

S. No.	Description	Water Requirement Estimation Basis
7	Make up soft water requirement for HVAC cooling tower.	
a)	HVAC cooling towers	3 GPM/TR flow rate & 1.10% total losses
8	Water requirement for Laundry equipment	As per Facility Planner
9	Water requirement for Kitchen equipment	As per Facility Planner

- Domestic water from Underground Treated Water Storage Tank shall be pumped through VFD based hydro pneumatic system to Hotel Domestic Water Supply Distribution System.
- The water from centralized domestic underground treated water storage tank shall be pumped through VFD based Hydro pneumatic System to fill the overhead Fire Water Storage tanks of respective Commercial building/Residential Towers, & Hotel Block. Overflow from fire water storage tank shall be taken into Domestic overhead water storage tank of respective Commercial Tower/Residential buildings & Hotel Block.
- The WTP & Fire Pump room is to be constructed below ground level to have a positive suction to all pumps.

4.7 WATER REQUIREMENT/CONSUMPTION:

Water requirement for various use shall be as per Annexure enclosed.

4.8 WATER STORAGE:

- For Underground & overhead water storage refer Annexure (Enclosed).
- Centralized Underground Raw water & Treated/Domestic Water Storage tank total capacity proposed with one and half day fresh water requirement as per NBC 2016 Part 9. (Considered / proposed Separately for Commercial and Residential Building).
- Centralized Underground Fire Water Storage tank shall be provided As per NBC 2016 Part IV Table 7/IS 10500 to meet the Hydrant/Sprinkler & Water Curtain System Water Requirement. (Considered Separately for Commercial /Hotel and Residential Building).
- Capacity of overhead water storage tank shall be taken as half a day demand.
- Overhead water storage tank is proposed at Residential, Commercial & Hotel block terrace level Separately (Domestic, Flushing & Fire Water Storage).

4.9 WATER SUPPLY SYSTEM:

[A]. Potable Water (Non-Flushing) [Commercial & Hotel/ Residential Tower]:

- The water supply from City Water Supply (Municipal Main) & Tanker fill point shall be brought to underground fire storage tank and overflow from fire storage tank shall be taken to raw water storage tank in order to replenish the fire storage water.
- The water from Raw Water Storage Tank shall be pumped through dual media pressure sand filter, activated carbon filter, Softener Cum brine tank & taken into underground Domestic /Treated Water Storage tanks.

[B]. Flushing Water System (Recycled from STP) [Commercial & Hotel/ Residential Tower]:

- Recycled/Treated water from Flushing cum Irrigation Water Storage Tank located at centralized Sewage Treatment Plant (STP) area shall be pumped through VFD based Hydro pneumatic system located in STP Plant Room (One working & one Standby) to over head Flushing Water Storage Tank at terrace for Commercial/Residential Building /Hotel Building. Flushing Water Supply to all WCs & urinals under gravity shall be supplied/provided from over head Flushing Water Storage Tank located at Terrace.

[C]. R.O. System (for Kitchen & Potable Water/Drinking Water/Hotel):

- The Water from Treated Water Storage Tank shall be pumped through R.O. unit and taken into R.O. Water Storage Tank.
- R.O. System Shall be comprising of follows-
 - Micron cartridge Filter.
 - High Pressure Pumps (Vertical inline multistage pumps).
 - R.O. Membrane + modules.
 - C.I.P. System.
 - Instrumentation.
 - Electrical Panel.
 - Low Pressure & High Pressure size piping, valve & accessories.

[D]. Makeup Soft Water for HVAC Cooling Tower (Recycled Water from STP):

- The Water from underground soft water storage located at centralized STP Plant shall be pumped through soft water lifting pumps to fill the overhead makeup soft water storage tanks where the water supply under gravity shall be provided to HVAC Cooling Towers.

□ WATER SUPPLY DISTRIBUTION SYSTEM:

S. No.	Description	Source	Domestic Water Supply Distribution System	Flushing Water Supply Distribution System
1	Hotel & Studio Apartment (2/3 Top most Floor)	Fresh Water (WTP)	Pressurization water supply distribution system from VFD based hydro pneumatic system at WTP pump room / Terrace OHT	-
		Recycled water from STP	-	Gravity water supply distribution system from Flushing OHT at Terrace.
2	Retail / Anchor + Doctor cabin+ Business offices + Studio Apartment + Residential Tower	Fresh Water (WTP)	Gravity water supply distribution system from Domestic OHT at Terrace	-
		Recycled water from STP	-	Gravity water supply distribution system from Flushing OHT at Terrace

4.10 WATER TREATMENT:

4.10.1 Water Quality:

- Potable water quality intended for human consumption shall be compliance with minimum standard provided by the World Health Organization (WHO)/IS: 10500.
- Selection /provision of water treatment process shall be based on water quality requirement for various application as given below:-

S. No.	Description	Water Quality
1.	Hotel, Building	100-120 PPM (CaCO3) water hardness
2.	Commercial Building	100-120 PPM (CaCO3) water hardness
3.	Kitchen Equipment (soft water /RO)	As per Facility Planner
4.	Laundry equipment (soft water)	As per Facility Planner
5.	HVAC cooling tower make up soft water requirement, feed water makeup for steam boiler	5 PPM water Hardness

4.10.2 The following water filtration softening & R.O. treatment is proposed to handle parameters in accordance to that for potable domestic water supply.

- Filtration: Pressurized through dual media pressure sand filters, Activated Carbon Filter.
- Softening: Softener + Brine Tank
- RO Unit

Final treatment process will be decided based on Water Test Report.

4.10.3 Following are the acceptable limits for basic physical & chemical parameters of treated water for domestic purpose as per IS: 10500:

S. No.	Parameters	Acceptable Limits
1.	Turbidity (NTU)	1.0
2.	Colour (hazen)	5.0
3.	Taste & Odour	Unobjectionable
4.	pH	6.5 to 8.5
5.	Total Dissolved Solids (mg/l)	500
6.	Total Hardness as CaCO3	300
7.	Chlorides as chlorine (mg/l)	250
8.	Sulphate (as SO4) (mg/l)	200
9.	Fluorides (mg/l)	1
10.	Nitrates (as No3) (Omg/l)	45
11.	Calcium (as Ca) (mg/l)	75
12.	Magnesium (mg/l)	<30
13.	Iron (mg/l)	0.3
14.	Copper (mg/l)	0.05
15.	Zinc (mg/l)	5
16.	Lead (mg/l)	0.05
17.	Alkalinity (mg/l)	200
18.	Boron (mg/l)	1

RESIDENTIAL
1. DOMESTIC UG TANKS IN 2nd & 3rd BASEMENT
2. FIRE TANK IN 1st BASEMENT

COMMERCIAL
1. DOMESTIC UG TANKS IN 2nd & 3rd BASEMENT
2. FIRE TANK IN 1st BASEMENT FOR RESIDENTIAL

52 AVENUE - SECTOR - 52, NOIDA