

WORKSHOP IDEA.

# WHAT IS SUSTAINABLE DESIGN?

**FT. THE LIVING BUILDING CHALLENGE.**

2 x 45 minute sessions

Suitable for Years 9 - 12

## OUTLINE

This workshop is to put together some high-level thinking about buildings and how they can be designed to positively impact the environment around them. This can be a stand-alone workshop or combined with other workshop like the 'iconic building' workshop. This will also introduce the "Living building/ community challenge", an international sustainable building program, that measures the performances of buildings and communities and their suitability credentials.

*Workshop instructions on reverse side.*

## COMMITMENT

This workshop works best over a couple of classes. This gives them time to research and put something together. We recommend at a minimum to present the brief one class, get them started and give them a few days prepare their presentations.

We recommend this workshop for older students, but it can be modified to suit younger students. Contact us if you would like an example lesson plan for years 4-5.

## TEACHER'S ROLE

We encourage teachers to participate in the workshop however the teacher is responsible for duty of care and behaviour management of the class and must

*Available to schools within 50km radius of Adelaide CBD. If your school is located outside of this limit please request a booking to discuss.*

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### TASK

To locate a site in Adelaide for a new sustainable iconic building. Using the “petals” of the living building challenge as a guide, find a location, philosophy and some basic ideas for this new building. They can choose as many petals to align with, but we encourage that at least 3 are looked at. How they choose to present their project is up to them and you as their teacher. This isn't meant to be a fully realised design, the goal is to help them understand how the different elements are combined into a single building and how we can think about the buildings around us and how we can make them better.

### PRESENTATION FORMATS

Drawings, Maps, Collages, 3D Models, verbally, diagrams. Any of these things can be physical or made on a computer. We have run a similar workshop using old milk and egg cartons, Lego models and we even had a student use Minecraft.

### SIZE

The total footprint of the building is 3000m<sup>2</sup>. This can be in one large block, or you can go vertical and split the 3000m<sup>2</sup> amongst floors to reduce the footprint e.g. 6 floors of 500m<sup>2</sup>. Or you can split the foot print and have 6 smaller buildings for example. You can make the buildings as tall or as short as you want. This is the only size requirement, but the choice needs some justification and can align to a petal.

### WHAT IS THE LIVING BUILDING CHALLENGE?

The Living Building Challenge is an international sustainable building certification program created in 2006 by the non-profit International Living Future Institute. It is described by the Institute as a philosophy, advocacy tool and certification program that promotes the measurement of sustainability in the built environment. It can be applied to development at all scales, from buildings—both in new constructions and renovations—to infrastructure, landscapes, neighborhoods, both urban and rural communities.

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# WHAT IS SUSTAINABLE DESIGN?

## PT. THE LIVING BUILDING CHALLENGE.

### PLACE

This petal is created with the purpose to have designers analyse the location of a site and the impacts the construction will have on the nearby environment and society before being built and during its operation. It focuses on creating a connected community that is more pedestrian focused, protecting and restoring existing nature, and encouraging a healthy level of density

#### *Place questions for students...*

What impact does their location have on the surrounding environment? Do they need to demolish something existing? Remove trees? Remove natural elements e.g. creeks, rivers. Does the location help promote a reduction in cars? Is it close to public transport? Bike lanes? Does the building incorporate ways to get to it other than cars? Is the building far away from the CBD or closer?

### WATER

This petal directly addresses the scarcity of water. A certified building is required to be designed to only use the amount of water that can be harvested onsite and purify the water without the use of chemicals. Projects achieving this petal often employ rainwater catchment cisterns, greywater or closed-loop systems, compostable toilets, and other techniques to reduce and recycle water.

#### *Water questions for students...*

How does your building capture water? How does it store water? How can it clean and reuse water? Does the building effect any water around them e.g. beaches, rivers etc. Is it positioned on the site to maximise water capture e.g. from rain/wind?

### ENERGY

This petal focuses on the reduction and efficiency of energy by requiring the building to produce on-site 105% of the energy it needs year round. It also aims to shift the grid the building is connected to towards more renewable energy.

#### *Energy questions for students...*

Can their building capture energy? Can it produce energy? All year around? Day and night? Is it positioned on the site to maximise energy capture e.g. orientated towards the sun, or wind direction? Can the building heat and cool itself without the use of aircon? (see health and happiness for some clues). Does it have any unique ways it generates energy e.g. do all the staff in the building have treadmills connected to generators to help make electricity?

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### HEALTH AND HAPPINESS

This petal focuses on improving on the source of health problems such as indoor air quality, thermal comfort, visual comfort, and integration of nature in order to increase the quality of human health and productivity. Projects often employ biophilic design, daylighting, operable windows, and other techniques to achieve this petal

#### *Health and Happiness questions for students...*

What are some biophilic elements of the design? Does the building let in enough light during the day so it uses less lights? Can the windows open to let air into the building? Are the windows shaded enough to not let the hot sun overheat the building? Are there any natural elements near it to help regulate its temperature? Trees to shade windows? Water to cool the building down e.g. sea, lake, creek.

### MATERIALS

This petal's intention is to focus on eliminating the use of construction materials that have adverse environmental, health, and social impacts. These impacts include pollution, resource depletion, habitat loss, deforestation, toxic chemical use, and large embodied energy use. The goal is to push the industry towards transparency and transform extraction and production practices.

#### *Materials questions for students...*

What do you think your building's façade will be made off? Glass? Concrete? Metal? Bricks? Stone? Wood? Plastic? Where will these be produced? E.g. can you produce metal locally? Are the materials reusable, recyclable or recycled? Can their building reduce waste in the community?

### EQUITY

This petal aims to change society's mindset in which property ownership allows owners to externalize negative environmental impacts onto others. This is done by creating spaces where people of all capabilities, disabilities, ages, and economic status have equal access. It also requires that the project must not disturb another site's access to sunlight, fresh air, and clean water.

#### *Equity questions for students...*

What will this building be used for? Can everyone of any age use it? How about access to someone in a wheelchair? Visually impaired? Hard of hearing? Does it let anyone of any culture, race or identity use it, or does it discriminate? Does their building cast shadows on buildings around it? Does it block fresh air?

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## BEAUTY

Lastly, the Beauty petal focuses on encouraging project teams to put in genuine and thoughtful efforts into beautifying the project. Although beauty is not subjectively defined in the framework, it is stressed that beauty should be a goal in order to inspire and elevate the lives of the occupants, visitors, and neighbours.

*Beauty questions for students...*

How is their building more beautiful than a regular building? How does it add positivity to the community around it? How does this building inspire people when looking at it? Would they be happy to have this built in front of their house for them to look at every day? Does it inhibit their neighbours views?

For more visit:

<https://living-future.org/lbc/>

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