

MECHANICAL MAINTENANCE STANDARDS FOR NEW CONSTRUCTION AND RENOVATIONS.

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HVAC: GENERAL SCOPE: BARD UNITS AND ROOF TOP UNITS ON ALL NEW CONSTRUCTION AND RENOVATIONS ARE REQUIRED. ANY OTHER SYSTEMS OR DESIGN MUST HAVE PRIOR APPROVAL BY THE OWNER.

1. Heat Pumps: Carrier, Trane, McQuay, all with 2" filter frames and pleated filters.
2. Chillers: Carrier, Trane, York. Prefer air-cooled chillers. Include factory startup and 5 year service plan.
3. Dehumidification units: Greenheck, Munters, Aaon.
4. Energy Recovery units: Carrier, Trane, Annex-aire, Munters
5. Roof Top units: Carrier, Trane, Lenox. (No multi-zone units, no VAV or VVT on new construction). Use Annexaire for all direct replacement for the Carrier multi-zone units on all renovations.
6. Use Bard units for stand alone classrooms, with extended plenums and 3-way pattern. If elevation allows, provide ducted system with air distribution.
7. Exhaust Fans: Greenheck, Cook, Jennaire fans. Grease Exhaust fans must be hinged and have safety chains so it can be serviced for duct cleaning.
8. Exhaust hoods: Greenheck, Gaylord, Halton. Kitchen suppression system for hoods must have complete electrical and gas shut down under the hood. It must be wired to the main fire alarm panel. Hood must have cabinet on end of hood for Ansul system, so it won't be visible in kitchen. Note: Fire Dept. is asking for 6' 8" clearance from floor to edge of hood. It must be installed per code, NFPA 96.
9. Cooling Towers: Evapco, NuTemp, Marley. (Open loop type-stainless steel-w/basin heaters). Heat tape on all make up water lines to cooling tower. Provide spare motor to be turned over to owner.
10. Pumps: Taco, B&G, Armstrong, Flo Fab.
11. Boilers: Ajax, Rite, Apac: Hot water tube type with factory startup.
12. Heat exchangers: Mueller, Sondex, Graham. (Plate & frame type)
13. Water treatment for cooling towers: Superior Water Services, Inc. Include 2 year service agreement.
14. Control system: Staefa/Talon only, by Control Concepts Inc.
15. Piping: Victaulic piping should be schedule 40 only. (factory trained installers only). Victaulic couplings with rubber stops only permitted. Welded pipe acceptable. Ductile Iron pipe for water service. Copper piping with Pro-press fittings is allowed.
16. Four of the most common size water source heat pumps, Bard units or both must be purchased for our stock for each facility, school, or renovation.
17. 2 inch pleated filters with filter boxes and sealed doors on fan coil units and small air handlers. 4 inch pleated filters on larger equipment. 2 inch pleated filters on BARD units.
18. We need the a/c filters changed at least 3 times before the contractor leaves the job. Leave a 4th change of filters on the job, with a filter schedule. Provide one year service contract and filter changes to coincide with warranty period. All filters must be standard sizes. No odd or fractional sizes allowed.
19. 410A refrigerant is acceptable for heat pumps, after R-22 is phased out.
20. Three way mixing valve must be installed on all boiler loops with the actuator supplied by CCI

21. On renovations, return air system must be ducted, no common air returns. Bard units are the exception. All existing duct re-used must be cleaned, sealed and reinsulated per new energy code.
22. Exhaust ventilation is required for all janitor's closets, dark rooms and dark room storage closets, and teacher's break rooms or lounges (100 cfm on separate switch).
23. All Trap Primers will be an ASCO, Red Hat Valve # 3UL18 24/60 volts. 8210G94, F557939. These must be controlled by DDC.

ELECTRICAL:

1. No MC Cable or Re-lock type MC cable. Everything must be in conduit.
2. Parking lot lights must be 400 watt-277 volts Metal Halide.
3. Perimeter lights must be 250 watt-277 volts Metal Halide.
4. Controls for all outside lights, must be controlled by magnetic contactors, with photocell and over ride switch.
5. No fluorescent light fixtures that use u-bent bulbs. No light fixtures with parabolic lens, No. 2 or 3 bulb fixtures. Want T-8 bulbs, 4 bulb units with electronic ballast. Fixtures should be 2'x 4' with acrylic lens.
6. No Simplex fire alarm systems. Must use Firelight, Notifier, or Staefa-Talon systems only.
7. All fire alarm pull stations must have Stopper II with horn protective cover.
8. All fire extinguisher cabinets must have door alarm. All portable extinguishers must be in cabinets.
9. Code requirements for automatic lighting control systems should be done through our current energy management provider. Automatic off and manual on is preferred. Staefa-Talon Controls by CCI only.
10. A mobile personal lift must be purchased and left at the school for changing lights and ceiling in cafeteria and gyms.
11. Must have surge suppression system at panel for computer circuits.
12. No recessed can lights in pan ceilings.
13. If a marques sign is involved, it must be fully wired and a ½ conduit with pull string installed separately.
14. No lights in ceilings of auditoriums use wall sconces. No smoke detectors in ceilings of auditoriums if sprinkled.
15. All theatrical lights must have access from catwalk.
16. No toggle light switches in halls and cafeteria. Must use key switches that take a Leviton key #555-000.
17. All service entrance and panel feeder conductors must be copper.
18. Electric hand dryers can only be installed in Adman & Teachers restrooms. Not in students restrooms.
19. The Kitchen is not an electrical room, only the panel for the kitchen should be in the kitchen. All other panels must be in electrical rooms.
20. If a building is built in phases, we are to be notified of completion of every phase, so we can walk thru and inspect. We must be notified before the ceiling is installed. Typical for all trades.
21. See page 4 for Generator specifications.
22. Disconnects are not to be mounted on WSHP's, fan coils or air handlers above ceilings. They are to be mounted on the wall or independently mounted nearby.
23. Exit lights to be LED 277 volts.
24. All new and existing low voltage wiring must be properly hung and support by "J" hooks or in trays, as per all NEC specifications and codes.

PLUMBING:

1. Prefer American Standard commodes, urinals, and lavatories. (No china lavatories-must be cast iron)
2. Prefer T & S Brass Kitchen faucets. Prefer Gerber lavatory faucets with 2 handles. Prefer foot-operated faucets for ½ moon type wash stations in restrooms, mfg. Bradley Co.
3. Hand wash sinks in kitchen to have low voltage touch less faucet or foot operated controls. Mfg. By T & S Brass.
4. Hot water heater-prefer Rheem or Rudd, models G100-200.
5. All gas piping in kitchen to be hard black pipe. Flexible connections OK on drops. No quick disconnects.
6. Grease interceptors, the minimum are 3000 gals.
7. Want to try waterless urinals in 3 schools Elementary-Middle-High.
8. All mechanical piping and equipment supports exposed to the elements shall be primed, painted and labeled for their service.
9. All Trap Primers will be a ASCO Red Hat Valve # 3UL1824/60 volts. 8210G94, F557939. These must be controlled by DDC.

AUDIO/VISUAL:

1. We would like to stay with Raulands Intercoms. No exceptions. If this is impossible, then the other brand must provide training for our Techs, and have parts stocked locally.
2. All low voltage wires to be in J-hooks or in trays. Do not lay wiring on ceiling tiles.

ATHLETIC WASHER & DRYER:

1. Belco only, no exceptions.

LAWN TRACTOR FOR MIDDLE OR HIGH SCHOOLS

1. John Deere X740 Diesel or John Deere Z-trac. According to size of campus. No exception.

SMALL LAWN MAINTENANCE EQUIPMENT:

1. String trimmers, Edgers, Hedge trimmers, Blowers, should be commercial grade Echo brand. No substitutes.
2. Walk behind mower should be 24" Sarlo brand self propelled, 6 ¾ or 7 horsepower engine. No foreign substitutes.

FILTRATION SCHEDULE and EQUIPMENT MAINTENANCE:

1. All filters, either field or factory furnished, must be rated in accordance with ASHRAE Standard 52.2 and 62.1 and be labeled with a MERV rating of 6 or better. Pleated filters are preferred for all applications.
2. If filters on equipment come from the factory without rated filters, the contractor shall be responsible for replacing these non-rated filters with rated filters.
3. Filters used during construction activities shall be rated and additionally protected with filter media. Standard sizes only. No fractional sizes allowed.
4. Filters shall be changed during construction, prior to test and balance, prior to owner's final walkthrough and one set provided with a filter schedule at CO.
5. Any and all equipment used for temporary heat or conditioning of the building during construction shall have their coils and casings cleaned prior to test and balance.
6. Dynamic Air Cleaning System is an acceptable option for filtration systems.
7. Provide a one year service contract and filter changes to coincide with the warranty period.

EMERGENCY GENERATOR SPECIFICATIONS:

ALL NEW SCHOOLS AND RENOVATIONS MUST INCLUDE AN EMERGENCY GENERATOR.

IF A SCHOOL THAT IS BEING RENOVATED HAS A GENERATOR OVER 15 YEARS OLD, IT SHOULD BE CHANGED OUT.

1. Elementary Schools minimum size 60 KW 480/277 volts 60HZ output.
2. Middle & High Schools minimum size 80 KW 480/277 volts 60HZ output.
3. Fuel – Natural Gas.
4. Recommended brands – Kohler – Generac – Detroit Diesel.
5. Generator must support:
 - a. Walk in Freezer & cooler, usually 208 volts 3 phase.
 - b. MDF room including all outlets in room 120 volts 1 phase.
 - c. MDF room HVAC 480 volts 3 phase.
 - d. Phone system 120 volts 1 phase.
 - e. Intercom system 120 volts 1 phase.
 - f. Security system – panel, cameras, door card readers 120 volt 1 phase.
 - g. Fire alarms – main panel and NAC panels 120 volts 1 phase.
 - h. Principals office – computer outlet 120 volts 1 phase.
 - i. All Emergency lighting – classrooms – halls – gym – cafeteria – restrooms – mechanical rooms – storage rooms – offices.
 1. Emergency lights for classrooms & offices must be 12”X12” recessed 2 bulbs med. Base socket, 20 watts each bulb, compact fluorescent bulb 120 volts 1 phase.
 2. Halls, gym, cafeteria, mechanical rooms, storage rooms, restrooms, locker rooms 277 volts 1 phase.
 3. Exit lights LED 277 volts 1 phase.
 - j. **NO BATTERY PACK EMERGENCY LIGHTS OR EXIT LIGHTS.**
 - k. Provide 2 year total service warranty contract with Generator and Transfer switch. Should cover mileage, labor, parts, material, fluids, and inspection.

CLOCKS

1. Classrooms – 120 volt plug in type, analog, 12” wall hung, 3 hands, brown or black.
2. Halls – 4” red letter digital, wireless, 120 volts, double sided.
3. Gym – 4” red letter digital, wireless, 120 volts, single sided, mounted against the wall with wire guard.
4. Media Center & Cafeteria – 4” red letter digital, wireless, 120 volts, single sided, mounted against the wall.
5. Auditorium – 4” red letter digital, wireless, 120 volts, single sided mounted against the wall behind the seating.
6. Office – same as classrooms.

NOTE: We use and prefer Midwest Time, digital wireless clocks. We have local support for them, and they do not require a FCC License.

Primex, and Inovation can provide these, but they require a FCC License.

DOOR BELLS

1. Front Door Bell – connect to front office with a switch, so the bell can be heard through out the building or just in the office. Bell or chimes.
2. Rear Kitchen Door – ring in kitchen only. Bell or chimes.