

An aerial photograph of a rural settlement in a valley. The landscape is characterized by terraced hillsides and a mix of traditional and modern housing. Numerous white cylindrical water tanks are scattered throughout the settlement. In the foreground, there are several houses with red and blue roofs, a large white tent-like structure, and a playground. The background shows rolling hills and mountains under a cloudy sky. A tall communication tower is visible on the left side of the image.

GER INNOVATION HUB
Rural Urban Framework

IMPACT REPORT

December 2019

CONTENTS

Project Introduction	1 - 4
Community and Stakeholder Engagement	5 - 14
Documented Activities	15 - 24
Planned Activities	26 - 29
Building Analysis and Performance	30 - 36
Conclusion: Impact Evaluation	37 - 41

Contact

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Project Introduction

The project aims to measure the social and environmental impact of a newly built community centre – The Ger Innovation Hub – for ger district inhabitants in Ulaanbaatar, Mongolia. The results will be used to establish a new set of guidelines and criteria for the design and construction of future community innovation hubs in the ger districts.

The Ger Innovation Hub will provide much needed community infrastructure to an impoverished population. The Hub will offer a crèche, after-school club, performance space and educational workshops for talks and vocational training. Designed as a layered structure, the inner room is surrounded by an outer layer of polycarbonate, creating a buffer space that traps radiant heat in the winter. This reduces energy consumption and serves as a model for the district to reduce coal use, which contributes to toxic levels of air pollution in the city that are some of the worst in the world.

The project was initiated by Rural Urban Framework at the University of Hong Kong in partnership with GerHub, a local NGO who will be responsible for the management of the Ger Innovation Hub, and EcoTown, an NGO and active stakeholder in the local community. The first two stages of the construction project were sponsored by The Hong Kong Jockey Club Charities Trust. The final phase was paid for by GerHub – the primary stakeholder and occupier.

Construction work began in July 2018 when two teams of students from The University of Hong Kong and Hong Kong University School of Professional and Continuing Education, joined forces with the local NGOs to assemble the trusses, and complete the primary timber structure. The last phase was delayed until July 2019 as the NGO needed to fundraise to complete the interior fit out. The building was completed in November 2019.

During the period between October 2018 - November 2019 the following activities were conducted:

- 6 events were held at the GIH
- Over 200 local residents have participated in these events.
- Over 100 individuals from outside the district have participated in these events and have engaged in learning about a new approach to designing community facilities in the ger districts.
- 37 residents have been surveyed
- Knowledge exchange between ourselves and another stakeholder has led to the construction of a Ger Kindergarten that used the same principles in its design approach.
- 7 trips have been taken
- 2 meetings with external organizations have been hosted by Gerhub - Wharton MBA Program, YPO Event.
- 4 meetings between RUF and key stakeholders have taken place
- 2 project proposals related to activities at the GIH and enhancement of the immediate area has been approved - US Embassy, The Asia Foundation
- 1 project proposal for innovative public spaces has been made to UN-Habitat.
- 8 events have been planned between December 2019 - February 2020



Location

Songino-Khairkhan 31, Ulaanbaatar, Mongolia

13,000 residents in the district

1,500 residents in the Ecotown area

GER INNOVATION HUB

5-minute walking distance

Key Stakeholders

GERHUB

<https://gerhub.org/>

Non-profit social enterprise that seeks to find innovative and creative solutions to some of the most pressing issues in the ger areas of Ulaanbaatar. GerHub are the owner/occupiers of the Ger Innovation Hub.

Contact Person: Badruun Gardi (Chairman), Enkhjin Batjargal (CEO)

ECO NOGOOLIN GER COMMUNITY SOCIAL ENTERPRISE (ECOTOWN)

<https://www.facebook.com/nogoolinbaishin/>

Non-profit community NGO building sustainable affordable technologies and solutions in the ger areas of Ulaanbaatar. They have been overseeing construction of the hub and assisted with the student workshop. They are based in the area of the GIH and have strong relationships with the local community.

Contact Person: Odgerel Gansukh (Founder)

THE HONG KONG JOCKEY CLUB CHARITIES TRUST

<https://charities.hkjc.com/charities/english/charities-trust/index.aspx>

The Ger Innovation Hub project is part of the Jockey Club HKU Rural Urban Design Project. Funding was provided for the student design and build workshop, and a part of the construction cost. The project brought HKU and sub-degree students together to contribute to less privileged communities, aligning with one of their Strategic Themes of 'empowering youth for a hopeful future'.

HKU SCHOOL OF PROFESSIONAL AND CONTINUING EDUCATION

<https://hkuspace.hku.hk/>

Partnering institution for the Jockey Club HKU Rural Urban Design Project. 20 Students from their Higher Diploma in Architectural Studies programme participated in the design and build workshop that was held in Summer 2018.

Contact Person: Mona Yeung (Senior Programme Director)

Project Timeline

October 2018

- Focus group with stakeholders on future event programming and methods to engage the community.
- Construction of the Ger Innovation Hub (GIH) was not completed, loggers could not be installed to collect data at this moment.



October 2018

November 2018

- Visit to check on construction progress of the GIH

January 2019

- Visit to check on construction progress of the GIH
- Meet with stakeholders to record activities occurred and determine plans for activities in the upcoming year.



January 2019

April 2019

- Installation of data loggers to begin collecting initial data on environmental performance. Although the interior was not complete, data was collected on the performance of the exterior polycarbonate envelope.



April 2019

June 2019

- Conduct community workshop to assess social impact.
- Conduct household surveys to determine residents' needs and concerns
- Meetings with stakeholders to assess progress
- Stakeholder coordination meeting with GerHub, discussion of long term financial planning and sustainability
- Community workshop involving children and parents within GIH.
- Evaluation of environment performance cannot be conducted until post completion and monitoring through certain winter months.

September 2019

- Visit to check on construction progress of the GIH

November 2019

- Completion check
- Collection of environmental data from loggers
- Conduct stakeholder meeting with GerHub and Ecotown to understand operation strategy and planned activities.



November 2019

December 2019

- Final evaluations and completion of guidelines

COMMUNITY AND STAKEHOLDER ENGAGEMENT

Activity Log

Date	Activity/ Event	Organizer	Participants/ Beneficiaries	Aim
20-May-18	Children's Fundraiser	Ecotown	30-40 local residents and partners of Ecotown	Raise funds to build a playground, and to introduce the idea of the GIH and get community buy-in
Jul - Aug 18	84th Kindergarten Construction	Ecotown, Nomongoo LLC, Rotary Club of Ulaanbaatar Peace Avenue, District Government	35 children, and parents and teachers	Building additional capacity for the existing kindergarten. Adopting the idea of an outer layer of polycarbonate from the design of the GIH - a 'ger kindergarten' with a polycarbonate shell is built so children have a space to play in winter, and reduces heating costs of the kindergarten.
19-May-19	Tree Planting and Dream Playground Building	Ecotown, LEAD Mongolia	15-20 local residents and volunteers from the city	To plant trees and begin on constructing a playground in the area South of the GIH to improve play spaces in the district. Building took place during weekends over 2 months - involving volunteers and local residents.
1-Jun-19	Young President's Organization (YPO) Visit	GerHub	70 YPO members, 10 local families	Introduce the issues facing the ger district residents, the solutions and collaborative projects that GerHub has initiated, and an explanation of why the construction of the Ger Innovation Hub is so important for residents of the ger districts.
1-Jun-19	Children's Day Open House	GerHub, Ecotown	25-30 parents and children	To generate some buzz and excitement about the GIH, and a chance for the GIH to host its first community event and educate the community about the hub.
2-Jul-19	Dream Playground Opening Event	GerHub, Ecotown	50-60 local residents and volunteers from the city	Celebrate the opening of the playground in the area.
19-Oct-19	#MaskOn	Ecotown, Alungoo Education Development Association	50-70 local residents, visitors, and volunteers from the city	Air pollution campaign to educate residents in the ger districts about pollution, the effects on health, and the things that they can do to protect themselves and their families.
Planned Events				
Dec-19	Knowledge Sharing Ger	GerHub	10-15 local residents (adults and youth)	To explain the DemoGer (a ger that incorporates simple solutions built adjacent to the GIH). To encourage neighbours to share their experience, and give the idea of knowledge sharing can be helpful to build stronger and healthier community.
Jan-20	Local Community Soft Launch and Lunch	GerHub, Ecotown	15-20 local residents	Launch event for the local community to generate excitement and inform them of activities planned in the upcoming months.
Jan-20	Children's Play Workshop	GerHub, Ecotown	10-15 children and youth.	To begin engaging local children through creative play.
Jan-20	Design Thinking	GerHub	10-15 local residents (adults and youth)	For participants to brainstorm about their dream "ger" and try to come up with solutions. Also to motivate them to be the change they want to see.
Jan-20	DIY Insulation	GerHub	10-15 local residents (adults and youth)	Organize a DIY workshop to motivate people to solve their problems using available materials. To highlight the importance of heat loss prevention.
Jan-20	Clean vs Dirty stoves and firing methods	GerHub	10-15 local residents (adults and youth)	To highlight the importance of clean stoves and understanding of different firing methods with the help of experts and ask people to register their important actions to see if they could make a change in their wrong habit if they had any.
Jan-20	Health impact of air quality	GerHub	10-15 local residents (adults and youth)	Educate about how important air quality is to their health. Brainstorm and remind what they could do to prevent further health issues.
Feb-20	Household financial literacy	GerHub	10-15 local residents (adults and youth)	To observe how financial literacy and their important actions relate.

Ger Innovation Hub Stakeholder Focus Group

22nd October 2018 (4:00pm)

In attendance: Ecotown (Odgerel Gansukh), Gerhub (Enkhjin Batjargal, Munkh-Orgil Lkhavga), RUF (Joshua Bolchover, Jersey Poon)

ET - The residents are not as excited about the project as they were when construction first started. They're asking when it's going to be done.

RUF – We need to plan how to engage with the community, not just when it is in use. How do to engage and use involve the community? Perhaps landscape (planting, tire planting, soakaway trench), or helping with the inner layer?

ET- The community was thinking that the Ger Innovation Hub might be a library or a study center.

RUF – Is it possible to still hold events with just the outer layer? We need to come up with a strategy for engagement and community involvement, that builds up towards opening. We need to get people into the project even before it is used. To get the excitement back up.

GH - There might be approvals needed for the building to be used, it is intended to be used for public events and will be publicized so we have to make sure it is safe.

RUF – We need to come up with a strategy for engagement and community involvement, that builds up towards opening. We need to get people into the project even before it is used. For example, digging the soak away trench or planting?

ET – Gerhub could come to promote and spread the word about the Ger Innovation Hub.

RUF – How would you spread the word about things like this in the community? It has to be done over time, generating awareness and interest. The programing also has to be considered.

GH – We have plans like a lego workshop that is related to one of our other projects. It fits with the idea of the Innovation Hub to empower young people.

RUF – Maybe some activities can take place to build up to the opening, such as tree planting, landscaping, or painting of tyres for the retaining wall.

ET – The idea was for the community to come together to build it together.

GH – Ecotown embodies the community. Raising the trusses with the students was involvement. They have to be invested in it.



Meeting at Ecotown headquarters

Stakeholder Meeting: Ecotown

3rd June 2019 (5:00pm)

In attendance: Ecotown (Odgerel Gansukh), RUF (Jersey Poon)

What are Ecotown's aspirations for the GIH? How do you think a community space will impact this area?

- To create a real community space that people can gather and build relationships.
- Hope to generate interest with different people to become involved.

What has the response been to the GIH ?

- People have been very excited. Since construction has stopped, many people – especially the kids, have been asking when it will be finished and what is going to happen.

Has the GIH changed how Ecotown works in the area? How?

- The GIH plays into the dream that Ecotown has had for the area and that it is becoming real.
- The biggest change is that there is that there is a sense of more than 'we can do something' but 'we can pull different people and stakeholders together to do something'.

Has the design of the GIH affected how you - think about what a community hub is?

- It is a very fun design that is outside the box.
- Affects people, especially those who were working on the construction. They did not understand what it was even during the build but as they begin to see it take shape they are more excited.

What activities have taken place as a result of the GIH?

- *Children's Fundraiser (20th May 2018)* Organized by Ecotown
- *Ger Kindergarten Construction (July-August 2018)* Collaboration between Ecotown, Nomongoo LLC, Rotary Club of Ulaanbaatar Peace Avenue, District Government Design approach changed - an outer layer of polycarbonate added.
- *Tree Planting and Playground Building (Initiated on 19th May 2019)* Organized by Ecotown and LEAD Mongolia <https://www.worldlearning.org/program/leaders-advancing-democracy-lead-mongolia-program/>
- *Playground Opening Event (2nd July 2019)* Organized by Ecotown and LEAD Mongolia <https://www.worldlearning.org/program/leaders-advancing-democracy-lead-mongolia-program/>

What activities do you have planned?

- To continue to fundraise for the playgrounds. The idea is to have 3 parks in the district to create a 'continuous park'.
- Another kindergarten is being planned on the hill behind the GIH. We are currently looking for partners and donors.

Stakeholder Meeting: GerHub

3rd June 2019 (8:00am)

In attendance: GerHub (Badruun Gardi), RUF (Jersey Poon)

What is the role of Gerhub for the GIH?

- The Ger Innovation Hub (GIH) is the most important project that GerHub has at the moment.
- It is the flagship project to test ideas that have the ability to transform the community.

What is Gerhub's aspirations for the GIH? How do you think a community space will impact this area?

- We do not have the luxury of time. None of the ger districts now have a strong sense of community – we want to create that. To get people to cooperate and collaborate.
- For the community to be the inspiration.
- This is the pilot project. The intent is to create a community hub in every district, but we have to prove it first which will take maybe 3 years.
- The real work begins after completion to make sure the space becomes and remains active.

Has the GIH changed how you work in the ger district? How?

- Yes! To have a physical space changes everything. We are better able to understand the impact that it has on the community and are able to show it to others.
- It is more real and we are able to make the case for building community relationships and capacity building in the ger districts.

Has the design of the GIH affected how you think about what a community hub is?

- The design makes us think more creatively.
- It is not a typical space so it makes you want to keep it different. It is definitely not a classroom in a normal building and we do not want it to do so.
- The different spaces offer flexibility and we want to keep it that way – we can do indoor planting and have different types of activities.

What activities have taken place?

- YPO (Young President's Organization) <https://www.ypo.org/> (1st June 2019)
- Children's Day Open House (1st June 2019)

Is there a business strategy? - Management/ Funding/ Marketing

- Current plan is to have different activities that are funded differently
- Paid for by organizations looking to work in the ger districts e.g. SOHO Impact
 - Free e.g. air pollution workshops, ger improvement workshops
 - Fee charged to participants e.g. English lessons

- The idea is not to cover all the expenses, but by paying something it will give it some value so people do not take it for granted
- 4 students from The Wharton MBA Program (<https://mba.wharton.upenn.edu/>) came to Mongolia for 10 days to do some pro-bono consulting.
- Findings/suggestions:
 - The most important is to establish the financial sustainability of the project
 - Everything loses money based on the type of activities proposed.
 - It will take at least 5 years of active fundraising
 - Should include training community members to do certain things – and introduce profit-sharing to the project
 - People should be asked to pay for a deposit to guarantee the show-up. They can be refunded when they participate or find someone else to participate.
 - There is one opportunity for income that could cover the costs for the other activities – Tourist Income, as the community would not be financially viable without external input
- Could conduct workshops and classes for expats/tourists – held by the community members and profits shared with them
- Could also work with tour companies that are interested in collaborating to provide visitors an experience that shows them the ger areas which do not get much exposure. Also there is not much to do in the city so tour operators are always looking for new ways to fill their days.



Wharton MBA Program visit
17 May 2019

What activities do you have planned?

- We're willing to try new things and work with all age ranges but the activities are now geared towards young people and capacity building.
- Currently have one partnership that is ready to go, and talking with other organizations.

Soho Impact <https://sohoimpact.org/>

Who facilities access to creative play and provides funding to run these programs (ready to go) – Soho Bricks

SOLE Colombia <http://www.solecolombia.org/>

Who believe that anybody can learn anything when working in a group. Within groups, people can work to solve their own challenges and transform their community through self-organisation.

- It is more about finding that mix between activities and funding – need to find things that we can fundraise for.
- Looking into MIT D-Lab <https://d-lab.mit.edu/> - who works to understand inclusive innovation as an approach that leads to better products and services whilst creating more dynamic local ecosystems and stronger communities.

Ger Innovation Hub - Community Workshop

Date: 1st June 2019

Target audience and number: 25-30 Parents and children.

Organizer: Gerhub (8 members) and Ecotown (3 members)

The Present (during construction)

What do you think about the GIH? Do you like it?

- “When the construction started in June 2018, I was very unsure about what was happening.”
- “It is unique, it made me very interested in it – made me do more research about the material when I realized that there was nothing else outside. And found that there are many really nice examples around the world.”
- “Noticed immediately that it can be very energy efficient.”
- “I love the shape – there are very few ‘flat roofs’ in the area. It helps with the airflow, and I believe that even with the inner layer there will be air flow in the space.”
- “I am in a club of volunteers. I want to bring people here to see that we can have spaces like this here, not just in the city.”

Do you think the area has improved? How and why? (e.g. more community activities, happier)

- “I live very close by and I come when I am free.”
- “There is now a playground being built. When it is finished it this will automatically be the place to come to because it is the only place.”
- “We needed a place. We needed to start something.”
- “This makes people excited and we come up with ideas. There are already people in the community who say they can come to teach things to other e.g. instrument, chess”



*Community Workshop
1 June 2019*

The Potential (when it's up and running)

What do you think the GIH will change for the community?

- “It becomes a physical place that will allow activities to take place”
- “Relationships with friends will become stronger”

What type of activities do you want in the GIH?

- Educational activities, for 1-2 year olds. Should look at ‘international best practice’
- It can become the foundation of someones education
- Could organize the community into groups based on hobbies and interests – make connections
- Support for local Small and Medium sized enterprises
- “I am a young person from this area and I am interested in music. I want to have some music workshop where I can learn local instruments.”

Are there any changes you would make?

- Need to spread the news in the community through word of mouth. Not everyone knows.

Is a community hub enough? What else does the area need?

- “I am a teacher. There are many teachers who are active and can contribute. It is not just the facilities but also a focus on activities and capacity building.

Stakeholder Meeting: Gerhub

21st November 2019 (5:00pm)

In attendance: Gerhub (Uurtsaikh Sangi), RUF (Jersey Poon)

What activities do you currently have planned?

- Considering to combine a soft launch of the Ger Innovation Hub with the Demonstration Ger Project in December. The DemoGer is funded by the US Embassy.
- We plan to invite The Asia Foundation and the US Embassy to the projects as they have been very supportive of our activities (The Asia Foundation is providing funding for the construction of sanitation and retaining wall facilities at the Ger Innovation Hub).

What is the strategy for organizing events for the Ger Innovation Hub?

- Gerhub aims to host events and workshops that focus on 3 areas of content

Livelihood

including health and financial literacy, many residents do not know how to think about long term savings and benefits

Education

this could be tied into Gerhub's Education for Innovation Programme that is run in partnership with SOHO Impact to provide much needed growth opportunities to high schoolers who want to gain meaningful extracurricular experience and skills whilst implementing community-based projects

Entrepreneurship

- We need to plan and continue discussions on operations. There is an idea to hire someone at Ecotown who can run events.

Additional meeting with Ecotown (*Odgerel Gansukh*) in attendance

22nd November 2019 (1:00pm)

What simple activities do you think could take place? What needs to be considered or prepared?

- Chess club, homework club, or handicrafts clubs can be locally organized
- Funding of the events and salary for any organizer will need to be further discussed.
- A scheduling and communication system will need to be set up with Ecotown about the use of the building - when it is not used by Gerhub.
- A fixed schedule means that everyone is aware of what is happening at each time.

Household Surveys

Name	Khajimdaa (F)	Otgoo (F)	Oyuntuya (F)
Interview Date	1-Jun-19	1-Jun-19	2-Jun-19
Number of family members and their ages	4 people (2 children - 22/24, and a 1.5 yr old grandchild)	4 people (2 children)	5 people (2 children - 6/15, and younger sister)
How long have you lived here?	10 years	7 years	6 years
The Past			
What do you do in your free time? How often do you go?	Stay at home mostly. Very routine. Visits friends and family for drinks and karaoke once a week in the city	Bring the kids to an indoor playground in the city once a week. Meet with friends in the city at a food course once every two weeks	Visiting relatives and meeting up with friends once a month in the city (Zaisan)
Do you think community spaces are important? Were there any in the area?	Yes - there is nowhere to sit and talk. There is also no where for the kids to play. Withou the GIH parents would just bring their kids to the city		
Does the area need any more community spaces?			
What do you think makes a good community space?	The building is a large factor, but the people who are making it is also very important.		
Were you looking forward to the GIH being built?	Was excited about it bu no expectations		
The Present (during construction)			
What do you think about the GIH? Do you like it?	It depends on what Phase 3 is - do not have expectations.	Very excited as the kids now only just stay at home. They will have a place to go and be more open and make more friends	It will be better when it is complete because it will be more comfortable. It is better to have something.
Has the area improved? How and Why?	it is a better place for kids to hang out and do things, but it depends what will happen. It is good so far.		The community is happier and excited to see it finished. It will be a nice place in the weekend. People want to hear the children playing.
Has there been any changes to where you go for leisure since construction of the GIH has started?	My grandkids play here now		
The Potential (when it's up and running)			
What do you think the GIH will change for the community?	There is a more positive feeling - people started wanting to know what was going on and whether it would be open to everyone or just those in the community.		It will be a nice place for the children.
What type of activities do you want in the GIH?	More planting and playspaces for kids.		Concerned about the adults/parents. It could be a learning centre, support for small business, and skills training.
Are there any changes you would make?	The ground material can be nicer - not just rocks and soil		Want to have more playground/play spaces for the children.

Household Surveys

Name	Khorolgarau (F/69)	Zolboot + Basanjargal (both 40)	Oyuntugs (F/33)
Interview Date	2-Jun-19	2-Jun-19	3-Jun-19
Number of family members and their ages	5 people in the family, 4 in the house (son, daughter in law, 2 children - 19/8)	4 people (2 children - 4/7)	5 people in the ger (3 children - 10/6/4). Mother and grandmother also live on the plot
How long have you lived here?	2 years - used to live in Darkhan, widowed then move to UB to be with her family.	7 years ago	9 years
The Past			
What do you do in your free time? How often do you go?	Go to the countryside in the Summer (July) to visit friends. But when in the city, just watched TV. Has not made any friends in the area.	Zaisan and the nearby area 3-4 times a year. Usually go on vacation to the countryside in summer. Meet friends in the city 1-2 times each month.	Meet with friends once every 10 days. The kids play inside the ger.
Do you think community spaces are important? Were there any in the area?	It brings people together.		It is necessary to have a space that people know is for the community that you can go to.
Does the area need any more community spaces?			
What do you think makes a good community space?			
Were you looking forward to the GIH being built?			
The Present (during construction)			
What do you think about the GIH? Do you like it?			
Has the area improved? How and Why?		More things for the kids to do - planting and playing.	
Has there been any changes to where you go for leisure since construction of the GIH has started?	Not yet but - Would participate if there is something suitable.		
The Potential (when it's up and running)			
What do you think the GIH will change for the community?	It is a nice idea, can meet people and make friends so not just watching TV all day.	Nice to have a place to go in the area.	It will be a good place for the kids.
What type of activities do you want in the GIH?	It is nice to see kids having fun. A shop - things are now too far away.	Want to have things so people can share knowledge and learn from others in the community. There are many who are good at construction and others who are good at interior - we can teach each other how to do better. Then they do not need to hire anyone from the outside and save costs.	Computer and English lessons - I want to improve myself and to learn English to help my children practice.
Are there any changes you would make?			

DOCUMENTED ACTIVITIES

Children's Fundraiser

Date: 20th May 2018

Organizer: Ecotown

Aim: Raise funds to build a playground, and to introduce the idea of the GIH and get community buy-in.

Participants: 30-40 local residents and partners of Ecotown

Activities include: Children dream playground drawing, community cookout, music and games, presentation of new projects (including GIH and a 'passive ger' project)

The GIH triggered new ideas for the area. Began to think about the masterplan of the area – model was built of the 'dream' based on the initial design of the GIH.

Model built by the community to think about the potential of the whole area after our initial visit to describe the GIH project.



Ger Kindergarten Construction

Construction Dates: July - August 2018

Opening in: September 2018

Collaboration between Ecotown, Nomongoo LLC, Rotary Club of Ulaanbaatar Peace Avenue, District Government

Aim: Increasing the capacity by adding two connecting gers to the 84th Kindergarten, that was at full capacity with 200 children.

Beneficiaries: 35 children and their parents, and teachers.

Design approach changed after discussion between RUF and Ecotown about the advantages of applying a polycarbonate outer layer to the GIH. Ecotown applied this knowledge to the ger kindergarten.

Provides a warmer space for children to play in winter, and reduces the heating costs of the kindergarten. Feedback has been positive, the children really enjoy the space in winter.



Tree Planting and Dream Playground Building

Initiated on 19th May 2019

Organized by Ecotown and LEAD Mongolia <https://www.worldlearning.org/program/leaders-advancing-democracy-lead-mongolia-program/>

Aim: To plant trees and begin on constructing a playground in the area South of the GIH to improve play spaces in the district and enhance community engagement.

Participants: 15-20 local residents and volunteers from the city come once a week to build together over 2 months.

RUF as consultant for ideas to integrate the landscape with the GIH. Providing ideas so that the landscape and innovation hub would be integrated together as a single community resource.

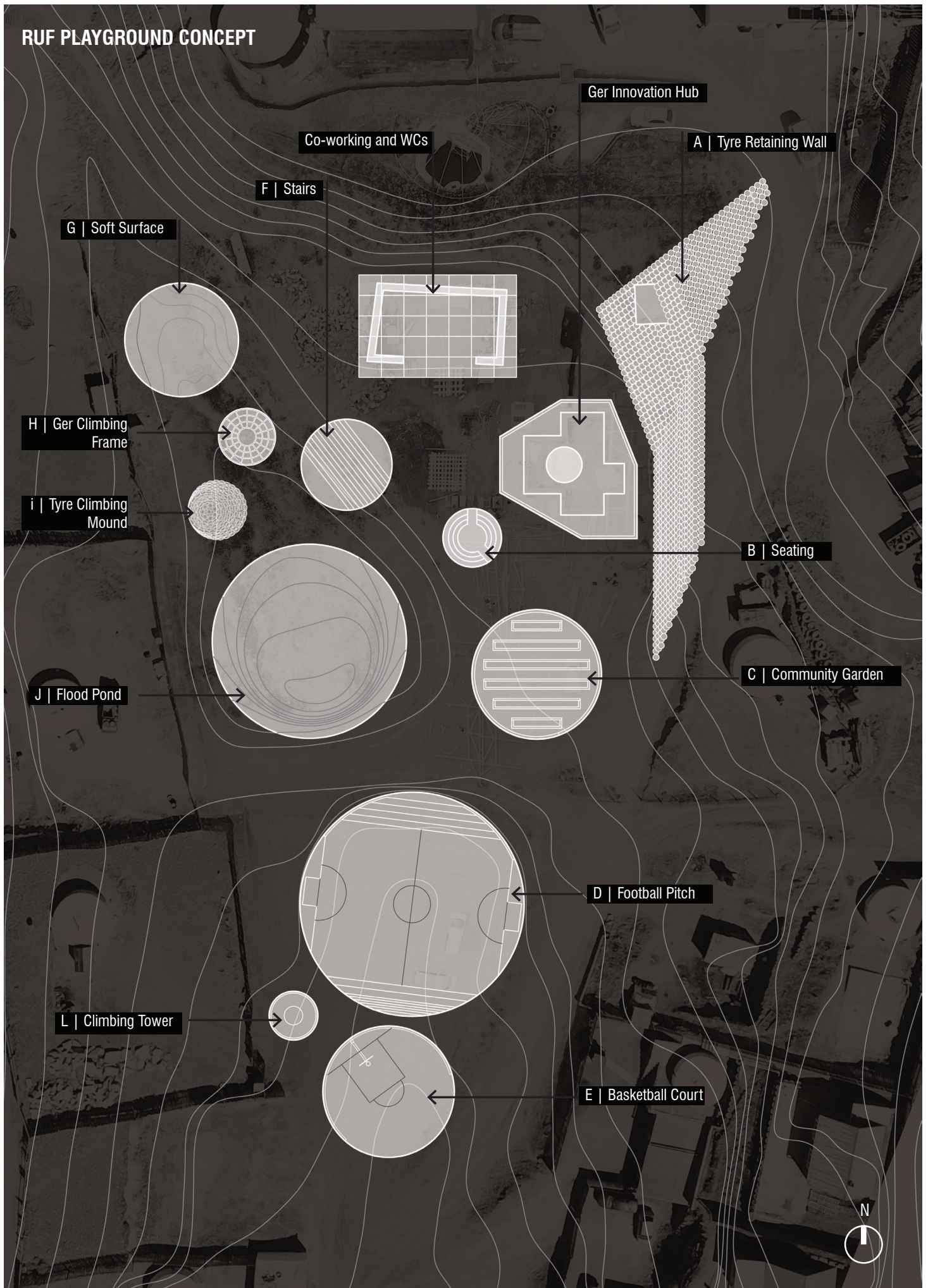
Funding provided by USAid in the form of seed funding for 1/3 of the money for the playground and the rest through donations by private companies

16 million MNT in cash (6,000 USD)

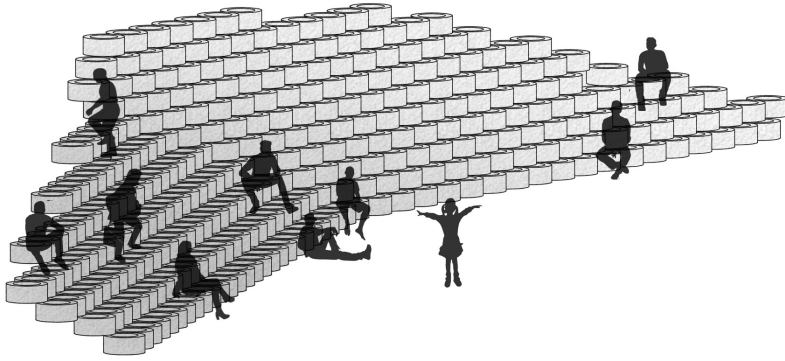
3 million MNT equivalent of materials and equipment (1,100 USD)



RUF PLAYGROUND CONCEPT



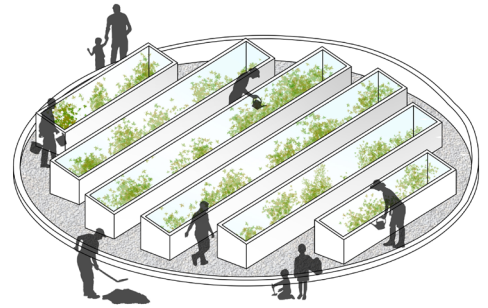
TYRE RETAINING WALL



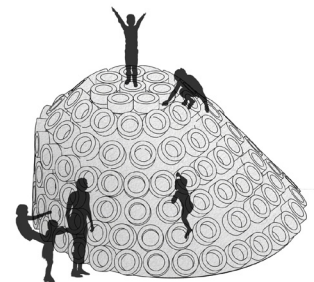
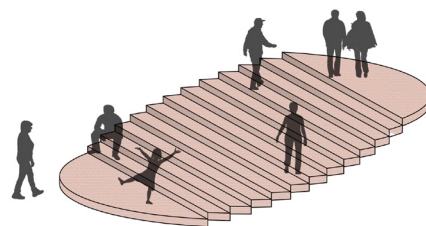
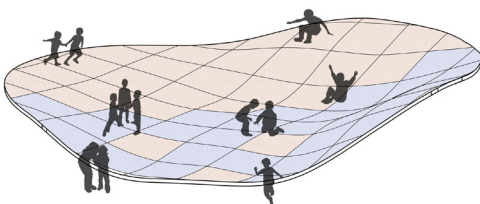
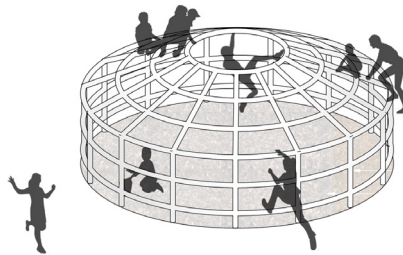
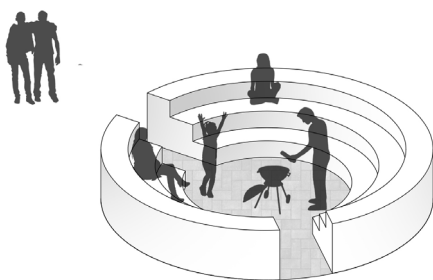
FLOOD POND



GARDENING AREA



PLAY SPACES



Young President's Organization (YPO) Visit

Date: 1st June 2019

Organizer: Gerhub

Aim: Introduce the issues facing the ger district residents, the solutions and collaborative projects that GerHub has initiated, and an explanation of why the construction of the Ger Innovation Hub is so important for residents of the ger districts.

Participants: 70 members of the organization from the region, and 10 local families.

Activities include: Presentation about the GIH and the impact it has on the ger districts and the residents. Household visits to understand living conditions of the ger districts.



Children's Day Open House

Date: 1st June 2019
Organized and funded by GerHub

Aim: To generate some buzz and excitement about the GIH, and a chance for the GIH to host its first community event and educate the community about the hub.

Participants: 25-30 Parents and children

Activities include: Drawing and colouring competition, building activities with Soho Bricks, and group games.



Dream Playground Opening Event

Date: 2nd July 2019

Organized by Ecotown and LEAD Mongolia <https://www.worldlearning.org/program/leaders-advancing-democracy-lead-mongolia-program/>

Aim: Celebrate the opening of the playground in the area.

Participants: 50-60 local residents, volunteers from the city, and LEAD Mongolia

A temporary library was also set up as part of this initiative, in anticipation of the completion of the GIH.

These facilities give the children and residents in the area something that has not existed before, bringing new opportunities for them to make friends and to learn from each other.



#MaskOn Air Pollution Awareness Event

Date: 19th October 2019

Organized by Alungoo Education Development Association (<https://www.facebook.com/AlungooNGO5/>) with support from Ecotown

Aim: Air pollution campaign to educate residents in the ger districts about pollution, the effects on health, and the things that they can do to protect themselves and their families.

Participants: 50-70 local residents, visitors, and volunteers from the city

Activities included: Competitions for children, seminars, and distribution of masks by Take a Breath



PLANNED ACTIVITIES

Ger Innovation Hub: 2020 Plan

Activity	Month												Target	Partner	Note		
	1	2	3	4	5	6	7	8	9	10	11	12					
Wellbeing																	
Soft opening	x														Adult, youth and children	The University of Hong Kong	January, 11-12?
Design Thinking workshop	x														Adult and youth	DemoGer project	
DIY Insulation workshop	x														Adult and youth	DemoGer project	
Clean vs. dirty stoves and firing methods workshop	x														Adult and youth	DemoGer project	
Health impact of air quality workshop		x													Adult, youth and children	DemoGer project	
Household financial literacy workshop		x													Adult and youth	DemoGer project	
Pilot: homework club	>	>	>												Youth		
Lunar new year expo		x													Adult and youth	Local businesses	
Healthy lifestyle			x												Adult, youth and children		For example: first aid training from Mongolian Red Cross Society
Healthy family			x												Adult, youth and children		
International women's day			x												Adult, youth and children	Women for Change NGO	
Wealthy heart																	
Retaining wall building			>	x												Usanbuluu LLC	
Dry toilet set up			x													MiniSolution	
Tree planting					x										Adult, youth and children		May 16, National tree planting day (Second saturday of May and October)
"Let's change our toilet" workshop					x										Adult and youth	Local Solution NGO	
Water and sanitation			x												Adult, youth and children		March 22, World Water Day
Gardening					x										Adult, youth and children		
Local business fair			x												Adult and youth	Local businesses	
Seasonal ger set up campaign			>	x													if strong wind is a problem for gers in spring? we could do something around it
Infinite learning																	
Children's rights					x										Adult, youth and children		June 1, Children's Day
EIP summer sessions					>	>	x								Youth and children		
Sustainable tourism						x									Tourists		
Outdoor movie nights						>	x								Adult, youth and children		
English language course			>	>	>	>	>	>	>	>	>	>			Adult, youth and children		
Career counseling event													x		Youth and children	National Institute of Career Studies (Ажил мэргэжил судлалын үндэсний хүрээлэн НҮТББ)	
Education fair								x?	x?								SAT, TOEFL, IELTS, applying to universities abroad
Winter preparation campaign: insulate your house/ger																	
Winter preparation campaign: insulate your house/ger								>	>	x					Adult and youth		Heat loss measurement with thermal heating camera, insulations, ger set-up and drying etc
Harvest fair								x							Adult, youth and children		
Reproductive health												x			Adult and youth		
Family planning												x			Adult and youth		
Evaluation of activities at GIH													x		Adult, youth and children		
Annual report														x	Adult, youth and children		

Demo Ger

Date: December 2019 - February 2020

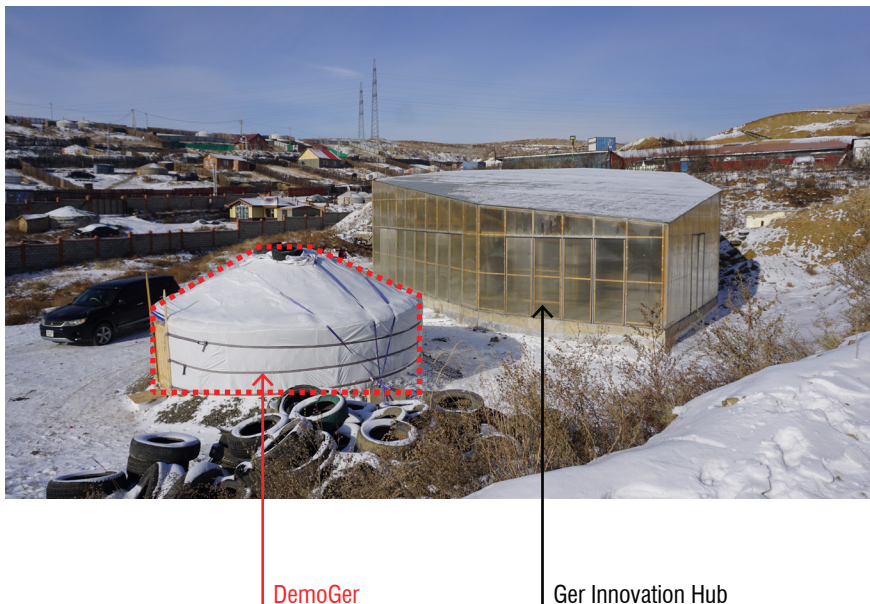
Organized by Gerhub

Funded by: US Embassy, Public Diplomacy Local Grant Program
(<https://mn.usembassy.gov/education-culture/grant-programs/>)

Aim: Educate adults and youth on topics surrounding livelihood and health. Many residents have migrated from the countryside and still live traditional gers, workshops will be held to teach essential skills to people adapting to life in the city.

Topics include: Knowledge Sharing Ger, Clean vs. dirty stoves and firing methods, Health impact of air quality, and Household financial literacy

Participants: 60-90 local residents in total.



Community Launch Event and Children's Play Workshop

Date: January 2020

Organized by Gerhub and Ecotown

Aim: Celebrate the opening of the Ger Innovation Hub and launch simple activities to allow residents to become familiar with the operation of events.

Participants: 15-20 local residents and 10-15 children/youth

Sanitation and Retaining Wall

Date: Construction planned for April 2020

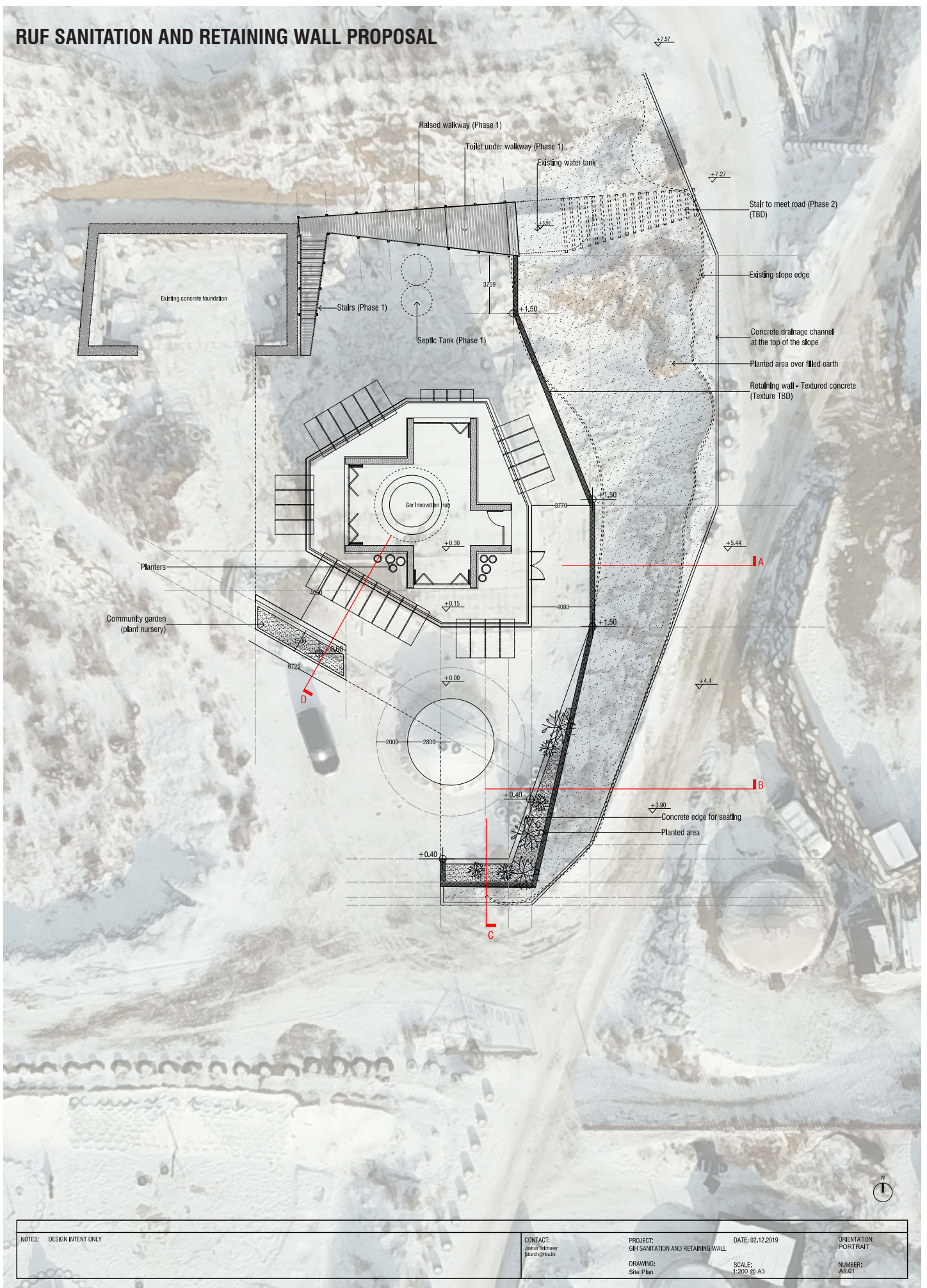
Gerhub submitted two proposals to develop the area around the Ger Innovation Hub. RUF as consultant, provided design drawings for sanitation facilities and a strategy for a retaining wall.

Proposals submitted to The Asia Foundation and UN-Habitat (in response to their call to implement innovative public spaces). Proposal to UN-Habitat in collaboration with People in Need (a Czech nonprofit, NGO, that implements humanitarian relief and long term development projects - <https://www.clovektisni.cz/en/>)

Aim: To introduce amenities and infrastructure that improve health and safety and the attraction of the area to residents. The proposal also includes opportunities for more play spaces and community planting areas.



RUF SANITATION AND RETAINING WALL PROPOSAL



NOTES: DESIGN INTENT ONLY

CONTACT:
 jessica.bodmer
 jbodmer@helix.ch

PROJECT:
 GH SANITATION AND RETAINING WALL

DATE: 02.12.2019

ORIENTATION:
 PORTRAIT

DRAWING:
 Site Plan

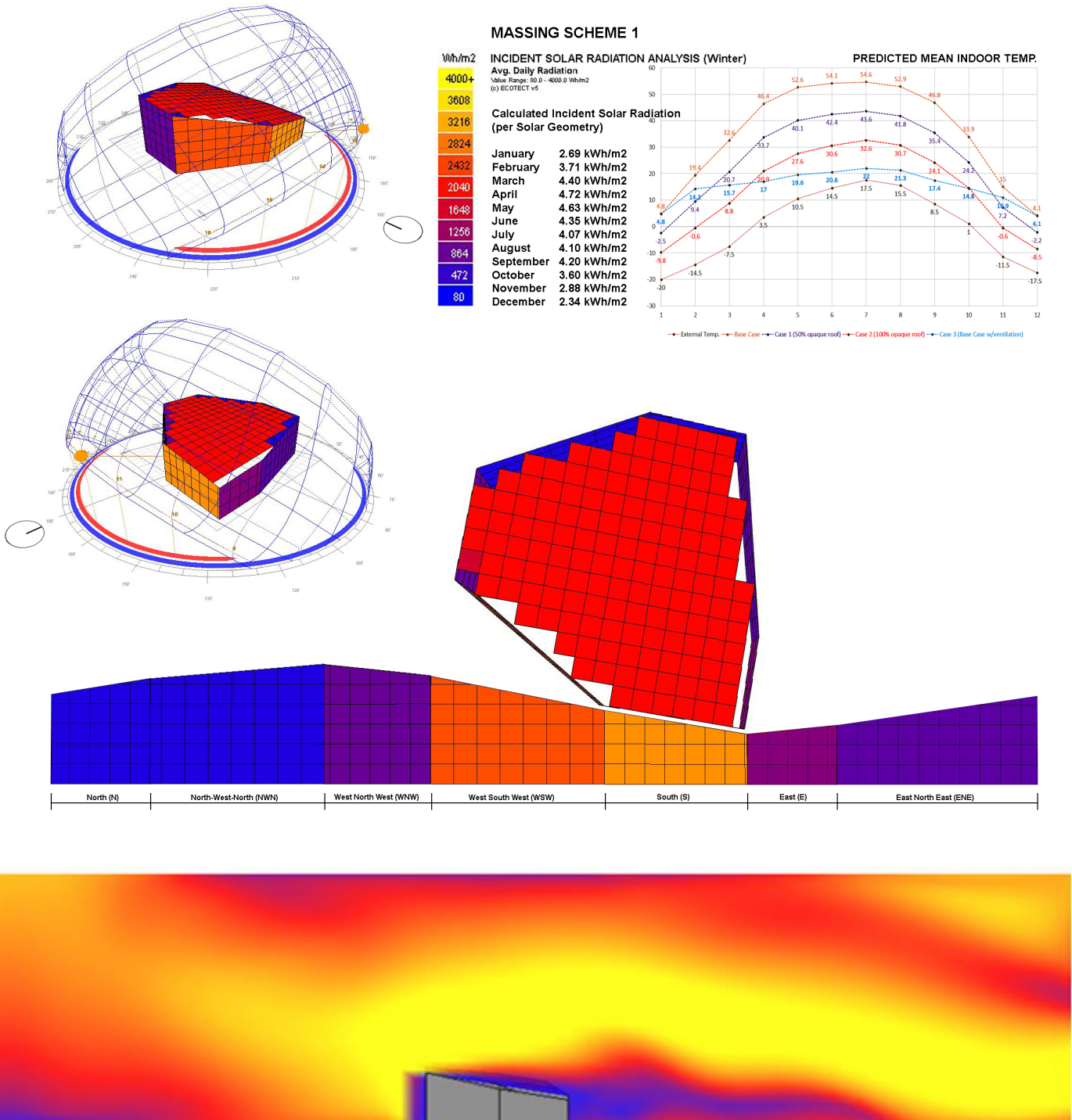
SCALE:
 1:200 @ A3

NUMBER:
 A3.01

BUILDING ANALYSIS AND PERFORMANCE

Initial Environmental Models

Initial environmental models were developed by Chad Mckee, an Assistant Professor at The University of Hong Kong and a LEED Accredited Professional (AP). These models analysed predicted internal temperatures based on our design throughout the year. The model demonstrated that we need to use two layers of polycarbonate sheet for the inner roof layer to prevent heat loss. Additionally the models allowed us to test the required number of openings to maintain adequate ventilation during the summer months. This model will be tested against the actual data once the building has been completed to conclude the evaluation.



MASSING SCHEME 3

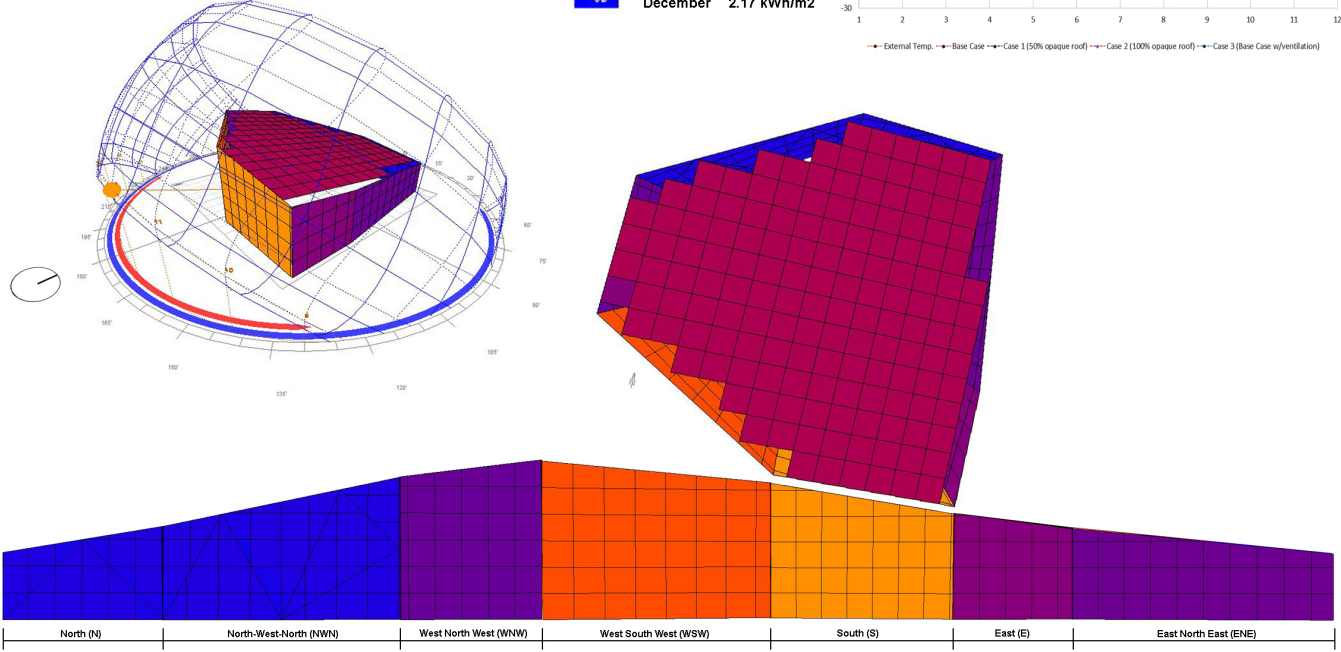
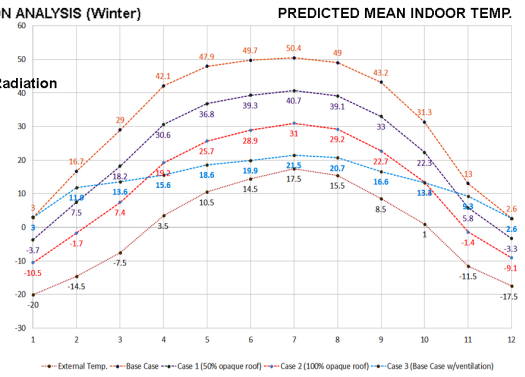
Wh/m²

- 4000+
- 3608
- 3216
- 2824
- 2432
- 2040
- 1648
- 1256
- 864
- 472
- 80

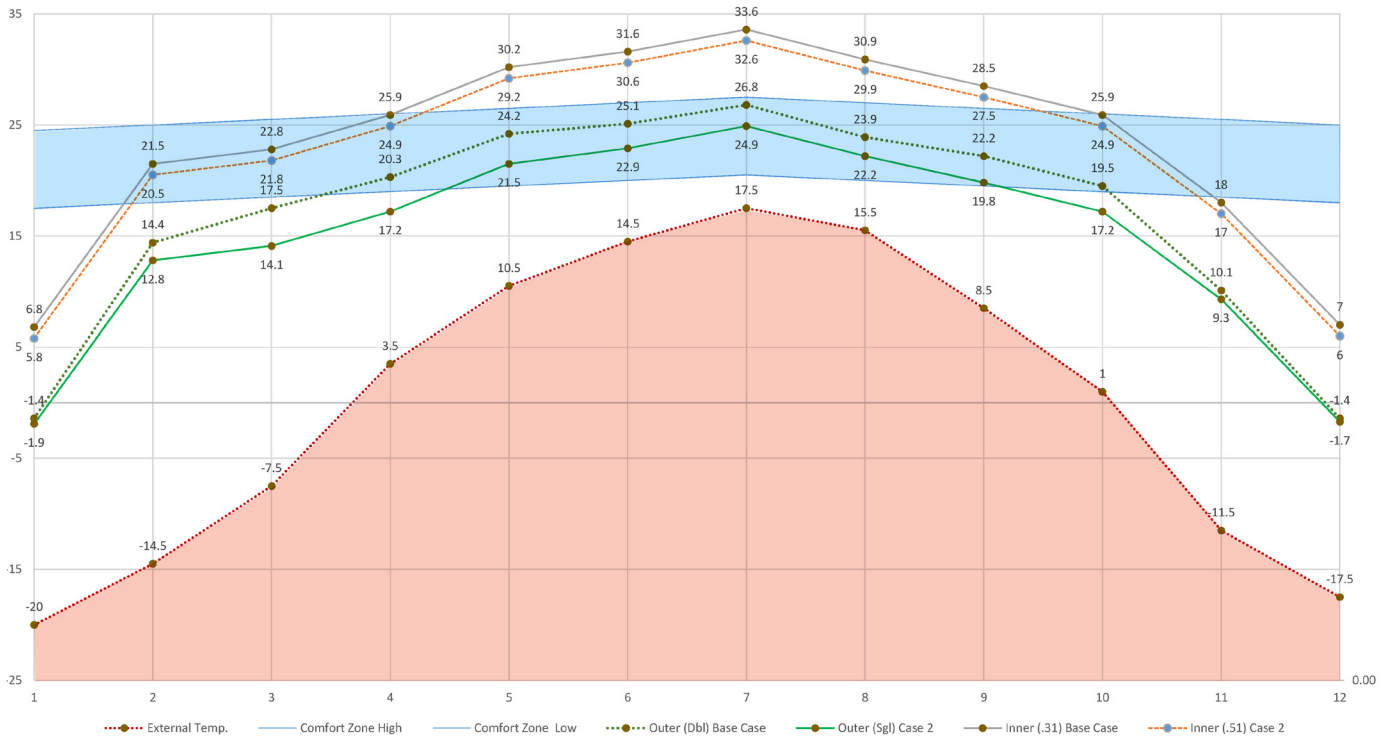
INCIDENT SOLAR RADIATION ANALYSIS (Winter)
 Avg. Daily Radiation
Value Range: 80.0 - 4000.0 Wh/m²
 (c) ECOTECT v6

Calculated Incident Solar Radiation (per Solar Geometry)

January	2.50 kWh/m ²
February	3.42 kWh/m ²
March	4.01 kWh/m ²
April	4.24 kWh/m ²
May	4.11 kWh/m ²
June	3.86 kWh/m ²
July	3.61 kWh/m ²
August	3.67 kWh/m ²
September	3.81 kWh/m ²
October	3.31 kWh/m ²
November	2.67 kWh/m ²
December	2.17 kWh/m ²



Ulaanbaatar - Predicted Mean Indoor Temperature



Environmental Performance

Data collection began in April 2019, and continued through the rest of construction and the beginning of winter. Two HOBO MX2301A Temp/RH Data Loggers, and one HOBO MX2305 Temp Data Loggers, were installed on site.

Data Set 1

29 Apr 2019 - 01 Jun 2019

The inner layer was not built during this period. One data logger was placed externally and two within the completed outer layer.



Data Set 2

19 Sept 2019 - 19 Nov 2019

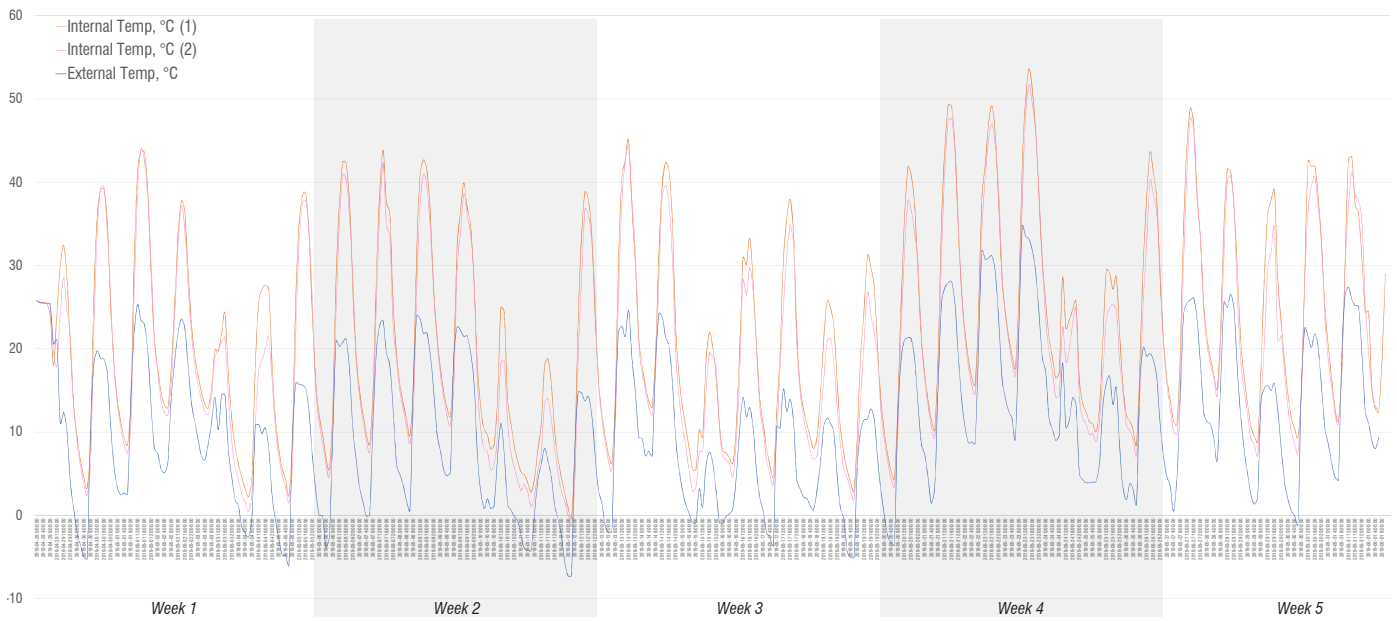
Completion of the inner layer took place during this time. One data logger was placed externally, one in the outer layer, and one in the inner layer. Although the GIH was not in operation during this time, the data demonstrates significant environmental impact through passive gains and material choices.



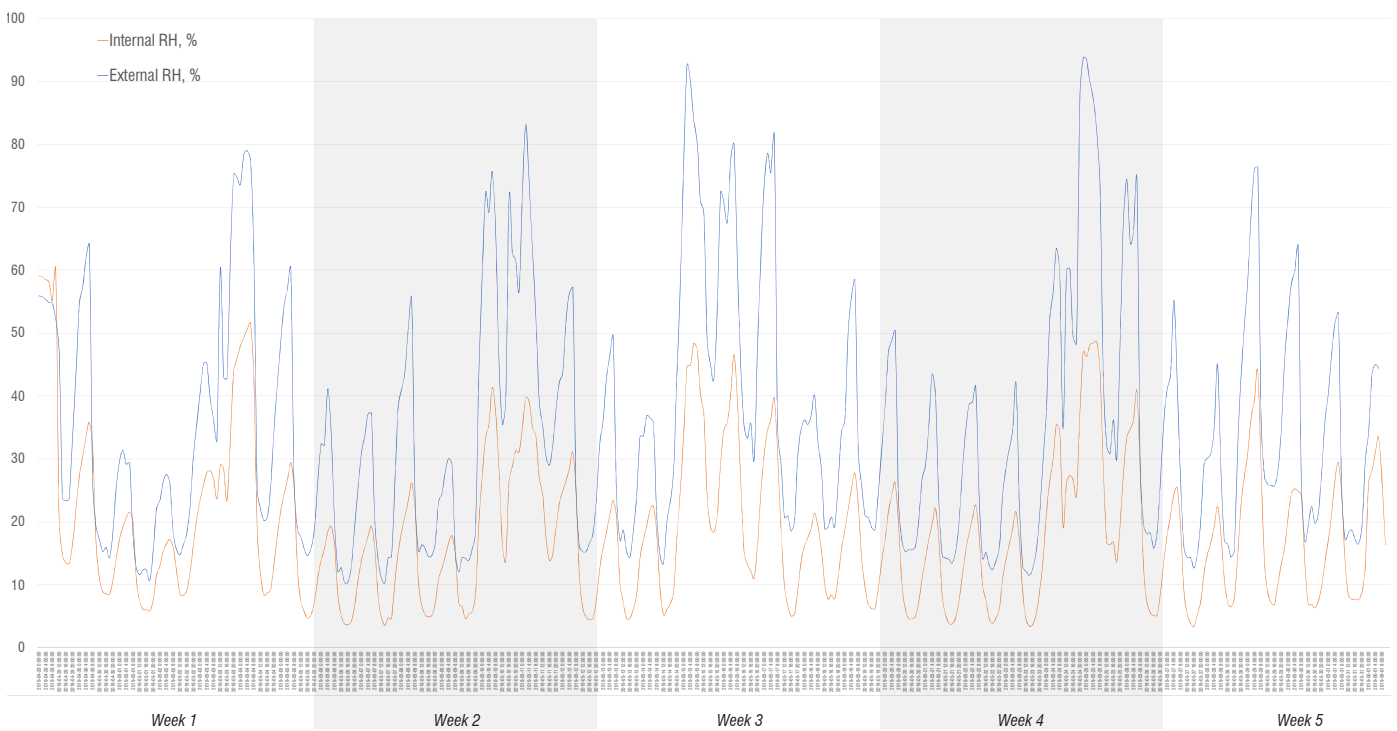
Data Set 1

29 Apr 2019 - 01 Jun 2019

Internal (GIH) and External Temperatures



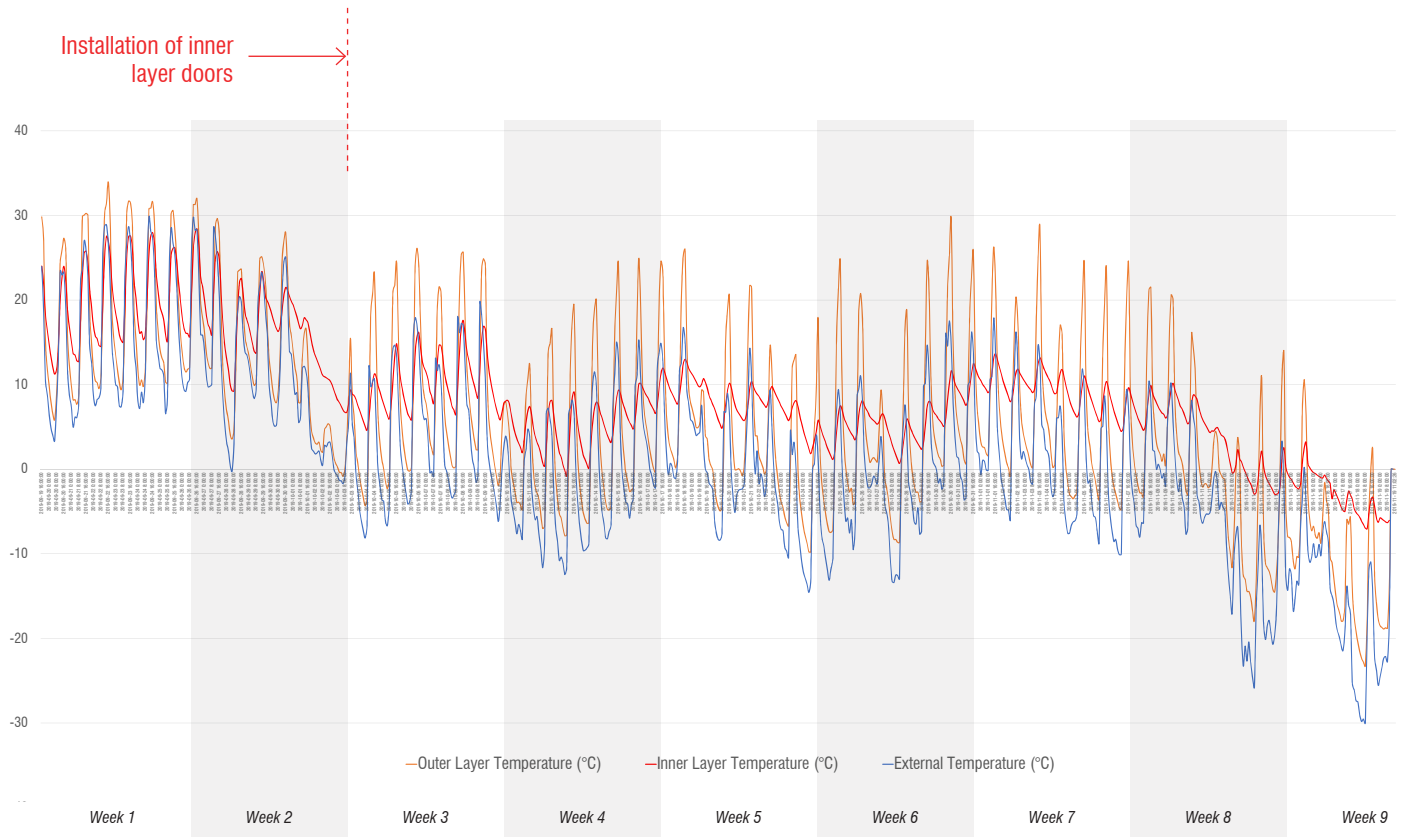
Internal (GIH) and External Relative Humidity



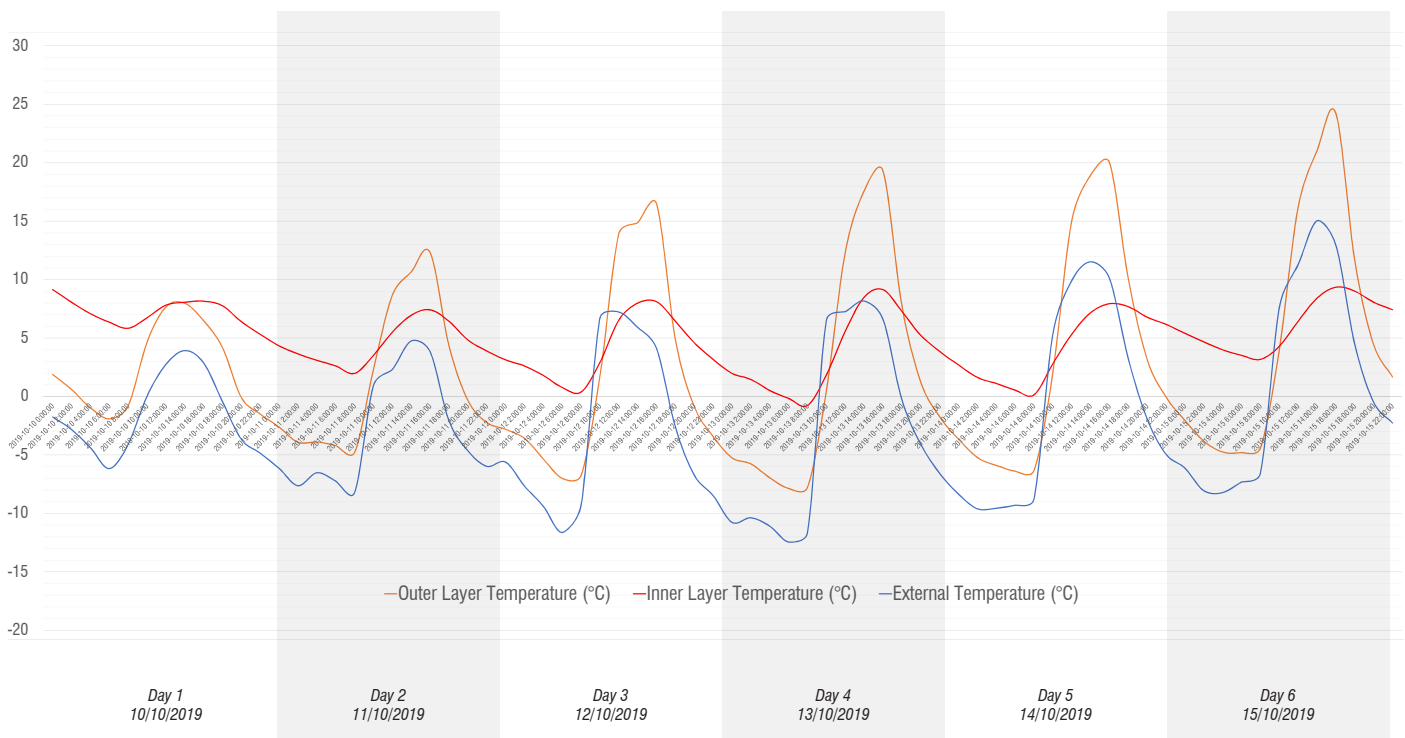
Data Set 2

19 Sept 2019 - 19 Nov 2019

Internal (GIH) and External Temperatures



Internal (GIH) and External Temperatures (10-15 Oct 2019)



Environmental Impact

The data collected indicates that the GIH is able to create a significant difference between internal and external thermal conditions. Despite having data collected for nine weeks for Data Set 2, only Weeks 3-9 were used in the evaluation as all major construction elements have been completed and presents a more consistent representation of the environmental performance of the project. Six days in October were also extracted to understand the temperature fluctuations over a day.

Summary of Data Set 2 (04 Oct 2019 - 19 Nov 2019)

	Minimum	Maximum	Range
External	-30.0 °C	19.7 °C	49.7 °C
Outer Layer	-23.7 °C	29.5 °C	52.8 °C
Inner Layer	-7.0 °C	17.6 °C	24.6 °C

Key Findings

- The inner layer regulates the temperature and prevents it from reaching both hot and cold extremes. Despite not having heating installed the lowest temperature that the inner layer reached during the collection period is 23°C higher than that of the outside. This demonstrates the impact of the design in reducing the amount of energy needed to meet comfort levels.
- Despite the outer layer temperature range being similar to that of the outside (at 52.8°C and 49.7°C respectively), the minimum and maximum temperatures indicate that the outer layer tends to be warmer than the outside. Whilst the external maximum temperature reached 19.7°C, the highest recorded temperature for the outer layer, because of the passive solar gains, was 29.5°C.
- The outer layer reaches much lower temperatures than the inner layer, but the minimum temperature that was logged was still 6.3 °C warmer than the external. This suggests that the combination of the thermal mass of the inner layer wall and single layer of twinwall polycarbonate is able to prevent temperature of the outer layer from becoming the same as the outside.
- The collected data does not match the high level of performance indicated by the initial environmental model, but it is still reflective of the passive gains and thermal dampening that was expected.
- Heat gains from the morning bring the temperature to their highest around 14:00-16:00 in the outer layer.
- The outer layer gains heat with temperatures surpassing those of the outside, however the inner layer temperature remains in the upper bounds of the external temperature. This suggests that user input could help to optimize the thermal performance of the project. The passive experienced by the outer layer could be shared with the inner layer through the opening of doors at strategic times.
- The design of the inner layer slows down heat loss, barely reaching negative temperatures whilst the outer layer and external temperatures drop to -7.9 °C and -12.5°C between 10-15 Oct 2019 respectively.



External Data Logger

Note that the GIH was unused during this time and the building was not 'operated' in a correct manner. For example, doors were not opened for ventilation when it became too hot, nor heaters switched on when it was too cold.

CONCLUSION : IMPACT EVALUATION

Key Findings

Key findings from stakeholder meetings and resident interviews include:

- The district lacks community spaces for people to gather and build relationships. Residents would either stay at home or travel to the city to meet friends.
- Residents believe that the GIH will automatically become a 'place to go' and a better place for children to 'hang out'.
- Having a physical space changes everything - it is real, and able to become an example to others.
- Play spaces, and activities for children are the primary concern. But also activities where people can learn new skills or share knowledge within the community.
- People are curious about the GIH because of how it looks and want to know what will happen within it. Stakeholders are encouraged to think creatively on how to use the space.
- Children are very excited and always want to know when the building will be finished.
- Building with the community triggered a lot of excitement, especially as the project began to take shape.
- There are people who have already volunteered to assist in activities.
- There is a sense amongst the community that they can really make things happen. Especially with the engagement of local workers in the construction, and the events initiated by Ecotown.
- People have already been participating in events to help improve the community.



Guidelines and Criteria

These are recommendations based on the current status of the project.

There are three aspects to the design and construction of community innovation hubs that should be considered and encouraged before, during, and after construction.

Design and Innovation

The design and construction process needs to consider the seasonal construction cycles, the availability of materials, the lead-in times for material procurement and availability of construction workers.

Although summer is the best time to build, many workers will take up the best paying and most secure jobs and so working on a “community project” may be less attractive.

Working with workers who live in the area is advised as they are stakeholders in the final project and will benefit from a successful outcome.

Wherever possible locally available materials should be sourced. However the quality of timber needs to be verified by a local carpenter. If materials are brought in from outside such as China, care needs to be taken on the transportation and delivery as well as making sure the materials can be stored safely and securely on site.

Thermal performance is critical. The building needs to be used all year round without excessive heating bills. The building needs to use passive environmental strategies such as radiant solar gain and natural ventilation as much as possible. The building’s systems such as boilers, central heating, water supply and waste should be planned as early as possible.

The spaces should be designed to accommodate numerous activities and allow for different scales of events from small group meetings to large audiences. It should also be designed to allow for different activities to take place at the same time. For example: kids playing plus vocational training.

Creating a space which is semi-outdoor for gardening or for children to run around can be highly beneficial when it is too cold to be actually outside. The overall budget should be carefully monitored to manage size against affordability.

Prefabrication and system building offers a potential to lower costs and construct components in a controlled environment during the winter months should the project be scaled-up and implemented in other districts.



Engagement and Participation

Constant engagement throughout the process will bring awareness to the community and create a level of buzz and excitement including the presentation of design ideas, workshops and actually assisting with construction. The level of engagement may vary but social impact is generated through people becoming more active in thinking about what is happening, what they want, and what they can offer.

Creating the possibility for local residents to participate in the build brings a sense of pride and ownership.

Engagement with key stakeholders is also important to assist in how the space can be occupied and to discuss methods to encourage community participation.

Operations Team

Forming the right team is crucial to the successful implementation of community innovation hubs. This requires stakeholders who have established good connections with the community. The involvement of EcoTown as a key stakeholder was essential as they were able to galvanise residents at key moments in the project. As Ecotown has a business in the area, they have a long term investment in the future of the district which is respected by other residents.

GerHub can bring in events from outside which can stimulate activities not previously considered in the ger districts – for example Soho Impact. This can be a great resource for the community. However, it is critical that the main operator has a clear idea of how to manage the centre, how it will be programmed and how it can be financially sustainable. This will have to be trialled with the community to see which model is most appropriate. For example: whether GerHub charges a nominal fee, whether a deposit is required, or whether funds can be sponsored completely from outside sources.



Conclusion

The project is the first of its kind: a community centre in the ger districts that does not directly involve the government and is independently funded and managed. It is experimental in terms of its design; its environmental engineering; its programming and the network of stakeholders involved in its management.

The project has demonstrated a methodology that can deliver impact at different stages of its implementation: from design; to construction; to event planning; to thermal performance. In this way impact is not seen as something that resides only through the implementation of a final product, but can be achieved in the process itself. By introducing knowledge exchange at every step of the project development with a broad network of stakeholders including residents, funders, construction workers, NGOs and environmental specialists, the chances to alter and change how people act is increased significantly. Additionally, by building a strong network of stakeholders, it is hoped that impact will be delivered in the future. The project sets out not just to deliver the impact of a singular community centre, but to build a foundation of people that can now approach the problem of community building in the ger districts with experience and expertise and with the confidence to share their knowledge with other communities in other districts in the city.

