

# **School District of Manatee County**



# **PLANNING MANUAL**

**for**

# **SCHOOLS & ANCILLARY SPACES**

**Date: 1/20/2021**

**School District of Manatee County  
Planning Manual for Schools & Ancillary Spaces**

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# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Introduction**

The mission of the School District of Manatee County (SDMC) is to educate and develop all students today for their success tomorrow. In order to achieve this mission, we must construct the highest quality facilities possible, with strict compliance with project budgets.

The purpose of this document is to introduce you to our standards for constructing and/or renovating schools and ancillary spaces for SDMC. It is our goal to establish these guidelines in an effort to streamline the process of designing and constructing our facilities, to accomplish our mission.

This is a “living document” which will be available on the District’s website. Continual review and periodic revisions will take place with resulting changes posted on the District’s website. It has been formatted for ease of use. The intent is to provide a framework for decisions and allowing for creative solutions to be considered and implemented wherever possible.

SDMC strives to construct “maintenance-friendly”, cost effective schools and we recognize that operational costs incurred after the project is complete also play a significant role in selecting products and equipment.

SDMC will strive to provide buildings that meet green building objectives. We believe that utilizing renewable products, energy efficient equipment and other items are vital.

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## Division 2a Sitework

1. Boundary surveys are required for all new construction projects.
2. Soil treatment shall provide a five-year warranty for termite damage and shall include provisions for replacement of the structure.
3. Radon testing shall be done prior to starting any new construction or renovation projects. Imported fill material shall meet the following requirements for radon:
  - a. Beneath occupied structures – 2 pci/g or less
  - b. Exterior General Use – 11 pci/g or less
  - c. Paved parking or roadway areas – no limitation
  - d. All imported fill must be certified in writing to be in conformance with the above requirements prior to being deposited on site.
4. Clean fill material shall be used. (No organic material, rocks, debris, asphalt, etc.)
5. Site considerations:
  - a. Storm Water – Flooding and Drainage
    - i. Load bearing grates in traffic areas shall be cast iron. (No stamped or riveted grates.)
    - ii. Grates shall be secured with hold down straps.
    - iii. All storm water piping shall be Class III Reinforced Concrete pipe without lifting holes or HDPE corrugated plastic pipe. Metal storm water pipe shall not be used. The use of elliptical pipe is permitted but shall only be used when project conditions preclude the use of round pipe.
    - iv. Trees in slopes shall be minimized to allow for mowing and in no case shall result in mowing widths less than 6 feet.
  - b. Potable Water and Sewer Facilities
    - i. The demarcation between the sanitary sewer system and the domestic wastewater collection system (DWCS) shall be clearly shown on all plans.
    - ii. All gravity sewer lines shall be tested by pulling a mandrel and air pressure testing.
  - c. Fire Main
    - i. Fire hydrants shall be painted to comply with the local Fire Department requirements.
6. Slopes should not exceed 4:1.
7. Roof drains should be tied into a storm drain system and should not discharge onto sod, landscaped areas, sidewalks, into building walls. Exceptions to this must be reviewed with the Project Team.

8. All new construction projects should have balanced sites. Plan wherever possible for balanced cut and fill to maximize the use of on-site materials and minimize the need for imported fill.
9. All fill material used should not contain deleterious or hazardous substances in excess of the minimum threshold limits established by the appropriate Governmental Agency.
10. Bus drives should be separated from all other traffic drives.
11. A separate service drive area should be provided for trash removal and parking of dumpster containers, and to serve the kitchen for deliveries and school staff.
12. School buses currently in use by MCSD have a minimum turning radius of 75 feet. All road designs shall conform to this requirement. Allowance shall be made on turns and tangents for a bus to pull around a stalled or parked bus. The MCSD Transportation Department shall be consulted in the initial design phase of the project.
13. Dumpster Areas:
  - a. Manatee County School District recycles paper, plastic, cans, and cardboard products in a single stream process.
  - b. Trucks that haul this material are front loading.
  - c. Construct the dumpster area adjacent to the building, if possible.
  - d. Dumpsters require power and a grease trap. These requirements should be reviewed during the design phase.
  - e. SDMC no longer uses trash compactors; however, power and drainage should be installed in the event trash compactors are used again in the future.
  - f. Trash bin areas should be 12' X 16' with 3 sides, with double chain link gates. These gates should swing from a separate post, not trash bin walls and should have "bulldog" hinges.
  - g. An area of 20' is required for the trucks to pull beyond dumpster area.
14. Round catch basin lids are preferred.
15. All in & out flow pipe to have head wall or miter ends. This sloped edge and surrounding grading needs to allow for mowing.
16. The use of soil cement is not preferred; however it may be used in lieu of crushed concrete as a base material.
17. Speed bumps may be installed on District roadways, if necessary to control vehicular traffic. This should be verified with Maintenance and Transportation.
18. Sheet flow drainage should not be located over sidewalks.
19. Drains under the building slab should be minimized.
20. Oversize retention areas wherever possible. This allows for future expansions without having to do significant modifications to the site.
21. On the plans, show locations and stub outs for "Future Portables and/or Addition" space. This will require the teams to review the most effective placement of future items on site.
22. PE areas and playgrounds should be separate, wherever possible.
23. Covered play areas should include protective padding at the poles.

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## Division 2b Fencing

1. All steel fences shall have wire ties.
2. Fencing shall be required in the following areas:
  - a. School and ancillary site perimeters (6' high chain link fence with pedestrian portals and vehicular gates as required)
  - b. Play areas and athletic fields
  - c. Bicycle parking areas
  - d. Drop off and pick lanes (include openings for student drop off/pick up)
  - e. Bus drop (include openings for student drop off/pick up)
  - f. Mechanical areas and/or chiller yards
  - g. Outside storage areas
  - h. Perimeter fence and retention ponds
    - i. Retention ponds should have a 6' high chain link fence with at least one 10' wide double gate.
3. All chain link fence fabric and tension wire shall be 9 gauge. Fabric shall be knuckle to knuckle type.
4. All chain link fence corner posts, line posts, and top rails shall be 40 gauge.
5. All chain link fence tension bands, loop caps, brace bands, and "hog rings" shall be steel.
6. All chain link fence rail ends and dome caps shall be aluminum.
7. All chain link fence ties shall be 9 gauge, TWISTED aluminum.
8. All chain link fence ties on backstops shall be 9 gauge, TWISTED steel.
9. All chain link fence gates over 6' wide shall have a 10" tire or larger.
10. Fence corners shall not be greater than 90 degrees.
11. Fences shall be of non-flammable materials.
12. Fencing which has high public visibility (such as the front of the school) shall be 4' chain link coated with green or black polyvinyl chloride, all other fence shall be galvanized chain link. (Higher fencing may be required in certain areas such as boundaries, retention ponds, baseball areas, etc.)
13. Fencing plans shall be reviewed and approved by the School District's Security and Grounds Maintenance Departments.
14. Line posts shall be no more than 10' on center. 8' on center is preferred.
15. Fences should be set back 15' from the top of sloped areas and trees should not be planted in this area.
16. Vehicle gates should be lockable with a 3210 key in both the open and closed positions and should be painted bright yellow and have reflective signage for high visibility.
17. All fencing plans should be reviewed and approved by the Security Department and Grounds Maintenance Department.

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## Division 2c Landscape

1. Provide a 12' wide and 14' high access route for interior courtyards and any other areas that require mowing or trimming.
2. Coordinate installation of landscaping with Enhanced Hurricane Protection Area (EHPA) requirements.
3. All plant materials shall be Florida #1 grade.
4. Fibar ADA mulch or approved equal with approved border material shall be used at playground areas.
5. High School athletic fields shall be certified Celebration Bermuda grass. Middle school fields should be Celebration Bermuda grass.
6. Use native plant species.
7. Oak trees should be spaced at least 40' apart and a minimum distance of 30' from buildings. Minimize use of oak trees near sidewalks, buildings, pavement to keep roots from causing damage.
8. Trees should not be planted under lights, wires or transmission lines.
9. Trees, mulch, plants, shrubs and any other landscape items should not be placed directly adjacent to buildings or structures.
10. Drain covers should not be installed in or near flower beds or planting areas.
11. Bahia sod is preferred in all areas, except specific areas noted elsewhere in this Planning Manual.
12. Limit the use of cabbage/sabal palms, date palms and queen palms due to high initial cost and susceptibility to disease.



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## Division 2d Irrigation

1. Well installation, capping, plugging, and permitting must be coordinated through the District's Executive Planner.
2. All grass and planted areas shall be irrigated as follows:
  - a. Areas that do not require irrigation: berms, agriculture program areas, dry retention areas
  - b. Areas that DO require irrigation: front yard, courtyard, play fields, athletic fields, planters
3. Irrigation heads in turf areas must have 100% head to head coverage.
4. Any special hardware required to maintain the irrigation systems must be provided to the Owner at Closeout.
5. The irrigation rate for Bermuda grass shall be 1" per hour.
6. Reclaimed water shall not be used.
7. A special permit is required for wells 6" in diameter or greater.
8. Wells 6" in diameter or greater are required to be monitored and reported to SWFWMD.
9. Preferred manufacturers are Rainbird, Toro or Hunter
10. Hoover well pump systems are not preferred.
11. Do not locate valve boxes next to roads or parking lots, unless they have curbs, bollards and/or car stops.
12. Separate irrigation zones should be established for ornamental plant areas and tree areas.
13. For High School athletic fields:
  - a. This area should have its own controller and timer
  - b. Irrigation should run from goal post to goal post
  - c. Crown fields for proper drainage
  - d. Locate drains 2' from edge of track (or curb for track)

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## Division 2e Play Fields & Playgrounds

1. Play Fields-Baseball/Softball
  - a. For elementary schools, use Bahia sod throughout, with clay at the diamond infield.
  - b. For middle schools, use Bahia sod throughout, with clay at the diamond infield or otherwise as determined by the Project Team.
  - c. For high schools, use Bermuda sod with full clay areas. Some bleacher seating and dugouts should be installed for high school baseball and softball facilities.
2. Playgrounds
  - a. Equipment shall comply with NIPSI specifications.
  - b. Playgrounds should be located in the back portion of the campus, close to an exit door.
  - c. Playgrounds should be located away from egress windows.
  - d. If “Gaga pits” are installed, they must have padding installed on the tops. Students must be taught the game with an emphasis on safety and **Risk Management must be informed**. This applies to areas built by volunteers, installed by sponsors, or acquired with non-District funds.
3. Athletic Facilities
  - a. High Schools shall have
    - i. High School athletic fields shall meet National Association of State High School Associations (NFHS) minimum guidelines.
    - ii. One Women’s softball field
    - iii. One Men’s baseball field with bleacher seating and dugout facilities
    - iv. Five tennis courts with “Laycool” type topping or equal
    - v. Football stadiums shall have 3,000 home and 1,000 visitor seats
    - vi. Athletic tracks
      1. Rubberized permeable Plexitrac Accelerator polyresin synthetic in Red, impermeable Beynon 200 polyurethane synthetic in Red, or acceptable alternative to these two products
      2. Where rubberized tracks are installed, concrete curbs are preferred.
    - vii. Track amenities shall include a pole vault, long jump/triple jump, javelin and shot put/discus and track runway
    - viii. Football fields with Certified Celebration Bermuda grass and appropriate lighting. Field lighting shall have bird deterrents.
    - ix. Concession stands with provisions for commercial cooking for football and baseball/softball events
      1. This could be an exterior fenced in cooking grill area

2. LP gas tank areas should be secured with a fence
4. Athletic fields should be laser graded and regraded after irrigation is installed.

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## Division 3 Concrete

1. Where Radon is present, provide the appropriate barrier under slabs.
2. Sidewalks should be a minimum of 4" thick with a 6" thickened edge adjacent to high traffic areas, sodded areas and asphalt areas.
3. Wire mesh is preferred to Fiber Mesh.
4. Sidewalks should have an expansion or control joint at every 20' minimum.
5. Broom finish is preferred at all exterior sidewalks, stairs, etc.
6. Vapor barriers for all new concrete shall be a minimum of **xx** mil.

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## **Division 4 Masonry**

1. New schools constructed for Manatee County School District shall have double-wythe brick exterior wall systems to provide a longer building life cycle, unless an alternative is approved in advance.
2. Masonry control joints shall be galvanized or copper and shall be located by the Architect/Engineer and clearly shown on the architectural plans.
3. A mock-up of the masonry wall system shall be constructed and remain in place during construction and should include all elements required for a complete wall sample.
4. All exposed masonry joints shall be tooled.
5. Stainless or copper flashing is preferred; however, flexible flashing is acceptable if required by budget.
6. In multi-wythe walls, cavities should be a minimum of 2".
7. Rake joints are not preferred.
8. Masonry walls at mechanical room locations should be insulated.
9. Bullnose masonry units are not preferred.
10. Stucco block should not be used at exposed interior wall locations.

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**Division 5  
Metals**

1. Steel handrails are preferred for all exterior locations and interior stairwells.
2. Stainless steel handrails are preferred in the kitchen/cafeteria locations.

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## Division 6 Carpentry/Cabinets

1. Countertops and backsplashes with sinks shall be plywood, constructed to AWI Standards.
2. All wood that comes in contact with concrete must be pressure treated.
3. Institutional hinges (5 knuckle with hospital tips) on all cabinetry, no European style hardware.
4. No fire-treated wood to be installed in student occupied areas.
5. Pulls on cabinets shall be metal, not plastic.
6. Cabinet locks shall be provided in all Clinic and Science Lab casework. Other casework should have locks on 20% of the casework in the room. Keys for casework should be transmitted to the Project Director at the completion of the project.
7. Caulk all cabinets and countertops.
8. Backing must be installed for all wall-mounted door stops.
9. Cabinet bases shall be 4" high, ¾" CDX pressure treated.
10. Wood blocking is preferred.
11. If metal blocking is used, it should be 14-gage minimum.
12. Generally, Manatee County School District will consider the following items, as well as others deemed appropriate by the Project Team:
13. Consider 1" thick countertops in lieu of 1-1/2" thick.
14. Metal (not plastic) shelf supports are preferred.
15. Accuride drawer guides with steel ball bearings are preferred, not European.
16. Drawers made from stapled and glued plywood are preferred, not glued particle board.
17. No cabinets shall have shelves over 36" long. (Longer shelves sag and bow and consequently fall off their supports.)
18. Screw rails in cabinets should be made from ¾" plywood on the inside of the cabinet.
19. Overhead cabinets should be a minimum of 12" deep.
20. Casework glazing shall be at least ¼" tempered glass (doors and/or shelves).
21. In K-3 classrooms install cubbies for student storage (18" w x 18" h x 24" deep).
22. In 4-5 classrooms install backpack hooks with adequate backing for these hooks.
23. Musical instrument storage shall be FFE, not built in casework.

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## Division 7 Roofing

1. Low slope/flat roof Basis of Design shall be Fibertite by Siemens Corporation
  - a. Other alternates will be considered by the Project Team.
2. The membrane roof material must comply with ASTM D 6754 or High Performance KEE Thermoplastic Roofing System.
3. The desired thickness is a minimum of 45 mil.
4. Roof access from the interior of the building is required at all two-story buildings and higher as well as in all single story buildings over 12' in height.
5. Warranty requirements for roofs shall be as follows:
  - a. Membrane roofing - 20 year full manufacturer's warranty
  - b. Metal roofing – 20year full manufacturer's warranty
6. Skylights are not preferred.
7. Design should provide access to roof from all levels.
8. Design should include provisions for electrical outlet at roof level for future repair and/or maintenance operations.
9. Walkway pad systems approved by the manufacturer are preferred.
10. Roof accessories provided by the manufacturer are preferred.



# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 8a Doors

1. All schools and sites should have a single point of entry, clearly marked and accessible.
2. Front office areas should be equipped with a panic button and card access (see Division 8d/27i.)
3. Doors should be 7' high maximum.
4. Exterior doors shall be hollow metal (HM).
5. Strive to eliminate recessed exterior doors.
6. Oak and birch finishes are acceptable and pre-finishing is preferred. (It may save time and money for the painting subcontractor.)
7. Light kits should be white baked enamel factory finish may save time and money for the painting subcontractor.
8. Minimize classroom exits as exterior doors to control access.
9. Closeout documents should include a detailed inventory of doors, frames and hardware in an exportable format (ie: Excel) for possible use in the District's inventory system.
10. Minimize the use of aluminum storefront doors as exit doors. **Aluminum doors shall have NO vertical rods.** Aluminum doors shall have a continuous hinge.
11. Aluminum framed storefronts and curtain wall systems shall not be used (exit ways) without written authorization of owner.
12. Door frame heads of steel doors shall have a closure channel to prevent water access.
13. Steel door frames shall be fabricated with cold rolled galvanized steel- no less than 16 gauge, high use areas (cafeteria, gym, auditorium, exterior entrances) shall be no less than 14 gauge. Frame reinforcements shall be not less than 10 gauge. All frames installation masonry shall be grouted solid. All frames shall be back coated with asphaltic coating – entire area of HM frame.
14. Where double doors are required for exit passage, passage of large equipment shall be equipped with a keyed – removable steel mullion.
15. Kitchen entry doors should be double doors (2 – 3'8" x 7'8") with keyed mullion. Coordinate kitchen equipment dimensions prior to determining door openings.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 8b Hardware

PRODUCT	ACCEPTABLE MANUFACTURER	ACCEPTABLE SUBSTITUTE
Hinges	Hager	Stanley, McKinney
Locks & Latches	Schlage	None
Cylinders, Keys, Keying	Schlage Everest T	None
Exit Devices	Von Duprin	None
Removable Mullions	Von Duprin	None
Door Closers	LCN	None
OH Stops/ HOLDERS	Glynn Johnson	Rixson
Wall Stops/Floor Stops, Flash bolts	Glynn Johnson	Rockwood, Hager
Kick Plates/Push-Pull	Rockwood	Hager, Ives
Threshold	National Guard	Pemko, Reese
Weatherstrip		
Silencers	Glynn Johnson	Rockwood, Hager
Key Cabinet	Lund	Telkee

1. Provide cylinders from the same manufacturers as the locks and latches. All locks and cylinders shall have conventional Schlage cylinders matching Manatee County School District's existing restricted Keyway, unless otherwise noted. All new bittings, shall be issued by Schlage Lock in order to maintain the integrity of the existing grand master key system. All keys, shall be cut on appropriate Everest/"T-234" Series Restricted key blanks, matching the School Board's restricted key way and specified by Schlage Lock Company. Cylinders shall be Schlage, key-removable type. **Stamp blind code on cylinder.**
2. Construction Keying shall comply with the following:
  - a. No lock cylinder keys will be ordered by the distributor until a keying meeting has been held by Manatee County School District Project locksmith's Project Manager and the Distributor. Signature cards are to be signed by project locksmith's authorized personnel only, as on file with Schlage Locks.
3. Keying System: Unless otherwise indicated, provide a factory-registered keying system complying with the following requirements: Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
4. Keys: Provide nickel-silver keys complying with the following:
  - a. Stamping: Permanently inscribe each key with a visual key control number (blind code) and include the following notation: **["DO NOT DUPLICATE."]**

- b. Quantity: In addition to one extra blank key for each lock, provide the following:
    - i. Cylinder Change Keys: Four
  - c. Master Keys: Six
    - i. Grand master Keys: Six
- 5. Provide 2 copies of bitting list to Project Director who will provide it to Maintenance.
- 6. Provide one hundred (100) Everest/"T" Series Restricted key blanks to Project Director at Substantial Completion.
- 7. KEY CABINET: Set up and index one (1) Key Cabinet that allows room for expansion for 150% of the number of keys for the project. Minimum size to be equal to Lund 1203. Provide and install a 5-way cross reference system which indicates the key set number, room "FISH" number, key code number hook number and key description. The keys and key cabinet shall be transmitted by the Construction Manager to the Principal (with a copy of the transmittal to the Project Director) upon Substantial Completion of the project.
- 8. No hardware is to be installed until the lock manufacture has provided a pre-installation class. This is to insure proper installation of the specified products.
- 9. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
  - a. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware and electrified door hardware.
  - b. Consult with an instruct Owner's personnel on recommended maintenance procedures
  - c. Replace door hardware items that have deteriorated or failed due to faulty design, materials or installation of door hardware units.
- 10. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate and maintain door hardware and door hardware finishes.
- 11. Cylindrical leversets shall be heavy-duty ND series, Rhodes design.
- 12. Leversets on classroom doors shall be storeroom function locks (same type/function as Schlage ND75 lever lock.)
- 13. Leversets on all doors in middle and high schools shall be clutch function, "Vandalgard" type locks. Panic hardware shall be Von Duprin 99 Night Latch and Exit Only trim.
- 14. Removable mullions shall be key removable.
- 15. Through bolts shall be used for mounting all exit devices and door closures.
- 16. If wall mounted door stops are installed, backing should be installed behind the wall surface. Otherwise, floor mounted door stops should be used.
- 17. Toilet room hardware on stalls should be metal.
- 18. Storefront systems shall not have internal vertical rods. Door-O-Matic is not a preferred manufacturer/product.
- 19. Closeout documents should include a detailed inventory of doors, frames and hardware in an exportable format (ie: Excel) for possible use in the District's inventory system.
- 20. Renovations and additions should provide the hardware outlined herein, regardless of the existing products in place in the remainder of the facility.

Exceptions to this should be reviewed with the Project Team and the Maintenance and Operations Department.

21. Renovations and additions shall use a factory registered keying system. This system should be charted and registered from the factory large enough to accommodate the entire facility, not necessarily just those buildings included in the project. This will facilitate future upgrades.
22. Where aluminum storefront doors must be used as exit doors (not preferred), use Schlage or Von Duprin hardware. Door-O-Matic hardware is NOT preferred.

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## Division 8c Windows

1. Acceptable manufacturers include:
  - a. EFCO Corporation
  - b. Howard Industries, Inc.
  - c. Kawneer Company, Inc.
  - d. Miami Wall Systems
  - e. Winco Manufacturing Co.
  - f. Peerless
2. Do not provide window screens.
3. Side-hinged exit windows should have stop-hold opens installed.
4. Safety glass is preferred for all glazing in school facilities.
5. For any non-standard openings, provide a written list of sizes for District personnel to facilitate replacement.
6. Interior glass and glazing should be limited to the extent that classrooms can be locked down and have all occupants hidden from view. SDMC does not want “fishbowl” classrooms.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 8d/27i Card Access System

1. Card Access Systems will be required at all new schools and facilities.
  - a. Priority areas include: front/public entrance areas, kitchen/receiving areas, common exit areas to playgrounds/outside recreation areas
2. Basis of Design: IDenticard Premisys System with PC-based Access Control and Monitoring Software
3. Components shall be compatible with Premisys software and consist of the following:
  - a. Site licensing-include site licensing for two users for each new facility
  - b. Controller shall be PREM-CTRL2RDR IP controller with two reader ports
  - c. Expansion: PREM-BRD2RDR 2 reader expansion board
  - d. Enclosure: PREM-ENCLG large enclosure with lock and tamper
  - e. Power Supply: Altronix AL-400ULX
  - f. Magnetic Lock: Securitron M62
  - g. REX Motion: Visonic DA5
  - h. REX Button: Securitron EEB2 with a 30 second timer
  - i. Card readers: HID Proximity
  - j. Cards: HID Corporation Model #GPROX-H@2xxxxx
    - i. Provide 100 cards for Elementary Schools, Middle Schools and Ancillary Sites
    - ii. Provide 200 cards for High Schools
4. Regardless of whether an access control (card reader) system has been specified for the facility, all exterior main entrance doors shall be prepared for access control devices. These doors and their openings shall be prepped for future installation of appropriate electronic locking devices, request to exit devices, push to exit buttons and card readers. Door jambs and walls shall have suitable sized conduit installed to accommodate wiring for future devices.
5. The type and location of future devices shall be determined by the Project Team in collaboration with the District's Maintenance department.
6. Provide necessary surge/lightning protection for the complete card access system, including magnetic lock devices.
7. Electrified hardware and electric strikes are not allowed, except mag locks.
8. Access control door (door position) contacts shall not be installed.
9. Install a card reader at the elevator to call the elevator.
10. Patch cords for access control shall be orange.
11. Mag lock locations and lock down readers shall be reviewed with the District's Maintenance department.

**School District of Manatee County  
Planning Manual for Schools & Ancillary Spaces**

**Division 9a  
Plaster & Gypsum Wallboard**

1. Plaster or high-abuse gypsum wallboard (minimum 5/8" thick) may be considered for use in high traffic areas, if budget permits. This item shall be reviewed by the Project Team, based on the specific project needs.
2. Mop sinks should have backsplashes to waterproof the area near the sink. Mop sinks shall have either ceramic tile or stainless steel backsplash adjacent to the sink floor up to 54".
3. Typical wall board finish shall be medium orange peel, Level 5.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 9b Painting

1. For all paint colors selected, provide the Owner with a corresponding Scott Paint match number. Alternate manufacturers are PPG and Sherwin Williams.
2. Subcontractor shall provide a list of painted surfaces and their corresponding color name and number from the paint schedule. This will be included in the Closeout Documents.
3. Paint finish preference is semi-gloss for walls, doors and frames
4. Consider the use of anti-microbial paint
5. Exterior Paint Schedule:
  - a. Concrete, Stucco: Provide the following finish systems over exterior concrete, stucco surfaces: Acrylic Finish: 2 coats over a primer
    - i. 1<sup>st</sup> coat Scott #692 Aquaseal Latex surface conditioner (white)
    - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott #420 Acrylic Velvet Supercoat
    - iii. This system shall be mildew, fade, and sulfide stain resistant and shall carry a minimum 5-year labor and material warranty.
  - b. Concrete Masonry Units: Provide the following finish systems over exterior concrete masonry units:
    - a. 1<sup>st</sup> coat Scott #402 Ultra 100% Acrylic latex Block Filler
    - b. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott #420 Acrylic Velvet Supercoat
6. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items
  - a. Acrylic-Enamel Finish: 2 finish coats over a rust-inhibitive primer:
    - i. Touch up existing primer with matching primer or prime unprimed metal with Scott #941 Rust-Bloc Alkyd metal primer
    - ii. 2<sup>nd</sup> and 3<sup>rd</sup> coat Scott #430 Ultra 100% Acrylic Semi-Gloss Supercoat
  - b. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated (galvanized) metal surfaces:
    - iii. 1<sup>st</sup> coat Scott #692 Aquaseal Latex surface Conditioner. 1<sup>st</sup> coat Devoe Uni-group for exposed metal decking.
    - iv. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott #430 Ultra 100% Acrylic Semi-Gloss Supercoat
2. Interior Paint Schedule
  - a. Concrete: Provide the following paint systems over interior concrete floor surfaces scheduled to be sealed:
    - i. 1<sup>st</sup> coat Scott #700-709 Silicone Acrylic Concrete Stain, reduced 25% with xylene
    - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coats Scott #700-709 Silicone Acrylic Concrete Stain, full strength



1. Broadcast fine carborundum between first and second coat  
apply at rate of 10 pounds per 100 square feet.
- b. Concrete Masonry Units: Provide the following finish systems over interior concrete masonry block units:
  - i. 1<sup>st</sup> coat Scott #402 Ultra 100% Acrylic Block Filler
  - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott #435 Allgrip Acrylic Semi-Gloss
- c. Concrete Masonry Units in restrooms, Semi-Gloss Epoxy:
  - i. 1<sup>st</sup> coat Scott #402 Ultra 100% Acrylic Block Filler
  - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott #921 Acry-Poxy Acrylic Epoxy Enamel Semi-Gloss
- d. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
  - i. 1<sup>st</sup> coat Scott Scrubmaster #692 Latex Drywall Primer/surface conditioner
  - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott #435 Allgrip Acrylic Semi-Gloss
- e. Stained Woodwork: Provide the following stained finishes over, new interior woodwork:
  - i. Stain of Desired Color
  - ii. 1<sup>st</sup> Coat Bruning #505-13 Polyurethane Satin Coating
  - iii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Bruning #505-13 Polyurethane Satin Coating sand lightly between first and second coat.
- f. Ferrous Metal: Provide the following finish systems over ferrous metal:
  - i. 1<sup>st</sup> coat Scott #692 Aquaseal Latex Surface Conditioner (white)
  - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott # 435 Allgrip Acrylic Semi-Gloss
- g. Zinc-Coated Metal: Provide the following finish systems over zinc-coated metal:
  - i. 1<sup>st</sup> coat Scott #692 Aquaseal Latex Surface Conditioner (white)
  - ii. 2<sup>nd</sup> & 3<sup>rd</sup> coat Scott # 435 Allgrip Acrylic Semi-Gloss

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 9c Flooring

1. For new construction, test slab relative humidity, pH and vapor transmission before installation. For existing slabs, test slab relative humidity, pH and vapor transmission during design and before installation, preferably during the rainy season. In addition, for existing slabs, core drill 4" diameter cores at a rate of 3 per 10,000 s.f. of existing floor to determine existence and condition of vapor barrier. Retain these slabs to check for dimensional stability if necessary. If moisture is a problem, an encapsulate and/or water vapor barrier must be included under all flooring types. Flooring adhesives should allow for 97% RH at the time of installation. Exceptions to this requirement will be reviewed by the Project Team and Operations. SDMC requests that the flooring manufacturers train and pre-approve flooring subcontractors to insure quality installations.
2. VCT
  - a. Armstrong is preferred.
  - b. The flooring installer shall clean, strip and wax the VCT per the manufacturer's requirements (minimum of 4 coats.) I-Shine by Spartan is the preferred wax finish.
3. Carpet/Carpet-tiles or planks
  - a. Approved carpets include:
    - i. Interface Cubic carpet tiles
    - ii. Tarkett Color Spectrum carpet tiles
    - iii. Shaw Broadweave or other roll goods may be used where tiles are not appropriate. Use of this alternative must be reviewed by the Project Team and the Operations Supervisor.
    - iv. Alternate products must be reviewed by the Project Team.
  - b. Test slab relative humidity, pH and vapor transmission during design (if existing slabs) and before installation. If moisture is a problem, an encapsulate and/or water vapor barrier must be included.
  - c. Use only manufacturer adhesives for all carpet installations. If the project conditions indicate a higher RH than approved for use with manufacturer adhesives, use an alternate adhesive with a warranty that replaces the manufacturer's warranty for same.
  - d. For large installations on new construction projects, request a technical representative from the mill visit the project.
  - e. Provide a 10-year warranty on wear and edge ravel.
  - f. Include "walk off mats" at entrances at high traffic areas and entrances off of play areas.
4. Luxury Vinyl Tile (LVT)
  - a. LVT may be considered for in cafeterias, hallways, assembly areas
  - b. Armstrong Natural Creations with Diamond 10, or higher

- c. Must use LVT adhesive for up to 97% relative humidity
  - d. Provide a 20-year warranty on wear.
- 5. Sheet vinyl (limited applications)
  - a. Sheet vinyl may be considered for specialty locations such as clinics, ESE rooms, portable restrooms, etc.
  - b. Armstrong Medintech
- 6. Quarry tile
  - a. The desired locations for quarry tile is kitchen (not freezer cooler.)
  - b. Non-skid type is required
- 7. Titan rubber flooring is the preferred flooring material for walk-in cooler/freezers. The previous preferred flooring was stainless steel diamond plate.
- 8. Ceramic tile
  - a. The desired locations for ceramic tile are: group toilet rooms, classroom toilet rooms, clinic toilet room and others as deemed appropriate by the Project Team.
- 9. Attic stock requirements to be transmitted to the Project Director at closeout:
  - a. Carpet tile: 2% of each material used for each color and size.
  - b. Vinyl tile: 2% of each material used for each color and size.
- 10. Floors types in the following areas should be:
  - a. Weight rooms: Rubber mat flooring
  - b. Dance rooms: Wood floor on sleepers
  - c. Stage flooring:
    - i. Elementary and middle schools shall be VCT, or LVT if it is used in other areas of the school
    - ii. High schools shall be wood, preferably painted black
  - d. Gymnasium flooring:
    - i. Middle and High schools shall be wood (Grade 3 or better)
    - ii. A protective cover for gym floors should be provided by FFE budget

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 9d Acoustical Ceilings

1. 2x2 acoustical ceiling tiles are preferred; however, 2x4 will be considered.
2. Attic stock requirements to be transmitted to Project Director at project closeout:
  1. Maintenance Stock: a minimum of 1% of area of each size, type, and thickness installed on the job. This extra stock is for the Owner's use after construction period or during the 60-day period following Substantial Completion. Properly package, seal, and identify extra stocked material.
  2. Replacement Stock: in addition to the maintenance stock specified above, provide extra replacement stock of acoustical materials, consisting of a minimum of 1% of area of each size, type and thickness installed on the job. This extra stock is for replacement of damaged materials during the 60-day period following Substantial Completion, when the party responsible for the damage cannot be ascertained by the Owner's agent. Replacement stock, which is not used, shall be furnished to the Owner as Maintenance Stock.
3. Basis of Design is Armstrong World Industries. Acceptable alternates include: USG Interiors, Inc. and CertainTeed.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 10 Specialties

1. Plaque
  - a. Provided for all major construction projects
  - b. Shall include the following: full names of Board members and Superintendent from the contract execution through substantial completion, the proper name of the school, the full name of the architectural firm and construction manager, and the completion date of the project. **New plaque content and layout shall be submitted to the Superintendent for approval prior to ordering.**
  - c. Size: between 12" x 16" and 20" x 30"
  - d. Material: cast bronze or aluminum
  - e. Location: a highly visible area
  - f. Special attention should be given to plaques at existing facilities which are renovated and/or replaced and should be relocated and placed with the new project plaque.
2. Signage
  - a. Electronic, programmable school and site signs shall be installed on all new construction projects, major renovation projects and in some cases, classroom wing additions.
  - b. Shall comply with the Manatee County Sign Ordinance, as required.
  - c. Street address numbers shall be posted at the front of the school. Minimum size is 6".
  - d. Building number signs shall be mounted on each building. Minimum size is 6".
  - e. FISH numbers should correspond with room numbers whenever possible.
3. Toilet accessories for schools
  - a. Paper towel dispensers: Triple S Sterling Select 2.0 8" Touchfree Mechanical Roll Towel Dispenser (Item 76112)
  - b. Soap dispensers: capable of receiving a 27 oz. 9757 Micrell soap refill
    - i. Owner furnished (Gulfstar Supply) and CM installed
  - c. Toilet paper dispensers: Triple S Sterling Select 2.0 9" Jumbo Roll Tissue Junior Dispenser (Item 76111)
  - d. Trash receptacles: no standard, Project Team to determine
  - e. Sanitary product dispensers: no standard, Project Team to determine
  - f. Sanitary product disposals: no standard, Project Team to determine
  - g. Toilet accessories for ancillary facilities: no standard, Project Team to determine with input from Operations
4. Fire extinguishers:

- a. The Construction Manager shall furnish, install and certify all fire extinguishers.
  - b. The Construction Manager is responsible for installing all backing and brackets required for the installation of the fire extinguishers.
5. Flagpoles:
  - a. Aluminum poles which meet structural wind load requirements
  - b. Halyard type
  - c. A coverplate should be considered.
6. Athletic equipment:
  - a. Where rubberized tracks are installed, the CM shall provide an acceptable quantity of protective mats. Confirm this with the Project Team and site administrator or designee.
7. Toilet partitions
  - a. Floor mounted, overhead braced with anti-grip tops and metal bottoms.
  - b. Doors, pilasters, dividers shall be solid plastic material.
  - c. Shoes at floor and all hardware shall be non-ferrous.
  - d. All partitions to be similar to Santana – Black Paisley Finish.
8. Tack/marker boards
  - a. Installed per the minimum quantities established in the State Requirements for Educational Facilities (SREF).
  - b. Mounted on adjustable rails at all exterior walls to create an air space behind them in order to eliminate mold and to allow for adjustments in their location.
9. Knox boxes
  - a. All new construction projects shall include two knox boxes (one in front for fire and one in back for law enforcement.)
  - b. **Need specifications on this.**

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 11 Equipment

1. Kitchen Equipment:
  - a. All kitchen equipment plans, schedules and specifications shall be reviewed with Food & Nutrition Services (FNS.) MCSD has kitchen prototypes for elementary, middle and high schools.
  - b. Low Temp is a preferred vendor.
  - c. Imperial Equipment is not an approved vendor.
  - d. When designing kitchen equipment layout, consider cart traffic.
  - e. Provide protection from carts for gas valves and equipment.
  - f. Standardize serving lines.
  - g. Provide hookups and utilities for a commercial washer and dryer in the Kitchen.
  - h. Stainless steel surfaces are preferred at the dish return area and where students line up in the Cafeteria (serving lines). These are high use wall areas that require frequent repair and/or replacement.
  - i. Hand sinks are not required (or desired) IN the serving lines. They are preferred on the wall behind the serving line.
  - j. Full size copies of the plans shall be sent to Barbara Will, Manatee County Department of Health at 410 6<sup>th</sup> Avenue East, Bradenton, FL 34208.
2. Trash compactors/Dumpsters:
  - a. As of 6/1/2020, the District is moving away from trash compactors; however, the Project Team must coordinate the electrical, water, grease trap and other items required for a working system.
3. Vertical blinds:
  - a. Vertical blinds are preferred.
  - b. Vertical blinds should not be motorized
  - c. Vertical blinds should be limited to the width of the window and should not extend on the wall beyond the window.
  - d. Vertical blinds should cover the entire window.
  - e. All door windows shall have blinds.
4. Horizontal blinds:
  - a. Horizontal blinds may be used where vertical blinds are not practical.
  - b. Approved manufacturers: Graber (Ft. Lauderdale), Vista (Sarasota)
  - c. Horizontal blinds size should be limited to the width of the window and should not extend on the wall beyond the window.
  - d. Horizontal blinds should cover the entire window.
  - e. All door windows shall have blinds.

5. Residential Appliances:
  - a. In an educational or ancillary facility, all ranges or stovetops must have range hoods vented to the exterior, in accordance with Chapter 69A-58.008 (9) (j) 4 of the Fire Code. This is true for new construction and existing facilities.
6. OT/PT swings:
  - a. MCSD prefers mobile OT/PT swing units.
  - b. No permanent hooks are required.
7. Kilns:
  - a. Where required, kilns are to be provided by Purchasing and coordinated by the Construction Project Team.
  - b. Kilns must have provisions for proper room construction, including adequate venting and exhausting.
  - c. The standard kiln for the district shall be a Skutt KM-1027.
8. Athletic Equipment
  - a. High School
  - b. Middle School
  - c. Elementary School
9. Rubberized Tracks
  - a. For tracks over new, well draining asphalt, use Plexitrac Accelerator pervious, latex rubberized coating.
  - b. For specialty tracks or tracks over existing asphalt that may not drain as well, use Beynon 200 impervious, polyurethane rubberized coating.
  - c. All tracks and amenities shall be red in color. This helps keep temperatures down in hotter months.
10. Convex mirrors
  - a. Provide convex mirrors for hard to see areas such as stairwells, blind corridors, corners, etc.
  - b. Need size, mounting, manufacturer, warranty etc.



# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 12 Furnishings

1. Furnishings, furniture and related equipment will be handled by the MCSD's Purchasing Department. This will include delivery, setup, installation and removal of debris from these operations.
2. The Project Team will be responsible for providing a "move-in" date for these items and updating Purchasing if this date changes.
3. The procedure for moving existing furniture, furnishings and equipment is:
  - a. A professional moving company shall be employed to handle the majority of the moving process.
  - b. Teachers are responsible for packing their own personal items. The movers will not be responsible for any personal, fragile items.
  - c. All paper and wood objects being moved into a new or renovated building shall be packed in boxes to be fumigated.
  - d. All filing cabinets shall be emptied prior to being moved. The contents of all filing cabinets shall be fumigated as outlined in item c. above.
  - e. All faculty and staff shall be encouraged to discard items that are no longer useful, as it is costly to move them.
  - f. Teachers shall label items in their classroom that are to be moved, according to the instructions and labels furnished by the mover. The label should include, at a minimum: the teachers name and new classroom number. Items not so labeled will be stored, sold or destroyed.
  - g. A schedule for this process shall be developed with the appropriate Purchasing, Maintenance, and Construction personnel.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 13 Special Construction

1. Administration area/main entrance shall have a secure vestibule area, separating visitors from employees.
2. Gymnasium Bleachers:
  - a. Motorized, wood gymnasium bleachers are preferred.
  - b. HDPE bleachers will be considered, provided that they have reasonable replacement provisions (ie: replace a few seats, not a whole row.)
  - c. Warranty of ten (10) years is requested
3. Stadium Bleachers:
  - a. Aluminum construction
  - b. Warranty of ten (10) years is requested
4. Time Out Rooms:
  - a. Time Out Rooms should not be used, unless the specific educational program in a facility requires such a room.
  - b. This decision will need to be made on a project by project basis and must involve meeting with Instruction.
5. Gymnasiums:
  - a. High School TBD
  - b. Middle School District of Manatee County
    - i. Fully covered padded acoustic baffling panels on all four walls from the top of the ceiling extending down approximately 12-16'.
    - ii. Safety padding on both end walls behind baskets from floor to approximately 6' high that overs the **full** length of the walls. Not only provides an added safety feature but acts as additional acoustic baffling.
    - iii. Proper speaker placement and aiming to match the model of whatever professional speakers are used.
    - iv. Professional Audio equipment that is in a storage room that opens into the gym so the sound can be adjusted while listening live.
    - v. Wherever possible, full length bleachers on both sides with 10-12 rows, high enough to accommodate necessary capacity.

# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 14 Elevator**

1. Elevator and wheel chair lift certificate should be submitted to the Project Director who shall coordinate the acquisition of this certificate with Maintenance. This documentation will be transmitted to the appropriate representative in Tallahassee.
2. Contractor to provide two Cat 6a cables from the building IDF to be terminated in the Elevator Equipment Room. Telco Service provided by the District Information Technology Department.
3. A dedicated phone line is required for the elevator.
4. Coordinate the start-up of the elevator with the District's elevator monitoring company, via the Maintenance Department.
5. Preferred manufacturer: Thyssen Krupp.
6. Schindler Elevators are NOT approved.
7. Machine room less units are not acceptable.
8. Fire alarm system should be integrated in the elevator, per Code.
9. Elevator(s) shall be covered by a maintenance agreement and third-party inspectors for one (1) year after Substantial Completion.
10. Install a card reader at the elevator to call the elevator.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 15a/23a HVAC

1. At Substantial Completion, replace temporary filters with permanent and clean the AHU. Attic stock required: one set of belts and filters.
2. Chiller manufacturers: Trane, Daikin. Substitutions may be provided as an alternate.
3. Provide an alternate in initial bid for 10-year extended warranty & preventative maintenance on the chiller to be considered at Substantial Completion.
4. VAV manufacturers: Trane, Titus, Metalaire (all should have differential pressure switches)
5. No internally lined duct.
6. Training: Factory representatives shall provide system-specific training for all new systems, primarily boilers and chillers.
7. Provide emergency condensate overflow pans under HVAC equipment located over ceilings. Provide a conspicuous secondary drainage and float switches to signal a drainage problem.
8. Use four-pipe chilled water system unless extenuating circumstances prevail. In such cases, Project Team may consider alternatives.
9. Do not install make-up water stations higher than 5' off of finish floor.
10. Chilled and hot water piping should be steel or copper, not PVC. HDPE piping may be considered for underground chilled water piping.
11. In all strainer installations, provide full port ball valves to allow for flushing.
12. All hoods (including those for residential appliances) shall be exhausted to the exterior.
13. Sound attenuation packages must be included for all chillers. Special consideration should be given to Manatee County's Noise Ordinance, as well as each projects proximity to current and future neighbors.
14. MCSD prefers dual path air handlers for occupied spaces.
15. MCSD prefers hot water heat at the discharge of each VAV box. Hot water coils shall be included in the AHU for all single zone units only. Electric reheat is not preferred and must be approved by the Project Team during design.
16. No more than three offices shall be served by a single VAV box.
17. Provide a humidity sensor for each air handling unit system that will initiate an "Unoccupied" Humidity Override controls sequence. This "Unoccupied" Humidity Override sequence will cool the air in an override mode to remove moisture, but the outside air and exhaust air will remain off. Locate at least one room humidity sensor in the occupied zone in a room serviced by the air handling unit. Coordinate humidity sensor location with Project Team.
18. Return air plenum systems are prohibited.

19. Provide hinged access panels in supply and return at all air handlers to facilitate cleaning of coils and air handlers. Provide proper clearance for cleaning and service. All air handler sections shall have factory installed access panels to access any area of air handler. All field installed duct plenums shall have field installed access panels. All panels shall be latched by means of bulkhead type latches. Air handler shall be of double wall construction and frame and panels shall be galvanized.
20. Condensate drain piping size and routing shall be shown on the documents. Condensate shall be routed to outside stormwater collection system. Alternate routing for specific installations (ie: renovation where the condensate is remote from the stormwater system, split units in MDF rooms, etc.) will be considered by the Project Team.
21. Kiln rooms shall be conditioned and include an exhaust fan dedicated to the space. The exhaust fan shall energize based on an increase in room temperature. Where possible, install direct kiln ventilation to the exterior.
22. Filter requirements – Pleated, minimum MERV 8.
23. Use a Variable/Primary pumping scheme for chilled water systems.
24. Install all AHUs on 6” high concrete housekeeping pads.
25. Elementary and Middle Schools - Use air-cooled screw or scroll compressor chillers or get District approval on alternate equipment.
26. High Schools – Use water cooled centrifugal chillers and cooling towers
27. No roof mounted ac/ mechanical equipment allowed on the roof without approval from the District.
28. Provide factory dipped condenser coils. Spray/field applications are NOT acceptable.
29. Fan coil units are not preferred for classrooms.
30. Installation of air handler units (AHU's) above ceilings is not preferred.
31. DX units are not preferred; however, they may be considered for the following locations: dry storage, MDF/IDF rooms, etc. Locations for these units must be approved by the Project Team.
32. Provide adequate space (36” minimum preferred) around air handling units and other equipment that requires maintenance and/or servicing.
33. Pair of 3’ wide doors is preferred for mechanical rooms.
34. No air handler or mechanical room is to be used as a plenum.
35. Install isolation shut-off valves on supply and return branch lines, to each mechanical space, and to each building.
36. Place all equipment where it is readily accessible and removable for maintenance purposes.
37. Place all supply and return pressure and temperature taps where they are readily accessible for maintenance purposes.
38. Clearly label all lines as to function and flow. Stick-on labels are preferred.
39. Insulate chilled water lines with closed cell insulation, not fiberglass.
40. Refrigeration:
  - a. Sleeve walls for all refrigeration tubing.
  - b. Place AHU for dry storage below the ceiling in a conditioned space.
  - c. Preferred location of condensing units is on the ground.
  - d. 12” minimum clearance on both sides of electric water coolers for maintenance purposes is preferred.

- e. Water coolers shall be anchored on top and bottom.
- f. Clearance for ice machines should comply with manufacturer's recommendations.

#### 41. Heating

- a. Use of steel or copper is preferred for hot water and heating lines.
- b. Iron body valves and/or pumps shall not be used in domestic hot water lines.
- c. Steam boilers shall not be used.
- d. Fuel oil-fired equipment shall not be used.
- e. Prefer the use of boiler(s) for heating. (Natural or LP gas is preferred.)
- f. MCSD is working on factory training and staff development for maintaining condensing boilers. On new projects where a condensing boiler is desired, the Project Team will include factory training for maintenance staff.
- g. Install full flow ball valves with unions or flanges (in lieu of sweating).
- h. Provide separate heating sources for potable and non-potable water.
- i. Boiler manufacturers preferred are: RayPac (preferred), Bryan and Cleaver Brooks.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 15b/23b Controls

1. Control systems shall be Trane, Automated Logic Controls (ALC) or Reliable (PlugSmart.) Trane controls are preferred on Trane equipment.
2. Belimo actuators and pressure independent valves are preferred.
3. Actuators should be mounted above the valve stem.
4. Provide the latest controls software version available.
5. Control systems should be server based.
6. Fiber optic controls wiring is preferred between buildings or for long runs.
7. Graphics should cover every point in the system and all points should be controllable from the graphics page. Use FISH numbers when labeling graphics.
8. Provide a bid alternate for one week of training at the factory for four people, including expenses.
9. Provide a network connection and 120v outlet in each AHU room.
10. Interface controls with chillers to read all chiller points, including amps on chillers.
11. Start pumps with the chillers, not controls system.
12. Do not use change over for heating and cooling, we need both at the same time.
13. Fire dampers should not be attached to the controls system.
14. All conditioned spaces shall have a dedicated temperature sensor with slide adjustment. These shall not be located on exterior walls.
15. Provide at least three modes of building operation:
  - a. "Occupied"-normal, daytime, student occupied times
  - a. "Unoccupied"-after hour operation for maintenance/service
  - b. "Off"-nights and weekends
16. Control Safeties
  - a. Monitor AHU cooling & heating source availability. If cooling or heating source is not available, operate in "Vacant" mode. Upon return of cooling and heating source availability, return AHU control mode to scheduled operations. The purpose of this is to prevent unconditioned, humid air to cause an unfavorable rise in the space humidity ratio.
  - b. AHU configuration where hydronic heating coil is downstream of the cooling coil:
    - i. If hydronic heating loop temperature falls below 80 degrees, the software should lock out heating hydronic pump to stop position.
    - ii. Upon reset of the hot water pump interlock, hardware the momentary push of heating source for a period of time to establish the heat source. The purpose of this is to prevent the transmission of heat removal of hot water loop below ambient dew point, creating condensation at the heating equipment.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 15c/23c Plumbing

1. Faucets should NOT have exposed set screws and replacements parts that are readily available. Acceptable suppliers are: Kohler, Gerber, American Standard, T&S Brass, Moen, and Chicago.
2. Place valves where they are readily accessible for maintenance.
3. No quarter-turn stop valves shall be used.
4. No trap primers (unless it's required by Code). Use deep-seal traps.
5. Use floor mount toilets, mounted on flanges with metal rims.
6. No gate valves. Use ball valves only.
7. Do not install water heaters in the ceiling space.
8. No 8" center faucets for hot water in locations where hot water is not provided.
9. In Kitchens, Mop Rooms, Laundry Rooms, Custodial Closets, Bathrooms, etc. consider the type of Automatic Soap Dispenser that is used by the District. Install dedicated water line and power as required.
10. Non-PVC P-traps shall have brass nuts. LAP-traps are acceptable.
11. Place a hose-bib in covered play areas for wash down.
12. Install a hose bib in or directly adjacent to all air handler rooms.
13. Install hose bib in the chiller yard.
14. Water coolers shall be anchored on top and bottom.
15. Metered lavatories are preferred.
16. Manual flush valves are preferred.
17. For large demand water heaters, Nortiz (Model 1991) gas instantaneous water heaters are preferred for kitchens and locker room/showers.
18. For other water heaters, electric, tank style water heaters are preferred. One required in each custodial area. Rheem and Lochinvar are preferred.
19. Provide hot water in all public, group restrooms, Gym Lobby, Dining, Auditorium Lobbies, Administration, and ESE restrooms. Gas instantaneous water heaters are preferred for these large toilet rooms.
20. Hot water circulation pumps are preferred on water heaters servicing large areas, whether gas or electric.
21. For high school science classrooms, all acid pipe sinks shall be tied together and routed to a single, on-site acid neutralization tank in an exterior location.
22. The main shut off for water in science labs shall not turn off the water to the eye wash stations. A continuous water supply is required for eye wash stations. A ball valve should be located directly above (in the ceiling) each eye wash station.
23. Clay traps are preferred at all sinks in Art Classrooms. Stainless steel sinks are preferred in Art Classrooms.
24. Floor drains shall be installed in single and group restrooms. Slope should be sufficient to allow for proper water drainage.



25. Include a floor drain and hub drain in each mechanical room. Condensate shall be discharge to the storm system.
26. Speakman or Zurn faucets are **not preferred** due to ease of theft of parts and lack of availability of replacements.
27. In areas where back venting is required (i.e. Kitchens, Home Ec Rooms, Gang Bathrooms, etc), wall clean-outs are preferred over floor clean-outs, and they must be above flood rim of fixtures.
28. In general, wall clean-outs are preferred over floor clean-outs. Cleanouts should be placed in easily accessible areas. Limit placement of clean-outs in student occupied areas.
29. Sloan flush valves are preferred.
30. No cast iron pipe for plumbing.
31. Rain leaders may be insulated PVC.
32. Use Type L copper piping above slab and Type K copper below slab is preferred.
33. No CPVC pipe for plumbing.
34. Stainless steel splash-guards are preferred around all mop sinks. In all cases, the wall shall be sealed directly to the sink.
35. Place a water cooler in covered play areas with drain.
36. Grease traps:
  - a. Concrete grease traps are preferred.
  - b. Install the minimum number required.
  - c. Note: Manatee County has a Sewer Use Ordinance that may conflict with District desires.
37. Consider the use of "Hydration Stations" in the Cafeteria locations.
38. Provide hookups and utilities for a commercial washer and dryer in the Kitchen.
39. Locate group restrooms adjacent to middle school gymnasium areas.
40. Provide domestic water at agricultural program areas.
41. Natural gas appliances preferred for water heaters and kitchen equipment. If natural gas is not available, consider installation of propane tanks. LP tanks shall be above ground.
42. Gas utility service:
  - a. For natural gas lines, the lines that feed kitchens shall be metered separately from the rest of the plant, so costs can be captured accurately for Food & Nutrition Services (FNS.) The meter shall be installed, maintained and read by the gas service supplier. No third party meters are acceptable.
  - b. For liquid propane service, tanks shall be above ground and the service for the kitchen shall be provided by a separate tank or tanks.

# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 15d/23d Fire Protection**

1. We have no preference on head type (Recessed, semi-recessed etc.)
2. Electric fire pumps are preferred.
3. Diesel pumps are not preferred.
4. Project team to meet with local fire marshal to determine fire riser locations.
5. Provide exterior access to all riser rooms.
6. Coordinate location of inspector stations with the Project team.
7. In ANSUL systems (kitchen hoods), R-102 tanks should be stainless steel.
8. Do not install a sprinkler head in the cooler/freezer, unless mandated.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 16a/26a Electrical Systems

1. Install a 120v outlet in all mechanical rooms.
2. Install a 120v outlet in the chiller yard.
3. Electrical pull-boxes shall be concrete, Quazite or equal, with traffic covers for outdoor grade level boxes (plastic construction is not permitted).
4. Die-cast fittings shall not be permitted.
5. Electrical panel installations shall comply with NEC. For new construction, provide new electrical rooms. For renovations, using panelboards in mechanical rooms is acceptable, if the requirements of NEC Article 110-26 are adhered to. (Rooms shall be of adequate size to provide required clearances with mechanical equipment installed).
6. The main switch gear shall be equipped with shunt trips, voltage meter, amperage meter and ground fault, and copper bus bars as needed. Use of copper clad steel bus bars are not permitted.
7. Kitchen metering is not required.
8. Bolt-in type breakers shall be used on all switchboards, panel boards and load centers.
9. Acceptable manufacturers are GE, Siemens, Square D and Eaton/Cutler Hammer.
10. Provide dedicated sub-panel boards for computers with no less than 10% spare capacity and 20% prepared space. Provide panel board neutral sized at 200% to help with harmonics problems. Provide clean power panel distribution for all computer loads in new schools.
11. Power and communications to HVAC control systems (EMS or DDC) shall be protected with surge suppression and battery backup.
12. Automatic receptacle control for all offices and computer labs shall be accomplished via lighting vacancy sensors/EMS control. Each receptacle that powers down via the EMS control shall be marked.
13. Use of aluminum conductors is not preferred.
14. Dedicated neutrals shall be provided on every circuit.
15. MC Cable will be considered. Confirm locations with Project Team. It is not preferred in walls.
16. GFI protection shall be at the outlet in lieu of in the panel.
17. Provide electrical outlets for rooftop access.
18. Provide lightning protection systems on new construction projects. For renovations and additions, the Project Team should review feasibility of adding lightning protection system.
19. Included in Division 17b/27b Integrated Communications Systems are the following wireless/power requirements:

- a. Wireless Access Point (WAP): one (1) duplex electrical outlet is required to be installed above the ceiling tile next to every WAP location throughout the project.
- b. Hallways: one (1) (possibly more depending on the hallway length) duplex electric outlets are required to be installed above the ceiling tile or 8 feet up from the floor in open ceiling construction. Outlets need to be equally spaced along the length of the hallway, one outlet every 75 feet.
- c. Auditorium, Cafetorium and Gyms: a minimum of two (2) duplex electric outlets are required to be installed above the ceiling tile or 8 feet up from the floor in open ceiling construction. These outlets need to be placed on opposite walls in high ceiling design rooms or equally spaced distance for regular height tile ceiling designs.
- d. Office spaces: one (1) duplex electrical outlet is required to be installed in multiple locations within the office open spaces. Quantities needed will vary depending on the building design and will be determined during project review.
- e. Outdoor spaces: one (1) duplex electrical outlet is required to be installed in outdoor locations where staff and students commonly gather for outdoor activities. This outlet needs to be 8 feet up from finished ground level and visible from the outdoor activities area.

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**Division 16b/26b  
Generator**

1. Provide manual transfer switch for portable generator at all new schools. Loads and systems to be connected to the generator shall be reviewed with the Project Team for each project.
2. In all new schools designated as EHPA's, provide a manual transfer switch for the required systems, including Code required ventilation fans, receptacles, lighting, IDF closets (for VoIP), etc. In addition, the kitchen equipment and cooler/freezer shall also be included.
3. A portable generator (or permanent generator) shall be provided by others and hooked up to the transfer switch as required for EHPA operation.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 16c/26c Lighting

1. Light fixtures shall be fastened to the structure above and not laid in ceiling grid.
2. All new schools and ancillary facilities should include Full Spectrum Lighting.
3. Basis of design lighting fixtures shall be Cree.
4. Approved manufacturers are: Cree, Lithonia and Cooper.
5. Basis of design for lighting control shall be Lutron Vive. Alternates shall be approved by the Project Team. (nLight is not acceptable.)
6. Lighting control shall be wireless, networked control systems. The basis of design shall be Lutron Vive.
7. Lighting manufacturers shall include a 10-year materials/parts warranty in the base bid.
8. Install LED fixtures in all locations. For renovations, LED retrofit type fixtures will be considered.
9. Provide 2'x4' LED recess fixtures in lay-in ceilings.
10. Site lighting shall be controlled by time clocks.
11. All lighting timers need to be 24-hour or be electronic. The preferred time clocks are Intermatic 24 hours, model T102 (277/208) or T103 (120).
12. Aisle lighting for High School Auditorium seating areas shall be integral to the furniture and not provided in the floor.
13. Provide LED lighting for High School ballfields including football, baseball and softball. Musco Lighting is the preferred manufacturer. Eaton/Ephesus is an acceptable alternate. Practice fields do not require lighting.
14. Emergency light fixtures shall include integral battery or shall be served from generator panels (if provided).
15. Lighting on the building exterior walls is preferred at covered walkways. As an alternate to this, lighting in the covered walkway structure (preferably on the columns and not the deck) will be considered by the Project Team.
16. Galvanized, fiberglass and concrete light poles are acceptable.
17. Pole bases and direct burial light poles are acceptable.

# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 17a/27a Public Announcement System**

1. Basis of design: Bogen Nyquist E7000 Series
2. For renovation/remodel projects, replace existing OR upgrade zones with an analog station bridge (NQ-E7030) on the LAN and rack mounted in each IDF/MDF with UPS backup power supply. If portable classrooms are present, install an interior IP Speaker, Nyquist NQ-S1810CT with NQ-E7020 Digital Call Switch. The Project Team will coordinate this with IT.
3. For new construction, specify and install the new system, Bogen Nyquist E7000 Series. Install a system that will allow communication with the District's head end, located at the School Support Center Data Center.
4. Provide an IP speaker in each classroom along with an emergency button, programmable to Owner requirements. This will be coordinated with the Project Team.
5. Speakers in the common areas shall be analog. Provide one zone for "All Call" in common areas, interior areas, and/or exterior areas.
6. Call Switches as a secondary means of communication.
7. Public address system shall provide for the distribution of selected paging, voice, bell tones/schedules and/or music programs throughout the campus and shall be uni-directional from the head end.
8. An output from the campus telephone system shall override and mute any program signals to permit the telephone input signal to provide "All-Call" announcements via the telephone system. The signal is then distributed to all system speakers.
9. A communication device shall be located at the Reception Area/Front Office to provide the same function as described above for the telephone system input. Provide another access device at the EHPA shelter manager's office, if applicable.
10. The public-address system Installer shall coordinate this integration with the telephone equipment supplier and provide a completely functional system. The system Installer shall provide all required interface equipment and coordinate its installation with the telephone equipment installer.
11. Interior IP Speakers shall be Nyquist NQ-S1810CT with NQ-E7020 Digital Call Switches.
12. Interior analog Speakers shall be Bogen CSD2X2VR.

13. Weatherproof Speakers: In exterior canopies, locker/shower rooms and in other designated damp areas, provide weatherproof speakers. Speakers shall be Atlas/IED Model APF-15T with L2-211 back box and VP 161 aluminum vandal-proof grille or equivalent, matching transformer 25/70v with adjustable taps.
14. Terminal Cabinets shall be non-locking.
15. All instructional spaces, including gym, cafeteria and clinic, get a ceiling speaker and an emergency call-button. All other areas, such as offices, get speakers and volume control. Corridors shall have speakers. Exterior speakers shall be installed at covered play areas, bus loading areas, parent drop-off areas, parking lots, stairwells, and other building exteriors necessary.
16. Provide additional conduits from building to building as determined by the Project Team.
17. Training Requirements:
  - a. Provide 2 videotaped training sessions: one for Maintenance personnel and one for school/site-based staff. All training must be done by a qualified trainer. Submit recordings to Project Director for archiving.
    - i. Provide on-site training for Maintenance personnel in the procedures involved in operating, troubleshooting, servicing and preventative maintenance of the system in at least two sessions to accommodate Maintenance schedules.
    - ii. Provide school/site-based staff training in at least four, two hour sessions to accommodate staff schedules. Training shall be provided upon product activation of the phone and paging systems.
18. Provide 3-year warranty with all software updates at no additional cost to Owner.



# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 17b/27b Integrated Communication System**

MCSD's IT Department furnishes the network equipment for CM installation and patching.

All underground pipes in the MDF and IDF rooms shall be permanently labeled with source and destination room numbers for each pipe.

Provide one 4 post server rack in the MDF Room.

Do not use coaxial cable.

Multimode fiber optic cable will be used to connect communication closets with each other. All fiber optic cable will be home run from each communication closet to the main distribution frame without splicing or cross-connections. Category 6A UTP cable will be used between the communication closets and the communications station outlets. A single manufacturer's product will be used for all like system components.

Upon completion of the GMP, the CM will provide quantities of telecommunication outlets (data drops) to the Project Director. This information will be provided to and coordinated with IT for ordering network equipment.

**Fiber Optic Patch Panels:** All communication closets shall terminate fibers with LC type ceramic connectors manufactured by Sincor, Fiberopticx, Ortronics, or approved equivalent.

**Fiber Optic Cable:** Each outlying IDF communication closet will have one pair multimode fiber optic cable for every 48-station cable drops per closet, plus three additional pairs of each type for future growth. The minimum number of single mode and multimode pairs per closet will be six of each type. The cables will be home run to the MDF closet without splices or cross connects and will be rated for the environment in which it is installed.

**Fiber Optic Patch Cables:** Contractor shall supply one fiber optic jumper/patch cords for each termination in each communication closet. Patch cords shall be two meters long with LC-type ceramic connectors on both ends.

**Station Outlet Patch Panels:** Category 6A patch panels shall consist of RJ45 non-keyed modular jacks with all 8 pin positions prewired to self-contained 110D type IDC blocks. Patch panels shall be 24 or 48 port and manufactured by Ortronics, Inc., Siemon Company, Panduit, Leviton, or prior approved equivalent.

Station Outlet Cables: Terminate in EIA-568-B configuration. All cables will be Category 6A UTP and shall be continuous from each communications outlet to the patch panel without splices.

Station Outlet Patch Cables: Contractor will provide one station outlet cable and one IDF communication closet patch cable for every data drop. Provide 25% of cables 3'-0" long, 25% of cables 5'-0" long, 25% of cables 9'-0" long and 25% of cables 15'-0" long. Contractor shall provide manufacturer terminated patch cables. Acceptable manufacturers include: Belden or equivalent approved by District IT Department.

Data Cables: All data cables shall be Yellow Category 6A, consisting of 4 pair, 24 AWG copper, 8 pos, 8 conductor.

Station Outlets: Classroom Category 6A communications outlets shall consist of a single gang faceplate with three non-keyed RJ45 modular to 110 type inserts. Classrooms will have three of these communication outlets per room to be located on opposite walls. One outlet is incorporated into the Digital Display detailed elsewhere in this document.

WAP Outlet: Install two Category 6A communication cables outlet per classroom. The cables are to be located in the center of each room, terminated with a non-keyed RJ45 modular to 100 type insert, coiled with 20' of slack and tie wrapped to the ceiling structure one foot above the ceiling. Place the following label ("WAP-Room #") on the ceiling grid where the cables are located using a machine generated label. Install two Category 6A communication outlets (each with two cables) in the administrative area, cafeteria, and gymnasium. The cables are to be located at opposite ends of each building/room, terminated with a non-keyed RJ45 modular to 100 type inserts, coiled with 20' of slack and tie wrapped to the ceiling structure one foot above the ceiling. Place the following label ("WAP-Room #") on the ceiling grid where the cable is located using a machine generated label. If the structure is built with an open ceiling, the WAP outlets are to be installed on sidewalls at the same level as the ceiling support structure.

Grounding Bus Assemblies: Provide ground bus assembly with lugs in each communication closet and to every equipment and relay rack.

There are to be no floor communication outlets.

All office and storage rooms shall have one Category 6A communication outlet consisting of a single gang faceplate with three, non-keyed, RJ45 modular to 110 type inserts.

Each Cafeteria Manager's office shall have one, Category 6A, single gang faceplate communications outlet with three non-keyed RJ45 modular to 110 type inserts. Each Cafeteria point of sale (POS) station location shall have one, Category 6A, single gang faceplate communications outlet with two non-keyed RJ45 modular to 110 type inserts. All station cables are to home run to the closest Communication Closet.

The Custodian's Office shall have one Category 6A single gang faceplate communications outlet with three, non-keyed, RJ45 modular to 110 type inserts.

Each Mechanical Room shall have one Category 6A single gang faceplate communications outlet with three, non-keyed, RJ45 modular to 110 type inserts.

Modular jacks shall have a 45-degree downward tilt and shall be interchangeable with removable circuit labels. All jacks shall be white in color and be labeled at both ends.

Location of communication outlets will be determined by the IT Department and are not to be located under Digital Displays, next to sinks, or within five feet of doorways. Duplex electrical outlets shall be installed next to every communications outlet. Electrical outlets are needed next to the ceiling "WAP" outlet for additional technology.

Self-supporting 19" x 7' tall freestanding racks, having standard EIA hole pattern on front and rear flange with overhead support cross members and front mounted wire management panels.

Contractor will provide 20 - 12-24 pan head mounting screws with each rack for the mounting of electronic equipment.

Contractor shall provide one, multi-outlet, surge protected receptacle strip for each rack. Unit shall be 19" rack mount, six outlets, and circuit breaker with 6'-0" line cord.

The contractor will install a 7' high, 4 post server rack in the MDF next to the equipment racks to include two front and two rear adjustable rail tracks for the mounting of servers. The rack will be securely mounted to the floor and grounded to the building system.

Contractor shall provide ladder type cable runway tray sections and accessories in all communication closets.

Provide one 19" equipment shelf for each rack.

Each communication outlet shall have a permanent label on the outlet faceplate and the patch panel jack. Port labels shall also be permanently attached to the UTP cables at both ends. Brother P-Touch tape marking system labels are acceptable. Hand written labels are not acceptable. The following scheme shall be used in the labeling process:

*Communication Closet (CC) Room Number  
Position on Patch Panel*

For example, Classroom # 212 has 3 Cat 6A cables that terminate in Closet # 245.

The Classroom outlet would be labeled:

CC245 (Communication Closet room number)

9 - 10 - 11 (corresponding positions on the patch panel)

The Communication Closet would be labeled:

212-9 212-10 212-11

(212 is the Classroom number & 9-10-11 are jack identification numbers)

The communication closet patch panels will be labeled above each port with the room number each jack services and will correspond with the jack in each room.

Each patch panel shall be labeled sequentially from left to right, top to bottom with the room number and port number such that the ports can be located easily on the panel.

All fibers in each fiber optic cable shall be identified at each end on the interconnect cabinet with permanent plastic labels. Fiber cabinets shall be identified with the building number, room number and corresponding fiber number for the far end of the cables.

Every portable in the district used for instructional purposes will have the following network communication infrastructure and will be equipment and designed as follows.

No cable splices will be allowed outside the termination locations described in this document or on the prints.

All cables will be labeled on both ends with clear permanent machine generated labels matching the numbering plan indicated herein.

Provide and install a Hubbell REbox (Commercial Remote Equipment Cabinet) model RE2 inside each portable next to an electrical outlet. Determination of the mounting location will vary depending on the design of each portable and must be approved by the SDMC Network Services Manager prior to installation.

Install a 1" steel conduit pipe to be run from the RE2 cabinet to the exterior of the portable and terminate into a NEMA 3 weather proof 8" x 8" x 6" J Box with an accessible cover. The pipe will be fastened to the portable so the pipe cannot move.

Install two, separate inner duct conduit pipes exiting the bottom of the J Box and buried in the ground to terminate into a 12"x 18" pull box installed near each portable. One pull box can be shared by multiple portables if the distance between the pull box and the portable is not greater than 30 feet.

Install two, separate 1" conduit pipes buried at least 12" deep from the pull box to either an exterior weatherproof cabinet mounted at least four feet up on a backboard or a larger buried pull box at least 2 feet x 2 feet. The type of termination required will vary from site to site and will be determined by Owner.

Install two, separate 2" conduit pipes buried at least 12" deep between the above determined location to the closest permanent buildings Communication Closet.

Install a two-strand fiber optic cable which is suitable for underground installation between each portable's RE2 cabinet and either the external backboard cabinet or building communication closet.

Install a 4-conductor 20 AWG P.A. cable with 1-pair shielded and a drain wire (West Penn 359 or equivalent) between each portable's RE2 cabinet and either to external backboard cabinet or building communications closet which has available P.A. circuits.

Labeling shall be as follows; each pair of fiber in the permanent buildings communication closet will have a label that denotes the portable # in which each pair of fiber is terminated. The portable will have a label on the fiber denoting the permanent buildings communication closet room #.

## PORTABLE INTERNAL WIRING

Install three communication outlet boxes on opposite walls in each portable and located next to power outlets. Determination of the mounting location will vary depending on the design of each portable.

Each outlet will have three Category 6A cables contained in each outlet box. These cables are to be run inside the walls if possible; otherwise they can be run on the interior surface of the finished wall, into and above the drop ceiling space and down the wall into the RE2 cabinet.

Terminate all cables onto Cat 6A patch panels located inside the RE2 cabinet and label both ends of all cables. Install cable wire mold over all exposed cable runs inside the portable.

Contractor shall be responsible for providing a complete, functional data communications systems. All needed infrastructure including but not limited to conduit, ground pull boxes, racks, cabinets, termination panels, outlets and cabling are to be provided by this Contractor. Coordinate all requirements with other trades prior to submitting shop drawings. The Contractor shall provide for 20% growth on patch panels and punch down locations.

The cabling plant shall consist of a Main Distribution Frame (MDF) and multiple Intermediate Distribution Frames (IDFs), as shown on the drawings. All conduit and cable interconnecting the MDF to the IDFs shall be a part of this scope. All network cabling shall be installed with a 25-year manufacturer's performance warranty for 10-Gbps. The system is to be constructed with all like components and the installing Contractor is to be certified in the installation of the system and its components (must be pre-approved). The system shall also include a 4" conduit with three inter ducts to be installed from the MDF to the main road public right of way along and terminated into a 2x3 pull box.

The installation shall include all (fiber optic and twisted-pair copper) cabling, connectors, jumpers, patch panels, vertical wire management (no horizontal), telecommunications outlets, and racks or cabinets. At least 50% (i.e., the lower half) of each rack shall be reserved for Owner provided electronics.

All fiber strands shall be terminated with LC connectors utilizing Fusion splicing and landed on the fiber interconnect patch panels. All copper station cables shall be terminated on patch panels (MDF / IDF end) and data communications outlets (work station end). Upon completion of installation, Contractor shall test all fiber and copper cable, record the test results and provide results to the district, as specified herein.

Install/terminate fiber from the MDF to every individual IDF building. These runs shall all be in a star configuration. These backbone cables shall all be dedicated direct links between the MDF and the IDF. Provide rack mount fiber and copper panels in all closets and mount all equipment on a rack or cabinet, as required by this specification or the drawings.

**The Contractor shall rack-mount and patch all owner provided network equipment.**

Contractor shall provide Category 6A cabling system.

The intended function of the data communications cable system is to transmit data signals from a central location to individual data outlet locations. Upon completion of the work

outlined in this specification, the system shall be capable of supporting Gigabit Ethernet data signals per IEEE 802.3ab, IEEE 802.3z, IEEE 802.3ae, and 1.2 Gb/s ATM. Fiber optic cable shall be laser or Vertical Cavity Surface Emitting Laser (VCSEL) optimized.

#### FIBER OPTIC CABLING

- A. It is the intent that the inter-building fiber optic cabling, installed on this project, accommodates the data, fire alarm, HVAC controls, and surveillance systems. Fibers dedicated to these systems shall be labeled as to their use. All high school construction projects shall have fiber run to the sports field press boxes for phone and data communications.
- B. All OSP fiber cable that is run 50 feet or more inside a building shall be installed in no less than two inch GRC above ceiling from entry point to termination point. Provide 20 foot slack loop at each closet termination end. Cable is to be homerun (i.e., no splices or cross patching through IDFs).
- C. Outside Plant Fiber – Multi-Mode
  - 1. Provide for inter-building backbones: loose tube, gel filled, moisture proof, outside plant, multi-strand, multi-mode fiber optic cable. Provide 50/125 and in quantities indicated on drawing interconnect diagram. Multimode fiber strands shall be optimized for VCSEL based systems. Fiber strands shall exceeded TIA/EIA 568-3.D and IEEE802.3z specifications. All fiber shall be installed with pull strings for future use. See drawings for number of fibers per cable.
  - 2. Approved Manufacturers:
    - a. Commscope Systimax LazrSPEED® 300: O-0xx-LN-5L-F12NS/25T (OM3). Provide counts per drawings.
    - b. Pre-Approved Equal.
- D. Indoor Plant Fiber – Multi-Mode
  - 1. Provide for intra-building backbones: gel-free, inside plant, multi-strand, multi-mode fiber optic cable. Provide 50/125 and in quantities indicated on drawing interconnect diagram. Multimode fiber strands shall be optimized for VCSEL based systems. Fiber strands shall exceeded TIA/EIA 568-3.D and IEEE802.3z specifications. All fiber shall be installed with pull strings for future use. See drawings for number of fibers per cable.
  - 2. Approved Manufacturers:
    - a. Commscope: R-0xx-DS-5L-FSUAQ (OM3). Provide counts per drawings.
    - b. Pre-Approved Equal.

#### FIBER OPTIC CABLING CONNECTORS

- A. Provide small form factor, fiber optic connectors at each end of all fibers installed. Ferrule material shall be zirconia ceramic and pre-radiused. Each installed connector shall not exceed –0.1 dB/0.5 dB per connector pair.

Provide connector protectors at each connection point to prevent accidental damage to connectors (dust covers). Terminate fiber on "LC" duplex connectors appropriate to fiber type, in quantities indicated on drawings.

1. Approved Manufacturers:
  - a. Corning Unicam or Pre-Approved Equal.
- B. Protect all 250  $\mu\text{m}$  fibers with cable end kit and fan out tubing kit or breakout jacketing kit.
  1. Approved Manufacturers:
    - a. Corning or Pre-Approved Equal.

#### FIBER OPTIC CABLE INTERCONNECT DEVICES

- A. Fiber Optic Interconnect Cabinets (Rack-Mounted)
  1. Rack Mount Fiber Enclosures shall be constructed of code gauge steel protecting fiber terminations on all sides. Cabinets shall install in a 19" data rack with standard EIA hole spacing.
  3. Provide hinged, removable front and rear doors with drawer that slides forward and backward.
  4. Patching compartment shall be accessible through a hinged rear mounted cover (removable).
  5. In quantities required, provide ports with "LC" type duplex couplers for multi-mode OM3 fiber optic cable. Cover empty slots with blank adapter panels, as applicable.
  6. Cabinets shall be equipped with fiber optic splice trays and cable management. For transition to vertical cable managers, provide integral bend radius control.
  7. Approved Manufacturers:
    - a. Systimax: G2 series optical fiber patch shelves. Quantities and blanks, as necessary: 50/125  $\mu\text{m}$  MM Fiber, #360G2-1U-MOD-FX Cassette Shelf with #360DP-12LC-LS cassettes.
    - b. Pre-Approved Equal.

#### EQUIPMENT RACKS

- A. Connect separate, solid, #4 AWG, insulated, grounding wire between the ground bus and the building's grounding system. Grounding Bus Assemblies: Provide ground bus assembly, 12" long (minimum) with lugs in each IDF / MDF closet and to every equipment and relay rack if not existing
- B. Provide rack with mounting hardware and all accessories required to complete installation of the rack.
- C. Provide Velcro tie wraps for cable management within racks. Nylon tie wraps shall not be used within racks.

D. Relay Racks and Frame

1. Relay racks and frame shall be height, as specified, and provided with EIA 19" mounting.
2. Securely mount to floor (on an isolation pad and utilize non-conductive washers) and provide ladder rack/attachment hardware, at no less than 12" width, with required front and rear clearances.
3. Provide 12-24 pan head mounting screws with each rack for the mounting of electronic equipment (i.e., switches) in quantities corresponding to the installed number of patch panels (i.e., one switch to each patch panel).
4. Equipment shall be constructed of extruded aluminum or cold rolled steel with standard EIA hole pattern on front and rear. Finish shall be anodized black.
5. Acceptable Manufacturers:
  - a. Chatsworth Products Model 48353-703 (Relay) and Model 15251-703 (Four Post).
  - b. Pre-Approved Equal.
6. Per drawings, provide cable management system. Provide vertical cable channel guide panels with covers to handle all terminated cables, as per drawings. Contractor shall install all owner provided network equipment and patch all drops onto equipment in an orderly and neat fashion utilizing the minimum required cable lengths through the cable management system. Orderly and neat to be evaluated by the Owner/Engineer. Contractor shall redo to comply with Owner's opinion/aesthetics.
  - a. Acceptable Manufacturers:
    - 1) Chatsworth Products, Evolution g1 35511-703 (Vertical) and Evolution 35441-702 (Horizontal).
    - 2) Pre-Approved Equal
7. Provide support for each rack/frame, as required. For required backboard, provide as manufactured by Pathway & Spaces, Inc. Backboard Kits or pre-approved equal.
8. Provide APC Smart-UPS X 3000VA Rack/Tower LCD 100-127V with Network Card SMX3000LVNC with APC Temperature & Humidity Sensor AP9335TH in the MDF Room. Install one L5-30 – 125V 30A electric outlet behind the network rack for the above UPS. If the school is to be used as a public shelter and is equipped with a generator, the Contractor shall provide backup power to this outlet in each MDF / IDF electrical outlet that is designated as a shelter space.

UTP HORIZONTAL CABLING



- A. Provide color putty, plenum-rated, Category 6A compliant, unshielded twisted pair (UTP) copper cable with integrated pair divider with a flame-retardant PVC jacket. Cable shall contain thermoplastic insulated primaries to comply with Article 800 NEC. Coordinate final color of cable with Owner prior to ordering.
- B. The Contractor shall inspect all cable prior to installation to verify that it is identified properly on the reel identification label, that it is of proper gauge, containing the correct number of pairs, etc. Damaged cable, or any other components, failing to meet specifications shall not be used in the installation.
- C. Horizontal runs shall not exceed the 90 meters including the patch cords and slack. If such an instance is identified by this Contractor (due to routing or other constructability issues), this Contractor shall notify the Engineer, prior to installation, in order to adjust the design to comply with standards.
- D. Provide three feet of “s”-coiled cable above ceiling at each outlet location.
- E. Acceptable Manufacturers:
  - 1. Commscope Systimax 360 GigaSPEED X10D #2091B WH 4/23.
  - 2. Pre-Approved Equal.
- F. Any exposed cables shall be completely installed in black wire loom.

#### DATA JACK SYSTEM (T568B)

- A. Recessed Mount—Provide faceplate and specified number of eight position eight conductor connectors in a four port configuration. The jacks shall individually snap-in to faceplate from the back of the faceplate. There shall be no front access to the jack termination once faceplate is secured to back box. Data outlet shall provide compliance with TIA-568-0.D, 568-1.D, 568-2.D, and TIA-606-B specifications. Termination of all jacks shall be 110-type insulation displacement connectors (IDC), T568B pin/pair assignment and shall utilize printed circuit board technology. Tilt RJ-45 jacks at 45 degree angle.
  - 1. Acceptable Manufacturers:
    - a. Commscope Systimax 360 GigaSPEED X10D Model MGS600-262 (760092429) (white) with M10L0262, M12L-262, M14L-262 and M16L-262 faceplate. Faceplate openings to accommodate jacks specified. Provide blanks, as necessary.
    - b. Pre-Approved Equal.
- B. Provide a communications outlet outside of the Cafeteria Manager's office just below the finished ceiling. The outlet needs to be located in such a way as to allow a chime or bell to be connected to it and for the sound to be heard by Food Service staff.
- C. WAPs shall be located one foot above finished ceiling tile on Unistrut suspended from structure on all-thread and labeled. Provide biscuit termination with no less than 20 feet slack.

## LABELING

- A. Each cable shall be permanently labeled at both ends with the MDF or IDF Room Number, Patch Panel Number, and Patch Panel Port Number. The system identification administration shall meet the requirements of TIA 606-B.
- B. Each box shall have a recessed designation strip with clear plastic cover for jack identification. Lettering shall be typed – not handwritten.
- C. All fibers in each fiber optic cable shall be identified at each end on the interconnect cabinet with permanent plastic labels. Fiber cabinets shall be identified with the building number and corresponding fiber number for the far end of the cables.

## PATCH PANELS (T568B)

- A. Provide loaded, Category 6A UTP patch panels (rack mount) per TIA 568-2.D as verified by ETL. Panels shall have 110 IDC type to eight position eight conductor connectors with no exposed PC boards. Jacks shall be manufactured with printed circuit board (PCB) and have T568B pin/pair assignment (unless otherwise noted on the drawings). Patch panels shall be provided with individual port and patch panel labeling identification areas and shall be labeled consistent with the data jack system labeling outlined in this specification.
- B. Provide quantity to accommodate number of outlets indicated on drawings plus 20% growth.
- C. Provide rear cable management and horizontal cable management guide either as an integral part of the patch panel or provide as a separate piece and station support bars.
- D. The building and room number in which the patch panel resides shall be prominently displayed.
- E. Patch panels shall be alphabetically labeled from top to bottom, left to right, beginning with the letter A and proceeding through the alphabet. Each port of each patch panel must be numbered and labeled with the originating jack identification using building, room, and jack designation.
- F. Acceptable Manufacturers:
  - 1. Commscope GigaSpeed X10D 1100GS6 Model 360-IPR-1100-E-GS6-2U-48 (760152595), quantities as indicated on the drawings.
  - 2. Pre-Approved Equal.

## FLOOR BOXES

- A. In floor boxes, this Contractor shall provide face plates to accommodate connectivity, in quantities required. Provide blanks, as required.

## FIBER JUMPERS AND PATCH CORDS

A. Fiber Jumpers

1. Provide one, fiber optic jumper/patch cord for each termination in each communication closet. Jumpers shall consist of two, 50/125  $\mu$ m, multimode OM3 fibers; 2 meters long with type LC ceramic connectors on both ends. Refer to fiber specifications - this section.

B. Category 6A Patch Cords

Provide snagless, Category 6A compliant cords (with an RJ-45 8P8C jack on each end). One patch cord shall be provided for each end of each Category 6A link (i.e., two per link), as shown on the drawings, plus spares. Cords shall be installed by this Contractor.

- a. Provide **yellow** patch cords in the following lengths (if lengths are not exactly as listed provide closest length, even if slightly longer):

- At closet: 40% - 3 feet, 40% at 7 feet, 20% at 10 feet.

Provide 20% spare patch cords (Qty/Lengths:  $\frac{1}{2}$  at 3 feet and  $\frac{1}{2}$  at 7 feet).

- At station, 75% - 10 feet and 25% - 15 feet.

Provide 20% spare cords per color (Qty/Lengths:  $\frac{3}{4}$  at 10 feet and  $\frac{1}{4}$  at 15 feet).

- b. Approved Manufacturers:

- 1) Commscope Systemax GigaSPEED X10D 360GS10E Modular Patch Cord, CPCSSX2 (360GS10E) Series.
- 2) Pre-Approved Equal.

## ZONED PAGING

- A. This Contractor shall provide pre-cabling for speakers to be installed under Section 17a of this Manual.
- B. Provide 10 foot coil of cable at each speaker location shown on drawings and at MDF/IDF prior to termination. The cabling shall be homerun from each speaker location to the appropriate IDF and terminated on patch panels or Buchanan strips for analog.
- C. For exterior speakers, provide a 4 x 4 recessed box without plaster ring and with extension box.
- D. For ceilings (plaster and tile), cut in and install backbox, run cable in conduit back to accessible area. For tile ceiling, support tile grid for speaker location from building. For ceiling mount, no excessive weight shall be borne by the ceiling tiles - provide straps or otherwise approved hardware for bar joist suspension, as needed.
- E. The paging system shall be utilized for emergency announcements. All components shall meet UL, CSA, and FCC requirements.

- F. Ensure conduit and junction boxes are installed accessible for maintenance or re-pulling wire.

#### MISCELLANEOUS EQUIPMENT

- A. As per the needs of the installation, miscellaneous equipment shall be required at the Contractor's expense. It is the Contractor's responsibility to identify and bid all miscellaneous equipment necessary to provide a complete and properly functioning system.
- B. All backboards shall be 3/4" AC Grade plywood painted on all sides with gray flame retardant paint as manufactured by Pathway Spaces, Inc. Backboard Kits or pre-approved equal. Label shall be visible.

#### MULTI-MODE FIBER TESTING (TO BE SUBMITTED AT SUBSTANTIAL COMPLETION)

- A. TESTING: Contractor shall test each fiber strand and each pair of each twisted-pair copper cable. The Owner/Engineer reserves the right to have a representative present during all or a portion of the testing. A testing schedule shall be planned and agreed upon beforehand.
  - 1. FIBER-OPTIC BACKBONE CABLE: Each fiber in every backbone cable run shall be tested with a optical light source and power meter as manufactured by Noyes Fiber Systems or HP/Agilent Technologies. Each multimode fiber shall be tested at both 850 and 1,300 nm. Maximum fiber strand attenuation shall be determined using the following link attenuation equation:
  - 2. Maximum link attenuation =  
Connector attenuation + Cable attenuation + Splice attenuation
  - 3. Maximum attenuation per component:  
Connector attenuation 0.75dB/1 mated connector pair  
Cable attenuation 3.5dB/km @ 850nm and 1.5dB/km @ 1300nm
  - 4. Contractor shall calculate the acceptance values for each fiber strand based on the above criteria. The fiber certification report shall be submitted listing the power loss budget dB value, the measured dB loss, and the dB margin of each measured fiber strand to the acceptance values per test limit: TIA Backbone Fiber Standard 568C.
- B. Backbone lengths shall be verified with an OTDR or Light Source/Power Meter with length based standard testing as manufactured by Noyes Fiber Systems, Agilent, or pre-approved equal. Per this specification, maximum distance shall not exceed 500 meters to support LAN equipment operating at 850 nm and 1,000 meters to support LAN equipment operating at 1300 nm. Optical power meter and OTDR results shall be in the form of tester report print outs, hand written results will not be accepted. Photocopies of test results will not be accepted, only original signed print outs will be accepted. These results shall be submitted to the Engineer.

1. Fiber backbone test results shall include:
  - a. Wavelength
  - b. Fiber Type
  - c. Cable Length
  - d. dB Loss
  - e. Power Loss Budget for measured cable length
  - f. Loss Margin
  - g. Continuity
  - h. Attenuation Specification
  - i. Bandwidth Specification
  - j. Fiber and Cable Number
  - k. Measurement Direction
  - l. Reference Set-up
  - m. Test Equipment Model and Serial #'s
  - n. Test Date
  - o. Operator (Crew Members)

HORIZONTAL COPPER TESTING (TO BE SUBMITTED AT SUBSTANTIAL COMPLETION)

- A. TESTING: Contractor shall test each horizontal, twisted-pair, copper channel. The Owner/Engineer reserves the right to have a representative present during all or a portion of the testing. A testing schedule shall be planned and agreed upon beforehand.
  1. HORIZONTAL UTP CABLE: Each horizontal cable run shall be tested for all frequencies from 1 MHz to 550 MHz. The test shall be a channel configuration which includes the patch cord, patch panel, UTP cable, workstation jack, and workstation cord. The cable tester shall be set for channel parameters before testing. Each Category 6A cable shall be tested using a Level IIIe tester compliant with TIA specifications for testing of Category 6 configurations with the latest software upgrade available at time of bid. Tester shall be consistent with the manufacturer's requirements for hardware and software for a certified system and shall be based on compliance with TIA requirements. No tester shall be approved without meeting these requirements. Prior to testing UTP runs, the tester shall be calibrated per manufacturer's guidelines. Contractor to submit documentation of calibration upon request. The correct cable NVP shall be entered into tester to assure proper length and attenuation readings. Category 6 test results shall be in the form of tester software print outs. Photocopies shall not be

accepted, only original signed reports shall be accepted. Test results shall be furnished to the Engineer.

2. Category 6A UTP cable testing shall include:
  - a. Cable Length
  - b. Wire Map
  - c. Insertion Loss
    - 1) Cable
    - 2) Connecting Hardware
    - 3) Channel
  - d. Pair-to-Pair Near End Cross Talk (NEXT) Loss
    - 1) Cable
    - 2) Connecting Hardware
    - 3) Work Area, Equipment, and Patch Cord
    - 4) Channel
  - e. Power Sum NEXT Loss
    - 1) Cable
    - 2) Channel
  - f. Pair-to-Pair Equal Level Far End Cross Talk (ELFEXT)
    - 1) Cable
    - 2) Channel
  - g. Connecting Hardware Pair-to-Pair FEXT loss
  - h. Power Sum ELFEXT
    - 1) Cable
    - 2) Channel
  - i. Return Loss
    - 1) Horizontal Cable
    - 2) Connecting Hardware
    - 3) Work Area, Equipment, and Patch Cord
    - 4) Channel
  - j. Propagation Delay
    - 1) Cable
    - 2) Channel
  - k. Propagation Delay Skew
    - 1) Cable

- 2) Channel
- I. LCL (Longitudinal Conversion loss)
  - 1) Cable (in both directions)
  - 2) Connecting Hardware
2. MULTI-PAIR UTP BACKBONE CABLE: Each pair shall be tested from termination block in MDF to termination block in IDF for continuity.

## DOCUMENTATION

- A. Contractor shall provide documentation to include test results and as-built drawings. Drawings shall be developed in CAD (i.e., AutoCAD 2014 or higher). The following documents shall be provided to the Engineer:
  1. Each MDF and IDF shall contain a copy of that building's as-built drawing affixed to an adjacent wall or located in an interior pouch for quick reference. Revised rack and equipment cabinet elevations shall be provided including serial numbers of all installed equipment.
  2. Three sets of black line, as-built drawing sets.
  3. Provide USB drive reflecting all the work with actual device and equipment locations. Drawings to be submitted in .dwg or .dxf and pdf format.
- B. Provide the testing results database on USB for the completed job (i.e., fiber and copper). The USB thumb drive shall include the software tools required to view, inspect, and print any selection of test reports.
  1. Additionally, provide one hard copy of the fiber optic cabling test results and one hard copy of UTP cabling results. These results shall be submitted to the Engineer prior to the Contractor calling for substantial completion inspection.
  2. Provide each communications room with its own notebook containing the corresponding test reports for both the fiber and copper cabling. Each notebook shall have a clear front pocket and be labeled with that communications room's designation.
- C. Provide a bill of materials of all installed equipment and wiring, rack, and backboard equipment layouts showing placement of support equipment, and model and serial numbers of all installed equipment.

## ACCEPTANCE

- A. Acceptance of the Data Communications System, by the Owner and the District's Technology Department, shall be based on:
  1. Copy of all test results.
    - a. All fiber segments and all workstation data cables must meet the criteria established in section above. The Contractor is responsible for additional fiber strands and UTP cable to be installed if any show defective during testing.

2. Copy of as-built drawings shall contain the following.
  - a. Changes and/or deviations from the construction (bid) prints.
  - b. All communication outlet addresses and locations.
  - c. Horizontal cable routing.
  - d. Backbone cable routing.

## TRAINING

Provide a minimum of two site personnel with training on the network cabling system for up to two hours on site. Training shall cover the location labeling scheme, documentation structure and contents, documentation orientation, and system reconfiguration (i.e., reassignment of Communication Outlet function via patching). Training shall take place at time of Substantial Completion before building is occupied by Owner.



# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17c/27c Telephone System

### 1.1 GENERAL

- A. The Contractor shall deliver complete and working system, fully tested, that meet the requirements of this guideline. All systems shall be completed and ready for immediate use.
- B. The intent is for the raceways, conduits, rough-in boxes, and electrical power to be provided and installed by the Electrical Contractor. This Contractor shall provide any items not included but required to make this a complete and working system.
- C. Cabling plant consists of an MDF and multiple IDFs. All conduit and cable, which interconnects the MDF to the IDFs to the devices, shall be provided by this Contractor, if not existing.

### 1.2 SCOPE OF WORK

- A. Provide the following communications system: IP Telephone System. This Contractor shall provide and install, as described herein.
- B. This Contractor shall be required to sub-contract to the Construction Manager.
- C. This Contractor shall provide the above system and interfaces (i.e., hardware and coordination) to meet the requirements as described herein. This Contractor shall provide coordination services with the Owner's telephone installer (throughout the warranty period) in order to achieve a working system.
- D. The intent is to utilize the School's LAN (and District's WAN). This Contractor shall provide any cross connects or hardware requirements to provide a complete and working system. This Contractor shall be responsible for providing and installing the equipment, configuring equipment, and connections for an integrated and operational system and coordinate programming.

### 1.3 SHOP DRAWING SUBMITTALS

- A. Submit pdf copy (with book marks to each section and product) of required information prior to proceeding with the work.
  - 1. Provide detailed equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, location of each field connection, and a complete schedule of all

equipment and materials with associated manufacturer's product information which are to be used.

2. Indicate that the rack space and power requirements for equipment are adequate.
  3. Provide a Visio, or simpler diagram, describing IP addressing and proposed VLAN scheme and multicast containment.
  4. Provide UPS consumption power chart.
  5. Indicate quantities of patch panels and port counts.
  6. Indicate patch cords count.
  7. Provide wiring diagrams. Each diagram shall have a descriptive title and all sub-parts of each drawing shall be labeled. All drawings shall have the name and locations of the project as well as System Installation Company's name in the title block.
  8. Provide details and descriptions of any other aspect of the system, which would differ from the contract documents due to field conditions or equipment furnished.
- B. Review and approval of shop drawings by the Engineer does not supersede the requirement to provide a complete and functioning system in compliance with the Contract Documents.

#### 1.4 CONTRACTOR QUALIFICATIONS

- A. If requested, this Contractor shall submit to the Owner, before work begins, certificates of successfully completed manufacturers' training classes, specifically related to the equipment being installed.

#### 2.1 SOFTWARE/EQUIPMENT LIST

- A. Provide software (FortiNet) with all licensing for no less than 150 users and third party endpoints and that will meet the following requirements.
1. Office Users, Admin Staff, Support Staff
    - a. For users with needs for two or more devices.
    - b. Users with a need for voicemail.
  2. Office Users, Admin Staff, Support Staff
    - a. For users with needs up to two devices.
  5. Licensing appropriate to support needs of paging announcement
- B. Based on functional and architectural requirements, provide a server that shall support a minimum of 100 classroom telephones and 50 office type telephones. These servers shall run virtually and shall have hardware that meets all VM requirements, as published by phone manufacturer and paging system manufacturer. Specifications/components shall be per the manufacturer's requirements and submitted for approval prior to ordering.

- C. D. VoIP system must be able to integrate with paging system to support paging and alerts to IP speakers, panic buttons, message boards, and IP phones.
- E. Contractor shall work with the current firewall vendor and manufacturer to implement best voice practices for a VoIP system.

## 2.2 VoIP PHONE INSTALLATION

- A. Contractor shall provide and install the following IP phones for FortiVoice.
  - 1. Classrooms, Teacher Planning areas Sports Field Press Boxes and Concession Stands: Contact the District Information Technology Department for VoIP Handset configuration and quantities. District Information Technology Department will provide equipment list at time of design.
  - 2. Front Desk, Administrative Offices, Cafeteria Managers Office, Media Center and Conference Rooms: Contact the District Information Technology Department for VoIP Handset configuration and quantities. District Information Technology Department will provide equipment list at time of design.
  - 3. Elevators: Contractor to provide two Cat 6a cables from the building IDF to be terminated in the Elevator Equipment Room. Telco Service provided by District Information Technology Department.
- B. Telco Interface and Cutover –Shall be performed by the Information Technology Department.

## 2.3 IP PAGING SYSTEM

- A. The interface between the VoIP System and the IP Paging System shall be performed by the Information Technology Department.

## 2.4 MISCELLANEOUS

- A. Information Technology Department shall install telephones/Handsets. Information Technology Department will test all emergency notification features and calls that are to be configured.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Prior to installation of equipment, Contractor shall examine conditions for compliance with requirements and other conditions affecting the performance of telephone system.
- B. Contractor shall not proceed until unsatisfactory conditions have been corrected.

### 3.2 GENERAL

- A. Installation shall be performed only by experienced installers who are familiar with the project requirements.
- B. All equipment and materials are to be installed in accordance with all applicable standards of the National Electric Code and any other applicable codes including local municipality codes, safety codes, and ordinances.

- C. This Contractor shall provide and coordinate with an Electrical Contractor for the connection of power and ground wiring to the system and all wiring installed by the Electrical Contractor. In addition, the Contractor shall provide a power surge protector to coordinate installation at the panel on the circuit into which the system shall be plugged.
- D. This Contractor shall coordinate all work with other trades to avoid conflicts and delays in construction schedule. This Contractor shall take whatever steps necessary to meet the construction schedule, including but not limited to, expediting the delivery of materials and/or providing additional labor at no charge to the Owner.

### 3.3 INSTALLATION

- A. Install system in accordance with NFPA 70 and other applicable codes. Install equipment in accordance with manufacturer's written instructions.
- B. Furnish and install all material, devices, components, and equipment for a complete operational system.
- C. Impedance and Level Matching: Carefully match input and output impedances and signal levels at signal interfaces. Provide matching networks, where required.
- D. Control Circuit Wiring: Install control circuits in accordance with NFPA 70 and as indicated. Provide number of conductors, as recommended by system manufacturer, to provide control functions indicated or specified.
- E. The Contractor shall provide necessary transient protection as recommended by the equipment supplier and referenced to earth ground.
- F. Provide physical separation, as recommended by equipment manufacturer for other system conductors.
- G. Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all media are identified in coordination with system wiring diagrams.
- H. Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to weather.

### 3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Provide services of a duly factory-authorized service representative (for this project's location) to review field assembly, to review connection of components, and to provide the testing and adjustment of the system.
- B. Inspection: Make observations to verify that equipment and controls are properly labeled and interconnecting wires and terminals are identified.
- C. Testing: Rectify deficiencies indicated by tests and completely re-test work affected by such deficiencies at Contractor's expense. Verify, by the system test, that the total system meets the Specifications and complies with applicable standards.

### 3.5 FINAL ACCEPTANCE TESTING

- A. The Final Acceptance Testing shall be provided to the Owner or the Owner's designated representative. Final acceptance testing to any other trade or service provider for the project shall not comply with the requirements of this section.
- B. The Contractor shall provide a Final Acceptance Test record document signed by both the Contractor and the Owner or designated Owner's Representative establishing the "In Warranty" date. The warranty period shall not commence until the Final Acceptance Test is completed.
- C. This Contractor shall be prepared to verify the performance of any portion of the installation by demonstration, listening and viewing test, and instrumented measurements. This Contractor shall make additional adjustments within the scope of work and which are deemed necessary by the Owner because of the acceptance test.

### 3.6 PROJECT SUBMITTALS PRIOR TO ACCEPTANCE

- A. Installer Certificates: Signed by Contractor certifying that installers complied with requirements.
- B. Acceptance Documents (include record of final settings and measurements certified by Installer).
- C. Electronic documentation of method to load music, to create and edit zones, to adjust volume, etc.
- D. Maintenance Data: For equipment to be included in maintenance manuals.
  - 1. Record of equipment-programming option decisions.
  - 2. All instructions necessary for proper operation and manufacturer's instructions (three hard copies and one electronic copy).
  - 3. Proof of performance and safety compliance information.
  - 4. Manufacturer's maintenance information (document with updated and accurate web links).
  - 5. Electronic copies of software programs and system information on all programmable features of the installed platform.

### 3.7 CLEANING AND PROTECTION

- A. Prior to final acceptance, this Contractor shall vacuum and clean all system components and protect them from damage and deterioration. All blank spaces in equipment cabinets shall be covered with blank panels. Top and side panels and all cabinet doors shall be installed, as applicable. All general areas within and around all equipment rack/cabinets in the facility shall be swept, vacuumed, and cleaned up. No cabinets shall be left unlocked and all cabinet keys shall be turned over to the Owner or Designated Owner's Representative.

### 3.8 AS-BUILT/RECORD DRAWINGS

- A. Prior to final acceptance, provide three sets of drawings and one AutoCAD (Release 2014 or later) and a pdf file on CDROM or USB drive indicating all cable numbers and construction details in accordance with the actual system installation before final payment shall be issued. Revise all shop drawings to represent actual installation conditions. These Record Drawings shall be used during "Final Acceptance Testing."

### 3.9 WARRANTY

- A. Provide a three-year warranty on the installed equipment. If any defects are found within the warranty period, this Contractor shall replace the defective equipment at no cost to the Owner (i.e., to include equipment and labor).
- B. If the equipment cannot be repaired within 24 hours of service visit, the Contractor shall provide "loaner" equipment to the school at no additional charge.
- C. If requested, Contractor shall provide a quote for a service contract offering continuing factory authorized service of the system after the warranty period.
- D. Provide support and any software updates, during the three-year warranty, shall be provided to the District as part of this contract (i.e., no additional charge). This effort shall include travel to the site or District (if not able to remotely download) for installation and configuration of any updates.

### 3.10 EMERGENCY SERVICE

- A. This Contractor shall maintain sales and service presence in the area of adequate size and quality to assure the Owner of rapid response to emergency service requests. Rapid emergency service response shall mean arrival of service personnel at trouble site within four hours of notice during normal business hours (i.e., 8:00 AM to 6:00 PM) and within 24 hours of said notice during all other hours on a 7-day per week basis. Service personnel shall arrive on site within 48 hours of receiving a request for routine or non-emergency service.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17d/28a Security System

### NEW CONSTRUCTION

1. Furnish and install a turnkey, UL Listed, commercial, supervised, zoned and partitioned Security System, fully programmed with Owner provided access codes, passwords and partitions. The Contractor shall be a licensed, experienced Installer who is a factory-authorized service representative and who is certified to furnish and install
2. Basis of Design: Napco
  - Napco 255 panel
  - Napco Zone Expander GEM-EZM 8
  - Napco Keypad IBR-Touch
  - Napco Starlink Cell SLE-LTEV-C
  - Door Contacts: GRI 8080 ¾"
  - Ceiling Mounted Motion: LuNAR 150DTGL
  - Wall Mounted Motion: iWISE RK815DTGL
3. Temperature Sensors: In the cooler, freezer and boiler room (if applicable), provide a Windland Electronics, Inc., EnviroAlert EA200-12 display and #1107 Probe. Connect as separate security zone on continuous monitoring. In the kitchen area, provide a temperature sensor and humidity sensor. These devices shall be located where maintenance personnel can easily access it and staff can easily view the displays.
4. Zone Alarm Maps: Provide security alarm zone maps for each building or zone, indicating the location of each device and its zone. Maps shall be in covered frames, located at each security terminal cabinet or control panel and in the Administration area.
5. Alarm Horns/Strobes: provide one for each building. For exterior alarm horns, provide ELK Products, Inc., Model ELK-150RT or approved equal with stainless steel enclosures and tamper switches. For exterior alarm strobes affixed to horn, provide ELK Model 150 RT blue strobe or approved equal.
6. The Owner shall provide a list of passwords, access codes, telephone numbers, partitions, and zone assignments for programming by the Contractor.

7. Provide security alarm contacts at roof hatch locations.
8. Provide battery backup for a minimum standby operation time of eight hours.
9. Install with surge protection for the control panel.
10. A two year warranty shall be provided for wiring, loudspeakers, and zone controls.

### **REMODEL/RENOVATIONS**

1. Basis of Design: Napco or match existing system(s).



# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17e/28b Security Camera System

### NEW CONSTRUCTION

1. The complete security camera system shall include equipment, software, programming, training, and warranty.
2. New systems shall be IP based.
3. Camera system Basis of Design is Vivotek.
4. Minimum camera system requirements:
  - a. High Schools    128 Cameras    NVR: Vivotek NR9782 – 96 terabyte
  - b. Middle Schools    64 Cameras    NVR: Vivotek ND9541 – 16 terabyte
  - c. Elementary    32 Cameras    NVR: Vivotek ND 9541 – 16 terabyte
5. Hard drives for NVR's: WD80PUZX (add up to meet terabyte total)
6. Specialty cameras
  - a. For narrow spaces (ie: corridors) – Vivotek IT9360
  - b. For larger spaces (ie: cafeterias, gyms) – Vivotek CC8371 (bubble eye)
  - c. For large outdoor areas (ie: playgrounds) – Vivotek MS8391 (multi-sensor)
7. The Project Team will coordinate camera locations and programming parameters with the District's IT and Maintenance departments.
8. Monitors
  - a. Install one small monitor adjacent to the security camera headend (i.e., MDF room).
  - b. Install one large viewing monitor at the reception area of the school.
9. Each Project Team should consider establishing stubbed-out camera-ready locations for adding or relocating cameras easily.

10. Administrators and SROs should have remote monitoring access on their computer desktops through the Local Area Network (LAN). Requirements for the computer station shall be determined by the Project Team. Need specifications for Camera Monitor Room (command center) requested.
11. Surge protection and lightning protection should be provided for the security camera system. The preferred manufacturer is EDCO.
12. Power source at the head-end shall be on a fused, dedicated circuit, tied to the generator (if applicable) with a UPS back-up. Power supplies at locations other than the head-end shall be on dedicated circuits.
13. Use of the Security Camera System shall be in accordance with Manatee County School District's Policies.
14. A space shall be allocated on the IT rack for the dedicated surveillance switch.
15. Training: Factory certified representatives shall provide system-specific training for all new systems for a minimum of eight hours.

## REMODEL/RENOVATIONS

1. Basis of Design: Retrofit, replace with new or match existing system(s).
2. The Project Team will coordinate camera locations and programming parameters with the District's IT and Maintenance departments.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17f/28c Fire Alarm System

### NEW CONSTRUCTION

1. Fire alarm system shall be Pyrotronics/Siemen's Cerberous Pro.
2. The fire alarm system shall be addressable.
3. The fire alarm system shall meet current code(s).
4. The main fire alarm panel should be located in an MDF or IDF room. (In EHPA projects, locate in manager's office.) This room shall be provided with air conditioning separate from the main HVAC system.
5. Transponders should be located in each separate building.
6. The remote annunciator panel shall be located in Administration area.
7. Network cabling shall be via fiber. No copper between buildings.
8. Cellular dialer rated for fire system use shall be used in place of a standard analog communicator. District Maintenance Department must approve dialer before installation. The dialer must be tested for strength of signal to insure communication.
9. A manual evacuation drill switch shall not be provided.
10. Activation of independent manual bypass switches shall override the selected automatic functions, including air handling unit/fan shutdown, gas supply cut-off, and door holder release.
11. The fire alarm systems shall be connected to the generator, including portable generator, where available. Provide 8 hours of standby battery operation.
12. Maintenance Service Contract: Provide maintenance of fire alarm systems and equipment for a period of 12 months commencing with Substantial Completion, using factory-authorized service representatives. Provide one complete fire alarm recertification inspection 12 months from acceptance date in the presence of Owner's representatives. Services within the above 12-month period not classified as routine maintenance or as warranty work when authorized in writing. Compensation for additional services must be agreed upon in writing prior to performing services.

- a. Basic Services: Systematic, routine maintenance visits on an annual basis at times coordinated with the Owner. In addition, respond to service calls within 3 hours of notification of system trouble. Adjust and replace defective parts and components with original manufacturer's replacement parts, components, and supplies.
  - b. Renewal of Maintenance Service Contract: No later than 60 days prior to the expiration of the maintenance services contract, provide a proposal for an additional 12-month maintenance and repair services contract. Owner will be under no obligation to accept this additional maintenance service contract renewal.
13. Provide zone map at annunciator, ACP, and all network nodes. Zone map to be framed and under glass. Zone map to include all room numbers in the facility, all fire sprinkler risers and all duct detector locations.
  14. Provide and install 24 Volt DC gas solenoid shutoff valves.
  15. Provide laptop computer and docking station for Owner's use.
  16. Provide electronic copies of all program and data software upon completion of training.
  17. Issue a site license for the use of the programming software to the Owner.
  18. At the end of the project, provide on-site training, specific for the project. Review sequence of operation, drawings, programming, and panel operations.
  19. If the project utilizes a newer version of the fire alarm system than the District staff is certified on, include sending factory training/certification for four employees. Please check with the Project Director to clarify.
  20. Provide voice evacuation, where required.
  21. For security purposes, pull station locations shall be limited to the Administration area near the fire panel and in large assembly spaces such as Cafeterias, Gymnasiums and Auditoriums.

## REMODEL/RENOVATIONS

1. Basis of Design: Retrofit, replace with new or match existing system(s) at Owner's discretion.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17g/27j Instructional Television System

### SCOPE

The following design principals should be taken into account when designing the Instruction Television System and School based TV Studio.

### BASIS OF DESIGN

#### 4" PVC Wall Pipe \*CC

Where needed, there is to be one or two four-inch PVC Pipe installed in the wall between the control room and studio to allow cables to pass from one room into the other.

#### Curtain \*CC

Studios should be equipped with a curtain on a track. The curtain will run the full length of the wall and be able to move on rollers. The curtain color is to be decided by the Owner, it will most likely be black or royal blue.

#### Green Screen \*CC

Each studio should have one main wall that will be designated as a green screen wall. The wall will be free of all fire alarms, fire safety lights, and wall power receptacles. Power outlets should be located on adjoining walls near the green screen wall. The wall will be smooth finished with no texture. The wall will be primed, then painted with Rosco Chroma Key Paint.

#### Studio Lighting: \*CC

The district standard for studio lighting is utilize LED studio light fixtures. The project engineer is to work with Primetime Lighting on designing a lighting plot and selecting the proper lighting figures for the studio space based on their lighting design. The lighting design must provide appropriate coverage for lighting in two separate areas: the green screen and the on-camera talent. These lights are to be DMX controllable. Each light will be set up on its own DMX channel. The CM will also provide a DMX light board. The main overhead LED lights in the room must be on a switch and be able to be turn off. This is to allow the proper use of the studio lighting fixtures. There should be no motion on/off sensor on the primary lights.

#### Control Room Window: \*CC

There will be a window between the control room and the studio.

### Control Room Countertop \*CC

For elementary and middle school TV studios, a countertop is to be installed in the control room under the window looking out into the studio. This countertop should run the length of the wall. There are to be data eight (8) ports below the countertop. For high school TV studios, the length of the countertop will be shortened to provide space for a standard 19" / 48 RU rack. Behind the rack will be eight data ports and a 4 outlet 20amp receptacle on clean power.

### Studio - Wall Mounted TV \*CM / OOO

The CM is to wall mount (Peerless AV Model ETALU-NEW) in the TV Studio. This should be ceiling high and provided space to hang a 55" display. Behind the display shall be two (2) data ports and (2) wall receptacles.

The owner will provide and hang the display on the mount.

### Wall Audio Inputs

The CM will install high quality audio cabling in the wall of the TV studio. There will be a total of eight jacks (inputs). The eight jacks will be split into four (4) input per wall plate. Each on the opposite sides of the wall. The outputs will be located on a bulkhead plate in the control room.

### Studio Equipment (OOO)

Studio equipment will be ordered by the district. The construction budget will hold the following amounts in reserve for studio equipment. When needed, the district may hire a district approved broadcast engineer / installer that may increase the cost below. As the district has moved to an IPTV model and is no longer installing Coax cable / distribution into schools, as updates are made at schools the following budgets should be taken into account to replace TV studio equipment to be IPTV compatible to accommodate the school and new / renovated space.

Elementary \$40,000

Middle \$50,000

High School \$150,000

### Definitions

Owner provided, Owner Ordered, CM Installed (OOC)

Owner provided, Owner Ordered, Owner Installed (OOO)

CM Ordered, CM Installed (CC)

# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 17h/27e Educational Broadcast System (EBS)**

As of May 2020, the district has moved its EBS system to IPTV based transmission.

In general, the following notes should be taken into consideration when designing a system:

- Projectors (Cafeterias, Theatres, or any other location) must have an Amino H150 with Intervi licenses as a source. District will provide equipment list at time of design.
- Schools will be equipped with a four (4) Channel IPTV Head-end. This includes three blue ray players and a cable provider cable box. District will provide equipment list at time of design.

### **School Based IPTV Headend Equipment (Typical Configuration)**

1. Rack space to be allocated in media center IDF
2. District Information Technology and Television Services Departments will provide equipment list at time of design.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17i/27f Audio and Visual Systems

Updated 1/21/2021

### General Notes:

1. All AV systems should be designed for ease of use and be cost effective. When systems are designed. The control system should be basic in nature. If needed a basic Extron control system can be implemented. It should be noted the district does not approve of Crestron or AMX control systems.
2. Auditoriums, Cafetorium's and/or Multi-Purpose Rooms should have speakers that provide an even distribution of sound. This is especially important when the room has an operable partition and can be used for two different functions.
3. Wireless microphones should accommodate at least four (4) handheld microphones and at least four (4) lavalier-style (clip on) microphones.
4. Wiring and microphone connectors should be high quality as they will stay in place when equipment is replaced and/or when technology is upgraded.
5. District Standard Equipment lists have been provided.
6. We would like to have the ability to process video feed (from DVD, Bluetooth receiver or cameras) and the associated audio through the "house system" to ceiling mounted laser Epson video projector.
7. District Information Technology and Television Services Departments will provide equipment list at time of design.

### Auditorium / Theatre:

1. The Control Room should be installed so that the lighting and sound controls are in visual range and can be heard from the stage.
2. Monitor speakers with a separate power amplifier located at the mixer board in the Control Room should be installed on the side or rear of the stage. This will allow performers on stage to hear the program, without turning up the entire program sound and causing feedback.
3. The Control Room should have a slide mixer board with at least 8-16 channels and should be placed on a countertop, not in a box on the wall.
4. No Intercom (Clearcom, Telex, etc) system are to be installed at elementary and middle schools.
5. District Information Technology and Television Services Departments will provide equipment list at time of design.



### Cafetorium:

1. The Control Room should be installed so that the lighting and sound controls are in visual range and can be heard from the stage.
2. Monitor speakers with a separate power amplifier located at the mixer board in the Control Room should be installed on the side or rear of the stage. This will allow performers on stage to hear the program, without turning up the entire program sound and causing feedback.
3. The Control Room should have an analog slide mixer board with at least 8-16 channels and should be placed on a countertop, not in a box on the wall.
4. Each Cafetorium will have digital display panels and/or projector system controlled by an AV Control System as specified in the District-provided equipment list.
5. District Information Technology and Television Services Departments will provide equipment list at time of design.

### Music Room:

District Information Technology and Television Services Departments will provide equipment list at time of design.

### Media Center Audio/Video:

No Crestron, AMX or QSC control systems are to be installed in any room. Extron is the only approved AV control system, and at a very basic level.

District Information Technology and Television Services Departments will provide equipment list at time of design.

Each Media Center will have digital display panels as specified in the District-provided equipment list.

Each Media Center's technology devices and locations will be determined by the District and provided at time of design.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17j/27k Classroom Technology

### SCOPE

Provide and install components required to implement the system described herein and on the drawings. The Classroom System shall be able to input and process various incoming audio and video signals from a variety of multi-media sources such as Computers, Blu-ray Players, IPTV signals, Document/Presentation Cameras and Voice Enhancement Systems.

### BASIS OF DESIGN

Products similar to digital/interactive displays mounted on identified teaching wall. District Information Technology and Television Services Departments will provide equipment list at time of design.

### GENERAL

The Classroom System shall consist of a wall mounted panel (75" or Greater), Sound Bar, and a Wireless receiver as directed by the IT Department. A HDMI wall port, and power, located near the panel and connected to the panel. This is to be a stainless-steel wall plate and connect to the display on HDMI 2. These cables must be tested and a report including the room number, date of testing, and pass / fail status must be provided. Window treatment and lighting control shall be capable of dimming the display area. Displays, Sound Bars, Minicomputers, and Wireless AV receiver will be provided by the District (IT Department). District Information Technology and Television Services Departments will provide equipment list at time of design.

### EXECUTION

Behind each display panel should be a recessed J-Box. The box is to include 4 power outlets, 3 RJ-45 connections, as well as the HDMI Input cable from designated wall plate located near the teacher's desk. District Information Technology and Television Services Departments will provide equipment list at time of design. (updated 7/21/2020)

The display should be mounted at the appropriate height per grade level requirements.

### SCIENCE LABS

District Information Technology and Television Services Departments will provide equipment list at time of design.

Middle / High School Science Rooms:

A science classroom consists of a 75-inch or greater teacher display panel that will mirror to various student learning pods. The main display will have a wireless display

adaptor/receiver that can be mirrored to the student's pods. A typical classroom setup consists of four to six student learning pods. A learning pod contains a 49" display and a mini-computer. The District IT Department and Television Services Department will provide guidance on the room location/placement of technology infrastructure. District IT Department and Television Services Department will provide a current equipment list for the science rooms at time of construction.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 17k/271 Wireless Clock System

1. If included in the project, the Basis of design is Sapling/Bogen.
2. CM shall to pre-qualify this installation by the manufacturer's representative or authorized distributor.
3. The system shall be UL listed and include:
  - i. SMA 3000 Master Clock/Transceiver/Transmitter
    - a. LCD display two row by 20-character, numeric keypad. Mount in location indicted on drawings.
    - b. Mounting location of keypad shall be pre-approved during construction by Owner/Engineer (wall vs. rack).
    - c. Automatic Daylight Saving Time and Leap Year correction.
    - d. Password security protection
  - ii. Repeaters (as required per installation)
    - a. SMA 1000 Wireless Repeater: The repeater shall be a Sapling Wireless Repeater. The repeater shall wirelessly transmit and receive data. The repeater shall be capable of transmitting to the SAL wireless analog clock.
    - b. SMA 1000 Network Repeater: The repeater shall be a Sapling Network Repeater. The repeater shall receive its time via TCP/IP from the main SMA 3000 master clock in the application. The repeater shall be capable of transmitting to the SAL wireless analog clock.
  - iii. Analog Clock - Sapling SAL Series wireless clock with 915-928 MHZ frequency hopping technology.
    - a. Provide in locations indicated on drawings.
      - 1) Classrooms.
      - 2) Main Office.
      - 3) Cafeteria.
      - 4) Media Center.
      - 5) Principal Office.
      - 6) Asst. Prin. Office.
      - 7) Gymnasium.
      - 8) Auditorium.
    - b. Battery-powered with two, D cell batteries (included with clock) – new at time of install.
    - c. Provide clock guards in Gymnasium, if applicable.

4. The CM shall review this project with the manufacturer's representative or authorized distributor to ensure communication of devices. If deficiencies are noted, this CM will correct to ensure a working system.
5. OPERATION AND MAINTENANCE DATA
  - a. Instructions for maintaining and operating system shall be included in the Closeout Documents.
6. WARRANTY
  - a. The CM shall and does hereby warrant all materials and equipment furnished under this scope of work to be free from defects and function or operate satisfactorily for a period of one year from the date of the Final Substantial Completion of this project.

# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 18a Project Collaboration**

1. To insure Plans and Specifications are developed in accordance with the District's guidelines, accommodating ever-changing pedagogies, and incorporating new technology, the Project Team should facilitate Plan Reviews for Maintenance, IT and other District personnel as follows:
  - a. Schematic Design
  - b. Design Development
  - c. Construction Documents
2. The process for Plan Reviews shall be as follows:
  - a. The Project Director/Project Assistant will transmit one set of documents to the Director of Maintenance, the Director of IT and the Director of Data/Communications.
  - b. The Supervisors and Managers will create a log for the appropriate District personnel to review and sign-off on the documents.
  - c. Upon completion of this review, all comments will be transmitted to the Project Director.
  - d. The Project Director will review these comments with the Project Team and incorporate and/or respond to each comment.
  - e. If possible, a meeting will be scheduled with the Project Team and the appropriate District staff to review and discuss specific issues.
3. In addition, during construction, walk-throughs for Maintenance and other District personnel will be scheduled at approximately 50% complete and 90% complete. The CM should be the guide and a sign in sheet should be done to document who was in attendance.

# **School District of Manatee County Planning Manual for Schools & Ancillary Spaces**

## **Division 18b Color Selection Process**

1. At the project commencement, the CM will prepare a submittal list for the project listing all items that require a color selection.
2. Based on this list, the Project Architect will develop color schemes and present them to the Project Team for approval.
3. The Project Team will schedule color presentation meetings to review the recommended color schemes and products, as warranted by the project.
4. Once the color scheme is approved, the Project Architect will prepare a color board (or multiple color boards) for the project. The color board(s) must include samples of each color/product selected, as well as indicate where the item(s) will be located.
5. The Project Director will transmit the color board to the Superintendent's Cabinet for their review and acceptance.
6. Once this is done, the color board will be returned to the Project Director, who will transmit it to the CM.
7. Color board(s) should be retained on site for the duration of the project.
8. All color selections will be made at one time to insure a coordinated color scheme. Subsequent to Owner approval, absolutely no changes to color will be permitted without written consent by the Project Director. Products requiring color selections will not be released until all color selection submittals are submitted by the CM and approved by the Project Architect. Special exceptions to this must be approved by the Project Team.
9. The intent is that the color scheme presented to the Project Team will not reflect the personal preferences of any one individual, and that the color schemes will be professionally developed.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 18c Value Engineering Process

Value Engineering can be critical to getting a project within budget. Each item should be logged by the CM and reviewed by the Project Team and the appropriate District department, as applicable. While it is the District's intent for facilities to be constructed with the highest quality products and materials available, budgetary constraints may dictate evaluating alternative strategies.

Generally, Manatee County School District will consider the following items, as well as others deemed appropriate by the Project Team:

1. Flooring
  - a. Alternate flooring will be considered by the Project Team. Substitutions must be approved by the Maintenance & Operations Department.
2. HVAC:
  - a. Test & Balance should be included in the CM contract.
  - b. Return air ducts do not have to be insulated if they are less than 50' in length.
  - c. Inspection ports should be reviewed to see if they can be reduced.
  - d. Consider using duct tape in lieu of mastic. This is not preferred, but may be used if the budget dictates.
  - e. Consider deleting ozone sensors.
  - f. Consider deleting electrofin coating on condensers.
3. Plumbing:
  - a. Consider Raypac boilers.
  - b. Consider duct wrap in lieu of fiberglass insulation on interior storm drain piping (rain leaders).
  - c. Consider deep seal primers in lieu of trap primers.
  - d. Fixture packages should be opened up to alternate manufacturers.
4. Lighting:
  - a. Use concrete, direct burial light poles in lieu of fiberglass poles.
  - b. Fixture packages should be opened up to alternate manufacturers.
5. Generator:
  - a. If a generator is included in the project, consider eliminating the UPS and battery back ups.
6. Data/Communication:
  - a. Consider installing a minimum of 2 telephone and data outlets and 1 wireless access point per classroom.



# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 18d EHPA Shelter Process

If a new or renovated school project is to be used as an Enhanced Hurricane Protection Area (EHPA) shelter, the following procedures are required:

1. Adhere to Florida Statute 1014.372, Education Facilities as Emergency Shelters. The facility must meet or exceed Florida Building Code Chapter 453.25, Public Shelter Design Criteria.
2. Determine the areas to be used as the shelter.
3. Determine where the EHPA Shelter Manager's office will be located.
4. Provide the required construction elements including: Fire Alarm Control Panel in the EHPA Shelter Manager's Office, bladders, generators or provisions for hook-up of portable generator units.
5. The use of a deep well system for EHPA water provisions will be considered by each project team.
6. It would be beneficial to determine whether or not natural or liquid propane (LP) gas would be used.
7. Determine the appropriate parking requirements for the EHPA Shelter.
8. The AE should prepare an Operating and Maintenance Manual for the EHPA Shelter Manager and related school-based staff.
9. The CM should provide training for the EHPA Shelter Manager and related school-based staff.
10. EHPA water system preferred options include:
  - a. Tank coupler – Gopher Industrial Item #APG315DAL (1-1/2" Part D Aluminum Ever-Tite)
  - b. Tank coupler dust cover – Gopher Industrial Item PTC1071115 (Part V Dust Cap Aluminum with Brass Handles 1-1/2")
  - c. NOTE: These items are intended to provide for relatively inexpensive means to have consistent requirements for filling and servicing of the EHPA water system tanks.

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 18e Closeout Process

Once the project is Substantially Complete:

1. As projects come to a close, the CM shall prepare a list of job purchased tools, furniture, equipment and other items. The Project Team will review these items and determine what will be turned over to the Owner at completion. These items will be transmitted and delivered to the MCSD warehouse for inventory.
2. Project progress photographs shall be included along with monthly aerial photographs in the PMIS books. This photographic documentation of the project shall be included in the closeout books.
3. The CM shall prepare two (2) closeout books which need to include: Operating & Maintenance instructions, Warranties, Subcontractor/Vendor listing, Technical Data, etc.
4. The CM shall transmit to the AE all As-Built information for review. The AE will compile and prepare the final As-Built documents and submit to the Owner. The CM shall provide one hard copy and one electronic copy of all As-Built documents.
5. No final payments will be made until these items are submitted and approved by the Project Director.
6. The Project Director will transmit these documents to the following:
  - a. Plans Room located in the Department of Construction Services
  - b. School Principal/Head Custodian/Plant Manager

In addition to the above closeout documents, aerial photographs are required at the completion of all major construction projects, as follows:

Outside Frame Dimensions:

- 36-1/2" wide by 29-1/2" high

Frame:

- Black, 1-1/2" wide

Matt:

- White, 4" wide (approximate)

Visible Photograph Dimensions:

- 29-1/2" wide by 22" high

School Title:

- White letters, 1/2" high, All capitals, Located on bottom right, on the picture

NOTE: The existing photographs on display in the DCS Conference Room vary slightly in size and configuration. The above information is the average of these existing photographs and the most consistent size and configuration.

The CM Agreement, Exhibit C outlines the documents required for project closeout:

**EXHIBIT C**

**DOCUMENTS REQUIRED TO REQUEST FINAL PAYMENT**

- \_\_\_\_\_ 1. Final Pay Request (3 copies with original signatures)
- \_\_\_\_\_ 2. Consent of Surety to make Final Payment (signed and sealed), if required
- \_\_\_\_\_ 3. Power of Attorney from Surety for Release of Final Payment (Signed, sealed and dated same as Consent of Surety), if required
- \_\_\_\_\_ 4. Contractor’s Affidavit of Contract Completion
- \_\_\_\_\_ 5. Satisfactory Conclusion or Release of Lien from all subcontractors or vendors who have filed Notice to Owner, filed Intent to Lien, or have indicated non-payment from the CM

**CLOSEOUT DOCUMENTS REQUIRED TO RELEASE FINAL PAYMENT**

Submit one (1) hard copy and one (1) electronic copy of the following:

- \_\_\_\_\_ 1. One (1) Year Warranty from date of Substantial Completion (if phased project, provide warranty for each portion based on Substantial Completion dates)
- \_\_\_\_\_ 2. Operations manuals, shop drawings, as-builts, brochures, warranties, subcontractor list (with telephone numbers and addresses) keying schedule, paint schedule and other items required by the Construction Documents
- \_\_\_\_\_ 3. Recorded system operations training and attendance lists (i.e. HVAC, controls, fire alarm, etc.)
- \_\_\_\_\_ 4. Roof Warranty naming School Board of Manatee County as the Owner (if applicable)
- \_\_\_\_\_ 5. Other special warranties as required by Construction Documents, naming School Board of Manatee County as the Owner
- \_\_\_\_\_ 6. Architect’s Certificate “Specification of No Asbestos-Containing Materials”
- \_\_\_\_\_ 7. CM’s Certificate “Use of No Asbestos-Containing Materials”
- \_\_\_\_\_ 8. Certificate(s) of Occupancy as required (if phased project, provide Certificate of Occupancy for each phase)

By submitting this completed form, the CM affirms that all required closeout documentation is accurate and complete, so that final payment may be released.

Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

CM Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Project Director Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# School District of Manatee County Planning Manual for Schools & Ancillary Spaces

## Division 18f Miscellaneous Items

1. Building permit process
  - a. MCSD utilizes a third party entity to complete plan review, permit and inspection services for all projects requiring a building permit.
  - b. During the design process, the AE and CM will provide documents to the BO, who will provide plan review comments.
  - c. After Construction Documents are complete, the AE and CM will provide signed/sealed documents and the required permit application to the BO for permit issuance.
  - d. During construction, the CM will schedule inspections with the BO.
  - e. If the facility is a Threshold Building, special requirements should be made with the BO to inspect.
  - f. Once the project is complete, the BO will issue the Certificate of Occupancy and assist with the completion of DOE OEF Forms.
2. Owner training requirements
  - a. Unless noted otherwise in the Construction Documents:
    - i. Owner training sessions will be recorded and submitted with the Closeout Documents.
    - ii. Owner Training shall include a sign in sheet to document attendees for the training.
    - iii. Owner Training shall include operational features, programming features and other features required to keep the item in working condition.
3. Educational Specifications (Ed Specs)
  - a. When required, shall include:
    - i. Vocational/technology equipment lists
    - ii. Standard classroom layouts
    - iii. Educational programs
    - iv. Facility capacity
4. Construction project signs
  - a. A project sign may be provided for all major construction projects and should include the following: full names of Board members and Superintendent at the time of the initial contract execution, the full name of the architectural firm and construction manager, Director of Construction Services and Project Director, and the MCSD logo. The size of these

signs is typically 4'x8'. A submittal should be prepared by the CM and reviewed/approved by MCSD.

5. Sole Source items
  - a. While MCSD acknowledges the need for competitive subcontractor bidding for projects, we also realize the value of sole sourcing the following items (see individual PM sections for more information):
    - i. Access control system
    - ii. Membrane roofing
    - iii. Lighting controls
    - iv. Telephone systems
  
6. The Manatee County School Board has sustainability goals in the 2020 Strategic Plan. To that end, new construction and renovation projects shall be energy efficient, comply with industry standards and align with the State Requirements for Educational Facilities (SREF.) If more stringent requirements are desired, they will become part of the Planning Manual.