# Pipelines – Identification – Colour code

*By Converge Design*
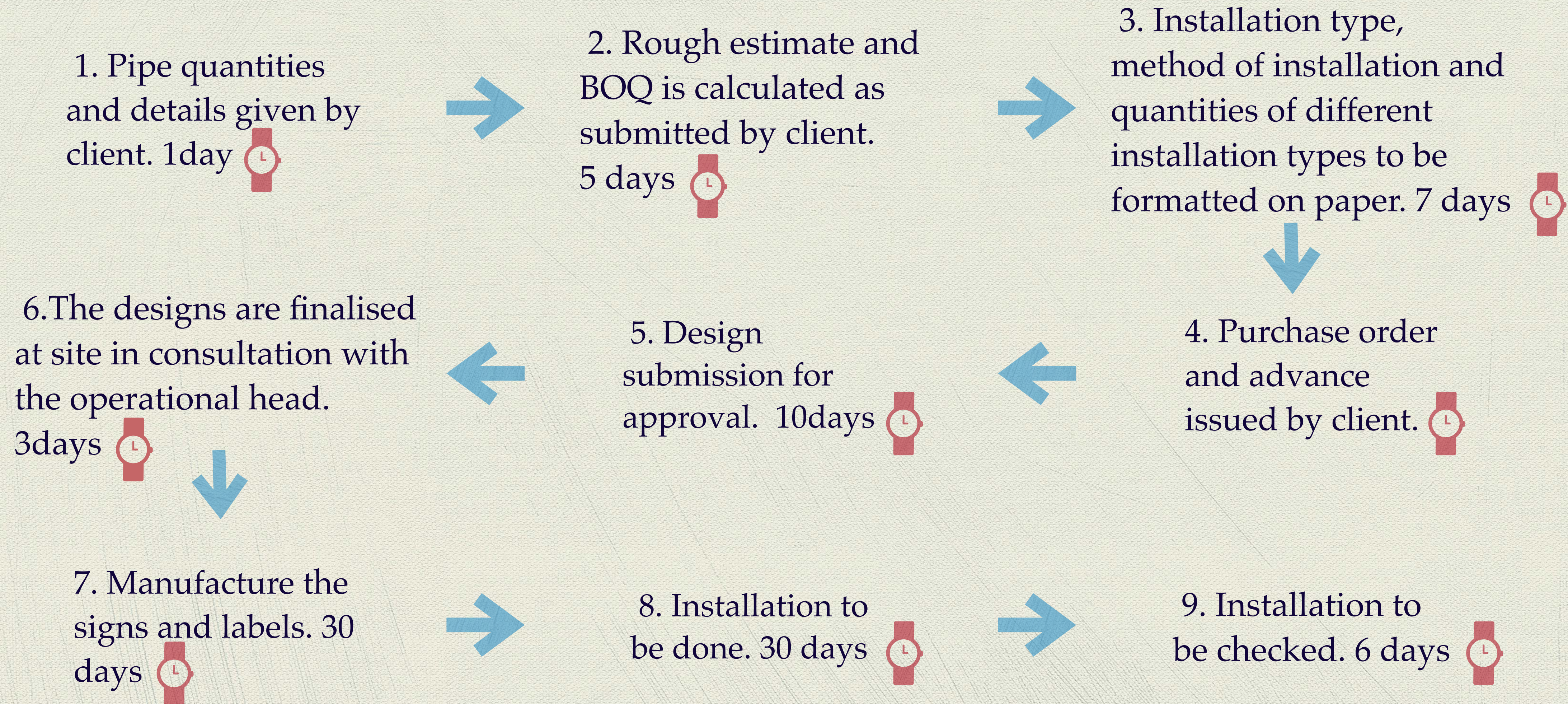
# Why invest in Colour coding of pipelines?

1. Lack of colour coding can lead to destruction of property and injury to personel particularly when outside agencies like firefighting squads are called in.

2. Uniformity of colour marking promotes greater safety, lessens the chance of error and reduces hazards involved in handling of material inside the pipelines

3. In case of any accident the industry is seen to have fulfilled it's safety obligations as per law thus mitigating legal liability.

# The process

1. Pipe quantities and details given by client. 1day

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2. Rough estimate and BOQ is calculated as submitted by client. 5 days

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3. Installation type, method of installation and quantities of different installation types to be formatted on paper. 7 days

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6. The designs are finalised at site in consultation with the operational head. 3days

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5. Design submission for approval. 10days

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4. Purchase order and advance issued by client.

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7. Manufacture the signs and labels. 30 days

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8. Installation to be done. 30 days

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9. Installation to be checked. 6 days
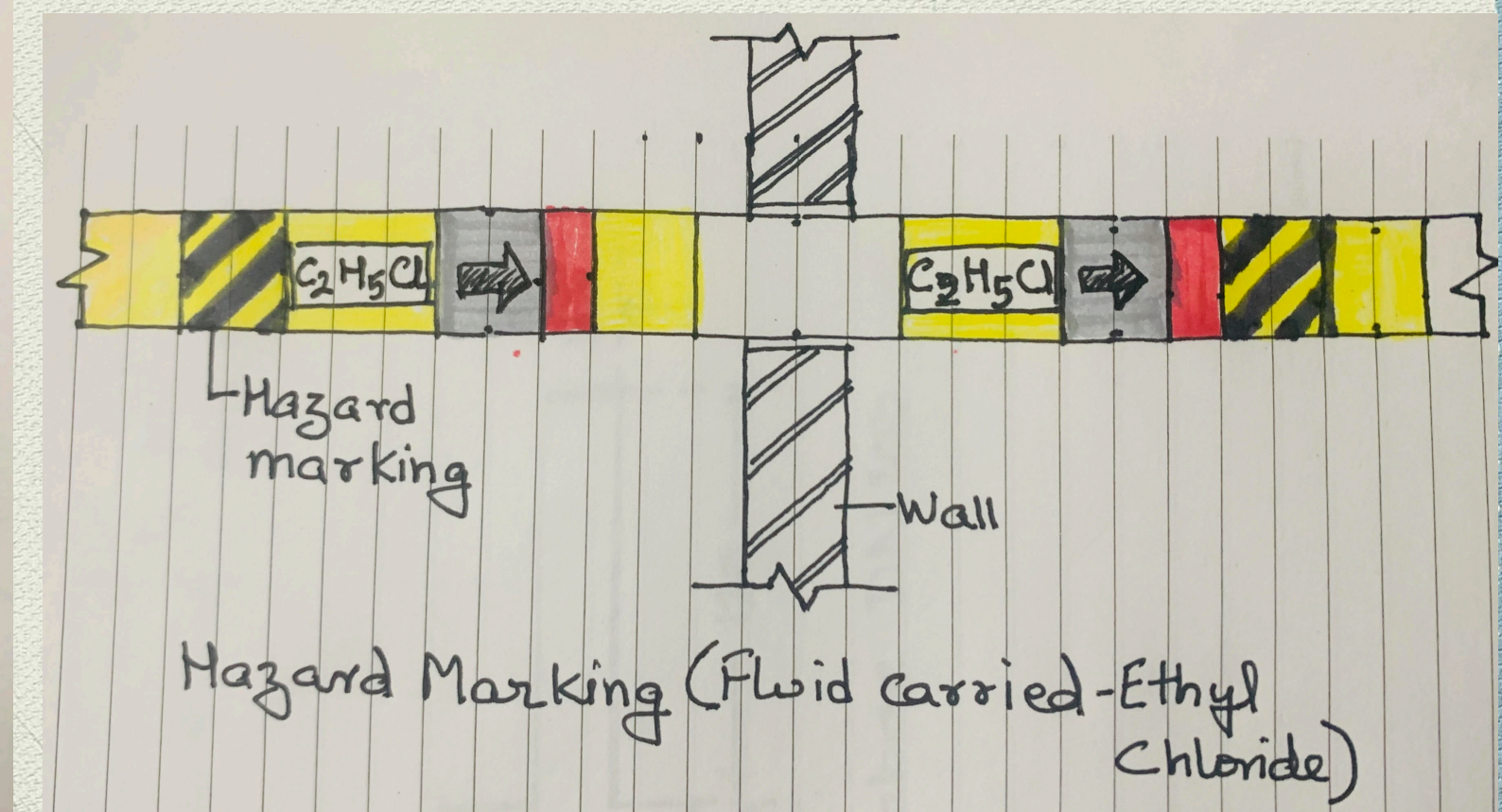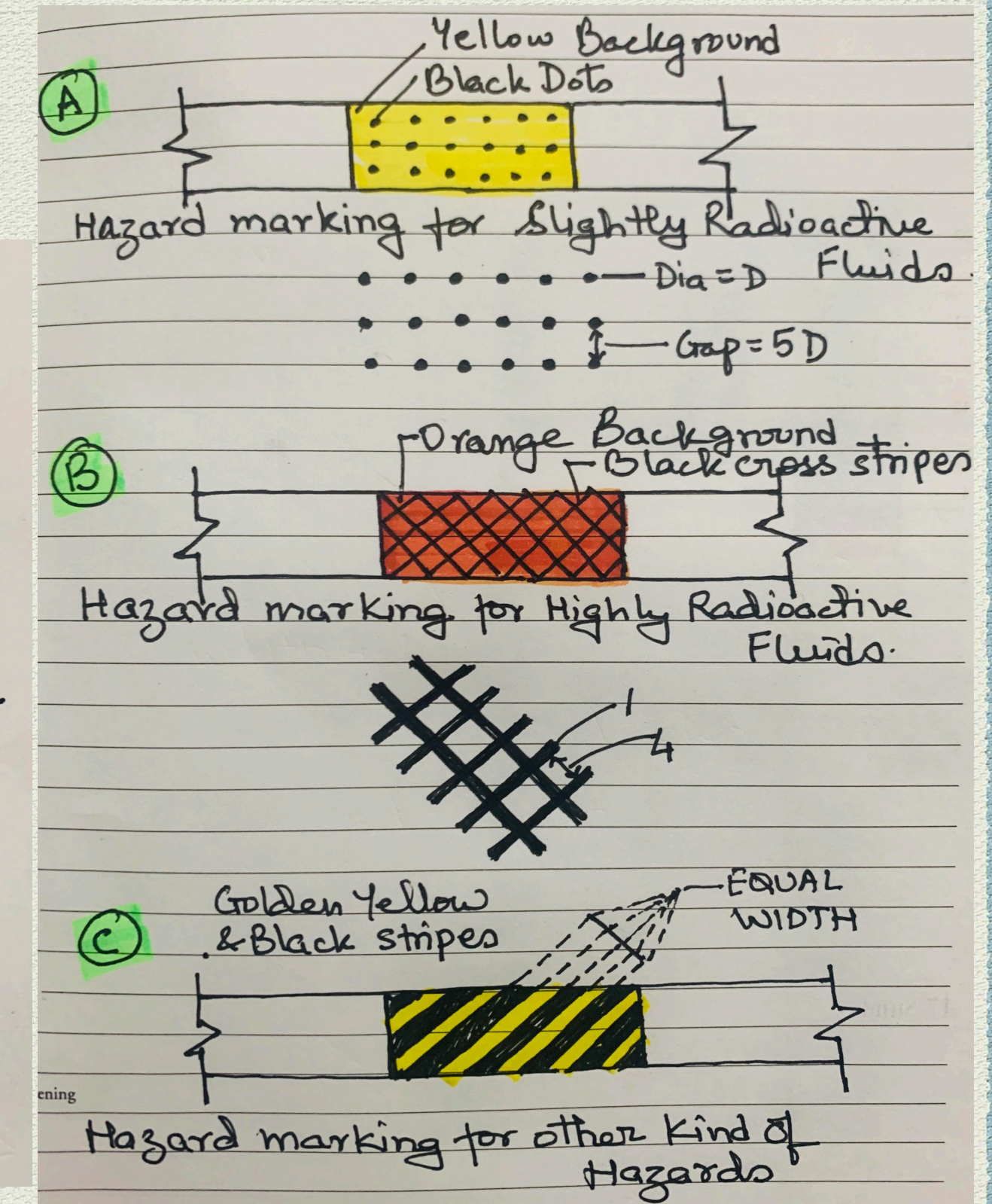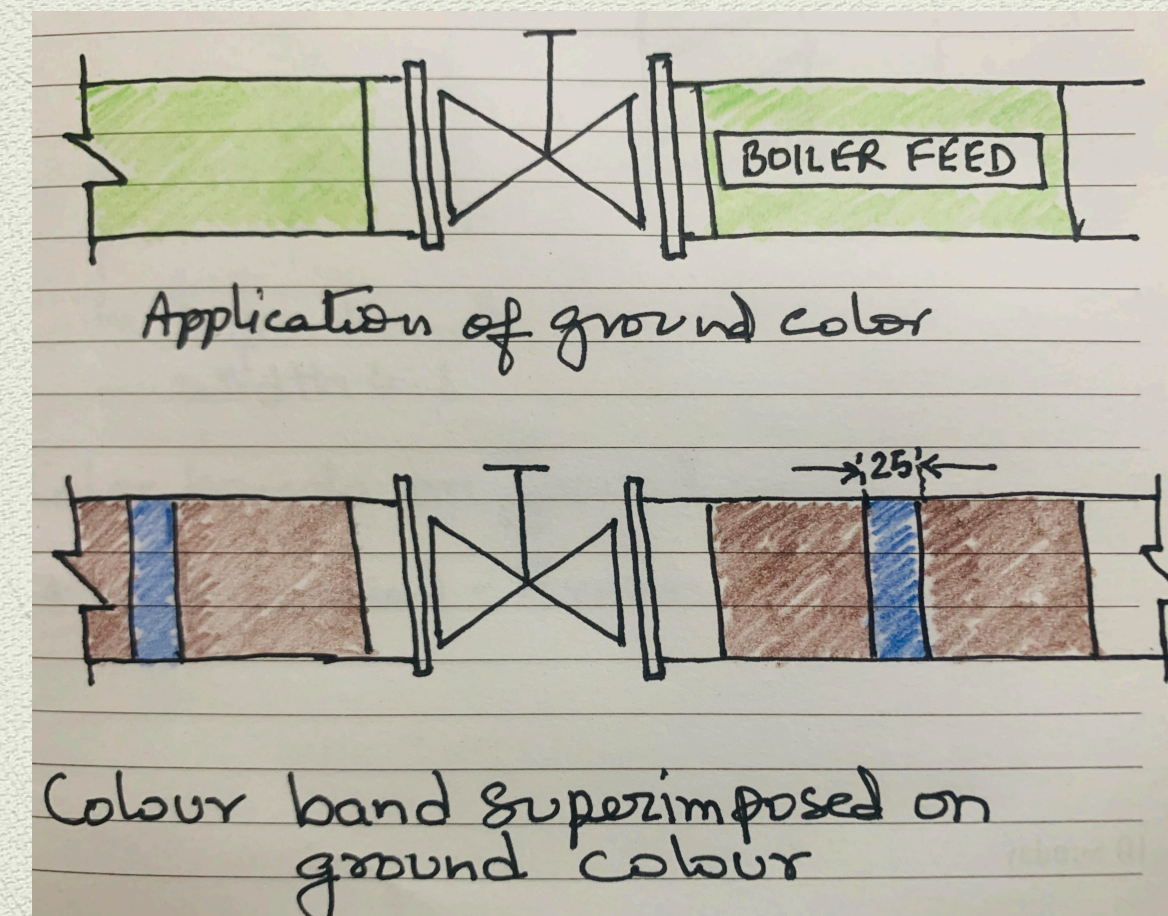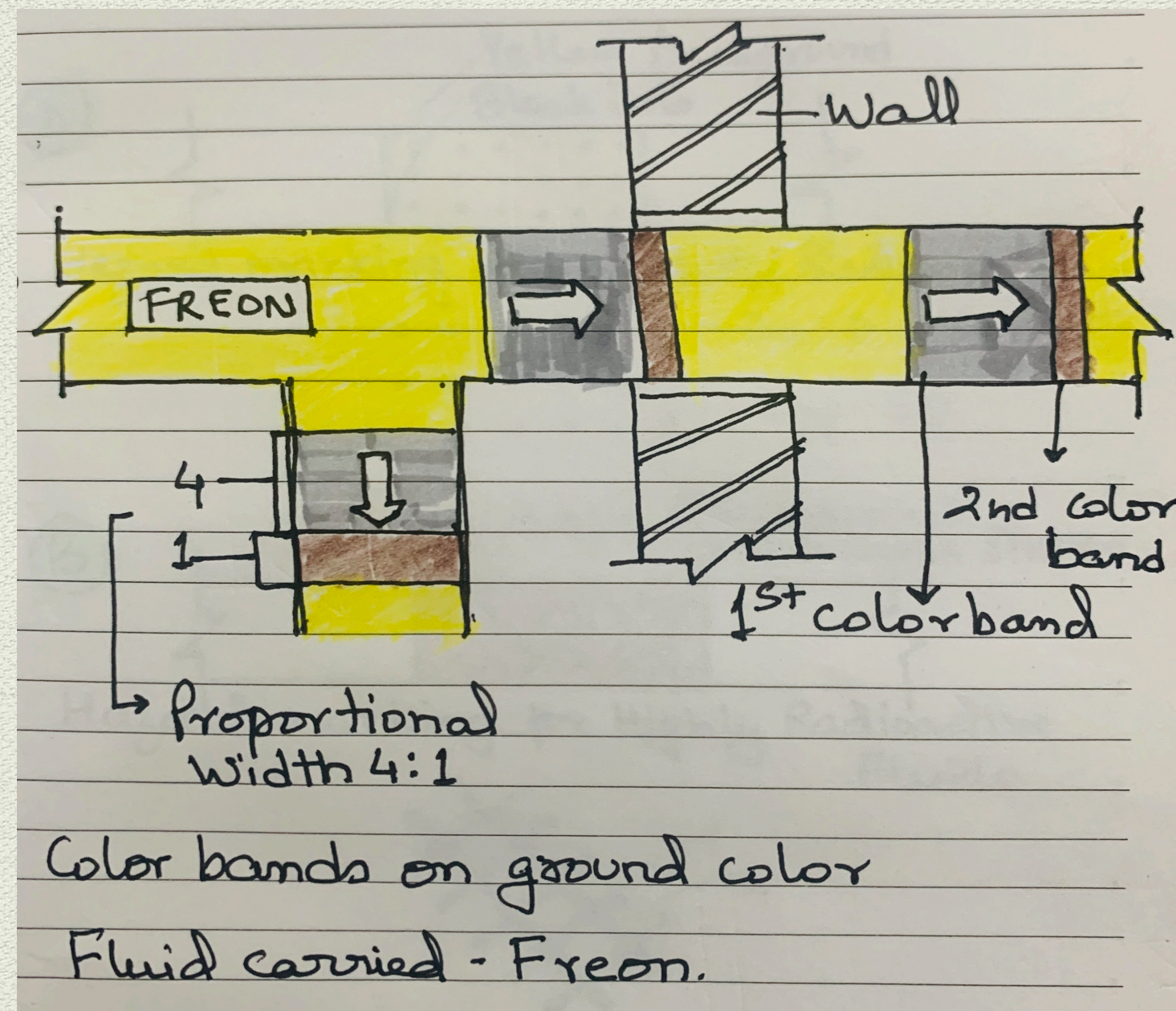
# Colour coding of pipelines?

*Identification of contents of pipelines is achieved by imposing suitable colour bands on the ground colour in addition to use of lettering and arrows.*

*Use of lettering reduces the possibility of mistakes in anticipation*

# The scope

*This includes pipes of any kind in addition to fittings, walls and pipe coverings. Brackets or other accessories are specifically excluded.*

*Underground pipelines and those use for electrical services are excluded from this colour coding*



Color bands on ground color

Fluid carried - Freon.



(A) Hazard marking for Slightly Radioactive Fluids.
Yellow Background, Black Dots
Dia = D, Gap = 5 D

(B) Hazard marking for Highly Radioactive Fluids.
Orange Background, Black cross stripes

(C) Hazard marking for other kind of Hazards
Golden Yellow & Black stripes, EQUAL WIDTH



Application of ground color

Colour band superimposed on ground colour



Hazard Marking (Fluid carried - Ethyl Chloride)

# Colour codes

Colour shades to be used as per IS 2379

1. The system of colour coding consist of a ground colour and colour bands superimposed on it

2. The base colour is the basic nature of the fluid carried , it distinguishes one fluid from another

3. The colour band superimposed on the ground colour distinguishes condition of the fluid and kind of the fluid

4. Base colour band is minimum 300 MM in width

**Color Code**

HYDROGEN ➡

**FLAMMABLE OR OXIDIZING** | Black on Yellow
Fluids with vapors that will burn in air, or fluids which cause other materials to burn

CANOLA OIL ➡

**COMBUSTIBLE** | White on Brown
Fluids that may burn but are not flammable

NITRIC ACID ➡

**TOXIC OR CORROSIVE** | Black on Orange
Fluids which are corrosive or toxic or will produce corrosive or toxic substances

SPRINKLER WATER ➡

**FIRE QUENCHING** | White on Red
Water and other substances used in fire-fighting systems

BOILER WATER ➡

**OTHER WATER** | White on Green
Any other water, except for water used in fire-fighting systems

COMPRESSED AIR ➡

**COMPRESSED AIR** | White on Blue
Any vapor or gas under pressure that does not fit a category above

# Ground Colors

| Substance | Colour |
| --- | --- |
| Water | Sea green |
| Steam | Aluminium to IS 2339 |
| Minerals,Vegetables and animal oils, combustible liquids | Light brown |
| Acids | Dark violet |
| air | Sky blue |
| Gases | Canary yellow |
| alkalies | Smoke grey |
| Other liquids/gases which do not need identification | Black |
| hydrocarbons/organic compounds | Dark admiralty grey |

# Some Color Codes

| Contents | Ground colour | First colour band | Second colour band |
| --- | --- | --- | --- |
| Demineralised water | Sea green | Gulf red | - |
| Process water | Sea green | Oxide red | - |
| Wash water | Sea green | Canary yellow | - |
| Quench water | Sea green | Dark grey | - |

| Contents ground | Ground colour | First colour band | Second colour band |
| --- | --- | --- | --- |
| Fuel gas and sour gas | Canary yellow | Grey | Dark violet |
| Sweet gas | Canary yellow | Grey | - |
| Residue gas,LPG | Canary yellow | Oxide red | White |
| Charge gas | Canary yellow | Signal red | French blue |
| Aromatic gasoline | Dark admiralty grey | Brilliant green | Canary yellow |
| Pyrolysis gasoline | Dark admiralty grey | Brilliant green | Black |

| Contents ground | Ground colour | First colour band | Second colour band |
| --- | --- | --- | --- |
| ethan(liquid) | Dark admiralty grey | Light grey | french blue |
| propylene(liquid) | Dark admiralty grey | Signal red | Black |
| Kerosene | Light brown | Brilliant green | Dark violet |
| LPG(liquid) | Dark admiralty grey | Brilliant green | Dark violet |

# Pipe Marker Placement

These are superimposed on the ground colour at the following locations

1. At battery limit points

2. At intersection points and change of direction points in piping ways

3. Other points such as midway of each piping way, near walls, Junction joints of service appliances, walls, on either side of pipe culverts

4. For long stretch yard piping at 50 m intervals

5. At start and terminating points
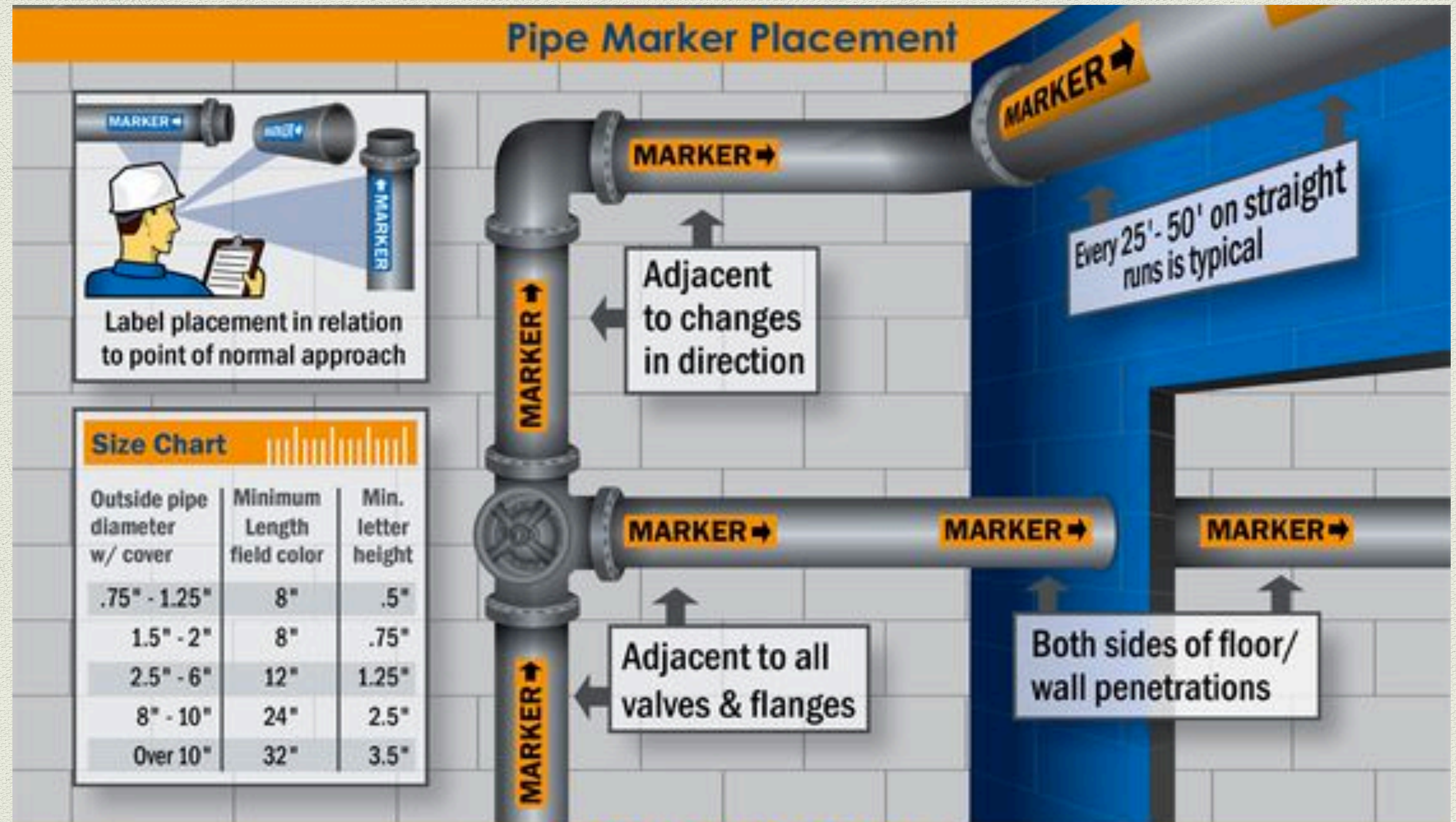
# Additional Identification

*1. Lettering is used to make identification clear and more specific*

*2. Arrows these are used to show the flow of direction of the material carried within the pipes*
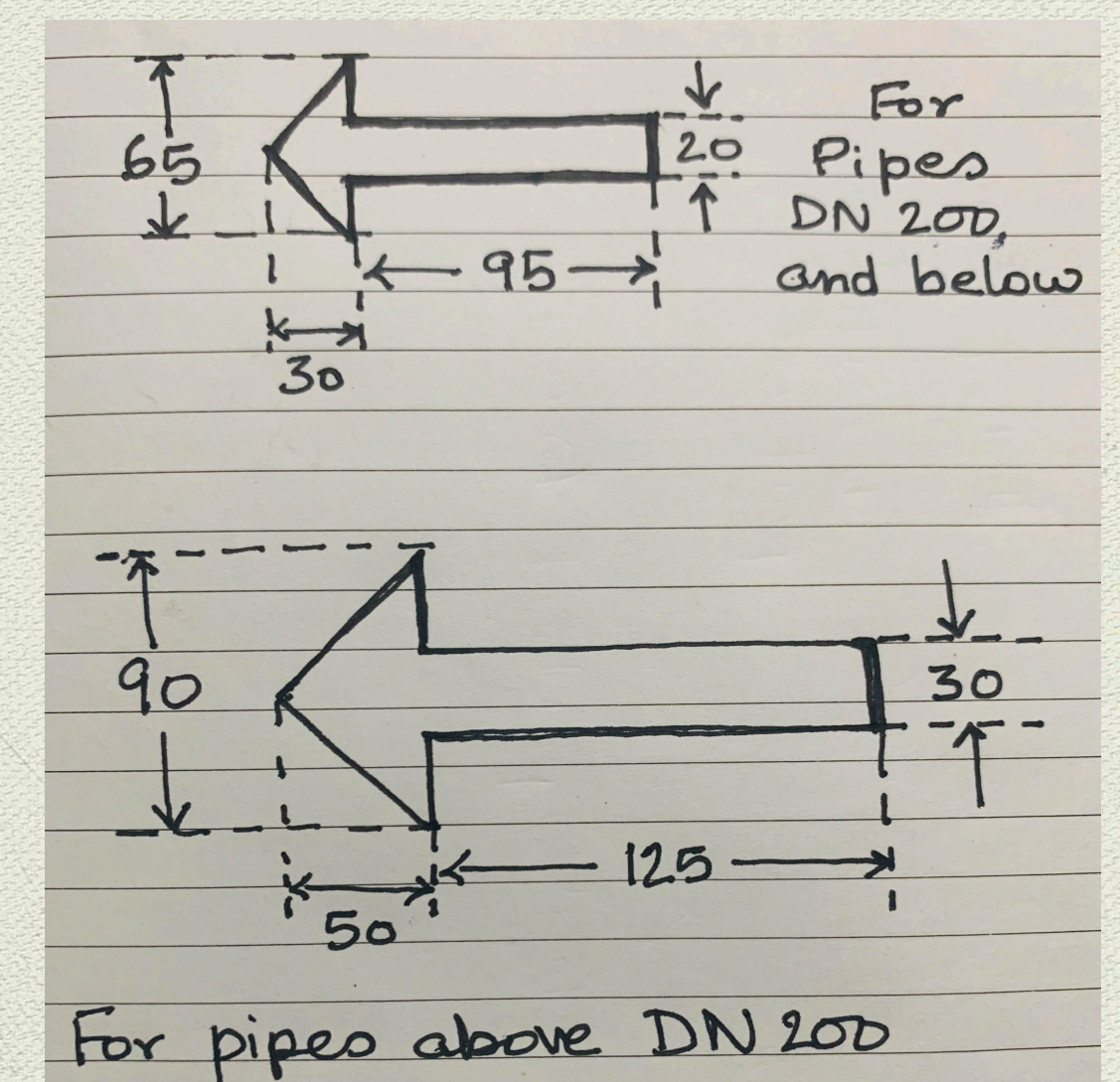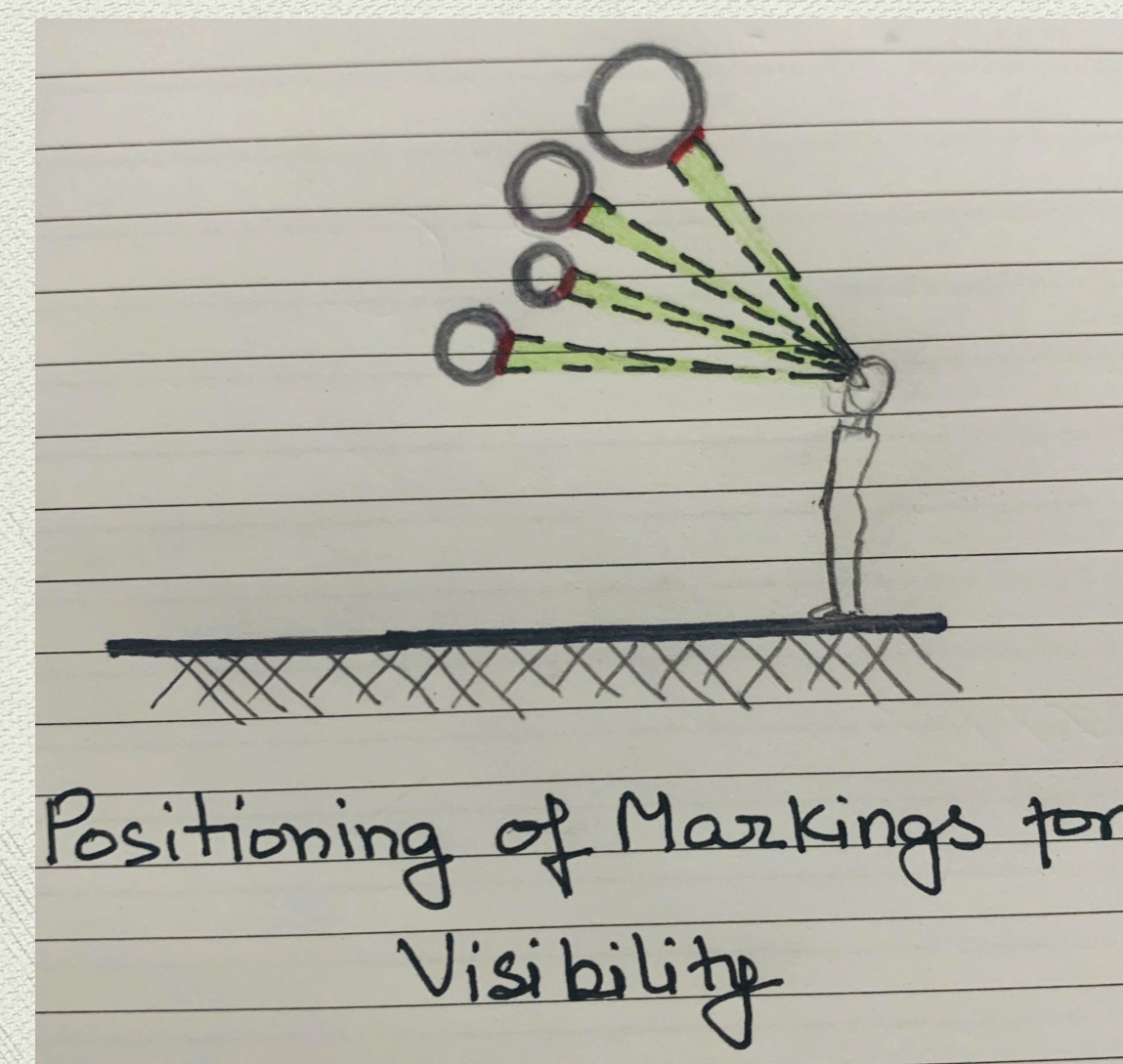
# Visibility

*Visibility of marking it is important to ensure this*

*1. The markings and colour has to be in line with vision of the person standing below*
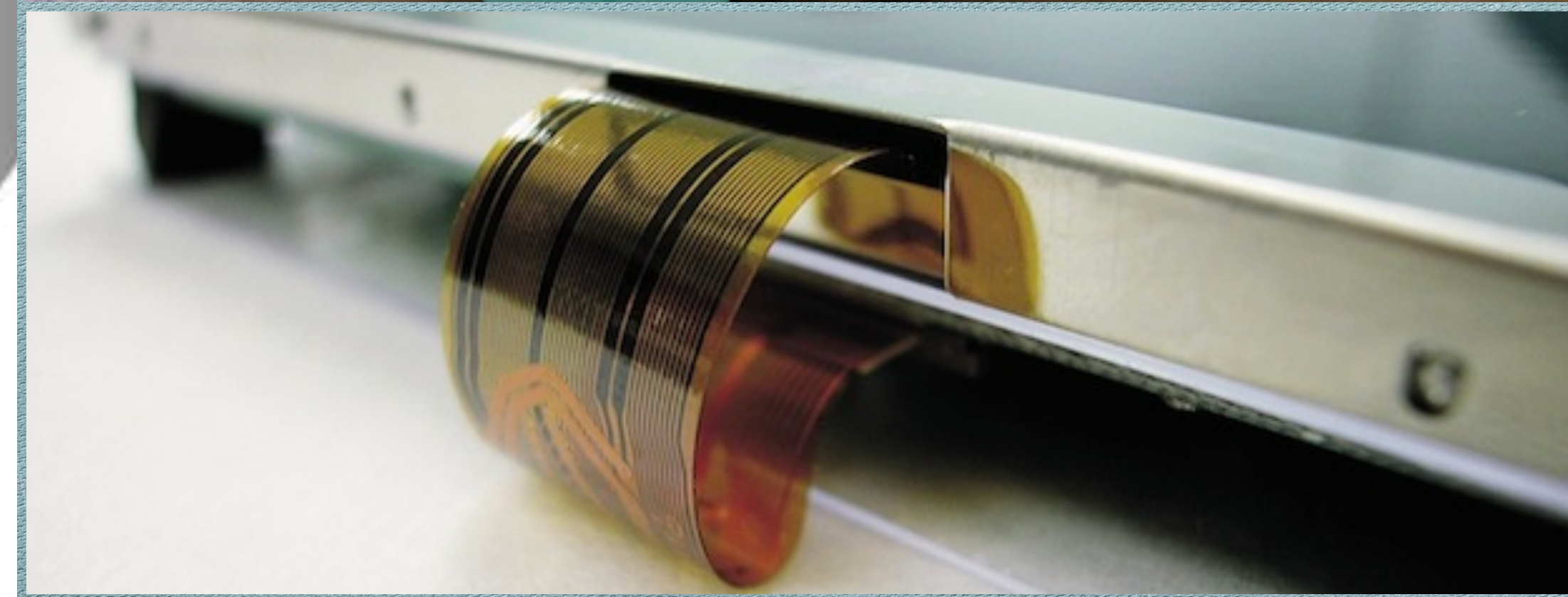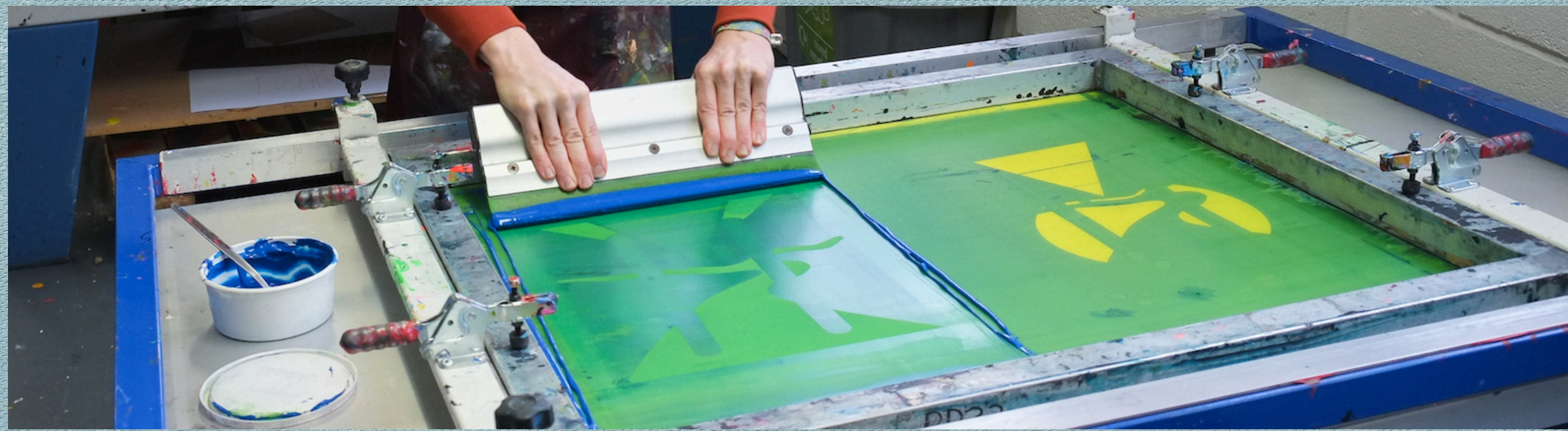
*2. Colour and text should be all around the pipe*

*3. Electrical illumination Should be such so as to make the colour bands and agents visible in the dark*

| Outside diameter of pipe or covering(mm) | | Size of legend(mm) |
|---|---|---|
| | 20 to 30 | 10 |
| Above | 30 to 50 | 20 |
| Above | 50 to 80 | 30 |
| Above | 80 to 150 | 40 |
| Above | 150 to 250 | 90 |
| Over 250 | | |



Positioning of Markings for Visibility



For Pipes DN 200, and below

For pipes above DN 200

**3M**
Scotchcal
Series IJ40C-10

# Technical specifications of marking labels

*Cast Vinay stickers for pipe surface having temperature upto 60°C with UV print*
*Polycarbonate stickers with silk screen printing for marking on floor with 40°C temperature limit*

*This presentation is an introduction to*

*colour coding of pipelines.*

*To further develop upon this actual working will be required which is*

*related to specific requirements of the project work and can be done once*

*contract is given for Design & Build.*

*Thanking you*
*Team Converge*