Modify *subsections 23 05 01.05.B, ~~21~~ 21 05 01.07.A, ~~22~~ 22 05 01.12.A, and 09 90 01.02.A* per the following (deletions are shown struck through and additions are double underlined). Remainders of sections are unchanged.

23 05 01 Mechanical General Requirements

.05 Mechanical Identification

B. University Mechanical Color Code

1. ~~In addition to the usual painting called for under the mechanical trades, the University uses a piping color code. The following color designations conform to the system established by the American Standards Association.~~ Follow current industry ANSI/ASME A13.1 Standard for color coding scheme and piping system identification. Comply with standard for lettering size, color scheme based on classification of contents, length of color field, locations and intervals, and visibility.
    a. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.
    b. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
    c. Markers shall be located so that they are readily visible to plant personnel from the point of normal approach.
    d. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
        i. Near major equipment items and other points of origination and termination.
        ii. Adjacent to all valves and control devices.
        iii. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
        iv. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
        v. Adjacent to changes in directions.
        vi. At access doors, manholes, and similar access points that permit view of concealed piping.
        vii. Spaced at maximum intervals of 50 feet along each straight run. Reduce intervals to 25 feet in areas of congested piping and equipment or otherwise difficult to access areas such as attics, crawl spaces, tunnels, and above suspended ceilings.

~~2. In general, the following color coding rules will apply:~~
    ~~a. Red - Rust-Oleum #1210 or equal~~
        ~~i. Fire protection~~
        ~~ii. Stop~~
    ~~b. Blue - Rust-Oleum #721 or equal~~

i. Warning against moving, equipment, etc., operating, or use of equipment, etc., without authorization.

c. Yellow - Rust-Oleum #722 or equal primer
   i. Caution
   ii. Other uses as designated by code

d. Gray – MAB Ply-Tile #504A-11 undercoat
   i. All masonry walk and interior plant structures other than equipment, boilers, etc., to be light gray color similar to Rust-Oleum #906 silver gray, with traffic areas 4 feet from floor a dark gray similar to Rust-Oleum #975 gray.

e. Orange – Rust-Oleum #1151 or equal
   i. Dangerous materials
   ii. Other uses as designated by code

f. Green – Rust-Oleum #594 or equal
   i. Safety
   ii. Safe materials

3. Specific Colors for Piping will be as follows:
   a. Air Piping (Compressed) – Yellow with Green (Pressure under 100 psig)
   b. Air Tanks (Compressed) – Yellow with Green Band
   c. Anchors – See Hangers
   d. Ash Vacuum System – Dark Gray (Rust-Oleum #975 or equivalent)
   e. Blow down Lines – See Drains
   f. Boilers – Light Gray except hot surfaces to be heat-resistant aluminum
   g. Carbon Dioxide – Yellow with Black Band
   h. Chemical and Brine Tanks – Green with Labels
   i. Chilled Water – Green with White band
   j. Chlorine Water Solution – Yellow with White Bands
   k. Combustible Gases – See type of Gas
   l. Condensate – Green with Red Band
   m. Conduit – To be painted to match surface to which attached, i.e., wall or ceiling. When suspended, such as the run out to a motor, treat as equipment and paint Gray.
   n. Cooling Tower Water – Green with Yellow and White Band
   o. De-mineralized Water – Green with Gray Band
   p. Decorator Tanks – Aluminum (heat resistant)
   q. Domestic Water – See Potable Water
   r. Drain Lines – Aluminum with Red Bands
   s. Effluent Water – Green with Yellow Band
   t. Feed Water – High Pressure – Orange with Green Band
   u. Feed Water – Low Pressure – Green with Orange Band
   v. Fire Lines – Red
   w. Gas – See type of Gas
   x. Hangers – Portion actually supporting; i.e., surrounding pipe, is to match pipe. Remaining portion to be Black.
   y. Hazard Striping – Where applicable
   z. Heating Water – See Water

aa. Hot Water Storage Tank – Green with Labels
bb. Hydrants Fire – Red
cc. Hydraulic Oil – Yellow with Red Band
dd. Natural Gas – Orange with White Band
ee. Nitrous Oxide – Yellow with Black Band
ff. Oil – Yellow with Red Band
gg. Oxygen – Yellow with Black Band
hh. Propane – Orange with White Band
ii. Potable Water – Green
jj. Refrigerants – Yellow with Black Bands
kk. Return – See type of return, such as hot water condensate, etc.
ll. Sanitary Sewers – Aluminum with Red Bands
mm. Sewage Gas – Orange with Black Band
nn. Sludge (Sewage) – Dark Brown with White Band
oo. Soft Water – See Water – De-mineralized
pp. Softener – Green with Labels
qq. Steam piping – High Pressure (over 50 psig) – Orange
rr. Steam Piping - Low Pressure (below 50 psig) – Yellow
ss. Utility Water (Non-Potable) – Green with Yellow Band
tt. Water Tanks – Green with Labels

4. Miscellaneous:
   a. Do not Paint valve wheels, lever operators, or controls.
   b. Scaffolding, ladders, barriers, etc., should be Blue.
   c. Use hazard striping where necessary, such as at the head of stairs and where head room is minimal.
   d. All stair treads, risers, etc., are to be #9182 Rust-Oleum or equivalent. All painted railings are to be Light Gray with liberal applications of hazard stripping.
5. In general, the basic color schemes will be as follows:
   a. Equipment--Light Gray or Aluminum
   b. Walls--Light and Dark Gray
   c. Floors--Light Gray or Tile Red

6.2. Other Requirements
   a. In unfinished areas, including attics, crawl spaces, tunnels, and above suspended ceilings, the contents of the pipe and direction of flow should be indicated by 8-inch color bands painted or applied around the pipe at 20-foot intervals.
   b. Piping in finished areas should be painted out in the scheduled room colors and should then be color-coded with 4-inch color bands painted or applied to the piping or piping covering where the piping enters and leaves the finished areas.
   c.a. Painting Coordination: The painting of exposed heating and ventilating work, fire protection work, and plumbing work, and electrical work in finished rooms should shall be specified to be included by the General Contractor under General Construction Painting Section in Division 9. The painting installation of color coded identification , stenciling of

~~contents, directional arrows, etc.,~~labels where the piping enters and leaves the finished areas ~~should~~ after painting is completed shall be the responsibility of the respective mechanical systems Contractors.

21 05 01 Fire Suppression General Requirements

.07 Mechanical Identification

A. Coordinate and comply with all applicable requirements as described in section 23 05 01 ~~.06~~.05 Mechanical Identification.

22 05 01 Plumbing General Requirements

.12 Mechanical Identification

A. Coordinate and comply with all applicable requirements as described in ~~section 23 05 01.06~~ section 23 05 01 .05 Mechanical Identification.

09 90 00 PAINTING AND COATING

.02 University Mechanical Color Code

A. NOTE: This section has been revised and relocated to Division 23 05 01.~~06~~ 05 ~~CB~~.

END of revision

Update Commentary:

Section was updated primarily for the following reasons:

1) *To update mechanical systems color code identification labels per current industry standards.*
2) *To coordinate cross references among disciplines.*