BIODIVERSE GREEN/BROWN ROOF - U0160161

ON BEHALF OF

THE RICHMOND CHARITIES

MITRE MEWS TO THE REAR OF 20-34 ST MARY'S GROVE, RICHMOND

(22/2082/FUL)

NOVEMBER 2024

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1.0 Requirements

1.1 Condition

U0160161 - Full details of all biodiversity (green with brown features roof/s) shall be submitted to and approved in writing by the local planning authority prior to any superstructure works commencing on site; and thereafter implemented in accordance with these details.

Reason: To enhance nature conservation interest.

2.0 Development Description

The proposed Mitre Mews development is for 5 No. 1- bed single-storey dwellings (Use Class C3 (a)) with associated landscaped amenity, providing 100% affordable housing for the over 65s. All the units are designed to 'Passivhaus' standards, with four units to be M4(3) wheelchair user dwellings and one to M4(2) wheelchair accessible and adaptable standards.

3.0 Plan

Refer to drawing: SMGG-112 C7 Roof Plan & SMGG-120 C4 – Construction Build-ups.

3.1 Specification

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Wildflower Turf

Soil-less Substrate

SOIL-LESS SUBSTRATE

- This product is an inert, sterile composted green waste based medium
- It contains a pH modifier, a wetting agent, its free draining, low levels of organic nutrients
- Its light, friable and easy to use for both manual and mechanical installations

PRODUCT SPECIFICATION

- It can be provided in 20 kg degradable or non-degradable sacks or loose in $1m^3$ or $2m^3$ bulk bags (equating to $10m^2$ or $20m^2$ laying amounts when installing at our recommended depth of 100mm) or loose in bulker trucks depending on volume required
- Typical weight: 400kg per $1m^3$ bag
- Typical bulk density: 350g/l
- Typical moisture content is <40% volume
- Recommended depth 100mm

SUSTAINABILITY

- To produce this environmentally beneficial product, every effort is made to sourcesustainable ingredients, for example, composted green waste and organic nutrients, as wellas carefully monitoring all inputs such as electricity and water.

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Wildflower Turf

Roof Turf

SEED SPECIFICATION – 20% GRASS / 80% FLOWERS

	FLORA			
1	Autumn Hawkbit	(Scorzoneroides autumnalis)	P	
2	Betony	(Stachys officinalis)	P	
3	Birds-foot Trefoil	(Lotus corniculatus)	P	
4	Black Medic	(Medicago lupulina)	SLP	
5	Bladder Campion	(Silene vulgaris)	P	
6	Cat's ear	(Hypochaeris radicata)	P	
7	Chives	(Allium schoenoprasum)	P	
8	Clustered Bellflower	(Campanula glomerata)	P	
9	Common Knapweed	(Centaurea nigra)	P	
10	Common Sorrel	(Rumex acetosa)	P	
11	Common Toadflax	(Linaria vulgaris)	P	
12	Cowslip	(Primula veris)		P
13	Field Scabious	(Knautia arvensis)	P	
14	Hoary Plantain	(Plantago media)		P
15	Kidney Vetch	(Anthyllis Vulneraria)	P	
16	Lady's Bedstraw	(Galium verum)	P	
17	Meadow Buttercup	(Ranunculus acris)	P	
18	Meadow Cranesbill	(Geranium pratense)	P	
19	Meadowsweet	(Filipendula ulmaria)	P	
20	Musk Mallow	(Malva moschata)	P	
21	Ox Eye Daisy	(Leucanthemum vulgare)	P	
22	Perforate St John's Wort	(Hypericum perforatum)	P	
23	Ragged Robin	(Lychnis flos-cuculi)	P	
24	Red Campion	(Silene dioica)	P	
25	Ribwort Plantain	(Plantago lanceolata)	P	
26	Rough Hawkbit	(Leontodon hispidus)	P	
27	Salad Burnet	(Sanguisorba minor)	P	
28	Self-heal	(Prunella vulgaris)	P	
29	Small Scabious	(Scabiosa columbaria)	P	
30	Thrift	(Armeria maritima)	P	
31	Tufted Vetch	(Vicia cracca)	P	
32	Viper's Bugloss	(Echium vulgare)	P	
33	White Campion	(Silene latifolia)	P	
34	Wild Marjoram	(Origanum vulgare)	P	
35	Wild Red Clover	(Trifolium pratense)	P	
36	Yarrow	(Achillea millefolium)	P	
	GRASSES			
37	Sheep's Fescue	(Festuca ovina)	P	

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WILDFLOWER ROOF TURF

Wildflower Roof Turf is a soil-free wildflower turf system developed to reduce irrigation, reduce water run-off, improve insulation and cooling of buildings and thrive in an exposed environment. This turf is nursery grown to produce a mat of wildflower plants that retains 100% of its root system

The turf is made up of UK native and naturalised wildflowers and grasses, with a minimum of 75% wildflowers although bespoke mixes are produced to order.

The soil-less growing technique uses an inert, pH modified, low nutrient, compost based growing medium that is compatible with all Wildflower Turf products.

A fine degradable net is incorporated in the root zone of the turf to provide stability and strength, whilst maintaining a relatively lightweight roll ranging from 15-20kgs/m^2 (depending on maturity and moisture content when lifted).

Once installed, the typical saturated weight of 1m^2 of turf only (excluding any substrate) is 35kgs

Turf size will vary with application but is generally 1m x 0.64m = 0.64m^2 slabbed OR 1.62m x 0.77m = 1.25m^2 rolled per turf on pallets. Larger 2 x 20m (40m^2) roll sizes are also available. They can each weigh between 750-900kgs each and will need special machinery to offload and roll out on site.

WILDFLOWER ROOF TURF PREPARATION AND INSTALLATION

Ensure the roof structure is of sufficient strength and suitably designed to support the combined saturated weight of the turf, the substrate and irrigation system. The combined saturated weight of Wildflower Roof Turf and Wildflower Substrate is 125kgs/m^2. If unsure, consult a structural engineer or specialist contractor.

Lay a waterproof membrane over the entire roof area. Consult a roofing contractor for an appropriate system. Pay attention to sealing around roof lights, vent stacks and other similar features where there is a higher risk of water ingress. The whole roof must be watertight and care taken not to puncture the membrane when installing any growing medium, turf or bulbs.

Adequate provision must be made for drainage at the bottom of the roof slopes. This can be achieved by leaving a small gap in the retention feature or a strip that is back-filled with gravel or similar material. Wildflowers need moisture but like a free-draining environment. Avoid levels that will allow standing water to prevent waterlogging.

It is recommended to lay the Wildflower Roof Turf on WFT-Substrate. It is a soil-less, lightweight and free-draining substrate specially formulated to suit all Wildflower Roof Turf installations.

OPTION A: LOOSE SUBSTRATE ON A FLAT ROOF

WFT-Substrate can be supplied in 1m^3 bulk bags (max 950kgs shipping weight). The substrate needs to be laid evenly at a minimum of 100mm depth.

To retain the loose substrate, lay a strip of geo-textile membrane along the inside of the substrate retention feature (e.g. upstand or barge board). This also allows water to drain without washing out any substrate in the process.

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OPTION B: LOOSE SUBSTRATE & SUBSTRATE SACKS ON FLAT ROOFS

For flat roofs, WFT-Substrate can also be supplied in degradable substrate sacks (approx. 450mm x 450mm x 100mm per sack). Allow 5 sacks per m^2 and lay two lines around the perimeter of the roof and along the ridge. Backfill the remainder of the area and any voids between the sacks with loose substrate to the same level as the sacks.

OPTION C: SUBSTRATE SACKS ONLY

For pitched roofs, WFT-Substrate can be supplied in Non-Degradable sacks (650mm x 400mm x 100mm). Allowing 4 sacks per m^2, cover the whole roof area. You might need to open a couple of bags to brush the substrate in, to ensure that gaps and voids are properly filled. The non-degradable sacks will help to give permanent structural strength to the root zone.

When using loose substrate, provision must be made for a retaining system at the eaves and sides of the roof. This can be in the form of a wooden batten/barge board with accompanying fixing brackets or an engineered metal L shaped strip attached to the roof structure. Your roofing contractor or specialist should advise you on the design and construction of this feature. In addition to the eaves retention it is advisable to install a line of our woven substrate sacks around the perimeter of the roof to provide initial containment of loose substrate whilst the turf establishes a root system throughout the WFT-Substrate. See Section 2.5 Loose substrate & substrate sacks on flat roots.

The turf needs to be laid on a minimum of 100mm (4 inches) of WFT-Substrate. When laying the turf, care should be taken to ensure that all joints are butted up correctly. Do not overlap the turf at the joints and do not create tension so joints pull apart or shrink. Ensure the turf roots are in contact with the WFT-Substrate and there are no air pockets underneath.

Once laid, water the turf thoroughly for the first couple of weeks (weather dependent), until the turf is rooted in. Ensure the substrate underneath the turf is damp to be sure you have given it adequate water. This can be checked by lifting a corner of the turf. Do not allow the turf to dry out while it establishes, which should take approximately 2-3 weeks. Do not over water the turf, but ensure the substrate is damp. Over watering can promote grass domination in the sward. It is important to water the Wildflower Roof Turf occasionally during extended dry spells. Once well established the Wildflower Turf will tend to cope with most circumstances however the limited depth of growing medium does restrict the availability of water for the plants and additional consideration should be paid to irrigation.

If the roof is relatively large then a drip irrigation system can be installed (optional). Pipes should be laid on top of the substrate and underneath the turf at root level across the gradient of the roof slope with T joints to a vertical supply/feeder pipe. Please refer to ICB Projects Ltd for more information if required.

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WILDFLOWER ROOF TURF MAINTENANCE

No fertilizer is needed, although in some circumstances, the addition of a light dose of fertilizer in the spring may improve plant development if required. Please refer to ICB Projects Ltd.

Once established Wildflower Turf requires little maintenance. For the annual maintenance cut in the Autumn, it is important to cut the meadow down to 1 to 2 inches (25mm to 50mm) from the surface and remove all cuttings. This can be done by strimming and raking and collecting the cuttings. Make sure these tools are sharp. The cut is an important part of the meadows life cycle and ensures re-growth and species diversity year on year. Cuttings should not be left on the meadow as they add undesirable fertility to the growing medium, and can suppress the next year's growth. It is also important to remove any leaf litter that might fall onto the area. Take care to avoid damage to the roof membrane or any drip irrigation pipes.

The annual maintenance cut should be done in late September to early October. There is no need for a set date, but this timing will allow the plants in the meadow to regenerate before the first frost typically in November. You can choose to cut only half of the meadow area at one time to allow time for fauna to migrate to the uncut meadow. Allow some regrowth of the cut area before cutting the second half, but aim to have finished all cutting by the end of the first week of October. Over time alternate the areas that are cut early and the areas that are left as this will benefit species diversity.

One cut (annual maintenance cut) is essential, however a second or third cut throughout the growing season is acceptable and offers an opportunity to tidy excess growth.

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FCP20 Drainage and Filter Layer

FCP20 Cuspate Geocomposite is a 20mm HDPE punched cuspated drainage board with a geotextile filter/separator bonded to a single side. FCP20 geocomposite has been designed to provide an irrigation and drainage system for greenroofs.

MECHANICAL PROPERTIES - Geocomposite	Test	Unit	Mean Values		
Compressive Strength	EN ISO 25619-2	kPa	115		
Tensile strength (MD/CMD)	EN ISO 10319	kN/m	17		
Static puncture (CBR)	EN ISO 12236	kN	2.6		
HYDRAULIC PROPERTIES - Geotextile					
Water permeability vH50	EN ISO 11058	l/(m2·s)	100		
Apparent opening size	EN ISO 12956	µm	80		
HYDRAULIC PROPERTIES - Geocomposite					
Water flow capacity in the plane (rigid/rigid)	EN ISO 12958	l/(m·s)	(i=1)	(i=0.5)	(i=0.1)
@ 20kPa			10.0	8.0	5.0
@ 100kPa			9.0	6.0	3.5
@ 200kPa			5.0	2.0	1.0
Water storage capacity	EN ISO 11058	l/m2	4		
Water flow through perforations		l/(m2·s)	24		
PHYSICAL PROPERTIES					
Thickness @ 2kPa	EN ISO 9863-1	mm	21		
Standard colour - Cuspate			Black		
Perforations per m2			49		
Perforations diameter		mm	10		
Polymer - Cuspate			HDPE		
Polymer - Textile			PP		

Notes:
a) Mean values indicate the arithmetic mean derived from the samples taken for any one test as defined in the standard – usually an overall mean of five samples.

Testing
All materials are tested every 6000m2 in an UKAS accredited ISO 17025 laboratory to all mechanical properties prior to release.

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Storage

The geocomposites are supplied in packaging designed to protect the product from damage during handling and storage and degradation as a result of UV exposure. The product should be kept in appropriate packaging until such time that it is required for installation. The product is clearly and indelibly marked with the product name along the edge of the roll at regular intervals no greater than 5m. The packaging is labelled clearly to identify the product supplied in accordance with EN ISO 10320: Geotextile and Geotextile related products – Identification on site. Use slings where provided. Product weights are given on roll tickets. Use equipment appropriate to weight and dimension. Store and handle in accordance with good occupational hygiene and safety practice.

Dimensions	Unit	Values
Standard Roll Length	m	50
Standard Roll Width	m	0.97
Approximate Roll Weight	kg	60

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HPS 2.5 Protection Fleece

HPS 2.5 is a thick needlepunched nonwoven geotextile manufactured from 100% virgin polypropylene high tenacity fibres containing 1% active carbon black.

Application
Typical applications for GEOfabrics' HPS Geotextiles include, but are not limited to:
- Membrane protection in landfill cells and cover systems
- Soil filtration and separation beneath rock armour in coastal defence
- Soil filtration within landfill cells
- Heavy duty soil filters in civil applications

- **Optimised for maximum strength and performance – not mass**
- **Available in wide widths to allow for minimal construction costs – up to 6m**
- **Manufactured from a unique blend of high tenacity fibres providing class leadingdurability**
- **100% virgin polypropylene fibres for guaranteed durability**
- **Carbon black for UV stability**

MECHANICAL PROPERTIES - Geocomposite	Test	Unit	Mean Values
Static puncture (CBR)		kN	2.5
Push through displacement	EN ISO 12236	mm	65
Tensile strength (MD/CMD)		kN/m	15
Tensile elongation (MD/CMD)	EN ISO 10319	%	80
Cone drop	EN ISO 13433	mm	10
Protection efficiency (103)	EN ISO 13719	kN/m2	-
FILTER PROPERTIES			
Apparent opening size	EN ISO 12956	µm	150
Water permeability vH50	EN ISO 11058	l/(m2·s)	100
Coefficient of permeability (10-3)		m/s	7
PHYSICAL PROPERTIES			
Thickness @ 2kPa (Nominal)	EN ISO 9863-1	mm	3.5
Carbon black content			1% active carbon black
Standard colour			**Black**
Polymer			100% Virgin Polypropylene

Notes:
a) Mean values indicate the arithmetic mean derived from the samples taken for any one test as defined in the standard – usually an overall mean of five samples.
Mean values are subject to tolerances based on 95% confidence limits as published on the product CE declaration of performance.
b) Nominal Value (indicates an average manufacturing norm and not a controlled performance parameter).
c) MD: Machine Direction (longitudinal to the roll).
d) CMD: Cross Machine Direction (across the roll).
e) Tensile testing is performed using extensometers.

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Durability	Test	Values
Weathering 50 MJ/m2 (1 month)	EN ISO 12224	>90% Retained Strength
Microbiological resistance	EN ISO 12225	No loss in strength
Resistance to acids & alkalis	EN ISO 14030	No loss in strength
Oxidation at 112 days (100 years)	EN ISO 13438	>90% Retained Strength

Needle Detection
During manufacture, the protection geotextile passes close to three sets of magnets which remove metal particles up to 12g and >2mm. Just before the roll up, the geotextile passes through an electronic metal detection field. Audio and visual alarms indicate if metal particles are detected. Rolls are sent to stock if they pass through the field without an alarm event or, in the case of an alarm event, the operator inspects the suspect area, locates any metal particles and removes them. If unsuccessful, or if any doubt remains as to the presence of metal particles, then the roll goes to the re-inspection facility.

Testing
All materials are tested every 6000m2 in an UKAS accredited ISO 17025 laboratory to all mechanical properties prior to release.

Storage
The geotextiles are supplied in packaging designed to protect the product from damage during handling, storage and degradation as a result of UV exposure. The product should be kept in appropriate packaging until such time that it is required for installation. The product is clearly and indelibly marked with the product name along the edge of the roll at regular intervals no greater than 5m. The packaging is labelled clearly to identify the product supplied in accordance with EN ISO 10320: Geotextile and Geotextile related products – Identification on site. Use slings where provided. Product weights are given on roll tickets. Use equipment appropriate to weight and dimension. Store and handle in accordance with good occupational hygiene and safety practice.

Dimensions	Unit	Values
Standard Roll Length	m	150
Standard Roll Width	m	6
Approximate Roll Weight	kg	315

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SITE LAYOUT & ROOF PLAN

ST MARY'S GROVE

ACCOMMODATION SCHEDULE

SELF-CONTAINED DWELLINGS FOR THE OVER 65s
4 No. 1 BED / 2 PERSON WHEELCHAIR ACCESSIBLE M4(3) UNITS @ 60M²
1 No. 1 BED / 2 PERSON ACCESSIBLE & ADAPTABLE UNIT WITH WET ROOM M4(2) @ 50M²
5 No. UNITS TOTAL

PARKING:
1 No. BLUE BADGE DISABLED PARKING BAY (ELECTRIC CHARGING)
2 No. VISITOR BAYS

NOTE:
DRY RISER REQUIRED FOR FIRE BRIGADE ACCESS.
EXISTING NEIGHBOUR GATE AND GARAGE ACCESS RETAINED.
BOUNDARY FENCE REPLACEMENT SUBJECT TO CONSULATION WITH NEIGHBOURS.

KEY - ROOF PLAN

+8.000	PROPOSED PARAPET LEVELS
	COLOUR CODES DENOTE VARIED PARAPET HEIGHTS
SVP	SOIL VENT PIPE
RWP	RAINWATER PIPE
	AIR EXHAUST/INTAKE DUCTWORK
	MVHR UNIT
	AC/DC/TV CABLES THROUGH ALWITRA WATER SPOUT 75MM HIGH x 215MM WIDE
	TV AERIAL DISH
BAT BOX / ST BOX / SP BOX / BUG H	ECO BAT BOX / STARLING BOX / SPARROW TERRACE / BUG HOTEL

Notes:
Levels on this drawing are adjusted to OS GPS and Ordnance Datum; refer to Twickenham Survey's drawing 23119LSx, dated OCT 2023 & MAY 2012.
Please refer to Twickenham Survey's drawing 1272LSa, dated MAY 2012, for previous arbitrary datum levels.

REVISIONS:
C1: 15.11.2023: MVHR intake/exhaust positions updated.
C2: 16.01.2024: MVHR intake/exhaust positions updated. Levels updated to OS GPS.
C3: 21.02.2024: SVP locations updated. Compost bin/food waste added.
C4: 21.03.2024: PV panel and green roof layout has been updated.
C5: 17.07.2024: AC/DC/TV cables and water spouts added. TV Aerial dish indicated.
C6: 29.09.2024: Bat, bird boxes, and insect hotel added to plan.
Dry-riser inlet position moved due to pipework below ground;brick enclosures removed.
C7: 20.11.24: Additional areas of 'wildflower' green roof added.

CONSTRUCTION

Project: ST MARY'S GROVE GARAGES, RICHMOND TW9		
Drawing: GA - ROOF PLAN		
Drawing No.: SMGG-112 C7	Scale: 1:100 @ A1	Date: 09.11.2023

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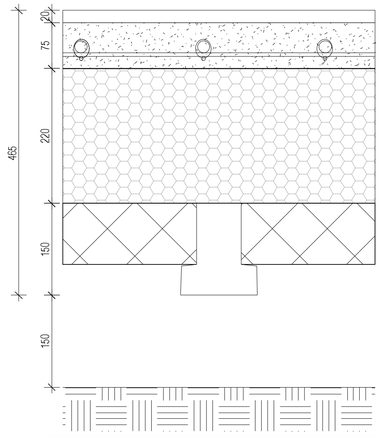
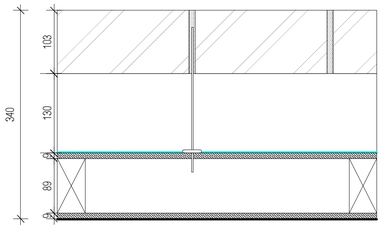


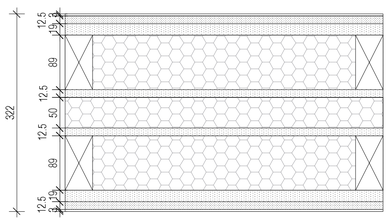
F1: GROUND FLOOR - THICKNESS 465MM
U-VALUE = 0.093 W/m2K

- 20MM FLOOR FINISHES
- 75MM SAND CEMENT SCREED WITH POLYPIPE UNDERFLOOR HEATING SYSTEM
- POLYTHENE SHEET SEPARATING LAYER (NOT LESS THAN 125 MICRONS/500 GAUGE)
- 220MM EUROTHANE GP INSULATION, THERMAL CONDUCTIVITY 0.022W/mK (OR SIMILAR APPROVED).
- DPM MEMBRANE RIW SHEETSEAL 226 (OR SIM.APPR.) OVERLAPPED WITH DPC RETURNED UP THE BLOCK UPSTAND BELOW EXTERNAL WALLS AND GLUED TO WALL VCL
- PRECAST BEAM AND BLOCK FLOOR WITH JOINTS GROUTED, ROUGH SUB-FLOOR OR CAMBER LEVELER TO BE APPLIED WHERE NECESSARY BEFORE LAYING D.P.M AND INSULATION. BEAM SPECIFICATIONS TO SPECIALIST SUBCONTRACTORS SPECIFICATION
- 150MM VOID DEPTH TO SE SPECIFICATION



W1C - EXTERNAL PARAPET WALL
THICKNESS 340MM

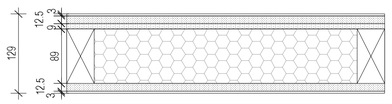
- 102.5MM DANEHILL YELLOW BRICK, STRETCHER BOND, GEORGIAN MIX LIME MORTAR
- 130MM MINIMUM CAVITY, WITH TEPLO-BFL-5-180 WALL TIES
- KINGSPAN NILVENT BREATHER MEMBRANE (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM
- 89 X 45 MM TIMBER STUDS WITHOUT INSULATION
- 18MM PLYWOOD DECK
- SINGLE-PLY MEMBRANE, ALWITRA EVALON ADHERED APPLICATION (OR SIMILAR APPROVED) TURNED OVER THE UPSTAND PARAPET AND OVER THE TOP OF IT



W2 : INTERNAL LOAD-BEARING PARTITION WALL TO PLOT 1 & 2, 2 & 3 AND 4 & 5
THICKNESS 322MM; 60 MIN FIRE RESISTANCE

- 3MM PAINT SKIM
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 19MM PLANK PLASTERBOARD
- 89 X 45 MM TIMBER STUDS WITH 90MM INSULATION (OR SIM. APPR.) AT 600CTRS
- 12.5MM FERMACELL
- 50MM CAVITY WITH 65MM CAVITY INSULATION BY KINGSPAN
- 12.5MM FERMACELL
- 89 X 45 MM TIMBER STUDS WITH 90MM INSULATION (OR SIM. APPR.) AT 600CTRS
- 19MM PLANK PLASTERBOARD
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 3MM SKIM PAINTED

NOTE : W2A - EXTERNAL WALL TO WET ROOMS, ADD:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 12MM TILE BACKER BOARD + 10MM TILES



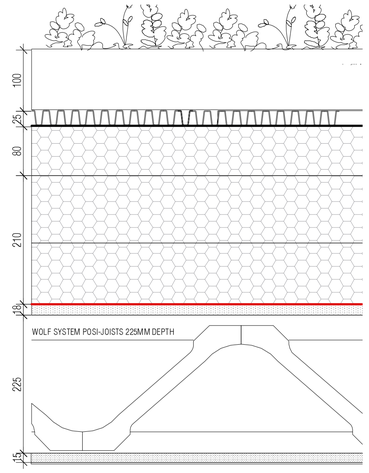
W5 : INTERNAL LOAD BEARING PARTITION - THICKNESS 129MM;
30 MIN FIRE RESISTANCE

- 3MM PAINT SKIM
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 89 X 45 MM TIMBER STUDS WITH 89MM ISOVER PARTITION ROLL (OR SIM. APPRV.)
- 9MM PLYWOOD
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 3MM SKIM PAINTED

NOTE : W5A - WALL TO WET ROOMS, 136MM:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 9MM PLYWOOD TO BE ON THE SIDE OF WET ROOM. OVER POCKET SLIDING DOOR
- 12MM TILE BACKER BOARD + 10MM TILES.

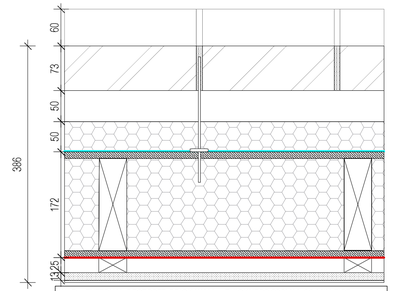
NOTE : W5B - WALL TO KITCHENS, 129MM:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 9MM PLYWOOD TO BE ON THE SIDE OF KITCHEN, BEHIND CABINETS
- 12.5MM BRITISH GYPSUM MOISTURE RESISTANT BOARD + 3MM SKIM PAINTED

NOTE : W5C - WALL TO WET ROOM AND KITCHEN, 145MM:
- 9MM PLYWOOD ON BOTH SIDES, FOLLOW W5A AND W5B



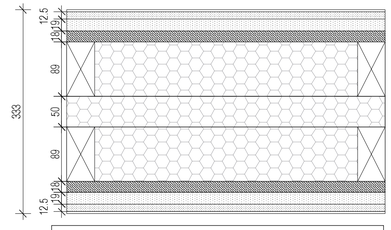
R1: FLAT ROOF - THICKNESS 655MM (VARIES)
U-VALUE = 0.08W/m2K

- EVAGREEN ICB WATERPROOFING (OR SIMILAR APPROVED) GREEN ROOF SYSTEM:
- GROWING MEDIUM (NATIVE WILD FLOWERS, GRASSES)
- 100MM BIODIVERSE SUBSTRATE
- FL200 FILTER FLEECE (OR SIMILAR APPROVED)
- 25MM DRAINAGE MAT
- PL500 PROTECTION FLEECE (OR SIMILAR APPROVED)
- SINGLE-PLY MEMBRANE, ALWITRA EVALON ADHERED APPLICATION (OR SIMILAR APPROVED)
- EVATHERM TISSUE-BACK TAPERED INSULATION, TO 1:40 FALLS (HEIGHT VARIES) (OR SIM. APPRV.)
- 210MM EVATHERM TISSUE-BACK INSULATION (100MM + 110MM), THERMAL CONDUCTIVITY 0.025 W/MK (OR SIMILAR APPROVED)
- ROOF VAPOUR CONTROL LAYER ICB STRATAVAP PART OF ROOFING SYSTEM (OR SIMILAR APPROVED) (ROOF VCL TBC)
- 18MM PLYWOOD DECK
- 225MM POSI-JOIST @ 400CTRS (CTRS TBC)
- 15MM GYPSUM SOUNDBLOC PLASTERBOARD + 3MM PAINT SKIM



W1D - EXTERNAL RECESSED BRICK WALL - THICKNESS 386MM; 30 MIN FIRE RESISTANCE
U-VALUE = 0.112 W/m2K

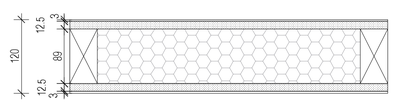
- 73MM CUT DANEHILL YELLOW BRICK, STRETCHER BOND, GEORGIAN MIX LIME MORTAR
- 50MM MINIMUM CAVITY, WITH TEPLO-BFL-5-155 WALL TIES, BATTENS AT 600 CTRS
- 50MM THERMAWALL TW55 ZERO ODP 0.022 W/MK (OR SIMILAR APPROVED)
- KINGSPAN NILVENT BREATHER MEMBRANE (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM
- 172MM STRUCTURALLY INSULATED PANEL (SIP) KINGSPAN TEK (OR SIMILAR APPROVED)
- GLIDEVALE BARRIAIR VAPOUR CONTROL LAYER (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM AND TAPE USING GERBAND 586; ADHERED TO FLOOR CONCRETE SLAB WITH ORCON-F. REFER TO KINGPAN'S MEMBRANE DETAILS.
- 25 x 50MM TREATED SW VERTICAL TIMBER BATTENS FORMING CAVITY FOR SERVICES
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD + 3MM SKIM PAINTED



W3 : INTERNAL LOAD-BEARING PARTITION WALL BETWEEN PLOT 3 & 4 -
THICKNESS 333MM; 60 MIN FIRE RESISTANCE

- 3MM PAINT SKIM
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 19MM PLANK PLASTERBOARD
- 18MM OSB GRADE 3
- 89 X 45 MM TIMBER STUDS WITH 90MM INSULATION (OR SIM. APPRV.) AT 600CTRS
- 50MM CAVITY WITH 65MM CAVITY INSULATION, WITH NETLON TO KEEP IN PLACE
- 89 X 45 MM TIMBER STUDS WITH 90MM INSULATION (OR SIM. APPRV.) AT 600CTRS
- 18MM OSB GRADE 3
- 19MM PLANK PLASTERBOARD
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 3MM SKIM PAINTED

NOTE : W3A - EXTERNAL WALL TO WET ROOMS, ADD:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 12MM TILE BACKER BOARD + 10MM TILES.

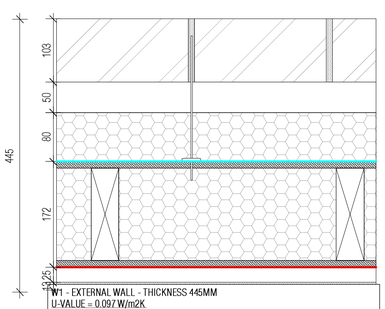


W6 : INTERNAL NON - LOAD BEARING PARTITION - THICKNESS 120MM;
30 MIN FIRE RESISTANCE

- 3MM PAINT SKIM
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 89 X 45 MM TIMBER STUDS WITH 89MM ISOVER PARTITION ROLL (OR SIM. APPRV.)
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD
- 3MM SKIM PAINTED

NOTE : W6A - NON-LOAD BEARING WALL TO WETROOM, 127MM:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 12MM TILE BACKER BOARD + 10MM TILES.

NOTE : W6B - WALL TO MVHR CUPBOARD, 133MM:
- ADD 12.5MM GYPROC SOUNDBLOC



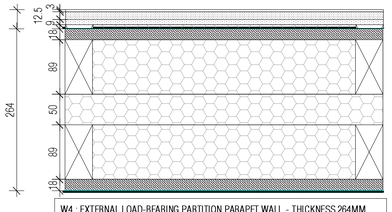
W1 - EXTERNAL WALL - THICKNESS 445MM
U-VALUE = 0.097 W/m2K

- 102.5MM DANEHILL YELLOW BRICK, STRETCHER BOND, GEORGIAN MIX LIME MORTAR
- 50MM MINIMUM CAVITY, WITH TEPLO-BFL-5-205 WALL TIES, BATTENS AT 600 CTRS
- 80MM THERMAWALL TW55 ZERO ODP 0.022 W/MK (OR SIMILAR APPROVED)
- KINGSPAN NILVENT BREATHER MEMBRANE (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM
- 172MM STRUCTURALLY INSULATED PANEL (SIP) KINGSPAN TEK (OR SIMILAR APPROVED)
- GLIDEVALE BARRIAIR VAPOUR CONTROL LAYER (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM AND TAPE USING GERBAND 586; ADHERED TO FLOOR CONCRETE SLAB WITH ORCON-F. REFER TO KINGSPAN MEMBRANE DETAILS.
- 25 x 50MM TREATED SW VERTICAL TIMBER BATTENS FORMING CAVITY FOR SERVICES, AT 400 CTRS
- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD + 3MM SKIM PAINTED

NOTE : W1A - EXTERNAL WALL TO WET ROOMS:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 12MM TILE BACKER BOARD + 10MM TILES.

NOTE : W1B - EXTERNAL WALL TO KITCHENS:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 12.5MM BRITISH GYPSUM MOISTURE RESISTANT BOARD + 3MM SKIM

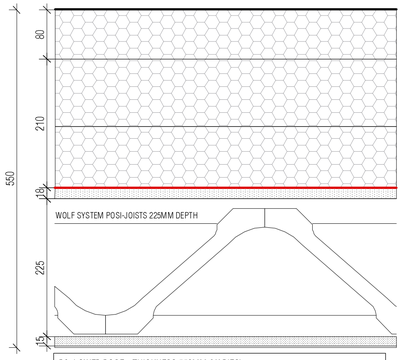
NOTE : W1C - EXTERNAL WALL WITH STEEL POST:
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD/MOISTURE RESTANT BOARD~~
- 12.5MM GYPROC FIRELINE PLASTERBOARD + 3MM SKIN PAINTED



W4 : EXTERNAL LOAD-BEARING PARTITION PARAPET WALL - THICKNESS 264MM

- SINGLE-PLY MEMBRANE, ALWITRA EVALON ADHERED APPLICATION (OR SIMILAR APPROVED) TURNED OVER THE UPSTAND PARAPET AND OVER THE TOP OF IT
- KINGSPAN NILVENT BREATHER MEMBRANE (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM
- 18MM PLYWOOD
- 89 X 45 MM TIMBER STUDS WITH 80MM KINGSPAN K112 FRAMING BOARD 0.019 W/MK (OR SIM. APPRV.)
- 50MM CAVITY FILLED WITH 50MM KINGSPAN K112 FRAMING BOARD 0.019 W/MK (OR SIM. APPRV.)
- 89 X 45 MM TIMBER STUDS WITH 80MM KINGSPAN K112 FRAMING BOARD 0.019 W/MK (OR SIM. APPRV.)
- 18MM PLYWOOD
- KINGSPAN NILVENT BREATHER MEMBRANE (OR SIMILAR APPROVED), OVERLAP JOINTS BY 150MM
- SINGLE-PLY MEMBRANE, ALWITRA EVALON ADHERED APPLICATION (OR SIMILAR APPROVED) TURNED OVER THE UPSTAND PARAPET AND OVER THE TOP OF IT

NOTE: ALL ROOMS ADJACENT TO INTERNAL STEELS -
REFER TO DRAWING: SMGG-109 C2
~~- 12.5MM BRITISH GYPSUM GYPROC WALLBOARD PLASTERBOARD~~
- 12.5MM BRITISH GYPSUM FIRELINE PLASTERBOARD 30MINS FIRE RESISTANCE



R2: LOWER ROOF - THICKNESS 550MM (VARIES)
U-VALUE = 0.08W/m2K

- SINGLE-PLY MEMBRANE, ALWITRA EVALON ADHERED APPLICATION (OR SIMILAR APPROVED)
- EVATHERM TISSUE-BACK TAPERED INSULATION, TO 1:40 FALLS (HEIGHT VARIES) (OR SIMILAR APPROVED)
- 210MM EVATHERM TISSUE-BACK INSULATION (100MM + 110MM), THERMAL CONDUCTIVITY 0.025 W/MK (OR SIMILAR APPROVED)
- ROOF VAPOUR CONTROL LAYER ICB STRATAVAP PART OF ROOFING SYSTEM (OR SIMILAR APPROVED) ADHERED (ROOF VCL TBC)
- 18MM PLYWOOD DECK
- 225MM POSI-JOIST @ 400CTRS (CTRS TBC)
- 15MM GYPSUM SOUNDBLOC PLASTERBOARD + 3MM PAINT SKIM

NOTE :
External & Party Wall timber battens are at 600 centres.
Internal Walls are at 400 centres

AIR TIGHTNESS NOTES
- ENSURE ALL JOINTS IN THE KINGSPAN NILVENT BREATHER MEMBRANE HAVE 150MM OVERLAP
- ENSURE ALL JOINTS (150MM OVERLAP) IN THE GLIDEVALE BARRIAIR VAPOUR CONTROL LAYER ARE TAPED USING THE GERBAND 586/587 WHERE REQUIRED AS PER KINGSPAN'S DESIGN
- ENSURE THERE IS A CONTINUITY; VCL ON WALLS IS TAPED TO GLAZING FRAMES WITH TESCON PROFIL INTERNALLY AND WITH PRO CLIMA CONTEGA SOLIDO EXO EXTERNALLY
- ENSURE THERE IS A CONTINUITY; VCL IS OVERLAPPED WITH BREATHER MEMBRANE AT OPENINGS / WINDOW/DOOR REVEALS
- ENSURE THERE IS A CONTINUITY BETWEEN THE VCL AND CONCRETE SLAB ADHERING VCL WITH ORCON-F
- ENSURE THERE IS A CONTINUITY BETWEEN THE VCL AND SEPARATING LAYER BELOW UFH RETURNED UP AT PERIMETER JUNCTION WALL/FLOOR - TAPE OVERLAP WITH PROCLIMA COMPEGO TAPE
- GENERALLY ENSURE THAT ALL SERVICES PENETRATIONS (MEP) ARE SEALED USING THE PRO CLIMA ROFLEX GROMMETS TO SUIT SIZE (OR SIMILAR APPROVED)

C1 - 16.01.24: BM positioned between SIP and TW55. BM changed to Nilvent. Party walls and partitions updated to Kingspan's specification. W1D spec changed to 50mm TW55. Brick note updated to Danehill.
C2 - 21.02.24: Internal wall build-up updated. W1C Parapet buildup updated.
C3 - 19.04.24: Breather membrane tape omitted, and VCL tape updated as per Kingspan's design. Fireline note added as per drawing SMGG 109 C2.
C4 - 09.07.24: Floor insulation spec changed to Eurothane GP. Timber batten separation noted.

CONSTRUCTION

Project
ST MARY'S GROVE GARAGES, RICHMOND TW9
Drawing
CONSTRUCTION BUILD UPS

Drawing No.	Scale	Date
SMGG - 120 C4	1:5 @A1	09.11.2023

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