Discretised Procedural Timber

An Investigation into robotic manufacturing and assembly for residential timber construction

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This project seeks to investigate the multiple materialisation approaches of timber as a construction material for a residential/mixed use building sited in Berlin, Germany. Seeing as there is a major housing crisis Europe wide with the added concern of the growing environmental concern, this proposal aims to be the embodiment of applied research in timber construction, combining both techniques of mass customisation as well as standardisation. The ethos is that while some aspects of the project must utilise innovative construction technologies such as robotics, other facets still rely on standardised components. This philosophy is rooted in that a complete overnight transition from one industrial construction methodology (standardisation) to a new era of mass customisation is too abrupt for the construction industry. Therefore a hybrid adaptation of both systems within the project, would be the most feasible to bring the new era of innovation within the construction industry. This research and development endeavor tackles the topic of housing which intuitively is a logical testing ground for this proof of concept.

The two main avenues of research in this project are the following:
1. Discretised timber joinery system (mass standardisation)
2. Large timber compression shells (mass customisation)

Conclusively this project attempts to showcase the multiple uses of timber as a construction material and how different treatments of this diverse and living material can encompass larger portions of the construction of a building as much as possible and abandoning the construction material of the future especially when integrated with robotic construction.

1:1000 Site Plane