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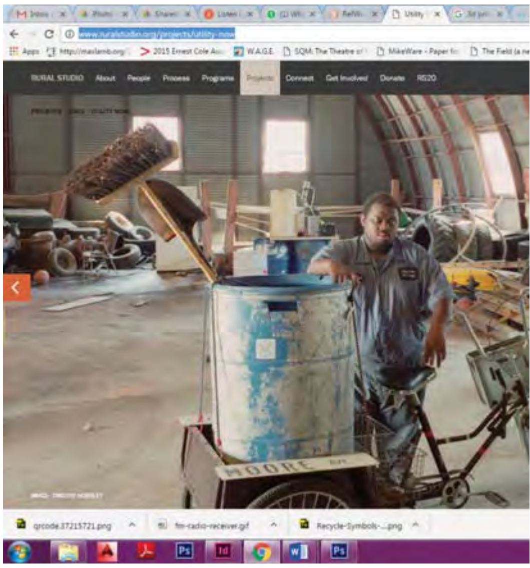
reflecting on rejection

FIGURE 146a: Artwork by Troy Makaza made of Silicon Syringe extrusions, featured at the FNBArt Fair 2016, photo by IMW, 2016. Artwork by Pedro Pires 'The Inhabitant' made from plastic diesel containers.

08. PLASTICITY

MATERIAL POTENTIALS AND EXPRESSIONS

FIGURE 148: Shua Architects and their ice cream tub elevated library in Indonesia with Qr code. To the right, Ubuntu Blocks and Rural Studio projects.



SELECTING PLASTIC

Plastic was eventually selected as the matter of waste. The selection of this material came about quite late in the process of the design. There was always an allusion to waste, which often became misinterpreted as organic waste, with an odour of heavy industrialised processed waste, which had a lot of sound. The plan to the left shows an audial mapping of space, the pink being sound and the black being silence. This map, in essence, represents the linear and collective processes related to all waste before the material of plastic was selected and demonstrates how the physical nature of material relating to waste had very little influence on the design. The project seeks to engage with social and spatial waste and eventually latched onto a material that could embody an aesthetic and accessibility, but could also be an easily managed part of waste.

In the preface of the Birkhauser publication, *Plastics in architecture and construction* [Engelsmann et al 2010:9], the unpacking of plastic as a versatile and incredible material with an incredible history is told; about how it came into being as a replacement for rubber during the industrial revolution and eventually came to be named 'Kunstoff' which translates into art dust, or artificial dust, but also goes on to describe how the decline of realisation of prototypes came about during the war and oil crisis periods in the 50s and 70s. However, what is clear from this preface and the publication as a whole is that although plastic has been criticised for its role in damaging the environment, is that it is, in fact, an incredible material that can counter damage to the environment if it were better utilised as material through design.

The reason for building with this material is to let the architecture stand as an exhibition to the disposable excess of waste that is extremely useful and valuable.

On the previous page, is a series of images demonstrating what is just a tiny glimpse into the kinds of material, architecture and construction innovation that is currently taking place on a global level, so much so that when one is to read a book, again by Birkhauser, *Building with Waste* [Hebel et al 2014: 139] it is clear that products like water bottles are manufactured and designed, already modified into a post-life stage for becoming building blocks for houses.

PLASTIC COLUMN DREAM

This potential of plastic is inspiring, yet if one consults with an engineer or architect today about using plastic as structure, it is imagined to be ludicrous. In an early section on the following page [figure 131], there is a wavy column that was drawn as an art piece of structure, although after consulting with an industrial designer it was clear that such a construction would be incredibly expensive.

This relates to another issue regarding plastic, and that is its main ingredient, which is oil. But if one has to Google 'the future of plastic' you find an array of information relating to Bioplastics which is essentially the replacing of oils with natural plant based oils that do not require heavy extraction processes. When the polymer structures of these oils eventually break down, they become biodegradable elements that cause less harm to the planet and its surface.

PLASTIC PERFORMANCE

The thermal conductivity accordings to SANS is 0.03, the application of the plastics will vary - ranging from insulation using shredded plastic of plastic waste - vs. finished plastic products such as polycarbonates sheeting.

FIGURE 150: Sound and Silence Plan, IMW 2016.

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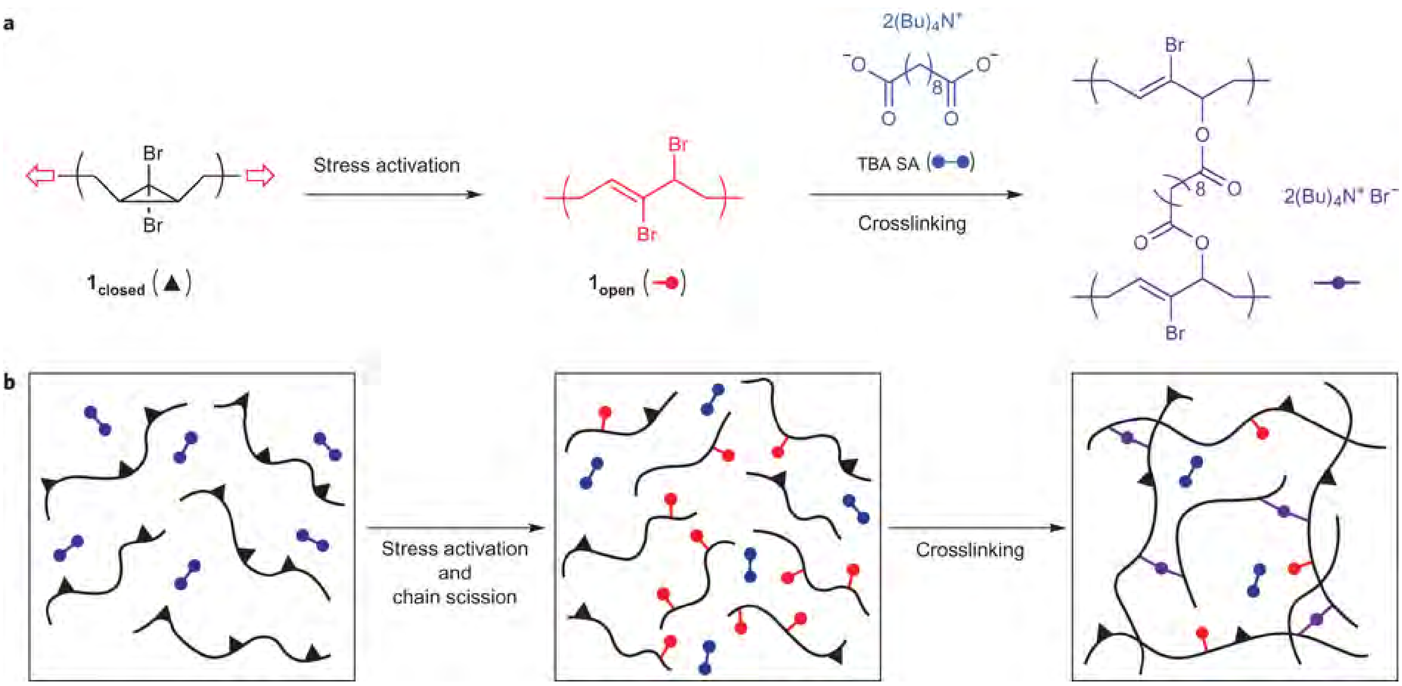
The greatest material concern relating to plastic is its vulnerability to fire. Although there have been and continue to be developments in plastics in relation to this concern [Engelsmann 2010: 76]. This issue will be address in the specifcations of materials of plastic, access to safe and fast exits but also to selectively and strategically select the position of the material and its relation to water, which completes the conceptual attitude through to a technical spatial execution where the relation to the element of water can be dictated by the relation to codification which the measurable standards commonly used in practice.

PRECIOUS PLASTICS

A recent project by Dave Hakkens called 'Precious plastic' demonstrates with incredible elegance the ease and art of recycling, whether it be considerd as upcycling or downcycling is debatable, however the project suceeds in it is accessing a part of waste and bringing it to 1:1 level of replication. With his online blueprints of how to construct each of the machines you see on your right [Figure 138], all an individual needs to do is find a way to make them ie. Funding and Materials. All the information is there, available and reproducable. It is this kind of attitude that this architecture would like to facilitate, not only by physically inserting these machine into the spatial context of the makers spaces, but also architecture as an embodiment of this idea that it can function as a machine that can be made at home - thus becoming a type of book of space and materiality that gives knowledge and information that can be applied elsehwhere to the benefits of others - this is an ethic which the author afterall believes architecture could be more proficient in - a fluent communicator of architectural mechanisms, constructions and realisations.

FIGURE 152: Image of Precious Plastics machines from the website of Precious plastics (Precious Plastics, 2016).Figure 143: is of the molecular structure of plastic. http://www.extremetech.com/wp-content/uploads/2013/08/nchem.1720-f1.jpg


a
Stress activation
1_{closed} (▲)
1_{open}
$2(Bu)_4N^+$
TBA SA
Crosslinking
$2(Bu)_4N^+ Br^-$
b
Stress activation
and
chain scission
Crosslinking

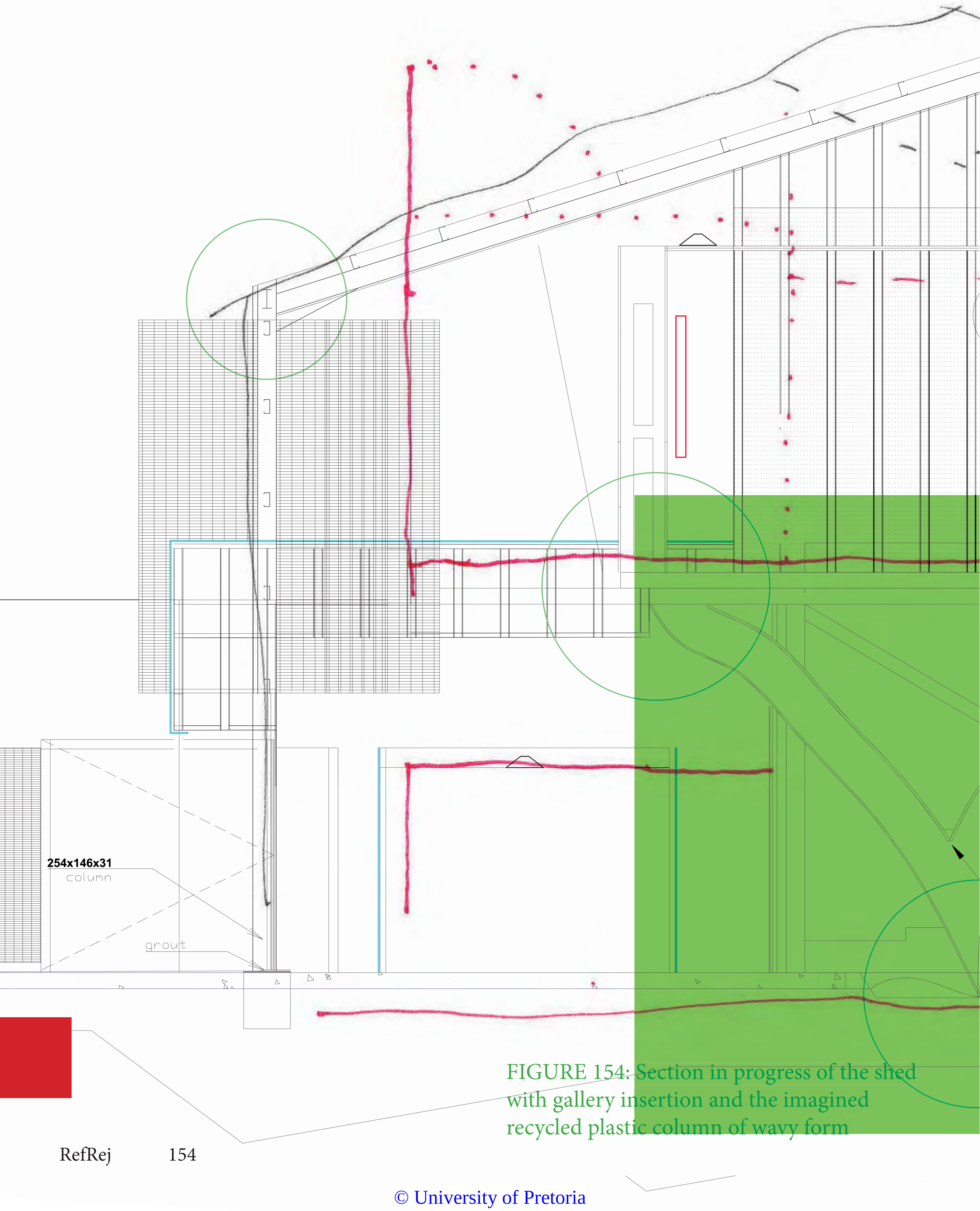


FIGURE 154: Section in progress of the shed with gallery insertion and the imagined recycled plastic column of wavy form

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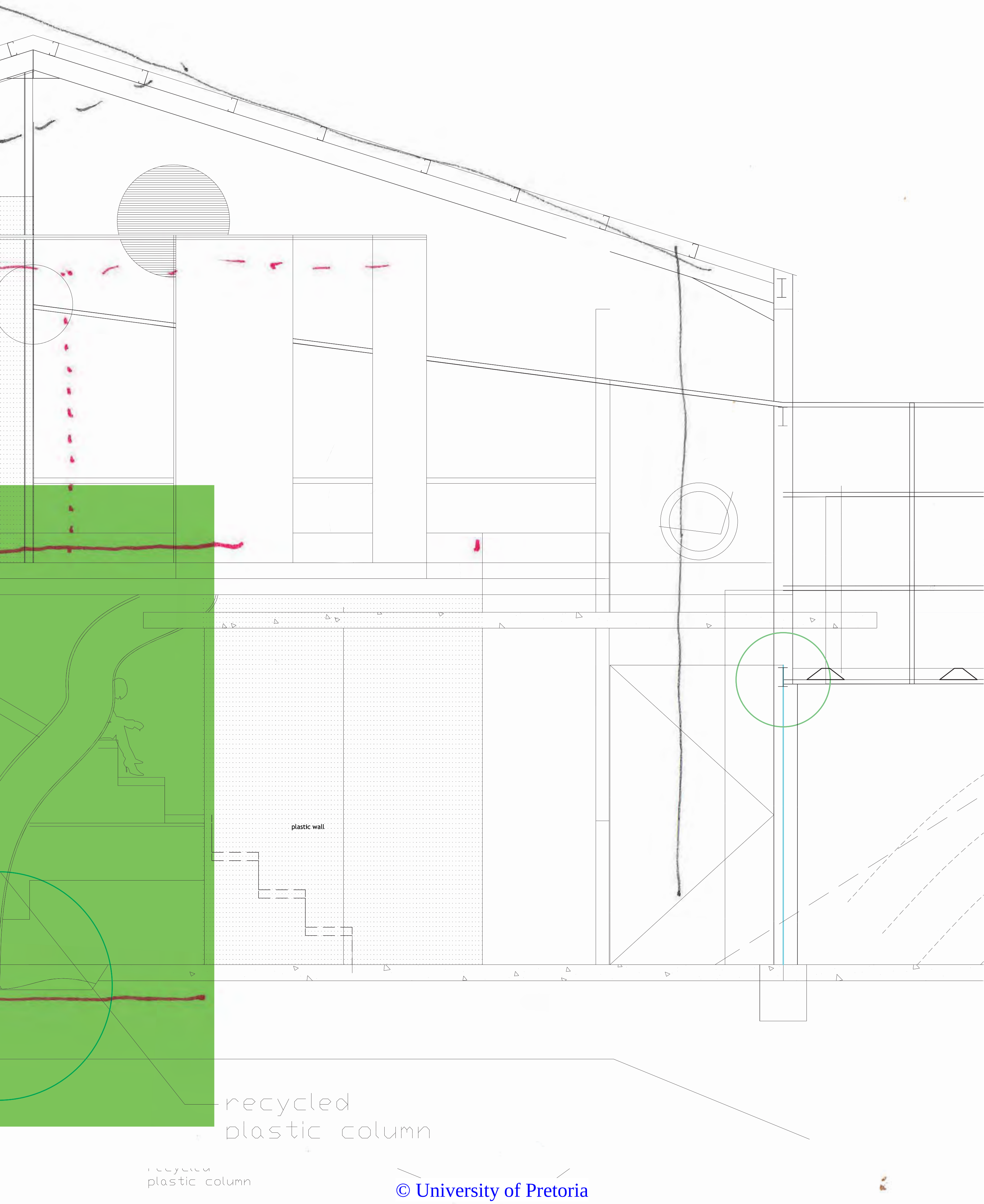

plastic wall
recycled
plastic column
recycled
plastic column

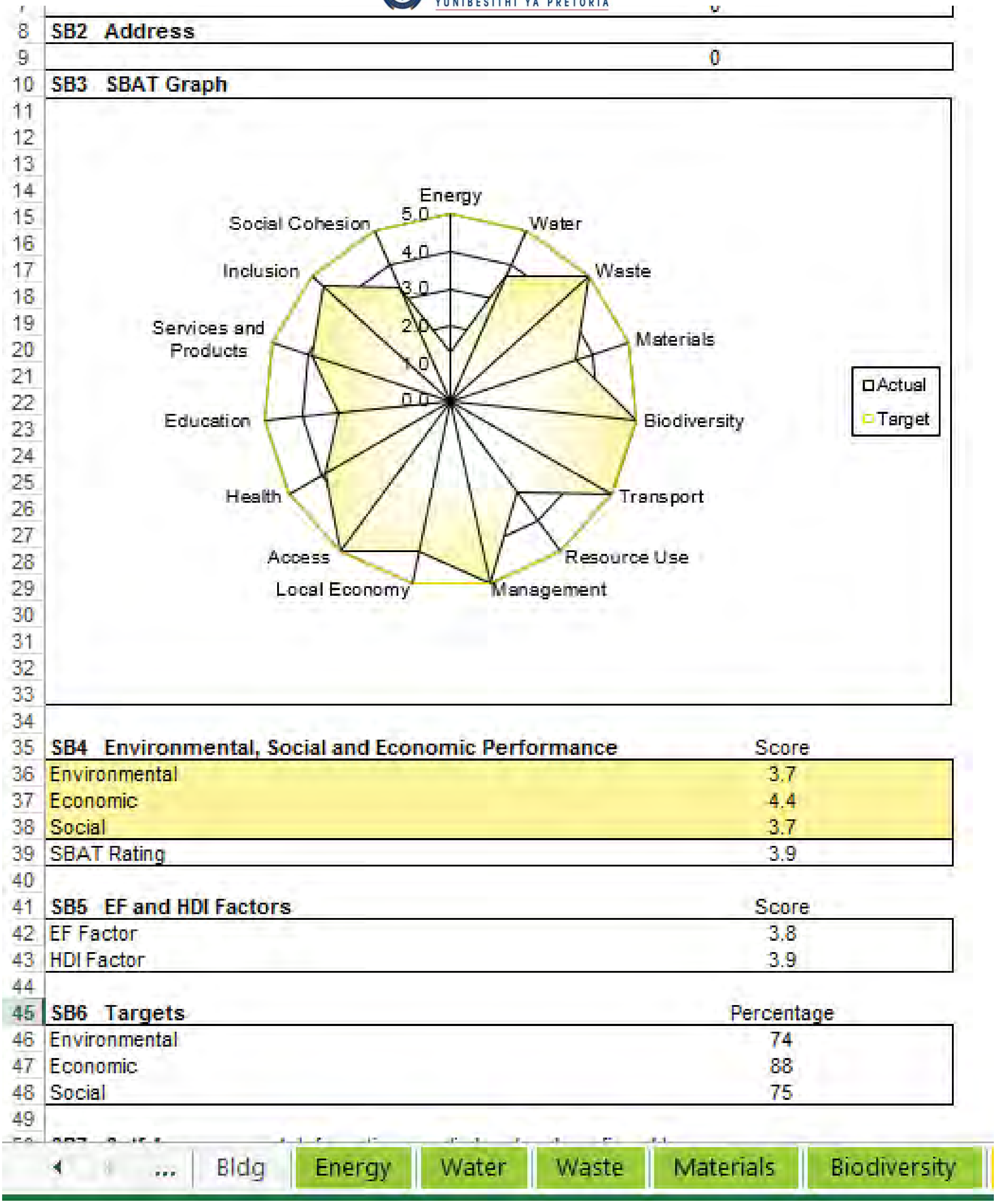
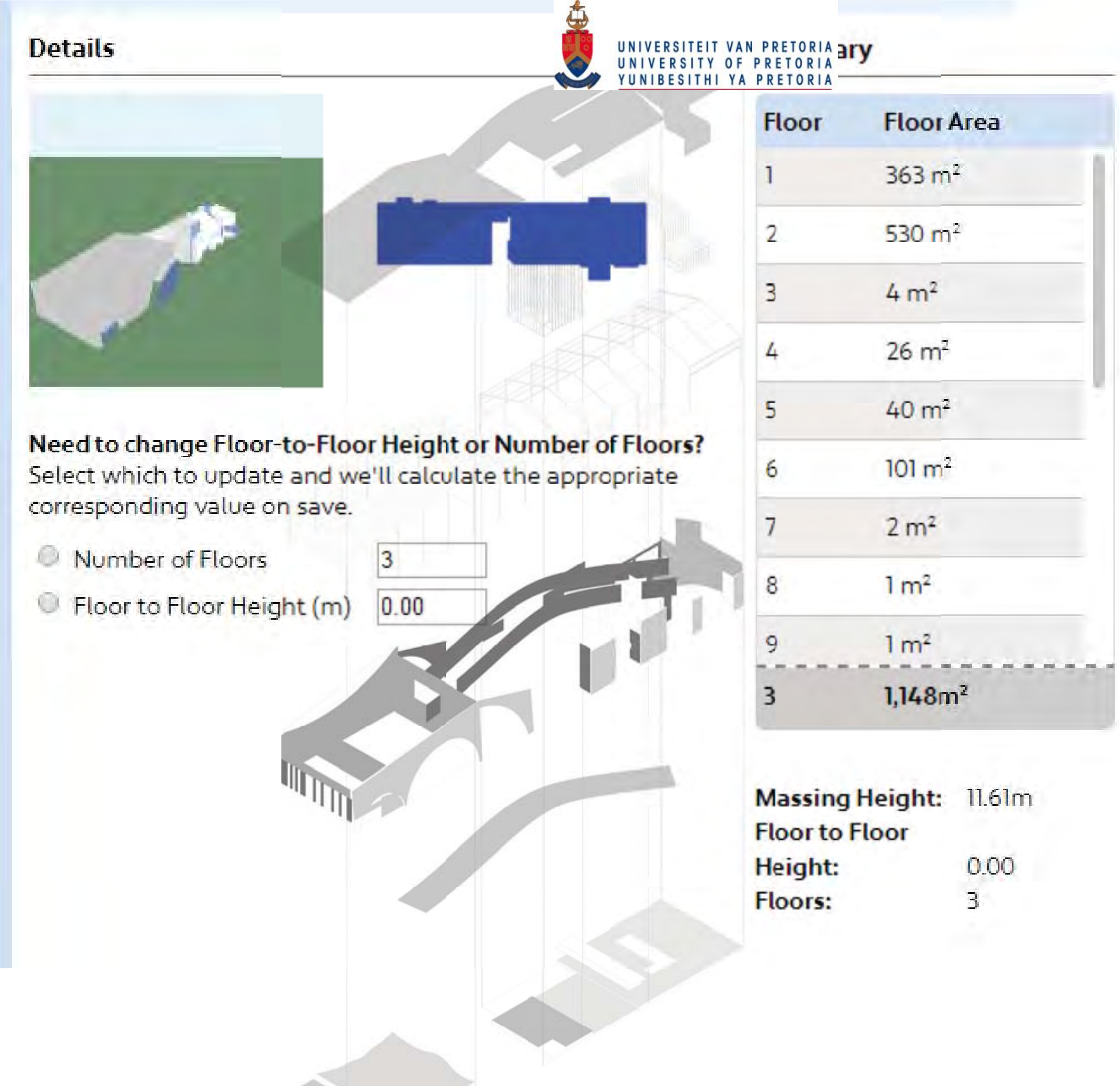


FIGURE 156: SBAT diagram of the current project [Materials not yet concluded] and on the right is an early Sefaira Model data output of the project.



ENVIRONMENTAL REQUIREMENTS

The following images are related to the environmental studies of the building. The Sefaira studies resulted in a high energy building, which if one is to refer to the design chapter [REVEAL] there is an additional building which was initially proposed to house the process of shredding. This decision was later decided scrapped because of the way in which this building embodied the very problem which the author sought to make an argument against: of building small, temporary, and activating existing spaces - upcycling space - an updated Sefaira model is still to be added to evaluate the performance of each space developed by the concepts. However, to the left is a screen shot of an updated SBAT report of the building project. There is still some information missing from the report regarding materials, as the process of specifying is currently underway. However, what is clear from the SBAT diagram is that the location of the project is highly beneficial to its operation whilst the proposed urban framework of connection and relation to other architecture projects.

The building also responds to the SANS codes by making sure apertures are 15% of floor area and actively reduces the existing wide shed footprint from 16m to the SANS recommended width of 10m see plans. Performances of walls, windows, roofs and floors meet requirements through the specification of materials, which as stated is still underway.

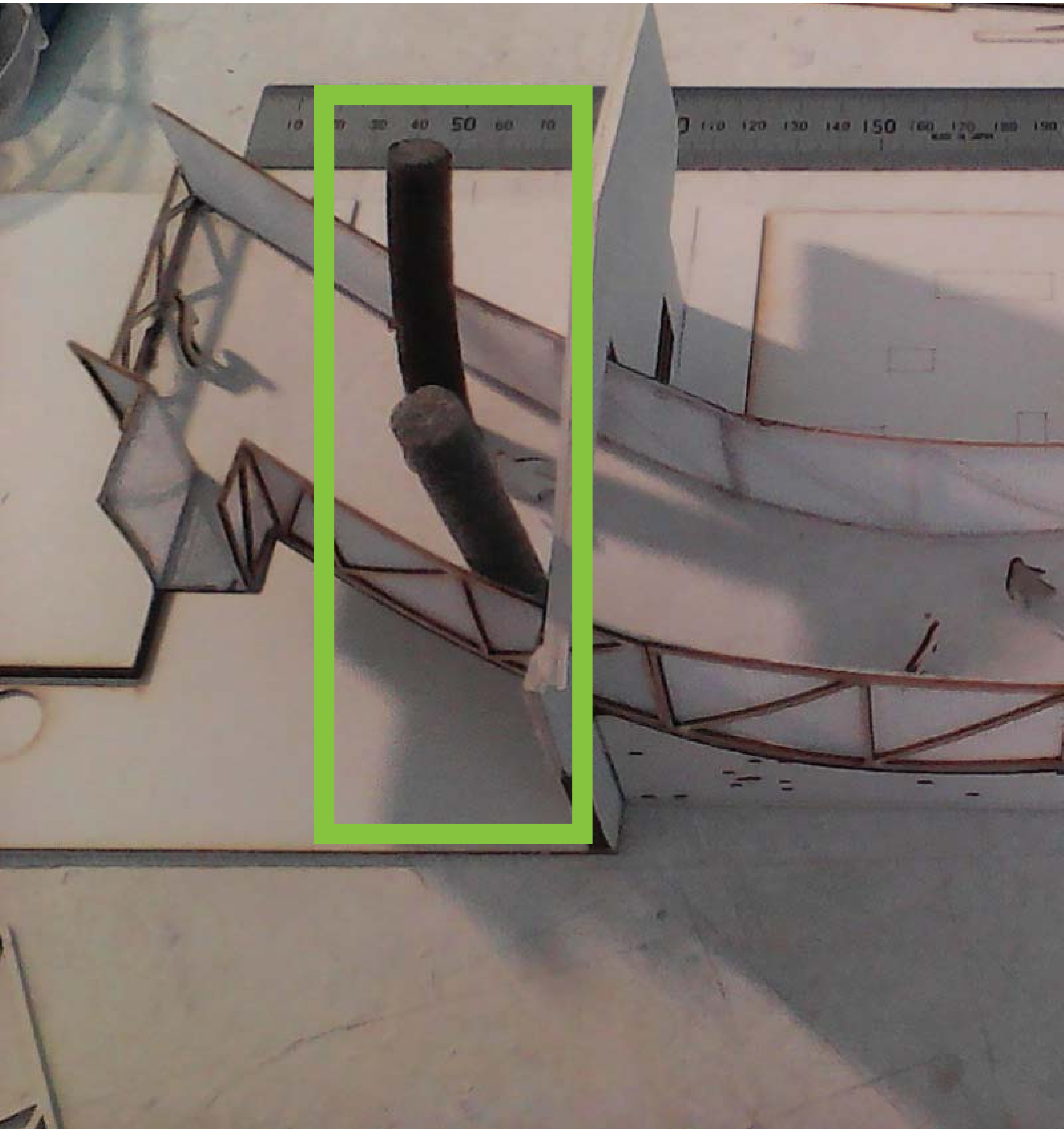
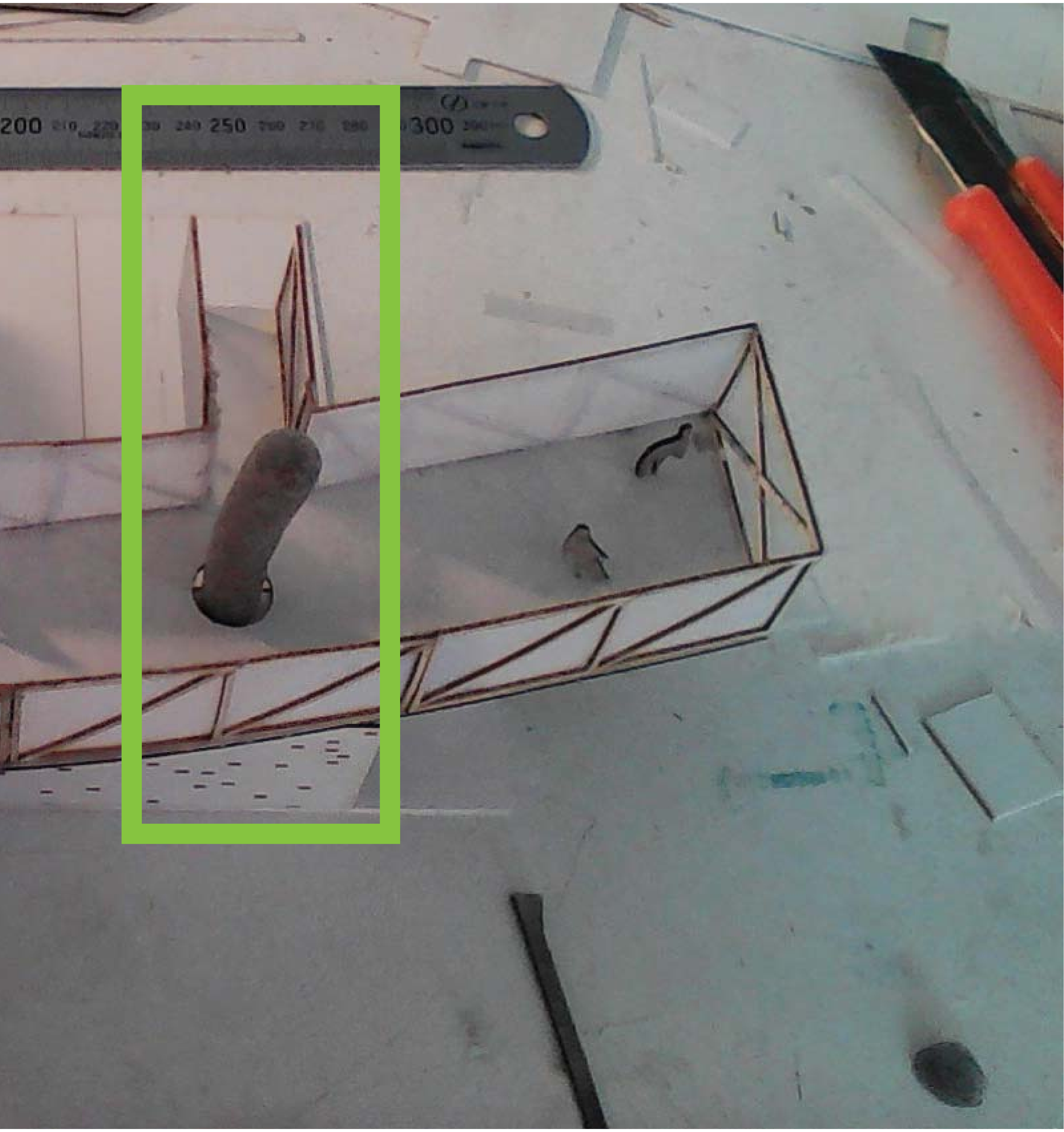


FIGURE 158 Photograph of final detail model suring contruction demostrating here the piercing of the plastic columns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PLASTIC COLUMN

EXPLOSION DETAIL TOILET / plastic column

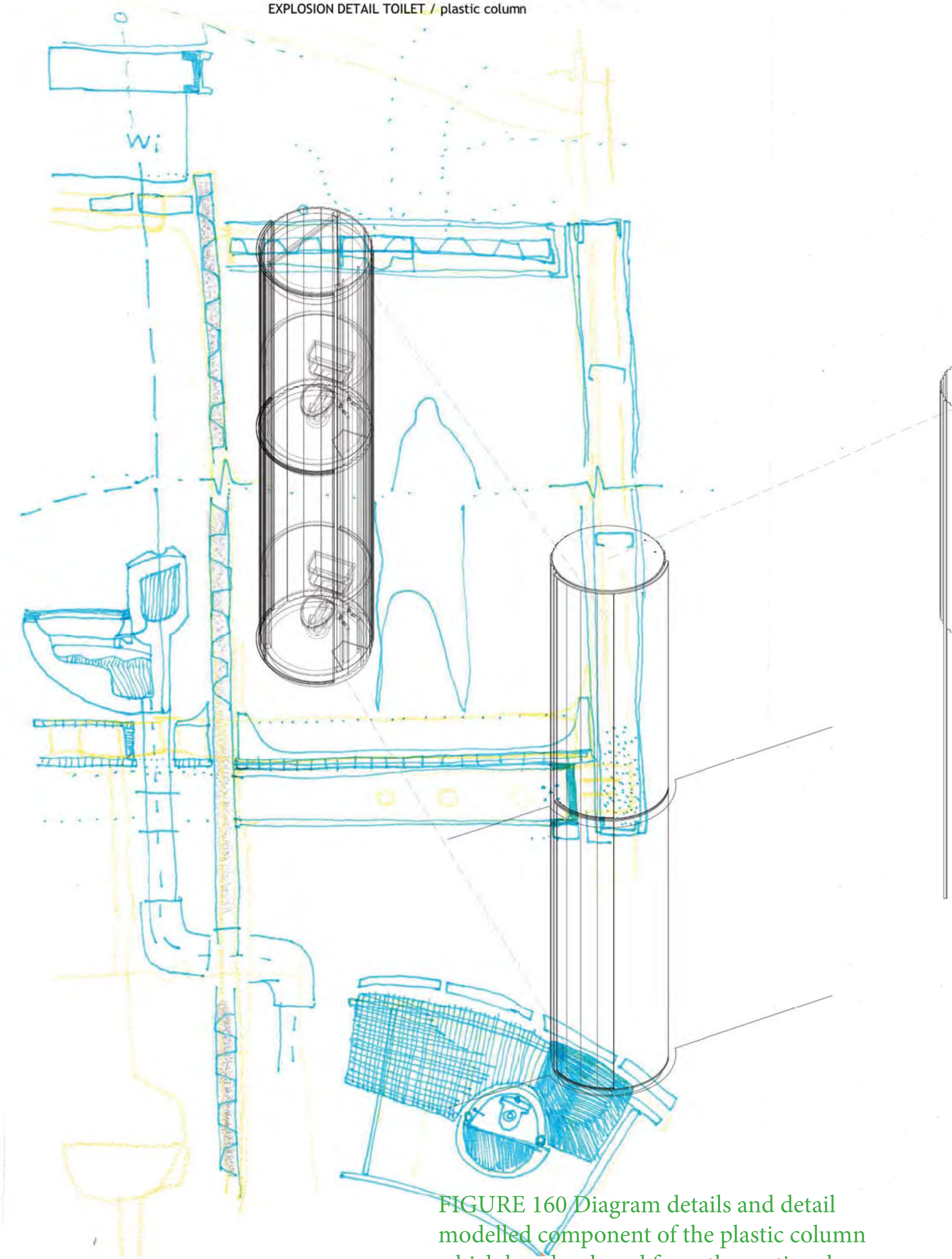
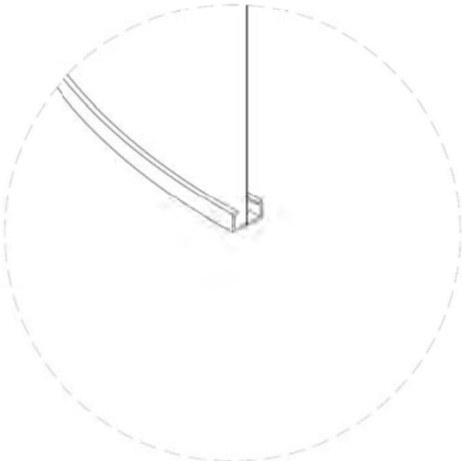


FIGURE 160 Diagram details and detail modelled component of the plastic column which has developed from the sectional waving form into a functional space of waste dialogue relating to water waste literally.



sliding door detail

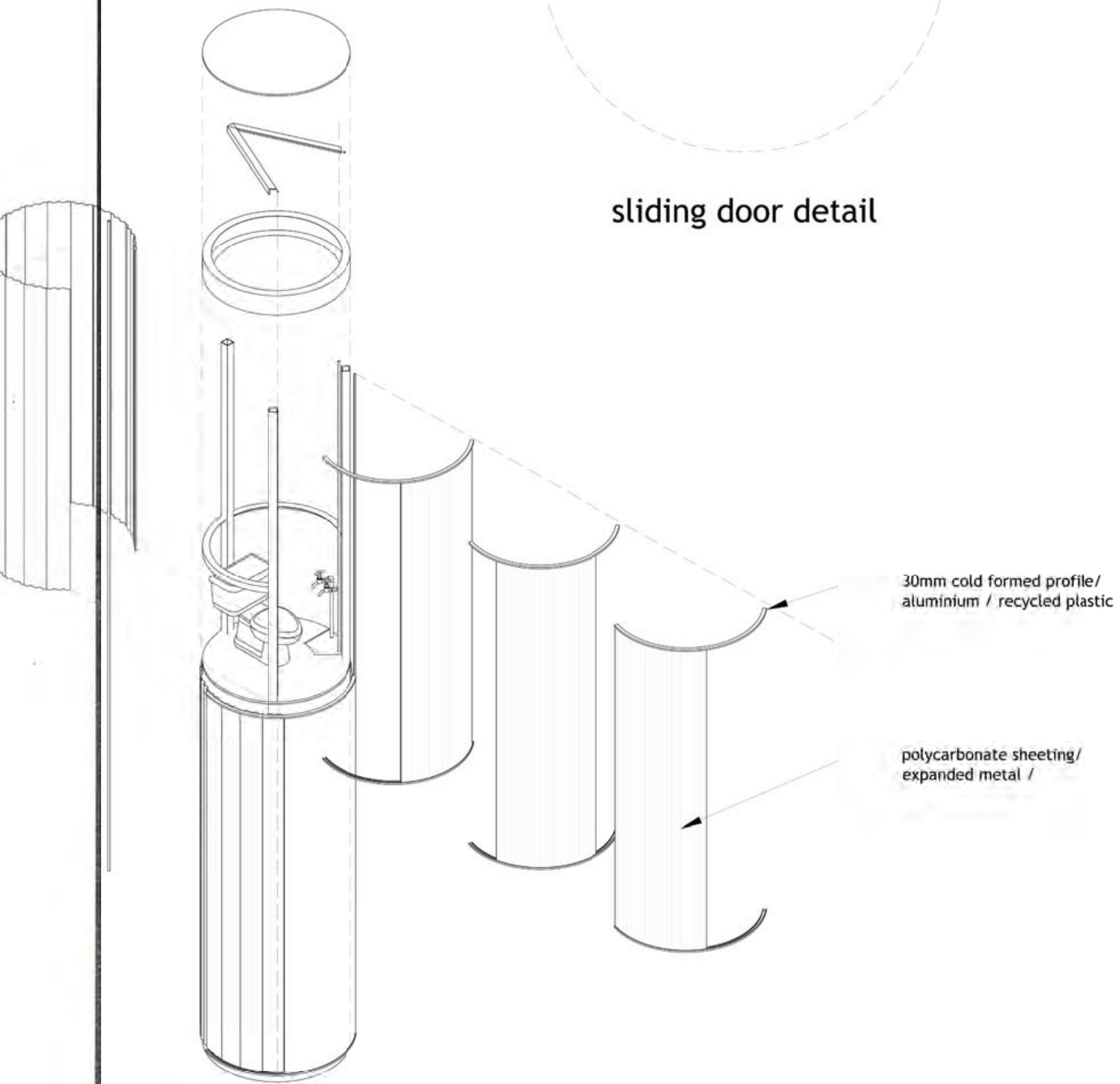


FIGURE 162 Editted perspective drawing of the POO STOEP space where the building quietly opens to the south for events and again make a beautiful exhibition of the toilet.