Ten Design Principles for a Green & Thriving City Neighbourhood

The Students Reinventing Cities competition aims to harness new models for **green** and **thriving** city neighbourhoods, that embrace both:

- **the imperative of emissions reduction.** Teams are invited to consider operational emissions, embodied emissions from any construction of the project and the consumption-based emissions linked to the way of living and consuming of the residents
- **the critical goal to ensure the quality of life for local communities.** Teams are invited to consider models such as '15-minute City / 20-minute neighbourhood', which is increasingly adopted as a valuable urban planning principle.

These two main objectives are linked and must be approached in an integrated way. Therefore, the competition defines ten design principles that the teams are invited to consider while they are developing their project.

1- Close to home

The project should strengthen a model of compact neighbourhood where people can access everything they need within a short walk or bike ride of their home. This relies on mixed-use planning from the district-scale down to the building. Instead of single purpose areas, the project should support a balanced diversity of 'human-scale' activities. It should also support the local economy and inject life into streets by encouraging active ground floors and temporary activation. When possible, spaces should be used for multiple purposes at different times of the day or week to make the most of existing stock, minimizing the need for new construction and helping concentrate activity in existing areas.

2- People-centred mobility and thriving streets

Walking and cycling should be the main way people get around in the neighbourhood and can be encouraged through well-designed urban spaces and services. Reclaiming city spaces from private vehicles to widening of sidewalks and create cycle lanes, encouraging vegetation in the street and developing parking and repair services for bikes, are especially important to create safer and more enjoyable routes to cycle and walk. Tactical urbanism may also be considered to inspire residents. To de-incentivize the use of individual fossil fuel transport, the project should also foster the use of public transport, shared vehicles and electric and other low-emission vehicles.

3- Connected place

Although the project should foster a more locally based lifestyle, it is vital to strengthen physical and digital links with other parts of the City and beyond. District scale projects provide the opportunity for creating, extending and refurbishing public transport and digital infrastructure that enhance social and economic connectivity and enable more flexible working practices. Digital and smart approaches can also play a significant role in improving the efficiency of infrastructure solutions, for example by optimizing transport systems and energy consumption.

4- A Place for everyone

The project should not only aim to address the causes and impacts of GHG emissions but also raise the quality of life of local communities. In particular, it should include varied and affordable homes and amenities so everyone can find a decent place to live in the

neighbourhood. The design should support health and wellness. For example, to foster connectedness, the project may create spaces dedicated to public/collective use such as shared gardens and third places. It should also aim for an equitable distribution of positive impacts from climate action including lower energy bills and economic opportunities. Finally, the involvement of the local community and stakeholders in the development of the project will be key, especially as decarbonizing the area will require wide-ranging behaviour change.

5- Clean construction

The objective is to reduce embodied carbon, which refers to emissions caused by extraction, manufacture, transportation, assembly, maintenance, deconstruction and end of life aspects in buildings and infrastructure. For that, the project should first optimize the existing built assets, by using them better, repurposing them or retrofitting them before considering new construction. New construction should be made in the most effective way, which means reducing the need for new materials by reusing materials as far as possible and choosing construction materials with lower embodied emissions (e.g. local and biomaterials such as sustainably-sourced timber).

6- Green Energy and buildings

Energy efficiency is a high priority in the design and operation of the buildings and public spaces. The energy strategy developed by the teams should strive to include the following hierarchy: (i) reduce building and infrastructure energy demand through passive design and retrofit; (ii) minimise inefficiencies within the energy distribution and strengthen occupant control and monitoring; (iii) decarbonise energy supply and prioritise local renewable generation; (iv) include a storage network built on decentralised energy systems (v) invest in long-term district-wide digitally enabled energy infrastructure to share loads and reduce peak demands.

7- Resource management

Resource management, and especially water and solid waste, should move from linear consumption to circular conservation and incentivize resource efficiency. Working at neighbourhood-scale provides an opportunity for a fuller transition to a circular economy, and especially to scale up reuse and recycling by providing the necessary infrastructure. In order to address the impacts of water shortage or droughts, districts should seek to lower water demand and manage water usage sustainably. To decrease solid waste generation, districts may reduce single-use materials and surplus food, fostering goods repairability and recyclability. They may also consider implementing source-separated collection, specifically for food waste and other organics.

8- Green space, climate resilient and nature-based solutions

The primary objective should be to provide all residents access within a 15-minute by walking or cycling to a high-quality open green space. Large-scale green spaces are essential to improve mental and physical wellbeing and to support climate resilience, biodiversity and ecosystem services such as pollination. In addition, the project should develop a ‘green throughout’ approach by using public space and buildings for expanding tree canopy and increasing permeable ground or roof cover. This helps to improves the quality of urban space but also to mitigate the heat island effect and to reduce the energy needed to cool and heat

buildings. The project may also develop urban agriculture to decrease food miles and to raise awareness about the benefits of fresh, seasonal food and local production.

9- Sustainable lifestyles

The objective is to design and use the site to develop new ecological practices and services that will foster sustainable lifestyles and consumption. Strategies include spaces for bike storage and services, infrastructure for waste segregation and collection, development of sustainable freight and urban logistics, dedicated creation of pooled and shared services, etc. Teams should also consider integrating methods of producing and trading goods that foster sustainable consumption habits such as encouraging local production and urban agriculture, embracing circular economy approach with Fab-labs, zero-waste stores and shared spaces that allow retailers and craftspeople to experiment and pool their resources.

10- Green economy

A successful neighbourhood is one which can thrive environmentally, socially and economically. The project should seek to create green jobs and long-term prosperity with the environmental considerations of ecosystem resilience and resource efficiency. This can be achieved by using the development process to incubate new skills and green jobs; providing spaces and infrastructure to support sustainable businesses; promoting training and upskilling opportunities, especially for young people and older workers.

The teams are invited to consider all the 10 principles while developing their project. However, it is important for teams to focus on the principles that are most appropriate for the site, i.e. emphasize those which will enable the city and the local communities to catalyse change. In the Site Form, each city has indicated specific environmental priorities and objectives for its site.

More information about these 10 principles may be found in the document “Guidance to Design a Green and Thriving Neighbourhood”, by ARUP.