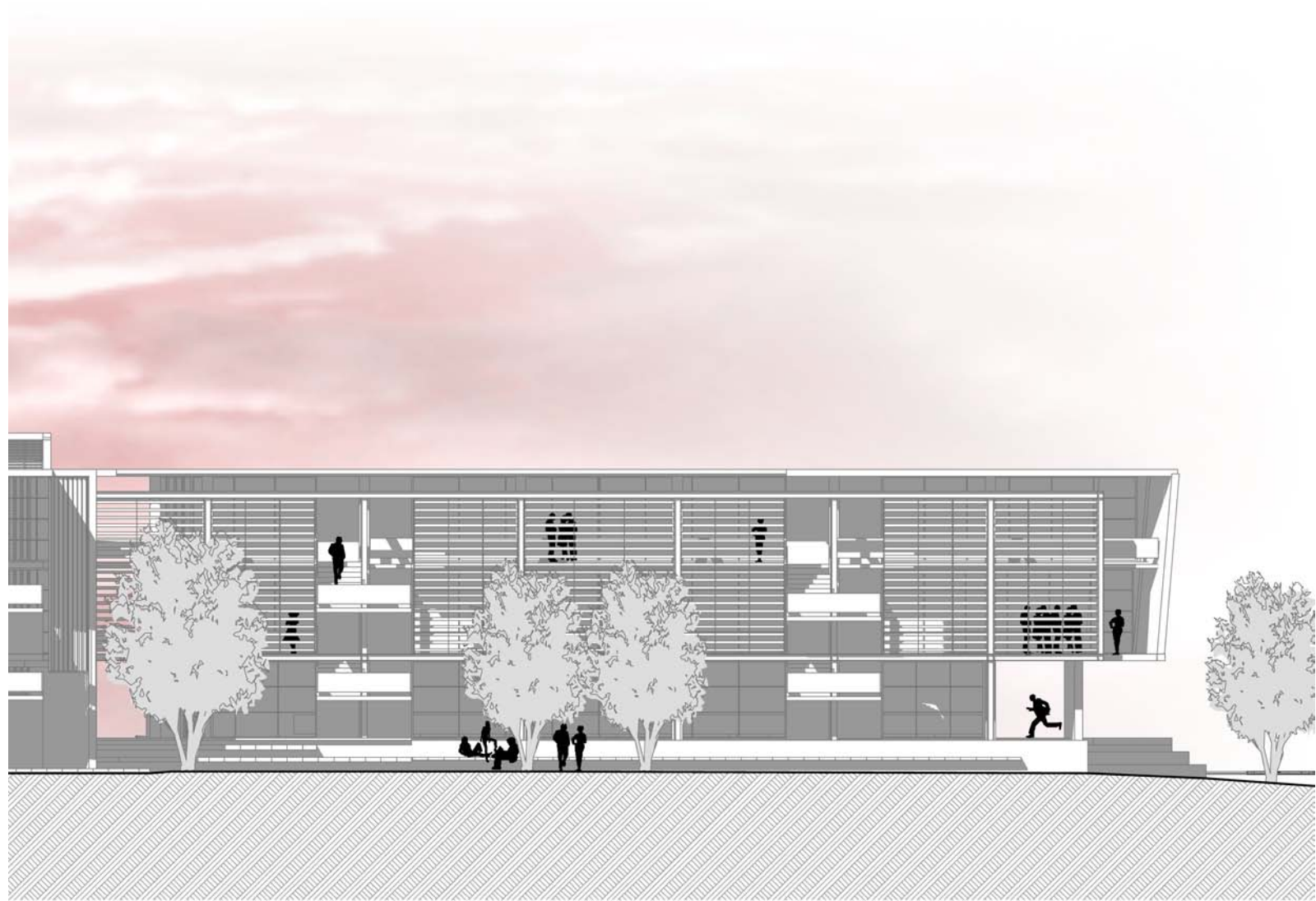
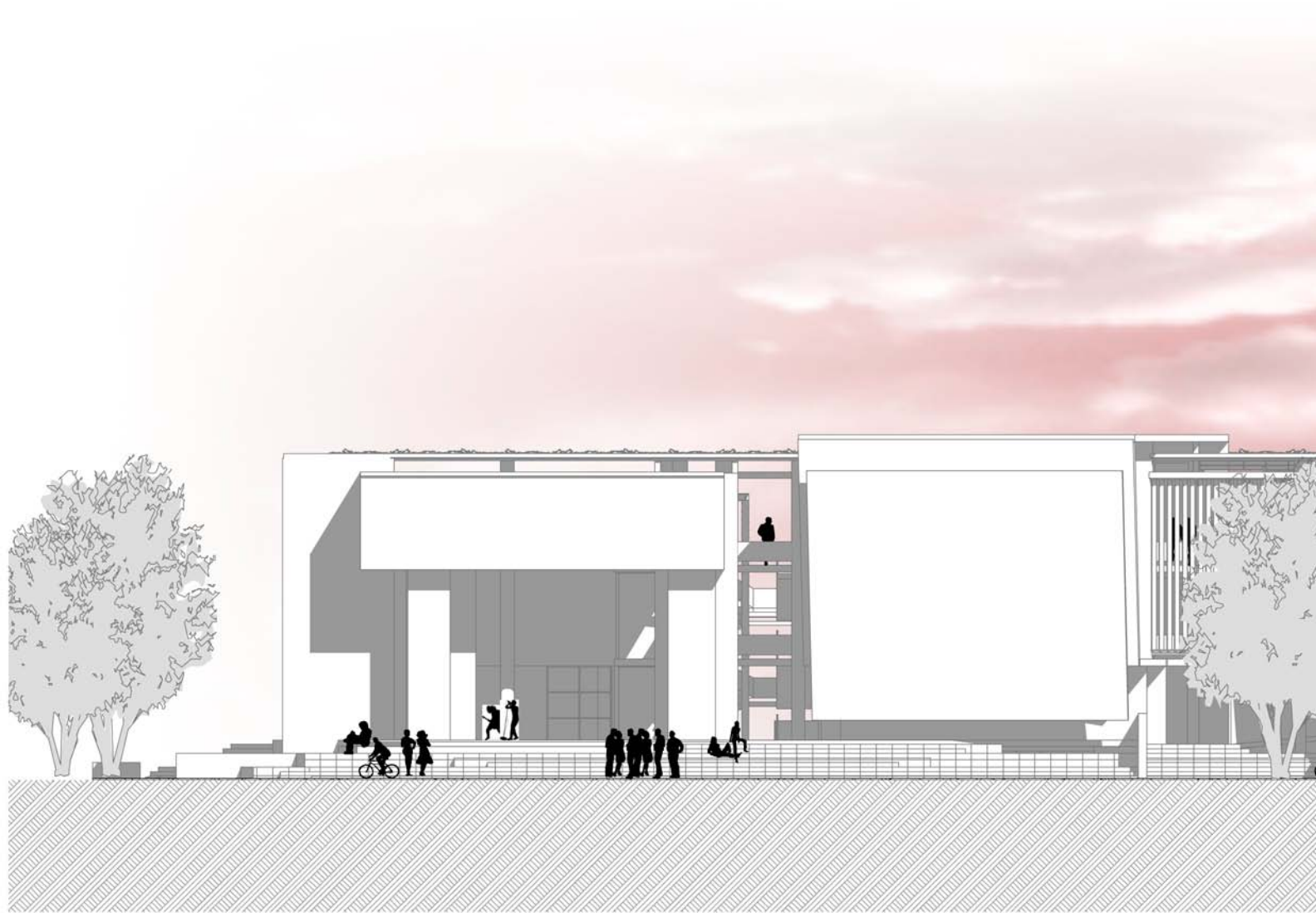




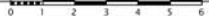
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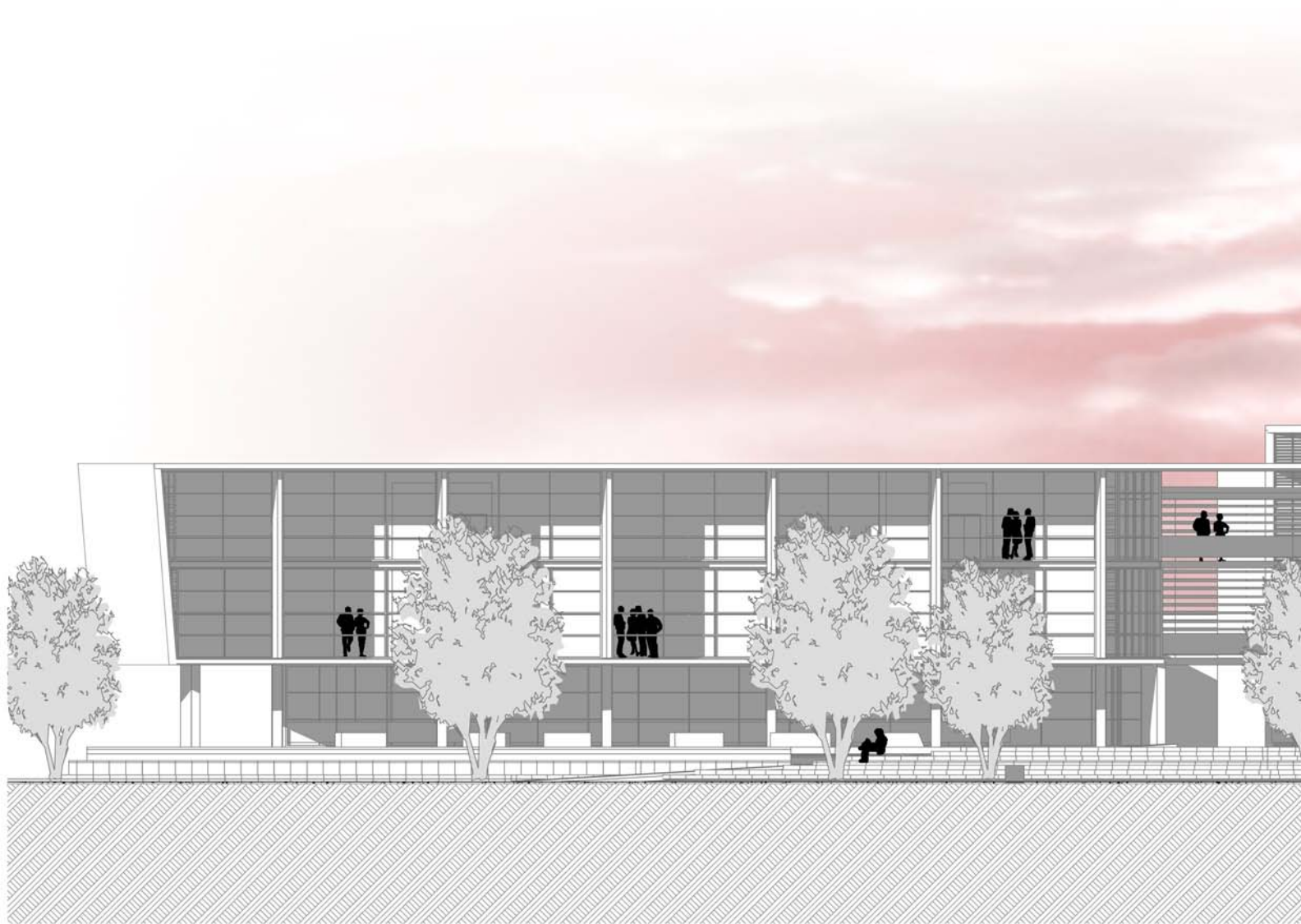




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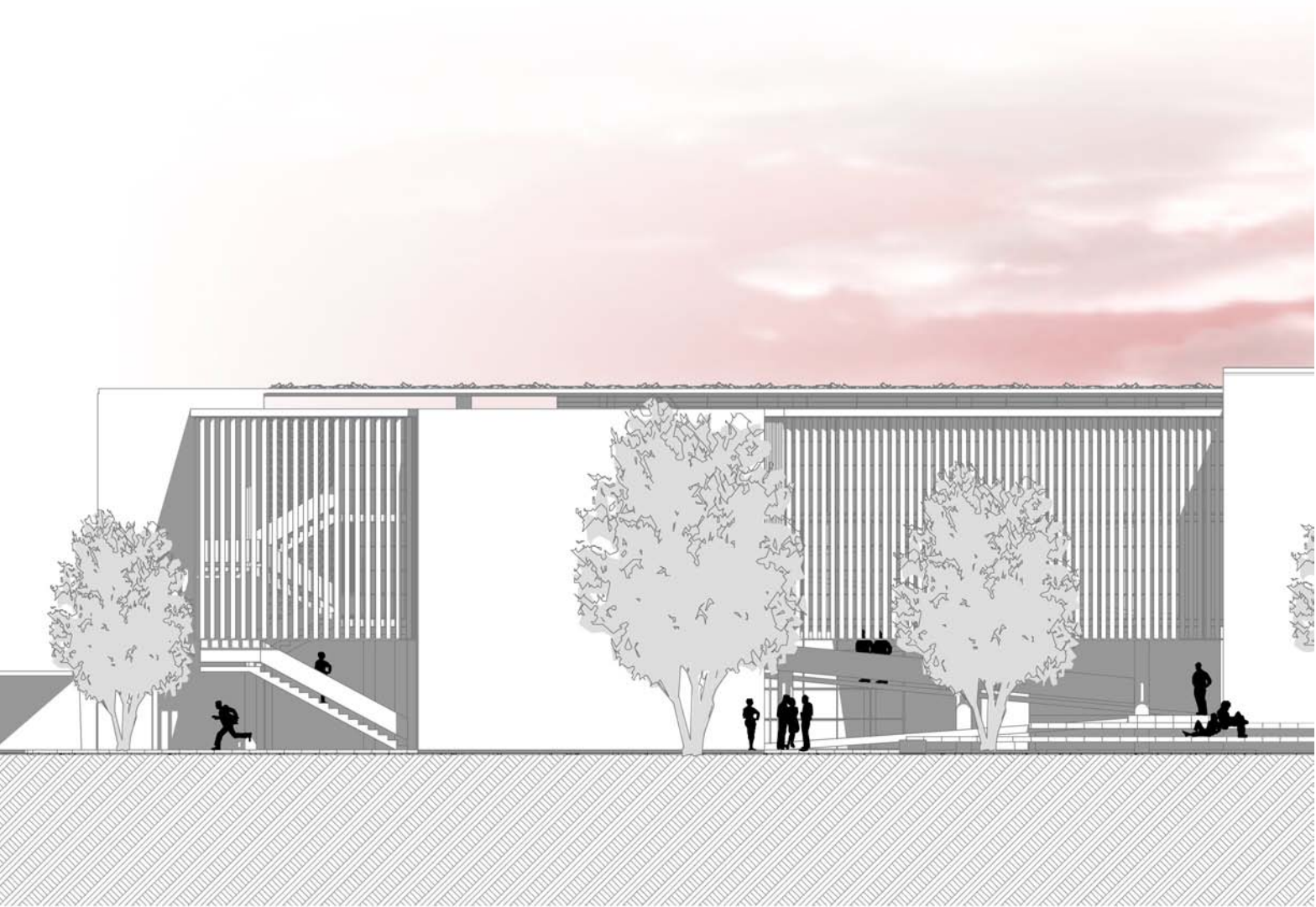




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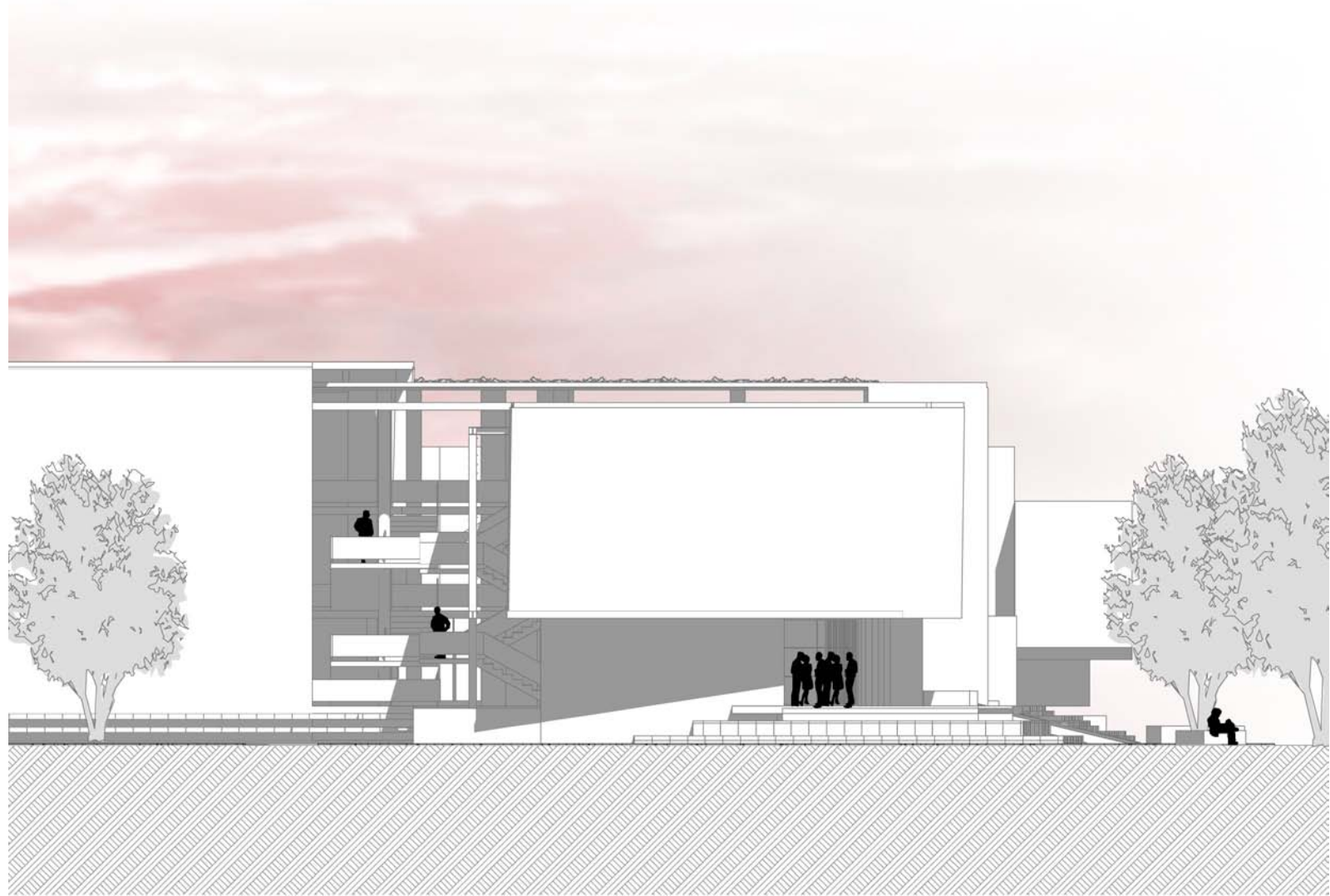


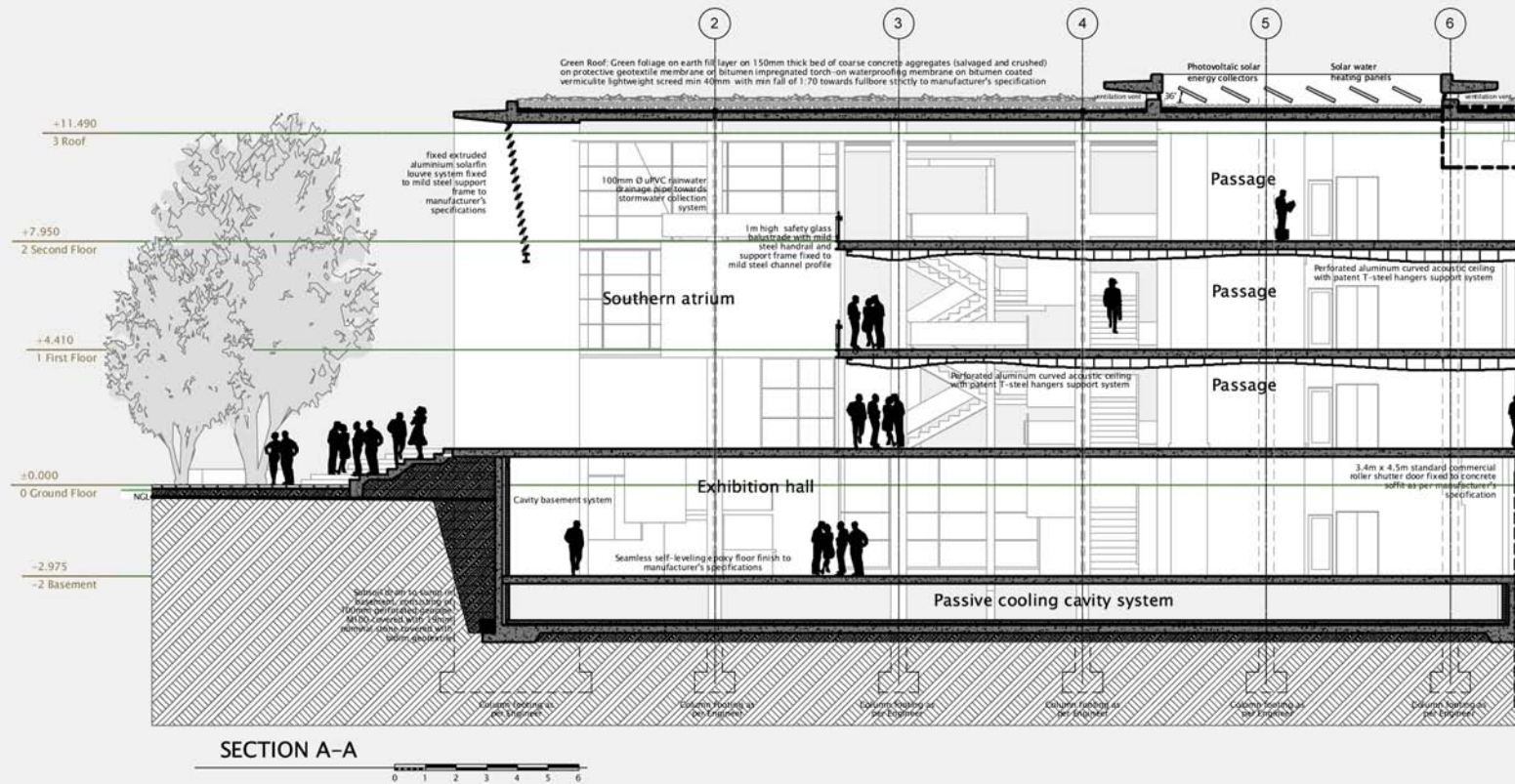


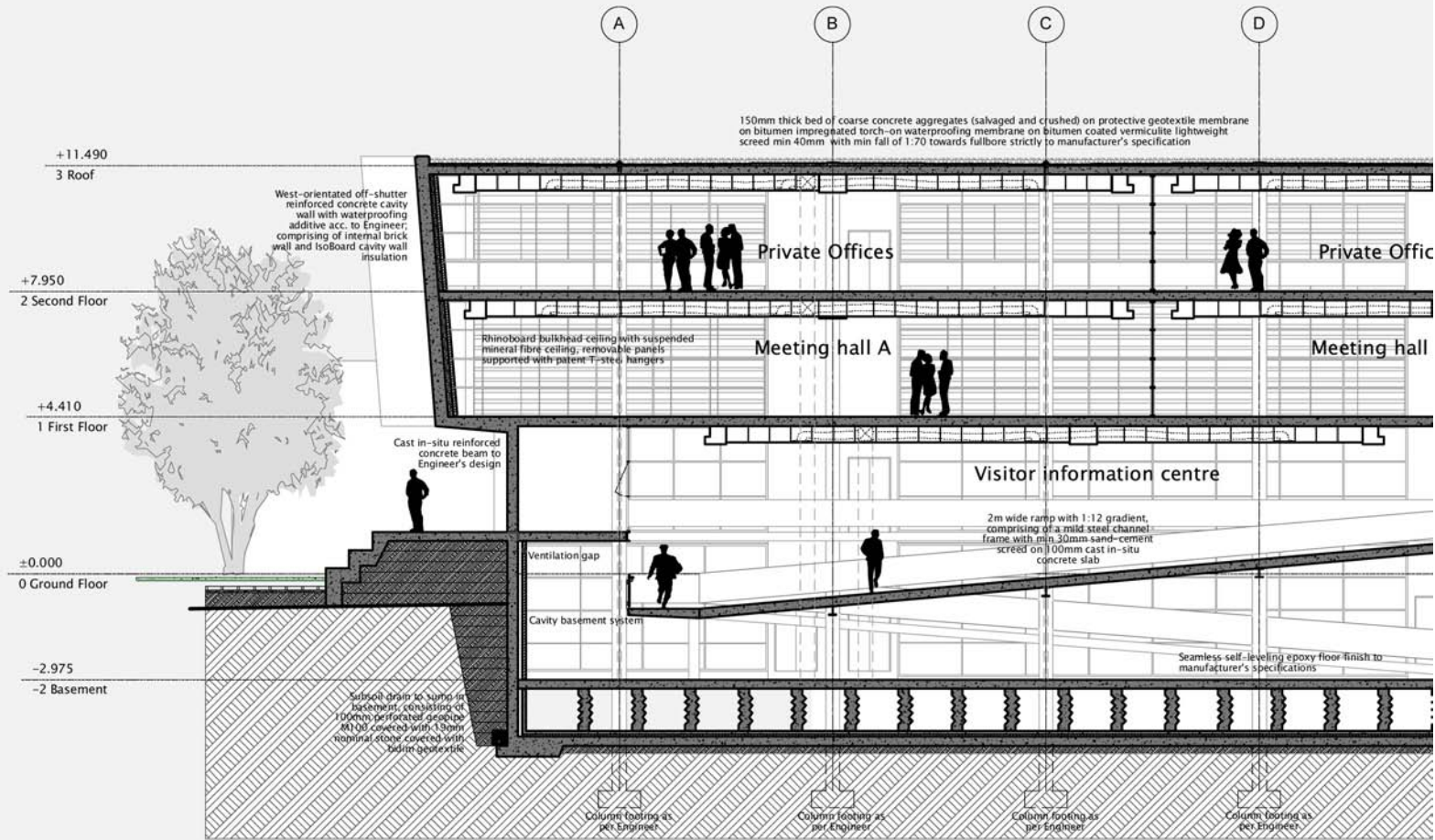


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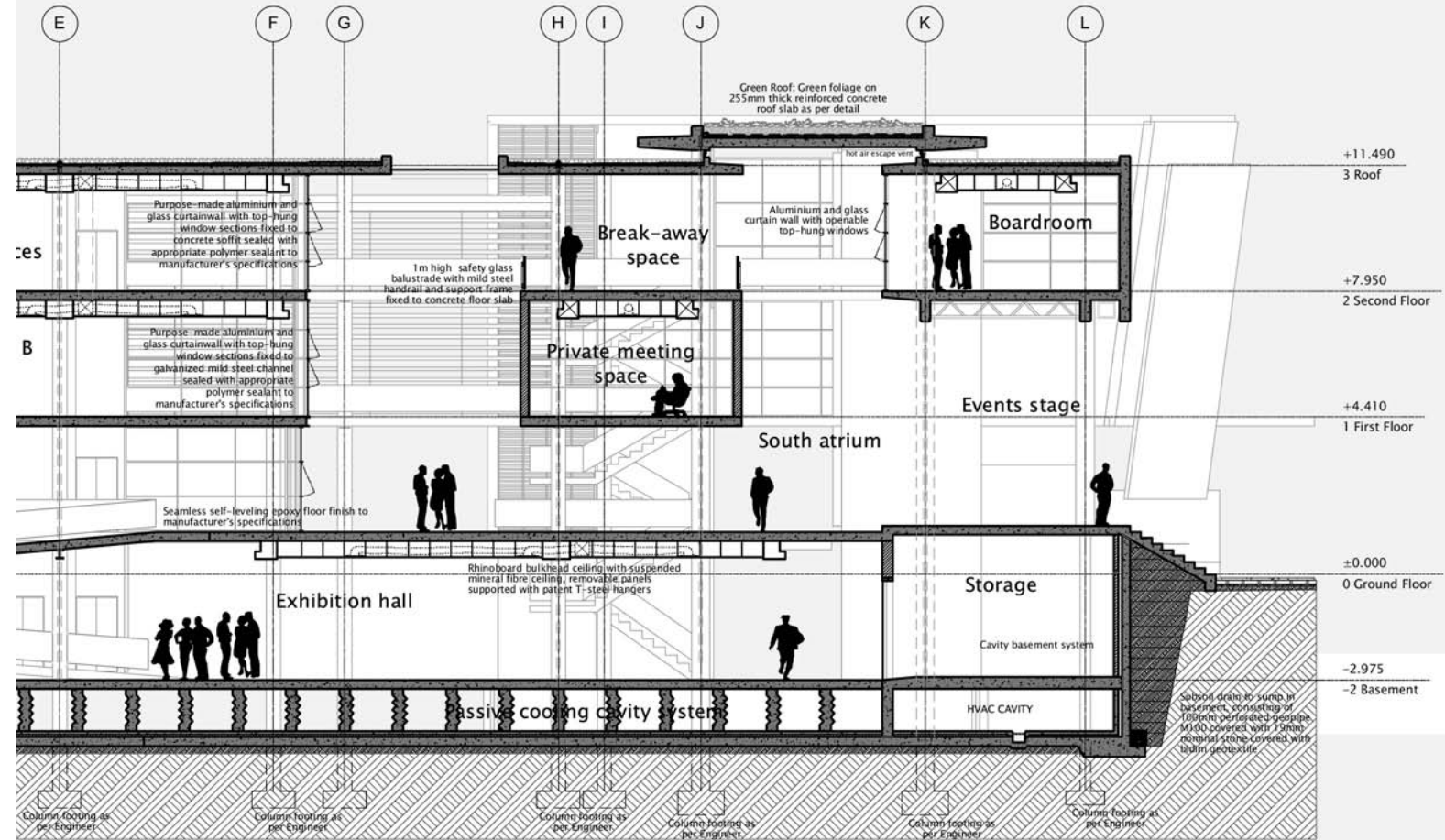


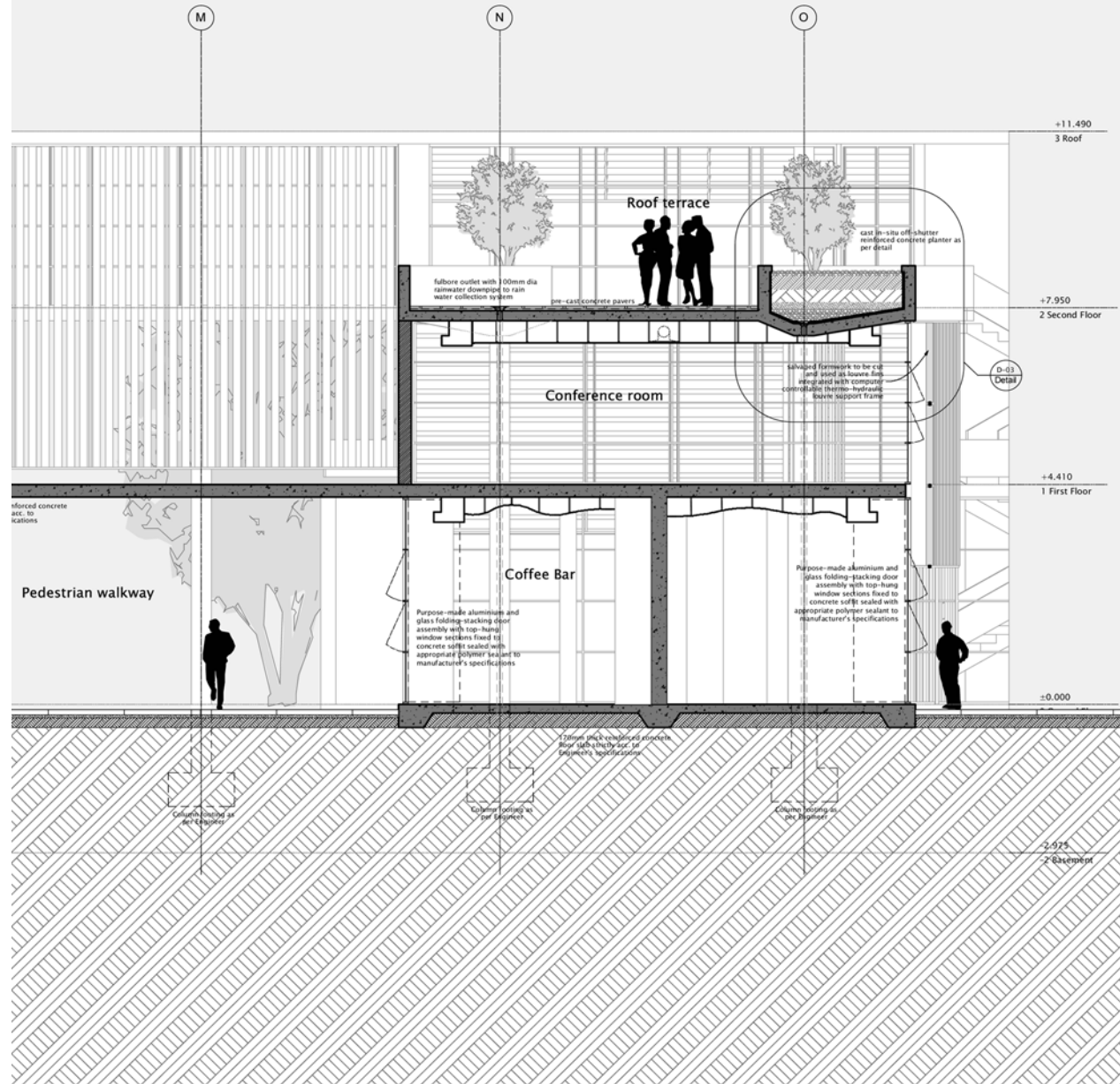


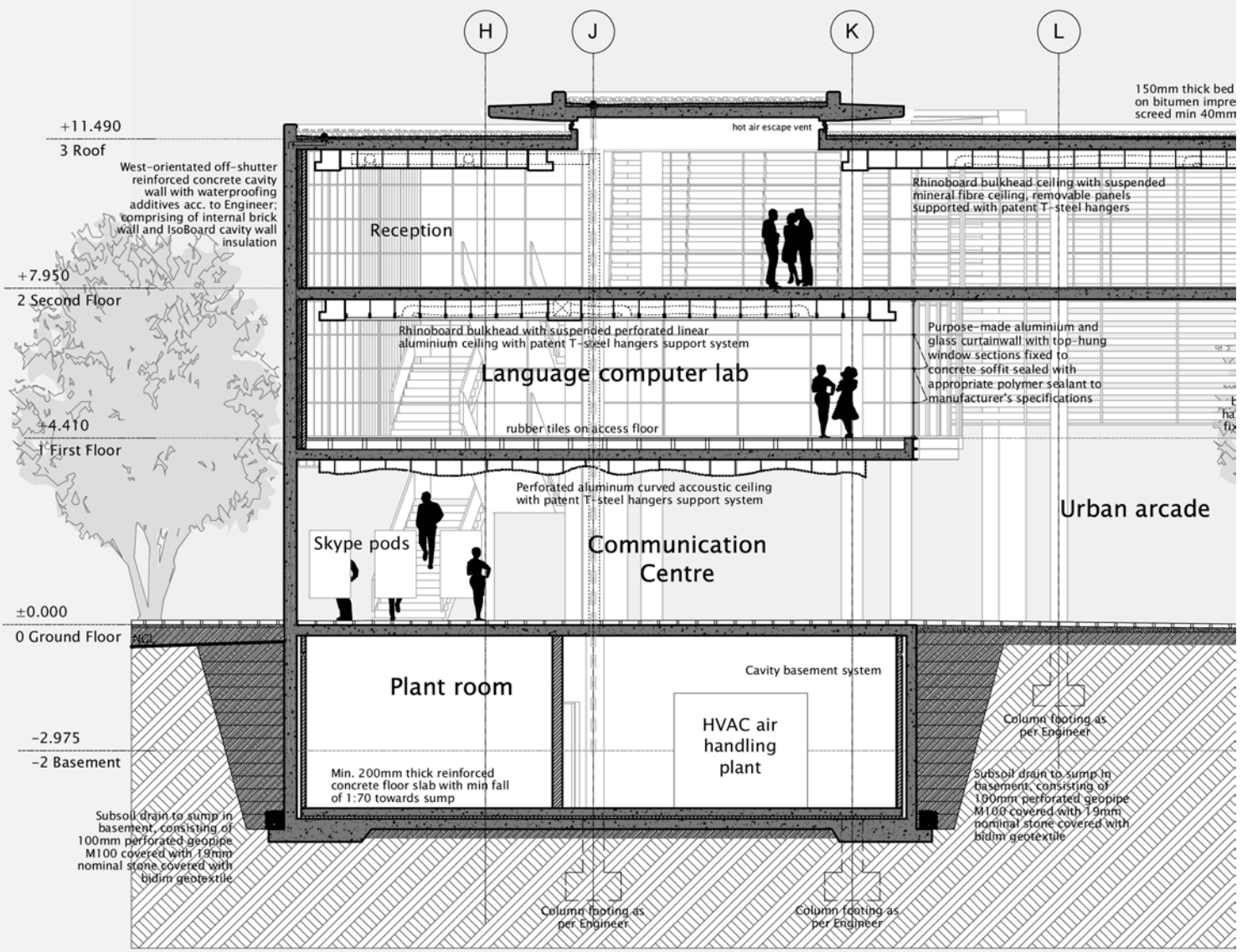


SECTION B-B



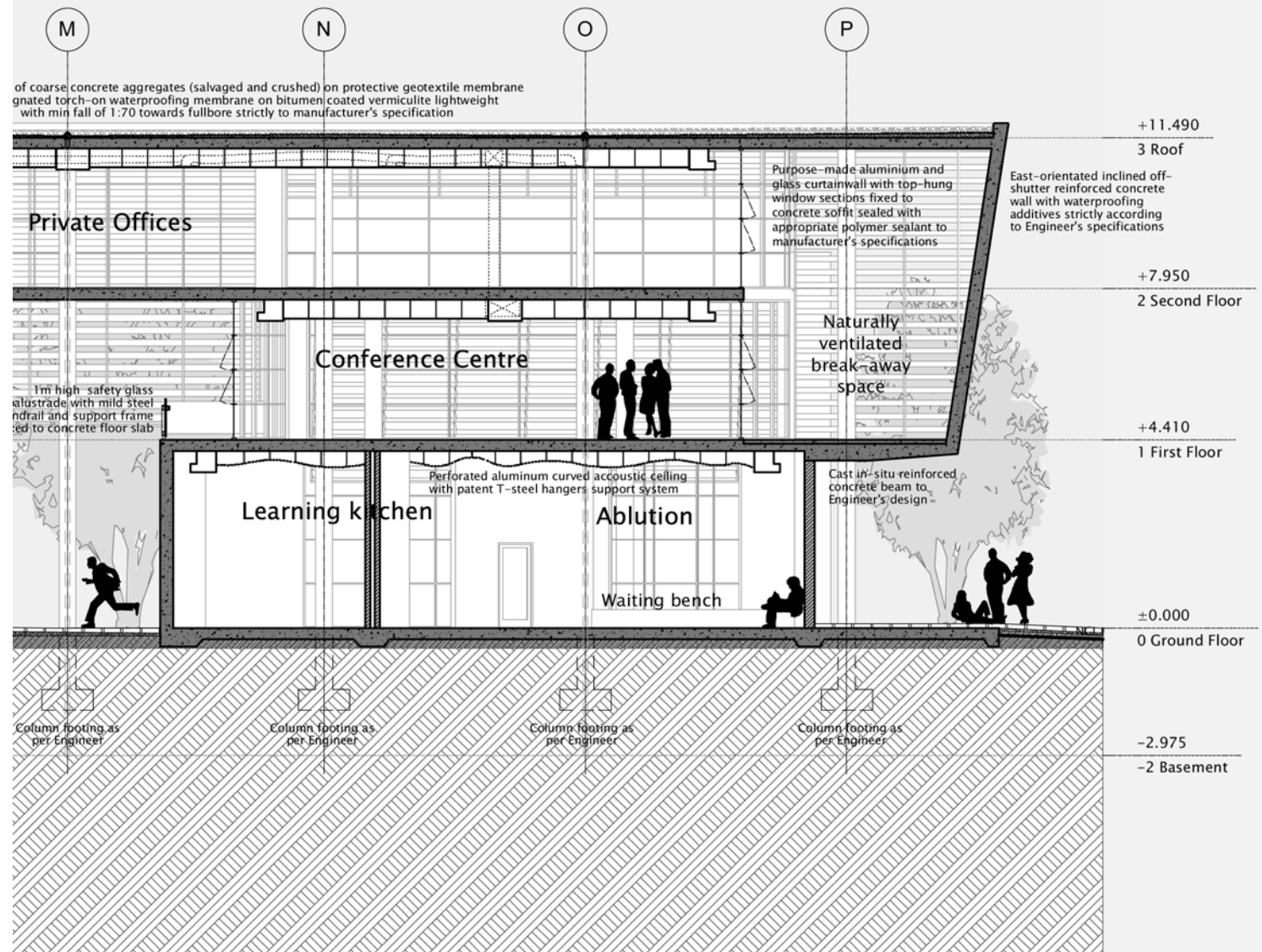


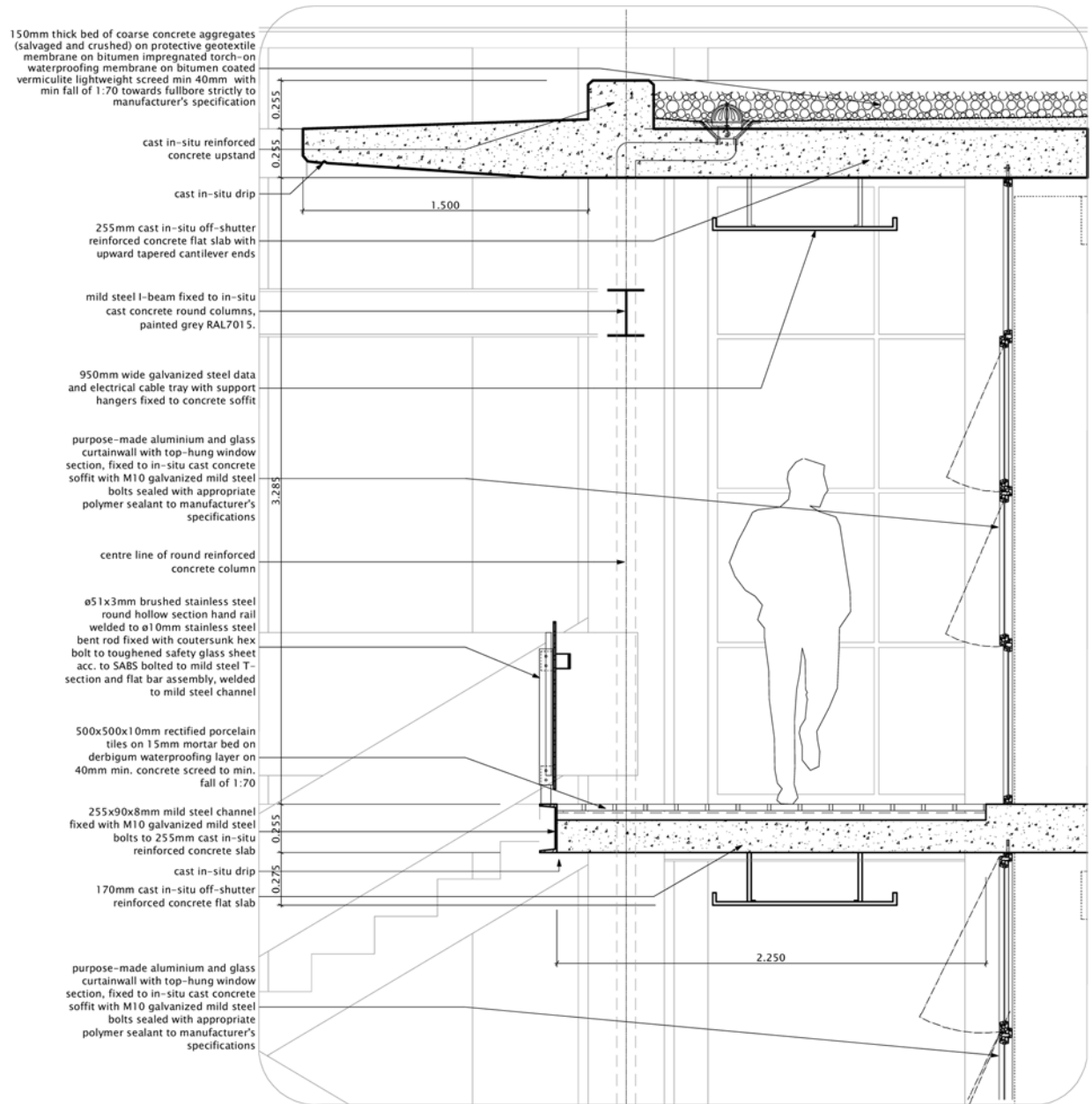




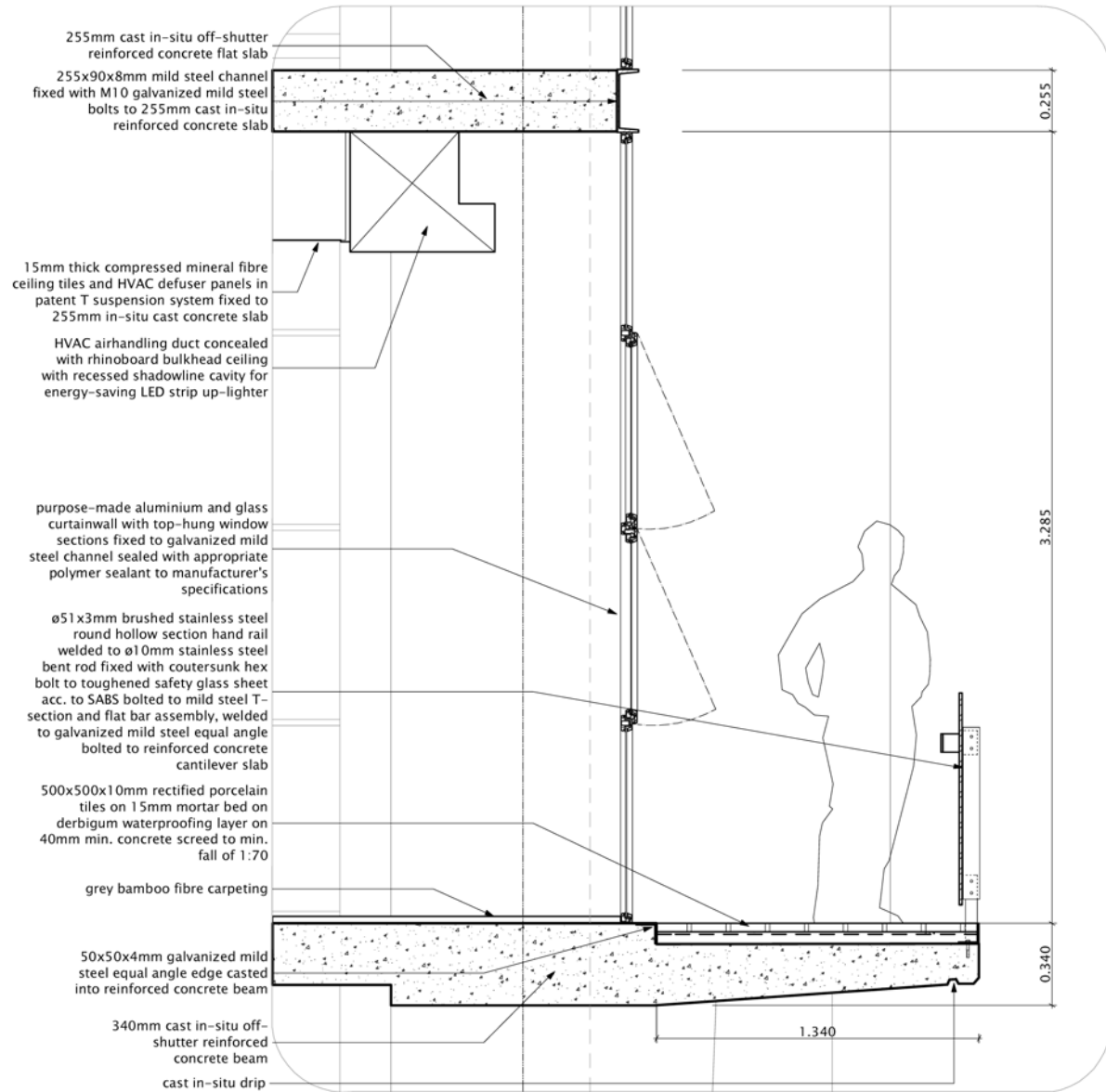
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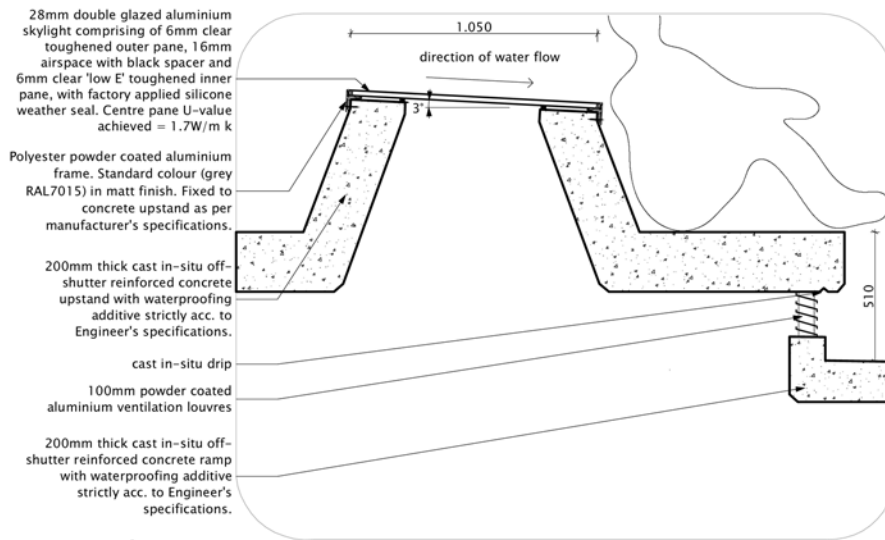




Detail C-01
 SCALE 1:20



Detail C-02
SCALE 1:20



Detail C-04
SCALE 1:10

Green Roof: Green foliage layer on 150mm thick earth fill layer on 150mm thick bed of coarse to medium concrete aggregates (salvaged and crushed) on protective geotextile membrane on bitumen impregnated torch-on waterproofing membrane on bitumen coated vermiculite lightweight screed min 40mm with min fall of 1:70 towards fullbore strictly to manufacturer's specification

cast in-situ reinforced concrete upstand
340mm cast in-situ off-shutter reinforced concrete beam with soffit painted white strictly acc. to Engineer's specifications

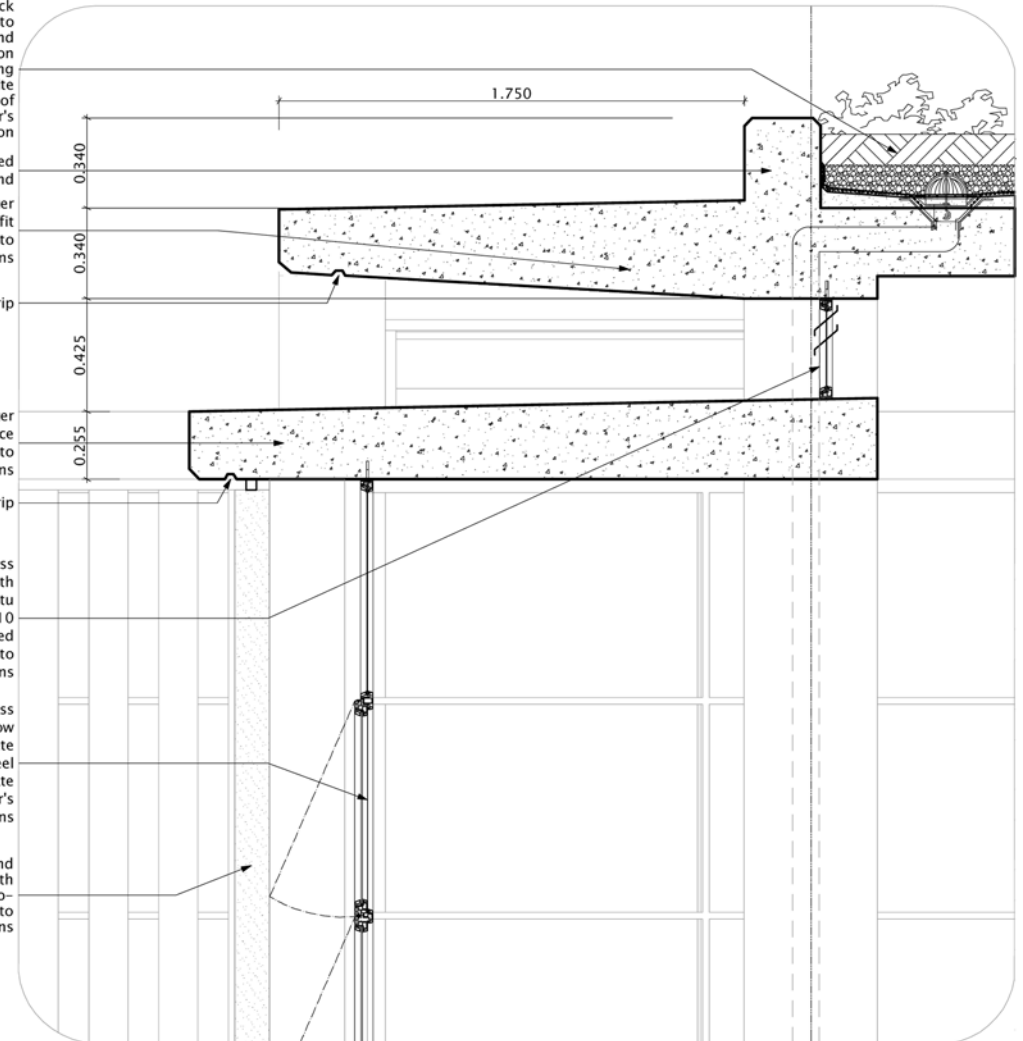
cast in-situ drip

255mm cast in-situ off-shutter reinforced concrete slab with surface painted white strictly acc. to Engineer's specifications
cast in-situ drip

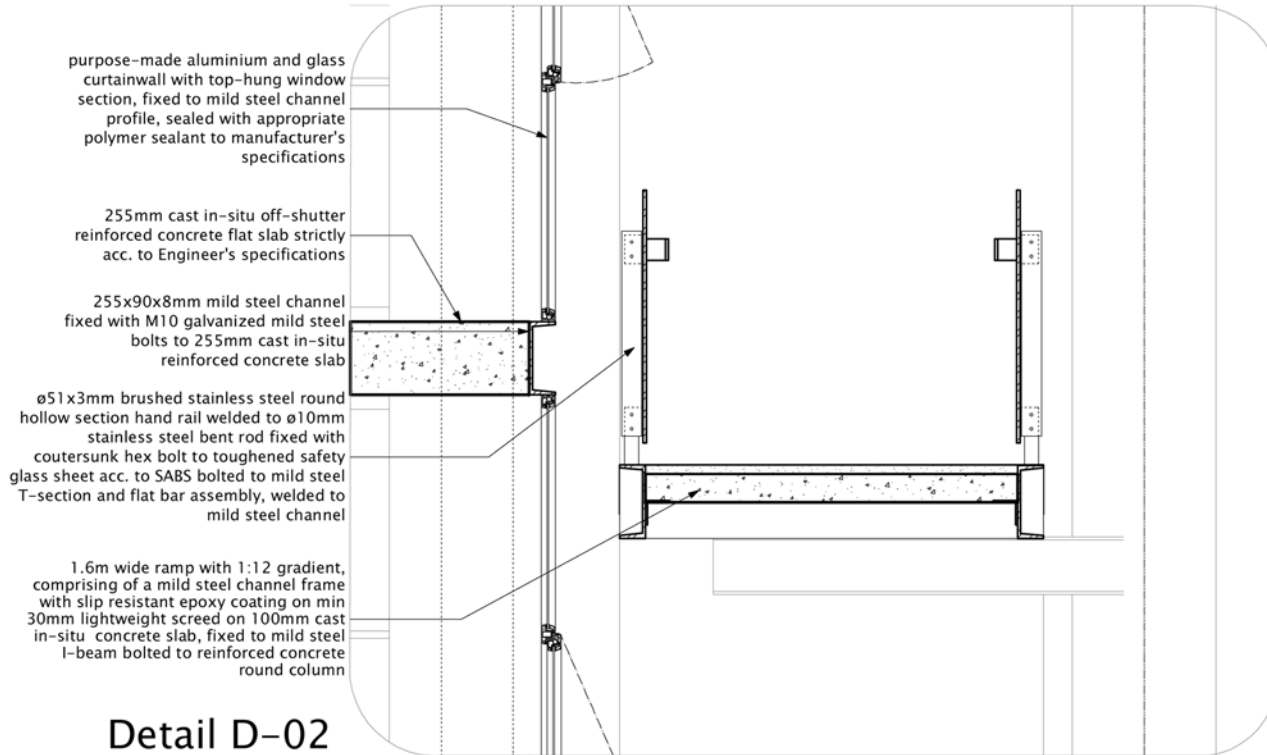
purpose-made aluminium and glass fixed clerestory window with ventilation louvres, fixed to in-situ cast concrete soffit with M10 galvanized mild steel bolts sealed with appropriate polymer sealant to manufacturer's specifications

purpose-made aluminium and glass curtainwall with top-hung window section, fixed to in-situ cast concrete soffit with M10 galvanized mild steel bolts sealed with appropriate polymer sealant to manufacturer's specifications

salvaged formwork to be cut and used as louvre fins integrated with computer controllable thermo-hydraulic louvre support frame to manufacturer's specifications



Detail D-01
SCALE 1:20



Detail D-02

SCALE 1:20

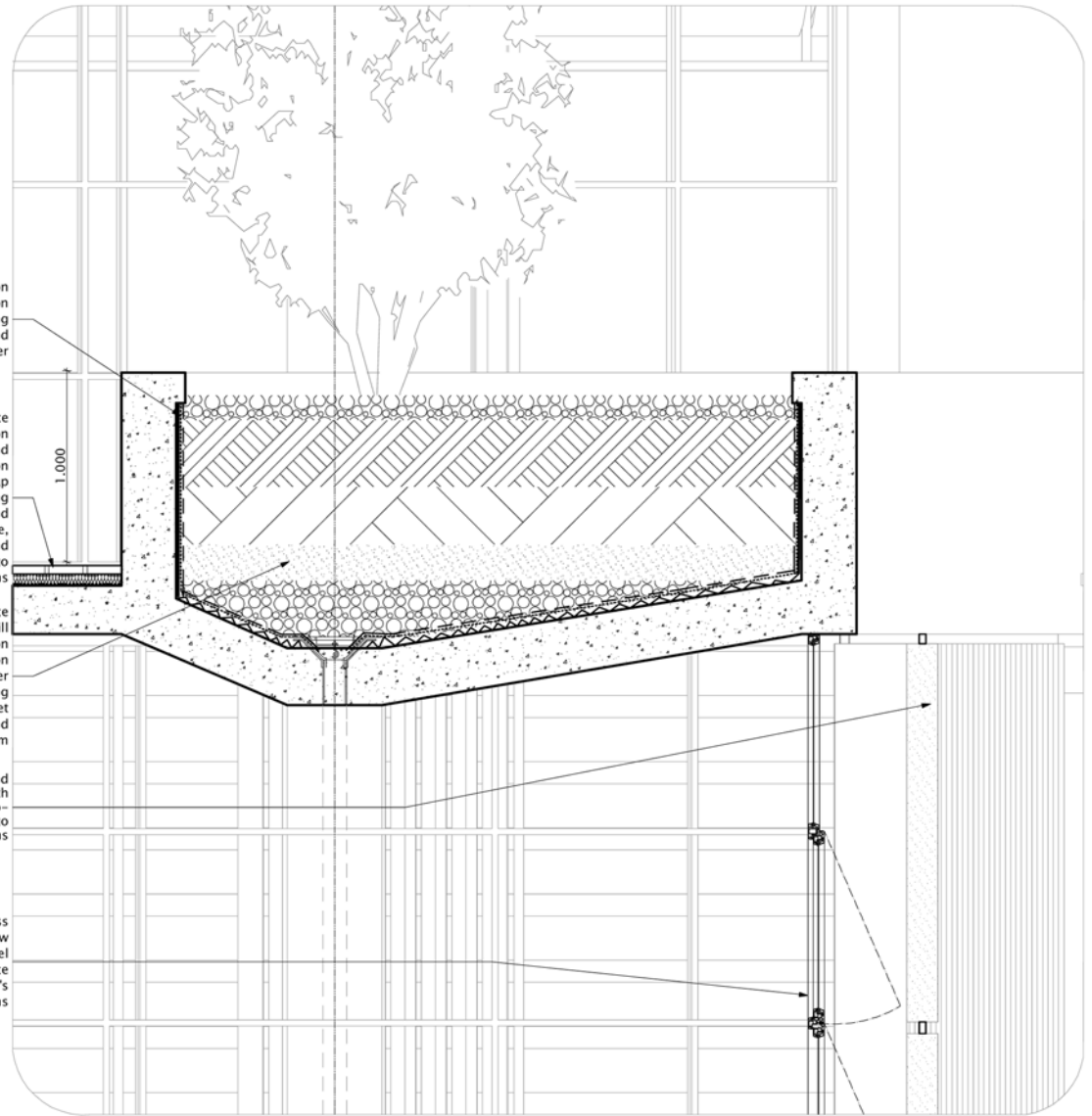
Bidum geotextile membrane on
 12mm thick timber board protection
 layer on Derbigum waterproofing
 membrane on 255mm reinforced
 concrete planter

500x500x25mm pre-cast concrete
 pavers on membrane spacers on
 IsoBoard high density rigid extruded
 polystyrene closed cell insulation
 board in 600 widths with shiplap
 joints on derbigum waterproofing
 layer on 40mm min. concrete screed
 to min. fall of 1:70 towards fulbore,
 on 255mm cast in-situ reinforced
 concrete flat slab strictly acc. to
 Engineer's specifications

100mm thick crushed concrete
 aggregates on three density earth fill
 layers on stone drainage layer on
 Bidum geotextile membrane on
 polyethelene dimpled drainage layer
 on Derbigum waterproofing
 membrane with fall to fulbore outlet
 connected to 100mm dia. uPVC and
 collection system

salvaged formwork to be cut and
 used as louvre fins integrated with
 computer controllable thermo-
 hydraulic louvre support frame to
 manufacturer's specifications

purpose-made aluminium and glass
 curtainwall with top-hung window
 section, fixed to mild steel channel
 profile, sealed with appropriate
 polymer sealant to manufacturer's
 specifications



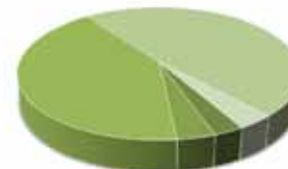
Detail D-03
 SCALE 1:20

Addendum B – Accommodation Schedule

Space required	Occupancy		Size (m ²)	Ventilation Method	Light (lux)	
	Class *	Population *				
		Required				Provided
BASEMENT						
Exhibition hall	C1	1 person/10m ²	98	975	Natural / Mechanical	300
Storage	J3	1 person/50m ²	2	88	Mechanical	150
Plant room	D4	n/a	n/a	552	Natural	300
Ablutions	C1	Male: 1 WC, 1 U, 1 HWB Female: 2 WC, 1 HWB	Male: 3 WC, 4 U, 3 HWB Female: 6 WC, 3 HWB	67	Mechanical	150
Total area				1682		
GROUND FLOOR						
South atrium	n/a	n/a	n/a	278	Natural	150
Events Stage	C1	1 person/10m ²	6	63	Natural	300
Visitor information centre	C1	1 person/10m ²	13	130	Natural / Mechanical	300
Systems control room	J3	1 person/50m ²	1	72	Natural / Mechanical	500
Communication centre	A3	1 person/5m ²	33	165	Natural	300
North atrium	n/a	n/a	n/a	78	Natural	150
Coffee Bar	A1	no. of seats	64	240	Natural / Outdoors	300
Learning kitchen	D3	1 person/15m ²	4	63	Natural / Mechanical	500
Circulation	n/a	n/a	n/a	555	Natural	300
Ablutions (Main)	A1;A3;C1	Male: 3 WC, 3 U, 3 HWB Female: 6 WC, 3 HWB	Male: 3 WC, 4 U, 3 HWB Female: 6 WC, 3 HWB	67	Natural	150
Ablutions (Café)	A1,G1	Male: 2 WC, 1 U, 2 HWB Female: 3 WC, 2 HWB	Unisex: 6 WC, 6 HWB	37	Natural	150
Total area				1748		
Urban plaza	A1	1 person/m ²	570	570	Outdoors	
FIRST FLOOR						
Meeting hall	G1	1 person/15m ²	26	393	Natural / Mechanical	500
Private meeting room	G1	1 person/15m ²	2	32	Natural / Mechanical	500
Education theatre	A2	no. of fixed seats	63	80	Mechanical	300
Multi-purpose lounge	G1	1 person/15m ²	3	46	Natural / Mechanical	300
Language labs	A3	1 person/5m ²	32	160	Natural / Mechanical	300
Conference Centre	G1	1 person/15m ²	24	367	Natural / Mechanical	500
Circulation	n/a	n/a	n/a	412	Natural	300
Ablutions	A2;A3;G1	Male: 3 WC, 3 U, 3 HWB Female: 6 WC, 3 HWB	Male: 3 WC, 4 U, 3 HWB Female: 6 WC, 3 HWB	67	Natural	150
Total area				1557		
SECOND FLOOR						
Private offices	G1	1 person/15m ²	51	766	Natural / Mechanical	500
Break space	G1	1 person/15m ²	2	32	Natural	300
Boardroom	G1	1 person/15m ²	5	76	Natural / Mechanical	500
Multi-purpose lounge	G1	1 person/15m ²	3	46	Natural / Mechanical	300
Roof Terrace	n/a	1 person/5m ²	38	190	Outdoors	-
Circulation	n/a	n/a	n/a	327	Natural	300
Ablutions	G1	Male: 2 WC, 3 U, 2 HWB Female: 5 WC, 3 HWB	Male: 3 WC, 4 U, 3 HWB Female: 6 WC, 3 HWB	67	Natural	150
Total area				1504		
Total building area				6491		

* Reference: SABS 0400 – 1990

7.26

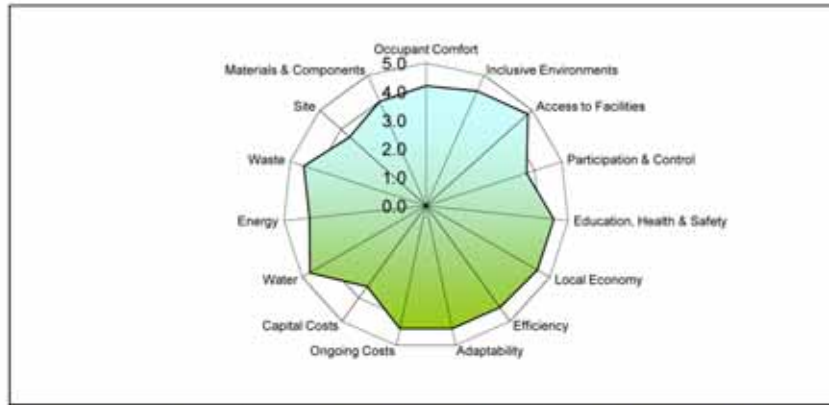


Building area (m ²)	Ventilation method	% of total m ²
190	Outdoors	3%
240	Natural / Outdoors	4%
2700	Natural	42%
3126	Natural / Mechanical	48%
235	Mechanical	4%

Addendum C – Baseline Study

SBAT – sustainable building assessment tool

The objective of the tool is to provide an indication of the performance of a building or the design of a building in terms of sustainability. (SBAT, Jeremy Gibberd, CSIR, 2007.)



7.27



Building Performance - Social

Criteria	Indicative performance measure	Measured	Points
SO 1 Occupant Comfort			4.2
SO 1.1 Daylighting	% of occupied spaces that are within distance 2H from window, where H is the height of the window or where there is good daylight from skylights	80	0.9
SO 1.2 Ventilation	% of occupied spaces have equivalent of opening window area equivalent to 10% of floor area or adequate mechanical system, with unpolluted air source	80	0.8
SO 1.3 Noise	% of occupied spaces where external/internal/reverberation noise does not impinge on normal conversation (50dBa)	70	0.7
SO 1.5 Thermal comfort	Temperature of occupied space does not exceed 28 or go below 19°C for less than 5 days per year (100%)	80	0.9
SO 1.5 Views	% of occupied space that is 6m from an external window (not a skylight) with a view	80	0.9
SO 2 Inclusive Environments			4.4
SO 2.1 Public Transport	% of building (s) within 400m of disabled accessible (20%) and affordable (80%) public transport	70	0.7
SO 2.2 Information	Comprehensive signage provided (50%), Signage high contrast, clear print signage in appropriate locations and language(s) / use of understandable symbols / manned reception at all entrances (50%)	80	0.8
SO 2.3 Space	% of occupied spaces that are accessible to ambulant disabled / wheelchair users	80	0.9
SO 2.4 Toilets	% of occupied space with fully accessible toilets within 50m along easily accessible route	100	1.0
SO 2.5 Fittings & Furniture	% of commonly used furniture and fittings (reception desk, kitchenette, auditorium) fully accessible	100	1.0
SO 3 Access to Facilities			4.8
SO 3.1 Children	All users can walk (100%) / use public transport (50%) to get to their childrens' schools and creches	80	0.8
SO 3.2 Banking	All users can walk (100%) / use public transport (50%) to get to banking facilities	100	1.0
SO 3.3 Retail	All users can walk (100%) / use public transport (50%) to get to food retail	100	1.0
SO 3.4 Communication	All users can walk (100%) / use public transport (50%) to get to communication facilities (post/telephone/internet)	100	1.0
SO 3.5 Exercise	All users can walk (100%) / use public transport (50%) to get to recreation/exercise facilities	100	1.0
SO 4 Participation & Control			3.7
SO 4.1 Environmental control	% of occupied space able to control their thermal environment (adjacent to openable windows/thermal controls)	70	0.7
SO 4.2 Lighting control	% of occupied space able to control their light (adjacent to controllable blinds etc/local lighting control)	80	0.8
SO 4.3 Social spaces	Social informal meeting spaces (parks / staff canteens / cafes) provided locally (within 400m) (100%)	100	1.0
SO 4.4 Sharing facilities	5% or more of facilities shared with other users / organisations on a weekly basis (100%)	70	0.7
SO 4.5 User group	Users actively involved in the design process (50%) / Active and representative management user group (50%)	80	0.5
SO 5 Education, Health & Safety			4.5
SO 5.1 Education	Two percent or more space/facilities available for education (seminar rooms / reading / libraries) per occupied space (75%). Construction training provided on site (25%)	80	0.8
SO 5.2 Safety	All well used routes in and around building well lit (25%), all routes in and around buildings visually supervised (25%), secure perimeter and access control (50%), No crime (100%)	90	0.9
SO 5.3 Awareness	% of users who can access information on health & safety issues (ie HIV/AIDS), training and employment opportunities easily (posters/personnel/intranet site)	80	0.8
SO 5.4 Materials	All materials/components used have no negative effects on indoor air quality (100%)	100	1.0
SO 5.5 Accidents	Process in place for recording all occupational accidents and diseases and addressing these	100	1.0

Building Performance - Economic

Criteria	Indicative performance measure	Measured	Points
EC 1 Local economy		Explanatory notes	4.5
EC 1.1 Local contractors	% value of the building constructed by local (within 50km) small (employees<20) contractors	70	0.7
EC 1.2 Local materials	% of materials (sand, bricks, blocks, roofing material) sourced from within 50km	80	0.8
EC 1.3 Local components	% of components (windows, doors etc) made locally (in the country)	100	1.0
EC 1.4 Local furniture/fitings	% of furniture and fittings made locally (in the country)	100	1.0
EC 1.5 Maintenance	% of maintenance and repairs by value that can, and are undertaken, by local contractors (within 50km)	100	1.0
EC 2 Efficiency		Explanatory notes	4.4
EC 2.1 Capacity	% capacity of building used on a daily basis (actual number of users / number of users at full capacity*100)	90	0.9
EC 2.2 Occupancy	% of time building is occupied and used (actual average number of hours used / all potential hours building could be used (24) *100)	80	0.8
EC 2.3 Space per occupant	Space provision per user not more than 10% above national average for building type (100%)	80	0.8
EC 2.4 Communication	Site/building has access to internet and telephone (100%), telephone only (50%)	100	1.0
EC 2.5 Material & Components	Building design coordinated with material / component sizes in order to minimise wastage. Walls (50%), Roof and floors (50%)	90	0.9
EC 3 Adaptability		Explanatory notes	4.7
EC 3.1 Vertical heights	% of spaces that have a floor to ceiling height of 3000mm or more	100	1.0
EC 3.2 External space	Design facilitates flexible external space use (100%)	80	0.8
EC 3.3 Internal partition	Non loadbearing internal partitions that can be easily adapted (loose partitioning (100%), studwall (50%), masonry (25%))	90	0.9
EC 3.4 Modular planning	Building with modular structure, envelope (fenestration) & services allowing easy internal adaptaptation (100%)	100	1.0
EC 3.5 Furniture	Modular, limited variety furniture - can be easily configured for different uses (100%)	100	1.0
EC 4 Ongoing costs		Explanatory notes	4.4
EC 4.1 Induction	All new users receive induction training on building systems (50%), Detailed building user manual (50%)	70	0.7
EC 4.2 Consumption & waste	% of users exposed on a monthly basis to building performance figures (water (25%), electricity (25%), waste (25%), accidents (25%))	80	0.8
EC 4.2 Metering	Easily monitored localised metering system for water (50%) and energy (50%)	100	1.0
EC 4.3 Maintenance & Cleaning	% of building that can be cleaned and maintained easily and safely using simple equipment and local non-hazardous materials	100	1.0
SO 4.5 Procurement	% of value of all materials/equipment used in the building on a daily basis supplied by local (within the country) manufacturers	90	0.9
EC 5 Capital Costs		Explanatory notes	3.5
EC 5.1 Local need	Five percent capital cost allocated to address urgent local issues (employment, training etc) during construction process (100%)	80	0.8
EC 5.2 Procurement	Tender / construction packaged to ensure involvement of small local contractors/manufacturers (100%)	80	0.8
EC 5.3 Building costs	Capital cost not more than fifteen % above national average building costs for the building type (100%)	70	0.7
EC 5.4 Technology	3% or more of capital costs allocated to new sustainable/indigenous technology (100%)	90	0.9
EC 5.5 Existing Buildings	Existing buildings reused (100%)	30	0.3

Building Performance - Environmental

Criteria	Indicative performance measure	Measured	Points
EN 1 Water		Explanatory notes	4.7
EN 1.1 Rainwater	% of water consumed sourced from rainwater harvested on site	90	0.9
EN 1.2 Water use	% of equipment (taps, washing machines, urinals/showerheads) that are water efficient	100	1.0
EN 1.3 Runoff	% of carparking, paths, roads and roofs that have absorbant/semi absorbant/permeable surfaces (grassed/thatched/looselaid paving/ absorbant materials)	80	0.8
EN 1.4 Greywater	% of water from washing/relatively clean processes recycled and reused	100	1.0
EN 1.5 Planting	% of planting (other than food gardens) on site with low / appropriate water requirements	100	1.0
EN 2 Energy		Explanatory notes	4.1
EN 2.1 Location	% of users who walk / cycle / use public transport to commute to the building	80	0.8
EN 2.2 Ventilation	% of building ventilation requirements met through natural / passive ventilation	90	0.9
EN 2.3 Heating & Cooling	% of occupied space which relies solely on passive environmental control (no or minimal energy consumption)	70	0.7
EN 2.4 Appliances & fittings	% of appliances / lighting fixtures that are classed as highly energy efficient (ie energy star rating)	100	1.0
EN 2.5 Renewable energy	% of building energy requirements met from renewable sources	70	0.7
EN 3 Waste		Explanatory notes	4.5
EN 3.1 Toxic waste	% of toxic waste (batteries, ink cartridges, flourescent lamps) recycled	100	1.0
EN 3.2 Organic waste	% of organic waste recycled	80	0.8
EN 3.3 Inorganic waste	% of inorganic waste recycled	80	0.8
EN 3.4 Sewerage	% of sewerage recycled on site	100	1.0
EN 3.5 Construction waste	% of damaged building materials / waste developed in construction recycled on site	90	0.9
EN 4 Site		Explanatory notes	3.6
EN 4.1 Brownfield site	% of proposed site already disturbed / brownfield (previously developed)	100	1.0
EN 4.2 Neighbouring buildings	No neighbouring buildings negatively affected (access to sunlight, daylight, ventilation) (100%)	100	1.0
EN 4.3 Vegetation	% of area of area covered in vegetation (include green roofs, internal planting) relative to whole site	80	0.6
EN 4.4 Food gardens	Food gardens on site (100%)	0	0.0
EN 4.5 Landscape inputs	% of landscape that does not require mechanical equipment (ie lawn cutting) and or artificial inputs such as weed killers and pesticides	100	1.0
EN 5 Materials & Components		Explanatory notes	4.0
EN 5.1 Embodied energy	Materials with high embodied energy (aluminium,plastics) make up less than 1% of weight of building (100%)	80	0.8
EN 5.2 Material sources	% of materials and components by volume from grown sources (animal/plant)	80	0.5
EN 5.3 Ozone depletion	No materials and components used requiring ozone depleting processes (100%)	100	1.0
EN 5.4 Recycled / reuse	% of materials and components (by weight) reused / from recycled sources	80	0.8
EN 5.5 Construction process	Volume / area of site disturbed during construction less than 2X volume/area of new building (100%)	90	0.9