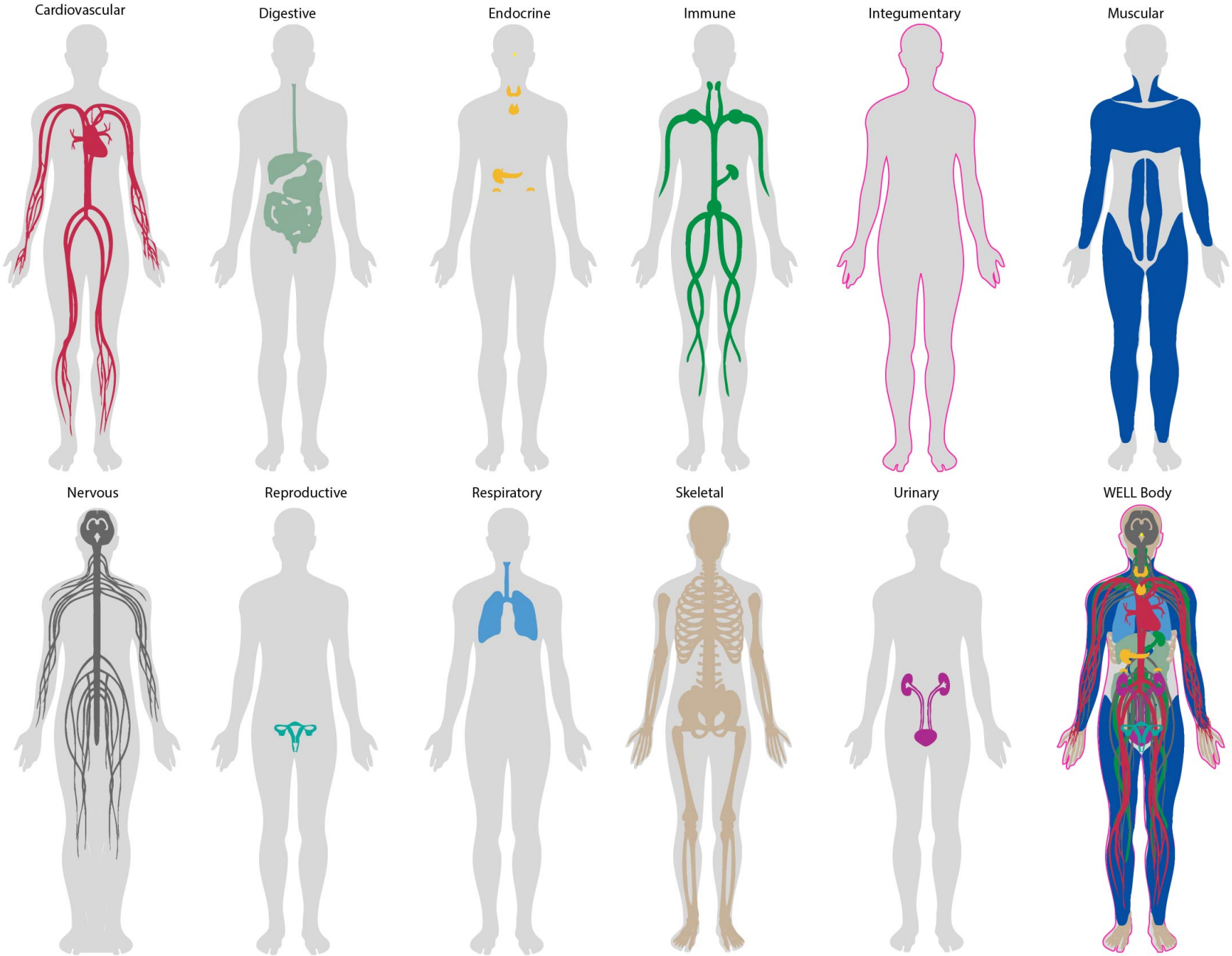
- A building which reflects RCP core values……..
- An iconic building

- Wellbeing: It is committed to promoting disease prevention, and good physical and mental health for individuals and communities
- We will invest in our future and build on our heritage
- We will shape the future of Health + Healthcare

- *‘….a once in a generation opportunity……’*

AIR	Quality standards including filtration, cleaning protocols, microbe control, material safety
WATER	Testing and monitoring to control public water additives and system contaminents
NOURISH-MENT	Promotion of healthy food options, nutrition labelling, safe food preparation and sourcing
LIGHT	Galre free and circadian lighting design, effects of surfaces & contrast, light quality, daylighting
FITNESS	Active design, enhanced ergonomics, activity incentives, and structured fitness programs
COMFORT	Physicak and visual ergonomics; thermal, olfactory, and acoustic comfort
MIND	Organizational policies and transparency, bio-philic design, flexible and adaptable spaces



	14 PATTERNS	*	STRESS REDUCTION	COGNITIVE PERFORMANCE	EMOTION, MOOD & PREFERENCE
NATURE IN THE SPACE	Visual Connection with Nature	* * *	**Lowered blood pressure and heart rate** (Brown, Barton & Gladwell, 2013; van den Berg, Hartig, & Staats, 2007; Tsunetsugu & Miyazaki, 2005)	**Improved mental engagement/ attentiveness** (Biederman & Vessel, 2006)	**Positively impacted attitude and overall happiness** (Barton & Pretty, 2010)
	Non-Visual Connection with Nature	* *	**Reduced systolic blood pressure and stress hormones** (Park, Tsunetsugu, Kasetani et al., 2009; Hartig, Evans, Jamner et al., 2003; Orsega-Smith, Mowen, Payne et al., 2004; Ulrich, Simons, Losito et al., 1991)	**Positively impacted on cognitive performance** (Mehta, Zhu & Cheema, 2012; Ljungberg, Neely, & Lundström, 2004)	**Perceived improvements in mental health and tranquility** (Li, Kobayashi, Inagaki et al., 2012; Jahncke, et al., 2011; Tsunetsugu, Park, & Miyazaki, 2010; Kim, Ren, & Fielding, 2007; Stigsdotter & Grahn, 2003)
	Non-Rhythmic Sensory Stimuli	* *	**Positively impacted on heart rate, systolic blood pressure and sympathetic nervous system activity** (Li, 2009; Park et al, 2008; Kahn et al., 2008; Beauchamp, et al., 2003; Ulrich et al., 1991)	**Observed and quantified behavioral measures of attention and exploration** (Windhager et al., 2011)	
	Thermal & Airflow Variability	* *	**Positively impacted comfort, well-being and productivity** (Heerwagen, 2006; Tham & Willem, 2005; Wigö, 2005)	**Positively impacted concentration** (Hartig et al., 2003; Hartig et al., 1991; R. Kaplan & Kaplan, 1989)	**Improved perception of temporal and spatial pleasure (alliesthesia)** (Parkinson, de Dear & Candido, 2012; Zhang, Arens, Huizenga & Han, 2010; Arens, Zhang & Huizenga, 2006; Zhang, 2003; de Dear & Brager, 2002; Heschong, 1979)
	Presence of Water	* *	**Reduced stress, increased feelings of tranquility, lower heart rate and blood pressure** (Alvarsson, Wiens, & Nilsson, 2010; Pheasant, Fisher, Watts et al., 2010; Biederman & Vessel, 2006)	**Improved concentration and memory restoration** (Alvarsson et al., 2010; Biederman & Vessel, 2006) **Enhanced perception and psychological responsiveness** (Alvarsson et al., 2010; Hunter et al., 2010)	**Observed preferences and positive emotional responses** (Windhager, 2011; Barton & Pretty, 2010; White, Smith, Humphryes et al., 2010; Karmanov & Hamel, 2008; Biederman & Vessel, 2006; Heerwagen & Orians, 1993; Ruso & Atzwanger, 2003; Ulrich, 1983)
	Dynamic & Diffuse Light	* *	**Positively impacted circadian system functioning** (Figueiro, Brons, Plitnick et al., 2011; Beckett & Roden, 2009) **Increased visual comfort** (Elyezadi, 2012; Kim & Kim, 2007)		
	Connection with Natural Systems				**Enhanced positive health responses; Shifted perception of environment** (Kellert et al., 2008)
NATURAL ANALOGUES	Biomorphic Forms & Patterns	*			**Observed view preference** (Vessel, 2012; Joye, 2007)
	Material Connection with Nature			**Decreased diastolic blood pressure** (Tsunetsugu, Miyazaki & Sato, 2007) **Improved creative performance** (Lichtenfeld et al., 2012)	**Improved comfort** (Tsunetsugu, Miyazaki & Sato 2007)
	Complexity & Order	* *	**Positively impacted perceptual and physiological stress responses** (Salingaros, 2012; Joye, 2007; Taylor, 2006; S. Kaplan, 1988)		**Observed view preference** (Salingaros, 2012; Hägerhäll, Laike, Taylor et al., 2008; Hägerhäll, Purcella, & Taylor, 2004; Taylor, 2006)
NATURE OF THE SPACE	Prospect	* * *	**Reduced stress** (Grahn & Stigsdotter, 2010)	**Reduced boredom, irritation, fatigue** (Clearwater & Coss, 1991)	**Improved comfort and perceived safety** (Herzog & Bryce, 2007; Wang & Taylor, 2006; Petherick, 2000)
	Refuge	* * *		**Improved concentration, attention and perception of safety** (Grahn & Stigsdotter, 2010; Wang & Taylor, 2006; Wang & Taylor, 2006; Petherick, 2000; Ulrich et al., 1993)	
	Mystery	* *			**Induced strong pleasure response** (Biederman, 2011; Salimpoor, Benovoy, Larcher et al., 2011; Ikemi, 2005; Blood & Zatorre, 2001)
	Risk/Peril	*			**Resulted in strong dopamine or pleasure responses** (Kohno et al., 2013; Wang & Tsien, 2011; Zald et al., 2008)

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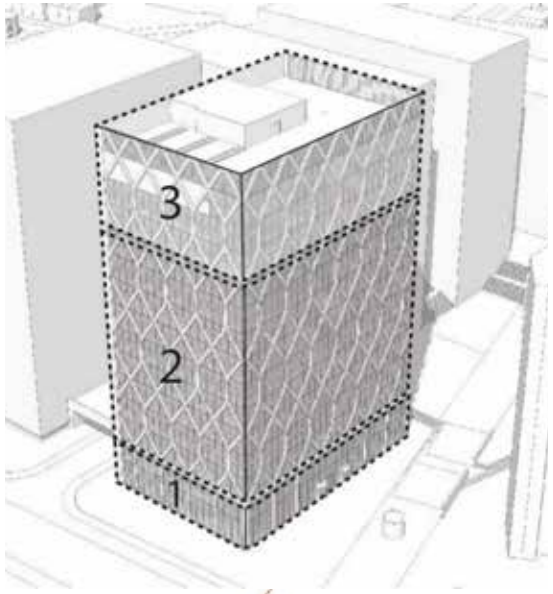
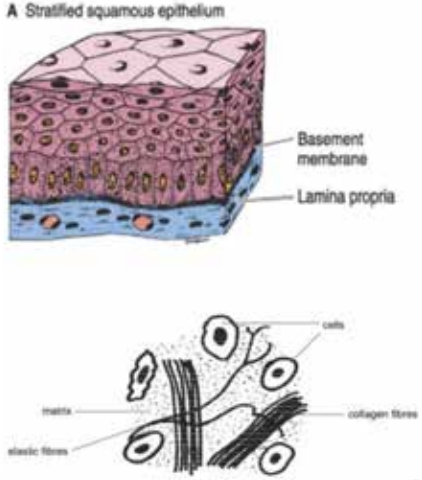
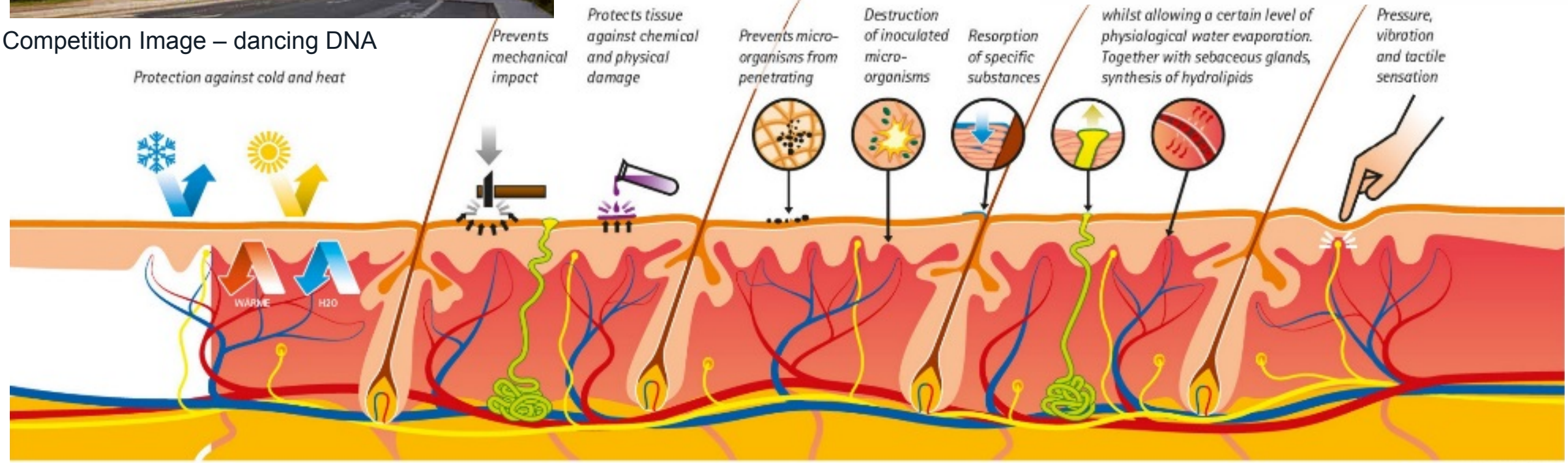
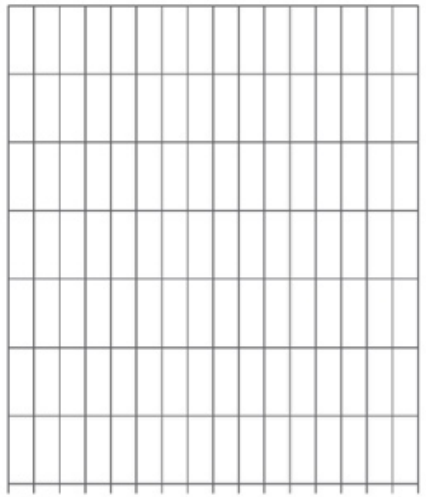
Competition Image – dancing DNA









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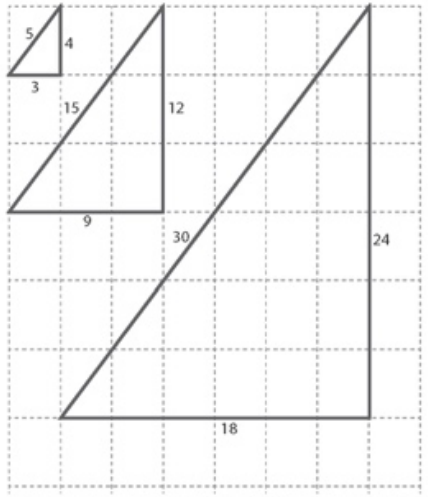

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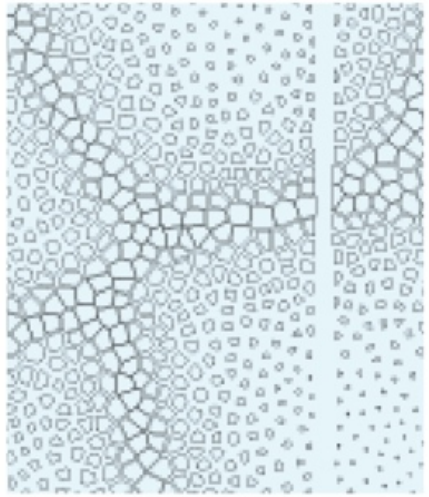

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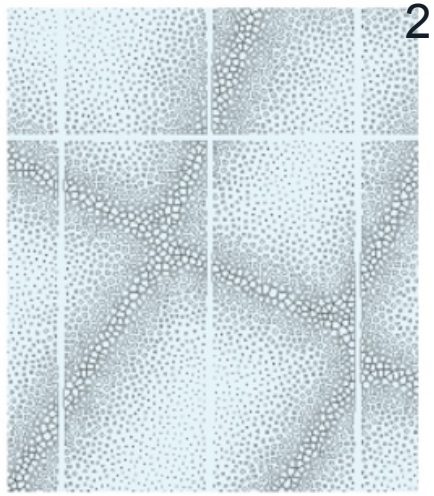

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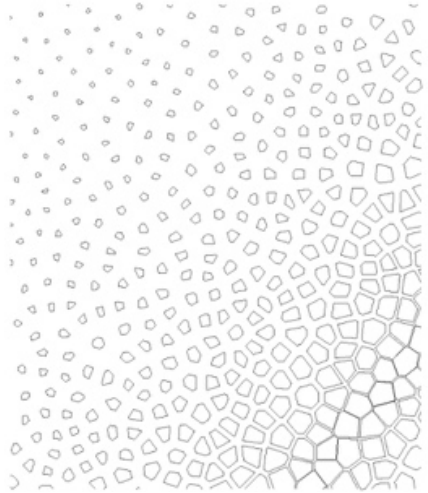
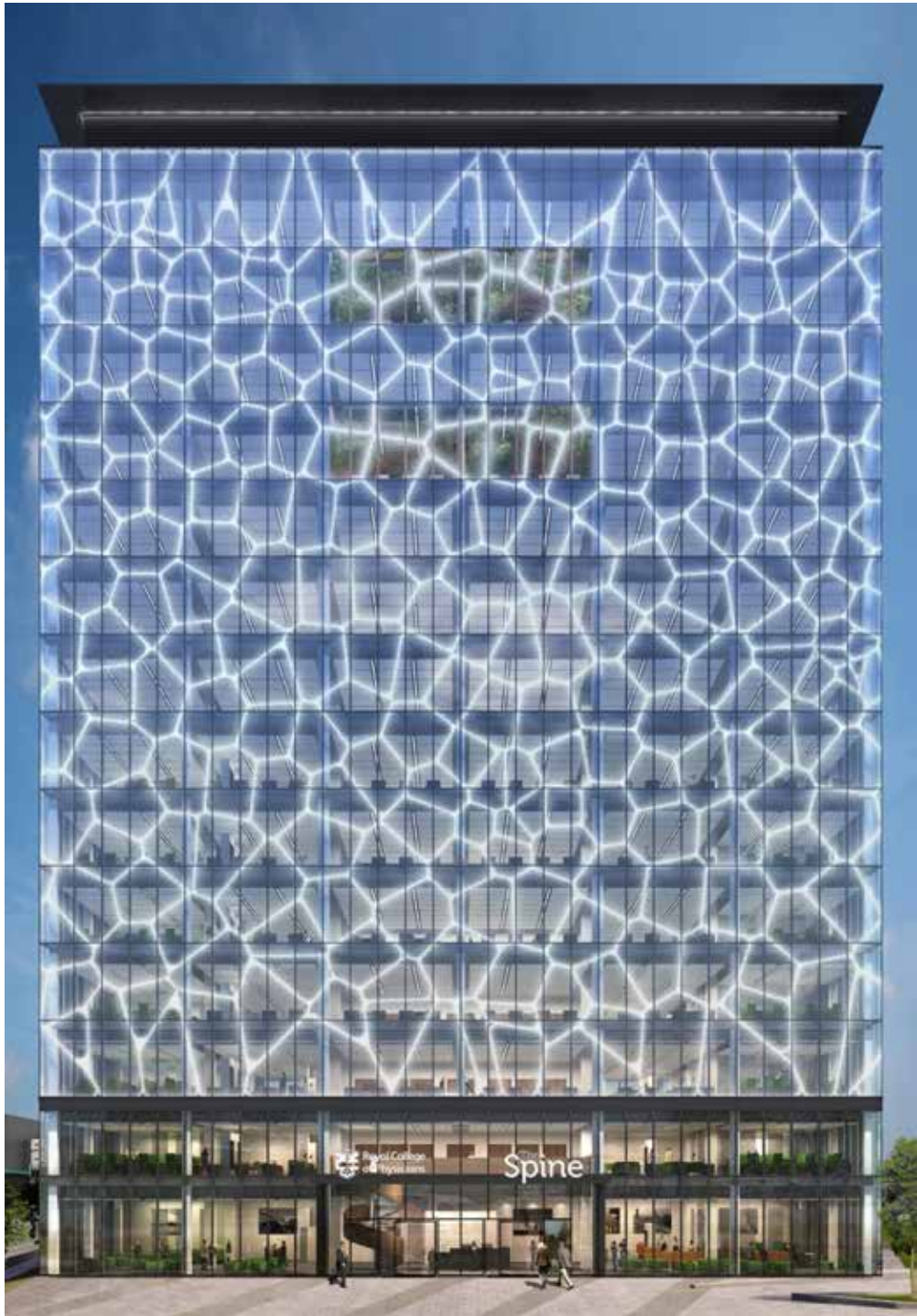


5

6

1. 1.5m Organisational Grid
2. Pythagorean Triple
3. Voronoi Geometry
4. Macro Scale
5. Micro Scale
6. Scalable Geometry




Spine

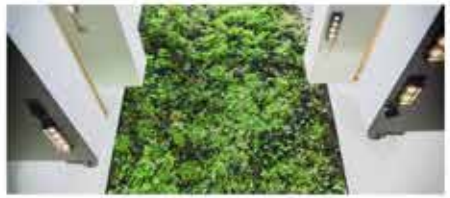
Trabecular Concrete Column Finish

BIOPHILIA WITHIN THE RCP OFFICE AND THE WIDER BUILDING

This is an example of how we would introduce Biophilic design into the RCP office space and the overall building.

PATTERN 1
Visual Connection with Nature

- Views outside to external landscaping and the wider Liverpool area
- Views to the vertical village garden for 4 rows of desking.
- Use of graphics to re-create views blocked by the core.

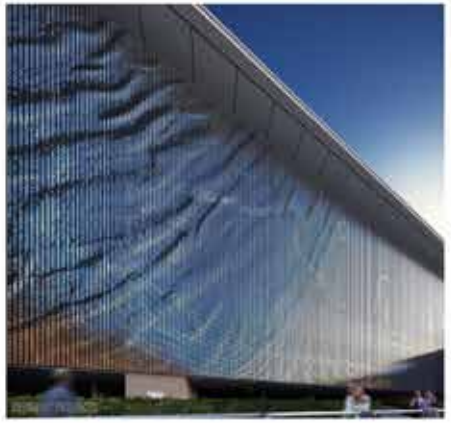


PATTERN 2
Non Visual Connection with Nature

- Scent of the indoor planting
- Auditory connection could be made using sounds of birdsong, water or insects
- Use of natural materials throughout such as timber.
- Patterns of nature shown in the flooring, upholstery etc.
- Use of scented timber such as pine, red cedar or maple.
- Introduction of an aromatherapy installation using scents such as Lavender to improve concentration or Citrus to reduce stress

PATTERN 3
Non Rhythmic Sensory Stimuli

- Natural movement of the plants
- Views outside, people, plants, birds moving
- Kinetic Sculpture that moves when people walk by - Ned Kahn Wind House & Micro Turbines



PATTERN 4
Thermal and Airflow Variability

- Opening and closing of doors
- HVAC ventilation
- Movement of people

PATTERN 5
Presence of Water

- Sounds of water as part of pattern 2
- Projection onto planting/sky garden to mimic water - Helmut Eigenmann Wave Dream
- Water feature being reviewed by OOBE
- Waterfalls create negative hydrogen ions which, in high enough concentrations, clear the air of mold spores, pollen, odors, cigarette smoke, bacteria, viruses, dust and other hazardous airborne particles.
- Negative hydrogen ions are also known to be a natural anti-depressent.

BIOPHILIA WITHIN THE RCP OFFICE AND THE WIDER BUILDING

This is an example of how we would introduce Biophilic design into the RCP office space and the overall building.

PATTERN 6
Dynamic & Diffuse Light

- Use of blinds and task lighting throughout
- Variants in natural light and shadows throughout the space
- Projection created in pattern 5
- Light shining through the planting
- Printed cell facade creating various shades and levels of light

PATTERN 7
Connection with Natural Systems

- OOBE to review possibility of a herb garden in the breakout areas
- Use of recyling points
- Interactive screens throughout the building which provide regular updated building statistics: 'This week we have recycled more products than we have thrown away', 'today we have saved X on our carbon footprint' etc.
- Sky garden and breakout area encourages users to undertake 'Shirin-Yoku' or 'Forest Bathing'. Seated planters allow staff to sit amongst the planting.
- Use of seasonal planting by OOBE
- Outside 'preventitive medicine' garden for staff to walk in - Therapeutic Landscapes by Marcus and Sachs
- Links with local food growers or allotments could be made.

PATTERN 8
Biomorphic Forms and Patterns

- Natural colours and patterns used throughout the upholstery
- Supergraphics used in pattern 1 to re- create blocked views.
- Inclusion of biomorphic artworks - Alan Bur Johnson Artwork, Charlie Winnie Sculpture
- Facade design relinks to our natural systems

PATTERN 9
Material Connection with Nature

- FSC timbers used throughout in both floor finishes and FF&E
- Use of wool base upholsterys - Camira
- Features such as cork and stone flooring
- Use of or reference to local stones/ materials such as Sherwood and Helsby sandstone in the design create 'genus Loci' (Spirit of Place)

PATTERN 10
Complexity and Order

- The facade design facilitates in creating both balance and imblanace with its biomorohic pattern
- Use of the office block/cell design provides staff with recognisable spaces/formats within a non regular plan
- Use of natural materials such as timber or stone flooring creates irregyular pattern within a fixed format again creating complexity and order
- Use of mixed ceiling type, felt, timber, baffles and linear grid create mixed finishes and colours in a irregular pattern.

BIOPHILIA WITHIN THE RCP OFFICE AND THE WIDER BUILDING

This is an example of how we would introduce Biophilic design into the RCP office space and the overall building.

PATTERN 11
Prospect

- Views over the city
- Unhindered views across spaces
- Glazed walls and visibility through the office
- Open plan layouts where possible
- Spanish steps in the ground floor allow views down across the space



PATTERN 12
Refuge

- Use of private work pods and enclosed meeting booths - Ovo Energy
- Private breakout areas enclosed by planting in both the offices and the conference suite
- Contemplation, prayer and nursing rooms rooms throughout the building
- Shinrin-Yoku from pattern 7
- Mixed layouts throughout allow users to find excluded spots - Air BNB Village Office


PATTERN 13
Mystery

- Meeting pods create enclosures
- Pathways through the ground floor encourage curiosity
- Skygardens obscure views in some areas, particularly the conference suite
- Use of seated storage both allows and inhibits views
- Frame entrances and openings enticing users in
- Atrium spaces invite people to look up, encouraging them up the building.


PATTERN 14
Risk and Peril

- Views over the city from various heights
- Unhindered views across spaces and down into the vertcial gardens
- Mixed height spaces



Levels 11-13

Levels 3-10

Levels 0-2

RCP Future

Growth
Progress
Sky High
Diversity

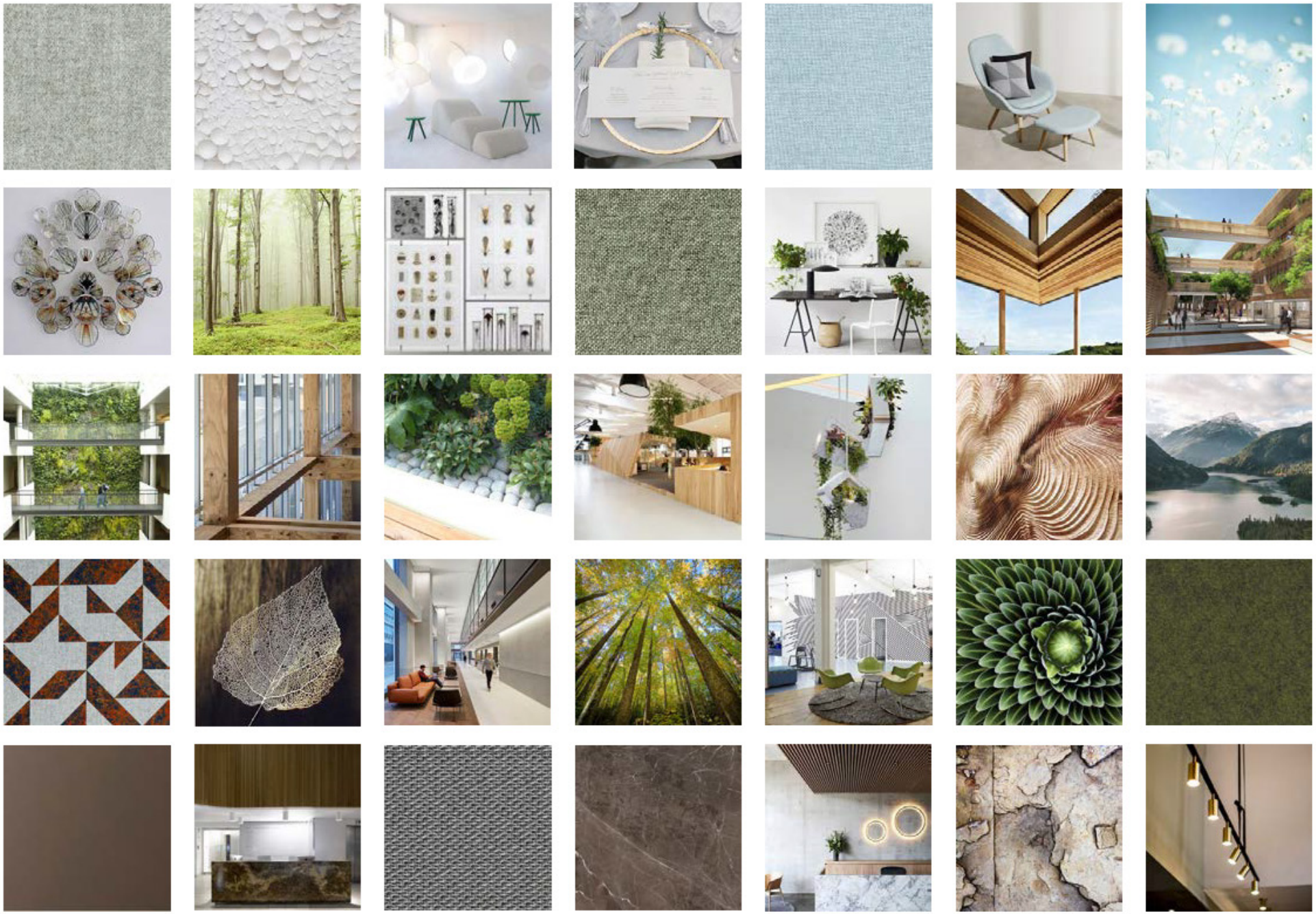
RCP Concept

Organic
Well-being
Nourishment
Wellness

RCP History

Heritage
Roots
Foundations
Legacy

Biophilia / Biomimicry



FITNESS

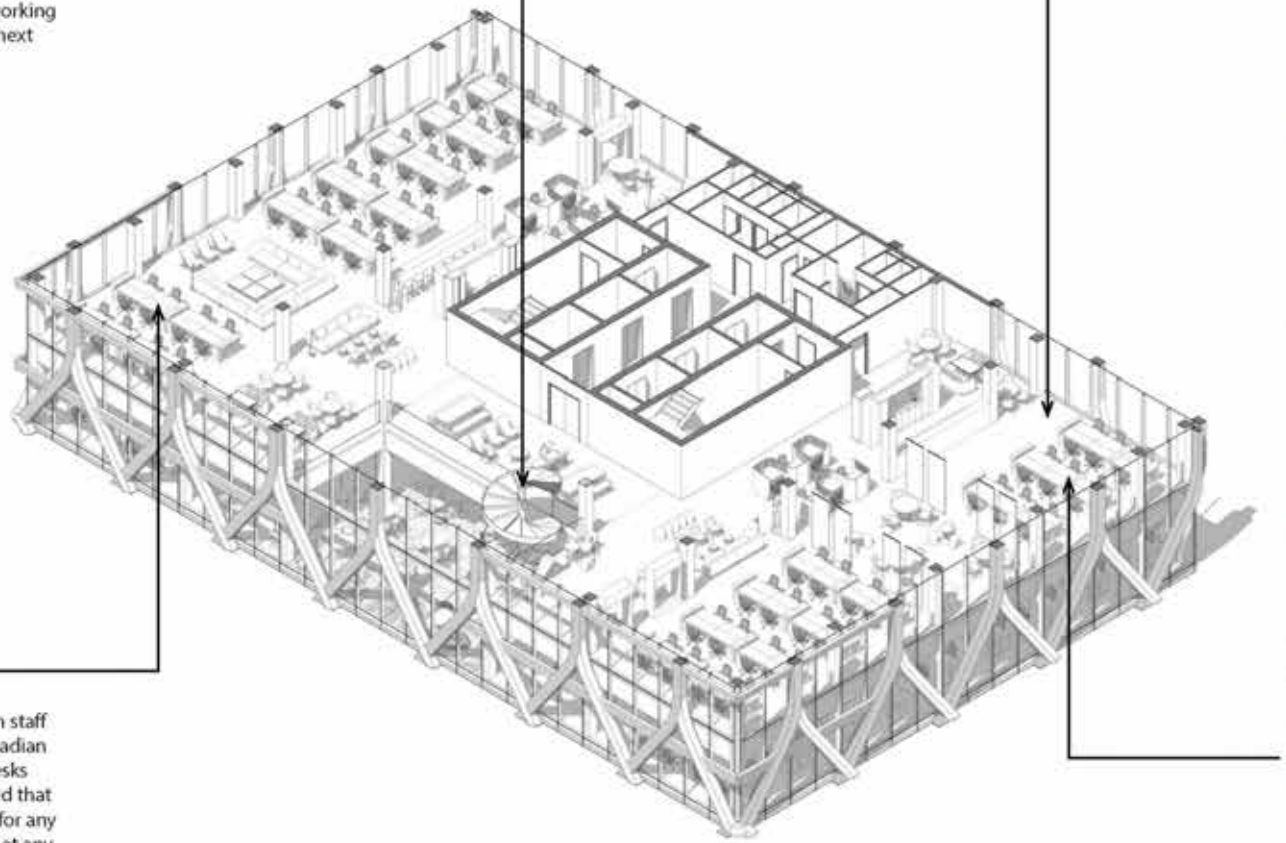
Fitness is not only a benefit to human health but it is also a key element to happiness and mental well-being. Alongside an in house gym and vertical village concept (promoting the use of stairs between office floors) and 'active office' layout has been introduced. In a bid to reduce 'static' working various spaces have been provided for flexible or alternative working promoting movement around office (see next page).

MIND

One of the key elements to mental well-being and productivity is acoustics, studies have shown a 60% drop in productivity when exposed to distracting noise. To tackle this, acoustic baffles have been introduced throughout; carpet with various acoustic backings suited to the functionality of a particular space (see next page); acoustic screens to help break up the space and also the addition of planting which has shown to reduce noise by as much as 5 decibels.

LIGHT

Regular access to daylight is a key factor in staff happiness and health, to ensure staffs circadian rhythm isn't disrupted we have located desks alongside the external glazing and ensured that the maximum distance from natural light for any working area is no bigger than 7.4 metres at any point.
In addition to this window treatments would be provided to help reduce glare and heat when necessary. Silver backed semi-transparent window blinds both allow light to still enter the space whilst reflecting most of the glare and heat to help balance both sets of needs. This provides staff the flexibility to create the environment that best suits them.



AIR

Carpet with AirMaster technology would be included throughout the building; fine dust is a determining factor in air quality and is directly linked to potential health problems as it acts as a carrier for a number of microbial contaminants, such as mould, pollen and allergens . Already the required standard in the Netherlands, AirMaster carpet can help capture and retain fine dust in the air for release when cleaning ensuring a cleaner air policy.

BIOPHILIA

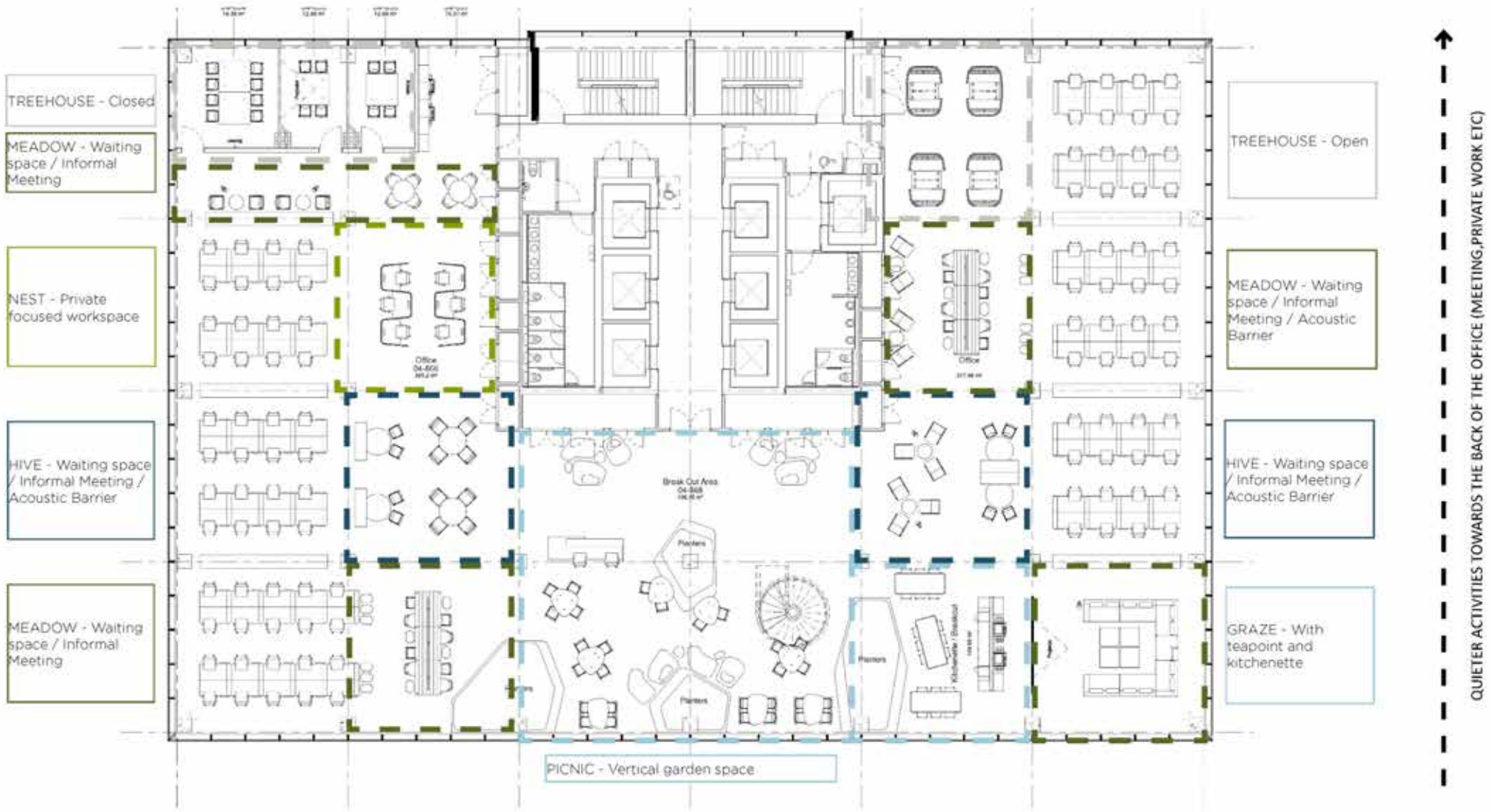
Plants in the workplace provide a two-fold benefit, not only do they promote a pleasant and relaxed working environment but they can also help maintain a clean air policy; studies show a 20% reduction in dust when plants were introduced into an office space and increase in productivity by 10-15%. To maximise on this there is a 'vertical village garden' for every 3 levels of office space, a perimeter planting trough in some key circulation spaces and planters included on every desk.

WATER

As well as encouraging staff hydration through kitchenette location (See 'EAT' on the following page for details), filtered zip taps would be included throughout the building at regular intervals enabling a clean drinking policy.

COMFORT

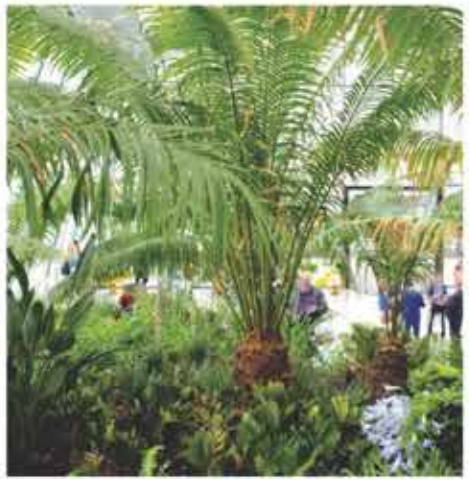
In order to provide staff with maximum comfort ergonomic furniture would be included throughout; sit-stand desking for flexibility and 'active working' (see Fitness), ergonomic desk chairs to help reduce work-related musculoskeletal disorders, monitor arms and task lights to aid the reduction of neck and eye strain all of which helps maintain a lower sickness record and promote staff well-being

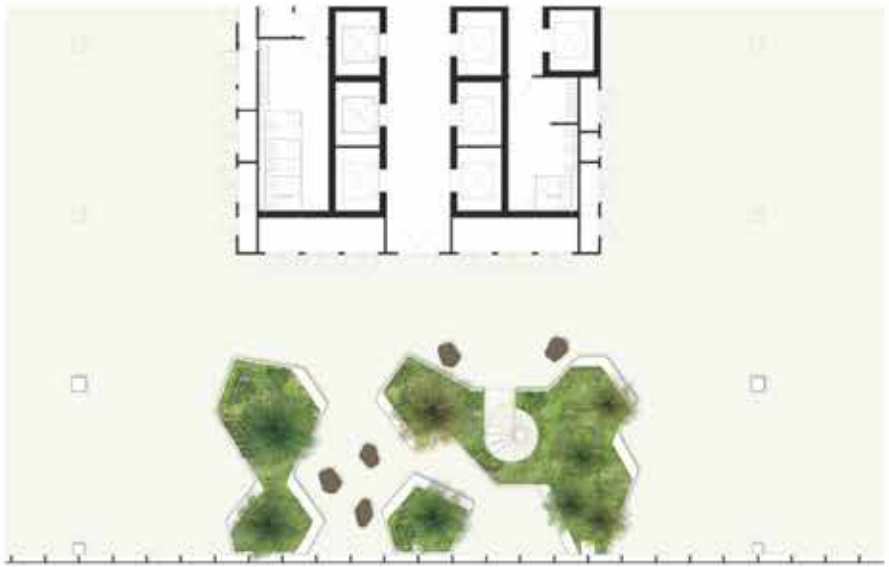

TREEHOUSE - Closed
MEADOW - Waiting space / Informal Meeting
NEST - Private focused workspace
HIVE - Waiting space / Informal Meeting / Acoustic Barrier
MEADOW - Waiting space / Informal Meeting
TREEHOUSE - Open
MEADOW - Waiting space / Informal Meeting / Acoustic Barrier
HIVE - Waiting space / Informal Meeting / Acoustic Barrier
GRAZE - With teapoint and kitchenette
PICNIC - Vertical garden space
QUIETER ACTIVITIES TOWARDS THE BACK OF THE OFFICE (MEETING,PRIVATE WORK ETC)

- Concept based around well-being by maximising indoor environmental quality
- Contribution to biophilia
- Improves productivity in working environment
- Research based on study by NASA
- Reduce levels of VOCs in the atmosphere
- Increase levels of oxygen
- Plant choice is essential to success

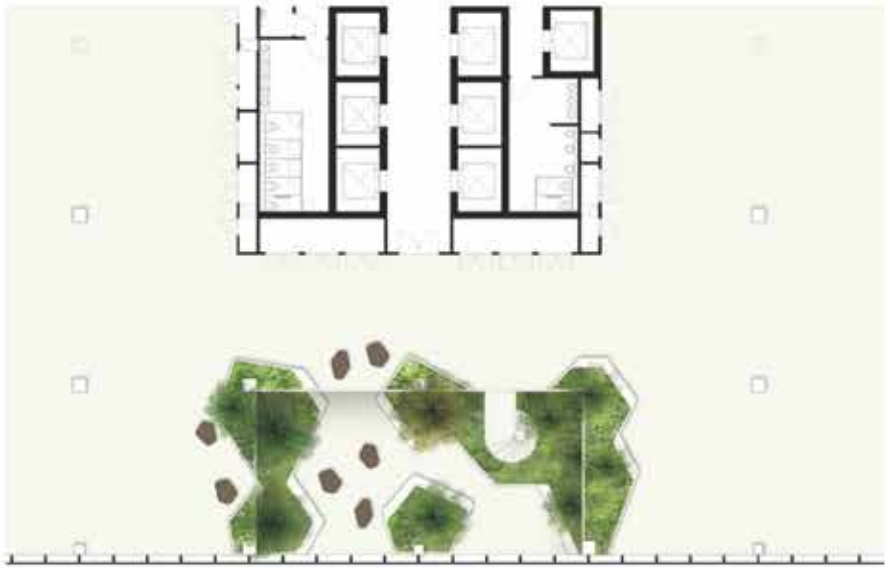
- Nephrolepsis exaltata 'Bostoniensis' (Boston Fern)
- Spathiphylum 'Mauna Loa' (Peace Lily)
- Nephroledpsis obliterata (Kimberley Queen Fern)
- Chlorophytum comosum (Spider Plant)
- Aglaonema modestum (Chinese Evergreen)
- Camaedorea seifrizii (Bamboo Palm)
- Epipremnum aureum (Devils Ivy)
- Anthurium andraeanum (Flamingo Lily)
- Sansevieria trifasciata 'Laurentii' (Varigated Snake Plant)
- Dracaena marginata (Red-Edged Dracaena)
- Spathiphyllum 'Mauna Loa' (Peace Lily)
- Chrysanthemum morifolium
- Dracaena fragrans massangeana
- Anthurium andraeanum
- Hedra helix (English ivy)
- Phoenix roebelenii (Pygmy date palm)

Plants will be chosen to be appropriate for the specific micro-climate, particularly within the upper floors, and to provide interest throughout the year. The selection will create a memorable environment that building occupants can appreciate at all times, both aesthetically and through improved environmental quality.





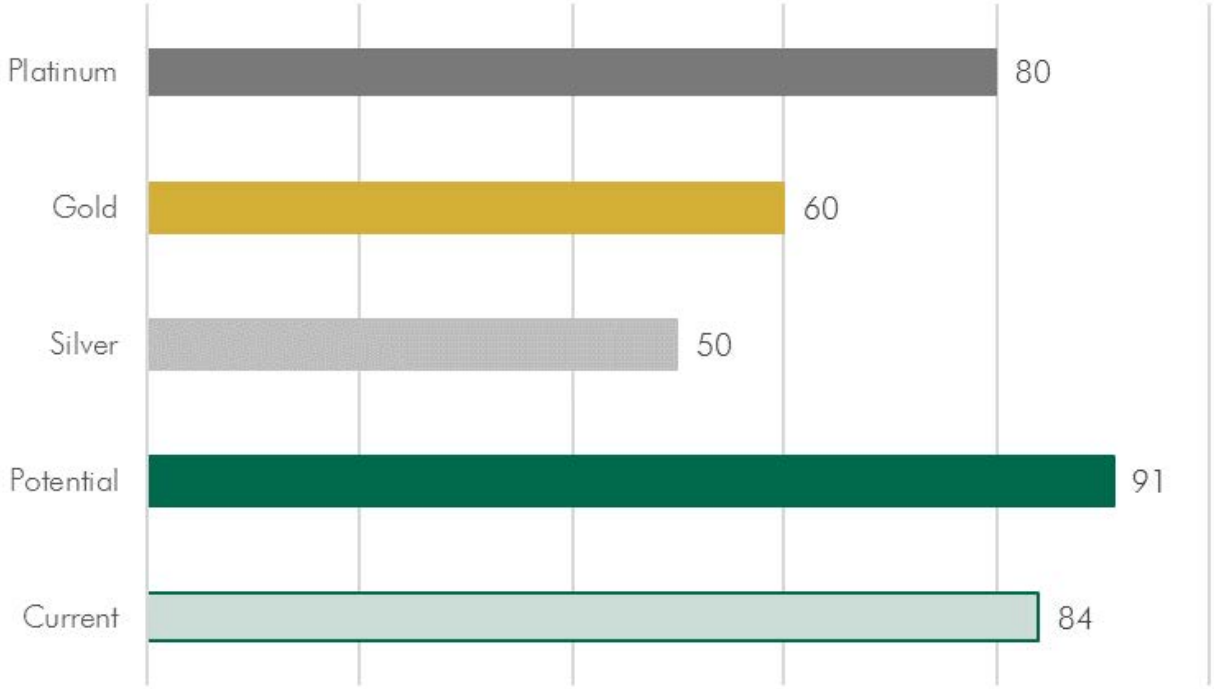
Level 12



Level 13

Royal College of Physicians

- **Version 2**
- **Project aim:** platinum
- **Currently achieving:** platinum



PERFORMANCE OVERVIEW	CURRENT	POTENTIAL
Air	12	12
Water	8	8
Nourishment	12	12
Light	6	6
Movement	10	10
Thermal Comfort	5	6
Sound	9	9
Materials	4	7
Mind	2	3
Community	9	10
Innovations	7	8
Total	**84**	**91**
Result	**Platinum**	**Platinum**

AIR

WATER

NOURISHMENT

LIGHT

MOVEMENT

THERMAL COMFORT

SOUND

MATERIALS

MIND

COMMUNITY

AIR

WATER

NOURISHMENT

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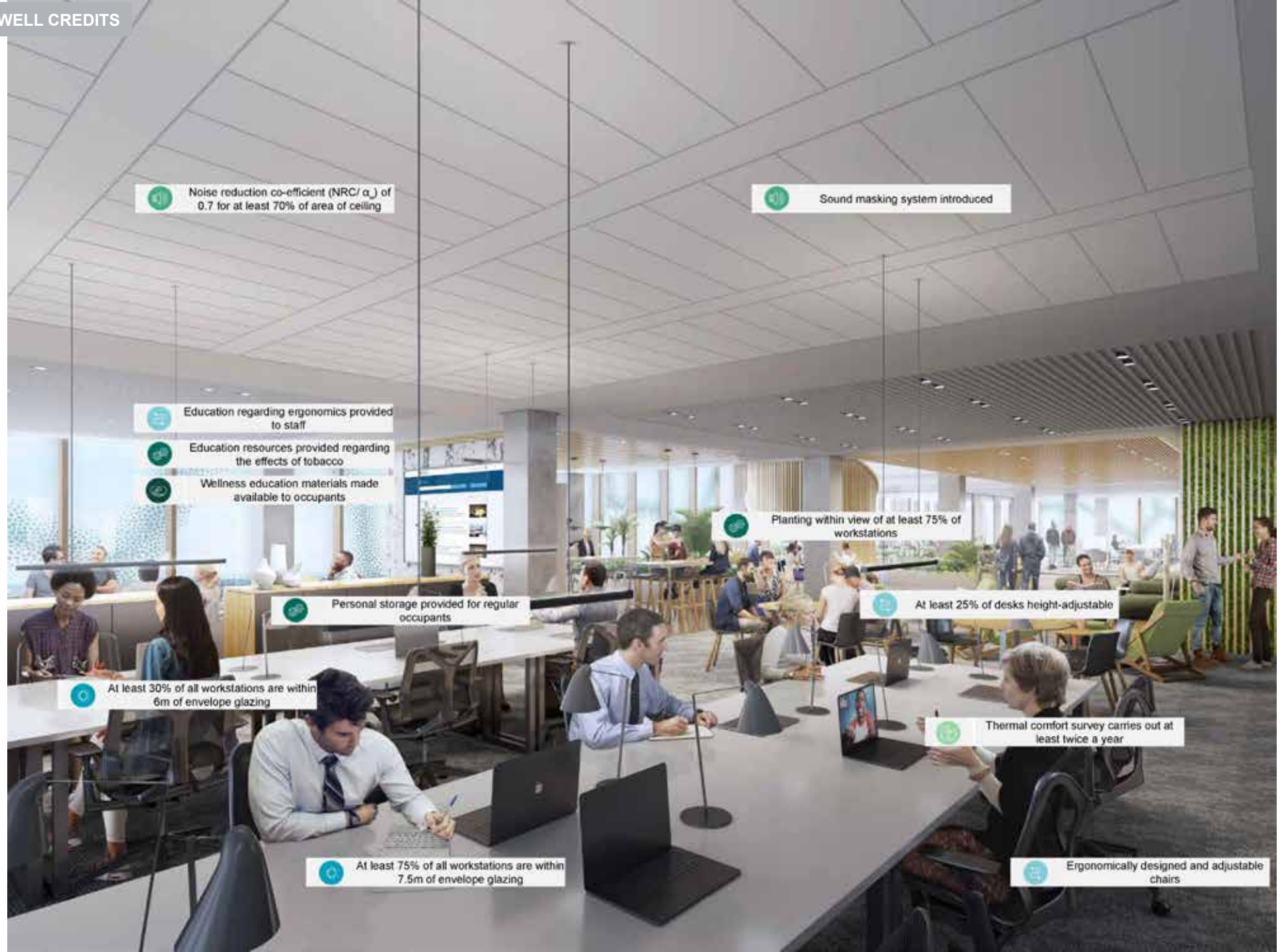

THERMAL COMFORT

SOUND

MATERIALS

MIND

COMMUNITY

AIR

WATER

NOURISHMENT

LIGHT

MOVEMENT

THERMAL COMFORT

SOUND

MATERIALS

MIND

COMMUNITY

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THERMAL COMFORT

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COMMUNITY