Guidelines for optimal sizing of the major plantrooms

A. Electrical Substations, Meter Rooms:

1. For substations holding transformers upto a capacity of 1000kVA the space provisioning shall be as follows:
    a. Minimum dimension of the shortest side 6m
    b. 25sqm for 1 transformer + 1 RMU combination, should be scaled up as follows:
        i. Plus 20sqm per additional transformer
        ii. Plus 20% area for transformers upto 1600kVA ratings
        iii. If the no. of transformers increase such that they contain totally more than 2000litres of transformer oil the size shall be adjusted for the baffle wall separation between transformers

2. For larger transformers (>1600kVA) the space shall be considered as per transformer GA.

3. Spacing between 2 transformers:
    a. Dry – 1500mm
    b. Oil – 2000mm (for oil capacity within 2000 litres)
    c. Oil – 3200mm* (for oil capacity >2000 litres)
    *inclusive of baffle wall

4. The height of the substation shall be as follows:
    a. Maximum 4.5m, with following consideration:
        i. Equipment base + Equipment height + 1200mm (below beam soffits)
    b. Trenches for cable reticulation shall be minimum 1 meter deep. Cable trenches inside the substation shall:
        i. Be water proofed (only in projects with high water table)
        ii. Have cable entries properly sealed to avoid water ingress
        iii. Be provided with a drain connection to the nearest storm water drain with a backflow preventer to drain out any water ingress during monsoons

5. Electrical panel rooms shall be as per the panel GA dimensions and operability and escape corridors needed on applicable sides.
    a. 900mm free space for escape (beyond the maintenance/door open space).
    b. Rear Access of minimum 750mm for all Panels including MDBs, SMDBs which have ACB as incomer

6. All substation layouts shall be subject to the relevant utility approval and shall be shared with liaison for the same.

7. Switching station dimensions shall be as desired by the utility and conveyed by liaison to the design team.

8. Whenever apartment electrical meter rooms are so arranged as a passage by having meters on both sides the free passage width shall be minimum 2m.

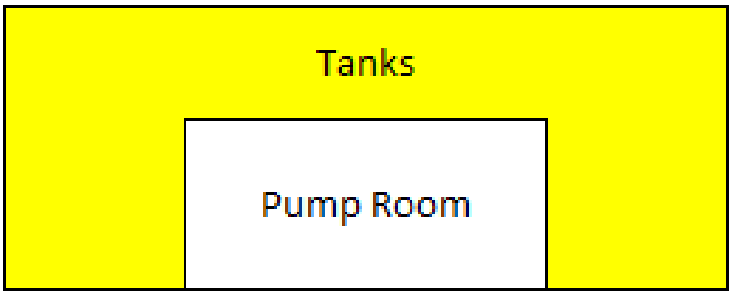
9. Meter rooms are not allowed in the basements, except when specifically approved by the authorities (meters are in B1, with availability of additional basements under the B1).

10. DG sets shall not be placed in the basements due to ventilation and exhaust challenges. In extreme conditions if such proposal is required, specific approval shall be taken from HOD- MEP.

11. Substations are not allowed in basements, therefore same shall not be planned in the basement.

B. UGTs + Pump rooms:

1. The most ideal UGT + pump room arrangement is where the tanks are in a C shape as follows:



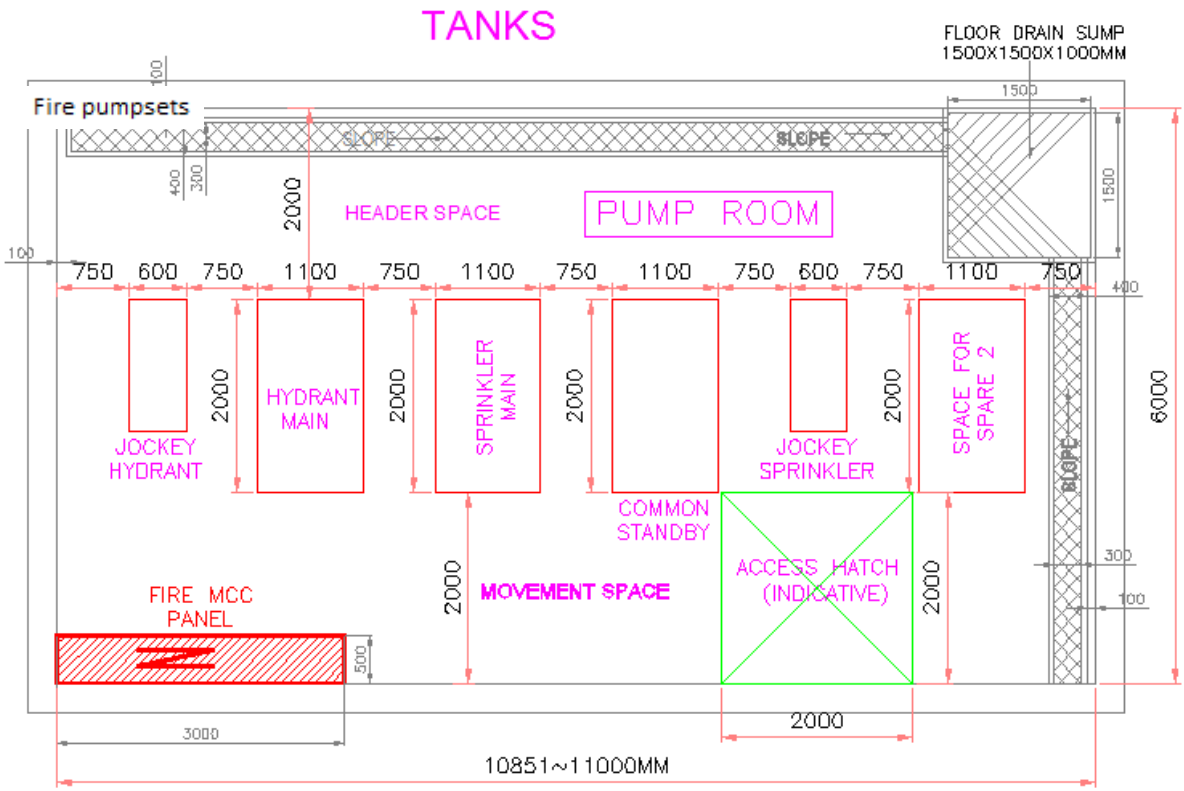
a. Tanks:
   i. The tank sizing shall be as per actual volumes calculated for the project
   ii. Water heights shall be restricted to 3.5m, wherever it needs to be increased due to constraints the same shall be approved HOD-MEP
   iii. Free boards shall be considered as follows:
      1. Top manholes – 400mm
      2. Side manholes – 900mm

b. Pumproom:
   i. Pump room shall include, as applicable:
      1. Fire pumps
      2. Domestic water supply/transfer pumps
      3. Flushing water supply/transfer pumps
      4. Irrigation pumps (if applicable)
      5. Access, doors, stairs, etc.
      6. Sump pits, pumps (to be planned within the access passage with suitable covers)

ii. Free height (below beam, soffit) in the pump room shall be minimum 3.5m, and maximum 4.5m (all depending on water levels, type of tank (side, top entry, etc.)

c. Additional spaces: may be needed in some projects and shall be accounted for separately:
   i. Rain water holding tank
   ii. Rain water filtration plant
   iii. HVAC make up water tank
   iv. HVAC make up transfer pumps
   v. Softner plant

2. The space required for a fire fighting pump set shall be maximum 70 sqm, with the spacing as follows:



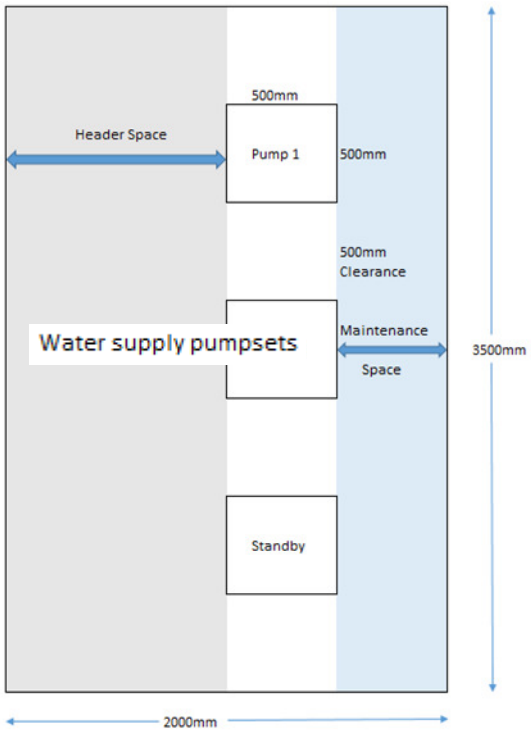
3. The space for a typical water supply pump set (2W+1S) shall be 3m x 2m and shall be scaled for the total number of pump sets required to be installed in a pump room. This applies for the following:

    a. Domestic water pumps

    b. Flushing water pumps

    c. Irrigation pumps

    d. HVAC make up water pumps



4. The electrical panels shall be installed within the above dimensions considering the maintenance and operation requirements. They should also be elevated with raised access platform, to safeguard from flooding, deluge. Electrical panels shall never be installed on wet walls (tank walls). Cable entry (penetrating into the pump room wall) shall be adequately sealed to avoid water ingress in the pump room during rains (especially when the main run of the cable external to the pumproom is buried in ground).

5. The access spaces for various pumpsets can be overlapped in the same plantroom to save space.

6. UGT access mumty shall be avoided if a nearby building staircase is feasible for entry to the plantroom. The stallboards for ventilation and diesel exhaust (if applicable) shall however be provided.

7. Minimum 2 no. manholes shall be provided in each partition of the tank, additional manholes shall be provided as per the size of the tank.