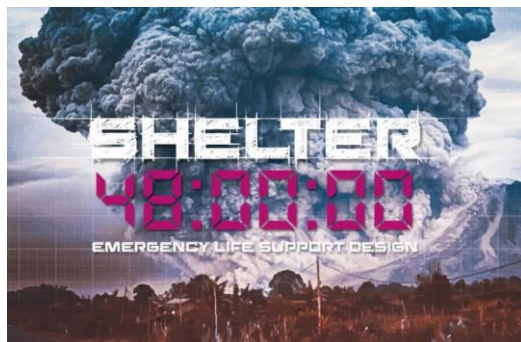


ASSIGNMENT 2: TASK

Module:	M5X01235 Professional Practice	Module Level (4, 5, 6, 7):	5
Assignment Title:	A2: 99 Hour Challenge	Contribution to Overall Module Assessment (%):	A2: 20

Context



SHELTER 48: Emergency Life-Support System

“a guardian angel, a protector to be deployed rapidly after natural disasters strike”

Today, our climate is shifting and, as a result, more natural disasters are triggered around the globe. In the last decade alone, the number of natural disasters recorded worldwide has grown exponentially. Affecting both developed and developing countries, these leave behind a trail of mass destruction, billions of pounds of damages, and an accumulative death toll which hits the thousands. Perhaps most surprising, is the fact that most often than not, the biggest killer isn't the actual event itself, but the hours following the calamity. The lack of adequate protection and shelter - a basic human need to survival - coupled with the obliteration of infrastructures and services and the scarcity of provisions, make the 48 hours post-disaster a highly critical zone for survivors and victims. For many, the response within this timeframe will be the determining factor between survival or death. Unfortunately, however, these hours are often needed to fully understand the magnitude of the event, clear routes to affected areas, and organise/implement a full-scale rescue response alongside suitable re-housing proposals. To make matters worse, it is during this time frame when secondary disasters - triggered by the first - are often most likely to occur. For the survivors - isolated and stranded in a volatile and dangerous environment - time is synonymous with life. Eventually, rescue arrives... but is it too late?

In this 'Sustainable Housing Shelter' challenge, research was undertaken by asking the creative community one question: 'how can architecture and design help protect, shelter and save lives when they strike?' Your challenge is to design a durable shelter for survivors and refugees of natural disasters. Your shelter design should be mass-producible and built from sustainable materials. This is a critical issue in many regions of the world, Rwanda for example, where the use of non-biodegradable plastics is prohibited. You are to propose a design solution for an emergency life-support concept targeting the critical 48-hour window and beyond, capable of being deployed rapidly in the immediate aftermath of a natural disaster.

You have from 10.00am 15th January till 3.00pm 19th January 2018, to exhibit your design proposal outcome in the studio and also submit your proposals online in the form of **2 x A3 LANDSCAPE PRESENTATION VISUALS** explaining your concept, deployment & construction/installation, and **150 WORDS EXPLANATION TEXT** summarising your rationale and outcome solution. Fusion 360 to model your outcome, physical sketch models are highly encouraged but are not mandatory. You will also be presenting to the client your outcome in a short presentation, times TBC.

This is an opportunity to professionally execute and present an innovative solution to those in times of need. Focus on the clarity of communication of the design outcome.

Deliverables

Deliverables for submission of the Project:

1. Design Thinking: Development Portfolio

Professionally presented development pack.

2. Design Execution: Outcome Visuals (2 x A3)

Presentation Visuals explaining your concept, deployment & construction/installation/architecture.

File Name: 2017-18 M5X01235 [YOUR SURNAME] 1 & 2

These presentation visuals should clearly communicate the design intent and outcome. You should utilise 3D CAD (Fusion 360 only) to communicate your design outcome. Use Photoshop/Illustrator to compose the layout.

Schedule:

Monday 15 th	Briefing and Contextual Research (SCA team)
Tuesday 16 th	User Centred Design Workshop and Rapid Concept Development (SCA team + Autodesk)
Wednesday 17 th	Autodesk Fusion 360 Training (Autodesk + SCA team)
Thursday 18 th	Concept Modelling in Fusion 360 (Autodesk + SCA team)
Friday 19 th	Concept Presentation (SCA team + Autodesk)

Studio attendance every day is compulsory. Registers will be taken.

Resources:

1. Library & Internet resources.
2. Design Studio, Workshops, CAD Studio.

Assessment & Feedback

The project will be assessed in relation to the specified learning outcomes using the common assessment criteria specified below which are all weighted equally.

LO 2: Common Assessment and Marking Criteria 1: Presentation Visuals (Design Execution) – Formative
Research & Analysis: Systematic exploration and selection of sources; effective interpretation and evaluation of findings.

Common Assessment and Marking Criteria 2: Development Portfolio (Design Thinking) – Formative
Development: Formulation of innovative and effective concepts through appropriate application of problem solving, creative experimentation and testing methods.

Common Assessment and Marking Criteria 5: Presentation Visuals (Design Execution) – Summative
Presentation & Communication: Clarity and effectiveness in the deployment of appropriate media to communicate a message relevant to specialist and non-specialist audiences.

Feedback:

During the semester there will be regular tutorials (group & individual) which you will need to attend, where **FORMATIVE** feedback will be given regarding the project. It is your responsibility to record the actions that are discussed at these tutorials in your Feedback Journal (which the School will provide) and bring this journal to every tutorial with any of the module tutors. This is a record for staff and yourself to refer to in order to ensure the project is progressing. Failure to attend tutorials will mean you are foregoing the formative feedback process. You will be provided with written **SUMMATIVE** feedback and the opportunity to discuss your performance in a studio tutorial during the week beginning 29th January 2018. For breakdown of Common Assessment and Marking Criteria into grading categories refer to Moodle.

Start: 10.00am 15.01.18; Submission: 3.00pm 19.01.18

Hard copy: Exhibited in Studio (+ all project supporting evidence)

Digital copy: Email to M Archer (matthew.archer@uwtsd.ac.uk)

Feedback: During the week beginning 29.01.18

Please note:

1. It is important you bring the appropriate project work with you to every tutorial relevant to the specific module assignment
2. Your attendance will be monitored every day of this challenge (as per University regulations).

SHELTER 48:00:00

It is a project that meets the needs of post-catastrophe emergency.

Its objective is to provide temporary accommodation for those who have been displaced by natural disasters. It is designed to allow its transformation to adapt to the environment in which it is employed. It is light, versatile, flexible and can be easily dismantled, allowing its reuse or transformation with local resources.

It is a flexible system that allows to adapt any type of occupation to meet different needs.

INDIVIDUAL
1 PERSON

GROUP
2-4 PEOPLE

TRANSPORT
Many units can be stacked to be transported efficiently in any means of transport to the place of destination.

ASSEMBLED
It is deployed in just a few minutes with a CATAPULTER, with NO NEED TO USE TOOLS. TWO PEOPLE CAN EASILY BUILD THE SHEDS TO BE EFFICIENT AND LIGHTWEIGHT DESIGN.

EC2115-C

EC2115-C

RECYCLABLE
Materials used are 100% recyclable.

LIGHT
Lightweight materials for optimal transport. Weight 25 kg.

WATER COLLECTION
Collector able to bring rainwater to its use.

EMERGENCY KIT
Includes one resistant to bacteria.

LOW COST
Competitive price 3,500 US\$.

HEED CHEMICALS
Materials resistant to chemicals and solvents.

RELIABLE
Each unit can be joined in both directions, which allows growing.

USE OF ENERGY
The design contained the use of solar light.

ADAPTIVE TO THE ENVIRONMENT
Adaptable to different environments.

HABITABILITY
The shelter is breathable, waterproof and thermally and acoustically insulated.

MODULAR MEASURES
CLOSED: 0.80m x 2.45m x 2.30m
OPEN: 3.20m x 2.45m x 2.30m
H2: 2.15m x 2.35m x 7.40m2

SIMPLE REFUGE
UNFOLDED

MODULAR COUPLING
Elastic coupling system.

ADJUSTABLE HEIGHT SUPPORT
Adjustable height support.

SOLAR PANEL
Use of sunlight to capture energy.

FINISHING
The roof has a minimum slope for the runoff of rainwater.

PERFORATED
Each module has a zone with perforations embedded in the wall.

STORAGE
It is assembled with dry parts to reduce the weight of the assembly.

Main characteristics
Elevated floor rigid base.
No need for tools to assemble.
Can be transported and stored folded.
Contains folding table with chairs, personal storage area.
Basic lock + 60 find aid.

CONCEPT II

HOW TO ASSEMBLE??

3D CASE STUDIES

CONSTRUCTION

WHAT IS IT MADE UP OF??

EC2126-C

MODULARITY

WILL IT ADAPT TO CLIMATIC CHANGE??

HOW TO TRAVEL??

GENERAL CLUSTER SCHEMES

HOW TO TRANSPORT??

WILL IT ADAPT TO DIFFERENT TERRAIN??

EC2136-C

EC0648 INFLATABLE SHELTER

The temporary emergency shelter aims to create better living conditions for the people in natural disaster areas, specifically earthquake areas.

The operational areas of the shelter undertake facilities: sleeping and sitting, Care of infants, Children and the ill or injured, Storage of food and water, Household possessions, Cooking and eating indoors, The common gathering of the household members, etc.

The purpose of inflatable shelters is to provide functional living areas that can be quickly assembled and adapted to different environmental conditions.

The unit will be able to resist wind and snow loads, and fit into international standard truck size (IS) container can be built for 300 people in less than 2 hours.

Filling the ultra-light material with air, the material turns into a structural element, creating a shelter.

Resistant to winds until 120 km/h and snow loads of 30 kg/m².

1. LOGISTIC

2. ASSEMBLY

3. RELATION TO GROUND

WOOD GROUND PANEL

4. PEOPLE SHELTER

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EC0648 INFLATABLE SHELTER

2.1 ASSEMBLY

PROGRAM

MULTIPLE ROLE OF THE MATERIAL

ADAPTABILITY

CAPACITY

RESILIENCE

Senses of Shelter (S.O.S)

Target Region

Command Space (Hard Plastic Covering)

Key Points for Survival

Possible Configurations

Living Unit

Sanitary Unit

Sense of Security through Community

Exploded

Steps of Assembly:

Details:

EC2115