Affordable Housing

Cost-effective Models for the Future
Housing Complex,
Rive-de-Gier, FR
The French architects Tectoniques focus on sustainable construction methods. For their housing complex in Rive de Gier, southwest of Lyon, they designed 60 social housing units and opted for four different types of housing with a uniform construction method. The location of the 12,000 m² sloping site permitted the application of various scales, rather than a compact building mass. Ten single-family houses, 16 terraced houses, as well as two multistorey blocks of flats are staggered in three layers, offering a diverse array of flats ranging from 30 to 100 m². The materiality and the brightness of the timber-clad buildings serve as connecting elements between the dwelling types.

Already in the competition phase, the architects worked together with the construction company to examine how maximum cost and material savings and simultaneous quality assurance could be achieved. In doing so, one of the defining aspects was the systematics of prefabrication. Components such as walls, floors, and all elements comprising the outside skin of a building are suitable for flexible combination in favour of an open architecture. The possibilities of the digital process chain—from the planning to industrial production and assembly—allow for on-site installation without elaborate manual adjustment. The fact that the prefabricated wall elements were delivered to the building site complete with insulation, installation conduits, glazing, and window shutters considerably shortened the assembly time. The sanitary modules were also fully prefabricated in the manufacturing plant and delivered exactly when installation was scheduled. Additional cost savings were possible due to the restriction to two window formats. For the production of the components in the nearby manufacturing plant, 370 m³ of regional building timber was used. The rear-ventilated facade was likewise installed as a prefabricated component, which was clad in white, horizontally overlapping fibre-cement boards. Larch wood window shutters add a colourful touch. The modular construction method is not limited to the timber components, but is continued in the balcony structures and the staircases, as well as in the concrete components for the circulation cores in the multistorey blocks, and in the composite floor materials. The materiality of surfaces deliberately remains visible.

Following a construction period of only six months, the first ten single-family houses were completed, while the other construction phases followed within 18 months. Despite the speed of execution, the quality of the buildings nevertheless remains comparatively high, with good insulation and high-quality finishes and timber window frames. Since the circulation areas are unheated on the external facade, they are naturally lit and ventilated. Balconies, varied private outdoor areas, and public spaces underline the heterogeneous character of the ensemble, and simultaneously create connections to the surrounding building development. The south-facing buildings are partly equipped with hot-water collectors. Furthermore, it was possible to accommodate all parking spaces on a site in an easily accessible manner. This enabled the avoidance of a costly basement for an underground car park.

This housing complex is the result of the consistent development of modular construction methods suitable for urban developments. The variation of the different types of units within a basic system demonstrates the potential of the diverse combination possibilities using prefabricated components and spatial modules, while avoiding the monotony serially produced systems risk.