SECTION 01 70 10: BUILDING SYSTEMS IDENTIFICATION & LABELING

PART 1   SPECIAL REQUIREMENTS

1.1 The University shall not consider requests for final payment under this contract until all work described within this labeling section is complete.

1.2 The Contractor is cautioned that the University will not accept work that is not completely labeled according to this specification, and no warranty period shall start until this work, and all other specified work, is complete.

1.3 The Contractor is cautioned that Brown will wait for sixty (60) calendar days after Contractor is notified of inadequate or incorrect labeling before Brown hires another contractor to finish all required labeling. The cost of finish labeling will be deducted from the final payment due to the Contractor.

PART 2   CRITERIA

2.1 It is the intent of the Owner to have absolutely clear labeling of all items installed under this Contract. Those items include, but are definitely not limited to:

A. Piping:
   1. Label must show content, flow direction, and zone.

B. Valves:
   1. Label must show a number that corresponds to a clearly posted valve legend.

C. Pieces of Equipment:
   1. Show number of system or zone and function, including all rooms and areas within the zone.

D. Electric Conduit:
   1. Show highest voltage carried within.

E. Electric Control Boxes:
   1. This includes starter; load centers; major switches and the like – show equipment controlled; voltage and phase located within.

F. Ductwork:
   1. Show number of system and identify what is carried within (e.g., F-exhaust air, conditioned air, etc.) Show list of all rooms and areas served.

G. Ductwork Accessories:
   a. Show, AT THE LOCATION, dampers; eliminators; access panels; filter racks; water coils; etc.
H.  Control Points:
   1.  Show, AT THE LOCATION, sensors; freeze-stats; etc. Identify function and zone.

I.  Control Pneumatic Tubing:
   1.  Show number which corresponds to clearly posted legend. Legend shall list origin of tubing, end connection and function.

J.  Warranty Plate:
   1.  Must show the name address, and telephone number of the contractor who completes the installation, and the date of final acceptance of the installation. THIS DATE WILL BE PROVIDED BY THE OWNER.

K.  Fluid Contained:
   1.  Placed on major equipment, must show fluid carried by system. Example: Glycol.

L.  Buried Utilities:
   1.  The Owner shall decide, on a case-by-case basis, the labeling required on underground materials.

M.  Load Centers:
   1.  Within load centers, identify each individual circuit breaker on a legend posed on the inside surface of the load center cover door.

N.  Suspended Ceilings:
   1.  Where valves, equipment, circuit breakers or other items subject to routine service are mounted in a concealed area above a ceiling, the ceiling must be marked with an engraved plastic disc directly under the serviced device. The disc shall carry appropriate nomenclature that corresponds to a clearly posted legend. The legend shall be counted in the mechanical room. Use Seton or equal with push-in tack backing.

O.  Access Panels:
   1.  On each access panel or door, clearly label the door with a legend description of what is behind the door.

P.  Any other item as directed separately in this specification package by the Owner or Engineer.
PART 3 PERFORMANCE REQUIREMENTS

3.1 All exposed High Temperature Hot Water piping as identified by the Owner shall be painted safety orange for the entire length and circumference of the exposed run. A pipe covering paint listed for this use by its manufacturer and compatible with the insulation system shall be used.

3.2 Piping labels shall be placed over any insulation on the pipe installed. Painted or stenciled labels on insulation jacket are not permitted. Piping labels shall be placed every 30 linear feet of pipe.

3.3 Valves:
   A. Tags shall have the valve number. Numbers shall be a contrasting color to the tag. All valve labels shall be permanently attached with steel or brass jack chain. Tags shall be color coded to correspond to the following color chart, if product is not listed, consult the Owner.
      1. Portable Water – Green with white letters/numbers.
      2. Unsafe Water – Yellow with white letters.
      5. Steam – Yellow with white letters.
      7. Circulating MTHW – Yellow with white letters.

3.4 Ductwork & Accessories:
   A. Labels on ductwork shall be Seton Ventmark or equal. Each label shall show the required information as shown above. Labels shall be mounted over covering on the duct. The label must be mechanically attached, adhesive backing alone is not acceptable.

   B. Ducts shall be labeled every 30 linear feet of duct. Each duct branch shall be labeled with rooms and areas served.

3.5 Equipment:
   A. All pieces of equipment, including electrical boxes as defined earlier, shall be labeled with hard plastic, black plate labels. Lettering shall be white and must be made by engraving or incising the plate.

3.6 Conduit:
   A. Labeling for conduit shall be factory-made. Painting or stenciling is not acceptable. Lettering shall include the highest voltage carried within, and shall
identify phase. Labeling shall repeat every 30 linear feet. Adhesive backed labels are acceptable here provided the label wraps around the entire circumference of the conduit, and adheres to itself otherwise mechanical fastening with strap is required.

3.7 Filter Racks:
   A. Filter racks shall be labeled adjacent to the nearest access-plate or door, through which the filters may be changed. The hard plastic plate shall show the number of filters required for a complete change-out, and the size of the filters carried on the rack.

3.8 Air Handling Units:
   A. Any unit designed to move air shall be appropriately labeled. The hard plastic plate shall show brand; model; system number and function; areas served; design CFM; type of sheave; voltage and phase of service; HP and frame of motor; number and size of belts.

3.9 Air Tubing:
   A. All pneumatic control tubing shall be affixed with flexible plastic or laminated roll tape labeling showing a clear number. This number shall correspond to a clearly posted legend, which shall list origin, end connection and function. This tubing labeling shall repeat each 25 linear feet of the tubing run.

3.10 Control Cabinets:
   A. Each device in each control cabinet shall be affixed with a clear number, which shall correspond to a clearly posted control legend. This legend shall identify each device by zone and function. The outer door of the cabinet itself must be labeled with its contents.

3.11 All valves shall be recorded in a permanent valve chart to be included in as-built records, and mounted in protective frame with transparent plastic cover in building service entry or basement mechanical room.
   A. Subsequent projects including additional valves shall be added to the existing numbering sequence. The permanent valve chart shall be replaced with a new chart including the additional valves. Separate charts for such projects are not permitted.

3.12 Plan Set
   A. In a place within the Mechanical Room selected by the Owner, the Contractor shall mount a clear, reduced set of building prints, showing the systems installed by the Contractor, as-built. These prints shall show zoning by color-coding, including all ducts and hydronic piping. Major pieces of equipment shall be
highlighted. These prints shall be mounted under a sheet of clear Lexan or Plexiglass. The supervisors of the Brown University HVAC & Controls Divisions will direct the contractor on this segment. A second, identical set of prints shall be delivered to the Owner for office use.

3.13 Labels

A. All labels, unless otherwise directed, shall be made of hard black plastic. Lettering shall be effected by engraving or incising, and shall be white. All labels shall be securely mechanically attached with screws or equal. Letters and numbers shall be at least $\frac{1}{4}$ "high, or larger, if required to read clearly from a normal viewing distance. All labels must be made to withstand the temperatures and atmosphere in the area they are to be mounted. Any labels mounted outdoors must be treated to prevent degradation from sunlight, and must be mounted with stainless steel screws.

3.14 Balancing Settings

A. Where air or hydronic systems have been balanced, the Contractor shall permanently mark, ON THE DEVICE, the correct balancing setting of each valve, damper, or similar device to allow original setting to be restored after tampering.

PART 4 PRODUCTS – PROPRIETARY REQUIREMENTS

4.1 Manufacturers:

A. Craftmark Identification Systems

B. Safety Sign Co

C. Seton Identification Products

D. Substitutions: Section 01600 - Product Requirements

4.2 Product Description: Laminated three-layer plastic with engraved white letters on black contrasting background color.

4.3 Labels to identify zone number may be self-stick type, but must wrap completely around pipe, and be adhered to itself. All self-stick labels must be plasticized to withstand washing with commercially available cleaning products.

END OF SECTION