

ANNEX A: PROJECT DETAILS

No.	Projects	Designer	Challenge	End Date
1.	So Near, Yet So Far <i>Enabling trust, connection and productivity in our new reality of remote work</i>	Agency	COVID-19/ Future of Work	September 2020
2.	Designing communities for sustained and inclusive growth	Common Ground Pte Ltd	Inequality & social cohesion	March 2021
3.	Stabilising local wood sustainably	Roger&Sons	Use of local wood/resources, Sustainability	April 2021
4.	Sandwiched Variable Eggcrate Structure	Produce Workshop Pte Ltd	Reducing waste in the construction industry/Sustainability	June 2021
5.	Sustainable food packaging for takeaway & food delivery systems	Forest & Whale	Reducing waste in the F&B industry/ Sustainability	June 2021
6.	Offcut Factory	Edmund Zhang	Reuse of discarded materials/Circular Economy/Sustainability	July 2021
7.	"Made in Shop" - <i>Localising production by modernising craft</i>	GINLEE Studio Pte Ltd	Retail Reinvention, Reducing Waste in Fashion/Sustainability	August 2021

ANNEX A: PROJECT DETAILS

Project	So Near, Yet So Far <i>Enabling trust, connection and productivity in our new reality of remote work</i>
Duration	3 months, ending September 2020
By	Agency
About the designer/ Design enterprise	A human-centred design practice with extensive experience in consulting, coaching and advising organisations. It strives to solve complex challenges using the lens of design strategy. https://www.designingagency.com/
About the research	COVID-19 is one of the most severe crises the world - and Singapore - has faced in recent times. The impact it has had on the way we live and work has been enormous. This 3-month design research sprint will uncover the opportunities for design by understanding the struggles and successes of Singaporean individuals and organisations adapting to new ways of living and working. How Might We move from reacting to a new normal? The project will culminate in a hackathon-style session to address the current, near, and far-future needs of Singaporeans.
What challenge does it address?	COVID-19 and the future of work: The impact of COVID-19 on society has been far-reaching. The study will look into how the future of work could be supported in a sustainable way and inform and programme new interventions, especially through the lens of the employer-employee relationship.
Expected outcomes	<ul style="list-style-type: none"> • New concept expressions developed and designed through the opportunities uncovered through the research; • A new way of looking at the experience of work that highlights key opportunities for both individuals and business owners; • Tools to support the relationship between employer and employees in the areas such as the improvement of preparation, well-being, resilience and empathy for people's

ANNEX A: PROJECT DETAILS

	diverse situations whilst transitioning to this new working style.
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ANNEX A: PROJECT DETAILS

Project	Designing communities for sustained and inclusive growth
Duration	9 months, ending March 2021
By	Common Ground Pte Ltd
About the designer/ Design enterprise	<p>A civic facility that seeks to facilitate the critical partnership between people, public and private sectors. It aims to design and implement relevant social innovations that can address issues of pressing national concerns.</p> <p>https://www.facebook.com/ourcommongroundsg/</p>
About the research	<p>The diversity of people who live in Singapore's dense urban infrastructures often form communities that could live isolated lives, or in conflict with different cultures.</p> <p>Common Ground's vision is to bridge public and private sector to facilitate social innovation for pressing national concerns. With this project, they hope to study the human systems in a community, diagnose emotional and narrative energies, and develop a strategy to most effectively bring social good into the community via community design.</p> <p>As a start, Common Ground plans to map the human systems in the Jurong district by conducting ethnographic research on the community. This will allow it to develop a design framework for understanding the places of community, belonging and opportunity. Common Ground will then prototype hypotheses and test community interventions to bring about cultural shifts. With the proof of concept developed, Common Ground will engage organisations with a vested interest in community health and vibrancy (e.g. MOH, URA); civic development and place-making in heartland spaces that are being hollowed out by 'hub' development, for a longer-term intervention engagement.</p>
What challenge does it address?	<p>Inequality and social cohesion: Why is it important now? Community tensions may be heightened by COVID-19, as financial, social and mental stress take a toll - and not everyone has the same access to resources to weather the challenges.</p>

ANNEX A: PROJECT DETAILS

	<p>In 2017, the Institute of Policy Studies (IPS) Study On Social Capital In Singapore¹, found that diversity in social networks among Singaporeans strengthens social capital, trust, national identity and national pride. Based on the study, the divide is no longer caused by race and religion but by social economic factors such as living in private versus public housing, or going to an 'elite' vs 'non-elite' school. Inequality happens not just when there is unequal access to financial capital, but also social, intellectual and cultural capital.</p>
Expected outcomes	<ul style="list-style-type: none">• E-Book and microsite for the featuring of case studies, community design process and methodology;• Talk which aims to shed light on what it takes to shift and sustain the culture of a place, to ensure inclusive and sustainable development.

¹ Source: *A Study On Social Capital In Singapore*. Institute of Policy Studies, National University of Singapore. (2017). Retrieved 1st July 2020, from <https://lkyspp.nus.edu.sg/docs/default-source/ips/study-of-social-capital-in-singapore.pdf>

ANNEX A: PROJECT DETAILS

Project	Stabilising local wood sustainably
Duration	10 months, ending April 2021
By	Roger&Sons
About the designer/ Design enterprise	<p>Roger&Sons is a team of ethical makers and mavericks who craft fine furniture and thoughtful objects. Their work is driven by inquiry, and spans disciplines: furniture, industrial, and product design, as well as woodworking.</p> <p>The team also spearheads The Local Tree Project—an initiative that salvages trees that have been felled for urban development. It rehabilitates these abandoned logs by turning them into durable, future-proof objects and furniture.</p> <p>https://www.rogerandsons.sg/</p>
About the research	<p>Roger&Sons will undertake research and development to better understand and utilise local wood. This entails the development of sustainable and eco-friendly processes and mediums to mitigate challenges encountered in the utilisation of local wood. Through this project, Roger&Sons hopes to raise awareness and pave the way for Singaporeans to make better use of local resources.</p>
What challenge does it address?	<p>Sustainability: Current sustainable methods are either expensive or not readily available, especially in Singapore. In addition, there is a lack of research and information on local trees. Although more than 13,000 trees will be felled over the next 13 years, these logs are not used by local designers and craftsmen due to the high costs associated with Singapore wood.</p>
Expected outcomes	<ul style="list-style-type: none"> • Development of eco-friendly and sustainable wood stabilisers, new processes and methods to stabilise wood, adhering to local and international testing standards; • Furniture collection utilising products developed;

ANNEX A: PROJECT DETAILS

	<ul style="list-style-type: none">• Report as part of educational efforts of The Local Tree Project².
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² The Local Tree Project is an ethical furniture initiative that salvages trees that have been felled for urban development. It rehabilitates these abandoned logs by turning them into durable, future-proof objects and furniture. The project is spearheaded by Roger&Sons, ethical makers and mavericks who craft fine furniture and thoughtful objects.

ANNEX A: PROJECT DETAILS

Project	Sandwiched Variable Eggcrate Structure
Duration	12 months, ending June 2021
By	Produce Workshop Pte Ltd
About the designer/ Design enterprise	<p>Produce Workshop Pte Ltd is a design studio that is integrated with a workshop, and is able to develop and actualise designs of objects and spaces, for city living. With precision prototyping machines, they can test and experience concepts at a 1:1 scale. As part of the design process, Produce.Workshop Pte Ltd also actively integrates stakeholders such as users, clients and specialists as vital players in the design narrative.</p> <p>https://www.produce.com.sg/</p>
About the research	<p>The project proposes to study mass engineered timber (MET) as a construction material. The Sandwiched Variable Eggcrate Structure (SVES) is one such MET that has been conceptualised by PRODUCE. Driven by the desire to advance current construction methods using renewable sources, PRODUCE endeavours to further reduce material used, shorten production lead time, and minimise manhours on-site with the SVES, thereby creating a more efficient, greener, and safer building system.</p> <p>The project research will cover the environmental and economic benefits of employing prefabricated construction methods as well as the development of a circular economy of mass engineered timber (MET) production in Singapore.</p>
What challenge does it address?	<p>Construction using reinforced concrete and structural steel, the main materials used in construction, is time-consuming, results in large amounts of material wastage and pollution, as evidenced by a study conducted by the European Environment Agency³.</p> <p>Although MET is known to have a significantly smaller carbon footprint in comparison to traditional materials such as reinforced</p>

³ Source: *Construction and demolition waste: challenges and opportunities in a circular economy*. European Environment Agency. (2020). Retrieved 30 April 2020, from <https://www.eea.europa.eu/themes/waste/waste-management/construction-and-demolition-waste-challenges>.

ANNEX A: PROJECT DETAILS

	<p>concrete and structural steel (over 600% more emissions⁴), current methods of processing wood and its composites are costly and inhibits the use of timber in building and construction.</p> <p>Sandwiched Variable Eggcrate Structure (SVES) along with the proposed manufacturing workflow allows for MET components to be prefabricated offsite and circumvent the challenges described above.</p>
Expected outcomes	Extending the unique manufacturing process of ONEWOOD ⁵ to the development of the SVES, through exploration of additive manufacturing techniques. Produce Workshop will be sharing the finding of its research and the viability of SVES in construction via applications in structures such as floor slabs and wall panels.

⁴ Source: *Sustainable Development*. Nordic Structures. (2020). Retrieved 1st July 2020, from <https://www.nordic.ca/en/sustainable-construction/sustainable-development>

⁵ ONEWOOD is an existing reconstituted material developed by Pacific Forest Products Pte Ltd, and R&D partner of Produce Workshop.

ANNEX A: PROJECT DETAILS

Project	Sustainable food packaging for takeaway & food delivery systems
Duration	12 months, ending June 2021
By	Forest & Whale
About the designer/ Design enterprise	A design consultancy that envisions design as an agent of change, through material innovation, sustainability-focused products and systems, social design and education. https://www.forestandwhale.com/
About the research	The project aims to reduce single-use plastic containers used in food delivery and takeaway models through exploring a spectrum of solutions. By experimenting with new materials, the project proposes to: <ul style="list-style-type: none"> (i) design a better, user-centric reusable food container for takeaway; (ii) create novel, water-soluble or compostable food packaging solutions to close the loop on product lifecycles; and (iii) design a hybrid product solution that comprises a shared system of reusable containers to deliver food while maintaining hygiene.
What challenge does it address?	Sustainability: According to the Singapore’s Zero Waste Masterplan 2019, we would need to build a new incineration plant every 7 to 10 years at our current waste disposal rates. By 2035, the Semakau Landfill, a 350ha site will run out of space. With pandemics such as COVID-19, there has also been a sharp rise in food delivery and takeaways. However, if we can adopt reusable food containers, zero-waste models for food delivery and design new compostable alternatives, overall single-use packaging waste can be reduced.

ANNEX A: PROJECT DETAILS

Expected outcomes	<ul style="list-style-type: none">• Prototypes for reusable takeaway food container; sustainable single-use food container or lining; and reusable food delivery containers circulating in a sharing system;• Documentation of the research process and solutions which includes research insights on user pain-points, opportunity areas and user scenarios.
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ANNEX A: PROJECT DETAILS

Project	Offcut Factory
Duration	12 months, ending July 2021
By	Edmund Zhang and Esli Ee
About the designer/ Design enterprise	<p>Offcut Factory is an initiative by industrial designers Edmund Zhang and Esli Ee. Edmund is formally trained in industrial design but believes that design is inherently multi-disciplinary and that good design cuts across boundaries. He is interested in unravelling the nuances of user behaviour to craft thoughtful stories. Esli operates at the boundaries of design's tangibility. An industrial designer at heart, he is intrigued by the rapid paradigm shift from traditional to physical approaches in service ecosystems. His work explores the delicate balance between the two.</p> <p>https://offcutfactory.com/</p>
About the research	<p>The project seeks to foster a spirit of sustainability by transforming waste "offcuts" into a source material, thereby showcasing the local manufacturing industry and revitalising it for the modern contemporary market.</p> <p>As part of the project, Offcut Factory will also be engaging with craftsmen and technicians from these factories to produce a collection of small, desirable home and lifestyle objects that are made from the offcuts sourced.</p>
What challenge does it address?	<p>Sustainability: Material waste is a prevalent issue in the manufacturing industry. The material offcuts that are produced during manufacturing processes are inevitably left abandoned as industrial waste. However, many of these still-usable offcuts have a beauty of their own and need not be discarded.</p> <p>Materials by-products can grow into an untapped circular industry if used efficiently. In Singapore about 7.23 tonnes of</p>

ANNEX A: PROJECT DETAILS

	solid waste was generated in 2019. Amongst which, the recycling rates for stone and ceramic was only at 7% ⁶ .
Expected outcomes	<ul style="list-style-type: none">• Challenging the perception of waste by showcasing offcut materials and a collection of objects made from these offcuts;• Online platform for the purchase of offcuts and profiling of the factories and the people behind it.

⁶ Source: *Waste Statistics and Overall Recycling*. National Environment Agency. (2020). Retrieved 1st July 2020 from <https://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling>

ANNEX A: PROJECT DETAILS

Project	“Made in Shop” <i>Localising production by modernising craft</i>
Duration	10 months, August 2021
By	GINLEE Studio Pte Ltd
About the designer/ Design enterprise	A design-led multidisciplinary fashion company that focuses on the explorations of textile, form, fit and function of the clothing which it designs. Its vision is to make clothes that have the same level of design recognition as other form of design, such as product, architecture. https://www.ginleestudio.com/
About the research	<p>The project aims to address two key challenges faced by the fashion industry in excess stock/over manufacturing and the evolution of consumer preferences against traditional brick and mortar stores.</p> <p>In response to these challenges, the project proposes to create a new on-demand and on-the-spot manufacturing solution that is both sustainable and engaging for consumers. This involves the redesign of its pleat manufacturing process and design that allows the creation of multiple sizes from a single sized material source.</p>
What challenge does it address?	<p>Sustainability: Exploring new retail models to ensure the relevance of brick and mortar stores and the reduction of wastage, which the fashion industry is infamous for.</p> <p>A 2018 Forbes ⁷ article reported that the fashion industry generates 4% of the world’s waste each year, 92 million tons, a lot of which comes from offcuts from the production process. The publication also highlighted⁸ in 2019 that retail downsizing will accelerate as e-commerce gains market share.</p>

⁷ Source: *Fashion's Dirty Little Secret And How It's Coming Clean*. Forbes. (2018). Retrieved 1st July 2020 from <https://www.forbes.com/sites/jonbird1/2018/09/09/fashions-dirty-little-secret-and-how-its-coming-clean/#2a0e89a01771>

⁸ Source: *Retail Downsizing Will Accelerate, With UBS Predicting 75,000 Stores Will Be Forced To Close By 2026*. Forbes. (2019). Retrieved 1st July 2020 from <https://www.forbes.com/sites/pamdanziger/2019/04/10/retail-downsizing-will-accelerate-as-75000-stores-will-be-forced-to-close-by-2026/#22b16edc339e>

ANNEX A: PROJECT DETAILS

Expected outcomes	<ul style="list-style-type: none">• Pleat mould that is compatible with a modified version of the Studio's current machinery;• A product that can be manufactured using the newly developed pleating method.