September 1, 2003

HERITAGE PLASTICS
CONDUIT INSTALLATION GUIDELINES

Scope: For the purpose of general use and installation information, conduit is defined as PVC tube in nominal sizes of 1/2" thru 6", to be used in non-pressure applications to provide containment of raceways for electrical power wire and cable, communications wiring, or fiber optic cables. Conduit products are not intended for use for transport of potable water, sewage or drain water, air or other gases, or corrosive liquids.

Transportation, Handling and Storage

Transportation: Heritage conduit should be transported in modules or bundles in a straight and level position. When possible, larger diameter and heavy walled conduit should be loaded first on the truck or trailer when multiple modules must be loaded. Each vertical stack of modules should be secured with at least two straps or slings at least 4" in width with only enough tightening pressure on the straps to ensure a secure load. Chains and metal strapping should be avoided to secure conduit loads to the transporting vehicle.

Handling: Conduit should be unloaded one module at a time with a forklift or a backhoe equipped with forks. If unloaded using slings, two slings should be used and positioned so that the center of gravity of the Module is centered on the lifting equipment. Personnel on the ground around the unloading site should be kept clear of the load to prevent injury in the event of an equipment failure or shifting of the load. Do not push modules from the vehicle to the ground as damage to the conduit may result. Do not break bundles on the vehicle and allow the conduit to fall to the ground as personal injury or product damage may result.

Storage: Conduit should be stored in a straight and level position and stacks should not exceed 8' in height. Thin walled conduit or small modules of conduit should not be stacked over 6' in height. For short term storage (up to 3 months), the conduit need not be covered for sunlight damage protection. For altitudes of 3-4,000 feet and longer term storage, coverage with an opaque tarp or UV resistant sheeting should be considered to prevent fading or color changing from UV exposure. The storage site should be as free as possible from dirt, dust, or other airborne contaminants. The ends of the conduit modules should not be covered in order to allow air passage and prevent heat buildup within the modules; internal module temperatures should not exceed 140° F (60° C).

Installation

Preparation: The conduit should be clean and dry before installation is attempted. Dirt and dust or other contaminants should be wiped clean from the bell and spigot joint areas. When possible, the conduit temperature should be normalized at near the ambient temperature or the expected service environment temperature before installation in order to minimize expansion or contraction difficulties with the project.

Cutting: PVC conduit should be cut to length using a hacksaw, a fine toothed saw, or a rotating pipe cutter. Rigid, smooth wall conduit up through 1" may be successfully cut with a shear type cutting tool. Larger pipe may require the use of a mitre box to ensure square cuts. All cuts should be clean and square with the barrel of the conduit. Cut ends should be deburred with a pocket knife or rasp with no burrs remaining on the O.D. or I.D. of the conduit. A slight chamfering of the O.D. and I.D. cut end may be desirable to facilitate joining or to prevent cable damage and to facilitate rope pulling through the conduit.

Solvent Cementing Joints

CAUTION: ALL PVC ELEMENTS ARE HIGHLY FLAMMABLE AND SHOULD BE CONSIDERED AS HAZARDOUS MATERIALS. AVOID USING IN THE PRESENCE OF OPEN FLAM, ELECTRICAL SPARKS, WELDING. OR LIT SMOKING MATERIAL. AVOID BREATHING CONCENTRATED FUMES AND PROVIDE ADEQUATE VENTILATION IN CONFINED AREAS. READ AND FOLLOW ALL PRECAUTIONS ON THE CEMENT CONTAINER.

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Joint Requirements: There are two types of bell fits, interference fit or clearance fit, depending on the specification of the conduit to be used. An interference fit means that the spigot will not dry fit to the base of the bell but will lodge about two-thirds deep into the bell. A clearance fit means that the spigot will slide all the way to the base of the bell without application of cement. Interference fits, therefore, are tighter and provide watertight joints easily; clearance fits will leave small gaps between the inside of the bell and the spigot and may require extra care in joining if watertight joints are required.

Solvent Cement: The cement should meet the requirements of ASTM D 2564. Regular bodied cement is suitable for most conduit applications up through 6" size.

Solvent Cement Storage: Store sealed cement containers in temperatures between 40° F (5° C) to 70° F (21° C) when not in use. Before use, check to see that the cement is fluid and not lumpy or gelled. If lumpy or gelled, discard the cement; do not attempt to liquefy or dilute with cement primer. DO NOT USE OPEN FLAME OR ELECTRIC HEATERS TO WARM CEMENT.

Surface Preparation: Wipe joint surfaces clean of dirt or moisture or other contaminants. If the joining surfaces are extremely dirty or coated with oil, wipe thoroughly with a cloth saturated with PVC cleaner or primer. If the surfaces are wet, dry thoroughly and do not attempt to make a cement application until all evidence of moisture is gone.
Extremely hot jointing areas (90° or above) should be cooled by shading or application of a damp cloth. If a damp cloth is used, area should be allowed to dry before applying cement. Hot surfaces dry the cement rapidly and can cause insufficient welding if liquid cement is not evident on the surface when the fine bell and spigot are joined.

Application of Cement: For most conduit joints, a single application of cement on the spigot to a length equal to the bell depth is sufficient. On conduit of 1" or smaller, use a dauber applicator which is supplied in the lid of the cement container. On larger sizes, use a small natural bristle paint brush of a width approximately one-half the diameter of the pipe (example: for 4" pipe, use a 2" wide brdush). Apply the cement quickly and evenly around the spigot and insert into the bell or fitting while the cement is still liquid.

Makeup: Insert the spigot fully into the bell and apply a one-quarter twist on the spigot section as insertion is being made. Hold the joint firmly together for 10 to 20 seconds without movement. If the spigot backs out upon release, pull the joint apart and reapply another coat of cement and reassemble and hold until the joint does not back out upon release. Cold weather applications may require a longer holding time. A small bead of cement should appear around the lip of the bell if adequate cement has been applied; wipe off this excess bead after the joint has set.

Set Time: Handle the newly assembled joints carefully until the cement has gone through adequate set Time. Recommended set time is related to temperature of the joint as follows:

30 minutes minimum at 60 to 100° F (15 to 40° C)
1 hour minimum at 40 to 60° F (5 to 15° C)
2 hours minimum at 20 to 40° F (-5 to 5° C)
4 hours minimum at 0 to 20° F (-20 to -5° C)

Note: Joint damage or loosening may occur up to 48 hours after assembly in temperatures below 40° F. If the joints are severely stressed.