Water Distribution Systems in Buildings during Construction

Working Group

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Background

- High and increasing frequency of Water Damages in Buildings during Construction
- A change of material used for Water Installation Systems
- Poor Workmanship due to the lack of skilled and trained plumbers for new materials and systems
- Lack of or inadequate controls and inspections

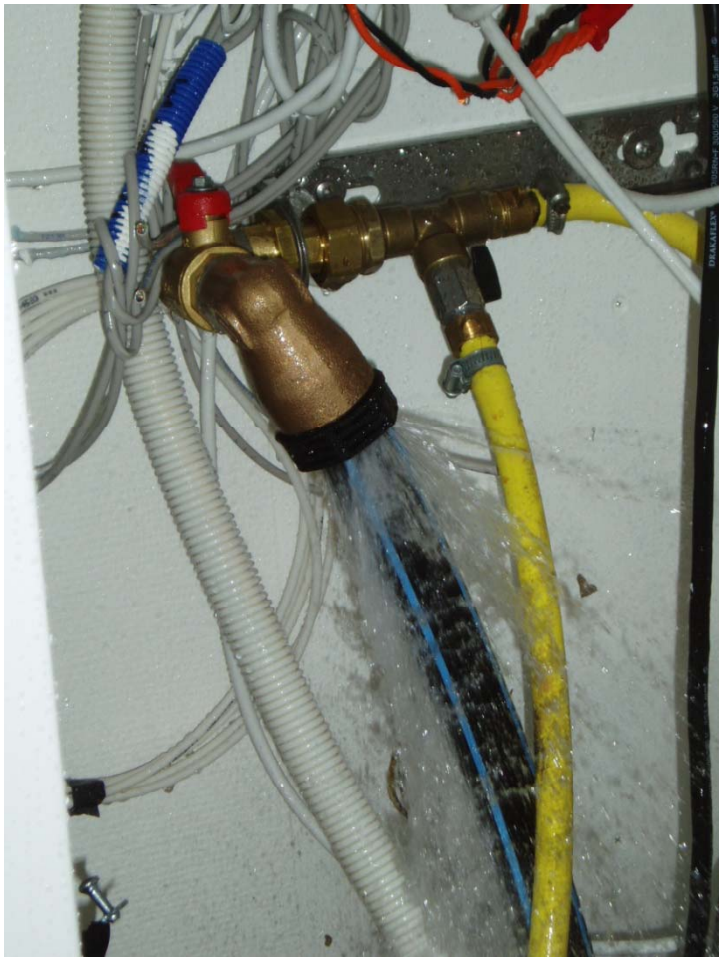
Definitions

Water Distribution Systems
Systems for distributing water in buildings including pipe work, fittings, equipment, appliances and temporary systems

Water Damage
Damage to buildings and other property caused by *escape of water* from water distribution systems

Escape of Water
Water accidentally released from water distribution systems as a result of extraneous damage or failure of pipe work, fittings or appliances forming part of such systems

Escape of Water!



Materials used – Developments

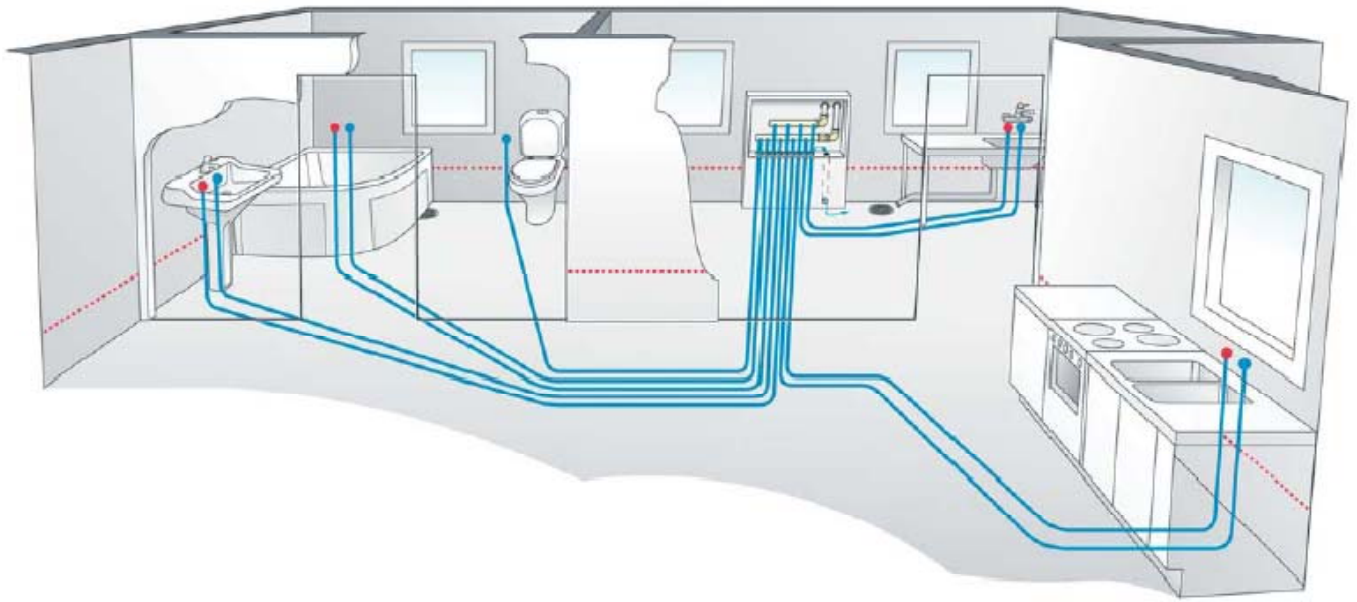
- A trend away from Copper as the primary material for Water Distribution Systems
- Plastic Pipes for Water Distribution Systems − so called Pipe in Pipe Systems are gaining more and more market,
- Now by far the most common material used in certain countries

Plastic Pipe in Pipe Systems – Advantages

Provides joint-free pipe runs from a manifold to each tap or outlet in order to:

- Eliminate variations in pressure and flow
- Allow each pipe run to be isolated if required
- Minimise the number of joints and centralise all connections to one accessible point
- Cost efficient

Plastic Pipe in Pipe Systems - Principle Layout



Plastic Pipe in Pipe Systems

Plastic Pipe in Pipe Systems

Plastic Pipe in Pipe Systems

Plastic Pipe in Pipe Systems requiring special tools

Plastic Pipe in Pipe Systems – Disadvantages

- Each Pipe in Pipe system is unique with respect to fixtures and fittings as well as installation methods
- Each Pipe in Pipe system requires its own unique tools for the different steps of the installation, often expensive
- Manufacturers' manuals and instructions must be followed in detail and training is necessary for each and every system
- An absolute prerequisite for safe and claims-free installation!
- A mix of materials and details from different systems has shown to be disastrous

Claims Experience

Traditional Copper as well as new Plastic Systems

- The frequency and not the size of loss is the major problem
- A frequency of claims during both Construction and Maintenance periods
- Occur at late stage of the construction – leading to substantial damages to already completed works and installations
- Causing substantial delays and additional often uninsured losses
- Paid claims in the range of USD 25,000 to USD 50,000 most frequent but claims in the region of USD 700,000 too common

Cause of Loss and Damage

- The Pipe in Pipe System as such can rarely be blamed
- Accidentally detached couplings by far the most common reason for water damages during construction
- Reason? – Faulty workmanship with few exceptions!

New House

Good Standard

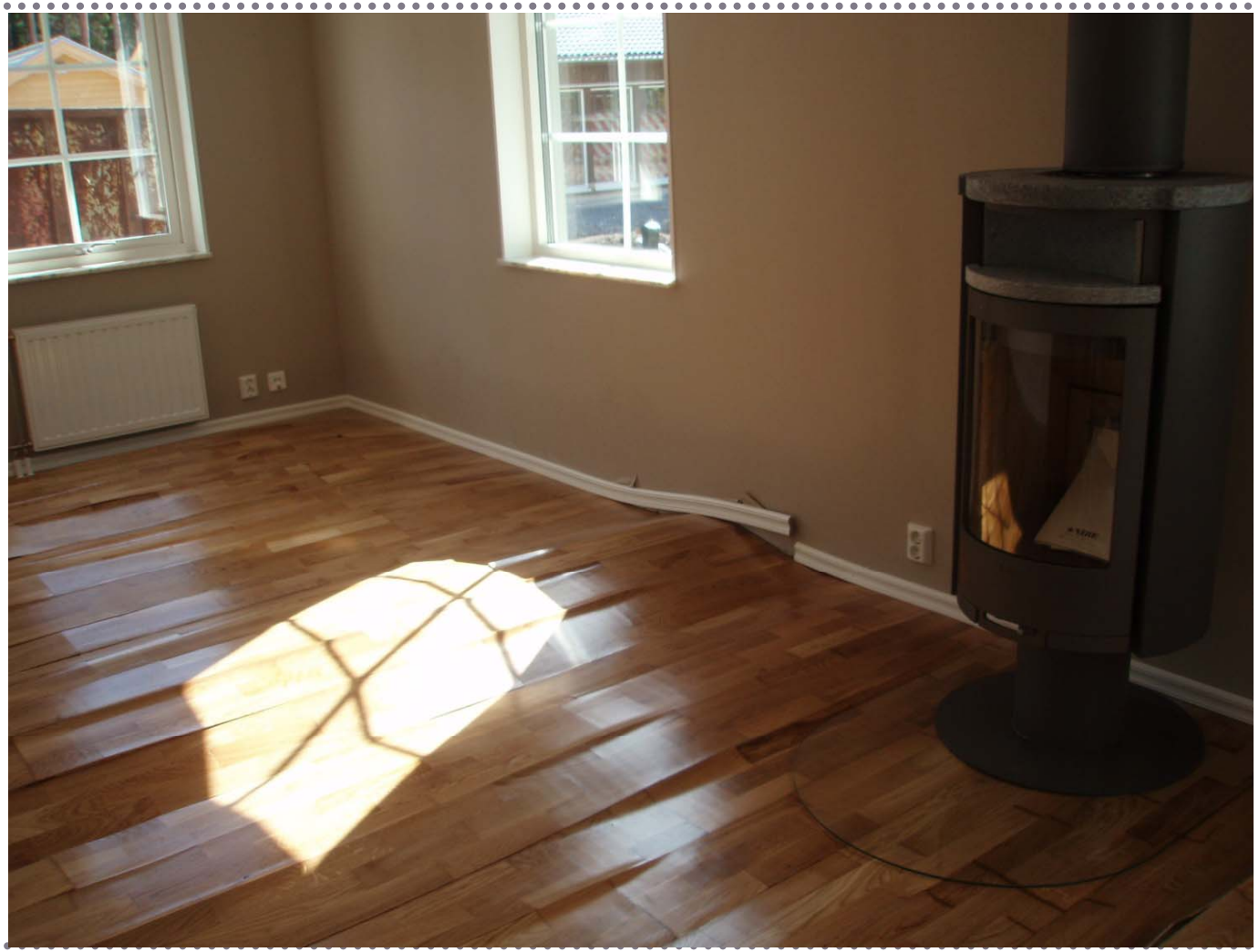
This is a Claims Example

This house represents a total loss!

- Water escaped from a manifold on the upper floor during a weekend and not discovered until the following Tuesday
- The entire house, floors, walls and installations were soaked with water
- Due to the design stripping out and drying of the wooden frame structure was not an alternative
- A total loss and to be replaced! Reserve USD 250,000
- Cause of loss?

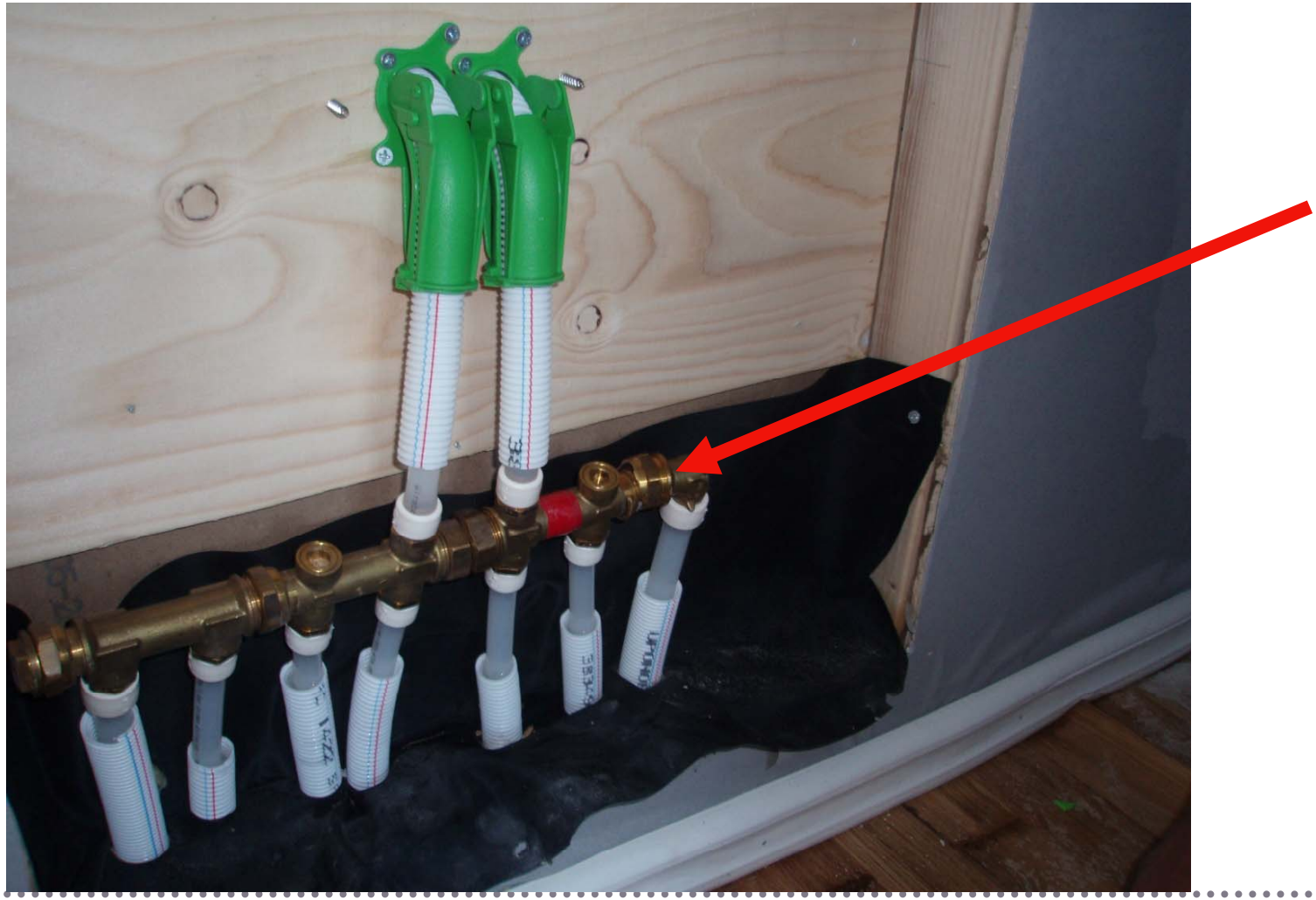
  Under investigation but preliminary faulty workmanship

The Claims Example − The interior



The Claims Example − The interior

The Claims Example − Cause of Damage
A Faulty Coupling!



Conclusions and Underwriting Considerations

The frequency of Water Damages can be reduced and controlled but requires actions to be taken by Developers and Contractors

To name a few:

- Contractual requirements regarding safe Water Installations
- Design to make a safe Water Installation possible
- Pipe Systems to be used must be approved and certified
- Compliance with Manufacturers' specifications and instructions
- Only skilled and certified plumbers to be contracted
- Procedures for Inspections and Controls

Conclusions and Underwriting Considerations

What can the Insurers do in order to reduce the frequency of Water Damages?

Short term:

- Amend the Wordings with Safety Regulations with sanctions for the Insured if Water Installations are not carried out according to instructions and standards and by qualified labour
- Retain the rights of recourse against sub-contractors, read plumbers

Long term:

- Share our experience with the Building Industry and jointly Develop a Code of Practice for Safe Water Installations