

DESIGN REVIEW CHECKLIST

PLUMBING/FIRE PROTECTION/SANITARY

Reviewers should - Use Checklists when reviewing any type of VA construction project for the following disciplines:

- Architectural,
- Electrical,
- Heating, Ventilating, and Air Conditioning (HVAC),
- Plumbing, Fire Protection, and Sanitary,
- Site and Landscape,
- Steam Distribution, and
- Steam Generation/

Reviewers should – Ensure that DESIGN REVIEW Submission Instructions (PG-18-15) for Schematic, Design Development, and Construction Documents are followed for various types of VA construction projects.

Reviewers should – Ensure that every VA construction project is in compliance with all life safety issues.

Reviewers should - Be aware that these checklists are not all-inclusive but only provide minimum review items.

PLUMBING/ FIRE PROTECTION/ SANITARY DESIGN REVIEW CHECKLIST

TITLE _____ PROJECT NO. _____
 LOCATION _____ DATE _____
 REVIEWED BY _____
 ORGANIZATION _____

GENERAL INFORMATION FOR REVIEWERS

The reviewer should be thoroughly familiar with the following VA standards before conducting a design review. These are available on the CFM Internet Web site: <https://www.cfm.va.gov/til>

ITEM	DESCRIPTION
1.	DESIGN MANUALS (PG-18-10)
2.	MASTER CONSTRUCTION SPECIFICATIONS (PG-18-1)
3.	STANDARD DETAILS (PG-18-4)
4.	DESIGN AND CONSTRUCTION PROCEDURES (PG 18-3)
5.	DESIGN GUIDES (PG-18-12)
6.	DESIGN ALERTS
7.	DESIGN REVIEW SUBMISSION INSTRUCTIONS, PROGRAM GUIDE (PG-18-15)
8.	VA CAD & BIM STANDARD

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TITLE _____ **PROJECT NO.** _____
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SCHEMATIC 1

NO.	PLUMBING – SCHEMATIC 1 ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions.	
2	Is non-structural seismic, hurricane, or major flood protection necessary for this system? If yes, is that included in the design?	
3	Coordinate drawings with other disciplines	

NO.	FIRE PROTECTION – SCHEMATIC 1 ITEM (Related to Plumbing / Sanitary Engineering)	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions	

NO.	SANITARY – SCHEMATIC 1 ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions.	
2	Is seismic, hurricane, or major flood protection necessary for this system? If yes, is that included in the design?	
3	Coordinate drawings with other disciplines	

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SCHEMATIC 2

NO.	PLUMBING – SCHEMATIC 2 ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions below.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures?	
4	Have correct plumbing fixtures been located where required?	
5	Coordinate drawings with other disciplines	
6	Have AE reviewed the incoming water chemistry for any requirement of water treatment for the intended usage in the facility?	

NO.	FIRE PROTECTION – SCHEMATIC 2 ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions below.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures and Design Manuals?	
4	Coordinate drawings with other disciplines	

NO.	SANITARY – SCHEMATIC 2 ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions below.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures & Design Manuals?	

NO.	SANITARY – SCHEMATIC 2 ITEM	COMMENTS/ YES/NO/NA
4	Is seismic, hurricane, or major flood protection necessary for this system? If yes, is that included in the design?	
5	Coordinate drawings with other disciplines	

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DESIGN DEVELOPMENT

NO.	PLUMBING – DESIGN DEVELOPMENT ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures?	
4	Have correct plumbing fixtures been located where required?	
5	Coordinate drawings with other disciplines	
6	Have Legionella Prevention and Eradication measures been addressed for the domestic water supply system? Are the point of use thermostatic mixing valves been provided at each associated fixture?	
7	Has the hot water re-circulating loop system provided for water discharge at a minimum of 54.4 deg C [130 deg F] or as necessary to maintain minimal hot-water recirculating of 51.1 deg C [124 deg F] to limit the scald risk and to prevent the growth of bacteria (Legionella)?	
8	Are the domestic hot water heaters sized to provide water at 170 to 180 deg. F at a reduced flow for Legionella eradication?	
9	Have drawings been prepared in compliance with VA Design & Construction Procedures?	
10	Have design calculations been submitted for the following equipment:	
	a. Medical air compressors & receivers	
	b. Laboratory air compressors & receivers	
	c. Dental air compressors & receivers	
	d. Vacuum pumps & receivers	
	e. Hot water heaters, accumulator, & circulating pump	

NO.	PLUMBING – DESIGN DEVELOPMENT ITEM	COMMENTS/ YES/NO/NA
	f. Fire, sump, & jockey pumps	
	g. Water treatment equipment	
11	Have piping and fixture locations been coordinated with architectural and structural drawings?	
12	Have adequate number of isolations shut-off valves been provided for the following piping systems?	
	a. Water	
	b. Fuel Gas	
	c. Medical Gases	
13	Are emergency eye wash/showers provided where chemicals and other hazardous materials are handled?	
14	Have room names and numbers been provided for floor plans?	

NO.	FIRE PROTECTION – DESIGN DEVELOPMENT ITEM (Related to Plumbing/Sanitary Engineering)	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures and Design Manuals?	
4	Coordinate drawings with other disciplines	
5	Have smoke and fire partitions/compartments been indicated on drawings? Do the sprinkler /fire zones match the compartments indicated ?	
6	Are shut-off valves and drains provided at base of fire standpipes?	
7	Have calculations been provided for fire supply lines and fire standpipes?	

NO.	SANITARY – DESIGN DEVELOPMENT ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions at bottom of this sheet.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures & Design Manuals?	
4	Coordinate drawings with other disciplines	
5	Have design calculations been submitted for the following systems:	
	a. Sanitary sewerage	
	b. Sewage treatment	

NO.	SANITARY – DESIGN DEVELOPMENT ITEM	COMMENTS/ YES/NO/NA
	c. Cathodic protection	
6	Are sanitary drawings coordinated with plumbing, electrical site, steam site, and landscape drawings?	

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CONSTRUCTION DOCUMENTS

NO.	PLUMBING - CONSTRUCTION DOCUMENTS ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures?	
4	Have design calculations been submitted for the following systems:	
	a. Soil, waste, & vent	
	b. Roof drainage	
	c. Domestic cold water	
	d. Domestic hot water & return	
	e. Hot water generation	
	f. Reagent grade water	
	g. Fuel gas	
	h. Oxygen	
	i. Vacuum	
	j. Medical air	
	k. Nitrous Oxide	
	l. Nitrogen	
	m. Laboratory air	
	n. Laboratory vacuum	
	o. Dental air	
	p. Oral Evacuation	
	q. Shop air	
	r. Therapeutic pool	
5	Do drawings indicate locations, sizes, & capacities of:	
	a. Medical air compressors & receivers	
	b. Laboratory air compressors & receivers	
	c. Dental air compressors & receivers	

NO.	PLUMBING - CONSTRUCTION DOCUMENTS ITEM	COMMENTS/ YES/NO/NA
	d. Vacuum pumps & receivers	
	e. Hot water heaters, accumulator, & circulating pump	
	f. Sumps & pumps	
	g. Water treatment equipment	
6	Do plumbing fixture numbers agree with those provided in contract specifications?	
7	Have correct plumbing fixtures been located where required?	
8	Has adequate wall space been provided for piping to serve wall-hung fixtures and back-to-back fixtures?	
9	Has location, size, and invert or centerline elevations of sanitary and storm sewers, water and fuel gas lines been coordinated with civil/sanitary engineer?	
10	Do "P" numbers provided for plumbing fixtures on drawings match those indicated in specifications?	
11	Have piping and fixture locations been coordinated with architectural and structural drawings?	
12	Has freeze protection been considered for water piping?	
13	Are floor drains correctly located and sized?	
14	Are roof drains correctly located and sized?	
15	Has location and number of cylinders of nitrous oxide manifold been indicated?	
16	Has location and number of cylinders of inside oxygen manifold been indicated?	
17	Has exterior oxygen storage pad been indicated?	
18	Has location of medical gas alarm panels been shown?	
19	Have pressure failure switches for oxygen, nitrous oxide, vacuum, and compressed air systems been indicated and coordinated with electrical?	
20	Are fuel oil tanks for emergency generators provided?	
21	Have balancing valves been provided in the domestic hot water system?	
22	Are emergency eye wash/showers provided where chemicals and other hazardous materials are handled?	
23	Have room names and numbers been provided for floor plans?	
24	Have floor numbers, floor heights, and plumbing fixture numbers been shown on all riser diagrams?	
25	Have adequate number of isolation shut-off valves been provided for the following piping systems?	
	a. Water	
	b. Fuel Gas	
	c. Medical Gases	
26	Have backflow prevention valves been installed in potable and non-potable water distribution systems	

NO.	PLUMBING - CONSTRUCTION DOCUMENTS ITEM	COMMENTS/ YES/NO/NA
27	Are acid waste and vent piping and neutralization/dilution tanks necessary?	
28	Are all plumbing items provided in specifications?	
29	Has type, speed, horsepower, and capacity of pumps and compressors been provided on drawings?	
30	Have necessary details been provided?	
31	Have riser diagrams been provided for the following systems?	
	a. Soil, waste, & vent	
	b. Cold water	
	c. Hot water & return	
	d. Reagent grade water	
	e. Oxygen	
	f. Medical air	
	g. Vacuum	
	h. Dental air	
	i. Oral evacuation	
	j. Shop air	
	k. Fuel gas	
	l. Nitrous oxide	
	m. Nitrogen	
n. Roof drainage		
32	Coordinate drawings with other disciplines	

NO.	FIRE PROTECTION – CONSTRUCTION DOCUMENT ITEM (Related to Plumbing/Sanitary Engineering)	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions.	
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures and Design Manuals?	
4	Have smoke and fire partitions been indicated on drawings?	
5	Have fire densities been indicated on drawings	
6	Have fire supply lines and fire standpipes been indicated?	
7	Are shut-off valves and drains provided at base of fire standpipes?	
8	Are all fire protection items provided in specifications?	
9	Coordinate drawings with other disciplines	

NO.	SANITARY – CONSTRUCTION DOCUMENT ITEM	COMMENTS/ YES/NO/NA
1	Have DESIGN REVIEW Submission Requirements (PG-18-15) for this review been met? If not, list omissions at bottom of this sheet.	

NO.	SANITARY – CONSTRUCTION DOCUMENT ITEM	COMMENTS/ YES/NO/NA
2	Were previous VA comments satisfied?	
3	Have drawings been prepared in compliance with VA Design & Construction Procedures & Design Manuals?	
4	Have design calculations been submitted for the following systems:	
	a. Sanitary sewerage	
	b. Sewage treatment	
5	Are sanitary drawings coordinated with plumbing, electrical site, steam site, and landscape drawings?	
6	Coordinate drawings with other disciplines	