

## 16. List Of Approved Makes For Civil, Carpentry & Electrical Works



### Make / Specification Detail

Sr. No.	LIST OF NOMINATED MATERIALS & SUPPLIERS	SUGGESTED MAKE LIST
<b>1</b>	<b>INTERIOR WORK</b>	
	MDF / Plywood	NUWUD / Century / Asain / Archid /GREENPLY or equivalent
	Laminated sheet	Archidlam National/ Formica/ Greenlam/MERINO
	Veneer	Green / Duro / Century / Timex / Anchor or equivalent
	Particle board ( only for modular w/s & storage Unit)	Archidply /Greenlam/Century equivalent ISI make
	Acrylic sheet	ICI, GE or equivalent ISI make
	Marine grade plywood	Century, Kitply, Greenply, Anchor, Orchid, Prince
	Adhesive	Fevicol / Araldite/Anchor or equivalent
	Solid Surfaces ( Curion)	DUPOINT/HI-MAC/ STARON OR equivalent
	Marine grade Block Board	Century, Kitply, Greenply, Anchor, Orchid or equivalent
	Flush Door	Century, Kitply, Greenply, Anchor, Orchid or equivalent
	Polish	Asain / Dulex or equivalent
	Latex	MM Foam or equivalent ISI make
	High density foam	U Foam or equivalent ISI make
	Locks	Godrej / Haffle / Hettich / Ebco or equivalent
	Storage Hardware	Godrej / Haffle / Hettich / Ebco or equivalent
	Screws / Nails & other accessories	GKW / Nettleford or equivalent
	False Flooring	Kebao , Armstrong , AMF or equivalent
	Vinyl Flooring	Armstrong ,gerflor, Eurotex ,
	Carpet	Unitex, Armstrong,
	Wooden laminated flooring	Pergo / Armstrong / Euro / Squarefeet or equivalent
	Plain/Toughened glass	Saint- Gobain, Indo Asahi , Modi or equivalent
	Hardware for general staff areas	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Hardware for main Glass doors (patch fittings)	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Door Closers (general use)	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Floor springs (general use)	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Floor springs for main glass doors	Dorma / Euro/ Ozone / Enox / Ebco /Hamco or equivalent
	Aluminium Sections for Partitions	Jindal / Tata steel or equivalent
	False Ceilings: Gypsum	India Gypsum / Saint Gobin / Asia
	False Ceilings: Grid ( As Approved )	Armstrong / AMF or equivalent
	False Ceilings: Grid ( Metal Ceiling)	Unimech / AMF / Armstrong /
	GI Sections	India Gypsum / Saint Gobin / Jindal or equivalent
	Acoustical False Ceilings: Mineral fiber board	Armstrong, Hunter Douglas / Peritex or equivalent
	POP Punning	Gyprock / India Gypsum / Birla
	Paint	Asian / Nerolac / Dulex / Berger or equivalent








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	Exterior Paint	Asian / Nerolac / Dulux / Berger or equivalent
	ACP ( Exterior / Interior)	Alstone / Eurobond /Alucobond
	Cylicon	G E / Dow corning / Wacer
	Rolling / Vertical Blind	Vista / Peritex / Winfab / MAC or equivalent
	Frosted Film	Garware or equivalent
	Aluminum Skirting - 50mm	Jindal or equivalent
	Water Proofing	Pidilite or equivalent
	HardWood	Salwood / Teakwood/kapoor
	Automated Rolling Shutter	Gandhi Automation/Toshi Automatic Systems/Akash Rolling Shutter
	Glass	Saint Gobin / equivalent
<b>2</b>	<b>Plumbing</b>	
	CP Fitting	Jaquar /Hindware or equivalent
	Sanitary Ware	Hindware / Cera / Parryware or equivalent
	Sanitary Fittings	Jaquar /Hindware
	Geyser	Bajaj / Sphere Hot / Crompton /Racold / V Guard / Havells
	Stainless Steel sink	Nirali / Diamond or equivalent
	C.I. Pipe	Bengal Iron Corporation or equivalent ISI make
	Urinal Partition Glass	Merino / Saint Gobain/ Modi / Asai
	GI Pipe	Tata/ Jindal / Zenith or equivalent
	CP Fitting	Pince /Astral or equivalent
	PVC & CPVC Pipe	Pince /Astral or equivalent
<b>3</b>	<b>Civil Work</b>	
	Ceramic Tiles/vitrified homogeneous glazed tiles.	HR Johnson, Kajaria, Nitco,ASL or equivalent
	Cement	Ultratech , ACC , JK Cement , Ambuja
	Chemical Pasting (Tiles)	Pidilite , Fosroc , Eurokart
	Steel	Sail ,Tisscon , Ispat , Tata
<b>4</b>	<b>Electrical</b>	
	Light Fittings	Philips / Wipro / Osram / Havells / Crompton G.
	MCCB, MCB , RCCB, DB, ICTPN TP, HRC Fuse, cahnge over switch, switch fuse Unit	L&T, ABB, Legrand, Siemens, Schneider
	FRLS insulated Elec. Wire/ cable armoured, unarmoured, Sheathed,unSheathed, flexible LT cable, Multi core, single core cable, flat cable	Finolex/Ploycab/Havells/RR kabel/KEI
	PVC conduit(HEAVY DUTY ONLY)	CAP/Finolex/Polycab
	PVC insulated copper conductor Wires	Finolex/ Polycab/RR Cable
	Distribution Box	Legrand/ Schneider/ ABB/Siemens
	MCB & MCCB	Legrand/ Schneider/ ABB/Siemens/L&T

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	Light Fixture & Lamps	Philips/ Wipro Osram / Havells / Crompton G./ Halonix
	HT cable	Polycab/Havells
	Modular Switches	ABB/ Legrand/ MK/ANCHOR/ELLEYS/ROMA
	DLP Trunking	Legrand/Schneider or equivalent
	Power cable	CCI/ Skytone/ Universal/ LAPP/ Torrent
	End Termination	Raychem/ Mahindra/ELMEX
	PANEL	Crompton/L&T/C&S
	Fan	Crompton/Havells/Bajaj/Usha
	Raceway & Alu. Trunking	Tata/Jindal/Zenith
	Casing Caping	Finolex/Cap or equivalent
	Weather proof socket outlet with MCB	ABB/MDS/LEXIC/Neptune/Elcon- Clipsil, Siemens, Schneider (Merlin Gerin)
	Miniature Circuit Breaker	ABB/MDS/LEXIC/ Clipsil/Siemens/HPL
	Earth Leakage Circuit Breaker	MDS/LEXIS/Siemens/HPL
	MCB Distribution Boards in sheet steel housing (double door)	ABB/MDS/LEXIC/Siemens/HPL
<b>5</b>	<b>Distribution</b>	
	MV Contractor/Timer/Relays/Starters	Legrand/ Schneider(MG)/ ABB/Siemens/L&T
	Moulded case circuit breakers	Legrand/ Schneider(MG)/ ABB/Siemens/L&T
	SFU/Fuses	HPL/ L&T. Siemens, GE Power, Schneider (MG)
	ACB	Schneider(MG)/ ABB/Siemens/L&T
	Single Phase Preventer (Current base)	L&T, Minilec
	Raising Mains & Tap Off (Power coated)	Zeta, C&S, Siemens
	MV Switchboards (Powder Coated)	Tricolite Electrical Industries, conlec Enginners Pvt. Ltd, Vidyut Control Pvt Ltd., Trinitron Milestone Switchgear, Unilec Ltd, Madhu Electrical Advance Electro Control Pvt Ltd.
<b>6</b>	<b>Low Tension System</b>	
	Light & Fan Wire	Polycab, Finolex, Havells
	Telephone Wires	Delton, Skyline, Finolex, Rallison, Batra Henley
	Telephone Tag Blcoks	Krone / Pouyet/ TVS
<b>7</b>	<b>Cables and Accessories</b>	
	1100Volts grade Cables	CCI, Universal, Fort Gloster, Polycab, RPG (Asian), Nicco
	Cable Lugs	Dowells
	Cable compression Glands	Peeco/ Comet

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	Cable Trays / Cable ladders	Slotco, Bharti, RICCO, Pilco, MM Enterprises
<b>8</b>	<b>Metering &amp; Protection</b>	
	Cast Resin current transformers	Gilbert Maxwell, Kappa AE, Precise
	Meters (Digital)	L&T Roshab, Automatic Electric, Siemens, Socomex
	Selector switches	HPL/L&T Salzer, Kaycee
	Indication lamp	L&T Vaisno Teknik
	KWH Electronics Digital Meter	Secure, L&T, Enercon, Socomec- HPL
<b>9</b>	<b>EPABX</b>	
	Exchange/ Console Panel	Copper connection, Flash Hymax, Accord CG, Tata Telecom, Panasonic
	CVT	Logicstat, Blue Bird, Selvon, Max Power
	UPS	HPL- Socomec, Tata Liebert, APC, Invensys, Copper Connection
	Hand Set	Beetel, Tataphone, Crompton
	Tape off	Cat Vision, Shyam
<b>10</b>	<b>Electrical Items</b>	
	Panel Switch Gear & related Item	
	LT Panel/Bus Duct	By any Panel manufacturer who process C.P.R.I. certificate for specified fault level & IP level protection
	Fuse Disconnecter switch/switch fuse unit	L&T, Siemens/ Schneider/ABB/Legrand
	Ammeter Voltmeter	AE/L&T/MECO/Rishab
	Digital Meters/ Intelligent Multifunctional Digital meter	AE/HPL/CONZERV
	Selector Switch, Push button switch / emergency switch	KAY CEE/ L&T/ Siemens/ Schneider
	Indication Lamp	AE/L&T/Siemens/ Schneider
	CT's	L&T / AE/ Kappa
	AT's	L&T/Siemens/ Schneider/ legrand
	Voltage stabilizer for air conditioner (4/5KVA)(170-270V)	V Guard/Microtek
	Air Conditioner - Split Inverter AC(5 star) - (.75 ton - 1ton,1.5 ton,1.8ton-2ton)	Daikin/Blue Star/ Carrier
	Air Conditioner - Cassette Inverter AC(5/4/3 star) - (2.9 ton - 3.5 Ton)	Daikin/Blue Star/ Carrier
<b>11</b>	<b>Transformer</b>	
	Distribution Transformer	Jindal /Areva/ Muskan/Alstrom
	11 or 33 KV VCB	Crompton/ Alstom/ ABB
	HT Termination & Jointing kit	Ray Chaem / Mahindra/ ELMEX
	Cable Glands	Dowells / Siemens/Braco
	Lugs & Thimbles	Dowells / Johnson
	Upto & including 11KV cables (ISI markes)	CCI/ Skytone/ Gloster/ Havells
	Insulating Mats	ISI Marked

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	Capacitor Bank (ISI marked)	GE Power/ BHEL/EPCOS/ L&T
	Lightning Arrestor	Altas/ Alstom/ GE power
	Protection & Other Relay	ABB/ Siemens/ Schneider/ L&T/ Allen Bradley
<b>12</b>	<b>Internal Wiring Related Works</b>	
	MCB/RCCS/Isolators (ISI) marked MCB DB	L&T Siemens/ Schneider/ Legrand
	PVC Conduit	CAP / BEC/ Seiko/ AKG
	PVC insulated copper wire (ISI marked)	Skyline/ Finolex/ Havells/ Ploycab
	Telephone Cable	Skytone/ Delton/ NICCO/Polycab/ Finolex
	Switch, TV & Telephone socket & boxes (Modular Type)	CPL/ Legrand/ABB/Anchor
<b>13</b>	<b>Miscellaneous Items</b>	
	Lightning Protection Unit	Erico/ Pheonix/ INDELEC
	Relays	L&T/ABB/Siemens/BCH
	Contractors	L&T/ GE Power/BCH/ Siemens/ABB
	Changeover switch	C&S/Havells/ L&T/HPL
	KWH, PF, Frequency meter	BHEL/ AE/Havells/ L&T/ALSTOM
	Push Buttons	L&T/ Siemens
	Timers	L&T/ Legrand/ Schneider/Siemens/GE
	Timer Switch	L&T/ Legrand/ Schneider/Siemens/GE
<b>14</b>	<b>Networking</b>	
	Switches	Brocade/Cisco/Digi-Link/3Com/Nortel/Foundry/D-Link
	Patch Panel,Patch cord and I/o	Digi-Link / Tyco(AMP) /Schneider/D-Link
	Cable	Digilink/Clipser/National/Polycab/Lapp/Finolex
	Racks	ComRack / HCL / ValRack / APW President
<b>15</b>	<b>Modular</b>	
	Extruded aluminum sections	Hindalco, Sant aluminum, Midi extrusions
	Pre laminated particle board	Action Tesa, Associate Décor, Asis, Century (interior grade -2)
	PVC lipping	Rehau, Dolkin
	Hinges/storage and pedestal locks/minifix fittings/sliding channels etc.	Ebco, hafele, Hettich or equivalent
	8 mm Glass	Modi, Saint gobain, Asahi
	Door locks for cashier cabin	Godrej, Enox, Doorset, Ultra, Ebco
	Hydraulic door closer	Yele, Enox, Everite, Ebco
	Powder coating	Paramount, Narolac
	Fabric for panel	Response
	MDF	8mm / 10mm / 12mm / 18mm MDF

**Light fittings ( Only for reference / indication purpose )**

<p><b>WIPRO MAKE – Immaculate series - 600 mm x 600 mm – 36 W - CRCO10R036HP57.</b>  <b>(or equivalent make)</b></p>	
<p><b>WIPRO MAKE – Halo make – 6W - CRDL11R008HP57.</b>  <b>WIPRO MAKE – Halo make – 22W - CRDL11R023HP57.</b>  <b>(or equivalent make)</b></p>	
<p><b>WIPRO MAKE – Trim LED – 24W - LL20-221-XXX-60-XX.</b>  <b>(or equivalent make)</b></p>	
<p><b>PHILIPS MAKE – Smart Glow – 600 mm x 600 mm - 37W.</b>  <b>(or equivalent make)</b></p>	
<p><b>PHILIPS MAKE – Green LEDi – 7W and 12 W</b>  <b>(or equivalent make)</b></p>	
<p><b>PHILIPS MAKE – Line Light– 28 W.</b>  <b>(or equivalent make)</b></p>	

## CALCULATION OF LUX LEVEL

(This is only for illustration. Actual requirement to be ascertained keeping in view of the site condition, viz. Floor Height, Color of walls, nature of utility of the Office etc.); Recommended Values of illumination shall be as per BIS 3646; Ref: General Specification of Electrical work by CPWD

Every premises needs different light level requirements. A showroom requires more light than library. Living room needs more light than bedroom. You can find many sample data for your premises on internet. Here are some data.

- Halls and conference rooms – 500-600 lx
- Office space – 350lx – 450 lx
- Stairs in public buildings – 75 lx

**Illustration:** Let's have a practical example of how many LED lights are required in a room.

[Measure the area of premises; Calculate area = Length X Width]

If we consider a room of 12 feet x 12 feet size, then area will be 144 sq.ft.

Now we need area in sq.meter so you need to multiply with 0.093

We have now area =  $144 \times 0.093 = 13.39$  sq. meter

Now consider an Office room of size 13.39 sq. meter. We want say, 350Lx, so we need to multiply.

**Lumens = 350(Lux) x 13.39(area) = Around 4600 Lumens**

**Now choosing lights:**

A typical well built LED downlight provide 80-110 Lumens per watt, let's consider 100 lumens.

1 Watt = 100 lumens.

Total wattage =  $4600/100 = 46$  Watt

So we need total of 46W LED light to get 4600 lumens and 350 Lux for our sample office room.

That means number of LED lights/fixture proposed may be of

28 watt, 2X2 Light Ceiling fixture-1 no

10 watt, Down lighter fixture- 2 nos

OR

10 watt, Down lighter – 4 nos

7 watt, Down lighter 1 no

OR

Any such suitable kind of combinations keeping in view of the Site requirement, wattage of LED lights being used etc.