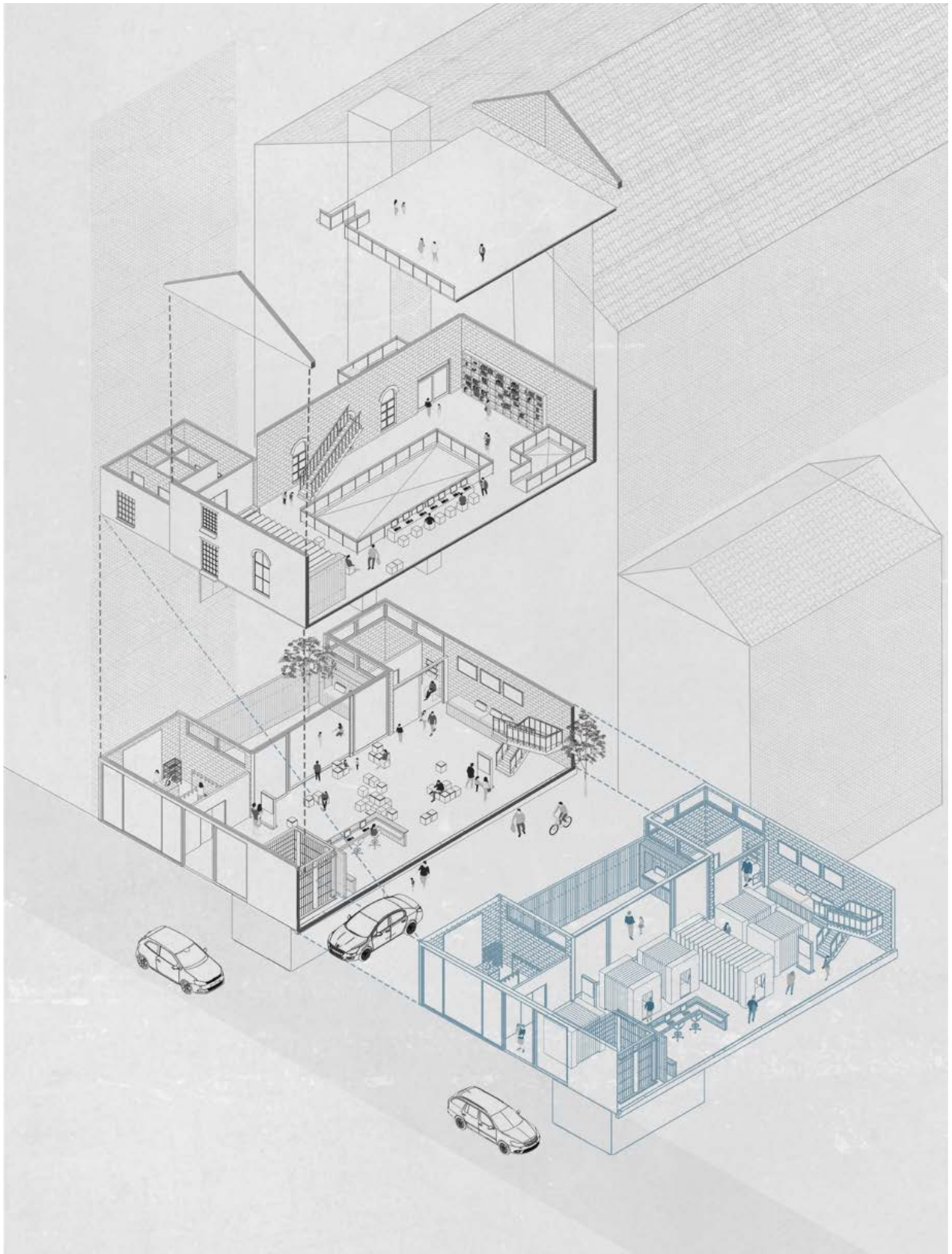
EMILY SHAW

INTERIOR EDUCATORS AWARDS

‘EMERGENCY ACTION PLAN’

A project based within Bishops Lodge, Sheffield City Centre. I created a community centre with a primary focus of helping those in need during natural disasters, such as the recurrent flooding that Sheffield has experienced over the past years. I considered every need of an evacuee- designing my own emergency shelter to offer temporary accomodation and ensuring easy access to food, drinks, clothing and other essentials. I also thought about the day to day purpose of my site- creating a standard and an emergency layout for the ground floor space.

An image of my emergency shelters being intergrated throughout Sheffield City Centre.

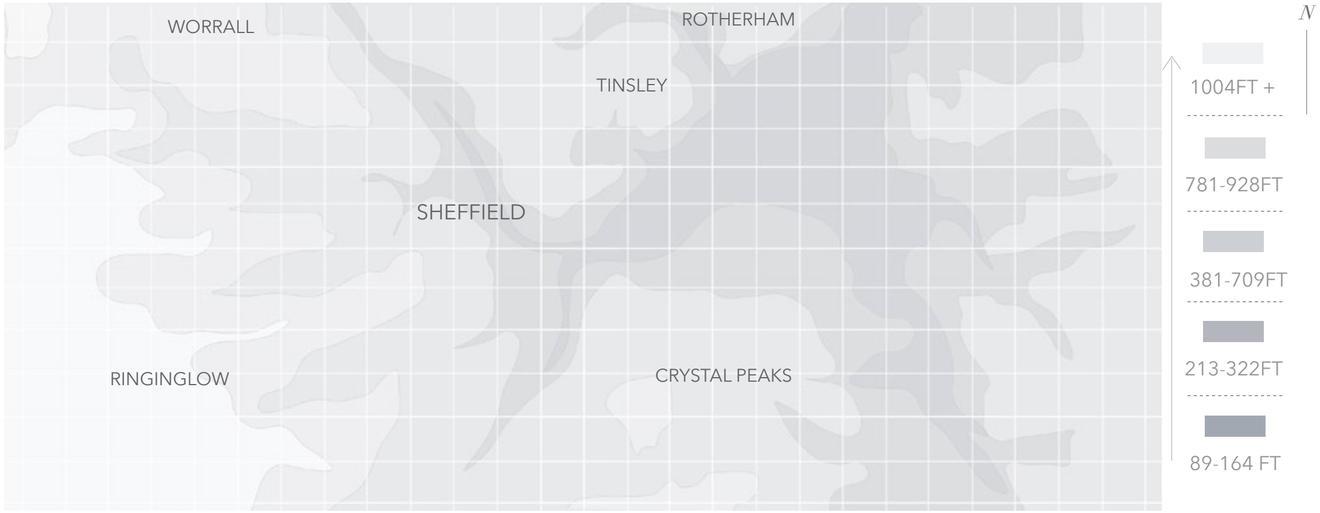


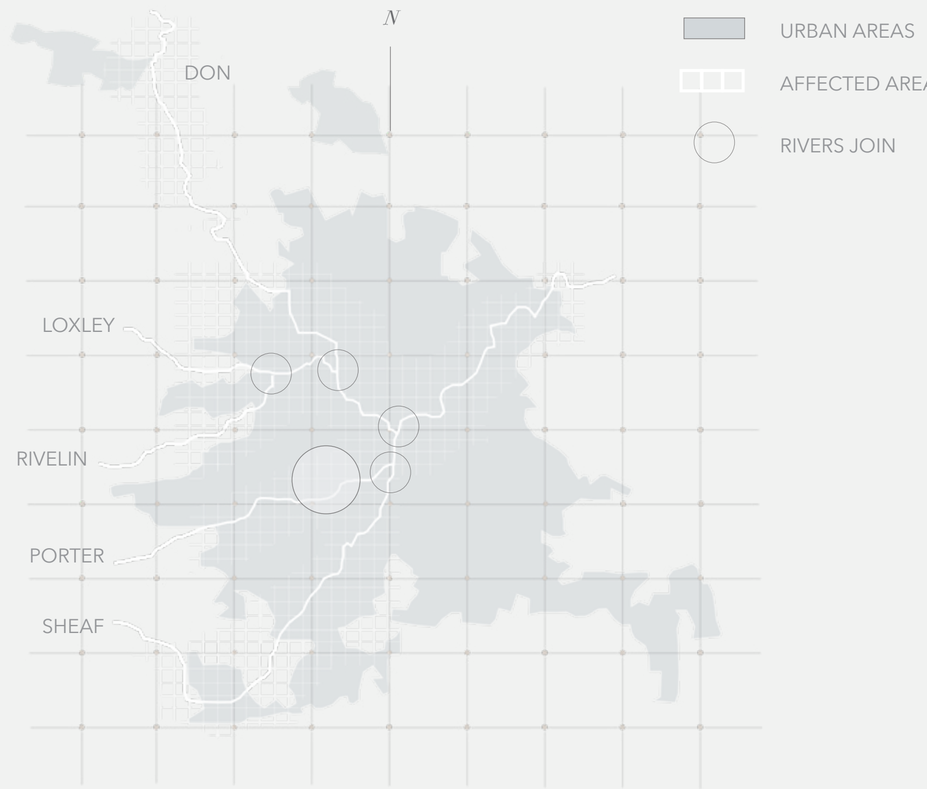
This exploded diagram depicts the change in ground floor layout during an emergency situation.

FLOODING IN SHEFFIELD

CLIMATE CHANGE NATURAL DISASTERS IMPACT

I began by researching the link between climate change and natural disasters. For example, rising sea temperatures can encourage the formation of more intense hurricanes that cause devastation such as that shown in the image to the left. I then related this to the flooding in Sheffield: creating a map showing the 5 main rivers and the areas affected by their floods.

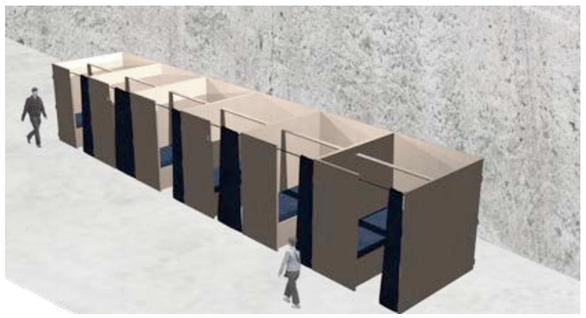


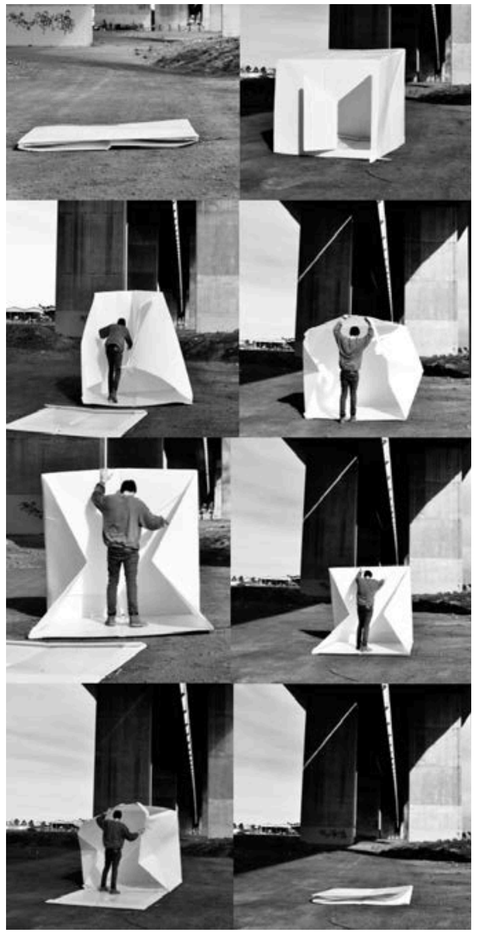


2019: Multiple shoppers forced to stay overnight in Meadowhall after the **River Don** to flooded

2012: Heavy rain threatened the city as **River Don** water levels began to rise

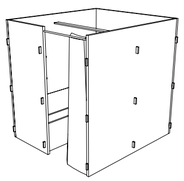
2007: A series of deaths were recorded after **River Don's** banks broke

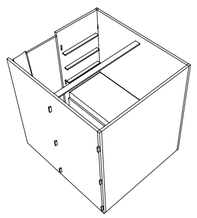




REED WATTS

Reed Watts designed these wooden sleeping pods that are used as **temporary accomodation** for homeless people in London. Each cube structure is made from a series of fireproof birch **plywood** panels that are **slotted together**. They hold a mattress with a raised bed to keep people off the cold flood, a seat, some storage space and a curtain for **privacy** matters.





ALASTAIR PRYOR

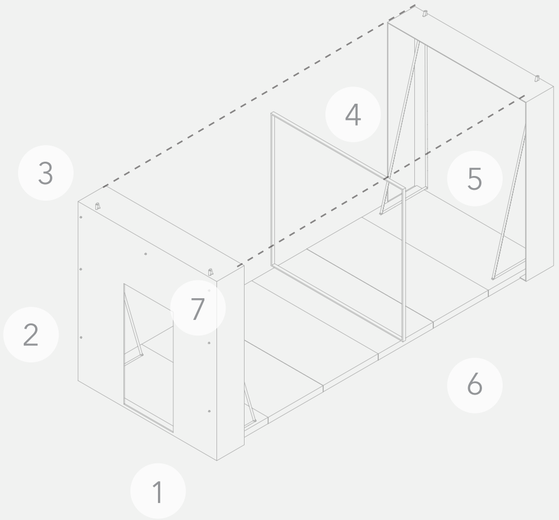
Inspired by the art of **origami**, Alastair Pryor created a portable compact shelter that acts as an emergency habitable unit. Weighing at only 16kg and taking just 2 minutes to assemble, the flat pack design is ideal for its purpose. He used UV stabilised **polypropylene** to create the cube shaped structure due to its endless good properties:

- It is **resistant** to extreme weather and heat
- It has **thermal insulation properties** meaning it can be used outdoors
- It can be melted down and **recycled**

Pryor also included strategically placed air vents to encourage air flow within the space.

I combined these two precedent studies to help create my own emergency shelter that also had flat pack and portable elements.

MY SHELTER DESIGN



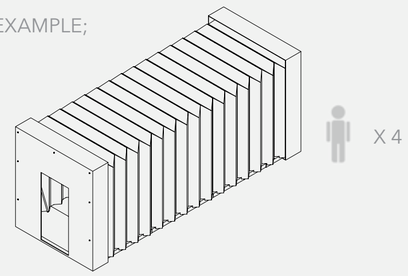
1. FIREPROOF BIRCH **PLYWOOD** PANEL (WITH DOOR)
2. CAPTIVE **NUTS** SECURING PLYWOOD TO STRUCTURE
3. FIREPROOF BIRCH PLYWOOD SHELL
4. STEEL FRAME ACTING SUPPORTING CONCERTINA
5. STEEL PROP SUPPORTING PLYWOOD PANEL
6. 1M WIDE PORTABLE PLYWOOD PANELS ACTING AS FLOORING
7. STEEL ROD THAT CAN BE USED TO HANG A CURTAIN FOR PRIVACY

EMERGENCY SHELTER DESIGN

The design consists of an **concertina structure** that can be lengthened to accomodate the required amount of people. For example, a family of 4 could stretch the structure out to around 6 metres long, whereas a single person could keep it at under 2 metres.

When not being used, the shelter can be bunched together to achieve an almost **flat pack** like form. This means multiple shelters can be stored in a small space. It also makes them easy to assemble.

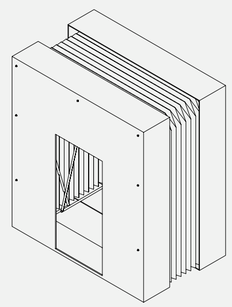
EXAMPLE;



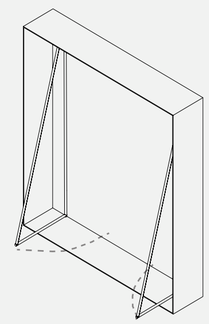
6M

3M

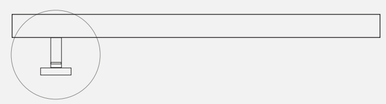
1.5M



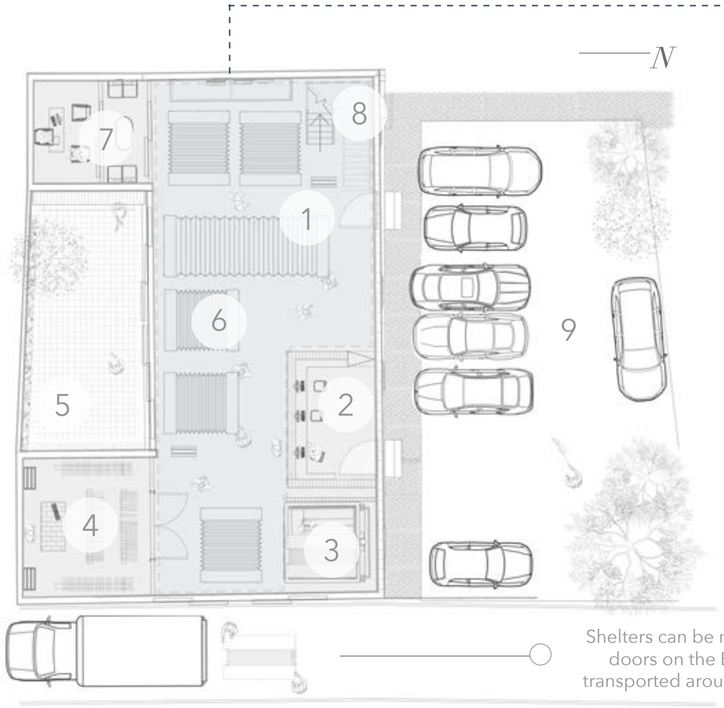
When not in use, the shelter can be pushed together like shown above. The plywood shell encases the **condensed** concertina structure to act as **protection** during transportation and storage. When condensed like this, the structure has a total length of 1.5m



The steel props will **support** the plywood panels to ensure they don;t collapse backwards into the concertina structure. When not in use, they can be rotated 90 degrees in a arched motion to lay flat against the panel.



Each floor panel will have 2 feet that will elevate the entire shelter off the ground when fully constructed. This is done for **thermal** reasons, as well as to **protect** the plywood flooring from wet conditions if used outdoors.



EMERGENCY SHELTERS

The highlighted area is the only area within my site that will switch between a standard and emergency layout.. During a flood, the emergency layout will take place and my shelters will be placed within the highlighted area. Everywhere else will remain as permanent strucures, such as the charity shop and advice centre.

This plan shows an example of how the shelters could be arranged within the teporary space.

Shelters can be moved out of the site via bi-folding doors on the East Elevation. They can then be transported around the city in a lorry for further use.

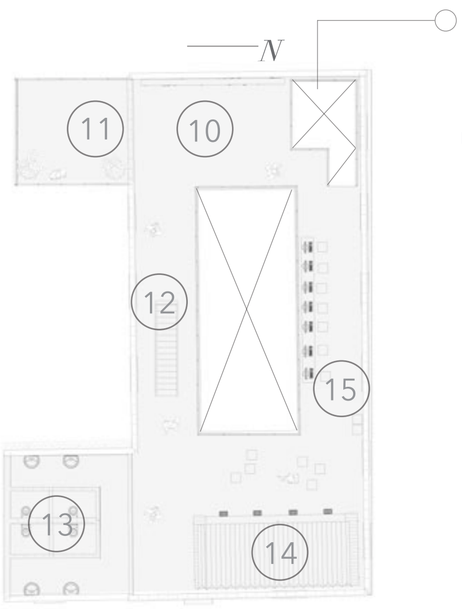
1 Entrance
2 Reception
3 Cargo lift
4 Charity shop
5 Courtyard
6 Emergency Shelters
7 Advice centre
8 Staircase
9 Car park

GROUND FLOOR PLAN

FIRST FLOOR PLAN

The first floor can be accessed via a staircase. It holds **permanent structures**; a reading area, a computer area, a pop up cafe and toilets. There is also access to an outdoor balcony overlooking the courtyard. There is a staircase leading up to the mezzanine and a **void** looking down on the ground floor.

The first floor will remain the same no matter the situation (standard or emergency).

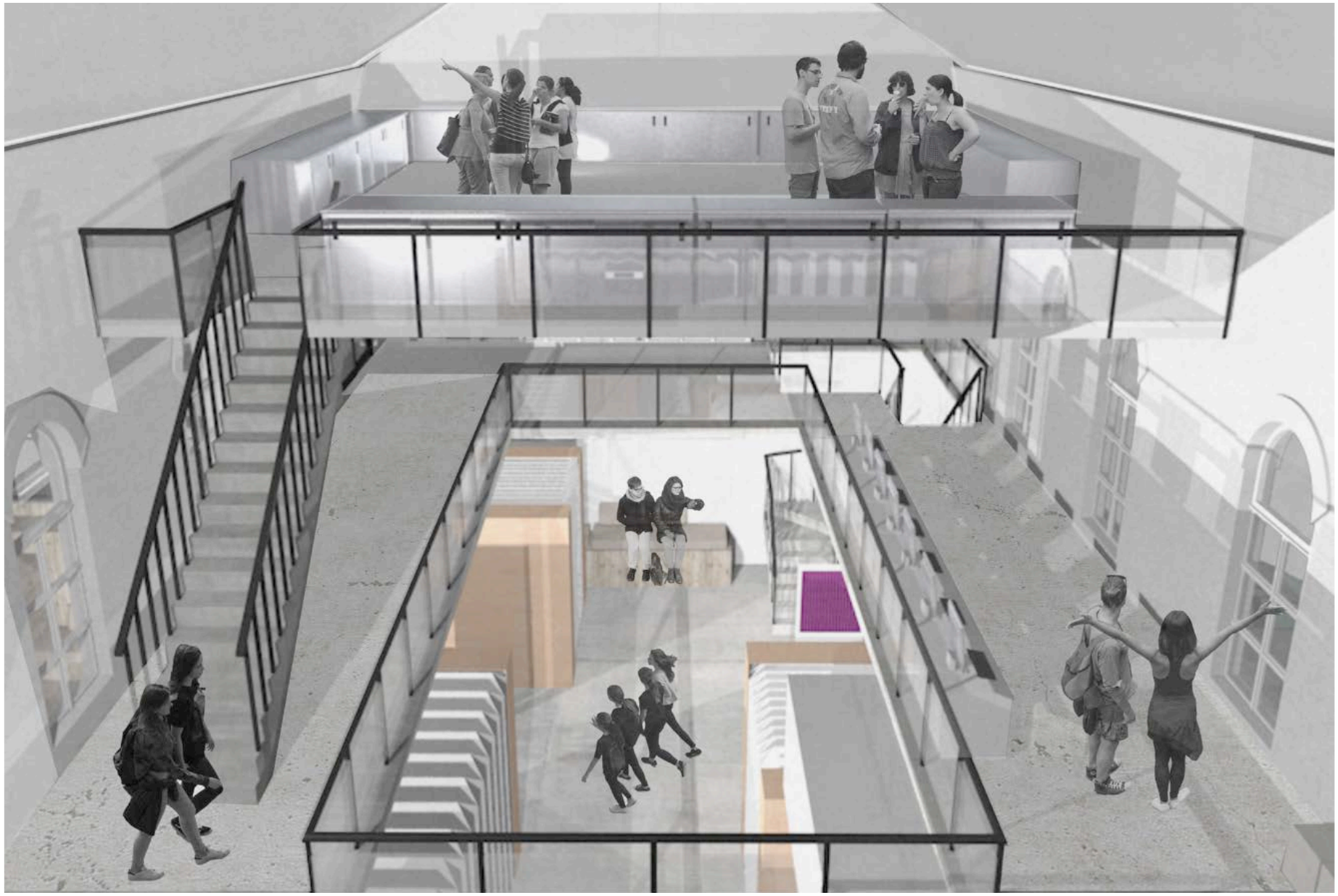


Void for staircase leading down to ground floor.

10 Reading area
11 Balcony
12 Staircase
13 Toilets
14 Pop up cafe
15 Public computers

FIRST FLOOR PLAN

Exploded axonometric showing the space as a whole during a standard situation.



VISUALISATIONS

I created a series of visualisations to depict my concept and show the difference between my standard layout and my emergency layout with the shelters. The visuals on this page show both layouts.