

DIVISION 11 – EQUIPMENT

11 00 00 EQUIPMENT

11 05 00 – COMMON WORK RESULTS FOR EQUIPMENT

- A. All systems and components shall be identified with equipment codes. (Coordinate with Owner's Representative.)
 - 1. For any remodeling or additions, requests will have to be made for next available code for each type of system/component.
 - 2. Coded labels shall follow through for all areas and sub-components associated with each identified unit, i.e., power distribution, starters and temperature control panels.
 - 3. Equipment code label materials shall match the Owner's existing labels.
- B. Provide pipe coding for all piping.
 - 1. All wording/color combinations shall meet ANSI A13.1 standards and UNI standards.
 - 2. Seton Type SNA/STR "Setmark", or equal, pipe markers are preferred.
 - 3. Fire Hydrants shall be:
 - Green – more than 1,000 GPM
 - Yellow – 1,000 to 500 GPM
 - Red – less than 500 GPM

11 05 13 – COMMON MOTOR REQUIREMENTS FOR EQUIPMENT

- A. Except where otherwise specified for motors in mechanical and electrical work sections, the following shall govern:
 - 1. Motors (1/2) hp and smaller shall be:
 - a) Single phase, 115-volt.
 - 2. Motors (3/4) hp and larger shall be:
 - a) 3-phase, 208-volt or 480 volt.

Specify that 3 phase motors for use on 208 V. systems shall be rated 200 volts and 480 V systems shall be rated 460 volt. Motors rated 220 V. or 230 V. are not acceptable.
 - 3. Exceptions will be made, as approved, in case of fractional hp motor-driven equipment units furnished by manufacturer with integral motor to suit his standard design.

B. Single-Phase Motors Shall Be:

1. Capacitor-start, split-phase or shaded-pole type, as approved for individual application.

C. Polyphase Motors Shall Be:

1. Squirrel-cage induction. Variable speed is achieved with power drives with IGBTs.

D. Multi-Speed Motors Shall Be:

1. Squirrel-cage induction type, three-speed, single or double winding, constant or variable torque; as selected and approved for individual application.

E. Where motor type, hp, speed, or other essential data are not specified in detailed specification of individual equipment unit or indicated on schedules, obtain this information from manufacturer of equipment unit and have it approved, before ordering motors.

F. Manufacturer

1. Motors furnished under mechanical and electrical work shall be product of not more than two manufacturers. Expectations will be made as approved in case of fractional hp motors, or when motor is furnished integral with driven equipment unit as manufacturer's standard.
2. Motors shall be General Electric, Westinghouse, Century, Baldor, Reliance, Toshiba, Louis Allis, or approved equal.

G. Design/Performance

1. NEMA standards shall be taken as minimum requirements for motor design and performance, except where otherwise specified.
2. Motors shall be suitable for load, duty, voltage, frequency and hazard, for service and location intended.
3. NEMA classification of motor enclosures shall apply when motor types are specified as open drip-proof, splash-proof, totally enclosed and the like.
4. Motors shall have ball or roller type bearings with pressure grease lubrication. Exceptions will be made as approved, in special cases for sleeve type bearings with approved method of oil lubrication.
5. Motors shall be quiet operating.

6. Motors shall be rated for continuous duty and under full load. Maximum rise in temperature shall not exceed 40°C for open type, 50°C for drip-proof and splash-proof types, 55°C for explosion-proof and totally enclosed types.
7. Motors shall be capable of withstanding momentary overloads of 50%, without injurious overheating.
8. Motors for belt drive shall have adjustable bases.
9. Motors for direct drive with coupling shall be aligned, coupled, and doweled to base plate in at least two points. The drive unit will also be doweled in two places.
10. Motors shall have name plates giving manufacturer's name, voltage, phase, HZ, hp, rpm, full load current and service factor.
11. Motors shall have flexible leads of sufficient length to extend 3" minimum beyond face of conduit terminal box. Motors five hp and larger shall have terminal lugs.
12. Motors shall not have a service factor of less than 1.15.
13. All motors five HP or larger shall be energy-efficient type.
14. Submittals shall be obtained from the manufacturer and shall include, but not be limited to, the following:
 - a) Physical dimensions or NEMA frame size.
 - b) Bearing information.
 - c) Performance curves for power factor and efficiency at various loads. Data taken per NEMA Std. MG1-12.53a (IEEE 112 – Method "B").
 - d) Name plate data including NEMA nominal efficiency per NEMA (MGI-12.53b).
 - e) Maintenance recommendations.
15. Motor Tests
 - a) For motors over (200) hp, make complete test for each motor furnished and submit certified test data sheets for approval.
16. Warranty shall not be less than one year from start-up date.

11 52 00 – AUDIO-VISUAL EQUIPMENT

A. Projection Screens

1. DA-LITE, Model C; Matte finish; wall or ceiling mount. Specify standard sizes.
Coordinate needs with Owner.