



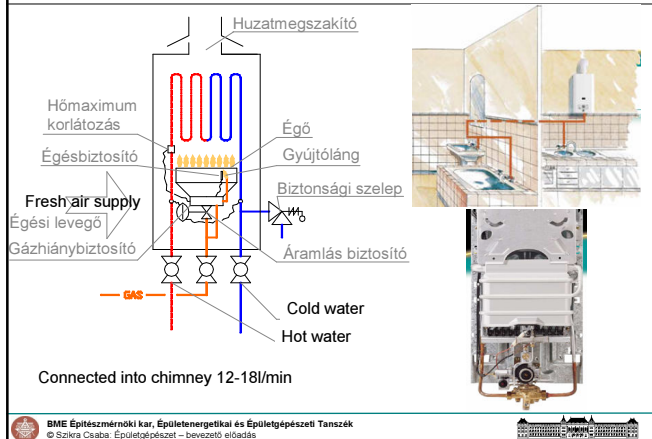
HVAC systems introduction

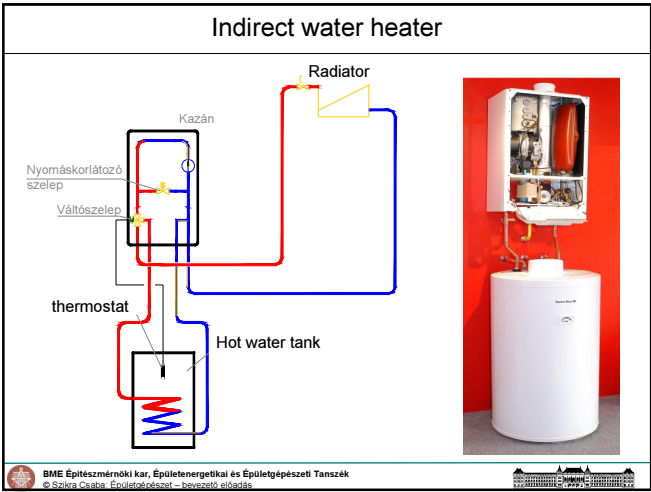
by Mr. Csaba Szikra
Technical University of Budapest
2019.

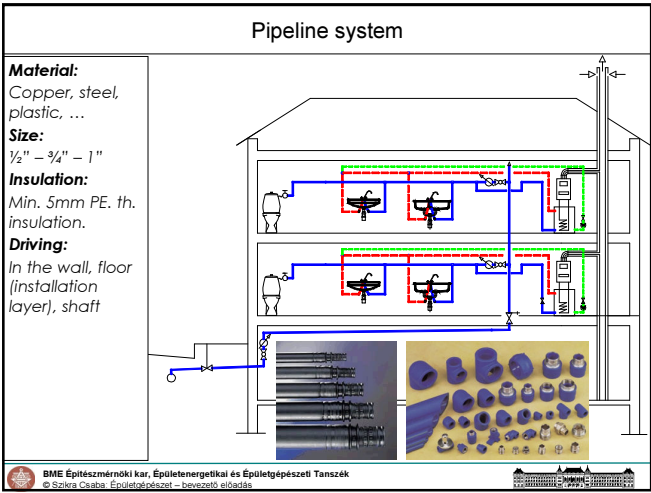


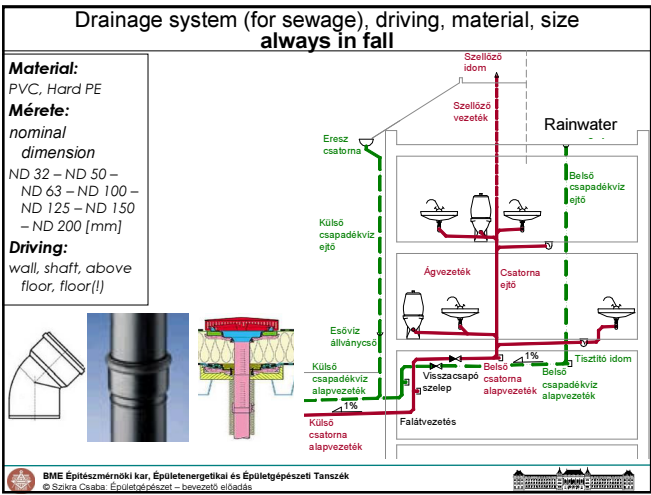
Water supply - cold + hot,
wastewater system

Instantaneous water heater

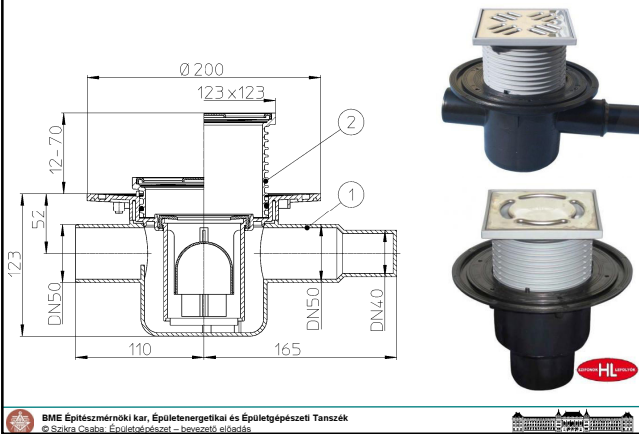




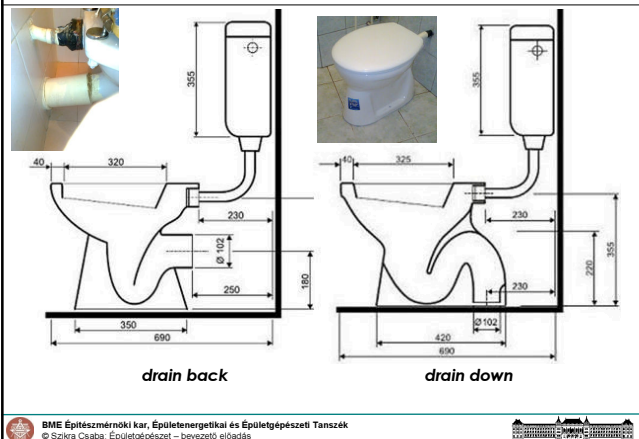




floor trap



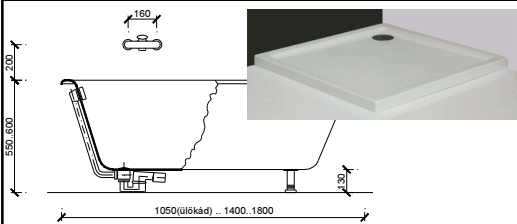
WC



cantilevered toilet basin



Shower - bath



Bath:

- 1/2" cold, hot water supply mix tap
- ND50 mm drain

shower:

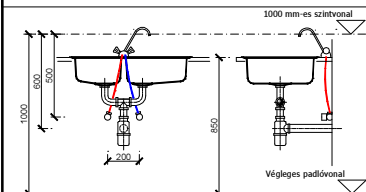
- 1/2" cold, hot water supply mix tap
- ND50 mm drain

wash basin

- 1/2"-os maintenance taps
- ND 40 mm drain



Kitchen



Dish washer:

- 1/2" cold, hotwater connection + mixing tap
- ND 50 mm drain connection
- Kivétel:
- One-, two-, three-basin(s),
- cast iron, ceramic, steel sheet with glazing, stainless steel

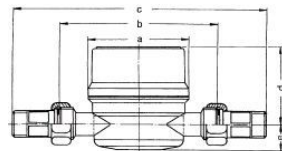
Connection for washing machine

- 1/2" maintenance tap
- ND 40 mm drain connection



WATER MEASURE

Dimension [mm]	130
Pipe [coll]	3/4"
a [mm]:	70
b [mm]:	130
c [mm]:	230
d [mm]:	53
e [mm]:	17,5
Weight [kg]:	0,5



PIPE HIDING

1/2" cs, R12 NA100, NASO, NASO, R12-1/2" NASO, R12-1/2" NASO, 1/2" cs, R12-1/2" NASO, 1/2" cs, R12 NA40

— Csatorna — Hidegvíz — Melegvíz — Cirkuláció
drain cold water hot water circulation

BME Építészmérnöki kar, Épületenergetikai és Épületgépészeti Tanszék
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SHAFT

1/2" cs, R12 NA100, NASO, NASO, R12-1/2" NASO, R12-1/2" NASO, 1/2" cs, R12-1/2" NASO, 1/2" cs, R12 NA40

— Csatorna — Hidegvíz — Melegvíz — Cirkuláció
drain cold water hot water circulation

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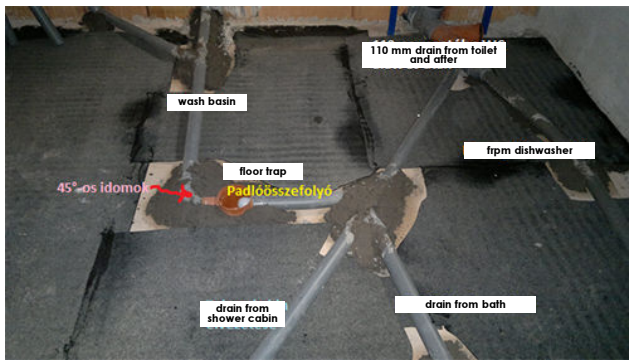
IN FRONT OF A WALL (in light wall)

1/2" cs, R12 NA100, NASO, NASO, R12-1/2" NASO, R12-1/2" NASO, 1/2" cs, R12-1/2" NASO, 1/2" cs, R12 NA40

— Csatorna — Hidegvíz — Melegvíz — Cirkuláció
drain cold water hot water circulation

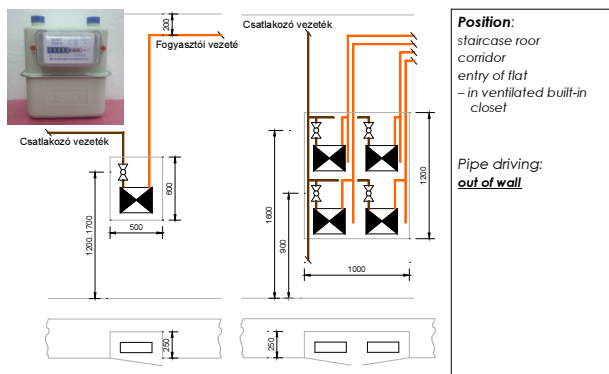
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IN FLOATING FLOOR



GAS SUPPLY

MEASSURES



Pipe driving sample

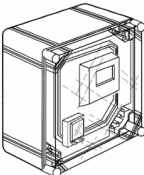
The diagram illustrates a pipe driving sample for a chimney system. It shows a cross-section of a building with a roof and internal structure. A red line represents the 'Csatlakozó vezeték' (connecting pipe) running horizontally along the bottom. A vertical red line, labeled 'Fűtővezeték' (heating pipe), runs upwards from the connecting pipe, passing through a 'Gázszűrő' (gas filter) and a 'Tűzhely - Típus' (stove - type) unit. The stove is shown with a '100' rating. The vertical pipe continues upwards, passing through a 'Fali Gázkazán - Típus' (wall gas boiler - type) unit, which is also rated '100'. The pipe then continues upwards through a 'Fűtővezeték' (heating pipe) unit, which is also rated '100'. The pipe terminates at a 'Tűzhely - Típus' (stove - type) unit, which is also rated '100'. The diagram includes various dimensions: a vertical distance of 1800 from the connecting pipe to the stove, a horizontal distance of 100 from the connecting pipe to the stove, a vertical distance of 100 from the stove to the wall boiler, a horizontal distance of 100 from the stove to the wall boiler, a vertical distance of 100 from the wall boiler to the heating pipe, and a horizontal distance of 100 from the wall boiler to the heating pipe. A red dashed line indicates the path of the pipe driving sample, starting from the top of the heating pipe and extending upwards.

[illegible]

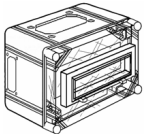
Electricity

Measurer

Cables are hidden (under the ground, in walls) in flats.



500mm x 300mm



300mm x 300mm

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Measurers in block of flats

