

# REPROGRAMMING TRAIN STATIONS FOR THE 21ST CENTURY



Paddington station

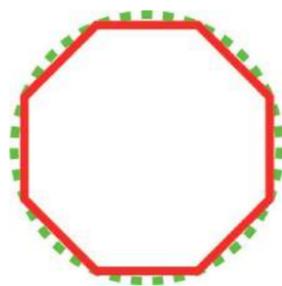


St Pancras station

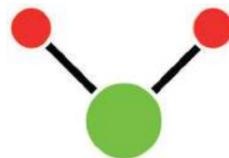


Kings Cross station

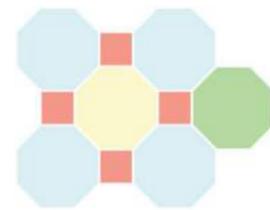
Multiple opportunities around the city



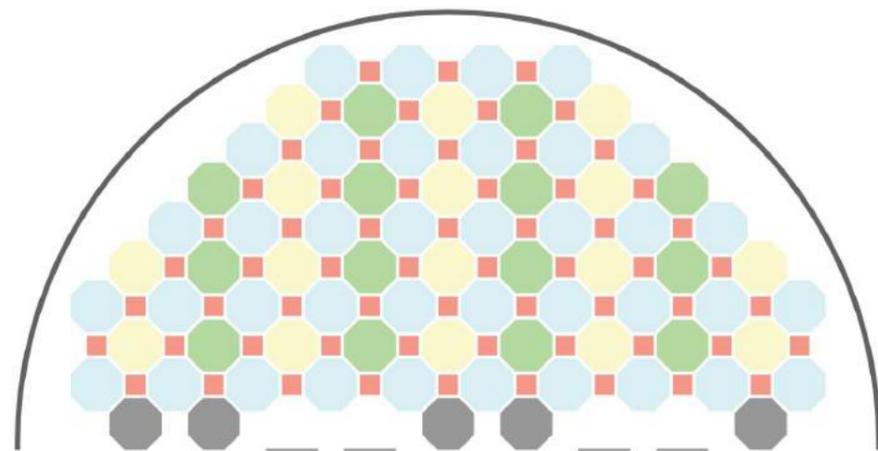
Rationalise the circle into a replicable and functional form



Inspired by atomic lattice structures to optimise the use of space



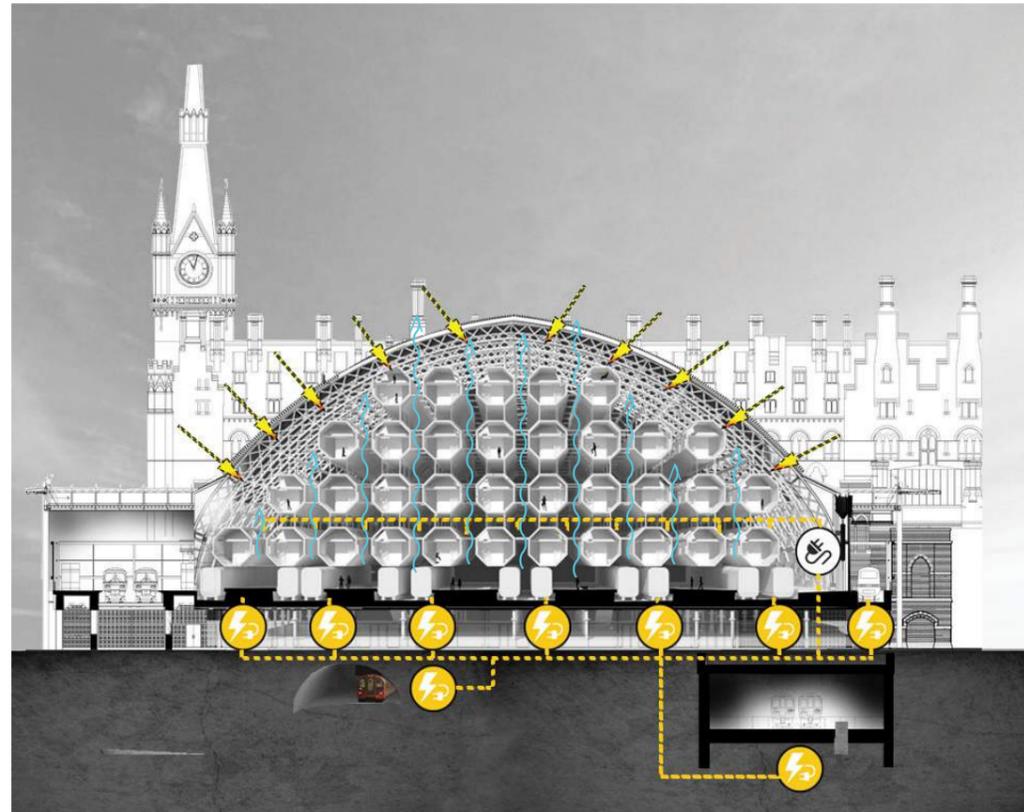
Repeated arrangement of pod modules



- Residential pod
- Solar tube pod
- Green space pod
- Walkways and services
- Existing train platforms
- Train station roof

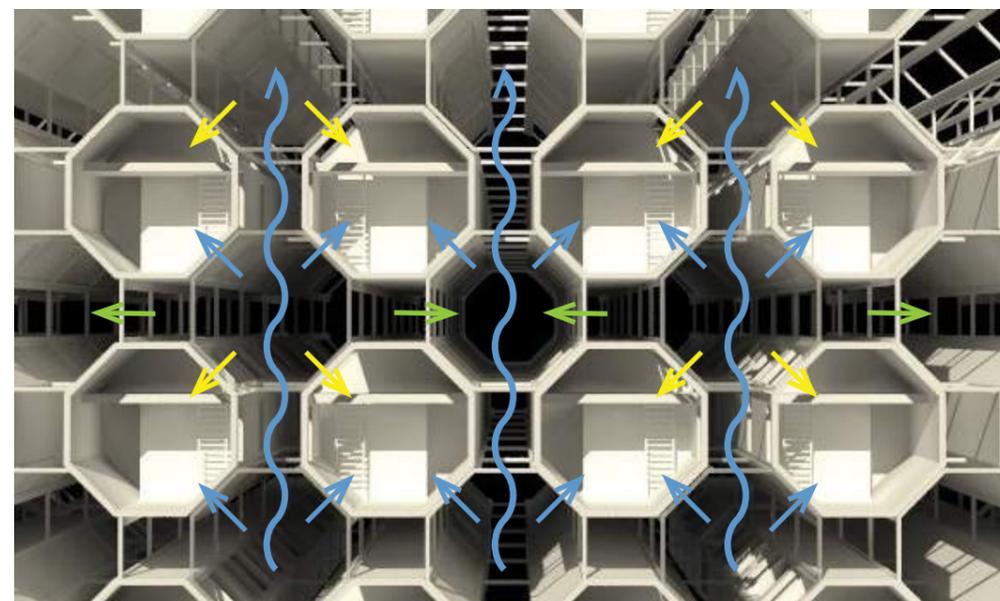
Program arrangement inside the train station structure

dexter  
moren  
associates

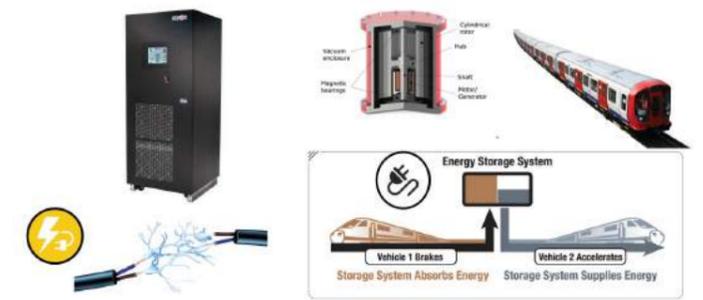


## Regenerative Braking & Flywheel Technology

Regenerative brake is an energy recovery mechanism using flywheel technology which slow a vehicle or object by converting its kinetic energy into a form which can be either used immediately or stored until needed.



Micro scale environmental solution



## Concept

Train stations of the Victorian era were a grand gesture and celebration of the technological achievements of rail travel. Many of these stations are stunning cavernous structures that announce a sense of place and arrival.

With the advancement of rail technology and the introduction of efficient electric trains, these stations are no longer the soot and smoke filled places they used to be. Up and down the country, these stations present an untapped venue where additional uses could be introduced within its voluminous space.

The magnificent arches of Paddington and Kings Cross Stations are DMA's chosen sites for "XCO2 Green Sky Thinking: Reinventing London's Housing for 2050" Competition.

The inspiration from an atomic structure provides the most efficient way to fill the semi-circular volume of the train platform roof. The use of octagon shaped nodes (accommodation pods) connected by a hybrid grid of connectors creates the blue print of this concept. Each pod is connected at four points, of which these connectors will provide of corridors, amenity spaces, MEP zones and ventilation routes. The pods can be interconnected to create large units where required.

## Sustainability

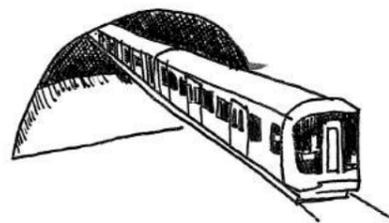
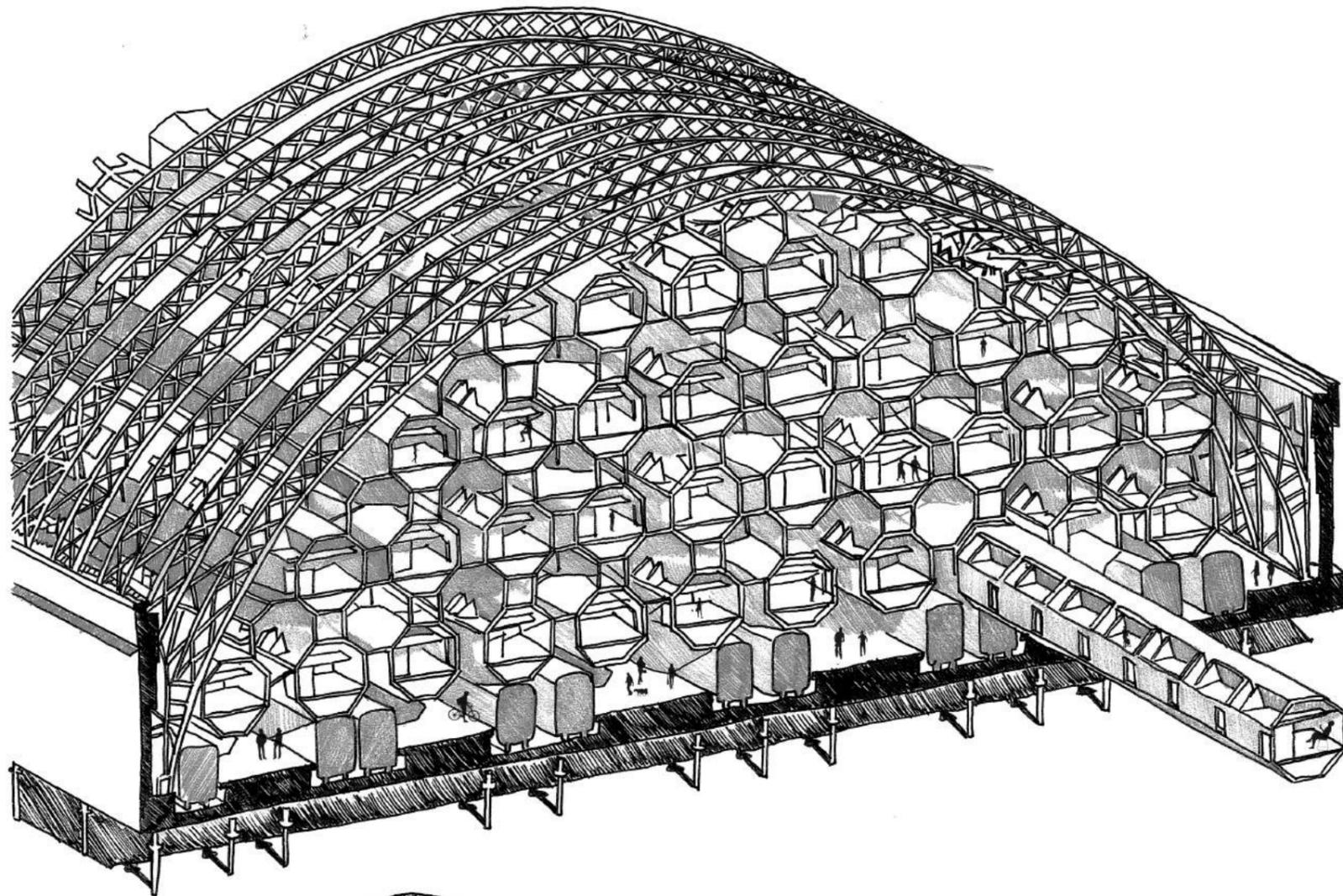
Energy from the trains pulling in and out the platforms can be harnessed by regenerative braking and with the use of flywheel technology which converts kinetic energy into electric energy to power the residential units.

Light shafts through the grid network will act as solar collectors (PVs) and light shafts to channel light to the accommodation pods. These shafts will also utilise the pressure differentials created by the train movements to act as air exchange chambers that provide ventilation to the pods.

## Conclusion

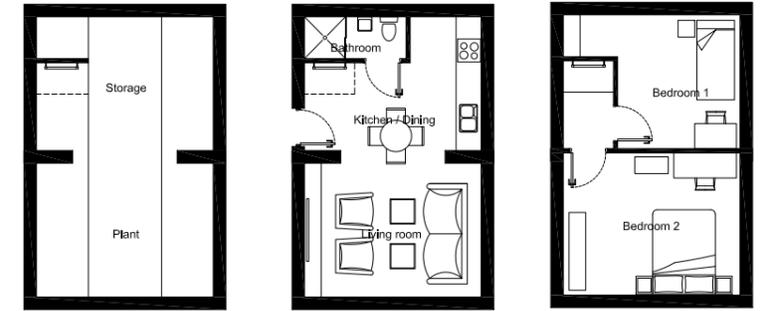
In an age where space in cities is a scarcity, a rethink and reprogramming of generously proportioned historic structures provides an intriguing and exciting prospect. The integration and harnessing of otherwise untapped sources of energy and infilling of spaces like train stations are worthy hypotheses if we are to leave no stone unturned.

**REPROGRAMMING TRAIN STATIONS FOR THE 21ST CENTURY**

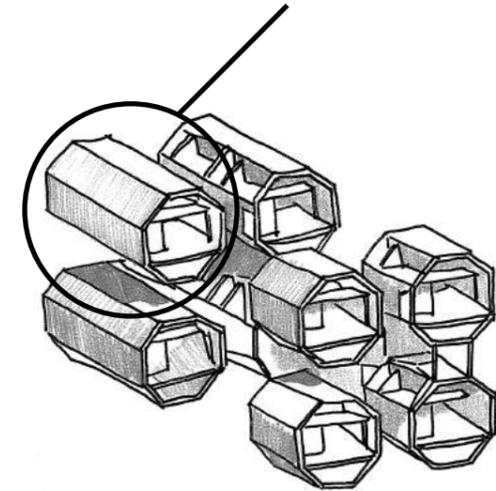


*Exploded Perspective sketch of the scheme in context*

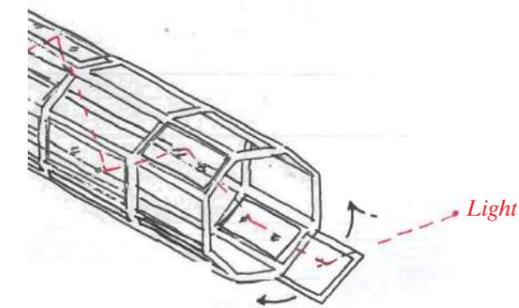
dexter  
moren  
associates



*Pod layout*



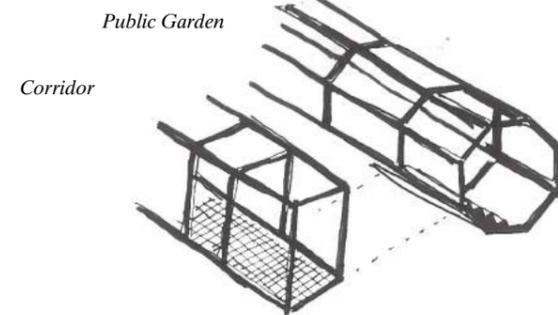
*Residential pod*



*Solar pod*

Solar tube and Photovoltaics

Solar tubes are foil or mirror lined so that they reflect light into an interior space. We have adopted this same idea to draw light in from one end of the station platform. A mirror tracks the sun and reflects the rays into a mirror lined tube. The tube is fitted with PV panels to produce energy while also drawing natural daylight through the long section to the residential pods.



*Courtyard pod*

*Public Garden*

*Corridor*