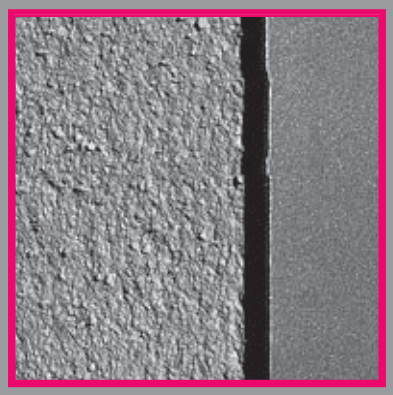
DETAIL Practice

Plaster, Render, Paint and Coatings

Details
Products
Case studies



Alexander Reichel
Anette Hochberg
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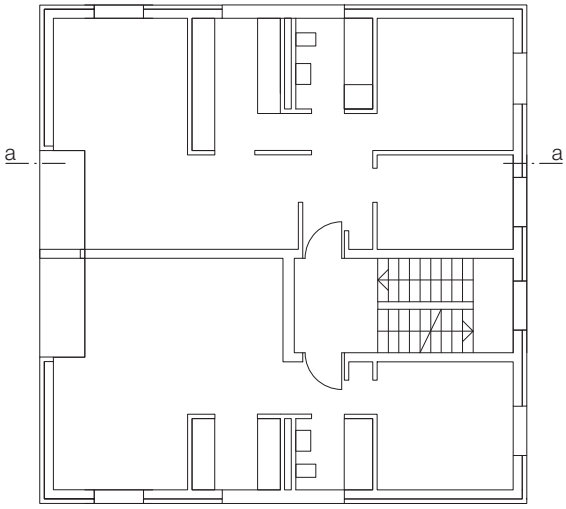
House A

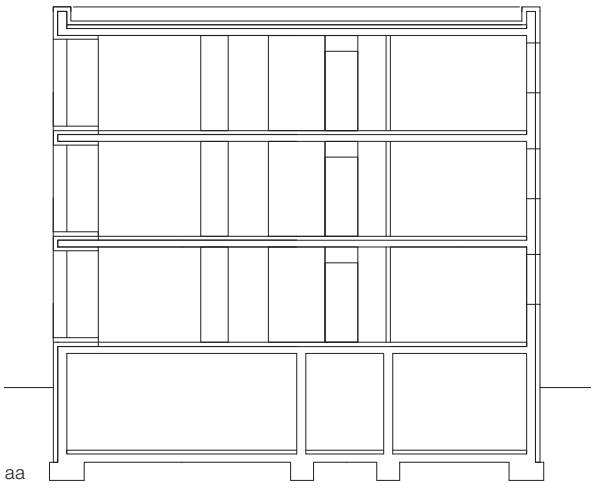
Typical constellations and detailed solutions for both interior and exterior plasterwork will be introduced using two examples. These examples are not real buildings, but are used to show a wide range of solutions for a generalised, “normal” project. The main difference between the two examples is the type of wall construction.

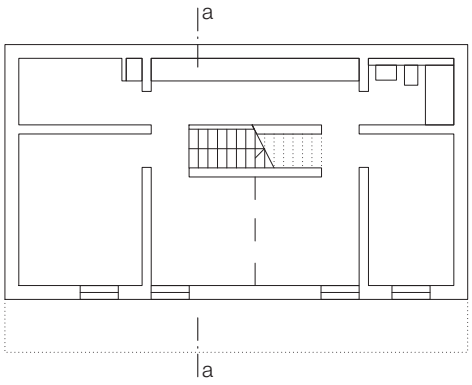
House A is a typical 30 to 40-year-old residential building that has been upgraded and optimized, both in terms of structure and with regard to energy efficiency by applying a composite system of thermal insulation on top of the old rendering. Simultaneously, this model can represent an example of a new building, for which detail solutions can be developed analogously.

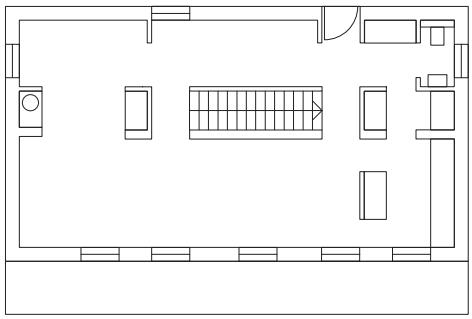
The project described here is a free-standing multi-storey residential building with 24 cm thick brick walls. This construction, which was common practice at the time the building was erected, does not meet the current requirements of the energy efficiency act.

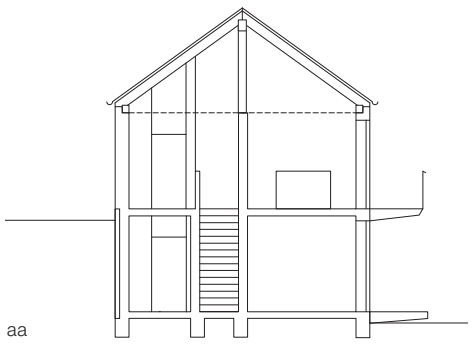
The ceilings are made of reinforced concrete throughout. The dividing walls may be of masonry or drywall construction. Window openings in different formats, the largest of which are balconies built as loggias, give structure to the facades. The old flat roof is planted.









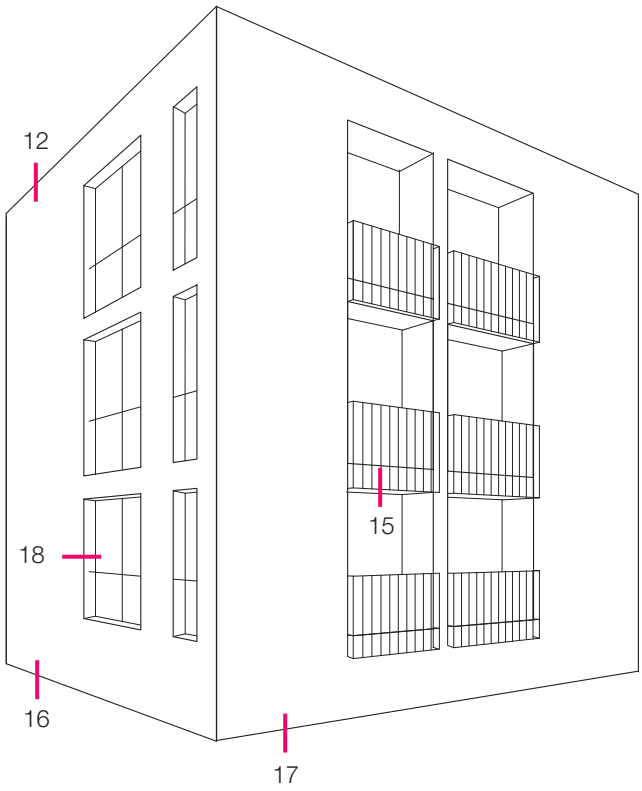


House B

House B is built from highly insulating bricks, 36.5 cm thick, covered in a 20 mm thick layer of lightweight plaster. This construction method allows for solid walls in keeping with current standards, achieving U-values of up to 0.30 W/m²K.

The building is comprised of two floors – an extended hillside level and a ground floor that extends all the way up to the roof. The load of the ridge roof, built as a purlin roof, is transferred directly to the walls. Bracing is provided by interior masonry walls and reinforced concrete ceilings. The windows are floor-to-ceiling, and can be fitted with a sunscreen, e.g. sliding shutters. The balconies are thermally separated from the main structure.

Even in the case of buildings to be renovated, simple construction details can be preserved provided the total energy balance of the building is taken into consideration. Rendering and plaster are employed in all their design variety.



House A

12	Roof parapet
13	Window
14	Window
15	Balcony
16	Plinth, insulated cellar
17	Plinth, non-insulated cellar
18	Window panel, installation channel
19	Interior door

House A
Vertical cross-section
Roof parapet

☐ a

The composite system of thermal insulation (ETICS system) is sealed to the fascia plate with joint sealing tape to prevent water from entering the insulation in driving rain. The system would fail if water were to enter. The dimensions of the plate are subject to the regulations of the roofing trade.

Building height			at front a:
up to	8.0 m	≥	5.0 cm
up to	20.0 m	≥	8.0 cm
over	20.0 m	≥	10.0 cm

The projection, b, to the wall must be at least 3.0 cm.

☐ b

CTI systems are multi-layer systems approved by the building authorities. An insulating material, usually rigid foam sheeting or mineral wool is fixed to the substrate with adhesive. The insulation is completely covered with a reinforcing material. A plastic webbing is smoothed into the surface of it to prevent cracks forming in the rendered surface. At corners which are particularly susceptible, e. g. windows or jambs, diagonal reinforcement is incorporated into the surface to increase the stability.

☐ c

The old rendering must be examined for cracks and stability. Any particularly uneven surfaces must be levelled. Wall plugs are required for additional anchoring of CTI systems in the following cases: when a soft insulation material is used and when the building is greater than 8.0 m in height, or where the substrate is in poor condition with differences in the evenness of more than 3.0 cm.
Every manufacturer has his own additional regulations linked to the building authorities' approval.