SCHOOL DISTRICT PALM BEACH COUNTY
BUILDING CODE SERVICES
PLAN REVIEW CHECKLIST -- MECHANICAL

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PROJECT NAME: _____ DATE _____
PROJECT NUMBER: _____ REVIEWER _____

The intent of this checklist is to act as a tool for the District Plan Reviewers to review construction plans and specifications of projects submitted for permitting by the Building Code Services. Architects and Engineers are encouraged to use this document as a tool to prepare construction plans and specifications for District projects.

The codes referenced in the checklist are Florida Building Code (FBC), District Design Criteria (DDC), National Fire Prevention Association Codes and Standards (NFPA), Florida Administrative Code (FAC), and Florida Statutes (FS).

Phase I – Schematic Design

OK, Comment, or N/A	Item	Code Reference
	1. HVAC Narrative to describe the scope of the project and specify:	
	a. Type of HVAC system proposed in each building or major school facility. VAV, constant volume, multi-zone, single-zone etc.	Mechanical Design Criteria D.
	b. Return air system.	Mechanical Design Criteria F.7
	c. Outdoor air system.	Mechanical Design Criteria F.8
	d. Relief air system.	Mechanical Design Criteria F.10
	e. Proposed number of mechanical equipment rooms and their preliminary locations on the floor plans.	Mechanical Design Criteria B.17
	f. Proposed location of major equipment.	Mechanical Design Criteria A.4
	g. Proposed chilled water piping system type, primary/secondary loop versus single loop constant flow.	Mechanical Design Criteria D.
	h. The HVAC system proposed is supported by a life cycle cost analysis. Capacity (tons) — System Type <30 — DX 30 to 600 — Chilled water with air cooled chiller >600 — Chilled water with water cooled chiller	453.8.7 FBCB, Mechanical Design Criteria D.5

Phase II – Design Development

OK, Comment, or N/A	Item	Code Reference
	Design Development submittal shall include:	
	1. Accurate room-by-room people count; ventilation rates set per FBCM table 403.3.	FBCM 403.3
	2. Room-by-room equipment load.	Mechanical Design Criteria A.3
	3. Preliminary HVAC load calculations.	Mechanical Design Criteria A.3
	4. Preliminary selection of central HVAC equipment (chillers, cooling towers, pumps, AHUs).	Design Guideline BD-02
	5. Coordinate with the architectural drawings regarding the location and number of mechanical equipment rooms.	Design Guideline BD-02
	6. Coordinate with the architectural drawings regarding the size of mechanical equipment rooms for proper service access.	Design Guideline BD-02
	7. Preliminary single-line ductwork routing.	Design Guideline BD-02
	8. Coordinate with the architectural drawings regarding the location of fire-rated and smoke-rated partitions and other life safety requirements.	Design Guideline BD-02
	9. Verify the routing of main chilled water lines from the chiller plant to buildings and to mech. equipment rooms, limit pressure piping routed under the building to that required to enter the mechanical room.	Design Guideline BD-02
	10. Calculations and 400 forms demonstrating compliance with Florida Energy Efficiency Code.	Design Guideline BD-02

MECHANICAL– "Phase III" Plans (Final Construction Documents)

General

OK, Comment, or N/A	Item	Code Reference
	Plans are signed and sealed	471, 481 FS
	All documentation listed in design guideline BD-02 is submitted.	Design Guideline BD-02
	Index represents all sheets submitted, revision numbers and revision dates match those shown on each drawing sheet.	District Requirement
	Plans content matches the referenced specifications	District Master Specification
	Plans comply with the District Design Criteria	District Mechanical Design Criteria

Construction Documents		
OK, Comment, or N/A	Item	Code Reference
	1. Design Notebook.	
	a. Final Facility Space Chart (OEF Form 208a).	Design Guideline BD-02
	Final room-by-room people count. Required ventilation rates per person. Auditorium 5 cfm/occupant 0.06 cfm/sf Classroom, computer lab, media center 10 cfm/occupant 0.12 cfm/sf Shops, science labs, art rooms, day care 10 cfm/occupant 0.18 cfm/sf Locker rooms 0.5 cfm/sf	FBCM Table 403.3.1.1
	b. Final room-by-room equipment loads.	Mechanical Design Criteria H.2.q.
	c. Design Loads: Input in accordance with SDPBC HVAC Design Requirements – Loads.	Mechanical Design Criteria H.1.
	d. Room-by-room air balance.	Mechanical Design Criteria E.1.c
	e. Design conditions: Heating 72 deg F maximum, cooling 75 deg F minimum	FBCEC C302.1
	f. Output data including design load psychrometric analysis: Space relative humidity 45%<RH<50%, cooling coil leaving hum. ratio W=65 grains/lb of dry air or less.	Mechanical Design Criteria H.1.
	g. Part load psychrometric analysis: Space relative humidity W=60% or less.	Mechanical Design Criteria H.1.
	h. Final selection of major HVAC equipment: chillers, cooling towers, AHUs, rooftop units, condensing units, and pumps.	Design Guideline BD-02
	i. Check major HVAC equipment: Airflows (CFMs), cooling capacities (BTUs or tons), pump water flows (GPMs), head pressures, and motor hose powers.	Design Guideline BD-02
	j. Life Cycle Cost Analysis to evaluate selected equipment and systems and economics of possible energy conservation measures.	Design Guideline BD-02
	k. Calculation of heating and cooling loads is determined in accordance with ASHRAE/ACCA Standard 183 or ACCA Manual N. or if performed by a Professional Engineer a summary sheet to include the following (by zone): 1. Project name/owner 2. Project address 3. Area in square feet 4. Sizing method used 5. Outdoor dry bulb use 6. Indoor dry bulb 7. Outdoor wet bulb used 8. Grains water (difference) 9. Total sensible gain 10. Total latent gain 11. Relative humidity 12. Total cooling required with outside air 13. Total heating required with outside air	FBCEC C403.2.1

	2. Construction drawings.	
	a. Title sheets: General mechanical notes, symbols, legends, etc.	Design Guideline BD-02
	b. Site Plan shall include; Location of chiller and cooling tower plants, routing of chilled and condenser piping loops.	Design Guideline BD-02
	c. Floor plans shall include:	
	1. Air distribution systems: Supply and return ductwork, grilles, registers, dampers, duct heaters.	Design Guideline BD-02
	2. Flexible duct runouts from metal ducts to air distribution devices.	Design Guideline BD-02
	3. Protection of duct penetrations thru fire or smoke rated partitions (fire and/or smoke dampers).	Design Guideline BD-02
	4. Ducted outdoor air system complete with filtration and modulating damper capable of isolating and sealing the system during unoccupied hours of operation..	Design Guideline BD-02
	5. Transfer air systems.	Design Guideline BD-02
	6. Exhaust air systems for science labs, kitchen and dishwasher hoods, kiln room, toilets, and janitor closets.	Design Guideline BD-02
	7. Ducted relief air system with modulating damper capable of isolating and sealing the system during unoccupied hours of operation..	Design Guideline BD-02
	8. Air balance for all rooms, spaces, and AHU zones.	Design Guideline BD-02
	9. Location of volume dampers, backdraft dampers, motorized dampers.	Design Guideline BD-02
	10. Location of space smoke detectors, thermostats, temperature, humidity sensors and CO2 sensors for demand control ventilation.	Design Guideline BD-02
	11. CO2 sensors with associated demand control ventilation for all spaces exceeding 500 square feet in area with an average occupancy load of 25 people per 1000 square feet.	C403.2.6.1 FBCEC
	d. Mechanical Equipment Rooms, plans and sections shall include:	
	1. Location and service clearances of the AHUs.	Design Guideline BD-02
	2. Equipment pad and location of floor and condensate drains.	Design Guideline BD-02
	3. Minimum length of the double wall duct.	Design Guideline BD-02
	4. Outdoor air (ventilation) systems.	Design Guideline BD-02
	5. Location of smoke detectors, duct heaters, manual and motorized dampers, minimum straight duct for traverse.	Design Guideline BD-02
	6. Flexible duct connections to AHUs.	Design Guideline BD-02
	7. Chilled water piping design for cooling coils.	Design Guideline BD-02
	e. Roof plans shall include:	Design Guideline BD-02
	1. Location of all roof-mounted equipment is shown and agrees with equipment within the building.	Design Guideline BD-02
	2. Minimum 10 ft distance from air intakes to roof vents and plumbing vents.	Design Guideline BD-02

	3. Equipment installation details including roof curbs and tie-downs.	Design Guideline BD-02
	f. Plan and sections of the Chiller Plant shall include:	Design Guideline BD-02
	1. Separation distances between chillers and chiller yard walls.	Design Guideline BD-02
	2. Chilled water pumps and piping layout for clear access to chiller compressors.	Design Guideline BD-02
	3. Location of air separator, air eliminator, expansion tank, and chemical shot feeder.	Design Guideline BD-02
	4. Chilled water make-up piping.	Design Guideline BD-02
	5. Condenser water piping (if applicable).	Design Guideline BD-02
	g. Equipment schedules shall include:	Design Guideline BD-02
	1. Fan schedule, control interlocks, and fan status	Design Guideline BD-02
	2. Fan control modes: thermostat, building automation system (BAS), or continuous.	Design Guideline BD-02
	3. BAS and Division 16 interlocks.	Design Guideline BD-02
	4. Schedules for AHUs, OAUs, coils, heaters, and flow meters.	Design Guideline BD-02, FBCEC C403.2.3
	5. Schedule for chillers and cooling towers if applicable.	Design Guideline BD-02, FBCEC C403.2.3
	6. Schedule for pumps.	Design Guideline BD-02
	h. Typical installation details.	Design Guideline BD-02
	i. BAS control Schematics.	Design Guideline BD-02

Specifications

OK, Comment, or N/A	Item	Code Reference
	Project Specifications match the District Master Specifications or have been revised with approved edits including approved variance requests if necessary.	DDC and DMS
	Equipment, components, and materials agree with the project specifications.	DDC and DMS
	Specifications agree with the District Design Criteria	DDC and DMS