

A rethink is needed

# Prefabricated construction is not making progress if savings are made in planning

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**The world is becoming more and more complex. I am sure most readers will agree with me on this sentence. And, that construction is becoming more and more complex. Why don't we try to capture these complex processes in a holistic planning process and thus simplify them? Why is it possible to submit a building permit application without knowing the details of the building? Due to the constant competition in the economy, people always try to cover all processes with the lowest effort. According to the motto "we save, whatever it costs". Because at the end of the day, it is the contractor (house builder) and subsequently the tenant who pays. In this way, "half" planning is done and decisions are made too late in the construction process. Because one knows that there are companies that can later cut holes in the concrete and fix what was not planned properly in time.**

How do we get out of this miserable situation? Unfortunately, not without the help of politics. Because it is the task of politics to set the guiding lines in which the building process should take place. If the same rules apply to all actors involved in construction, then the building process must take place in a well-structured manner.

A BIM model with LOD (Level of Details) 300, which should be mandatory for the building permit, would be the first step. Although this would make planning work a little bit more expensive, it would make construction generally more affordable. Another positive side effect would be the saving of personnel in the production and construction of the building. With such a BIM model, the problems between structural engineering and building services (HVAC) would also be solved at a very early stage. Not only on the construction site with the core drill, as has been often the case up to now, when errors have to be resolved.

## How does the building process work today?

The planning and construction process is at present still chaotic. The time needed to prepare a fully planned project is usually too short. Often the submission documents are used for the tender instead of the more detailed execution plans. Construction companies are chosen primarily based on price and not quality. Everything must be completed in a short time. Detailed planning proceeds in parallel with construction. Changes are guaranteed in this process, which are also paid additionally as mentioned above with core drilling, etc. The argument often comes up here that the homebuyers still have special requests in the HVAC and in the layout and therefore you must be flexible in the planning. This is partly true, but how often does this really happen and how many homebuyers know their way around the HVAC when it comes to where for example a power socket should be installed? If the layout and the HVAC of apartments/houses are well planned, there will be fewer special requests from the homebuyers.

In the industry, there is sometimes discussion of low productivity in the construction sector, i.e., this issue is well known, but not much has been done to change this situation so far. 3D printers for the construction site are being developed to increase productivity. 3D printers are a creative development, but they do not make the construction process significantly more productive, because again only a part of the system is considered and not the whole system. There is also the question of whether contractors are even aiming for a more productive construction process, because currently most of the work is done by the contractors.



*Prefabricated house in shell*



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The industrial building system shows the way how the building process could also be made more productive – keyword serial construction. However, all too often this information does not reach architects and people who build. If architects knew more about the industrial building system and recognised the individuality of this construction system, a change in thinking could perhaps occur. The argument of the high price of a precast concrete element also shows the one-sided view, because only the price per m<sup>2</sup> is considered and not the costs of the entire building process. What is meant by this is, among other things, faster construction completion and, as a result, faster handover of the house to the end customer (homebuyer). Compared to in-situ concrete and/or brick construction, industrial construction is up to five times faster with lower financing costs thanks to the shorter construction time.

### How should the ideal building process work?

It would be most appropriate if it would be inspired by the car- or mobile phone industries. Why? The customer can only have a limited influence on the planning and is still satisfied with the end product (= car or mobile phone). It should not be forgotten that the purchase of a house or apartment is usually the biggest investment in a person's life.

A non-professional person (which is what a real estate buyer usually is) is put in charge (or called a decision maker) of things that should be done by a professional (architect). What is the result? The buyer is overwhelmed and no more satisfied as if he buys something pre-defined like a car or a mobile phone.

### But what about the construction process?

It gets more complicated because by the time decisions must be made (the planning stage), you either don't have a buyer for the apartment/house or you have a buyer who can't decide. Then we are back to today's construction process and its well-known problems.

Thankfully, there are already examples of how things can be done differently. Houses and apartments are being built with high architectural demands, which are less expensive than unprofessionally planned habitations.

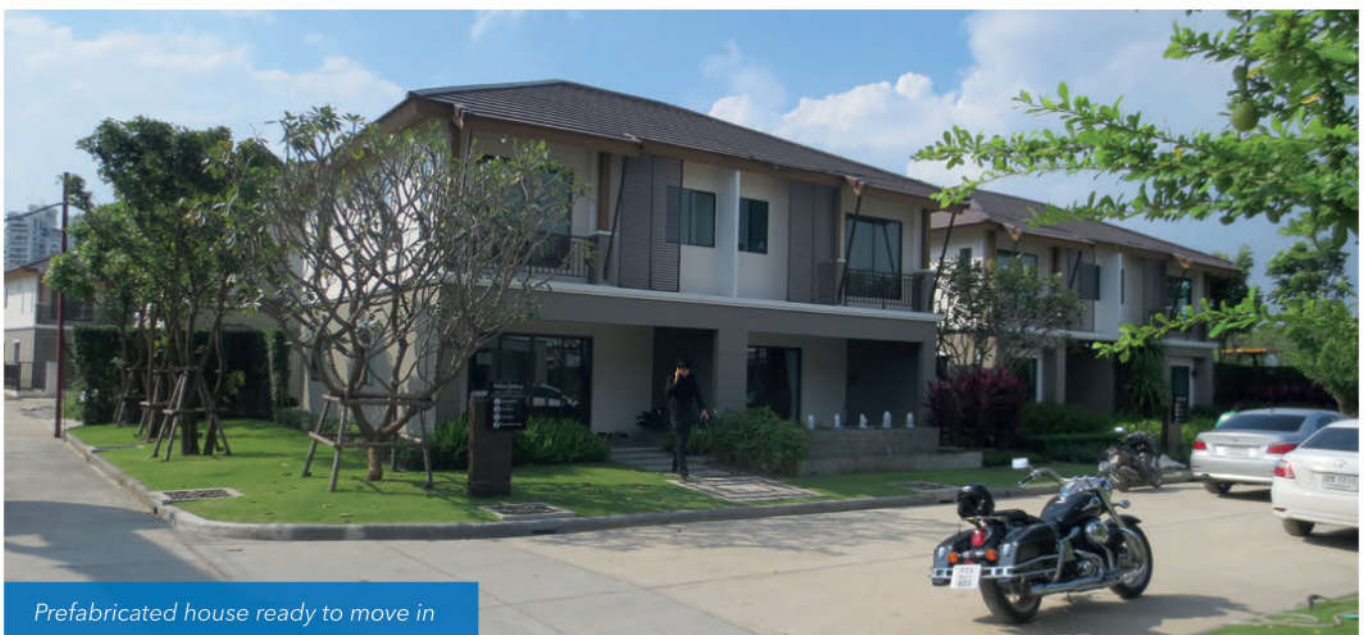
In Asia, this has been the standard for many years. If you look at the buildings constructed in such countries, you see that architects and designers have worked hand in hand with engineers to design the building.

It only remains to be desired that this awareness also reaches politics and the industry in countries where this has not yet been the case. So that more affordable resource-friendly buildings can also be built in Europe and elsewhere and come on the market as soon as possible. Because the industrial building system is the solution to the existing major housing shortage worldwide. ■

#### FURTHER INFORMATION



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Prefabricated house ready to move in