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From

Chief Engineer/P&D,  
DHBVN, Hisar.

To

1. All Chief Engineers (OP) in DHBVNL
2. All S.Es (OP) in DHBVNL.

Memo No.Ch-38/P&D-932/Vol.-III Dated: 09-05-2011

**Subject: - Amended Detailed Guidelines for electrification system in the colonies/ multi-storey buildings developed by HUDA/ HSIDC/ Colonizers Licensee/SEZ.**

Enclosed please find herewith guidelines, on the subject cited above. Please keep the above guidelines, in view, while sanctioning the bulk and other electrical connection and layout plans in the area of new sectors, being developed by HUDA/HSIDC/Colonizers licensee/SEZ.

Guidelines issued by this office, vide instruction no. 3/2011/P&D, bearing memo no. Ch-15/P&D-932/Vol.III dated 25.02.2011, are hereby withdrawn.

This issue with the approval of WTDs at NP - 16 of file P&D - 1003.

DA/As above

Chief Engineer/P&D,  
DHBVNL, Hisar.

Endst. No. Ch-38/P&D-932/Vol.-III

Dated: 9-5-2011

Copy of the above is forwarded to the following, with the request that the above guidelines may, please, be kept in view while providing electrical system in the colonies, multi-storey buildings, being developed by HUDA/HSIDC/Colonizers Licensee /SEZ. The above guidelines may be issued in respect of authorized colonies and SEZ.

1. Engineer-in-Chief, HUDA, Panchkula.
2. S.E./Electrical, HIDSC, Gurgaon.

DA/As above

Chief Engineer/P&D,  
DHBVNL, Hisar.

**CC to:**

1. Sr. P.S. to M.D., DHBVNL, Hisar for kind information of Managing Director.
2. PS to Advisor (O&F), DHBVN for kind information of Advisor.
3. P.S. to Director (OP), DHBVN, Hisar for kind information of Director.
4. P.S. to Director (Projects), DHBVN, Hisar for kind information of Director.

**GUIDELINES FOR PROVIDING  
ELECTRICAL SYSTEM IN THE  
COLONIES/MULTI STOREY  
BUILDING DEVELOPED BY  
HUDA/HSIDC/ COLONIZERS  
LICENSEE/SEZ**

**INSTRUCTION NO. 09/2011/P&D**

Issued vide memo no Memo No. Ch-38/P&D-932/Vol.-III      Dated: 09-05-2011

Note: - Guidelines issued by this office, vide instruction no. 3/2011/P&D, bearing memo no. Ch-15/P&D-932/Vol.III dated 25.2.11, are hereby withdrawn.

## CHAPTER – 1

### INTRODUCTION

There are 3 main developing agencies in the State, namely HUDA/HSIDC/ Colonizers Licensee & SEZ. As per the provisions in the Town and Country Planning Act, the developers are required to provide complete infrastructure/ services while developing any residential, commercial or industrial sectors/areas. The important constituent of infrastructure is the electrical system. The electrical system constitutes the availability of feeding source i.e. provision of grid sub stations as per load requirement, transmission lines, indoor switch/distribution sub stations provided for distribution transformers, LT lines and service lines for feeding to the end consumers. The electrical system is provided as per load requirement.

The load requirement, for different category of residential plots and different category of flats, different category of commercial sites, i.e., common show rooms, small booths, shopping malls, resorts, multiplexes having Cinema Houses, restaurants and other activities including company show rooms, company offices etc. varies with the size of plot. All these categories of consumers have different type of electrical load requirement. The load requirement of each category of consumer has been arrived at after considerable load studies.

Load requirement for plotted areas and residential multi storey flats is different. Similarly load requirement for commercial booths, show rooms sites, company's houses, shopping malls, resorts, restaurants and multiplexes is also different. Hence, the norms have been framed separately for each category.

The guidelines, for providing electrical system in the area, being developed by the developers, have been laid down to maintain uniformity. As per the decision taken by the Government of Haryana regarding beautification of urban areas, uniformity of electrical system will play significant role in the beautification of urban areas.

Depending upon locations and requirement, the overhead and underground system has been suggested.

While framing the guidelines, precautions have been taken to meet with the requirement of provisions of grid code for distribution system.

## CHAPTER-II

### Guidelines for electrification of residential sectors.

A:- For sectors having plotted area (assuming sector size of 200acre):

The basis for electrification of any residential sector, having residential plots, is the ultimate load requirement of that particular sector for residential houses and other common & commercial utilities for which the following procedure shall be followed:-

- i) The developer should possess the proper license from the Town Country Planning Department.
- ii) The approved land plan should have the complete details of areas under various categories like size-wise residential plots, detail of plots earmarked for multi storey buildings or group housing societies, size wise commercial plots and the total area to be covered for market, resorts, restaurants, multiplexes, schools, colleges or any other educational institutions, hospitals, dispensary, community centers, police stations, water supply schemes, sewerage disposal schemes, electricity indoor sub station, out door sub stations or any other important utility for which specific land is earmarked.
- iii) On the basis of land area earmarked, as per detail in para-ii above, the load calculation shall be made as per guidelines laid down for specific category of load in specific area/size of plot. The guidelines for load calculations for residential plotted areas are attached as Annexure-I. Load calculations for residential multistory buildings are attached as Annexure-II, load calculations for commercial areas are attached as Annexure-III and load Norms for Economic weaker section (EWS) as Annexure-IV.

After arriving at total load requirement of the sector, the following schemes shall be followed for designing the feeding arrangements of the load of the sector:-

Sr. No.	Load	Voltage level of sub- stations	Type of substation	Land requirement
(a)	Upto 5 MVA	Through Independent feeder from existing Sub- Station of HVPN/DHBVN		
(b)	More than 5 MVA but less than 15 MVA	33 KV Sub-Stations	AIS	2 Acres (120x80 mtr)
(c)	More than 5 MVA but less than 15 MVA	33 KV Sub-Stations	GIS	1/4 Acres (60x20 mtr)
(d)	More than 15MVA	66KV Sub-Stations.	AIS	3 Acres
(e)	More than 15MVA	66 kV Sub-Stations.	GIS	1 Acres
(f)	More than 15MVA	132KV Sub-Stations.	AIS	4Acres
(g)	More than 15MVA	132KV Sub-Stations.	GIS	1.25 Acres

(h)	More than 75 MVA	220 KV Sub-Stn.	AIS	18 Acres
(i)	More than 75 MVA	220 KV Sub-Stn.	GIS	6 Acres
(j)	More than 300 MVA	400 KV Sub-Stn.	AIS	45 Acres
(k)	More than 300 MVA	400 KV Sub-Stn	GIS	8 Acres
(l)	Indoor switching station-cum- complaint centers			

**Note: - The piece of land should preferable be in rectangular shape with length and breadth in ratio 3:2.**

Also, the line corridors have to be provided as per the following norms:-

- |      |                |   |          |
|------|----------------|---|----------|
| i)   | 11 kV          | - | 6 Mtrs   |
| ii)  | 33 kV          | - | 12 Mtrs. |
| iii) | 66/132KV/220KV | - | 35 mtrs. |

The location of the site for sub-station should, preferably be in the centre of the sector and on main road and may be allotted in corner plot to avoid cross-over of other sites.

1. The cost of laying of 11KV independent feeder shall be borne by the developer.
2. The developer shall also bear the cost in proportion with other consumers in case the augmentation of power transformer is required, at the feeding end Sub-Station. However, the works shall be executed by HVPN/DHBVN, as the case may be.
3. Grid Sub Station i.e. 33 KV, 66 KV, 132 KV or 220 KV shall be constructed by the developer, at his own cost and shall be handed over to DHBVN/HVPN free of cost, where ever required.
4. The developer will bear the cost of feeding lines from the feeding source to the grid substation constructed by the developer.
5. At least 2 numbers indoor switching station cum complaint centers, per sector shall be constructed by the developer and shall be handed over to DHBVN, complete in all respect for maintenance and operation.
6. For creation of the above sub stations, if required, the cost of feeding transmission line and its right of way shall be arranged by the developer only.
7. The cost of terminal arrangement, in case of transmission line at DHBVN/HVPN Sub Stations, shall be borne by the developer as per sanctioned estimate/standard design of DHBVN/HVPN.
8. For the creation of sub station/transmission lines, material shall be used as per specification of DHBVN/HVPN. Before erection of major items, inspection will be got carried out from DHBVN/HVPN Authorities. The inspection charges @ 1.5% of the estimated cost of work shall be paid by the developer to DHBVN/HVPN as the case may be.
9. The developer has to make the arrangement of feeding lines.

**Detailed Guidelines for Electrification of New sector/upcoming Urban areas/authorized areas developed by private colonizers.**

**A. For Plots of size 10 Marla and above Category:**

- i) Electrification will be done only through 11 kV line on 11 Mtr long PCC poles. The length of the span will not be more than 40 mtrs. 100mm<sup>2</sup> ACSR conductor shall be used for main 11 kV line & 80mm<sup>2</sup> ACSR conductor will be used for 11 kV spur line.
- ii) Distribution transformers (DTs), completely self protected (CSP) type, of capacity 25/63/100/200/400/630 KVA , depending upon the load requirement as per norms, shall be installed, subject to the condition that LT/HT line length ratio shall not exceed one. The distribution transformers shall have a provision of DT meter. Following points should be followed while laying the LT distribution system:-
  - a) The length of LT line shall be minimum (upto 3 span maximum).
  - b) The span length shall be maximum 35 meters (max.).
  - c) The load on the distribution transformer can be put up to 80% of its capacity.
  - d) The energy meters shall be installed either on H-pole itself or on the pole of LT line erected with armoured cable or outside the consumer premises.
  - e) Both four core & single core XLPE Armoured Cable is to be used for laying 3 $\Phi$ /2 $\Phi$ /1 $\Phi$  system as per site requirement.
  - f) Adequate size of four core/single core cable shall be used as per load requirement.
  - g) The cables will be laid by providing LT insulators strictly as per drawing, circulated vide this office memo no. Ch.- 68/DD-168 dated 26.08.2010.
  - h) Supply, from LT armoured cable to LT bus bar distribution box, shall be tapped with the help of LT insulated connectors.
  - i) The LT armoured cable, from main line to LT distribution bus bar box, will be used as per requirement of load.
  - j) From LT distribution bus bar box to incoming terminal of meter, 2 Core or 4 Core LT armoured cable will be used as per requirement of load.
  - k) From energy meter to consumer premises, unarmoured PVC Cable will be used as per requirement of load.
  - l) The installation of meters, on poles outside consumer premises, will be as per sales circular No. D-39/2007 issued vide CGM/Commercial office memo No. Ch.-39/SE/Commercial/R-16/57/2006/S/C.
- iii) For releasing the connection, a meter pillar box shall be installed near the transformer for housing the consumer bus bar. From this bus bar, the connection will be taken to the consumer meter, which shall also be housed in the same pillar box. The armored service line will be provided from pillar box to consumer premises. One meter pillar box can house 4/6/8/10 no. meters, depending upon the location.
- iv) Street light phase shall be provided under the 11 kV line, through 30mm<sup>2</sup> insulated ACSR conductor, by installing distribution transformer(s), along with distribution transformer meter, as per load requirements in the area which will be dedicated only for street light.

## **B. For Plots of Size less than 10 Marla Categories**

- i) Electrification will be done only through 11 kV line on 11 Mtr long PCC poles. The length of the span will not be more than 40 mtrs. 100mm<sup>2</sup> ACSR conductor shall be used for main 11 kV line & 80mm<sup>2</sup> ACSR conductor will be used for 11 kV spur line.
- ii) Distribution transformers (DTs), completely self protected (CSP) type, of capacity 25/63/100/200/400/630 KVA, depending upon the load requirement as per norms, shall be installed, subject to the condition that LT/HT line length ratio shall not exceed one. Following points should be followed while laying the LT distribution system:-
  - a) The length of LT line shall be minimum (upto 3 span maximum).
  - b) The span length shall be maximum 35 meters (max.).
  - c) The load on the distribution transformer can be put up to 80% of its capacity.
  - d) The energy meters shall be installed either on H-pole itself or on the pole of LT line erected with armoured cable or outside the consumer premises.
  - e) Both four core & single core XLPE Armoured Cable is to be used for laying 3 $\Phi$ /2 $\Phi$ /1 $\Phi$  system as per site requirement.
  - f) Adequate size of four core/single core cable shall be used as per load requirement.
  - g) The cables will be laid by providing LT insulators strictly as per drawing, circulated vide this office memo no. Ch.- 68/DD-168 dated 26.08.2010.
  - h) Supply, from LT armoured cable to LT bus bar distribution box, shall be tapped with the help of LT insulated connectors.
  - i) The LT armoured cable, from main line to LT distribution bus bar box, will be used as per requirement of load.
  - j) From LT distribution bus bar box to incoming terminal of meter, 2 Core or 4 Core LT armoured cable will be used as per requirement of load.
  - k) From energy meter to consumer premises, unarmoured PVC Cable will be used as per requirement of load.
  - l) The installation of meters, on poles outside consumer premises, will be as per sales circular No. D-39/2007 issued vide CGM/Commercial office memo No. Ch.-39/SE/Commercial/R-16/57/2006/S/C.
- iii) Wherever it is not possible to use ACSR conductors due to less clearance, then Aerial Bunched cable may be used.
- iv) Connection will be released to the individual consumer by installing the meter in meter pillar boxes near the pole. From the LT side of T/F, connection will be taken to a common bus bar which will be installed within meter pillar box. Bus bar will be completely protected.
- v) Wherever it is not possible to install Meter Pillar Box, the consumer meter shall be installed on the boundary wall of consumer outside the gate in proper MCB.
- vi) Street light phase shall be provided under the 11 kV line through 30 mm<sup>2</sup> insulated ACSR conductor by installing distribution transformer(s) of desired capacity with meter in the area which will be dedicated only for street light.

**C Group Housing Societies:**

- i) 11 kV line will be laid up to boundary wall of the Group Housing Society on 11 meter poles with span length of 40 meters.
- ii) 200 KVA, 400 KVA, 630 KVA & 990 KVA distribution transformers (CSP type) or sealed unit S/Stns., shall be installed according to the requirement of load and shall be installed adjacent to the HT meter room.
- iii) Single point HT/LT connection shall be given for common services like lift, water supply, street light etc. for which the metering equipment shall be installed on the outer boundary wall of the society near the main gate.
- iv) The LT shall be taken directly from the distribution transformer through armoured cable up to the building, if laid underground, it should be through open-able trench with facility for maintenance and inspection.
- v) The meters will be installed at one place in the basement of the building, in the Meter Pillar Boxes. 10-14 consumer meters shall be installed in single meter pillar box.



**Load Norms for Plots Sector/Colonies being developed by HUDA/ Private Colonizers.**

Sr. No	Class of City	Size Category of Plot/Load Norms In KW							
		2 Kanal	1 Kanal	14 Marla	10 Marla	8 Marla	6 Marla	4 Marla	2 Marla
1.	A Class	40 KW	30 KW	25 KW	20 KW	16 KW	12 KW	10 KW	6 KW
2.	B Class	30 KW	20 KW	20 KW	15 KW	10 KW	8 KW	6 KW	4 KW
3.	C Class	25 KW	20 KW	15 KW	12 KW	8 KW	6 KW	6 KW	2 KW

Note: The classification of city for the purpose of load projection of plots & flats shall be as under:-

- i) A Class: - Faridabad, Gurgaon, Manesar.
- ii) B Class:- Sirsa, Fatehabad, Hisar, Bhiwani, Narnaul, Palwal, Dharuhera, Rewari, Hansi.
- iii) C Class:- All other cities/town under DHBVNL, which are not covered in 'A' & 'B' classes as above.

**Annexure-II**

**Load Norms for flats, being constructed by Group Housing Societies**

Sr. No.	Flats having covered area	Connected load
1.	Upto 900 Sq. ft.	8 KW
2.	From 901 to 1600 Sq. ft.	16 KW
3.	From 1601 to 2500 Sq. ft.	20 KW
4.	Above 2500 Sq. ft.	24 KW

## **Annexure-III**

### **Load Norms for Commercial/Institutional areas**

Load norms, for commercial area, shall be taken as 25 KVA per 1000 Sq. ft. of covered area.

**Load Norms for Economic Weaker Section (EWS).**

The connected load, for flats, having covered area up to 350 sq. ft, shall be taken as minimum 3.00 KW or as per Electric Plan of the developers, whichever is higher, in case of Economic Weaker Section (EWS). All other terms and conditions will remain the same.