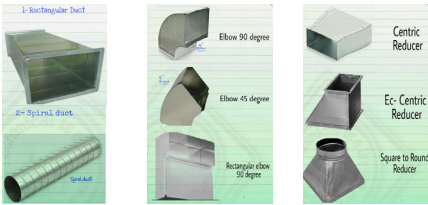


2.3 Air Duct Design

The ducts are design according to ASHRAE, DTU and SMACNA standards, and Material is Galvanised Steel
 DTU: Document Technique Unifié (French Norms)
 SMACNA: Sheet Metal Air-conditioning Contractors National Association,

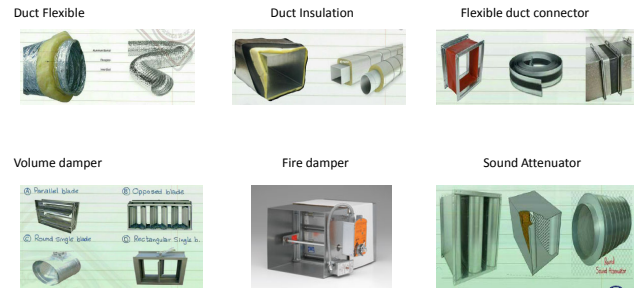
Drawing tools: AutoFLUID, Autocad MEP, Autodesk REVIT

• Duct Size & Construction



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• Duct Accessories & Insulation



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2.4 Piping Design

The materials of pipe used are **Black Steel** or **PPR (Polypropylene Random)** in Centralised System.
 In VRV-VRF & Multi-split systems, the pipes are in **COPPER**.

AHU & FCU Condensation drain pipe are in **PVC**.

Drawing tools: AutoFLUID, Autocad MEP, Autodesk REVIT

• Pipe Fitting

Bend Elbows 45° -90° / Centric Reducer & Eccentric Reducer / Tee no reduction & reduced



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Thermometer
 Drain Valve in roofing system

Insulation of Pipes (resist to humidity – heat and Fire class M0-M1) also should be coated with aluminium sheet metal for finition and mechanical protection.



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3. CONCLUSION

* The Building HVAC method of load calculations are similar to Marine & Offshore HVAC method using:

- ASHRAE method.
- SNAME Society of Naval Architecture and Marine Engineering method.
- ISO Standards

- Condensate drain pans must be designed to handle the ship's motion
- The HVAC system should provide comfort and protect from contaminants & Fire

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THANK YOU VERY MUCH

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