

LOFT SPECIFICATION

Dormer Roof:

- Silver solar reflective paint on 3 layers of roofing felt to BS 747 (top layer ht 180) hot bedded and laid to CP144 on 18mm exterior plywood onto tapered firings (1:40 fall) on softwood joists to size specified on drawings.
- For Cold Deck construction, cavities to be filled with 100mm Celotex GA4100 between joists and 50mm Celotex GA 4050 beneath joists.
- For Warm Deck construction 126mm of Celotex TD4126 over roof joists is required. Alternatively 116mm of Kingspan TR31 with 20mm Kingspan TP10 between joists to underside TR31. Other insulation products are acceptable and may be used as long as the correct thickness is utilized and the product holds relevant certification for building control purposes.
- For Pitched roofs TRISO Super 10 to be applied in conjunction with 50mm Celotex tuff-R GA3000 between rafters whilst still maintaining a 50mm air gap where appropriate. TRISO products to be installed in strict accordance with the manufacturers recommendations.
- UPVC fascia all around with 100mm gutter set to fall to 65mm down pipe, 25mm insect proof air gap all around fascia to promote cross ventilation to flat roof. 5mm Air gap to ridge. If a Warm deck roof construction is used which this will remove the requirement to ventilate the flat roof.
- ADEQUATE CROSS VENTILATION OF ROOF VOIDS IS ESSENTIAL WHERE NECESSARY.

Dormer Cheeks/Dormer Face:

- Plain tile hanging to dormer cheeks on 38 x 25mm battens on breathable paper onto 6mm Supalux or similar.
- 12mm sheathing ply fixed to 95 x 47mm frame work (unless other specified) on doubled up rafters (unless other specified) with 110mm Celotex GA4110 insulation between the studs or 90mm Kingspan TP10 with 20mm Kingspan over
- Finished internally with 12.5mm foil backed plasterboard. 12.5mm foil backed plasterboard on cheek studs.

Velux Roof Windows:

All Velux windows to be double glazed low energy and fitted to manufactures instructions, trimmed both side with doubled up rafters providing top and bottom trimmers.

Walls/Slope:

- 97 X 47 studs at 400c/c fixed to 95 X 47 head and sole plates, cavities filled with 100mm fibre glass wool insulation with 9.5mm plasterboard and skim finish.
- Sloping roof areas: TRISO-10 multi foil insulation in conjunction with a 50mm Layer of Celotex or other equal approved Rigid Foam insulation between the rafters to achieve the required u-value. The use of TRISO-10 is not permitted on flat roof constructions. Battens to be fixed to rafters to maintain 50mm air gap above insulation with 9.5mm plasterboard and skim internally. TRISO products to be installed in strict accordance with the manufacturers recommendations
- Internal walls 95 x 47 studs at 400c/c fixed to 95 x 47 head and sole plates with 9.5mm plasterboard and skim finish
- Staircase enclosure with 12.5mm plasterboard and skim both side (half hour fire resistance).
- A breathable membrane of Tyvek or similarly certified products is acceptable to Building Control and may be utilized to enable reduction of the 50mm air gap for ventilation to 12mm on pitched roof sections.

Stairs:

- Made to give equal risers of no greater than 220mm and equal goings of no greater than 240mm. Maximum pitch of new stair is 42 degrees. Width of new stair average of 840mm. Handrail provided to risk side of stair set 900mm above pitch line. Vertical spindles set at 99mm max spacing balustrades as handrail. A minimum of 1.9m head clearance to be achieved to the centre line of the new loft stair and landing to meet the requirements of Part K.

Windows/Ventilation:

- Glazing to critical areas to meet the requirements of BS 6206.
- All windows to be double glazed low energy with a U Value of 0.18 and to be fitted with trickle vents to achieve a minimum area of 5000mm²
- New shower/bathroom must have a window/windows installed with trickle vents to achieve a minimum area of 2500mm².
- Mechanical ventilator to be installed in bath/shower rooms to achieve an extraction rate of 15l/second.
- Where there is no open-able window in the bath/shower room then the mechanical ventilator is to be provided with a 15 minute overrun.
- Proprietary tile/slate vents to promote ventilation equal to 25mm continuous at eaves level and 5mm continuous at ridge level.

Structural Steelwork

1. All Materials and workmanship to be in accordance with BS5950
2. Structural Steelwork sections to be Grade S275JR for internal steel and S275J2 for external steel in accordance with EN10025:Part 2:2004
3. Bolts to be Grade 8.8 unless noted otherwise
4. Welds to be 6mm continuous fillet, unless noted otherwise
5. Contractor to verify all dimensions on site before commencing any work or making fabrication drawings which are to be issued to the engineer for approval. No dimensions are to be taken from drawings. Discrepancies are to be reported to the engineer prior to proceeding. The engineer requires 7 working days to check and make comments on any fabrication drawings.
6. Steel fabricator to design all connections for maximum moments and reactions indicated on drawings or within the calculation document issued to the contractor unless part of the engineers design brief.
7. Steelwork which is not required to be galvanized or encased in concrete to be blast cleaned/wire brushed free from mill scale, rust and other contaminants and painted with two coats of approved primer as soon as possible but no longer than 4 hours after cleaning.
8. Uncased columns and beams located within an external wall to have a minimum gap of 40mm from face of external or alternately 25mm minimum impermeable insulation from the face of the steel the the external wall, unless galvanized.
9. All steel encased in concrete to be unpainted.
10. All pockets formed in brickwork or blockwork for steel beams to be made good in C35 Concrete.
11. Bolted connections to have a minimum of 4 M16 Bolts per member, unless noted otherwise
12. Steels to have a minimum bearing of 100mm
13. External Steelwork and where otherwise noted to be galvanized to a minimum of 140 microns thickness unless noted otherwise and in accordance with BS728.
14. HSFG bolt connections are to be metal to metal and painted on site after the connection has been completed and load indicating washers are in their final position

Plumbing

- Re-site any tanks and pipes into roof void or new cupboard.
- Bath, shower, basin and bidet waste pipes to be 40mm, runs over 3 meters to be 50mm all connected with 75mm deep seal traps. WC waste pipe to be 110mm dia., all connected separately to existing SVP or new 110mm UPVC branch pipe.
- All waste pipes to achieve a minimum of 1:40 fall, rodding access at all change of direction.
- Existing vent pipe taken 900mm above window heads or 3000mm horizontally from any openings and fitted with cage.
- Alternatively an External Air Admittance Valve (rated BS EN 12380) can be used. To be a minimum of 200mm above the highest point of any wet entry point into SVP. Provided it is BS EN 12380 then it can be below window heads & less than 3000mm from opening windows.

Floor:

- Joists fixed to beams on galvanized joists hangers or notched into the beam web.
- All structural steelwork to be fire rated with intumescent paint.
- Joist and beams to be 20mm clear of existing ceiling construction
- Joists, Steel Beams and Steel Bearing Plates to be 50mm clear of chimneys & chimney flues.
- Doubled up floor joist under all partitions, unless other size specified.
- All multiple beams to be bolted at 300c/c using Timber Lok's which should be staggered and alternated on each side unless otherwise specified.
- Support (where necessary) the existing ceiling from new floor with straps etc.
- 22mm T & G moisture resistant chipboard flooring screwed onto softwood joist (See structural plan for joist sizes)
- 100mm Rockwool and chicken wire laid between and fixed to new joists to BRE Digest 208. This is an across the board detail unless the existing ceiling is 12.5mm plasterboard and there are no down lighters cut into the ceiling.
- Dwarf Wall
- New stud wall 95 x 47 studs at 400mm centres with 12.5mm plasterboard and skim inside 100mm Celotex in between studs.
- Studs bolted to header and sole plates with M12 bolts and timber connectors or use Timber Lok.

Fire Precautions:

Smoke Detection(SD) Fire Doors and Means of Escape

OPTION 1

- Smoke detectors installed in the hallway on the ground, first and new loft floor. Detectors to be mains operated and interconnected to BS 5839:6:2004, minimum grade D, category LD3.
- Doors between habitable rooms and the staircase enclosure to be minimum FD20 rated doors with 35x25mm stops. Suitable existing doors can be also upgraded using an approved intumescent coating. Details of the treatment and a commissioning certificate should be forwarded to Building Control.

OPTION 2

- Smoke detectors installed to all habitable rooms and the hallway on ground first and the new loft floor in the property. Mains operated and interconnected to BS 5839:6:2004, minimum grade D, category LD1.
- Up-grading/replacement of doors to the staircase enclosure may not be necessary.
- Any glazing to doors will need to be upgraded to fire resisting glass or other fire resisting material.

Please note that this option is subject to the agreement of Building Control after an initial inspection has been made and inspection of the doors to be retained carried out. The specific aspects of the property concerned will also be considered before approval to the use of this option can be given.

· The automatic fire detector and alarm system must be mains operated and linked and conform to BS5839 Part 6 Grade D Category LD2.

· The mains supply to the smoke alarm should comprise a single independent circuit at the dwellings main distribution board. In this case no other electrical equipment should be connected to this circuit.

· The smoke detection system MUST have a standby supply to comply with BS 5839-6.

· The smoke alarm system that includes a standby power can be connected to a regularly used local lighting circuit.

· The standby supply in the may take form of a primary battery, a secondary battery or a capacitor.

· Fire doors to new habitable rooms within the loft to be fitted with 3 x four inch steel butt hinges, if client requires brass or chrome hinges then these must be 30 minute fire rated and marked with a CE stamp and BS EN mark.

· Other doors to be upgraded as directed by the Building Control Officer.

· Glazing to, and above, doors which should plaster boarded over and beaded out. If fire rated glass is to be utilized, then this must achieve 30 minutes fire resistance and be set in intumescent putty/silicone with hardwood beading's.

Electrical Installation Work

All new electrical installation work shall be certified by a competent person as defined by Approved Document P (Electrical Safety) and a completed installation

certificate shall be submitted to Building Control on completion of work.

- 1 in 4 new light bulbs to be energy efficient, other light bulbs within the property may be upgraded to energy efficient bulbs to achieve this as an alternative.

Insulation Overview:

· **Cold deck:** 100mm Celotex GA4100 between joists and 50mm Celotex GA4050 under or 100mm Kingspan TP10 with 57.5mm Kingspan K17 insulated plasterboard beneath.

· **Warm Deck:** 126mm Celotex TD4126 or 116mm Kingspan TR31 with 20mm Kingspan TP10 between joists under TR31

· **Dormer Cheeks & Dormer Face:** 110mm Celotex GA4110 between studs or 90mm Kingspan TP10 between and 20mm over

· **Pitched Roof:** 50 mm Celotex/Kingspan cut between rafters (ensuring 50mm air gap if the felt in non-breathable) with Tri-iso multifoil insulation over.

· **All joints between insulation to be taped with insulating tape**

(Celotex/Kingspan and Tri-iso)

· **Dwarf Walls:** 100mm Celotex/Kingspan between studs & 20mm TP10 over

· **Internal Studs:** 100mm fiberglass wool

· **Loft Floor:** 100mm Rock wool onto chicken wire.

· Party Wall to stairs to be counter battened and dry lined with min 50mm insulation backed plaster board if possible

· Underside of staircase to remain un-insulated.

Concrete

1. All Materials and workmanship to be in accordance with BS8110 parts 1 & 2 – The structural use of concrete
2. Concrete quality to be 35N/mm2 at 28 Days unless noted otherwise, Max aggregate to be 20mm, Min Cement content 330kg/m3, max water to cement ratio 0.6
3. Reinforcement to be placed in accordance with BS8110
4. Concrete cubes to be taken at 7 & 28 Days to obtain required crushing strengths
5. Concrete quality for mass concrete foundations in non aggressive soils to be 25N/mm2
6. No reinforcement to be cut displaced or omitted without prior written agreement of the engineer.
7. Cover to reinforcement to be in accordance with BS8110 Part 1 tables 3.3 & 3.4
8. Ground Slab to be blinded into 50mm of lean mix prior to reinforcement being placed in position, blinding concrete mix to be 1/10 to all reinforcement bases except for water resisting structures.
9. If no soil investigation and been carried out then sulphate – resisting cement should be used within the ground.
10. For below ground structures provide waterproof concrete installed and detailed to specialist specifications.

Masonry

1. All Materials and workmanship to be in accordance with BS5628 Code of Practice for the Structural Use of Brickwork

2. Brickwork to have average crushing strength of 20.5N/mm2 unless noted otherwise

3. Brickwork belowground to be high density concrete blocks with a minimum compressive strength of 10N/mm2, above ground provide aerated lightweight blocks with a minimum compressive strength of 7.3N/mm2 unless nother otherwise

4. Mortar to be Class ii below ground and Class iii above ground unless noted otherwise.

5. 'Hyload' DPC or similar approved to all walls.

6. Wall ties to be stainless steel vertical twist type ties to comply with BS1243 at a maximum spacing of 900mm horizontally and 450mm vertically with a minimum embedment of 50mm in the mortar joint unless noted otherwise. Where cavity width is >90mm ties to be placed 450mm vertically and horizontally. Additional ties to be provided at the sides of all openings so that there is at least one tie at 300mm c/c maximum

7. Wall ties shall not slop inwards

8. Brickwork restraints to be in accordance with BS5628 PT 1 at 1200mm c/c restraints to brickwork and 1200mm c/c for vertical straps.

9. Joints to masonry to be a minimum of 6m centers for blockwork and with a minimum distance of 3m from the end of any wall in accordance with BS5628 and a maximum of 12m centers for brickwork.

10. At brick/block junctions, brickwork is to be block bonded into blockwork unless noted otherwise.

11. Where blocks are laid flat they are to be solid concrete blocks.

12. Lintel Bearings to be in accordance with manufacturers recommendations.

Comments

Notes:

The General contractor is responsible for the verification of all dimensions on site and shall inform the contract administrator of any discrepancies.

Do not scale from this drawing unless for Planning purposes. Use figure dimensions only for construction purposes.

Existing foundations, lintels and wall to be exposed if required by Building Control for assessment and upgrading if found inadequate.

Fire Precautions:

All doors marked with FD30 to be to current British Standards. All new fire doors to be fitted with 3x4" steel butt hinges or 3x30min fire rated hinges, with appropriate CE and BS EN stamps on each hinge if using brass or chrome.

Self contained mains operated interlinked smoke alarms (BS 5446) and fitted with battery backup to be provided to all landings and hall ceiling shown as (SD).

Date	Description	Rev
21.01.21	Council's amendments	E
15.12.21	Additional Details & Section	D
03.11.21	1st ceiling replaced	C
01.11.21	Client's amendments	B
29.10.21	Client's amendments	A
Oct. 2021	Preliminary Plans	Prelims

MARDESIGN

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Title

Building Regulation Notes

Project

14 Radnor Gardens, Twickenham

Ground floor side extension

Loft conversion with rear dormer

Date	Scale	Drawn
Oct. 2021	1/50 @ A3	SK
Job No.	Dwg No.	Checked by
Job No.	11	CM