



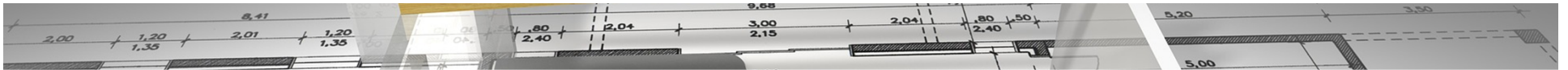
Nordic Water Damage Conference

INSTALLATION SPACE

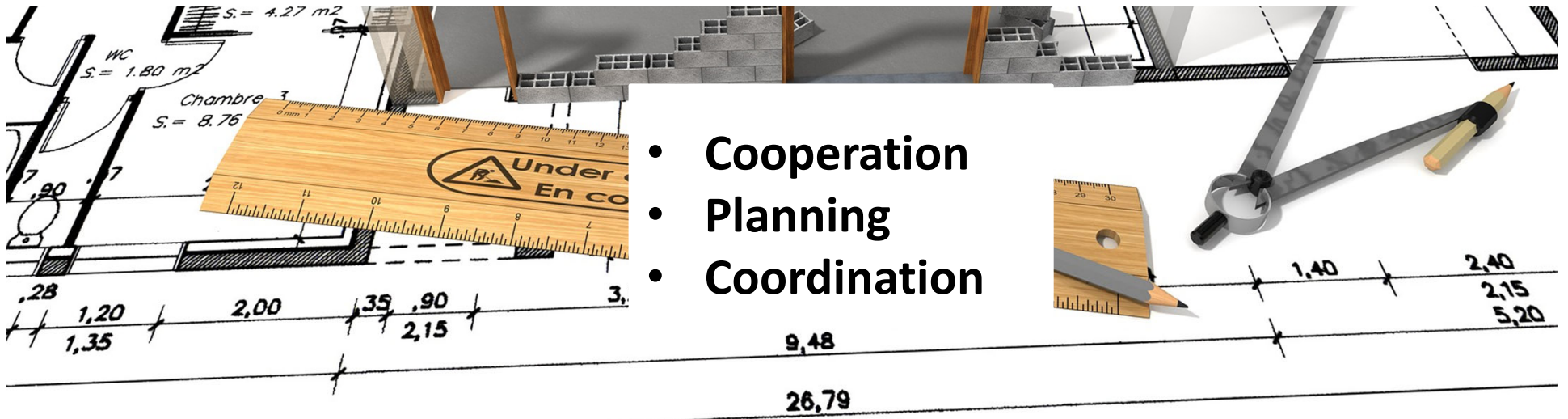
29 August 2019

Fredrik Runius

The contractor can not "afford" to consult with everyone to investigate every alternative.



The architect has the primary responsibility to involve all off the actors in the project planning phase – the contractor, the architect, constructors, consultants etc.



- Cooperation
- Planning
- Coordination

The blueprints must be right and all 3 dimensions need to be considered!



**The installers need to understand and get the correct conditions to do their job right!
The HVAC installers must have enough space for installations.**

DEMANDS FROM SOCIETY

- › Project planning and execution
 - The contractor should ensure the buildings are compliant with existing rules
 - Consider the need for relevant knowledge
- › Design requirements
 - Determination of floor designs
- › Technical requirements
 - Handled together with authorities



DESIGN REQUIREMENTS IN SWEDISH GUIDELINES

- › Bathroom, kitchen, living room, dining room etc.
- › Room for recycling
- › Room height
- › Accessibility and usability for people with reduced mobility or orientation
- › Space and accessibility for maintenance
- › **Where is the space for the HVAC-installations?**



TECHNICAL REQUIREMENT ACCORDING TO SWEDISH GUIDELINES

- › Hot tap water in 10 seconds
- › Microbiological growth is minimized, legionella in particular
 - Special requirements for cold water piping
- › Tap water shafts easily accessible with thick flooring and visible leakage indicators to waterproof floors

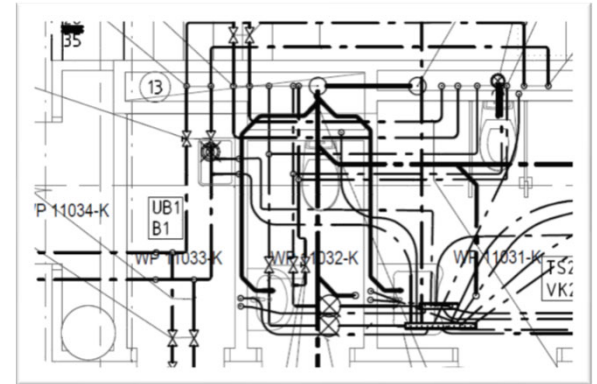
THE INDUSTRY MAKES DEMANDS

- › Safe water installation - Procedure guidelines according to the requirements
- › Protection against legionella growth
 - Cold water must not get hot
 - Hot water, 50 degrees minimum in the system
 - Seal based
 - Leakage indicators should lead to rooms with water proof floor
- › **Equals "Insurable"!**



TECHNICAL CAPACITY REQUIREMENTS

- › Design requirements are approved by authorities at the building permit
- › Technical capacity requirements are handled at a later stage
- › Space for installations can be missing or insufficient
- › For the installer, floor designs are hard to change



THE ARCHITECT'S HANDBOOK

- › Goal to raise awareness of HVAC for architects and HVAC contractors
 - Space needed to make installations compliant with authority requirements
- › Create and provide tools and aid to Architects
 - Space for installations
 - Blueprints with pipe shafts
 - Placing pipe shafts in relation to plumbing systems
 - Wall types surrounding plumbing systems



THE ARCHITECT'S HANDBOOK

› Plumbing placement

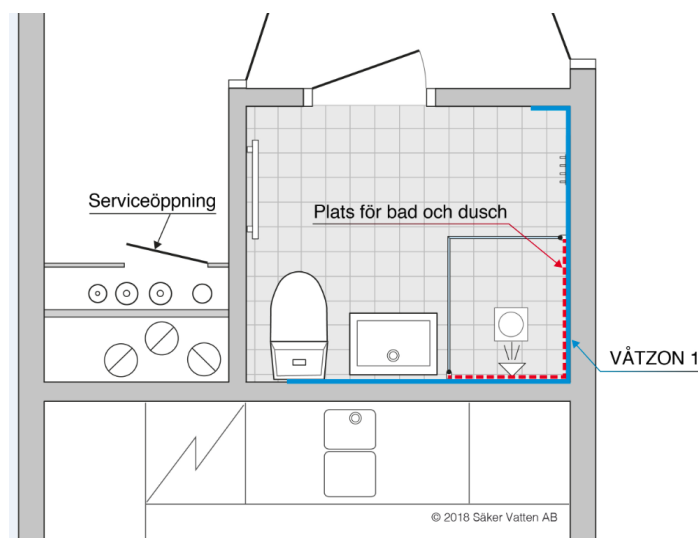
- Distance to plumbing areas, waiting time hot water
- Leakage indicators to waterproof flooring
- Inclination waste water

› Wet zones

- Wet zone 1, Wet zone 2, space for bath and shower

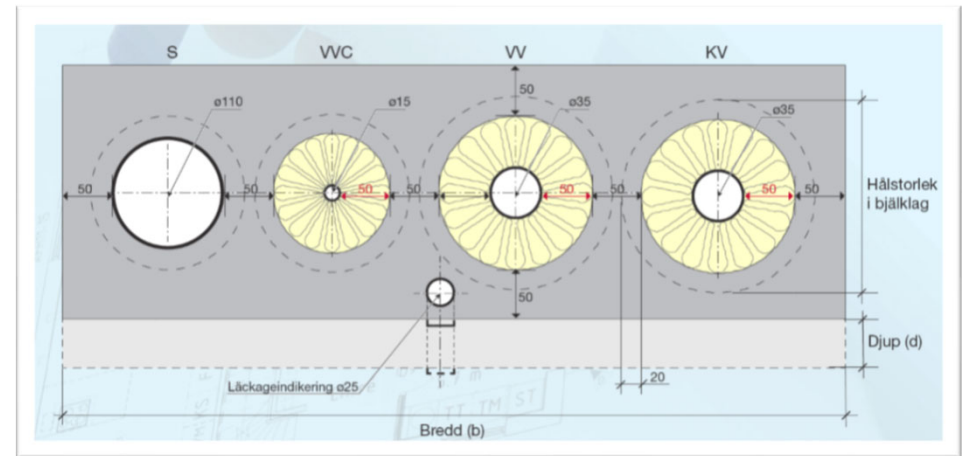
› Placement of service hatches

- Determined by plumbing areas
- Service hatch can be turned towards a different room
- Height placement to maintain density/thickness



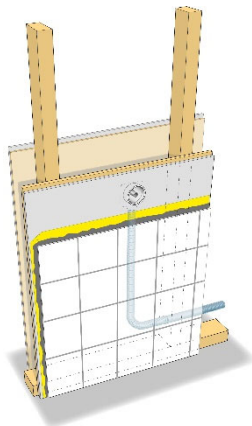
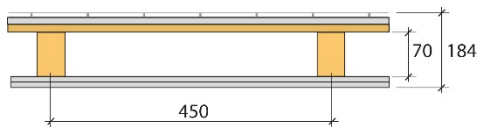
THE ARCHITECT'S HANDBOOK

- › Size of pipe shaft
 - Depending on number of apartments
 - Isolation thickness
 - Working environment
- › Legionnaire's Disease
 - Cold water is isolated so it does not get hot
 - Demands room for tap water strain

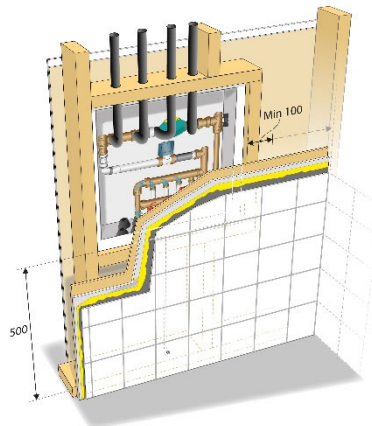
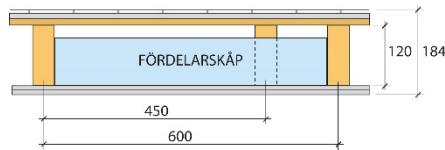


THE ARCHITECT'S HANDBOOK

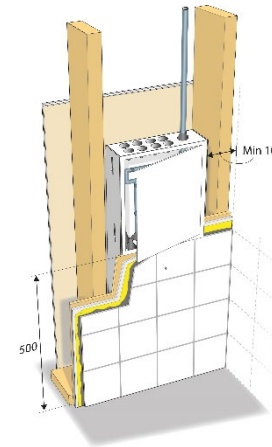
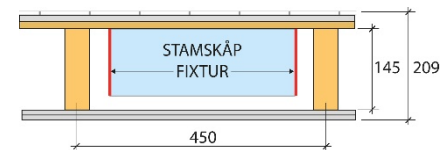
› Different wall types facing wet room



Pipe installation



Manifold cabinets



Cabinets

INSTALLATION INSTRUCTIONS

- › The manufacturer must specify space requirements for the product in its installation instructions
 - Thickness of the wall for the product
 - Installation height for the product
 - Work environment, free space around and in front of the product



CONSTRUCTION TOLERANCES

- › Tolerances on inner wall placement +/- 20 mm!
- › HVAC tolerances +/- 0 mm
- › Example:
 - Requirements between pipe and wall are 60 mm
 - The builder can place the wall 40 mm from the pipe
- › "Everyone's done right!"
 - The result will be wrong, not insurable !!!



WAY TO SUCCESS – COLLABORATION

FC Barcelona



- › Management and board
- › Coach
- › Goalkeeper
- › Defender
- › Midfield
- › Attacker
- › *Supporter*

Construction Project

- › Client, steering committee
- › Architects, constructors
- › Concrete, wood
- › Sealing, tiles
- › HVAC, installers, manufacturers
- › El, ventilation etc.
- › *User*



COORDINATION AND UNDERSTANDING IN ALL LEADS!

