CRINKLE/CRANKLE

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Crinkle Crankle

Crinkle Crankle is a project that explores design-by-making as a method for better cross-discipline collaboration and highlights traditional sustainable design methods; documenting them, and the process, through installation, film, music and performance. The project re-approached the conceptual design process and design strategies that are typically relied upon, by getting hands-on and experimenting to conceptualise and produce an installation using the Kenoteq K-briqs. The structure, process, and the K-briqs themselves were then used as generative elements for a musical score, representing and documenting the build.

The idea was to play with K-Briqs to find the structure of the installation (concept to final form) using only gut feel, rules of thumb and instinct. In addition to physically experimenting with K-briqs to find the design, only basic concept design methods were used such as sketching and approximating which freed up the imagination. This allowed ideas to be discovered, exchanged, explored, realised, and refined in a fluid and agile way. In this informal environment, the drivers of the design emerged naturally and structural principles - equilibrium, stability, and structural form - could be felt in action.

For hansklammer, the project is a continuation of exploration of parametric music creation, in which the relationship between structure / architecture / space / sound are explored. In previous years, how sound influences the atmosphere and sense of a space; how the architecture of a space influences the sound of it, and how these affect our sense of that space, were all investigated through a scope of scale, ranging from the city to an individual building. This year a single brick is used as the generative element for the musical score, installation, and film.

The collaboration began remotely by sketching*, playing with simple computational models and air-drying clay. *Including 'digital sketching' - a parametric script with simple rules of thumb built-in that allowed us to explore many stable forms. Using the script, the centre of mass of the structure, the total number of bricks and any clash of bricks was given. This 'digital sketch' brought us as close to making as possible whilst working remotely. The installation form was then only established by playing and experimenting with the K-briqs together. This process was non-linear as the test build findings fed back into and refined the parametric script - which would inform any future iterations of the structure.

The inspiration for the installation comes from historic walled gardens where the geometry of masonry walls create microclimates to grow fruit and vegetables. The walls act as a passive energy system, providing both shelter from wind and absorbing heat over the day to release it over the night. A special type of garden wall called a 'crinkle crankle' wall uses its sinusoidal form to increase its effective depth, increasing its resistance to lateral forces. A crinkle crankle wall uses less bricks than a straight wall as a straight wall would need to be thicker to resist the same lateral forces. The traditional crinkle crankle garden wall is an example of elegant design where, through its geometry, the solution has been refined to use less material and structure and function are interconnected.

Musically, the frequency of the bricks themselves was established, and the build mapped and recorded, forming the basis of the score. The resonant frequency of the bricks, and the associated key established parameters that formed rules for musical sequences. The placement of bricks, associated to individual builders, added further layers and rules, contributing to the generation of the piece.

The installation itself, is an interpretation of a crinkle crankle wall, utilising curvature to stabilise whilst also creating seductive form. The installation aims to utilise both sustainable materials and good structural form to create something sculptural that generates a soundscape. In the same way that walled gardens passively create the environment for growing, the installation material and form passively creates the atmospheric sound. After disassembly, the K-briqs used in the installation are given back to Kenoteq and are to be used on future projects.

This design-by-making approach could be used at the start of a building project to engage with designers across disciplines earlier and encourage the cross-pollination of ideas for innovative designs. Acting as a dry run of the full design and building process, priorities and constraints emerge from the making process that may not have been appreciated early in the typical design process. It could be used to enhance collaboration and innovation with the goal of using less stuff in the making of architecture.