



**DESIGN &
CONSTRUCTION
GUIDELINES**

**APPENDIX D
INFORMATION TECHNOLOGIES
DESIGN GUIDELINES
(TAMPA CAMPUS)**

EDITION: **APRIL 9, 2007**
USF INFORMATION TECHNOLOGY

APPENDIX D – INFORMATION TECHNOLOGIES

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A COPY OF THESE SPECIFICATIONS IS REQUIRED TO BE ON EVERY JOB SITE

SECTION I	GENERAL STANDARDS
A	CONTRACTOR REQUIREMENTS (EIA/TIA 568-B.2-1 Standard for Category 6 and Specifications for Inside and Outside Plant Wiring Practices)
1.	Qualifications: Final qualification to determine a successful contractor will be made by USF Information Technologies designated representative only. There will be a pre-qualifying procedure. This procedure will involve checking and verifying references. Contractor shall submit for approval, before work begins, <u>three (3)</u> references of work of a similar type and scale. References must contain names and telephone numbers of contact personnel.

Contractor shall also submit names of technicians that will perform work specified herein, with documentation of schools and coursework (with Dates) indicating proficiency with the installation of telephone/data cable and fiber optic cable. The USF Information Technologies designated representative; prior to the issuance of any purchase order or work authorization by Facilities Planning or general contractor shall approve this submittal. The contractor installing the telecommunications facilities and equipment herein specified shall be an experienced **TELECOMMUNICATIONS CONTRACTOR. Experienced “meaning that the contractor has been in this type of business for a minimum of two (2) years and have personnel that have been trained and certified in the installation of telecommunications specified above.**

Contractors must have a BICSI Registered/Certified Communications Distribution Designer (RCDD) on staff. Please furnish copy of current registration with submittal. Supervisor or Lead Tech on every project must have current Registered BICSI RCDD and/or Registered BICSI Technician Certification.

2. **License and Codes:** The successful Contractor must have applicable licenses (including but not necessarily limited to low voltage) and follow municipal codes for the areas in which projects are accomplished, to include NFPA, NEC, TIA/EIA/ANSI and BICSI.
3. **Safety Procedures:** HARD HATS and all other appropriate safety equipment shall be worn during all construction procedures. The vendor shall furnish appropriate safety equipment for their employees and construction site, to include safety zoning and the securing of all equipment and tools at all times. Must have first aid and safety training certificate provided to the University of South Florida Information Technologies' representative prior to every project.
4. **Damages:** Any and all damages to property done by a Contractor will be the responsibility and liability of the Contractor. The USF Information Technologies Representative will designate all Telecommunications repair and USF Information Technologies approved and qualified contractors “ONLY” are to be used.
5. **Work Rules:** Contractor's employees must keep in mind during all contacts with client personnel that client satisfaction is paramount. **Contractor's employees' speech, actions, dress and attitude must not detract from client satisfaction at any time. Contractor employees must keep in mind, however, that they are representing USF Information Technologies and such contacts and avoid actions or speech that would reflect unfavorably on the department.** During the execution of this contract, contractor personnel reflect upon the **USF Information Technologies. Contractor commits to maintaining high standards of professional conduct, neat and clean appearance of vehicles, equipment and personnel, and honest business practices are required.** Parties agree that lackadaisical attitude of personnel, unwashed or battered vehicles, and misstatements on reports or invoices, and delayed payment of bills relating to such contracts are examples of unacceptable behavior. **USF Information Technologies requires all contractor personnel to dress appropriately for the task at hand. USF Information Technologies requires all technicians who perform fieldwork to drive a contractor-provided vehicle, which is clearly marked as belonging to the contractor. The vehicles can be any type preferred by the contractor as long as the vehicles are clearly marked, in good operating order, and have a good appearance. USF Information Technologies shall retain the right to request the removal of any of the contractor's personnel at any time.**

B QUALITY, CRAFTSMANSHIP, AND COMPLETENESS

It is expected that the work completed under these specifications will be on the **highest professional quality and craftsmanship.** All systems furnished herein shall be complete and in compliance with manufacturer's recommendations and designs. Contractor shall supply all components of the specified system as recommended by the manufacturer, whether specifically designated in these specifications or not.

C CODE COMPLIANCE

The Contractor is responsible for compliance with all Federal State and Local codes that are applicable to electrical and telecommunications wiring and fire codes. If there is any conflict between these specifications and codes, the most stringent requirement shall apply.

SECTION II SPECIFICATIONS

A OUTSIDE PLANT

1. All copper and fiber cables, to all buildings will only be installed by USF Information Technologies Dept.
2. A USF Design Representative shall be utilized in order to meet all needs for present and future technologies.
3. Install copper cable and fiber optic cable from new facility or building to the closet serving wire center. The University has six (6) wire centers located on the Tampa Campus. These locations are:
 - ANDROS OFFICE CLASSROOM (AOC),
 - EDUCATION BUILDING (EDU),
 - ENGINEERING BUILDING II (ENB),
 - PSYCHOLOGY BUILDING (PCD),
 - MAPLE DORM (MAP) and
 - FLORIDA MENTAL HEALTH BUILDING B (MHB).

The St. Petersburg Campus Wire Center is located at DAVIS HALL (DAV).

The Sarasota-Manatee Campus Wire Center is located at the USF Sarasota-Manatee Campus (SMC).

The project must include necessary conduits, manholes, pull boxes, copper cable, and fiber to serve the building or facility.

4. Any personnel shall not enter any USF Telecommunication's Maintenance Holes without prior authorization and presence of USF IT Designated Representative.
5. **Approved Manhole specifications are as follows:**
Type "A" Manhole, five-foot width by ten-foot six inches length by six-foot six-inches height (5'-0" W x 10'-6" L x 6'-6" H). These are the same specifications as the GTE Model #GTS-8395, a pre-cast 2-piece (see Exhibit A). Manholes must include racks for cable, grounding buss bar, sump drain, and expansion plugs installed in non-used conduits.
6. **Approved Hand hole specifications are as follows:**
Brooks Products-Orlando hand holes or approved equivalent shall be used where applicable. USF Information Technologies will determine the use of hand holes in conjunction with Facilities Planning and Construction. Hand holes vary in size from four-feet by four-feet by four-feet (4' x 4' x 4') to eight-feet by thirteen-feet by four-feet (8' x 13' x 13'), all will include H.20 standards as to drive over characteristics.
7. **Approved Conduit specifications are as follows:**
Schedule 40 PVC twenty (20) feet sections for straight runs and 90 degree thirty-six to forty-eight (36 – 48) inches radius: **Factory made sweeps for turns.**
8. **Approved Inner duct specifications are as follows:**
Smooth wall or longitudinal **ribbed** inner duct, preferably **tricolor** (three (3) inner ducts in four (4) inch conduit w/color scheme of **1-orange, 1-blue, 1-white**), **two (2) one-half (1/2) inches** and **one (1) one (1) inch**, inside diameter with "**mule tape**" or polyethylene pull rope installed.

B ENTRANCE FACILITIES

1. Install four (4) each, four (4) inch Schedule 40 PVC conduits from the serving manhole (designated by USF Information Technologies Representative) to the telephone entrance (**EF-Entrance Facility**) room. The conduit will be stacked two (2) on two (2) and held in position by conduit positioning members designed for such purpose.
2. The conduits shall be **concretely incased from the serving manhole line to the building entrance**. The **Minimum concrete coverage** around the conduit shall be two (2) inches. The conduit and concrete encasement shall be placed no less than twenty-four (24) inches below finished grade.
3. The conduits shall transition from Schedule 40 PVC to rigid metallic, **four (4) inch inside diameter** for building entry. The metallic conduit shall extend out a **MINIMUM of six (6) inches from the point of building penetration**. The **MINIMUM bend radius** of the **four (4) inch metallic conduit** shall be **forty-eight (48) inches**.
4. The conduits shall enter the Main Cross-Connect Frame/Entrance Facility and form a single line under the entrance backboard, **no more than four (4) inches** from the wall. The conduits shall be stubbed up above the finished floor **no less than six (6) inches**. The **conduits shall be fitted with bushings** to prevent cable damage when pulled during installation. The conduits shall be capped and sealed to prevent water and debris from entering.
5. Each conduit shall be left clean and dry and also left with a minimum of two-hundred-fifty (250) pound test x one-quarter (1/4) inch polyethylene Pull line. The other two conduits shall be clean and dry and one conduit will have three (3) Plastic Inner-ducts installed for the purpose of pulling fiber optic cable; Innerducts shall be two (2) one-and-one-half (1 1/2) inches and one (1) one (1) inch. **Each Inner-duct shall have** its own two-hundred-fifty (250) pound test x one-quarter (1/4) inch polyethylene pull line installed. Conduits shall be **indelibly labeled** as to their purpose.
6. The Contractor or **Sub-Contractors** are responsible for establishing with USF Information Technologies representative, the location to which the conduit will be placed for connection to USF Information Technologies Manhole System.

C ENTRANCE CABLE PROTECTION

1. Twisted pair cable shall be equipped with transient voltage and sneak current protection for any inter-building cable. These protectors shall be specified: CIRCA 1880B1-100-75 or CIRCA 1880ENAI/NSC100G. An approved equivalent with in-built 110-tupe cross connect can be accepted with USF IT Representative written approval. **Protector Mounts shall be used**. Each pair of cable protected shall be equipped with solid-state protector units with sneak current, solid state MOV protection.
2. Protection Modules shall be equipped at a 50% analog (1st 50 pairs) and 50% digital (2nd 50 pairs) ratio. The analog module required by the University of South Florida is AT&T model 4C1S-230 (Com Code 104-386-545) or approved equivalent. The digital module required is AT&T 4C3S-75 (Com Code 105-581-086) or approved equivalent. The C3S-75 protectors shall be installed on the high end of the cable count at each cable end (2nd 50 pair).

D ENTRANCE CABLE SPECIFICATIONS

1. Twisted Pair

Twisted pair cable shall be twenty-four (24) AWG solid conductors and manufactured expressly for telephone use. The individual pairs must be color coded to the BELL SYSTEM/Telephone Industry Standards. Inner-building cable shall be filled, for the purpose of water intrusion prevention, and composed of aluminum/steel sheath. Use AT&T Type ASP or approved equivalent.

Cable shall be sized and installed according to the schematic diagram for twisted pair. Twenty-Four (24) core single mode fiber switch facility to building distribution facility. Only

from Telecommunication Room to Telecommunication Room be Multi-Mode fiber and that will be twelve (12) Core only.

Cables shall transition from outside (filled) cable to the protection units with properly equipped and installed splice enclosure units. Use AT&T Type 2000FR, 3M Better Buried, or approved equivalent. Use appropriate connectors for splices: AT&T 710 Bridge Connector or approved equivalent.

2. Fiber Optics

Fiber Optic cable shall be 62.5/125 um or 50/125 um Multi-mode or 8.3/125 um Single Mode (See USF Representative), multi-fiber filled (for water intrusion prevention) cable with non-metallic components. It shall consist of 62.5 um core, 125 um cladding 250 um coating, and 900 um buffering. **Maximum loss:** 3.75 dB/km at 850 nm and 1 dB/km at 1300 nm. **Minimum Bandwidth:** 160 MHz-km at 850 nm and 500 MHz-km at 1300 nm. **Numeric Aperture:** .275. Cable must meet FDDI standards. Minimum cable pulling tension is two-hundred-fifty (250) pounds. Minimum bend radius is twenty (20) times the cable diameter.

Cable shall be sized and installed according to the schematic diagram for fiber optic cable. Twenty-Four core single mode fiber switch facility to building Entrance facility.

Cable shall transition from outside, filled cable termination units through approved splice case or appropriate fiber breakout methodology that permanently prevents cable fill material from leaking. Fiber Optic Cable shall be terminated with ST ceramic connectors (AT&T C2000A series or approved equivalent) or SC connectors. All fibers will be terminated in AT&T 100A2, 200A, 400A1 (sized according to cable) or approved equivalent termination Housings.

E ENTRANCE FACILITY (EF) AND TELECOMMUNICATION ROOM (TR) ARCHITECTURAL FINISHES

1. Every building will have a main "**Entrance Facility**" and every floor per building will have its own individual (single/group) "**Telecommunication Room**". Each EF (Entrance Facility) and TR (Telecommunication Room) telephone room shall be finished in the following manner:
2. There shall be no drop ceiling in telecommunications room or Entrance Facility.
3. Flooring shall be tile or vinyl with a distributed load requirement of two-hundred-fifty (250) pounds per square foot.
4. Lighting shall be a minimum fifty (50) foot-candles measured three (3) feet off of the floor with non-EMI generating lights on a separate switch inside room and sheet rock finished walls painted with a white or off white color.
5. Room sizes for the EF's are a minimum of one-hundred-ten to one-hundred-twenty (110-120) square feet.
6. TR's will be a "minimum" depth of five (5) feet and a "minimum" width of eight (8) feet with double doors to allow placement into hallways.
7. **A fire extinguisher** (CO2 or type dependent on local fire codes) hung **INSIDE** each **EF** and each **TR**.
8. **All EF/TR and all their contents will be BONDED AND GROUNDED IN COMPLIANCE WITH THE ANSI-J-607A Industry Standard, as well as local, State and National codes.**

F ENTRANCE FACILITY and TELECOMMUNICATION ROOM ENVIRONMENTAL REQUIREMENT

Each of the Entrance Facility (EF) and Telecommunication Room **shall maintain** for 7 day / 24 hours of an ambient temperature of sixty-four to seventy-five (64 - 75) degrees Fahrenheit for the purposes of data distribution equipment (Ethernet Hubs and Routers, Switches, etc.).

G ENTRANCE FACILITY BACKBOARD

1. The entrance facility backboard will consist of two (2) four-feet by eight-feet by three-quarter-inch (4' x 8' x 3/4") AC Grade plywood boards, securely fastened in a horizontal position to the designated wall. They shall be painted with **gray, fire-retardant paint, designated for such purposes.**
2. There shall be two (Emergency Power if available) surface mounted, grounded, Quad-plex outlets, one for each sheet of plywood supplied. Each electrical quad outlet shall be an isolated circuit non-switched, two (2) of 120V/20A. The electrical outlets shall be at the center, bottom of each sheet of plywood, no more than two (2) inches from the bottom. A rack mount power strip will be installed at the bottom of every rack.

H CONDUIT FOR ENTRANCE FACILITY (EF) AND TELECOMMUNICATIONS ROOM (TR)

Provide two (2) four (4) inch EMT conduits between each EF and each connecting TR. Each conduit shall be left clean and dry and left with a minimum two-hundred-fifty (250) pound test pull line. Conduits shall be indelibly labeled as to their purpose (Example: Telecom IDF Room xxxx). Plastic bushings shall be placed on the ends of the conduit to protect the wires.

I TELECOMMUNICATIONS ROOM (TR) BACKBOARD

1. The telecommunication room backboard will consist of two (2) four-feet by eight-feet by three-quarter-inch (4' x 8' x 3/4") plywood board AC Grade, securely fastened in a horizontal position to the designated wall. They shall be painted with gray, fire-retardant paint minimum of two (2) coats, designed for such purpose.
2. There shall be two (emergency power if available) surface-mounted, grounded, quad-plex electrical outlets. Each quad shall be an isolated non-switched circuit, two (2) of 120V, 20A. The outlets shall be located at the center, bottom of each sheet of plywood, no more than two (2) inches from the bottom. If emergency power is available please include BDF and IDF electrical outlets on Emergency Generator panel.

J CABLE TERMINATION BLOCKS/PROPER TOOLS

1. All telephone cable shall be terminated on connecting blocks, at the EF, and TR's. This shall include wiring blocks, connecting blocks, and all label inserts. The general layout shall be as described in the diagrams provided (see Exhibit B & C). All termination of said cable will be ordered by room number e.g., Room 1 upper left of data patch panel and voice frame and Room 100 lower right of data patch panel and voice frame. Room numbers shall increment from left to right.
2. Voice cables shall be terminated on **110A** type blocks, which require jumper cables to be punched down on the blocks. All 110C connecting blocks, c3, c4, and c5 will be terminated on the 110 block, with a 110 IMPACT TOOL, Model 788J1 or equivalent "ONLY." And Category 6 with proper tool.

K INFORMATION OUTLETS (VOICE-DATA JACKS)

1. For each information outlet location designated, provide a Standard 3 Port Category 6 three (3) data jack colored YELLOW mounted in an ivory triplex outlet cover. Wireless Access Locations shall be designated with yellow icons. Terminations shall be in conformance with EIA/TIA 568B.2. Faceplates shall be matching ivory to the electrical outlet and at the same height as electrical outlets located in the vicinity.
2. All information outlets shall be marked at the point of manufacture with engraved letters indicating that the top jack is voice and the bottom jacks are data. For horizontally mounted information outlets, the left jack shall be voice and the right jacks are data. Conduits provided for outlets must have protective caps on end of conduit. The minimum requirement for all outlets is one (1) inch EMT conduit, for all outlets.

L INFORMATION OUTLET FOR WALL MOUNTED HEIGHT

All locations designated for hanging wall jacks shall be fitted with the information outlet as described in "INFORMATION OUTLET." The outlet boxes shall be mounted forty-two (42) inches above the finished floor.

M LABELING
















1. All labeling shall conform to ANSI/TIA/EIA-606-A
2. Faceplates shall be labeled in the upper right corner so as it may be visible from the top.
3. Data cables on the backside of a standard outlet configuration shall be designated as data 1, data 2, etc.
4. All voice termination fields shall be designated blue, printed labeling.
5. All data patch panels modified or installed new shall be installed with printed labeling.
6. Backbone cabling shall be designated in accordance with ANSI/TIA/EIA-606-A with printed labeling.
7. All fire penetrations installed new or modified shall be labeled with date/contractor name.
8. All twisted pair terminations on **110** termination strips shall be marked with the jack number.
 - For example: 103-A. Placed on the top left incrementing to the right, then down to next row.
9. Each information outlet and its associated termination at the EF, or TR shall be labeled according to the following scheme:
10. **ROOM NUMBER-POSITION IN ROOM CLOCKWISE FROM MAIN DOOR.**
 - For example, the first jack to the left from the door in room J101 would be labeled: J101-A.
 - For example, the second jack to the left from the door in room J101 would be labeled: J101-B.
 - For example, the third jack to the left from the door in room J101 would be labeled: J101-C, etc.
11. **Riser Cable:** All riser cable will be labeled at both terminating ends of the cable. The information will consist of the following format: EF Room #XXXX-TR Room #XXXX or in reverse order at the TR location or anywhere else it may terminate. The numbering scheme will start with the number "one" and be labeled as follows:
 - 4th floor IDF riser pairs will be 401 through 600
 - 3rd floor IDF riser pairs will be 201 through 400
 - 2nd floor IDF riser pairs will be 1 through 200
12. **Fiber Cable:** All fiber cable will be labeled with the same format as riser cable. Additional Outside plant labeling will contain Node locations and numbers. EF Room #XXXX/ TR Room #XXXX or in reverse order at the TR location. Building Node pairs XXXX/Building EF pairs XXXX or in reverse order at the Building EF.

N SECURITY, FIRE ALARM, ELEVATORS AND PAY PHONES

1. Security, fire alarm, elevators and pay phone lines and station cable terminate at the bottom right of all 110-station blocks and marked S, F, E or P/T. With multiples, use the following example:
 - S1, S2, etc., F1, F2, etc., E1, E2, etc.
2. A minimum diameter of one (1) inch EMT conduit is to be used for all outlets. All conduits provided for outlets must have protective caps on end of conduit and be grounded and bonded according to all Federal, State and local codes to include the NFPA, NEC, EIA/TIA/ANSI as well as BICSI codes.

O COMMUNICATIONS LEGEND

The Architect or Engineer of Record shall utilize the following symbols in the Communication's Legend to designate low voltage locations.

ITEM	SYMBOL	DESCRIPTION	TYPICAL INSTALLED LOCATIONS
1		1 Voice, 3 Port Faceplate	Break Room or Courtesy Phone Location.
2		1 Voice/ 2 Data, 3 Port Faceplate	Normal Work Area of 100 sqft or less. Also at head end of Laboratory or Classroom.
3		2 data, 3 Port Faceplate	Laboratory with locations at every 8 ft around the perimeter.
4		4 data, 4 Port or 6 Port Faceplate	Computer Laboratory.
5		6 data, 6 Port Faceplate	Computer Laboratory.
6		1 Voice/ 4 Data, 6 Port Faceplate	Podium location for classrooms and meeting rooms.
7		2 Voice/ 4 Data, 6 Port Faceplate	As needed by customer.
8		1 Voice/ 12 Data, Multimedia Outlet Box	As needed by customer.
9		12 Data, Multimedia Outlet Box	As needed by customer.
10		16 Data, Multimedia Outlet Box	As needed by customer.
11		18 Data, Multimedia Outlet Box	As needed by customer.
12		Miscellaneous, indicate in notes	As needed by customer.
13		1 Data, Above Ceiling	For Wireless Access Points.
14		Floor Mount Outlet, Add above indication for number of voice and data locations	
15		Wall Mount, Indicate height AFF (Above Finished Floor)	

P GENERATOR BACKUP

When Generator Back-up for the building is available, all telecommunication rooms (MDF, IDF and BDF) and equipment rooms shall have a minimum of one (1) dedicated circuit that is connected to the generator for an Uninterruptible Power Supply (UPS). The circuit shall be sized to support the Voice Over Internet Protocol (VoIP) equipment and Data Networking Equipment for continues services during electrical outage for Enhanced 911, Card Access, and Elevator Lines. In addition, the receptacle type and amperage rating shall be specified in accordance with the UPS requirements submitted by Information Technologies Representative.

SECTION III TESTING

A OUTSIDE PLANT AND RISER CABLES

1. All twisted pair riser cables and protection units shall be continuity and resistance tested and certified by the Contractor. Test Results will be provided indicating each pair and its condition (good, short, ground, etc.). Installed cable must meet DC resistance; capacitance, impedance and attenuation parameters set by approved cable manufacturer.
2. Twisted pair shall have no more than two (2) pair per one-hundred (100) that fail, and no more than one (1) pair per twenty-five (25) pair binder group that fail. Results of said test will be submitted to USF Information Technologies for building records, electronically or on a Compact Disk (CD).

B INFORMATION OUTLET CABLING & RISER CABLES

Contractor shall certify all station wire as appropriate to comply with ANSI 568B.2 Category 6 requirements. Results of said test will be submitted to USF Information Technologies for building records, electronically or on a Compact Disk (CD).

C FIBER OPTIC CABLE

1. All fiber optic cable shall be tested with a light source and meter at both 850 nm and 1300 nm. All fibers must test within the combined loss budget attributable to the cable length (3.75 dB/km at 850 nm and 1 dB/km at 1300 nm) plus the connectors (.25 dB per connector) and any splices (.25 dB per splice). In no case shall the loss budget for any single fiber optic run (connector to connector) be greater than 5 dB at 850 nm.
2. Contractor shall submit a record of all tests made indicating the fiber number and the loss at both wavelengths. Results of said test will be submitted to USF Information Technologies for building records, electronically or on a Compact Disk (CD).

SECTION IV CERTIFICATION/ACCEPTANCE

All facilities will be inspected and tested by Owner or Owner’s agent. A list of facilities failing to meet specification will be provided to Contractor for correction. Only after all failures have been corrected and re-inspected by Owner or Owner’s agent and certified within specification will all facilities be accepted.

SECTION V WARRANTY

All cable, terminations, and components of this cabling specification shall be warranted by the Contractor to perform as new for a period of three (3) years from date of system acceptance.

SECTION V NOTES

- 1 All cabling will be done according to TIA/EIA 568-B.2-1 Standards and wiring to be terminated to 568B Standard.
- 2 SC connectors will be used for all Single Mode Fiber (Secor Cam Locks) or (3M hot melt connectors.)
- 3 ST connectors will be used for all Multi Mode Fiber (Secor Cam Locks) or (3M hot melt connectors.)
- 4 Hitachi Brand Cable is to be for all inside/outside Fiber & CCTV cabling and will terminate onto a rack-mounted patch panel or cabinet.
- 5 Data cables in telephone closet will be terminated onto a rack mounted cat 6, flexible snap in style patch panel not a 110 block with specified cable management.
- 6 A Rack Mounted power strip is to be installed on the bottom of every installed rack.
- 7 A Ladder rack will be installed horizontally across every MC (Main Cross-Connect located in the main equipment room) / TR (Telecommunication Room housing the cross-connect between the backbone and horizontal cable) Back Board and out to the 19-inch rack to about three to four (3 - 4) feet (See Exhibit D)
- 8 **“AS BUILTS” As Builts and test results are required to be turned into the University of South Florida Information Technologies Department for the purposes of Documentation updates.**
- 9 The color scheme shall comply with ANSI 606A, for all riser cable labeling designation strips is **“White”**, and the color scheme for voice station cable labeling designation strips is **“Blue”**.
- 10 **Approved Manufacturers:** Superior Modular Products; Hubbell; Wiremold; Middle Atlantic; Panduit; Geist; Ortronics.

ITEM	PART NUMBERS WITH DESCRIPTION
1. Cable	

ITEM	PART NUMBERS WITH DESCRIPTION	
Hitachi Cable	30025-8YE CAT 6 HI NET PLUS for Plenum Data; colors are yellow 30025-8GR CAT 6 HI NET PLUS for Plenum voice; colors are Green	
Superior Essex Cable	66-240-6B CAT 6 DataGain for Plenum Data; colors are yellow 66-240-5B CAT 6 DataGain for Plenum voice; colors are Green	
2. Work Area Kits		
Superior	FPR-0301 USF-3	Superior Non-Kit Form Superior Kit Form
Hubbell	IFP13EI USFP3J	Hubbell Non-Kit Form Hubbell Kit Form
3. Face Plates		
Superior	A106K4 style face plate	Used with standard 106 style face plate
Hubbell	IFP13XX style face plate	IFP13XX style face plate
4. Modules w/Icons 106 Style		
Superior	Superior CAT 6; 568B Access Jack KMJA6XX (00 or 01) Access jack T568B wiring UMJA606 UMJA608	
Hubbell	Hubbell Gray Cat 6 Jack HXJ6GY Hubbell Orange Cat 6 Jack HXJ6OR Hubbell Orange Icon with Computer Symbol - IOR100C Hubbell Gray Icon with Telephone Symbol – IGY100T	
5. Modules		
Superior	Superior CAT 6; 568B Access Jack Voice Gray - UMJA606V Superior CAT 6; 568B Access Jack Data Orange - UMJA6-08D Superior CAT 6; 568B Access Jack CCTV Violet – UMJA6-10	
Hubbell	Hubbell Gray Cat 6 Jack HXJ6GY Hubbell Orange Cat 6 Jack HXJ6OR Hubbell Orange Icon with Computer Symbol - IOR100C Hubbell Gray Icon with Telephone Symbol – IGY100T	
6. Multi Outlet Box		
Superior	Superior SME 10-01	
Hubbell	Hubbell ISM12EI (12-Port)	
7. 110 Blocks		
Superior 100 Pair Style Wiring Blocks	DCC96/11051XL	
Superior 300 Pair Style Wiring Blocks	DCC288S1XL	
Superior Category 6 100 pair Style Blocks	C64-10	
Hubbell Cat.6 64 Pair 110 Wiring Blocks	6110FTK64WL	
Hubbell Cat.6 192 Pair 110 Wiring Blocks	6110FTK192WL	
Hubbell Cat. 6 Connector Blocks	6110CB4PR10	
8. Avaya Cable Management		
	188B2 Back Board	
9. Relay Rack Cable Management Panels		
Superior	Superior CO3519 Cable Management for front of rack Superior CMB19 Cable Management bar for back of rack	
Hubbell	Hubbell HC219ME3S Cable Management for front of rack Hubbell MCCSWB19 Cable Management for back of rack	
10. Racks		
Superior	CMR45 Rack Max 7' x 19" x 6"	
Middle Atlantic	MK-19-45 MK-LA - Rack Ladder adapter kit	
Ortronics	EP-06-027-01	
11. Multi Port Rack Mount Cabinets		
Superior	Superior RTC rack mount/WTC wall mount	
Hubbell	Hubbell OPTIchannel FCR rack mount/ FTU Wall Mount Cabinets	

ITEM	PART NUMBERS WITH DESCRIPTION
12. Rack Mount Patch Panel	
Superior	Superior A48H
Hubbell	Hubbell UDX48E1U
13. Patch Cords	
Superior	Superior – Cat 6– Patch Cords
Hubbell	Hubbell – Cat 6 – Patch Cords
14. Cable Runways	
Flextray Black	12" Ladder Rack that meet ANSI 569
15. 110 tools	
	Category 5 and Category 6 appropriately
16. J-Hooks	
	ERICO – Cat32, Cat64
	Panduit – JP2WP-L20, and JP4WP-X20
17. Rack Mount power supply	
	Geist - SP124-10 (12 Outlets) or SP124-20
18. Vertical Cable Management	
	Panduit - WMPVFMHC45
19. Communications Poke-Thrus Devices	
	Wiremold – 4FFATC Dual Service Furniture Feed
	Wiremold – RC9AM2TC



THE QUIKSET ORGANIZATION

Attachment
'A'

ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 5500 PSI SEVEN DAY CURE PRIOR TO SHIPPING

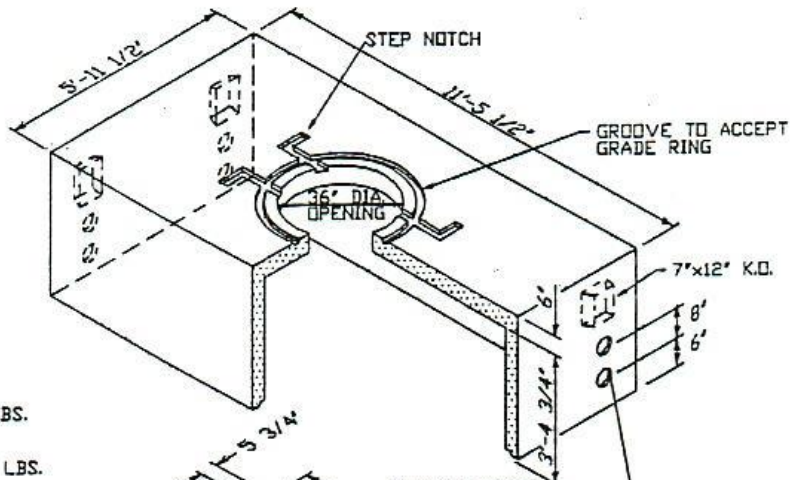
STANDARD STRUCTURAL DESIGN IS BASED ON AASHTO HS 20 WHEEL LOADING

THE STANDARD DESIGN IS BASED ON THE TOP AT ANY ELEVATION BETWEEN FINISHED GRADE AND 5'-0" BELOW GRADE.

THE STRUCTURE SHALL BE PLACED ON A COMPACTED GRANULAR BASE TO INSURE UNIFORM DISTRIBUTION OF SOIL PRESSURES.

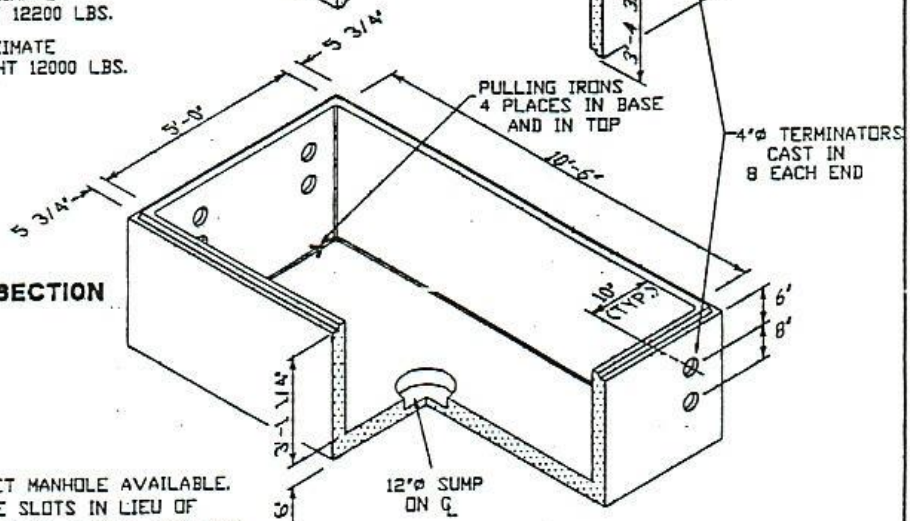
MINIMUM EXCAVATION SIZE
7'-0" MIN. x 12'-6" MIN. x DEPTH TO SUIT JOB.

TOP SECTION



APPROXIMATE TOP WEIGHT 12200 LBS.
APPROXIMATE BOTTOM WEIGHT 12000 LBS.

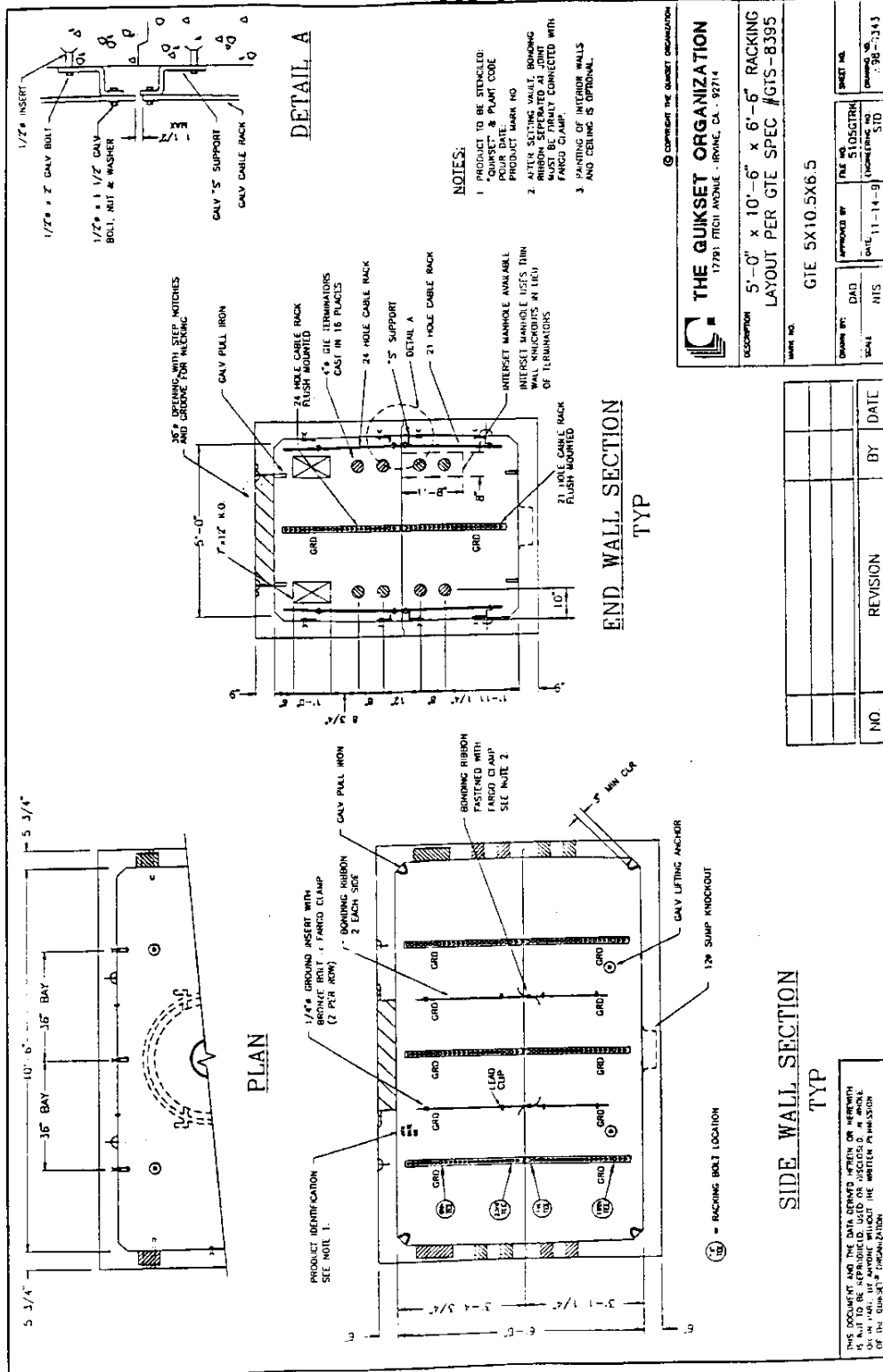
BOTTOM SECTION

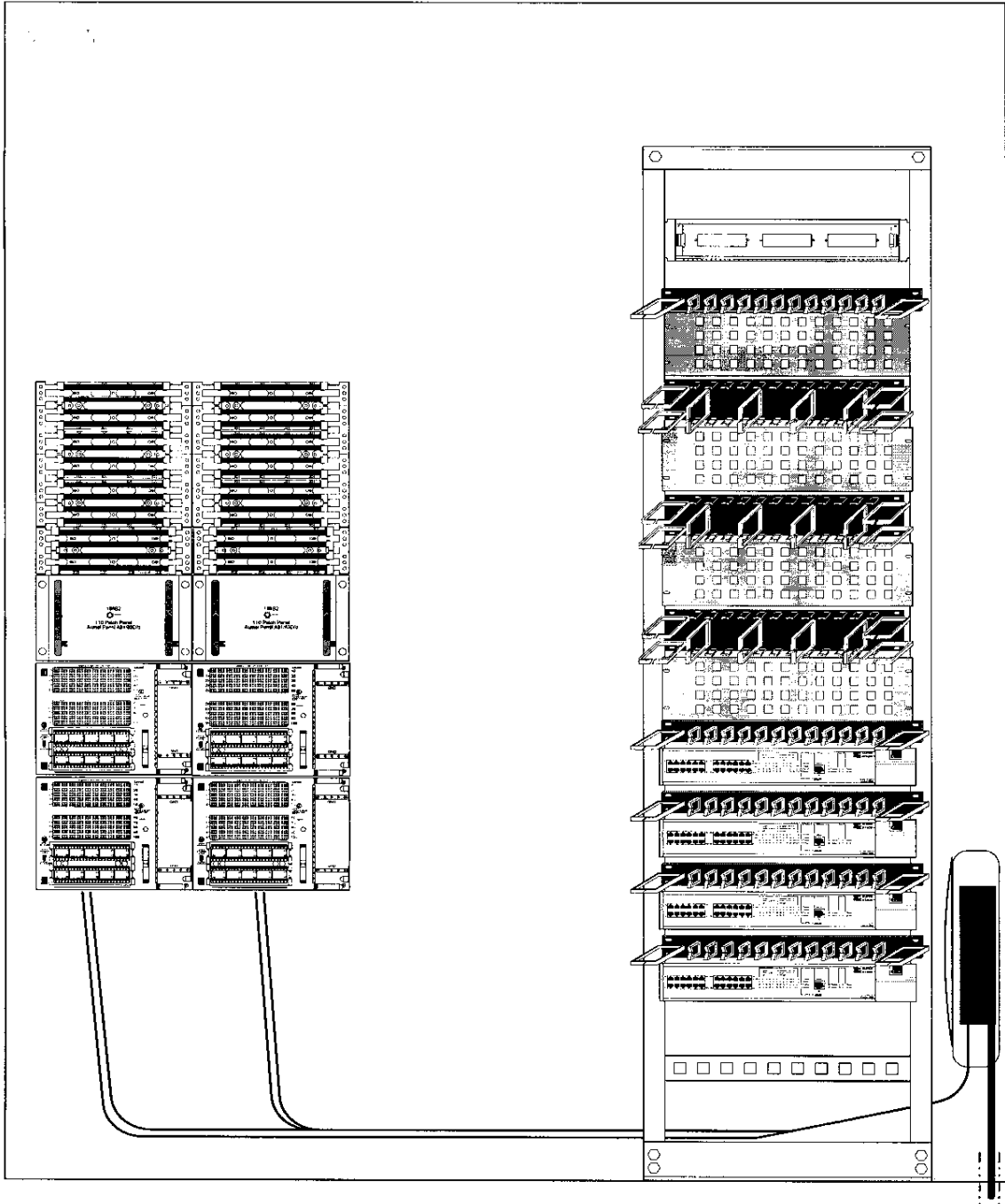


NOTE: INTERSET MANHOLE AVAILABLE. 7" WIDE SLOTS IN LIEU OF TERMINATORS. TYPICAL TOP AND BOTTOM SECTION

GTE 5X10.5X6.5
5'-0"x10'-6"x6'-6" QUIKSET® 2-PIECE MANHOLE

ATTACHMENT 'A'

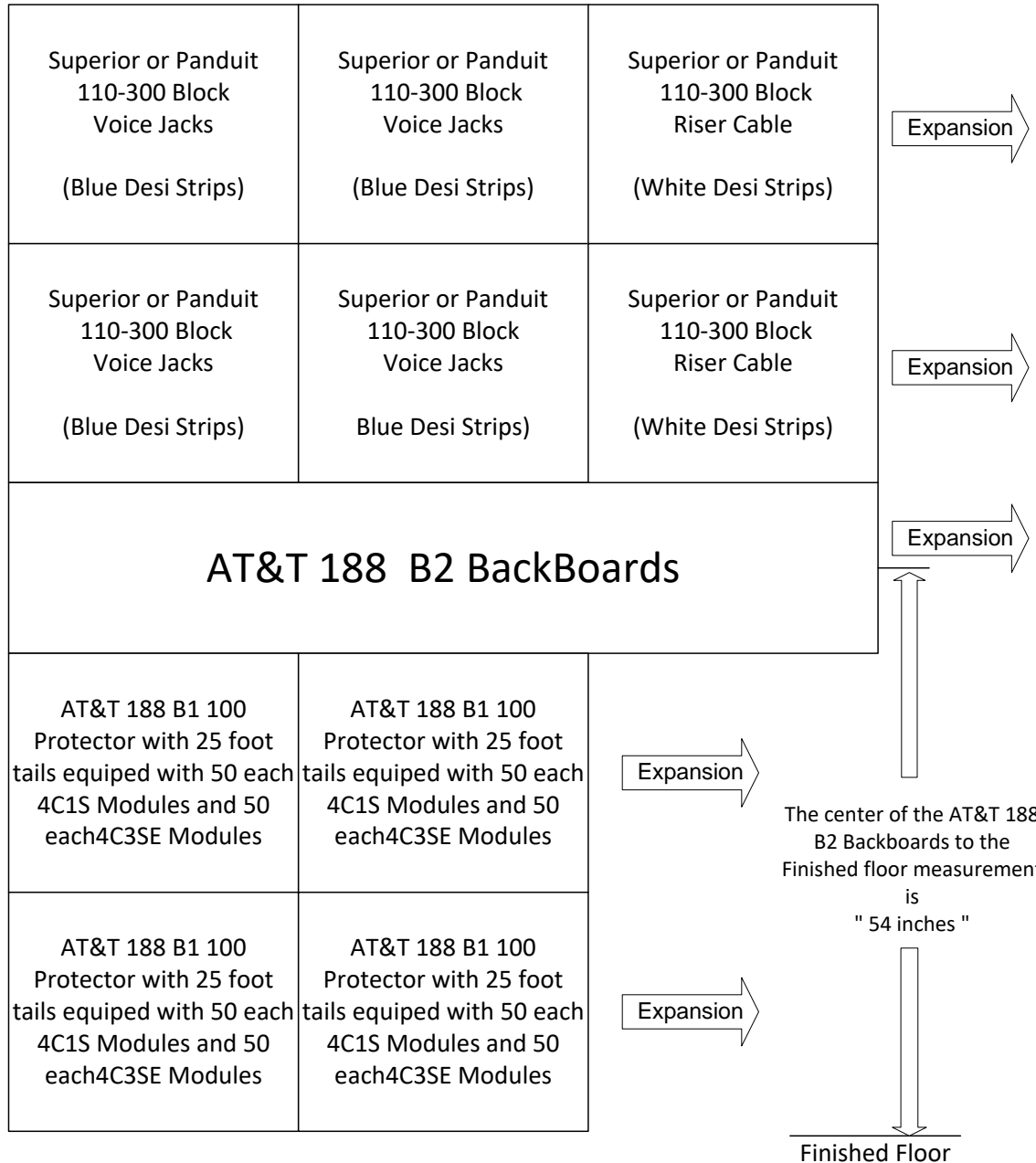




USF EF Entrance Facility Building Distribution Frame

Attachment " B "

Build 110 Blocks from left to right, 6" from the edge of the Backboard



**USF TR
Telecommunication Room
Distribution Frame
Telephone Closet**

**Attachment
" C "**

Build 110 Blocks from
left to right 6" from edge
of Backboard

