

## **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 (MG1-12.53b).
  - 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.~~

- A. See the attached list for the standard A/V equipment that is used on campus (classrooms and other spaces). Model numbers may change. Coordinate with Owner's Representative and Owner's A/V team to determine who is responsible to purchase and install equipment.

<b>DISPLAY</b>			
<b>Item</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Comments</b>
Projector	Epson	Powerlite L530U	<a href="#">Projector Central Link</a>
Projector Mount	Chief	RPAU	
113 in. Projection Screen	Da-Lite	37570LS	120V Quiet Motor
113 in. Manual Projection Screen	Da-Lite	34730	Model C with CSR
Low voltage controller	Da-Lite	40973	
60" Flat Panel			
70" Flat Panel			
Flat Panel Mount (60"-70")	Chief	LTM1U	Tilt Wall Mount
80" Flat Panel			
90" Flat Panel			
Flat Panel Mount (80"-90")	Chief	LSM1U	Fixed Wall mount

<b>CONTROL SYSTEM</b>			
<b>Item</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Comments</b>
Control Processor and Stereo Amp	Extron	Extron IN1608 xi IPCP SA	60-1238-85 For Single/ multiple duplicate displays
8x4 Scaling Presentation Matrix Switcher	Extron	DTP CrossPoint 84 IPCP SA	60-1368-12 For up to 4 displays
Digital Twisted Pair Receiver	Extron	DTP HDMI 4K 230 Rx	60-1271-13
Digital Twisted Pair Transmitter	Extron	DTP HDMI 4K 230 TX	60-1271-12
7" tabletop touchpanel	Extron	TLP Pro 725T	60-1395-02
Power Injector (MUST INCLUDE WITH TOUCH PANEL!)	Extron	XTP PI 100 - Power Injector	60-1233-01
VGA and HDMI wallplate DTP transmitter	Extron	DTP T UWP 4K 232 D	60-1755-13 - Dual Gang, White
HDMI wallplate DTP transmitter	Extron	DTP T HWP 4K 231 D	60-1421-13 - Single Gang, White
IR Emitter	Extron	IR Emitter and Shield Kit	70-283-01
7" wall mount touchpanel	Extron	TLP Pro 725M	60-1394-02

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35 ft. Shielded Twisted Pair Cable	Extron	XTP DTP 24/35	26-702-35
50 ft. Shielded Twisted Pair Cable	Extron	XTP DTP 24/50	26-702-50
75 ft. Shielded Twisted Pair Cable	Extron	XTP DTP 24/75	

<b>SOURCES</b>			
<b>Item</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Comments</b>
Computer	Dell	OptiPlex 7060s	
Touch screen computer monitor	Dell	S2240T	
Viewsonic TD 2230	ViewSonic	TD2230	
Wireless Keyboard and Mouse	Microsoft	Desktop 2000	<a href="https://www.cdwg.com/product/Microsoft-Wireless-Desktop-2000-keyboard-and-mouse/2354457?pfm=srh">https://www.cdwg.com/product/Microsoft-Wireless-Desktop-2000-keyboard-and-mouse/2354457?pfm=srh</a>
Wireless Presenter remote control	Logitech	R400	<a href="https://www.cdwg.com/shop/products/Logitech-Wireless-Presenter-R400-presentation-remote-control/1831321.aspx?pfm=srh">https://www.cdwg.com/shop/products/Logitech-Wireless-Presenter-R400-presentation-remote-control/1831321.aspx?pfm=srh</a>
Wireless Presentation Device	Mersive - SP-8000-E1	Mersive Solstice Pod Gen3 with perpetual Unlimited Enterprise software license (unlimited users) (power supply and HDMI cable sold separately)	SP-8000-E1
Webcam	Clearone Unite 20	C920	
Cable Cubby (Nook) with all parts	Altinex	CNK241	
Bluray/DVD	Sony	Sony BDPS3700	
Document Camera	Elmo	TT-12iD	

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<b>AUDIO</b>			
<b>Item</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Comments</b>
Ceiling Mounted Speaker	Atlas Sound	FAP43T-W	Sold in Pairs
Wall Mounted Speaker	Atlas Sound	SM42T-B	Sold in Pairs
Sennheiser EW100G4-ME4-A1 Wireless Lavalier Microphone System	Sennheiser	Sennheiser EW100G4- ME4-A1 Wireless Lavalier Microphone System	SLX14/85-G4
Assistive Listening Device			

<b>FURNITURE</b>			
<b>Item</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Comments</b>
ADA compliant lectern Larger	NOVA		<u>Example</u>
ADA compliant lectern Small	NOVA		
Shelving for Lectern 1 only MUST ORDER	CDWG		
<u>Sit/Stand Rolling Workstation</u>	Levenger	FA4210	

<b>ADDITIONAL OPTIONS</b>			
<b>Item</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Comments</b>
Pan/Tilt/Zoom Camera	Clearone	Clearone 210	
MXL AC-404	MXL	MXL AC-404	
Magwell HDMI USB Converter	Magwell	Magwell HDMI USB Converter	
DTP T UWP 4K 232 D	Extron	DTP T UWP 4K 232 D	<a href="https://www.extron.com/product/dtptuwp4k232d">https://www.extron.com/product/dtptuwp4k232d</a>

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