregate (100 mm thickness)	Same as in C.R.	In case of abnormal soil strata specific treatment shall be given as per approval of S.E.(Civil).
2.	Foundation masonry	RR stone masonry in cement sand mortar 1:6	Same as in C.R.	(i) If good quality stone is not available, S.E. (Civil) may permit the use of Bricks/Fly ash bricks masonry . ii)In case of low lying area/ higher plinth level. Possibility of providing plinth beam to support the S/S masonry may be explored to avoid heavy masonry foundation for economy as per standard drawings & designs.
3.	RCC band at plinth level.	M-20 as per approved drawing but not less than 150 mm thickness	Same as in C.R.	i)In case of plastic soils, thickness of RCC band shall be designed accordingly. ii)Integral water proofing compound may be used with permission from SE (civil)
4.	Super Structure Masonry	RR stone/ brick masonry in cement mortar 1:6	Same as in C.R.	i)In case of brick masonry thickness should be 230mm for load bearing walls. ii) Fly ash bricks for masonry may also be used. (iii) C.R. Stone masonry 1 st sort on outer wall and 2 nd sort on inner wall with rock facing may be permitted by S.E. for important buildings as per local practice.
5.	Lintel/ sun sheds	RCC lintel/ chhajas in M-20 grade	Same as in C.R.	Integral admixture may be used with permission of S.E.(Civil).
6.	Roofing	RCC roofing in M-20 grade	Same as in C.R.	(i) Integral water proofing compound/admixture may be used with permission of S.E.(Civil).
7.	Flooring/Skirting/Dado			
(a)	Rooms passages etc.	i) Vitrified tiles flooring ii)Green marble on steps	Polished Kota Stone	i)In case of extension Of C/R Bldg. in 220/132 KV, flooring of vitrified tiles should be used and existing floor may be replaced with vitrified tiles also as per site condition with permission from SE (Civil) ii)Granite may be used in steps at 220 KV & 132 KV S/S in Urban Area with permission of SE (Civil)

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(b)	Toilet	Floor- Mat finished Ceramic tile Dado- Glazed Tile	Same as in C.R.	Height of wall tiles shall be as under. i)Toilets attached with chamber: 1500 mm ii)In WC: 900 mm iii)In general toilet : lintel level iv) Pantry : 600mm above platform
8.	Window / Ventilator sill	Green Marble	Kota Stone	
9.	Almirah Shelves	Polished Kota Stone Machine cut with equal thickness	Same as in C.R.	
10.	Kitchen/ Pantry plate form	Green Marble (Kesriaji)/ Black Marble (Bhainslana) top with stainless steel sink having size 37"x18"x7" with drain board	Polished Kota Stone platform with stainless steel sink having size 22"x18"x7" in Guard Hut without drain board	(i) Other polished stone may be used in guard hut with approval of SE (Civil)
11.	Coping	M15(1:2:4) 50 mm thick	Same as in C.R.	
12.	Plinth Protection	Cement concrete colored chequered cement tile over base concrete 100 mm thick 1:4:8	Same as in C.R.(if required)	
13.	Finishing work			
(a)	Plaster (i)Inner/Outer Walls (ii)Ceiling	20 mm thick plaster in cement sand mortal 1:6 followed by POP on inner walls & white cement putty on outer walls 12 mm thick plaster with cement mortar 1:4 followed by POP	20 mm thick plaster in cement sand mortal 1:6 12 mm thick plaster with cement mortar 1:4	(i)In case of false ceiling, Plaster & white cement putty on ceiling is to be avoided for covered area. (ii) In case of brick masonry, 12 mm plaster should be allowed for one face.
(b)	Exterior finish	Weather Proof Paint	Same as in C.R.	
(c)	Interior surface finish	Oil Bound Distemper	White Wash	
(d)	Doors & Windows	Enamel Paint	Same as in C.R.	
14.	Wood Work			
(a)	Door Shutter	30 mm thick flush doors with commercial veneer both sides	Same as in C.R.	(i) Aluminum Grill with door to be provided in water space (C.R.Buildings)
(b)	Curtain roads.	20 mm dia C.P. Curtain Roads with C.P. brackets	N.A.	
(c)	Almirah / Wardrobe shutter	CRC Sheets 20 SWG shutters with locking arrangement	Same as in C.R. for Guard Hut	Almirah/wardrobe shutters be provided up to lintel level only.
15.	WINDOWS/VENTILATORS			
(a)	Windows	Aluminum window as per approved design with provision of wire gauge shutter	Steel section window as per approved design with plain glass panes and wire gauge.	Frosted glass panes to be used in Rest rooms and toilets.
(b)	Door Frame	Metal Pressed Doors Frame/ M.S. Rolled Steel Tube	T Section/EZ-7 section	
(c)	Stair case head room door shutters.	MS Sheet 20 SWG shutters with angle Iron frame	N.A.	
(d)	Stair case railing	S/S Railing	N.A.	
16.	Roof Treatment	Mosaic tile terracing with under base of CC 1:3:6	CC (1:2:4) grading with water proofing compound	(i)Average thickness of CC grading should not be more than 90 mm. (ii) Integral water proofing compound/ synthetic fiber may be used with permission from SE(Civil) iii) In Jodhpur Zone, item of Glazed Tile Tukri/ Mud Puska may be allowed by SE(Civil) as per local practice prevailing in PWD.
17.	Rain water pipes	Rigid PVC Pipe (Approved Make)	Same as in C.R.	
18.	False ceiling	Only in Hall, PLCC &	NA	Gypsum false ceiling to be

		XEN/AEN Chamber		provided; In case of locations with heavy rainfall, gypsum false ceiling may be replaced by PVC false ceiling with approval from SE (Civil)
B.	SANITARY WORKS			
1.	W.C.Seat	Orissa Pan & EWC as per drawing	Orissa Pan in guard hut	(i) Only PVC Cistern & Jet spary shall be provided with WC.
2.	Wash Basin	WVC of size 550mm x 400 mm	WVC of size 450mm x 300 mm in guard hut	
3.	Mirror	Mirror with size 500x400 mm (approx)	Same as in C.R.in guard hut	
4.	Sanitary Fittings	C.P. Brass	Same as in C.R.	
5.	Pipeline	GI pipe "B" Class as per (approved make)	Same as in C.R.	(i) PL-AL-PE/CPVC water pipeline may be used in case of saline water or rusting prone area. (ii) On outlet of geyser GI pipe to be used up to tap.
6.	Sewer pipe	100 mm dia UPVC (As per respective BSR)	Same as in C.R.	
7.	Water Tank	500 L PVC water tank with white enamel paint on outer surface.	300 L PVC water tank with white enamel paint on outer surface in guard hut	
8.	Man Hole Cover	Ferro Cement Concrete	Same as in C.R.	
C.	ELECTRICAL WORKS			
1.	Wiring work	i) PVC insulated copper wiring in PVC recessed conduit	Same as in C.R.	Group-2 wiring to be used
2.	Wiring for A.C.	AC wiring to be provided in Hall, PLCC, Rest Rooms, XEN/AEN chambers (as per drawing)	N.A.	
3.	Light Fixtures & accessories	As per approved drawing. Energy saving fixtures as per BSR . LED/5 star rating.	Same as in C.R.	All accessories and fixtures shall be of Group-2 make
4.	Earthing	Earthing with G.I. earth plate 600x600x6mm as per IS 3043 and relevant BSR.	Same as in C.R.	
5.	MCB & Distribution Board	MCB & Isolators of suitable rating with steel sheet distribution board.	Same as in C.R.	Group-2 MCB/DB to be used
6.	Ceiling fans	As per approved drawing	Same as in C.R.	Energy saving 1200mm sweep fans as per prevailing BSR to be provided. (5 star rating)
	Geysers	Rest Room Toilets	N.A.	Energy saving 15 L geyser as per prevailing BSR to be provided (4/5 star rating)
8.	Fresh air Fans	300 mm sweep fans with louvers to be provided in Toilets	Same as in C.R.	Group 1 fresh air fans to be used

Note:

- (i) For Guest House & Office buildings, specifications shall be approved by CE (Civil) separately.
- (ii) The above guidelines shall be adopted for repair & maintenance works also.
- (iii) Colour scheme will be decided by the concerned ACE (Civil).
- (iv) A GLR of 15000 L capacity with required pump & pipe line shall be constructed at each substation as per standard drawings.
- (v) Rain water harvesting scheme may be developed after obtaining necessary permission from local authorities.
- (vi) Tubewell may be provided after obtaining feasibility report & NOC from district collector. If tubewell is not feasible, water supply may be sought from PHED.
- (vii) The provision of inaugural stone of size 3'x 2 $\frac{1}{2}$ ' be kept at entrance foyer.
- (viii) Feasible & economic Scheme for development works in GSS shall be approved by the concerned ACE (Civil).
- (ix) Clarifications & variations, if any, may be brought to the notice of this office.


(Atul Sharma)
 Chief Engineer (Civil)

SPECIFICATIONS (APRIL 2019) FOR OTHER CIVIL WORKS

S.No.	Name of work	Revised specification	Remarks
1.	Cable Trenches		
	a) Base Concrete	100mm thick C.C. 1:4:8	
	b) Masonry	RR stone masonry in cement sand mortar 1:6	(I) Height of masonry shall be kept as per depth of trench (II) If good quality stone is not available, A.C..E. (Civil) may permit the use of Bricks/Fly ash bricks masonry
	c) Finishing	12/20mm thick plaster in cement mortar 1:6, as per type of masonry	i) 150 mm thick RCC band of M-20 grade over the masonry shall be taken out to outer edge of walls . ii) Heavy duty covers for road crossing to be provided. iii) 'D' type trenches be replaced by 230 mm/300 mm cement pipes with inspection chambers.
	d) Trench Covers	End to end (on complete wall) covers may be provided.	
e) Flooring	40mm thick C.C. flooring (1:2:4) with glass strips		
2.	Boundary wall / Toe wall		
	a) Base concrete	150 mm thick C.C. 1:4:8	
	b) Foundation Masonry	RR stone masonry in cement sand mortar 1:6	(i) If good quality stone is not available, S.E. (Civil) may permit the use of Bricks/Fly ash bricks masonry
	c) S/S Masonry	RR stone/brick masonry in cement mortar 1:6 and pillar masonry in CM 1:4	(i) Fly ash bricks for masonry may also be used.
	d) Finishing	(i) 12/20mm thick plaster in cement mortar 1:6 (ii) Weather coat paint applied on exposed pillars and edges of coping of B/Wall (iii) Colour washing/ white washing shall be done in remaining area.	(i) Boundary wall in front of C.R. 2' height railing may be provided. (ii) The width of gate for transformer track only shall be 6 meter wide excluding site wicket gate.
	e) Residential Quarters Boundary Wall.	(i) Foundation-RR stone masonry. (ii) S/S-Brick partition wall with brick masonry pillar in between. (iii) Wall to be finished with 12/20 mm plaster (iv) Followed by white cement putty & weather proof paint as per drawing, including provision of light duty M.S. Gate with steel section pillar encased of masonry.	(i) If good quality stone is not available, S.E. (Civil) may permit the use of Bricks/Fly ash bricks masonry for foundation. (ii) Fly ash bricks for S/S masonry may also be used.
3.	Structure foundation		
	a) Base Concrete	100 mm thick CC 1:4:8	For all type of foundations.
4.	Cement Concrete Road		
	a) Sub Base	150 mm thick Quarry Rubbish/ Morrum/ Granular sub base	Width of road as per Electrical layout. Upto 60 cm wide berm to be provided on each side and berm shall be strengthened with Granular sub base/quarry rubbish as

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			per availability of material followed by interlocking tiles/brick on edge. Kerb stones may also be provided on main roads
	b) Base Concrete	100 mm thick 1:4:8	
	c) Top layer	150 mm thick cement concrete pavements of M-20 Grade. (Without reinforcement)	i) Concrete to be done using vacuum dewatering system or as per approved by SE (Civil) ii) Integral admixture may be used with permission of S.E.(Civil).
5.	Bitumen Road		
	a) Sub Base	150 mm thick Quarry Rubbish/ Morrum/ Granular sub base	Width of road as per Electrical layout. Upto 60 cm wide berm to be provided on each side and berm shall be strengthened with Granular sub base/quarry rubbish as per availability of material followed by interlocking tiles/brick on edge. Kerb stones may also be provided on main roads
	b) Base	Water Mix Macadam in two layers of 100 mm each	As per prevailing BSR
	b) Top layer.	25 mm thick Bituminous Macadam	As per prevailing BSR
5.	Fencing		
	a) Yard fencing	(a) Toe wall to be constructed in R.R. stone masonry, having thickness not more than 380 mm. (b) Welded mesh of size 25x25x2.1 mm/ chain link fencing in 1500 mm height & with barbed wire fencing (one side) in angle Iron post at top.	As per drawing
	b) Internal fencing	Same as above with provision of M.S. Railing in place of barbed wire fencing at top.	As per drawing
6.	Grading/Gravelling	40 mm thick single size crushed stone on Interlocking tiles/ brick on edge on finally compacted earth	

Note:

- (i) The above guidelines shall be adopted for repair & maintenance works also.
- (ii) Clarifications & variations, if any, may be brought to the notice of this office.


(Atul Sharma)
 Chief Engineer (Civil)