



SUMMER MODE

WINTER MODE

NIGHT MODE

DAY MODE

How it works >>

NAVIGATION TOOL

CH2 has been designed to reflect the planet's ecology, which is an immensely complex system of interrelated components. Just as it is impossible to assess the role of any part of this ecology without reference to the whole, CH2 comprises many parts that work together to heat, cool, power and water the building, creating a harmonious environment.

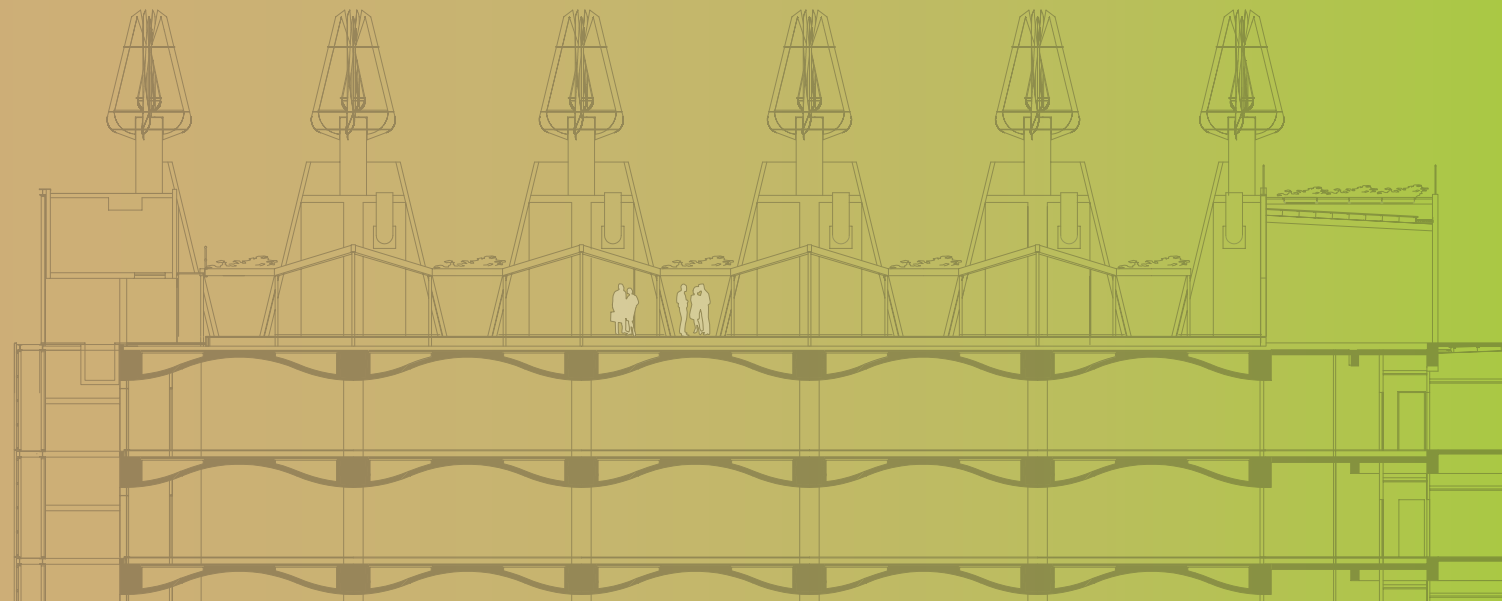
This navigational tool allows interactive viewing of the innovative and interconnected design elements of CH2, building on a series of 22 Fact Sheets available on this website. The Fact Sheets show how the building works during the day and night, and in winter and summer modes.

See:

>> FACT SHEETS - HOW THE BUILDING WORKS

>> THE CONSTRUCTION + FITOUT PHASE

>> THE CH2 DESIGN PROCESS + LESSONS LEARNED



SUMMER MODE WINTER MODE NIGHT MODE DAY MODE



AIR MOVEMENT



PEOPLE + HEALTH



ENERGY FLOWS



COOLING + HEATING



LIGHT + SHADING



WATER CYCLE



LANDSCAPE



TURBINES

wind cowls

Wind driven cowls will generate electricity during the day.

INDOOR ENV. QUALITY

exhaust

High level ceiling exhaust ensures complete emptying of warm air in ceiling spaces.

CHILLED PANELS + BEAMS

chilled ceilings

Occupants experience 'coolth' by radiating heat to chilled ceilings overhead.

INDOOR ENV. QUALITY

displacement air

Fresh air fed at low speed through controllable floor vents.

PHASE CHANGE MATERIAL

Water is piped to phase change plant for re-cooling

ENERGY SYSTEMS

roof top energy

Includes photovoltaic cells, solar hot water panels, a gas-fired co-generation plant and wind powered turbines.

INDOOR ENV. QUALITY

healthy air

100% outside air supply via vertical ducts deliver air floor by floor to sealed access floor plenum.

SHOWER TOWERS

shower towers

Air and water falls to provide cool water for building reticulation and cool air to supplement ground floor and retail cooling.

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TURBINES

wind cowl

Assist purge ventilation by drawing air from individual floors through north ducts.

VAULTED CEILINGS

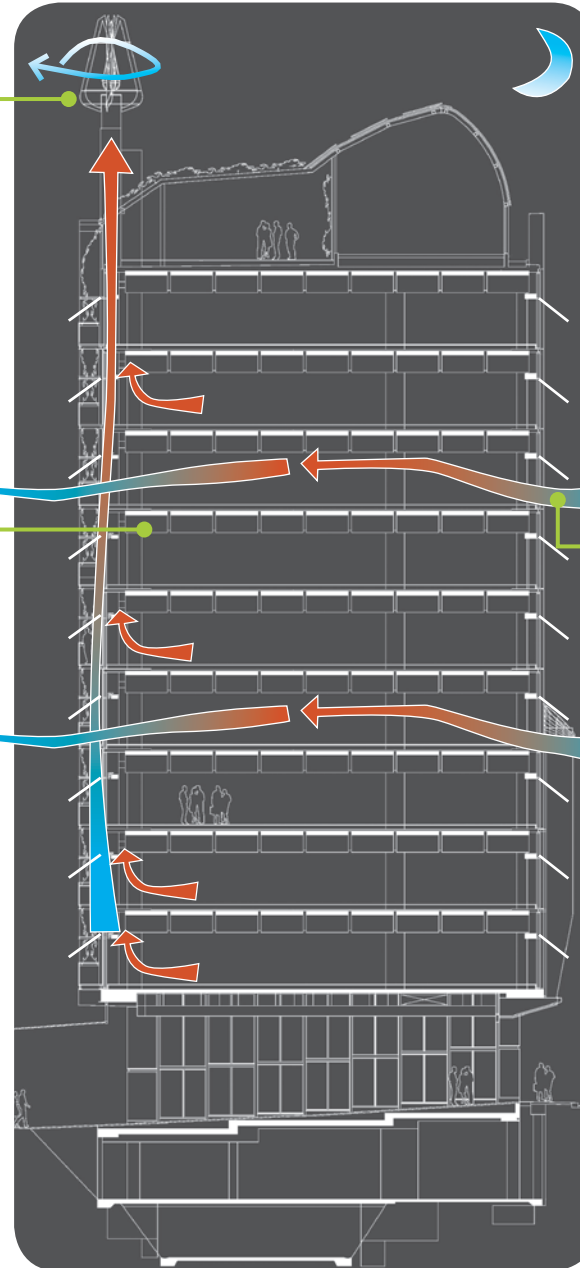
thermal mass

Heat build up in the concrete ceilings from the days activities is removed by the cool night air.

ENERGY SYSTEMS

night purge

During the night purge windows automatically open - cool night air cools down the internal space.



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LANDSCAPE



WATER INITIATIVES

vertical planting

Green north facade and roof top assists shading, glare + air quality.

Access to nature enhances productivity by relieving stress.

ENERGY INITIATIVES

shading + light

Light shelf + balcony floors provide horizontal shading from northern sun.

Ambient and direct daylight bounces off external and internal light shelf.

WATER INITIATIVES

water collection

INDOOR ENV. QUALITY

glare control

landscape planting to window mullions helps reduce city glare

ENERGY SYSTEMS

heating mode

Heated water pipes only required during early winter mornings.

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AIR MOVEMENT



PEOPLE + HEALTH



ENERGY FLOWS



COOLING + HEATING



LIGHT + SHADING



WATER CYCLE



LANDSCAPE

WESTERN FACADE

timber shutters

Operable, vertical timber shutters provide full summer shading while still allowing filtered daylight and views.

PEOPLE

summer terrace

Edge space for thermal buffer, social interaction and vertical circulation.

WATER INITIATIVES

landscape

Planted green roof tops to plantrooms

ENERGY SYSTEMS

the bark

Protects the inner facade from direct exposure by the elements. Fresh air naturally ventilates the toilets.

VAULTED CEILINGS

exhaust

High level ceiling exhaust ensures complete emptying of warm air in ceiling spaces.

WATER INITIATIVES

water mining

A multi-water treatment plant will harvest water from the Little Collins st. sewer.



Air Movement

Instead of supplying the office spaces with about 85% recirculated air, as is normal in typical variable air volume air conditioning systems for office buildings, CH₂ will not recycle any air.

All the air supplied to the office spaces will be 100% filtered fresh air drawn from roof level, supplied via the south ducts and exhausted via the north ducts.

see fact sheet

INDOOR ENV. QUALITY

VAULTED CEILINGS

SHOWER TOWERS

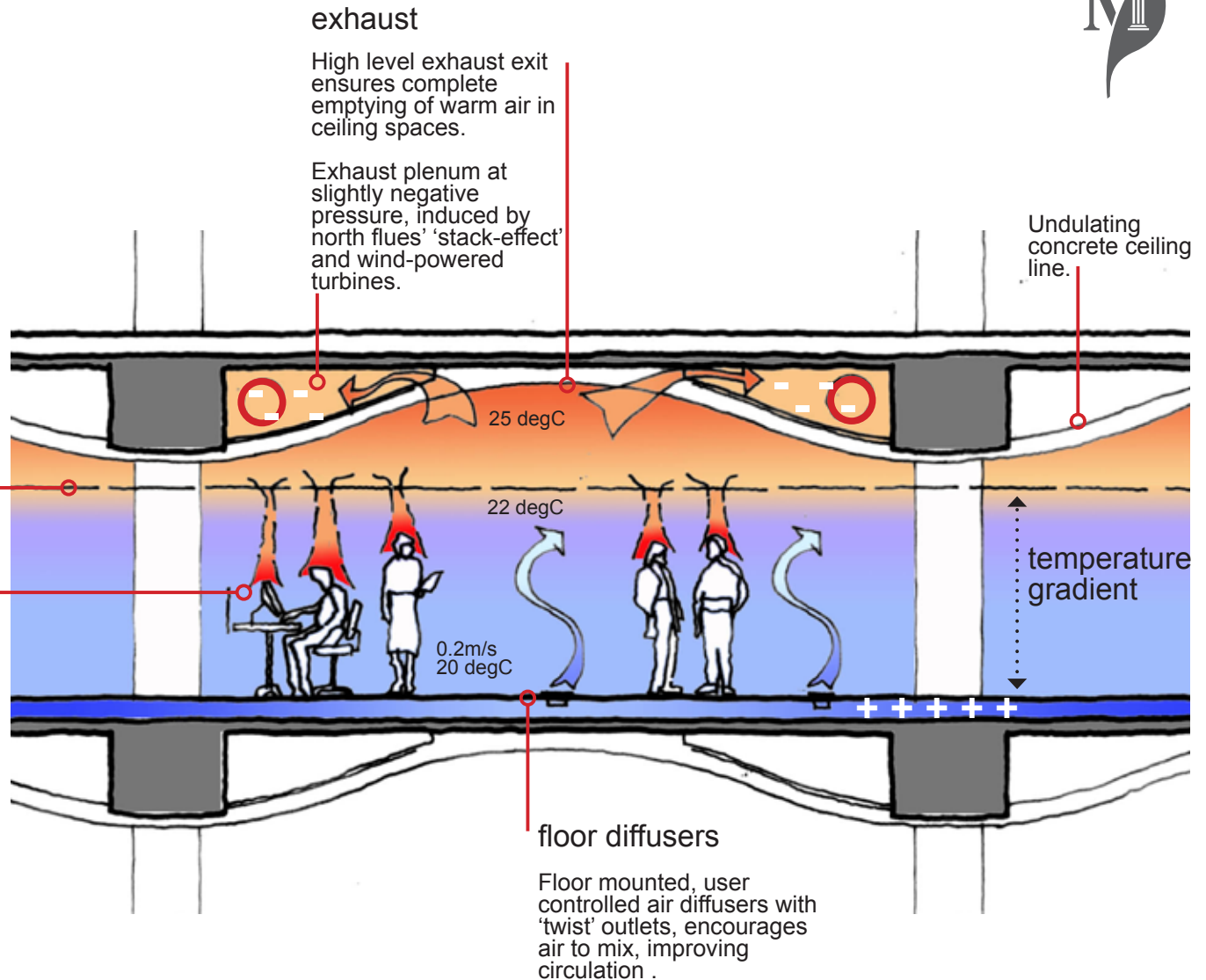
displacement air

Boundary layer created by displacement air supply.

Occupant and equipment heat plumes

healthy air

100% outside air supply to sealed access floor plenum





People + Health

CH2 is a healthy building, with clean, fresh air and non-toxic finishes helping staff stay healthy, alert and effective at work.

Physical and visual access to nature is encouraged by providing shared edge spaces for social interaction or private escape.

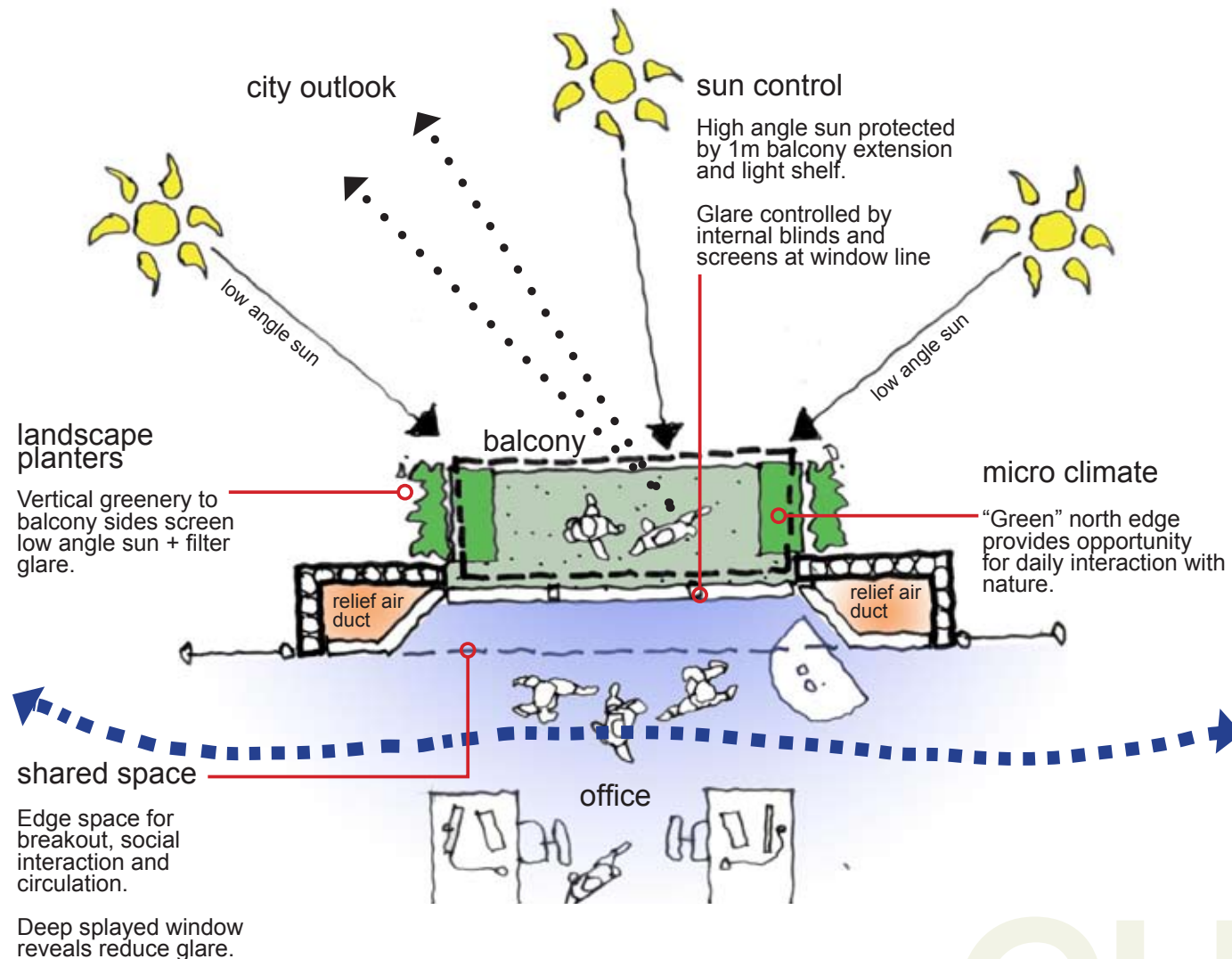
see fact sheet

INDOOR ENV. QUALITY

VAULTED CEILINGS

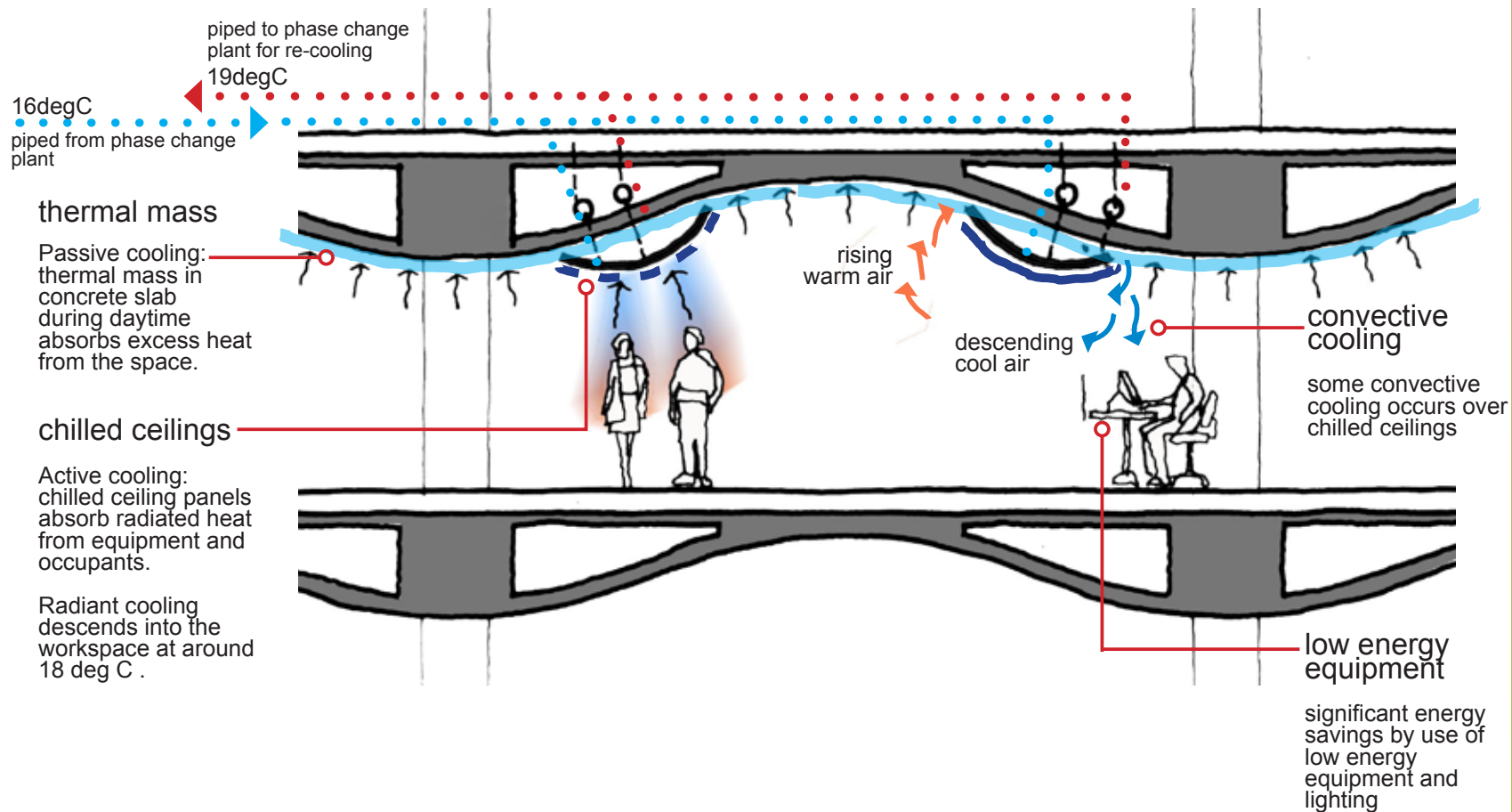
WATER INITIATIVES

PEOPLE



Energy Flows

- > Low energy computing
- > Low energy lighting
- > Electricity from co-generation
- > Heat from co-generation
- > Heat recovery
- > Solar hot water
- > Solar photovoltaic cells
- > Wind turbines
- > Shower towers
- > Phase change material



see fact sheet

ENERGY SYSTEMS

TURBINES

SHOWER TOWERS

CHILLED CEILINGS



Heating + Cooling

Much effort has been invested in ways to cool, rather than heat, the building. This is because human activity and electronic equipment give off vast amounts of heat. The building and its air-conditioning system are designed to capture and use that heat so the major need for energy is for cooling.

see fact sheet

ENERGY SYSTEMS

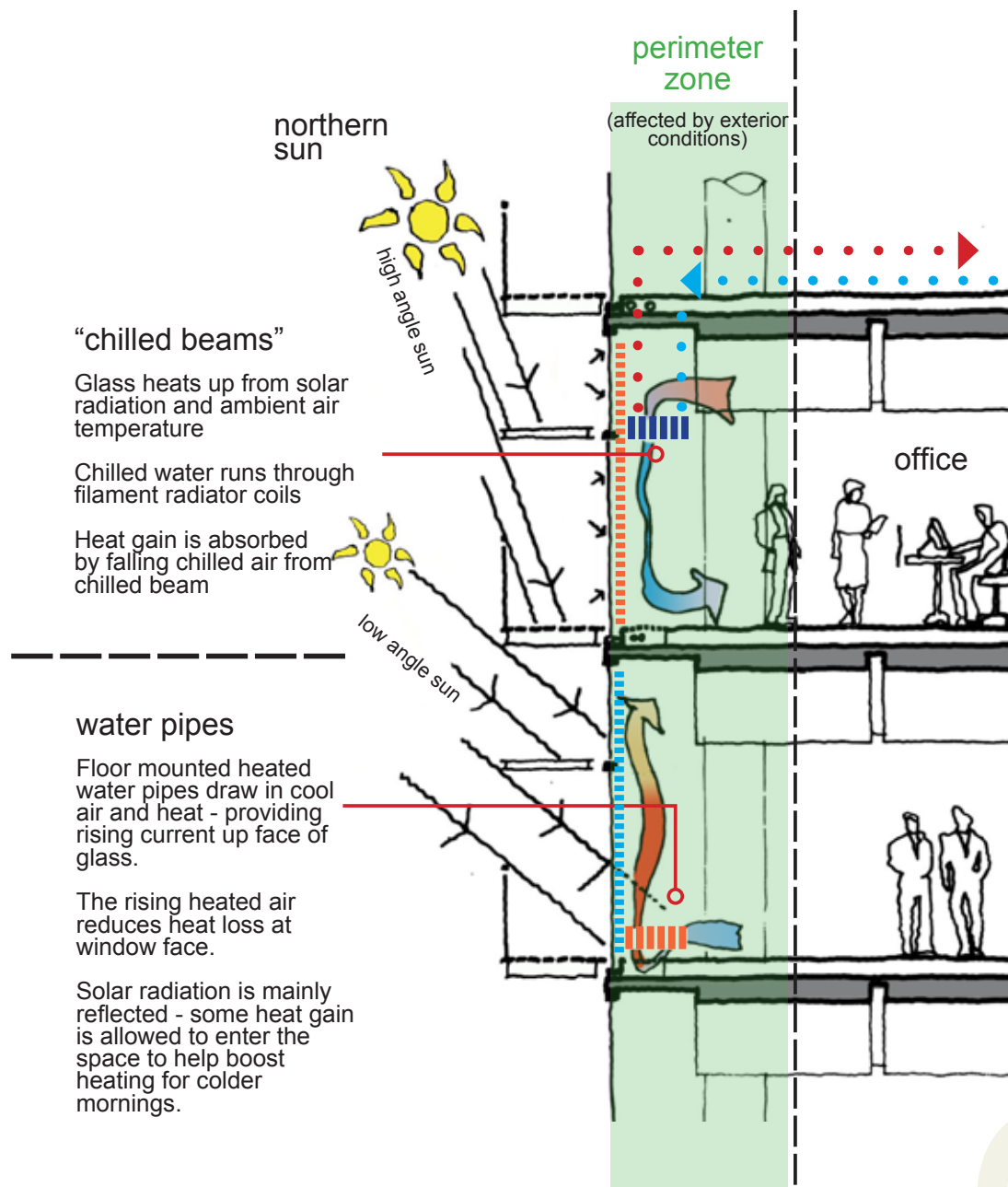
TURBINES

CHILLED CEILINGS

SHOWER TOWERS

cooling mode
generally office hours

heating mode
only required early winter mornings





Light + Shading

Lower floors receive less daylight than upper floors so windows on the north and south facades are larger on the lower floors than the upper ones. This allows the total amount of glass to be minimised, reducing energy loss, while maintaining desirable natural light levels.

Shading to control sun and glare will be used on the north, east and west facades.

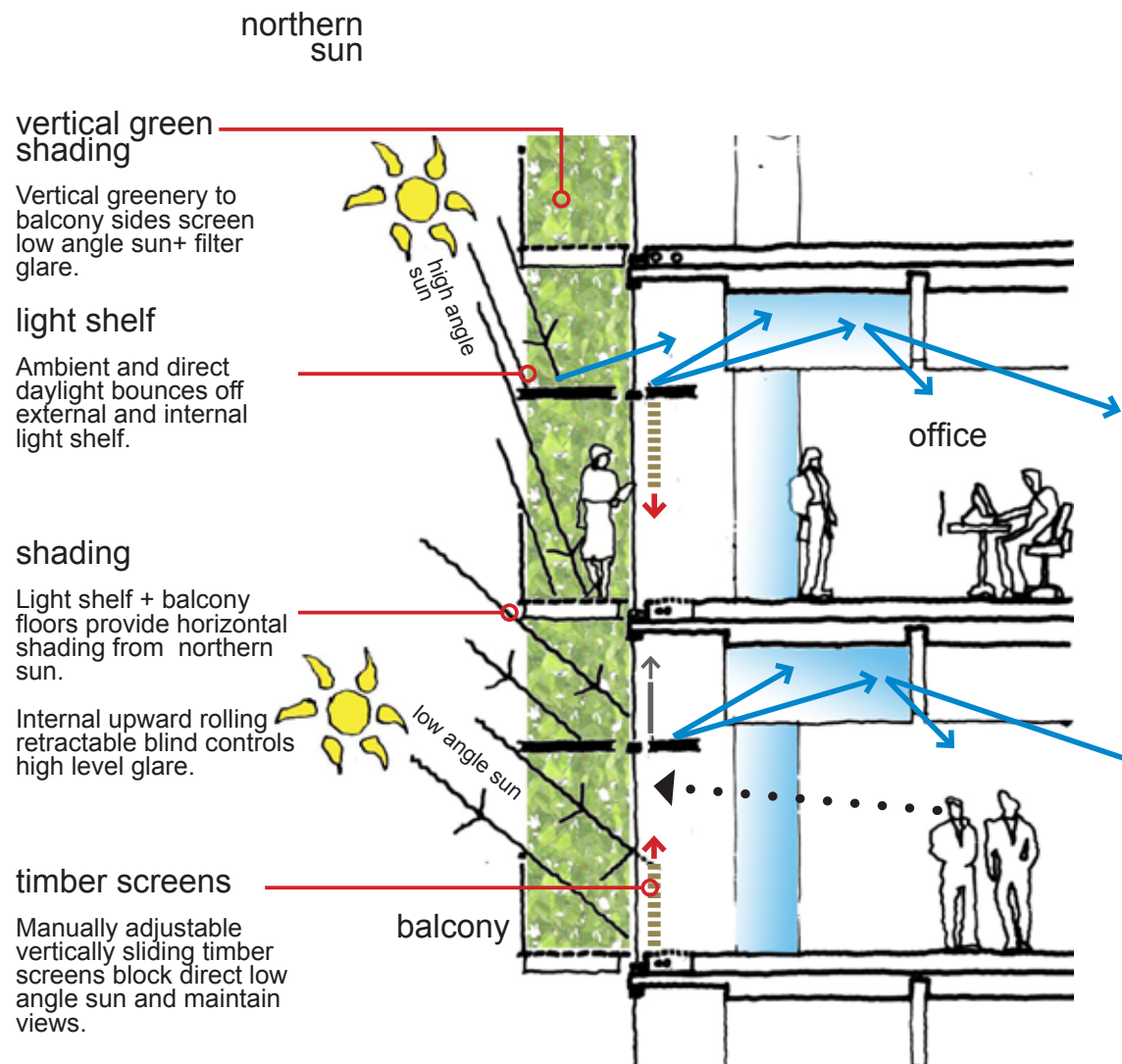
see fact sheet

LIGHT

PEOPLE

WESTERN FACADE

VAULTED CEILINGS





Water Cycle

About 100,000 litres of black (toilet) water a day will be extracted from the main sewer in Little Collins Street.

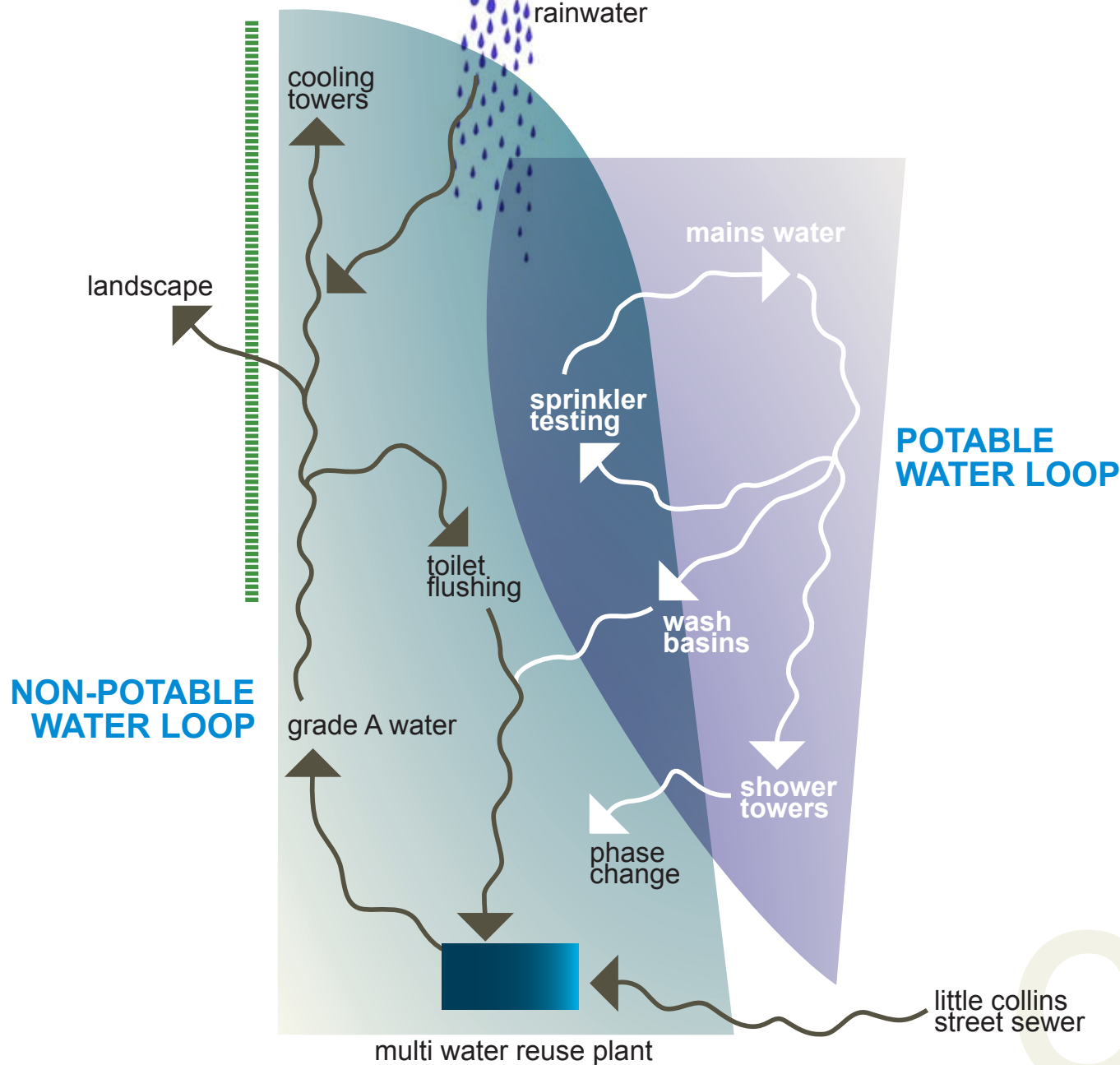
The sewage, along with any generated on site, will be put through a multi-water treatment plant.

The treatment plant and building rain water collection will supply 100 per cent of non-drinking water for water cooling, plant watering and toilet flushing needs.

see fact sheet

WATER INITIATIVES

SHOWER TOWERS



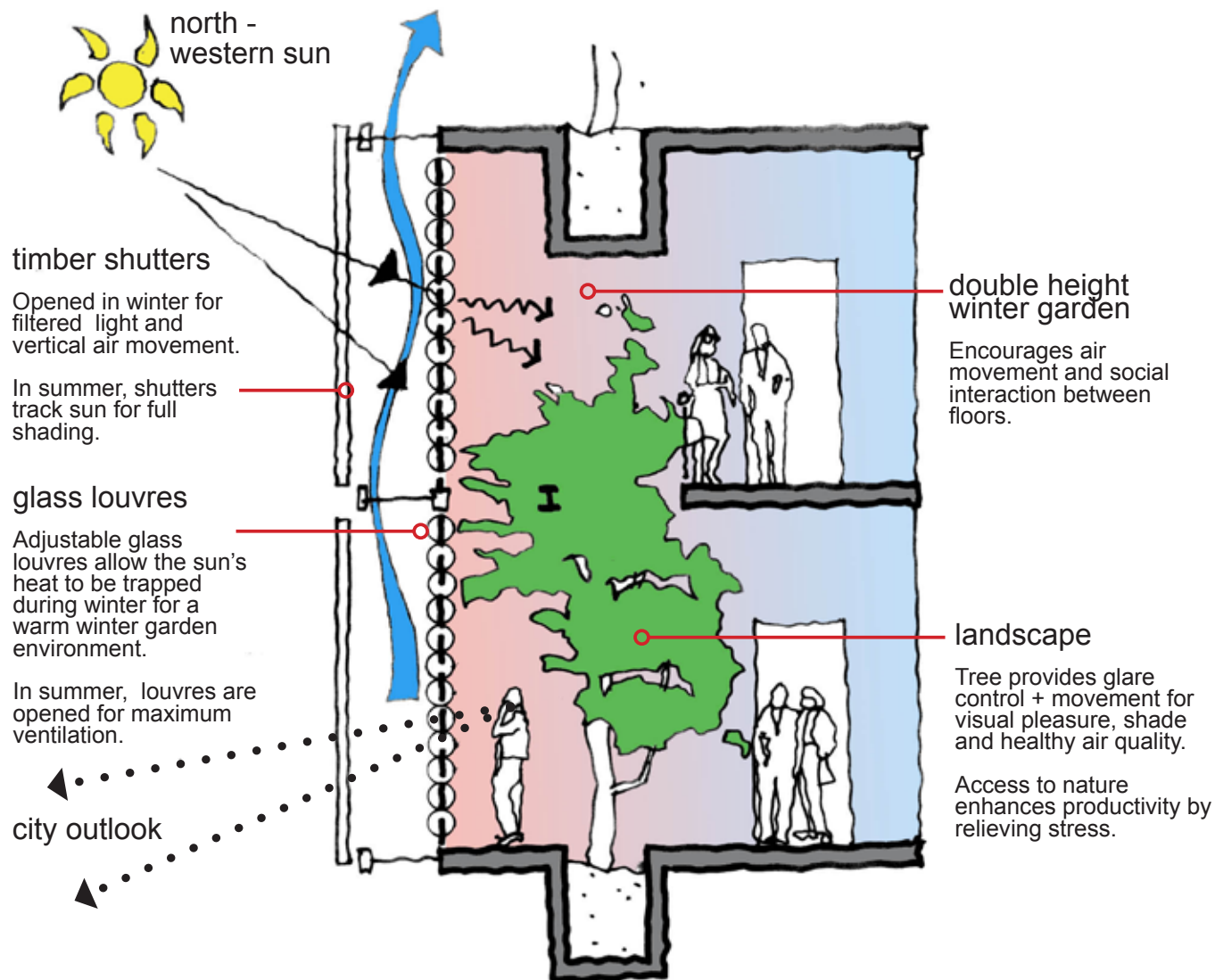


Landscape

Breakout balconies, winter gardens and roof tops are extensively landscaped to provide occupants access to nature.

Recycled water is used in vertical gardens running the full height of the northern façade. The vertical gardens assist with shading, glare and air quality.

Plants will be grown from special planter boxes built into the balconies on every storey.



see fact sheet

WATER INITIATIVES

INDOOR ENV. QUALITY