



सत्यमेव जयते

GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT

SUPPLEMENT
to
PLINTH AREA RATES- 01.10.2012
for
SPECIALISED E&M WORKS



PUBLISHED
By
DIRECTOR GENERAL, CPWD, NIRMAN BHAWAN, NEW DELHI



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महानिदेशक
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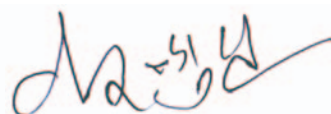
FOREWORD

For quite some time the need was felt to have the rates for preliminary estimation of various E&M services in the built environment. As more and more built environments are created vertically upwards, more and more services are required to be added up. Further, sustainability in the built environment is also contributing towards addition of number of services. Thus, we need to have electrical sub-station to cater to the power requirement of the building, power back up in the form of DG sets, second power back up as UPS, vertical power distribution for each floor i.e. rising mains, comfort air conditioning, precision air conditioning for special equipments, grid interactive solar power generation system, solar water heating, building security system, building management system, vertical transportation system, fire fighting, fire alarm system and so on and on.

It is thus very essential to incorporate provision for all the above systems/services in the preliminary estimate so that no separate sanction is required to be envisaged at a later date. It is thus a humble attempt to bring rates for various services in the form of a single parameter like KVA for sub-station and DG sets, CCTV as per square meter of built area etc. to facilitate preparation of preliminary estimate on comprehensive basis and also to bring uniformity of rates by all field formations of CPWD across the length and breadth of the country.

Thus appropriately this supplement to PAR for specialized E&M works is born which has a contribution from Spl. DG (NR), ADG (E&M) and concerned Chief Engineers. I am also thankful to the members of the 58th Specifications Committee who had taken keen interest in the deliberation and finalized the draft expeditiously. And finally the CE CSQ (Electrical) and his team of officials are to be credited who had taken the responsibility in making this supplement available in a short time.

PLACE : NEW DELHI
DATE : July ' 2013


(V.K.Gupta)
Director General , CPWD



राकेश कुमार सिंघल
विशेष महानिदेशक (उत्तरी क्षेत्र)
RAKESH KUMAR SINGHAL
SPECIAL DIRECTOR GENERAL (NR)



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PREFACE

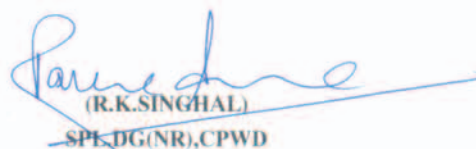
The scope of E&M services in the built environment has increased many folds due to vertical habitation and technological up gradation. Therefore, a need was felt to devise Plinth Area Rates for E&M services in order to facilitate speedy preparation of Preliminary Estimates.

This supplement to PAR for specialized E&M works is therefore a sincere and appreciable attempt by the CSQ (Electrical) unit of the department to come out with rates of various E&M services for the preparation of the Preliminary Estimate. This will certainly help the field formations to incorporate the provisions of various essential E&M services in the Preliminary Estimate. This will also help to bring uniformity in the preliminary estimation of E&M services.

The rates adopted here are based on the detailed analysis of the various quotes from the manufacturers as well as awarded rates of important CPWD projects. It is hoped that more and more additions will be made in the coming future to make it more comprehensive and useful to all concerned.

Accordingly, fresh plinth area rates for E&M works with base 100 as on 01.04.2013 has been prepared for circulation in the department.

PLACE : NEW DELHI
DATE : July ' 2013


(R.K.SINGHAL)
SPE.DG(NR),CPWD

CHAIRMAN SPECIFICATION COMMITTEE



भारत सरकार
Government of India
अपर महानिदेशक (प्रौ.वि.)
Additional Director General (TD)
केन्द्रीय लोक निर्माण विभाग
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NO : 10(10)/CE(E) CSQ/Plinth Area Rates/411

Dated : 11/07/13

MEMORANDUM

Plinth Area Rates as applicable on 1.10.2012 were last circulated under Memo no. 62 /SE(TAS)/Plinth Area Rates/399 dated 24/12/2012 alongwith annexure I to V. However, the need for issuing supplement to PAR-1.10.2012 for specialised E&M works has been felt due to increase in no. of E&M services in the built environment.

Accordingly, supplement to PAR-1.10.2012 for specialised E&M works with base 100 as on 01.04.2013 has been prepared for circulation in the department. In future, all the preliminary estimates for E&M works in a building need to be prepared on the basis of these plinth area rates.

This supplement to PAR-1.10.2012 for specialized E&M works as on 01.04.2013 is hereby issued and is applicable with immediate effect.

(V.K. Rokade)

Addl. Director General (TD), CPWD

PLACE : NEW DELHI
DATE : July ' 2013

MEMBERS OF SPECIFICATION COMMITTEE FOR E&M WORKS

1.	Shri R.K.Singhal Spl. DG (NR)	Chairman of the Committee
2.	Sh. S. Khan ADG PWD , NCTD , Delhi	Member
3.	Sh. Mukesh Vij, CE(E) IBBFLZ, Siliguri	Special Invitee
4.	Sh. P.K Garg, CE(NDZ-VI)	Member
5.	Sh. Pyare Lal, CE(E) BFLZ	Member
6.	Sh. Prabhakar Singh, CE(NDZ-I)	Member
7.	Sh. A.S. Arora, CE(E) Trg.	Member
8.	Sh. S.K.Chawla, C.E.(E) PWEZ	Member
9.	Sh. A.K. Ahuja CPM, IIM Manesar	Member
10.	Sh. Gurvinder Singh C.E.(NDZ-VII)	Member
11.	Sh. C.K. Varma C.E.(E) CSQ	Member
12.	Sh. Surender Singh, DDG(Pers)	Member
13.	Chief Technical Examiner	Member
14.	Chief Architect (NDR)	Member
15.	Sh. M.K. Verma S.E.(E)	Member
16.	Sh. J.M. Paswan S.E.(E)	Member
17.	Sh. Mathura Prasad S.E.(TAS)	Member
18.	Sh. Harish Kumar S.E.Vig.	Special Invitee
19.	Sh. Vimal Kumar S.E.(E) PWD , NCTD	Special Invitee
20.	Sh. Rajeev Kumar Sao SE(E) Chandigarh	Special Invitee
21.	Sh. N.K. Bansal S.E.(E) DCEC VI	Special Invitee
22.	Sh. S.S. Garg SE (E)TAS	Member Secretary

REFERENCE TO AMENDMENTS

S.No.	Reference under which issued	Item No.	Page No.	Remarks

INTRODUCTION

Keeping reasonable provisions for E&M services in the Preliminary estimate of a project for built environment is a very important task and needs to be done very judiciously so that no essential provision is left unincorporated. This needs careful consideration of the building envelope as well as comprehensive consultation with the client to understand his needs. The costing should not only be realistic considering the time taken by the client to accord AA & ES which may vary and may even take one to two years but should also obviate the need to go for Revised Estimate.

The foremost task in this direction is therefore to list out all essential E&M components so that no important E&M provision may be missed out. Following is therefore an exhaustive list of various E&M components in a building which again is dependent on the type of building, its utility and local bye laws etc.

1. Internal electrification of building
2. Power outlets
3. Central Call Bell System
4. Lighting Conductor
5. Computer, LAN, Internet, EPABX, Cable TV etc.
6. Wet riser /downcomer /Sprinkler System
7. Fire alarm/detection & PA system
8. Mechanical Ventilation System
9. Lifts
10. External lighting – Road lighting, compound, garden, area lighting, facade lighting, landscape lighting, Illuminated water fountains, architectural lighting or any other special lighting like sports lighting for Stadium
11. Exit signage system
12. Electric Sub Station including HT equipments, Transformers, LT panels, bus ducting, APFC panels, sub station earthing, safety equipments, interconnection cabling etc.
13. DG Sets
14. Rising Main
15. Bus Trunking
16. UPS System
17. Central AC Plant
18. Variable Refrigerant Flow Systems
19. Precision Air Conditioning System
20. Solar power generation System
21. Solar water heating System
22. Building Security system- CCTV, Access control and intrusion alarm system
23. Building Management System
24. Water Supply Pumps with or without automation or Hydro pneumatic system
25. Automatic Lighting Controls
26. Voltage Stabiliser

27. Fire Extinguishers
28. Gate security system including boom barriers, bollards etc.
29. Kitchen Equipments
30. Sound reinforcement/Conference/Simultaneous interpretations System
31. Projector/Stage lighting
32. Boilers/incinerators
33. Laundry equipments
34. Centralized Clock System
35. Oxygen Generation Plants

This list is indicative only and there may be more inclusions here depending on the specific requirement of the client or technology up gradation.

Preparation of the preliminary estimate for E&M services thus envisages all the services needed at the time of occupation of the building and hence a proper selection of services out of the list of above is a basic requirement. Once this is done, next step is to keep adequate provisions for execution of these services. The aim of this document is therefore to provide suitable cost guidelines for providing adequate provisions in the Preliminary Estimate and the costing of some of the widely required Items from the aforesaid list has been included in this supplement. As no document is said to be perfect and so this one too aims at reasonable approximation only. This document also aims to avoid omission of essential E&M components in a building which causes occupational delay as well as inconvenience to the user. Thus it aims to provide fair guideline for arriving at a reasonable costing for the essential E&M services.

I am indebted to Shri V.K.Gupta, Director General, CPWD for his positive energy and immense interest which made this publication possible. I am also grateful to Shri R.K.Singhal, Spl. DG (NR) and all officers of E&M wing for their valuable contributions. Any suggestions for improvement are welcome.

PLACE : NEW DELHI

DATE : July' 2013



(C.K. VARMA)

Chief Engineer CSQ (E),
CPWD, New Delhi

PLINTH AREA RATES FOR SPECILISED E&M SERVICES

Sl.No.	Description of item	Rate in Rupees
1	<u>SUB-STATION EQUIPMENTS</u> Supplying installation testing and commissioning of 11/0.433KV Sub-Station equipments comprising H.T. Panel, Transformer, HT Cable, Bus trunking from Transformer to LT Panel, LT Panel, Automatic power factor corrector panel, Essential Panel i/c Earthing, inter connecting power cables in sub- station, safety equipments.	7000/- per KVA
2	<u>DIESEL GENERATOR SET</u> Supplying installation testing and commissioning of silent type D.G. Set, AMF Panel, Bus Trunking /cables from DG Set to essential panel, control cable, Earthing of DG Set and AMF Panel, DG set exhaust piping as per CPCB norms and minor allied works.	10000/- per KVA
3	<u>RISING MAINS</u> Supplying installation testing and commissioning of compact air insulated Rising mains comprising of end feed units and tap off boxes with suitable capacity 4 pole MCCB, separators, flexible joints, i/c bends, elbows and earthing having 35KA breaking capacity and IP 54 protection.	
3.1	<u>With Aluminum bus bar</u>	
3.1.1	125A	18600/- per meter
3.1.2	200A	22200/- per meter
3.1.3	315A	23700/- per meter
3.1.4	400A	25200/- per meter
3.1.5	500A	27900/- per meter
3.1.6	630A	30300/- per meter
3.1.7	800A	36200/- per meter
3.1.8	1000A	45300/- per meter
3.1.9	1250A	49200/- per meter
3.2	<u>With Copper bus bar</u>	
3.2.1	125A	25200/- per meter
3.2.2	200A	25200/- per meter
3.2.3	315A	34700/- per meter
3.2.4	400A	36200/- per meter
3.2.5	500A	41300/- per meter
3.2.6	630A	47400/- per meter
3.2.7	800A	58800/- per meter
3.2.8	1000A	76000/- per meter
3.2.9	1250A	86000/- per meter

Sl.No.	Description of item	Rate in Rupees
4.0	<u>BUS TRUNKING</u>	
4.1	<u>COMPACT AIR INSULATED</u>	
	Supplying installation testing and commissioning of compact air insulated Bus Ducting (For Horizontal run outside sub-station) separators, flexible joints, i/c bends, elbows and earthing having 50KA breaking capacity and IP 54 protection.	
4.1.1	<u>With Aluminum Bus Bar</u>	
4.1.1.1	630A	10100/- per meter
4.1.1.2	800A	13000/- per meter
4.1.1.3	1000A	14900/- per meter
4.1.1.4	1250A	19500/- per meter
4.1.2	<u>With Copper Bus Bar</u>	
4.1.2.1	630A	24300/- per meter
4.1.2.2	800A	31700/- per meter
4.1.2.3	1000A	40100/- per meter
4.1.2.4	1250A	46200/- per meter
4.2	<u>SANDWICH TYPE</u>	
	Supplying installation, testing and Commissioning of Sandwich bustrunking including vertical and horizontal bends, adopter box, flange end and flexible joint with suitable earthing strips having 50KA breaking capacity and having IP 54 protection.	
4.2.1	<u>With Aluminum Bus Bar</u>	
4.2.1.1	630A	10621/- per meter
4.2.1.2	800A	12884/- per meter
4.2.1.3	1000A	14500/- per meter
4.2.1.4	1250A	16522/- per meter
4.2.1.5	1600A	20790/- per meter
4.2.1.6	2000A	24419/- per meter
4.2.1.7	2500A	32993/- per meter
4.2.1.8	3200A	36987/- per meter
4.2.1.9	3600A	42400/- per meter
4.2.1.10	4000A	47350/- per meter
4.2.2	<u>With Copper Bus Bar</u>	
4.2.2.1	630A	30000/- per meter
4.2.2.2	800A	35900/- per meter
4.2.2.3	1000A	47900/- per meter
4.2.2.4	1250A	62500/- per meter
4.2.2.5	1600A	74700/- per meter
4.2.2.6	2000A	101500/- per meter
4.2.2.7	2500A	128500/- per meter
4.2.2.8	3200A	139800/- per meter

Sl.No.	Description of item	Rate in Rupees
4.2.2.9	3600A	164600/- per meter
4.2.2.10	4000A	188900/- per meter
5.	<u>UNINTERRUPTED POWER SUPPLY</u>	
5.1	Supplying installation testing and commissioning of online UPS system with 30 minutes backup i/c batteries.	20000/- per KVA
5.2	Add for every additional 30 minutes backup.	8000/- per KVA
6	<u>CENTRAL AC PLANT</u>	
6.1	Supplying installation testing and commissioning of Energy Efficient Central AC Plants	75000/- per TR
6.2	Add for stand by Chilling units system(High side)	40000/- per TR
7	<u>VRV/VRF AC SYSTEM</u>	
	Supplying installation testing and commissioning of VRV/ VRF System i/c indoor, outdoor units, piping, cabling/ bustrunking/ risingmain(within the building), wiring, electrical panel and also treated fresh air system.	55000/- per HP
8	<u>PRECISION AIR-CONDITIONING SYSTEM</u>	
	Supplying installation testing and commissioning of Precision Air-conditioning system i/c piping,controller and cabling etc. required for the system.	110000/- per TR
9	<u>SOLAR PHOTO VOLTAIC POWER GENERATION SYSTEM</u>	
	Supplying installation testing and commissioning of Grid interactive roof top solar photo voltaic power generation system i/c space frame.	125000/- per KWp
10	<u>SOLAR WATER HEATING SYSTEM</u>	
	Supplying installation testing and commissioning of Solar water heating system of following rated capacity and region i/c electrical heater back up and make up tank but without piping.	
10.1	Solar Water Heating system with heat exchanger type 1 for cold region	
10.1.1	200 liter per day	46000/-
10.1.2	300 liter per day	64000/-
10.1.3	1000 liter per day	210000/-
10.2	Solar Water Heating system with heat exchanger type 1 for warm region	
10.2.1	200 liter per day	45000/-
10.2.2	300 liter per day	61000/-
10.2.3	1000 liter per day	230000/-
11	<u>CCTV SYSTEM</u>	
	Supplying installation testing and commissioning of IP based CCTV system for building security comprising of PTZ, Fixed camera, cabling, recording, display system and hardware and software support.	300/- per sq. meter

Sl.No.	Description of item	Rate in Rupees
12	<u>ACCESS CONTROL SYSTEM</u> Supplying installation testing and commissioning of Access control system for building security comprising of Controller, E&M locks, Reader, Smart cards, cabling, recording, display system and hardware and software support.	200/- per sq. meter
13	<u>BUILDING MANAGEMENT SYSTEM</u> Supplying installation testing and commissioning of Building management system etc. cabling, recording, display system and hardware and software support.	
13.1	Built up area up to 10000 sq mt.	30 lacs
13.2	Add extra for built up area beyond 10000 sq mt.	100/- per sq. meter
14	<u>HYDROPNEUMATIC WATER SUPPLY SYSTEM</u> Supplying installation testing and commissioning of Hydropneumatic water supply system consisting of 3nos pumps(2 working+1 stand by) i/c microprocessor based control panel and VFD complete as required.	2000/- per LPM
15	<u>OCCUPANCY SENSORS</u> Supplying installation testing and commissioning of occupancy sensors.	75/- per sq. meter

Note :

1. In item no.11, Rates are per sqm of built up area & includes peripheral IP based PTZ camera, besides required indoor cameras at reception, corridors, lift lobby etc.
2. In item no.12, Rates are per sqm of built up area and it does not include Vehicular access control system.
3. In item no.15, Rates are per sqm of built up area.



NOTE

Central Public Works Department (CPWD)

In the service of the nation since 158 Years.

Under the Ministry of Urban Development, Government of India, CPWD provides single window services for all facets of the government built environment in India and abroad.

With its huge resource of skilled and competent engineers, architects and horticulturists, CPWD's strength is its country wide presence, with proven ability to undertake a whole range of complex constructions under difficult terrains. The department has the capacity to undertake a range of work varying from the smallest works in the remotest of places to mega projects in metro cities. These works include the construction and maintenance of government structures such as residential complexes, offices, schools, laboratories, hospitals, sport facilities, stadia, gymnasia, auditoria, storages, highways, flyovers, tunnels, bridges, jetties, airports, runways and border road & fencing , high altitude roads, Intra-campus facilities such as water and electric supply, sewerage and treatment plants are also provided.

CPWD also discharges other functions such as the custody of estates, valuation, rent assessment, technical advice to government, consultancy services, standardization and benchmarking, State Ceremonies (Republic Day, Samadhis, etc.), processing of DPRs for development of urban infrastructure under JNNURM, North –Eastern region and works of other Ministries for centrally funded works. CPWD also assists in organizing public and ceremonial functions, and upkeep of historical and important monuments.

Supplement to PAR – 01.10.2012 for specialized E&M works

This publication aims to facilitate preparation of Preliminary Estimate of any modern building with great ease and without the risk of omission of important E&M services which causes occupational delay and inconvenience to the user. The provisions of different E&M works like sub-station, DG sets , UPS system , Rising Mains , VRF System, Precision AC System, solar photo voltaic system, solar water heating system, CCTV System, Building Management System etc. have been conceived on unitary basis. Thus this supplement is an attempt towards reasonable assessment of provisions of various E&M services in the preliminary estimation of built environment.



CENTRAL PUBLIC WORKS DEPARTMENT
Ministry of Urban Development,
Government of India
www.cpwd.gov.in