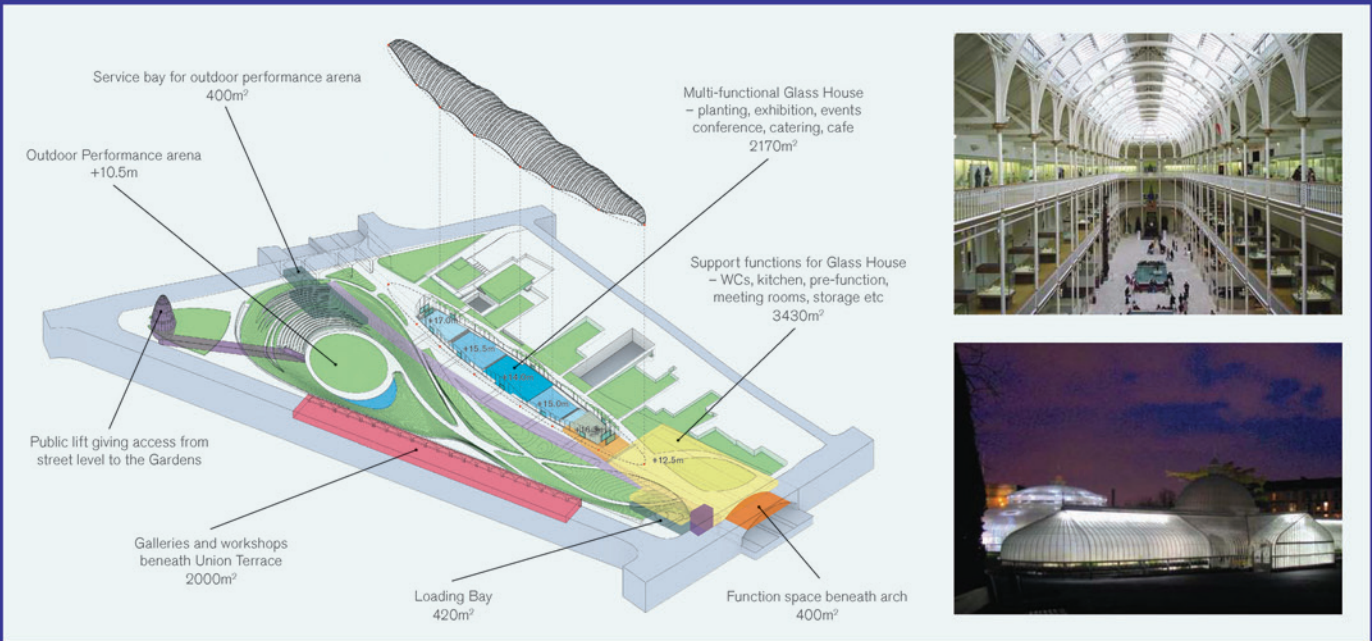


“Protecting the gardens, transforming the setting”



↑ By adding the multi-functional Winter Garden, we create a park for all, for all seasons. Its climate-moderating glass structure is inspired by examples of great Scottish architecture: Edinburgh's National Museum of Scotland (top right) and Kibble Palace in Glasgow (above right).



↑ The site will be transformed by covering the road and railway, opening up the space, enhancing the setting and reducing noise and pollution.



↑ Our vision for this space puts the focus on accessibility, flexibility and sustainability, expanding the park and creating a lasting setting for the historic buildings that surround the gardens.

“A new energy and culture centre as the centrepiece to Aberdeen City Gardens”



↑ Filled with species native to Scotland, the whole park will seasonally evolve: springtime bluebells, summer's blooming heather, deciduous plants in autumn and hardy perennials in the winter. By night, the Winter Garden will be beautifully lit, emulating the Northern Lights and resonating beyond the immediate boundaries of the space. The handsomely sombre granite of the city will stand in striking contrast to this beacon of light.



Long, distant views across the space will be established, offering a glimpse of sunken gardens dropping down from the terraces. We will retain the trees that are vital to the setting as well as the natural arena that is carved into the landscape. The dramatic level changes that currently limit access for many potential users will be softened by establishing gentle gradation, freeing up the space for all. This also increases the potential for adapting the space



to a range of uses: a wintertime ice rink, an urban beach, outdoor concert venue or simply a beautiful lawn. For the Union Terrace arches, we propose a new use of space: opening them up and maximizing their potential to the benefit of Aberdeen's base of young, creative talent. Bringing innovative design right into the heart of the city, these arches could house workshop and studio space for writers, artists, designers and musicians.

“We double the size of park... it will be twice the size of Trafalgar square”



↑ Long, distant views across the space offer glimpses of sunken gardens dropping down from terraces.



↑ Extensive landscaping will increase visibility and connect the gardens with the city.

“A park for all seasons, a building for all uses”



↑ A truly flexible space, the Winter Garden will highlight the city's green energy technology innovations and will have the capacity to host a myriad of changing events.

“A new benchmark for environmental design”

- The Winter Garden will be ‘free-running’ with no heating or mechanical ventilation. It can be used as a ‘temperate glass house’ suitable for semi-hardy planting but not for hothouse or tropical planting.
- Temperatures will not be allowed to drop below 8°C. The heating required to maintain this temperature – as in deep winter – is provided through radiant heating pipes embedded in the floor.
- Outside of daylight hours, thermal blinds are deployed from a roll of material stowed in cylindrical canisters. The blinds will run up between the structural arches to improve the thermal performance of the glass house structure.
- Solar and glare control are also achieved by using movable blinds – ideally through an adaption to the thermal system, or as a separate material. These can track the movement of the sun.
- When the Winter Garden is used in the evening, and when acoustic performance needs to be enhanced, the thermal blinds will be deployed to create an absorptive surface that can scatter sound waves, rather than focus them as the curved glass enclosure would otherwise tend to. This approach also enables light spill from the building to be greatly reduced.
- High-level vents will open when air temperatures in the glass house exceed 25°C. Warm air is extracted by buoyancy through these vents. Air intake is via a slot vent in the edge beam to the structure, and can be enhanced by opening doors at ground level. The radiant floor system will be zoned to provide localised thermal control.
- Where and when higher local temperatures (up to 21°C) are required, this will be achieved by increasing the temperature of the floor to achieve comfort for auditorium or conference use. The radiant system will be heated using biomass boilers to minimise carbon footprint of the building.

Environmental

1. Smart skin traps enter sunlight to provide free heat
2. Automated roof vents open in summer for natural ventilation
3. Optimised for light transmission
4. Laminated high performance glass
5. Rainwater harvested for use in WCs and cleaning

Structure

6. Optimised structure – minimum material use, minimum obstruction to lights

Shading /Installation

7. Shading from high-angle summer sun
8. Multi-service discs – lighting projection and sound
9. Biomass boiler provides zero carbon
10. Under-floor radiant heating

Traffic

11. Noise and vibration control

