



**MORE-CONNECT  
WP2**  
Task 2.6 Smart Connectors

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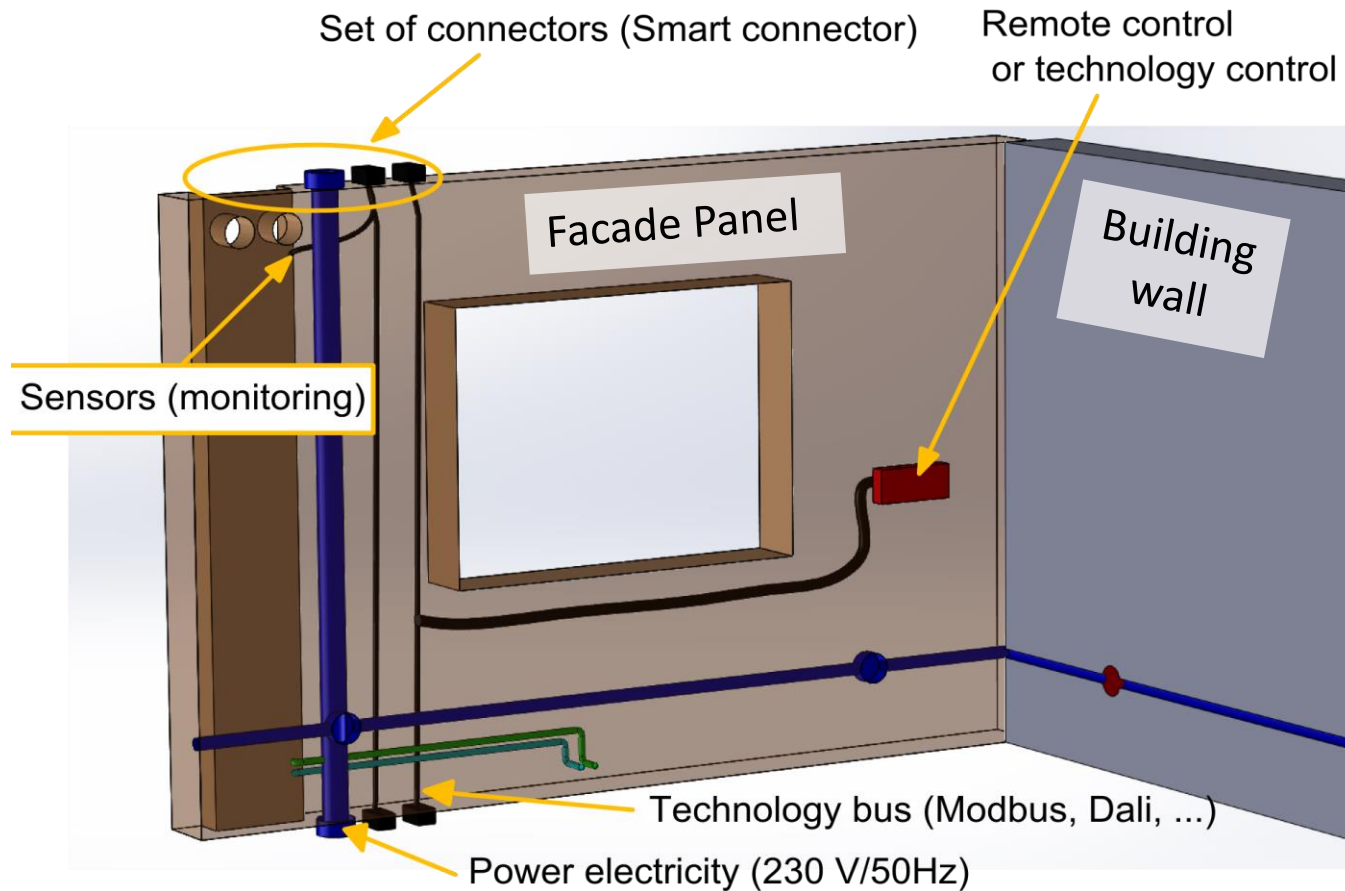
## Task 2.6 Smart Connectors

- **Air connectors and hydraulic connectors**
  - for integrated air ductwork
  - for the connection of integrated heating/cooling emission systems to the MORECONNECT 'engine' (task 2.3)
- **Airtightness of prefabricated modules**
  - frame prefab airtight joints for the connections between the elements using airtight click systems
- **Mechanical connections**
  - for fast and flexible mounting on the existing constructions
- **Electric and ICT connectors**
  - for power connection if necessary in the elements (power plugs or integrated appliances) and communication

**ORIGINAL IDEAS**

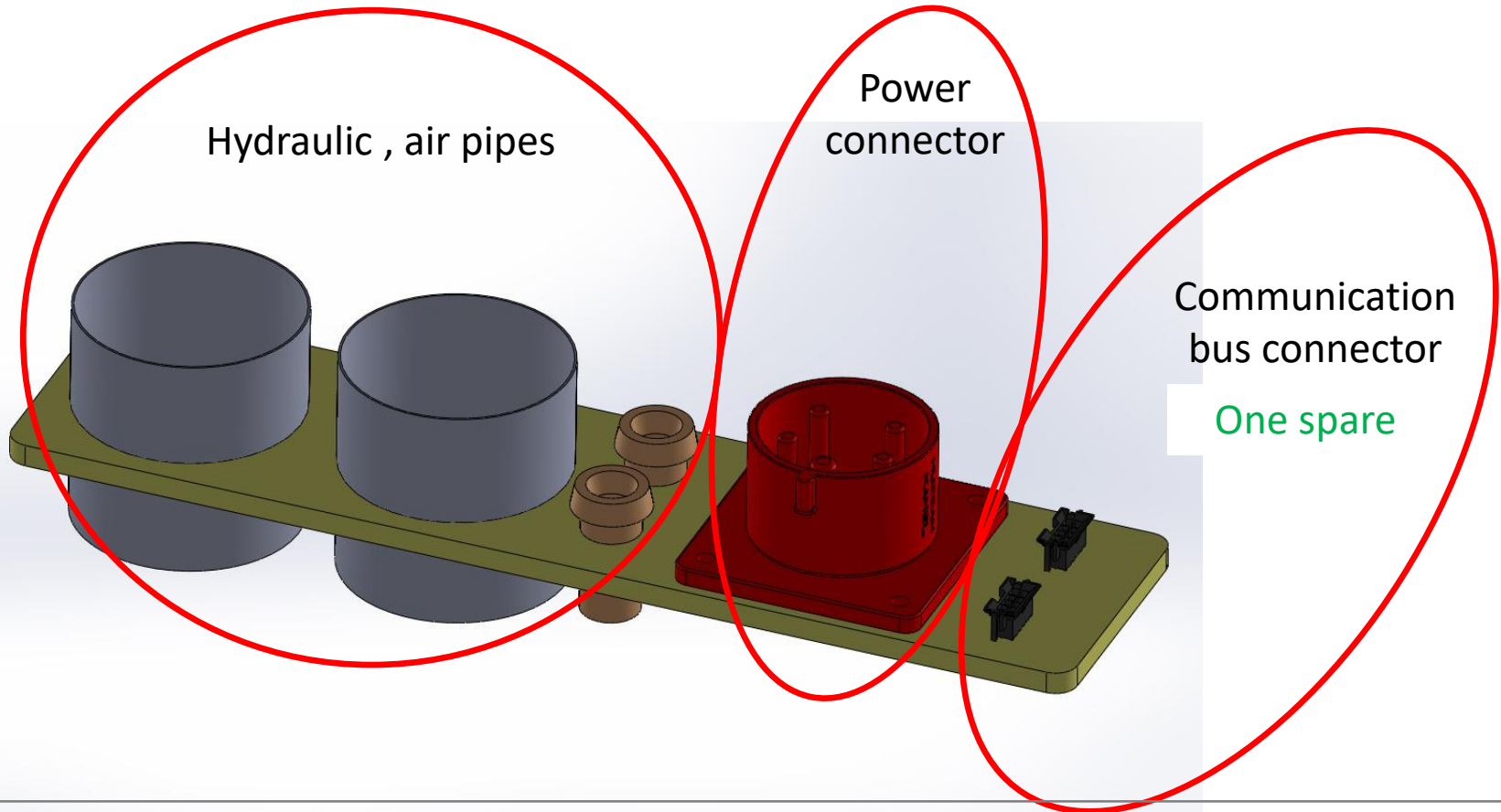
# Proposed design

- Technology bus: communication with sensors, actuators and control units
- Power lines: 230V for sockets and actuators



# Smart connector – idea design

- One set of the combined connectors – built in the facade panel
- The individual connector placement will be adapted according to standard
- The opposite connector - flexible placement

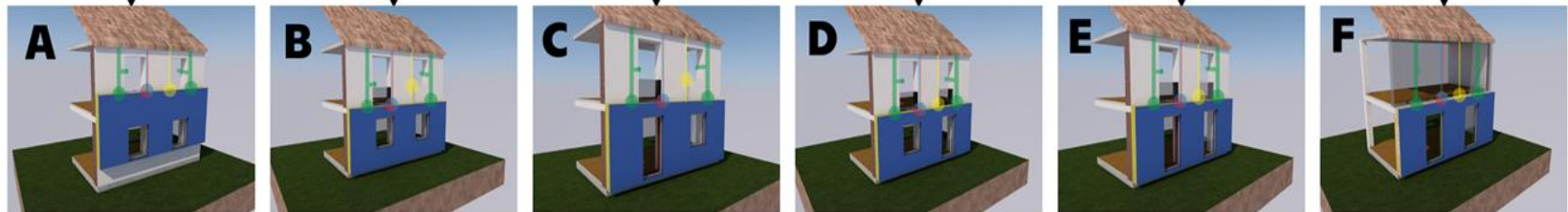
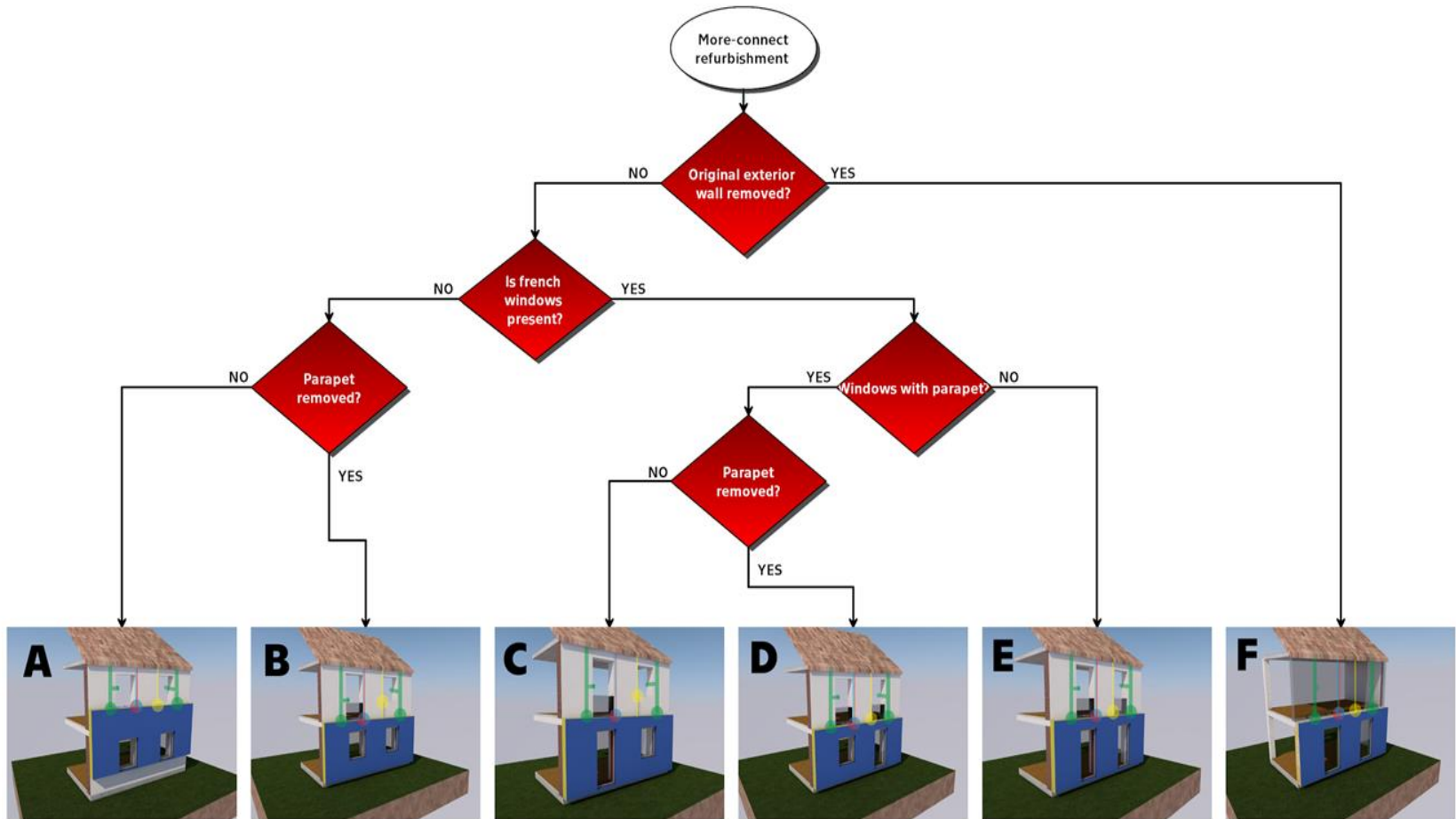


**BUT...**

## ) RESTRICTIONS

- Safety (not wise to combine water and electricity into one piece)
- Geometry
- Ease of assembly onsite
- Accessibility of ducts for inspections and service

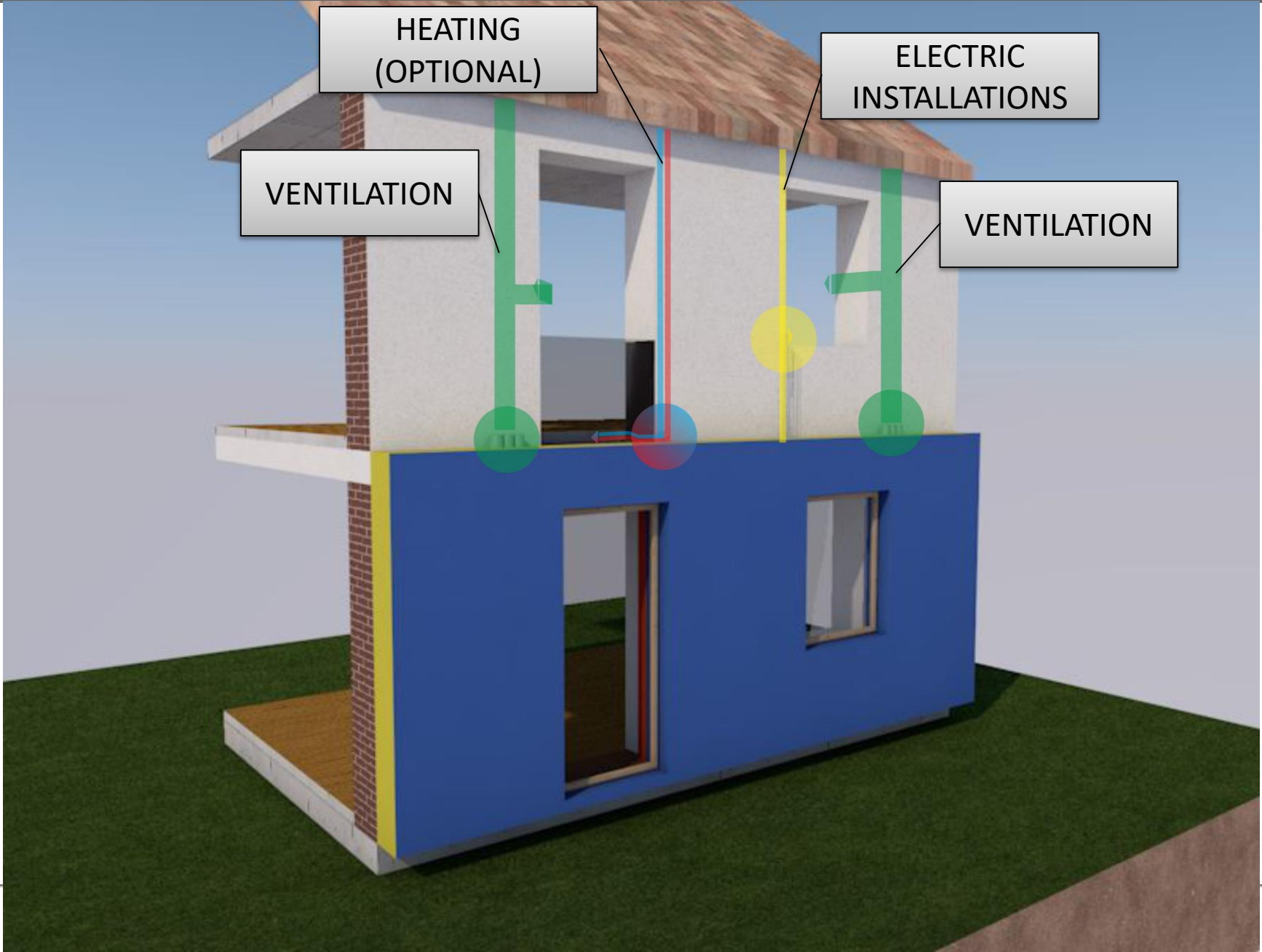
# GEOMETRY



Horizontal division	Window level	Floor level	Floor level	Floor level	Floor level	Floor level
Hydraulic con. position	Beneath window sill	In parapet wall	In extended french window lining	In parapet wall	In extended french window lining	Behind plasterboard
Wiring con. position	Window siding	Solid parapet window siding	Solid parapet window siding	In parapet wall	In parapet wall	Behind plasterboard
Ventilation con. position	Any position of the horizontal joint of the panels					

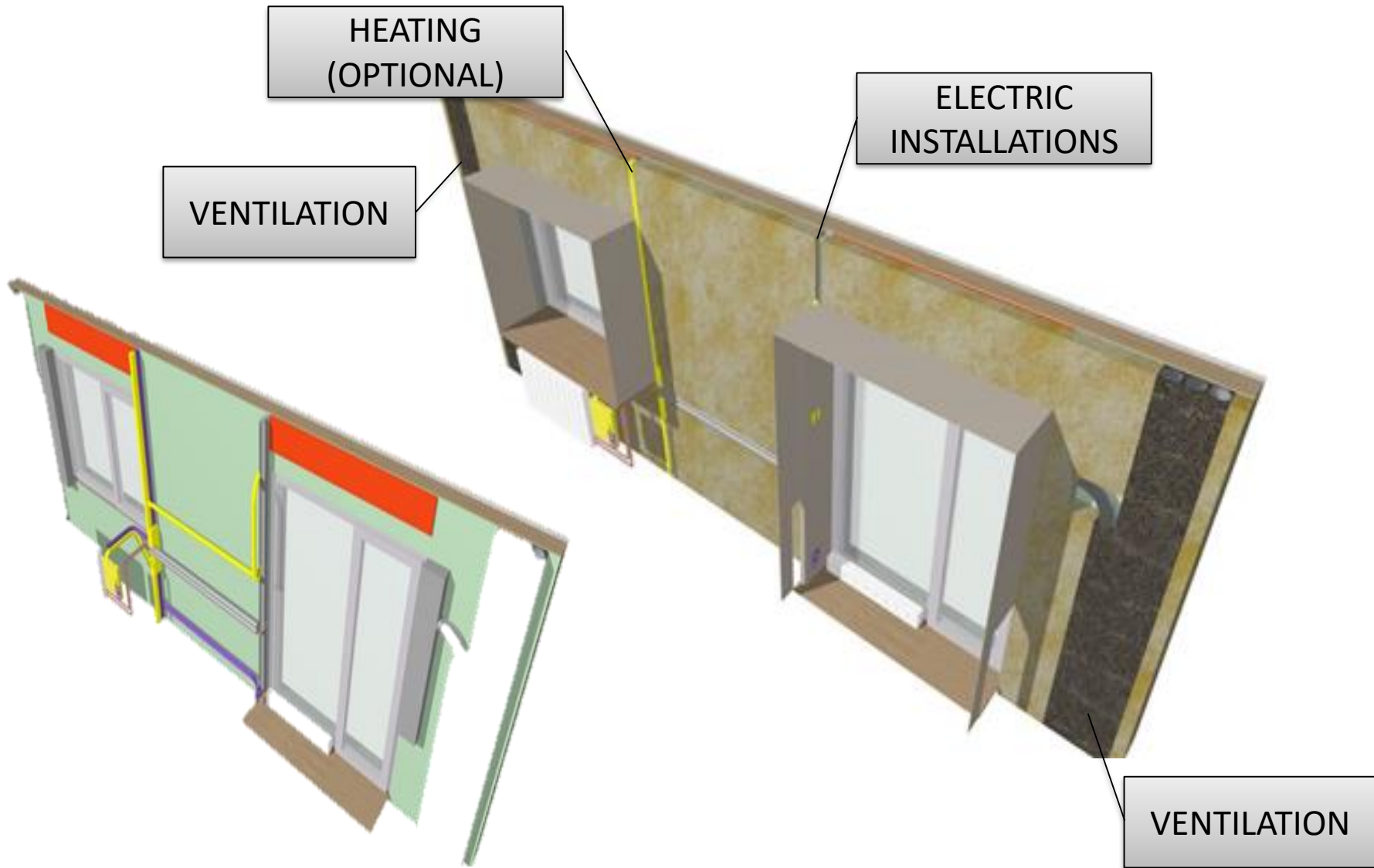


# ) GEOMETRY



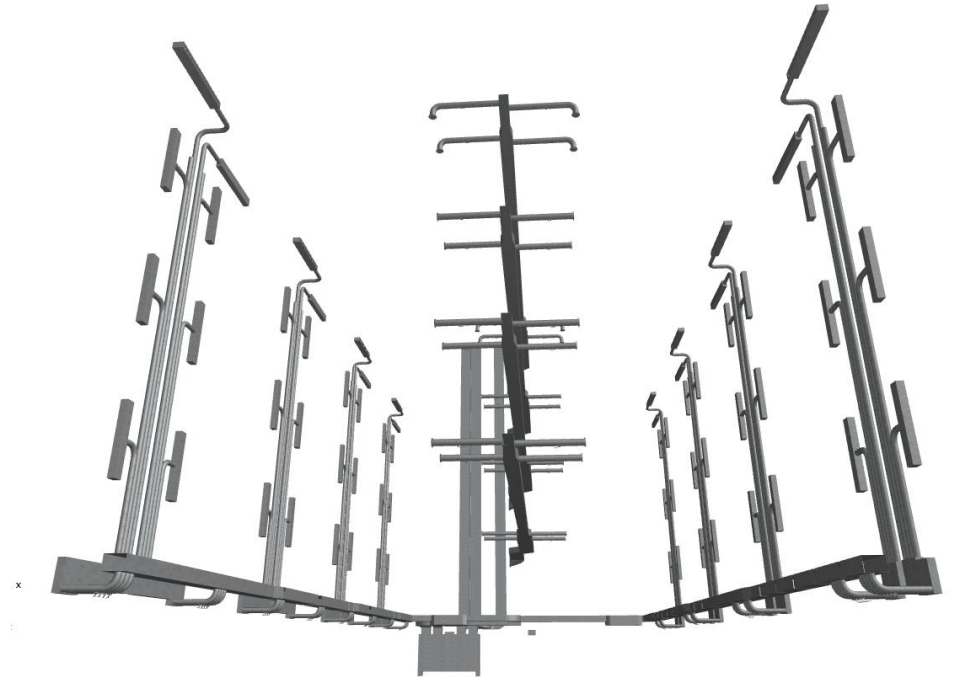
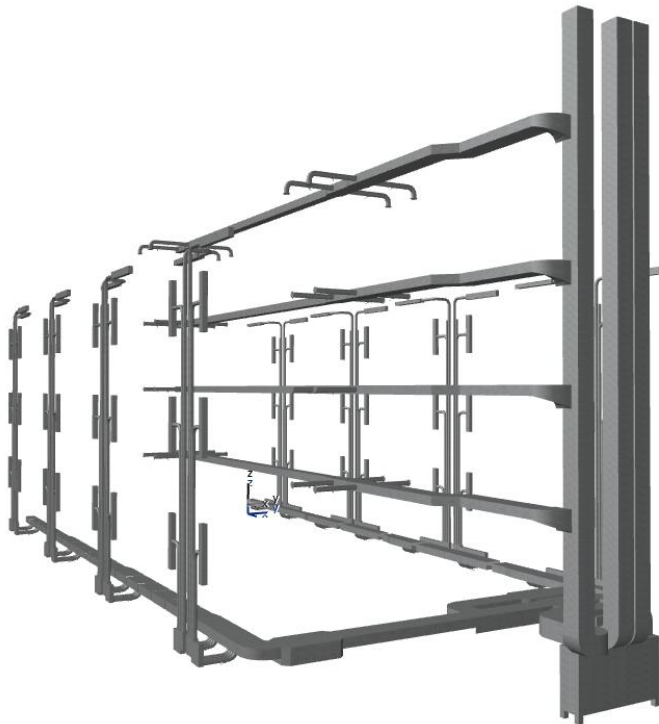
**FINAL DESIGN**

# ) ACCESSIBILITY FOR MAINTENANCE



# CZ VARIANT: VENTILATION AND WARM AIR HEATING

- **Heating by warm air**
- Central ventilation unit with heat recovery and hot water heating exchanger
- Distribution system in basement and pannels
- Distribution element by the window



# ) Task 2.6 Smart Connectors – Air

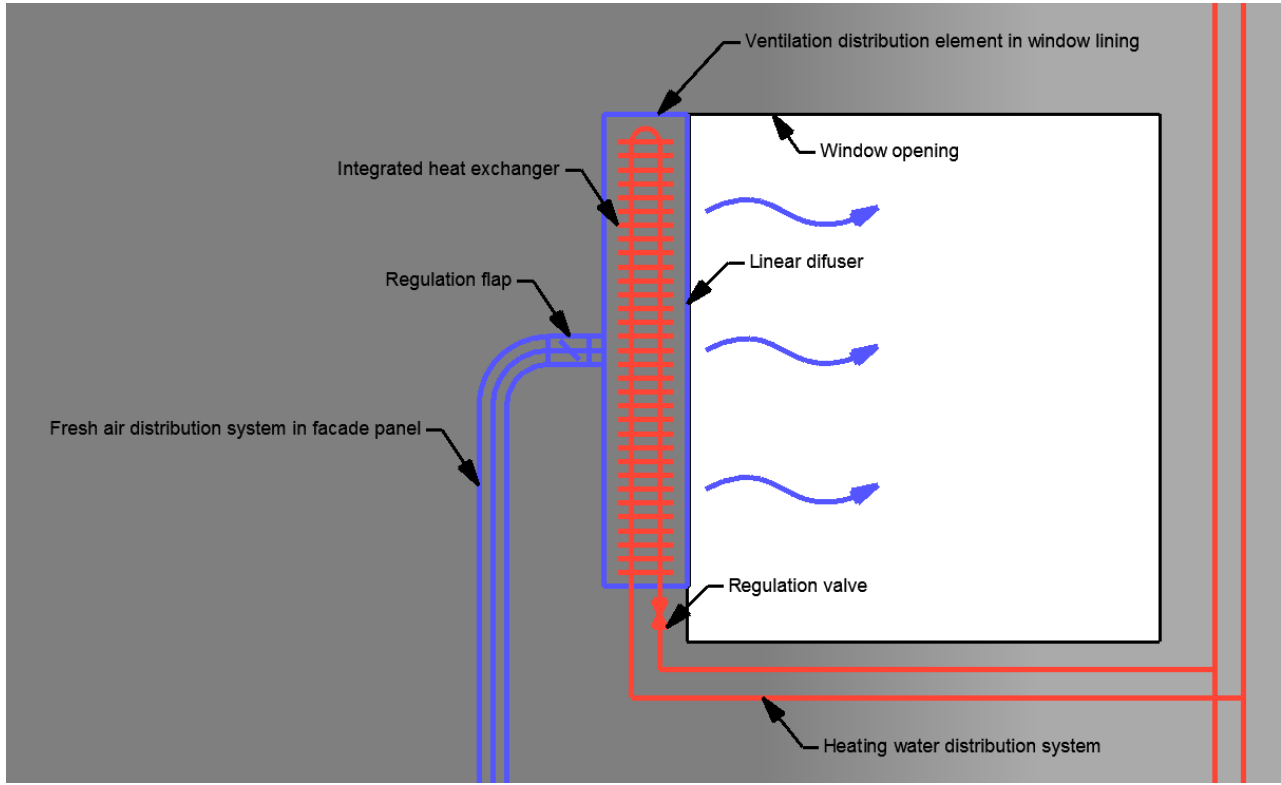
## Socketed connectors with sealing element

- Metal ductwork
  - Better fire resistance
  - Separate ductwork for each window -> lower spreading of noise
  - Connections with two sealing rings
  - Socket connections up to 500mm long



# Task 2.6 Smart Connectors – Air

- **Distribution element**
- Inlet temperature 20-40°C – regulated in central ventilation unit
- Minimum flowrate 50m<sup>3</sup>/h – regulated individually





## ) Task 2.6 Smart Connectors – Hydraulic (optional)

- Connection between pannels – **pushfit connectors**

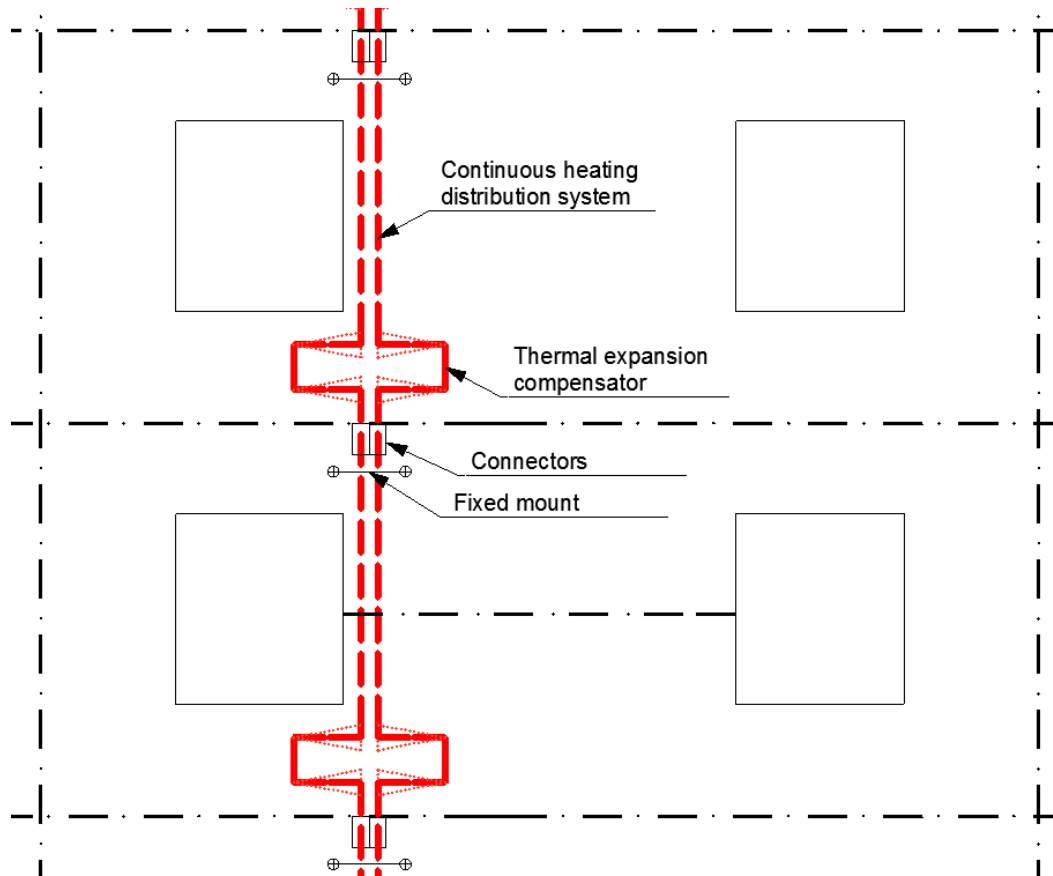


- Connections inside pannel – **pressed connectors**



## Task 2.6 Smart Connectors – Hydraulic (optional)

- Temperature compensator on the pipeline -> adjustable pipeline end allowing connection
- Fixing of pipeline only on the top of the panel





## ) Task 2.6 Smart Connectors – Hydraulic (optional)

- **Advanced option:**
- New technology for moisture monitoring:  
**Moisture guard**
- Connecting of the connector with moisture monitoring system to monitor unwanted damage caused by leakage

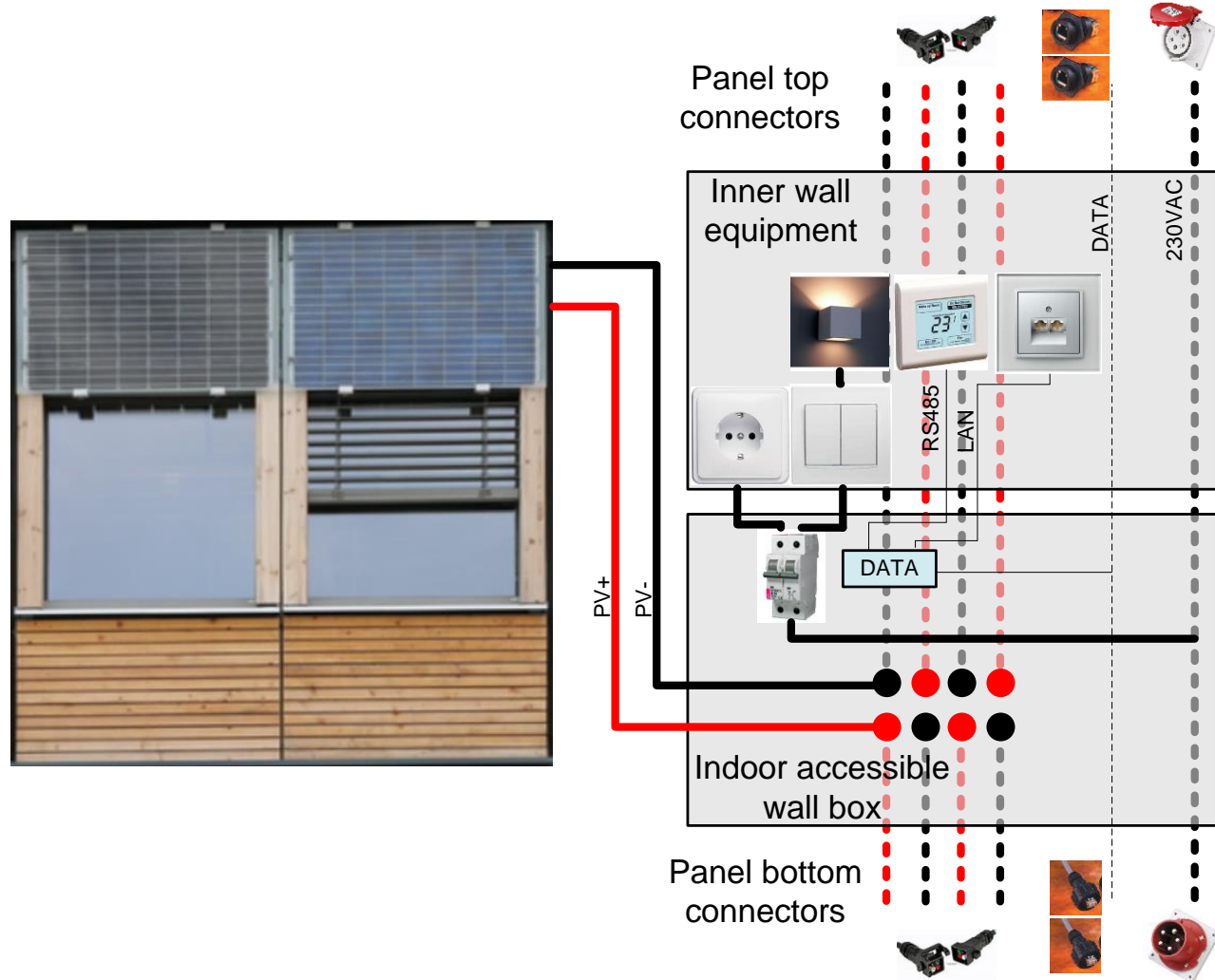


## ) Smart connectors and cables - Electrical

- Distribution of power 230VAC to the flats (wall sockets and lights)
- Distribution of Photovoltaic DC bus to string the integrated PV panels
- Distribution of ethernet
- Distribution of communication bus and power for sensors and controller
- Selection of proper cabling and connectors for the panels

# Smart connector – Electrical Panel Schematics

- Distribution of power 230VAC to the flats



# Smart connector – Electrical Panel Schematics



**THANK YOU FOR  
ATTENTION**

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