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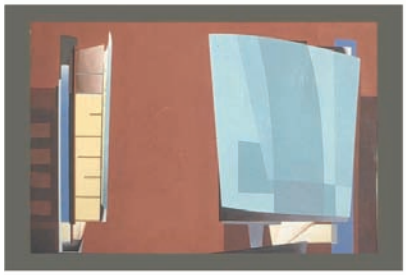
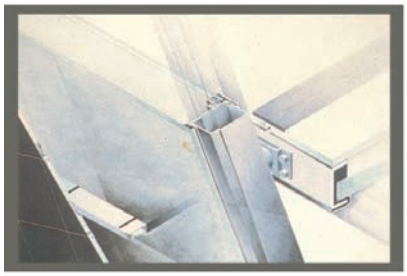
Detail and Image

Details as technical solutions and images as design expressions are interrelated. Not only do architects have to perfect their ability to produce the „what" of a building – the power of visions and images – but also have to be in control of the „how" – the expression of technique.

Establishing the „how" today demands more of an effort by the architect than in former times. First, the physical and material/ technical complexity of detail problems has increased due to the increasing technical requirements and due to countless new building materials. Second the structural changes within the building profession have resulted in a nearly complete lack of common traditions and an absence of a general consensus in how to build and how to use a material.





If we speak here about detailing, we restrict ourselves to the simultaneously architectural and technically challenging details of the building enclosure. Fascia, plinth, quoins, openings are, one is tempted to say „archetype" places, at where solutions of technical problems leave traces which mark the „face" of the building, complete its „picture". These are the places at which technical problems concentrate on closest area and which, since they are usually very exposed, are particularly sensitively noticed. Between appearance and function respectively between the detail as an architectural solution of a design problem and the detail as a technical solution of bringing together different building components, a relationship exists – a coherency. A second relationship exists between the detail and the whole ensemble. As the expression of the tectonic form produced by the detail can only exist before the background of a design concept, the technical solution represented by the detail can be merged into a continuous overall performance only in agreement with the construction concept.

Three details make all the difference. Fascia, plinth, quoins, openings are „archetype" places, at where solutions of technical problems leave traces which mark the „face" of the building, complete its „picture".

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Model representation of the building envelope

A way of thinking – a functional analogy based on the essentials of the building envelope – is proposed to enable architects to handle both the development of design and technical decisions in their interrelationship at all depths of notional penetration.

In that way of thinking the envelope is constituted of two main elements:

– The components of the building shell (e.g. roof, slab, wall) with their rules and specifications

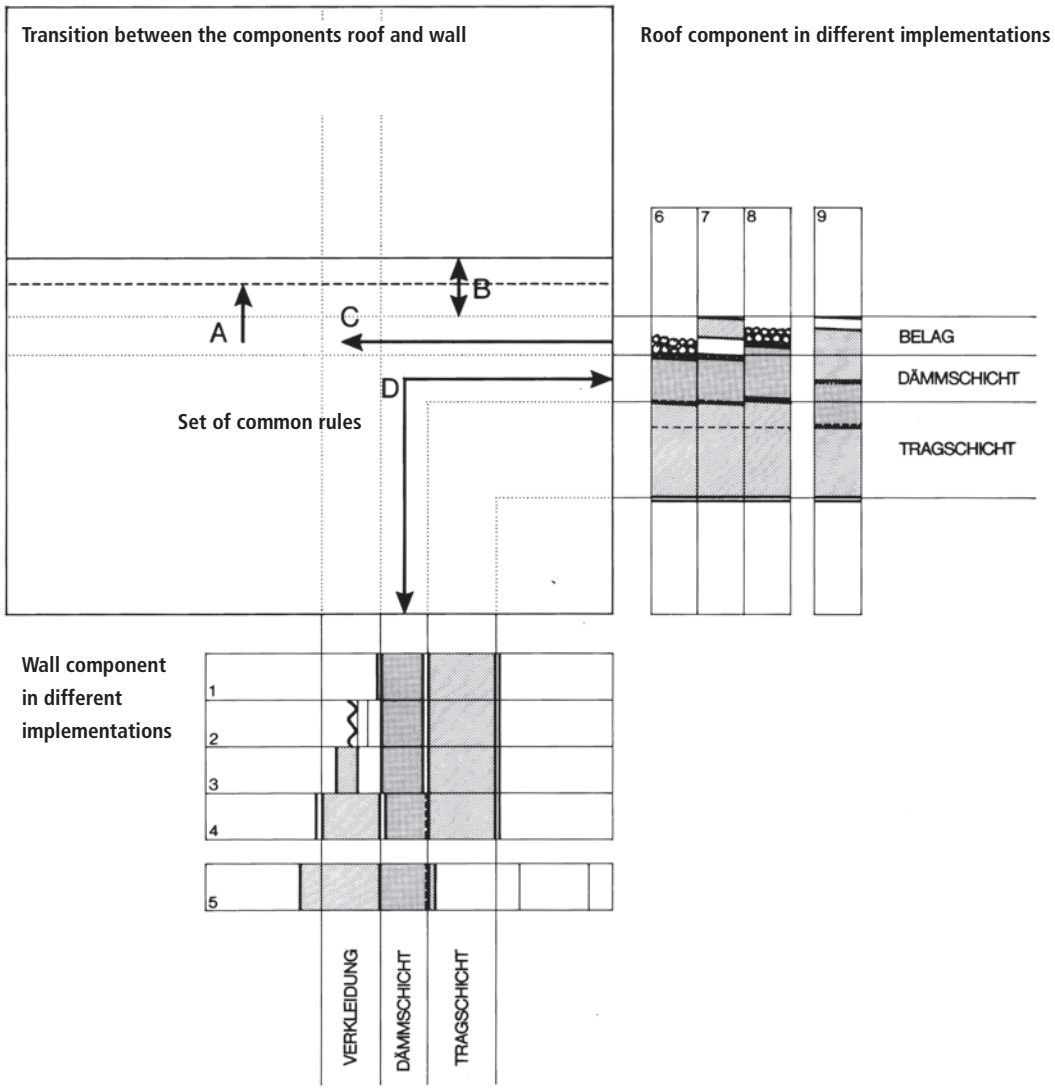
– The transitions between these components (e.g. wall – roof, wall – slab, wall – base) with their set of common rules. Break-outs in components (e.g. openings) represent a special form of the transitions

In correspondence with the two elements two notional tools are proposed:

– Layer outline: With the help of the layer outline one can control on the level of components their functional cooperating in general.

– Joint space: With the help of the joint space one designs the material linkage of the components in particular - the detail.

The always existing relationship between particular and ensemble, respectively between a material decision on the level of detail and a functional decision on the level of components, remains always controllable by the reciprocal effect of layer outline and joint space.



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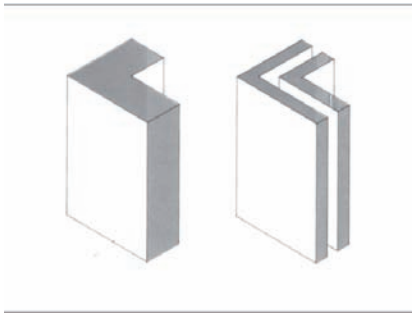
Layer outline

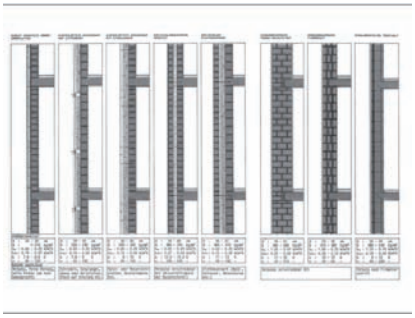
The layer outline as a way of looking at the essentials of the building envelop was developed due to the observation that on the level of fundamental construction decisions the characteristics of all components of the building envelope – from external thermal insulation composite systems to the cavity masonry – can be sufficiently symbolised through three layers (support layer, insulating layer and facing or surfacing layer). Three layers – four lines between inside and outside – are sufficient for the first geometrical description of the building envelope. This opens for the architect in a project stage, in which the graphic resolution of the plans can not reflect the mental penetration depth (e.g. scale 1:100), already the field of his possibilities. Corresponding between first architectural conceptions and first technical assumptions these outlines – our three layers – can now be replaced by the functions they represent (support, isolation and cover). The logic of different allocations can be reviewed in general, without being obliged to commit already to a specific construction. Future problems of the transitions between different components respectively the linkage of their main functions to a continuous performance can be recognized in a very early project stage. If later on alternations have to be made at on point the architect can immediately follow its effects to the whole envelope.

A sandwich – characterised by its three layers – remains unmistakable a sandwich despite the various manifestations of its fillings and its bread.



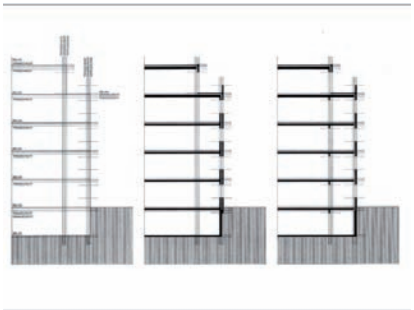
Building components have an unmistakable character which can be symbolized by three layers.

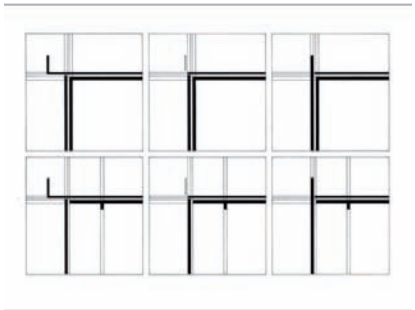
Wall component : Different functional manifestations

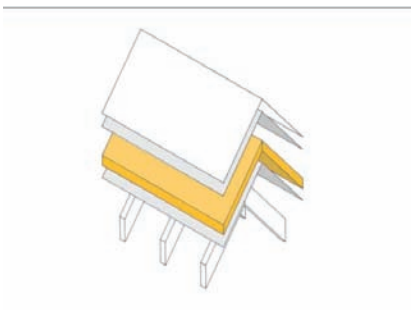


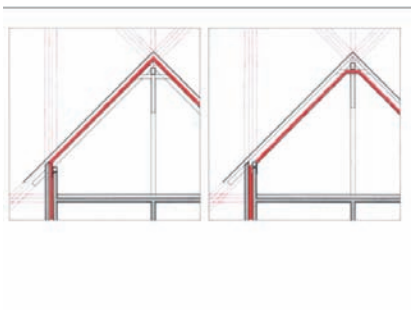
Wall component: Different material manifestations and their technical characteristics.

Three layers – four lines between inside and outside – are sufficient for the first geometrical description of the building envelope. The logic of different allocations can be reviewed in general, without being obliged to commit already to a specific construction.









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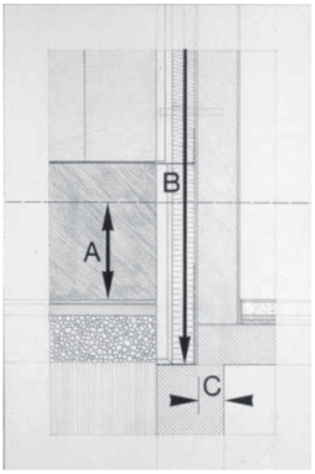
Joint space

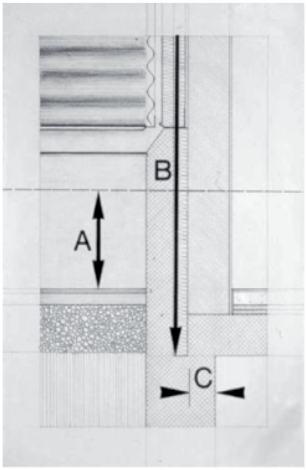
The design of the transition from component to component takes place in the joint space after having defined the relations among the components with the help of the layer outline. The development of the joint space as a design aid is originated in the observation that typical behaviours can be assigned to typical component transitions (e.g. wall – roof, wall – cover, wall – base). This means that common experiences can contribute – abstracted as general behaviour rules – to the solution of a specific problem.

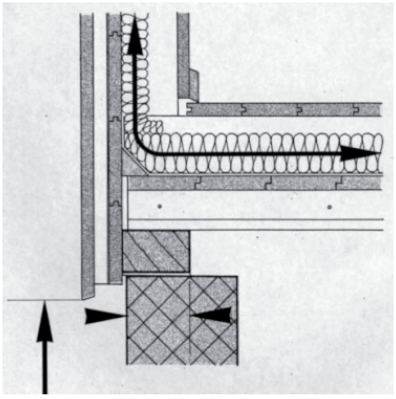
The transition between the components external wall, basement wall and slab shall serve as an example to demonstrate, how in correspondence between controlling an architectural image and choosing building materials a technical solution develops. Three rules apply to this transition: the splash-water rule, the thermal insulation rule and the bearing rule.

The designer can now start to decide – with the help of these rules – which material can be led to where respectively has to be replaced and what measures have to be met at the respective terminator points. Special parts (e.g. end profiles) may help with the solution of the technical problems.

Thus are apart from the functional (those of the layers) further general definitions possible at the beginning of the design process.





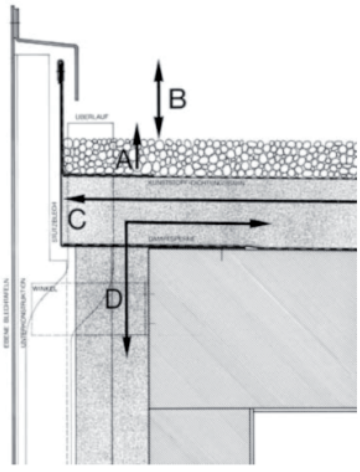


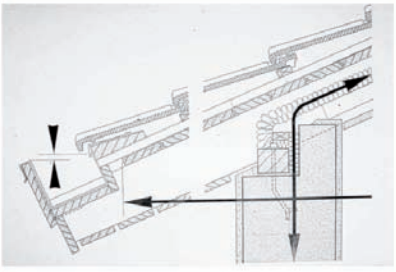
Transition between external wall and base with the rules for:

- Splash-water
- Thermal insulation
- Bearing rule

Transition between external wall and roof with the rules for:

- Roof projection
- Water back pressure
- Thermal insulation
- Bearing rule





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