

# **A/E REVIEW CHECKLIST**

## **TELECOMMUNICATIONS SYSTEMS**

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

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

- Architectural,
- Boiler Safety Devices – Operation Checklist,
- Electrical,
- Heating, Ventilating, and Air Conditioning (HVAC),
- Incineration/Solid Waste,
- Information and Technology,
- Physical Security,
- Plumbing, Fire Protection, and Sanitary,
- Site and Landscape,
- Steam Generation and Distribution,
- Structural, and
- Telecommunications and Special Telecommunications Systems.

**☑Reviewers should - Insure that A/E Submission Instructions (PG-18-15) for Schematic, Design Development, and Construction Documents are followed for various types of VA construction projects.**

**☑Reviewers should - Insure that every VA construction project is in compliance with all life safety issues.**

## A/E CHECKLIST

**TITLE** \_\_\_\_\_ **PROJECT NO.** \_\_\_\_\_  
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**REVIEWED BY** \_\_\_\_\_  
**ORGANIZATION** \_\_\_\_\_

<b>GENERAL INFORMATION FOR REVIEWERS</b>
<b>TELECOMMUNICATIONS SYSTEMS REVIEW</b>

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: <http://www.cfm.va.gov/til/>

<b>1.</b>	<b>DESIGN MANUALS (PG-18-10)</b>
<b>2.</b>	<b>MASTER CONSTRUCTION SPECIFICATIONS (PG-18-1)</b>
<b>3.</b>	<b>STANDARD DETAILS (PG-18-4)</b>
<b>4.</b>	<b>DESIGN AND CONSTRUCTION PROCEDURES (PG-18-3)</b>
<b>5.</b>	<b>DESIGN GUIDES (PG-18-12)</b>
<b>6.</b>	<b>SEISMIC DESIGN REQUIREMENTS (H-18-8)</b>
<b>7.</b>	<b>DESIGN ALERTS</b>
<b>8.</b>	<b>A/E QUALITY ALERTS</b>
<b>9.</b>	<b>A/E SUBMISSION INSTRUCTIONS, PROGRAM GUIDE PG-18-15</b>
<b>10.</b>	<b>TECHNICAL SUMMARIES</b>
<b>11.</b>	<b>NATIONAL CAD STANDARD and VA NATIONAL CAD STANDARD APPLICATION GUIDE</b>

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### SCHEMATICS

#### TELECOMMUNICATIONS SYSTEMS REVIEW

NO.	ITEM	COMMENTS/ YES/NO/NA
1	<b>General Provisions For New Buildings</b> - In addition to items given below <b>check all</b> requirements for buildings, telecommunications rooms, main computer room, etc. per Design and Construction Procedures Topic 8 and the Telecommunications and Special Telecommunications Systems Design Manual.	
	a. For Mission Critical facilities, verify that there are two primary Service Provider duct banks, as electrically and physically separated as possible per Physical Security Design Manual.	
	b. Telecommunications Rooms stack vertically.	
	c. Quantity of Telecommunications Rooms shown on each floor: Maximum distance of the farthest telecommunications outlet to the nearest Telecommunications Room shall not exceed 80M (262 ft.)	
	d. All Telecommunications Rooms shall be free of columns inside.	
	e. Telecommunications Rooms shall be located above the Base Flood Elevation. Telecommunications Room rooms shall not be located beneath toilets, showers, laboratories, kitchens, sinks, open courtyards, planters, roof drain leaders, cooling towers, or other areas where water service is provided.	
	f. Foreign piping such as water pipes, steam pipes, medical gas pipes, sanitary waste pipes, roof drains, A/C ducts, and other unrelated piping systems containing liquids or gasses shall not be installed in and shall not pass through these rooms including inside adjacent walls.	
	g. Telecommunications rooms shall not be located adjacent to electrical rooms, elevator machine rooms, exterior walls, loading docks, mail rooms, nor in proximity to sources of electromagnetic and RF interference, fire and smoke hazards, wet or high humidity locations, and patient care areas.	

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### SCHEMATICS

#### TELECOMMUNICATIONS SYSTEMS REVIEW

NO.	ITEM	COMMENTS/ YES/NO/NA
2	Copies of all correspondence and minutes of meetings with service provider's representatives regarding negotiations for new services or changes to the existing services are forwarded to COR as required in the VA Telecommunications and Special Telecommunications Systems Design Manual.	
3	Pre-design site survey of existing communications service is included.	
4	Inventory of existing equipment to be reused is included.	
5	Coordinate drawings with other technical disciplines including structural.	
6	Compliance with VA National CAD Standard Application Guide and applicable National CAD Standard modules.	

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### DESIGN DEVELOPMENT

#### TELECOMMUNICATIONS SYSTEMS REVIEW

NO.	ITEM	COMMENTS/ YES/NO/NA
1	All telecommunications rooms, main computer room and rooms that contain IT and FMS equipment shall not be located directly below showers, laboratories, kitchens, dishwashing areas or other areas where water service is provided. Pipe containing liquids or gases shall not pass through these rooms. See Physical Security Design Manual.	
2	<b>Compliance To Design and Construction Procedures</b>	
	a. Telecommunications and Special Telecommunications Systems TIP cabling distribution follow Telecommunications and Special Telecommunications Systems Design Manual requirements.	
	b. Projects requiring new, replacement, or expansion of existing telecommunications service are coordinated with the local service provider(s) and respective Facility Service Chief(s) requirements.	
	c. Telecommunications outlet heights are as required for equipment in different areas and Americans with Disabilities Act Standards for Accessible Design (see Telecommunications and Special Telecommunications Systems Design Manual)	
	d. Electrical Grounding is coordinated with TMGB (see Telecommunications and Special Telecommunications Systems Design Manual).	
	e. Raceway systems are as required in Telecommunications and Special Telecommunications Systems Design Manual. (1) All Public Address System cabling shall be installed in conduit. (2) Underground conduits shall be encased in concrete. (3) All inside TIP backbone cabling between the MCR and the TR(s) shall be installed in conduit	
3	Each Wireless System is designed per Telecommunications and Special Telecommunications Systems Design Manual; including FCC restrictions of use.	

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### DESIGN DEVELOPMENT

#### TELECOMMUNICATIONS SYSTEMS REVIEW

NO.	ITEM	COMMENTS/ YES/NO/NA
	a. Correspondence that design professional contacted VACO's AHJ for FMS Special Communications, Low Voltage and other Communication Systems; contact, Spectrum Management and COMSEC Service (SMCS 005OP2H3) for each wireless item and RF equipment/system for Spectrum and Frequency Coordination.	
	b. Confirmed frequencies of Emergency Radio Communications System(s) used while inside the facility for each respective Emergency Responder and each approved RF for Facility use.	
	c. Obtained prior approval from SMCS for any Service Provider (i.e. AT&T, Verizon, Sprint, etc.) cellular telephone DAS, Wi-Fi and RTLS functions to be provided in the facility.	
	d. Intra-building Wireless System, Wireless Local Area Network (WLAN) includes SMCS 005OP2H3 approved MOU AND Risk Assessment Forms fully accomplished and signed by all parties.	
	e. Heat maps are provided for the Facility indicating the channel coverage, signal level, data rate and noise floor for 802.11 (*) wireless networks.	
4	Communications Circulating Grounding System (CCGS) shall be shown complete on a one-line diagram with all components and descriptions from the Intersystem Bonding Termination (IBT) at the service equipment to the TGBs, as applicable for this project.	
5	Lightning Protection Grounding System (LPGS) shall be shown complete on a one-line diagram with all components and descriptions from Facility Antenna Farm mechanical and coaxial connection points to the external route to earth ground.	
6	Coordinate drawings with other technical disciplines	
7	Compliance with VA National CAD Standard Application Guide and applicable National CAD Standard modules.	

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### CONSTRUCTION DOCUMENTS

#### TELECOMMUNICATIONS SYSTEMS REVIEW

NO.	ITEM	COMMENTS/ YES/NO/NA
1	Documents contain RCDD stamp.	
2	Requirements for primary and secondary surge protection are included (see Telecommunications and Special Telecommunications Systems Design Manual).	
3	Telecommunications rooms are sufficiently sized for cabinet, rack and equipment sizes using largest and/or heaviest dimensions and weights so that working clearance requirements, space for future installations, and structural requirements are satisfied. (see Telecommunications and Special Telecommunications Systems Design Manual).	
4	Pathways including cable tray and conduits are sized for quantity of cables anticipated. (see Telecommunications and Special Telecommunications Systems Design Manual).	
5	Coordinate drawings with other technical disciplines (see Telecommunications and Special Telecommunications Systems Design Manual):	
	a. Equipment cooling and ventilation.	
	b. Equipment power locations.	
	c. Electrical loads.	
	d. UPS sizing and loads are according to the Physical Security Design Manual.	
6	Physical Security Systems are coordinated with door hardware, and Fire Detection and Notification Systems (see Physical Security Design Manual, NFPA 101 and VA Guide 0730).	
7	Includes functional diagrams (Riser Diagrams) of Essential Telecommunications Systems, Controls and Operation such as Data, Voice (Telephone – contact TVE 202-462-5311), Nurse Call, Emergency Call, Duress Alarm, PA, MATV, CCTV, IC, DAS, Intrusion Detection, Access Control (PACS), and Other Signal Systems.	
8	Project documents procure and install Wireless LAN Controllers, and wireless access points. Drawings include two data cables terminated at Wireless Access Point locations approved by VA spectrum analysis and SMCS.	

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### CONSTRUCTION DOCUMENTS

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NO.	ITEM	COMMENTS/ YES/NO/NA
9	Includes large-scale (minimum 1/4"=1') partial plans for areas such as Main Computer Room, Telephone Equipment/Operator Room, Telecommunications Rooms, Network Operations Room, DEMARC, Antenna Head End Room, Police Control/Operation Rooms, Emergency Communications Control/Operations Rooms. Contact, Spectrum Management and COMSEC Service (SMCS 005OP2H3) for complete list.	
10	Specifications are VA specifications from TIL.	
11	All system Specifications include and refer to VA Section 27 05 11.	
12	Compliance with VA National CAD Standard Application Guide and applicable National CAD Standard modules.	