Facility Operations

Physical Safety

Guidance Document

Title: Guide on Pipe Identification Standards (ASME A13.1-1996)

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This document provides guidance for The University of Texas Houston Health Science Center's Visually Instructive Labeling Program. The program follows the requirements outlined in the ASME A13.1-1996 Scheme for the Identification of Piping Systems. This document is specifically for facility utility piping. The program is aimed at reducing errors and accidents while at the same time increasing training and housekeeping effectiveness, employee morale, safety and productivity. This is accomplished through using labels and tags, which have color-coding, key words, and /or symbols which are standardized through ASME, ANSI and OSHA. Consistent application of the same sign to the same hazard will familiarize existing, new, and contract employees with the facility and reduce the possibility of errors and accidents while producing a quicker, surer response in emergency situations. Included in this document are tables of specifications, which are to be used to ensure labeling consistency.

The Visually Instructive Labeling Program is a continual process. All Facility Operations personnel are responsible for monitoring the University facilities for proper markings, signs and labels. If a label should be missing or illegible, Facility Operations personnel shall ensure the sign is replaced as soon as possible. Everyone must be involved in the process including knowing what the program is and why it is important to the University. Furthermore, personnel are encouraged to give suggestions and recommendations to ensure labeling is as effective as possible.

Ordering Labels

Labels can be ordered from catalogs or made at UCT 1880. Facility Operations and Physical Safety have label makers that can be used by Facility Operations personnel. Supplies can be order from the catalog located at UCT.

Installing Labels

It is recommended that self-sticking pipe labels be used. These labels are applied by peeling the paper backing from the label and pressing the label in place on the pipe. The adhesives perform best when place on a smooth, clean, dry surface. Therefore, the pipe should be cleaned with a wet cloth and then allowed to dry. If the surface is rough, it should be smoothed with sandpaper and the residual dirt removed with a wet cloth. It is required to also apply bands of arrows tape at each end of the label, indicating the direction of flow in the pipe. The bans shall be wrapped 360 degrees around the pipe so the direction markers can be seen all the way around the pipe.

TABLE 1
SIZE OF LEGEND LETTERS

Outside Diameter of Pipe or Covering		Length of Color Field A		Size of Letters B	
in.	mm	in.	mm	in.	mm
3/4 to $1^{1/4}$	19 to 32	8	200	1/2	13
$1^{1/2}$ to 2	38 to 51	8	200	3/4	19
$2^{1/2}$ to 6	64 to 150	12	300	$1^{1/4}$	32
8 to 10	200 to 250	24	600	$2^{1/2}$	64
over 10	over 250	32	800	$3^{1/2}$	89

The labels shall be located so that they are readily visible to personnel from the point at which they would normally approach the pipe. The pipes shall be marked in the following areas.

A) Adjacent to changes in direction.
B) Adjacent to all valves and flanges.
C) At both sides of floor or wall penetrations.
D) At any other point of entry into the line.
E) At 50 foot intervals of straight runs.

FIGURE 1
LABEL VISIBILITY AND LOCATIONS

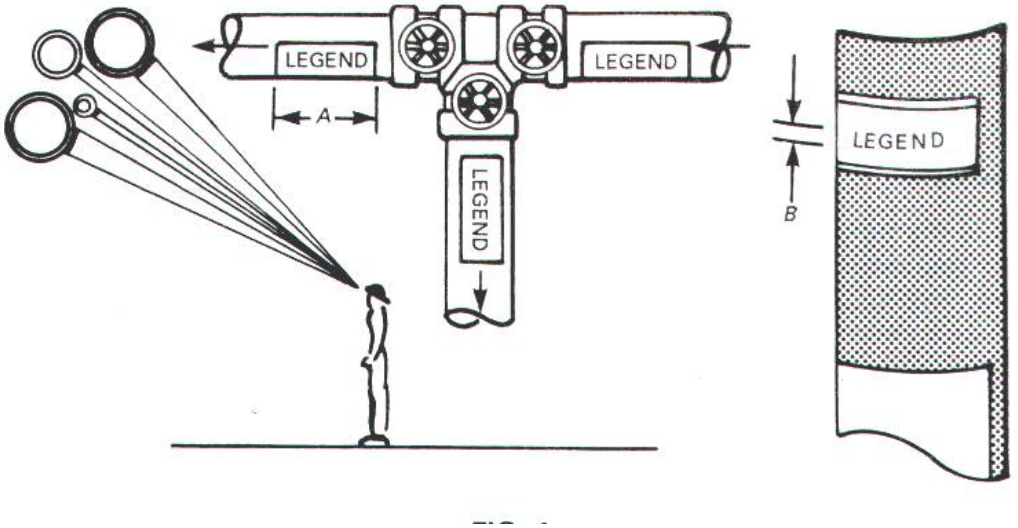

TABLE 2
MATERIALS AND DESIGNATION OF COLOR

Blue Background With White Letters	
Air	Asbestos free insulation
Compressed air	Exhaust air
Oxygen	Medium pressure air
Low Pressure air	Medical air
Supply air	Instrument air
Return air	
Green Background With White Letters	
Argon	Brine Tempered water
Chilled water	Chilled water supply
Chilled water return	Circulating water
City water	Cold water
Cold water supply	Cold water return
Condenser water	Condenser water supply
Condenser water return	Cooling water
Deionized water	Discharge
Distilled water	Domestic water

Drain	Drain water
Green Background With White Letters	
Filtered water	Freon
Inert gas	Make-up water
Nitrogen	Plumbing vent
Potable water	Rain water
Refrigeration	Roof drain
Sanitary drain	Sanitary sewer
Storm drain	Storm sewer
Storm water	Treated water
Vacuum	Vent
Waste water	
Red Background With White Letters	
Fire protection water	Sprinkler-fire
Sprinkler-water	
Yellow Background With Black Letters	
Acetone	Acid
Ammonia	Backwash
Blow-off water	Boiler blow down
Boiler feed	Boiler feed water
Carbon dioxide	Caustic
Chlorine	City gas
Condensate	Condensate supply
Condensate return	Diesel waste oil
Domestic hot water	Domestic hot water supply
Domestic hot water return	Dual temp supply
Dual temp return	Exhaust
Exhaust steam	Fuel gas
Fuel oil	Gas
Glycol	Heat
Heating	Heating supply
Heating return	Heating water supply
Heating water return	Hi-pressure air
Hi-pressure condensate	Hi-pressure gas
Hi-pressure steam	Hi-pressure water
Hot chilled water supply	Hot chilled water return
Hot water	Hot water supply
Hot water return	Hydrogen
Lo-pressure condensate	Lo-pressure gas
Lo-pressure steam	Medium pressure steam
Natural gas	Nitrous oxide

Non-potable water	
Yellow Background With Black Letters	
Oil	Plant air
Propane gas	Pumped condensate
Refrigerated liquid	Refrigerated suction
Solvent	Steam
Steam supply	Steam return
Suction	Unsafe water
Vapor	Waste oil

***MEDICAL GAS PIPE MARKERS**

NFPA 99C-Section 4-3.5.4.1
The gas content and operating pressure of medical gas piping systems shall be identifiable by labeling with name and pressure of the gas contained. Labeling shall appear at intervals not more than 20 ft. and at least once in each room and each story traversed by the piping system.

LEGEND	BACKGROUND COLOR	LETTER COLOR
Carbon Dioxide	Gray	White
Cyclopropane	Orange	Black
Helium	Brown	White
Medical Air	Yellow	Black
Medical Air 50-55 PSI	Yellow	Black
Medical Vacuum	White	Black
Natural Gas 2 PSI	Yellow	Black
Nitrogen	Black	White
Nitrogen 180-200 PSI	Black	White
Nitrous Oxide	Blue	White
Nitrous Oxide 50-55 PSI	Blue	White
Oxygen	Green	White
Oxygen 50-55 PSI	Green	White