PROPER INSULATION OF REFRIGERATION PIPING

- All insulation manufacturers require installation practices that seal the insulation to prevent water and moisture from entering between the piping and insulation.
- Water inside of the insulation:
  - Collapses the cellular structure of closed cell insulation
  - Destroys the thermal performance of the insulation
  - Provides a potential for mold growth
  - May cause corrosion of piping and fittings
- Armacell recommends that any insulation system that has allowed water to enter inside the insulation should be removed and replaced. The cellular structure will have been damaged. Wet insulation cannot be dried and reused.
- Corrosion of piping and piping fittings will NOT occur if water is not present.
- Proper installation of insulation to prevent water under the insulation is NOT an option, but is a MUST. The insulation manufacturers require it. This is the minimum installation standard.
- Use the insulation manufacturers' insulation thickness calculator for prevention of condensation to determine the minimum recommended insulation thickness. The weather condition used to calculate the insulation thickness should be the 0.4% ASHRAE dehumidification dew-point and mean coincident dry bulb. Do NOT use ASHRAE summer design dry-bulb and mean coincident wet-bulb. If local codes or energy codes require greater thickness, the thicker of the code required value or the manufacturers calculation should be used.
- The insulation termination at the condensing units MUST be done per the Manufacturer's condensing Unit Installation manual. The condensate from the condensing unit king valve must NOT be allowed to enter the insulation system.
- Insulation termination at fan coils and branch selector boxes must be sealed to the piping with contact adhesive as recommended by the insulation manufacturer. All insulation terminations must be sealed.
- All seams and butt joints must be sealed with contact adhesive.
- Every second or third section (12' to 18') of piping insulation must be glued to the piping to form a vapor dam to eliminate water migration along the tube length. Refer to manufacturers installation instructions.
- Piping must be supported properly at each hanger to make sure insulation is not compressed. Use of factory pipe hanger insulation inserts or plastic saddles is recommended. Do not use "cushion clamps" or any type of clamp that attaches directly to the piping (with or without isolating insert).
- Insulation must NOT be compressed by ceiling hanger wires, adjacent studs or structural members, tie- wraps either strapping piping to hangers or attachment of other trade items to the refrigeration piping (i.e. control wiring). The insulation must NOT be compressed at any location.
- Sufficient space for air movement must be allowed between individual pipes.
- Any insulation exposed to the outside must have UV protection applied to the insulation and ideally have a protective waterproof jacket installed. PVC jacketing with all seams solvent welded is recommended.
- Valves, Y-branch fittings, etc. must be completely insulated with insulation thickness appropriate for local humidity conditions and all joints sealed with contact adhesive. There must be no unprotected entry point for water to get between the insulation and piping.
- Do not butt join insulation in a turn or ell. Butt joints should be at least 6" from any turn or ell.
- Repair, seal or replace any torn or punctured insulation sections.