INSTALLATION GUIDELINES

5.1 GENERAL

- Do not use dirty or damaged system components, pipes, fittings, compression sleeves or seals.
- Make sure that the connection components are free of prohibited stress during assembly and when in operation. Make sure that the piping has sufficient scope of movement (e.g. from deflection legs).
- When flat-sealed joints (or similar) are opened, check that the sealing surface is undamaged before reconnecting and insert a new seal if necessary.

Use suitable sheeting to protect fittings and compression sleeves against contact with brickwork or with screed, cement, plaster, bonding agents, aggressive media and other materials and substances which can cause corrosion.

- Protect fittings, pipes and compression sleeves against humidity.
- Protect fittings, pipes and compression sleeves against dirt, drilling dust, primer and glue, mortar, grease, oil, paint, adhesive/protective primers, solvents, etc.
- In aggressive environments (e.g. agricultural, encased in concrete, sea water atmosphere, cleaning agents), protect piping and fittings against corrosion adequately and in such a way that they are sealed against vapours (e.g. to aggressive gases, fermentation gases, chloride mediums).
- Ensure that the employed sealants, cleaning agents, building foams, insulation, protective tape, adhesive tape or thread sealant etc. do not contain any components which cause stress cracking or corrosion, e.g. ammonia, ammonia-bearing, aromatic and oxygenated solvents (e.g. ketone and ether), chlorinated hydrocarbons or chloride ions which can leach.

VELOX pipe can be bent either by hand or by using a bending tool.*

5.2 VELOX PX

- When bending without tools, the minimum bending radius is five times the pipe diameter.
- When bending with a spiral spring, the minimum bending radius is three times the pipe diameter.
- The minimum bending radius is measured with respect to the centre of the pipe.
- After bending, ensure that there are no kinks, wrinkles or bulges and installation of VELOX systems within concrete/screed floors and walls are allowed, provided specific requirements from local installation standards are fulfilled and adequate protection from mechanical damage and chemical damage are provided. Fittings shall be wrapped with suitable tape to avoid direct contact with concrete.

5.3 WATER APPLICATION:

- Short pipe length after connection to water meter before going in ground
- Connection to an externally located water heater

For the above exceptions, the following must be ensured:

- The length of pipe installed above ground shall be kept to an absolute minimum not exceeding 2 metres. Below ground installation should always be preferred.
- All pipe and connections must be adequately protected from corrosion, frost and excessive temperature.
- The system components must be protected from any mechanical and physical damages. Consideration shall be given to the type and level of damage which is likely to occur during the long term operation of the system,

e.g. UV-radiation, etc.

5.4 CORROSION PROTECTION

All joints in ground, except for VELOX brass fitting joints with VELOX PE-Xa pipes, must be protected against corrosion using a recognized corrosion protection system, such as the petrolatum system or equivalent.

For installation of petrolatum corrosion protection system refer to Appendix A1.

When using an alternative Corrosion Protection System:

- Ensure chemical compatibility with VELOX pipes and fittings,
- When using VELOX pipe ensure there is no adverse effect on the adhesion of the outer PE-layer to the aluminium layer,
- Only use systems which are suitable for the application and ground conditions and include an approved cavity filler/putty that can be applied to profile the joint, allowing smooth application.

The corrosion protection system shall cover a minimum of 150 mm of the pipe on each side of the joint. Ensure mechanical protection is provided to avoid any damage to the corrosion protection tape e.g. by backfill material.

The Building Codes of Australia and New Zealand both stipulate that service penetrations must not reduce the fire resistance level/rating of the building element they penetrate.

In Australia, the verification requirements for service penetrations are specified in the National Construction Code (NCC) Vol. 1 under Specification

5.5 "PENETRATIONS OF WALLS, FLOORS AND CEILINGS BY SERVICES".

The approved Document for New Zealand Building Code Fire Safety Clause C lists - under Paragraph 6.17 and Appendix C 6.1 - the requirement tests to prove a selected combination of the fire stop and pipe achieve the required fire resistance rating.

Applicable test methods are detailed in AS 1530.4 (methods for fire tests on building materials, components and structures – Part 4: Fire-resistant tests of elements of building construction).

Every service penetration reacts differently in the event

of fire. As this is the case, test results are only applicable to the tested wall or floor construction, installed pipes and the applied fire stops. A fire safety engineer responsible for a particular building can at his discretion accept test results from a different test setup, if he deems the construction in question to be achieving a better fire rating than the one that was tested.

VELOX recommends to only use the fire protection methods which have been specifically tested with the VELOX pipe system. VELOX cannot accept responsibility or liability for the correct manufacture or installation of fire protection systems.

Thermal insulation requirements for hot and cold water services are specified in the National Construction Code NCC and in AS/NZS 3500.

In cold water applications, the likelihood of pipe damage due to freezing can be reduced. It is, however, not possible to prevent static water from freezing completely. For longer periods during which freezing is likely to occur, pump warm water periodically through the pipe system. Alternatively, the complete system could also be drained