

MANDERWOOD

Timber Engineering Limited

www.manderwood.co.uk

STANDARD TIMBER FRAME DETAILS

The enclosed details are indicative of current practise of Manderwood Timber Engineering and are used as guidance only.

Any timber frame structure manufactured and supplied by Manderwood Timber Engineering will be designed specifically for the project and will be detailed accordingly.

Construction of the timber frame must be carried out in accordance with drawings and details for construction.

All details must be read in conjunction with all relevant Architects and engineers' details.

We reserve the right to amend details to suit changes in building regulations and building practices.

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Timber Frame
Standard details

Joining Schedule

Soleplates

32x3.75mm dia rustproofed square twisted
Hilti NK 27 or 72 S12 or similar

2 per soleplate anchor
600c/s or greater, soleplate & soleplate anchors

External & Internal panels

50x3.0mm dia rustproofed plain head
75x3.35mm dia rustproofed plain head

90x4mm dia rustproofed plain head

Sheathing to panel
Bottom rail of panel to soleplate @ 300c/s and staggered
All panel to panel junctions @ 600c/s
Plasterboard noggins
38x89 noggins to ceilings at head of parallel partitions
Tee junction skew nail @ 600c/s

Walls/miscellaneous

75x3.35mm dia rustproofed plain head
40x2.65mm dia stainless steel ringed shank
Galvanized staples
Stainless steel staples

Timber firestop battens to timber frame
Loose brick ties to external panels
Polythene vapour barrier to external panels
60x65 mineral wool cavity barrier to external panels

FLOORS

90x4mm dia rustproofed plain head

75x3.35mm dia rustproofed plain head
32x3.75mm dia rustproofed square twist
60x3.35mm dia rustproofed ringed shank

Joist to header
Stitching headers and joists to panels
Solid strutting to joists
Furring batten strutting to joists
Joists and trimmers to hangers
Decking to joists in accordance with manufactures recommen-
dations Generally @ 150mm c/s

Timber Frame
Standard details

Nailing Schedule

Roof

65x3.35mm dia rustproofed plain head

75x3.35mm dia rustproofed plain head

90x4mm dia rustproofed plain head

65x3.35mm dia rustproofed lost head

40x2.36mm dia rustproofed lost head

32x3.75mm dia rustproofed square twisted

40x3.35mm dia rustproofed clout nails

External joinery

32x3.75mm dia rustproofed square twisted

Vent to fascia

Tiling battens and counter battens to rafters

Tilt ply to rafters

Wind bracing to trusses and peak panels

Plasterboard noggins

Eaves framing to rafters, external panels etc.

Spandrel panels to external panels below

38x89 ceiling batten to spandrel panel

Blockings to base of spandrel panel to take wind bracing

Ditto to flank walls

Verge sprocket to trussed rafters

Verge sprocket to verge rafter

Tank stand material

Fascias, bargeboards and any other exposed items

Soffit ply to bearers/sprockets

Truss clips to trusses and wallplates

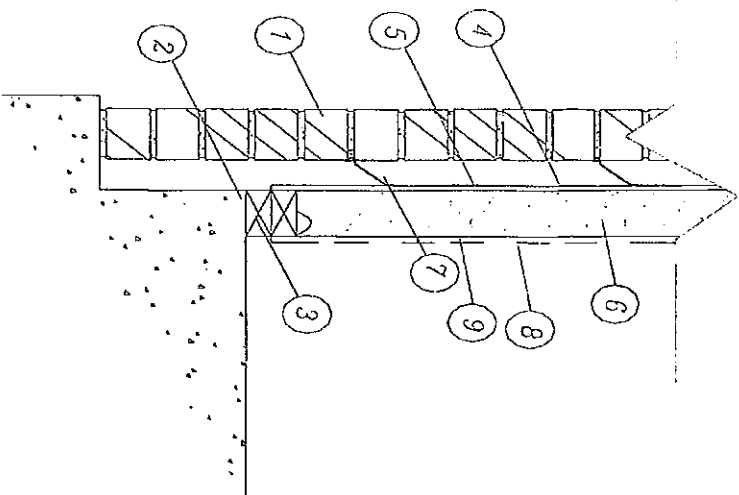
Truss hangers to trusses

Sarking felt to rafters

Frame cramps to windows/doors and external panels

**Timber Frame
Standard details**

Soleplate Fixing



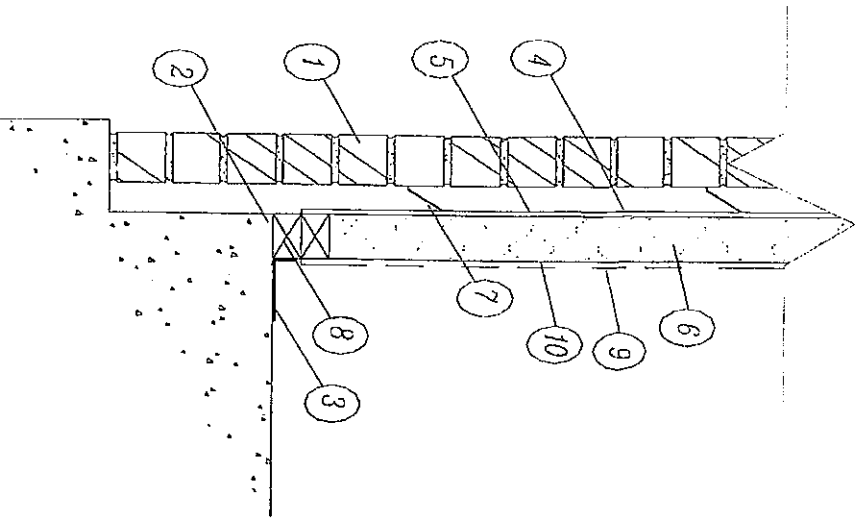
1. Masonry Walls
2. D.P.C
3. Bottom of Panel shot fired into Slab
4. Breather Paper
5. 9.5mm Sheathing Plywood
6. Insulation
7. Wall Ties
8. Plasterboard
9. Vapour barrier in 500g polythene with 100mm laps or vapour control plasterboard.

External Soleplate Fixing

1. Anchor plate to concrete floor using Hilti nails shot fired at centres as shown on soleplate layout
2. DPM is to be adequately lapped with DPC
3. Soleplates must be level, square & straight. Any mortar bed used for levelling must not exceed 20 mm
4. Butt joints in soleplate should not coincide with joints in panels

Timber Frame Standard details

Soleplate Fixing



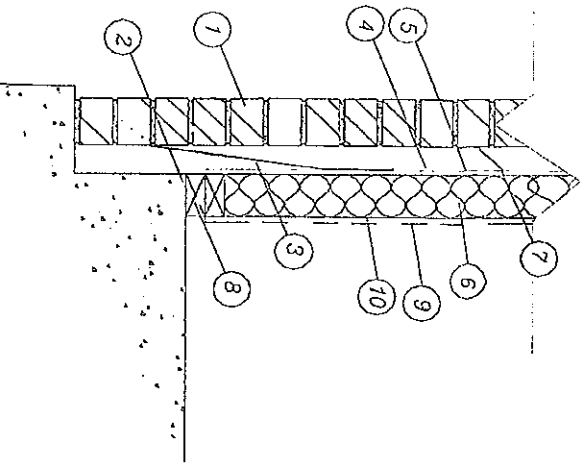
- 1. Masonry Walls
- 2. D.P.C
- 3. Soleplate Anchors
- 4. Breather Paper
- 5. 9.5mm Sheathing Plywood
- 6. Insulation
- 7. Wall Ties
- 8. Soleplate
- 9. Plasterboard
- 10. Vapour barrier in 500g polythene with 100mm laps or vapour control plasterboard

External Soleplate Fixing

1. Anchor plate to concrete floor using soleplate anchors, fixed as per nailing schedule
2. DPM is to be adequately lapped with DPC
3. Soleplates must be level, square & straight. Any mortar bed used for levelling must not exceed 20 mm
4. Butt joints in soleplate should not coincide with joints in panels
5. Soleplate anchors nailed @ 800c/s unless stated & each side of openings

Timber frame Standard details

Soleplate Fixing



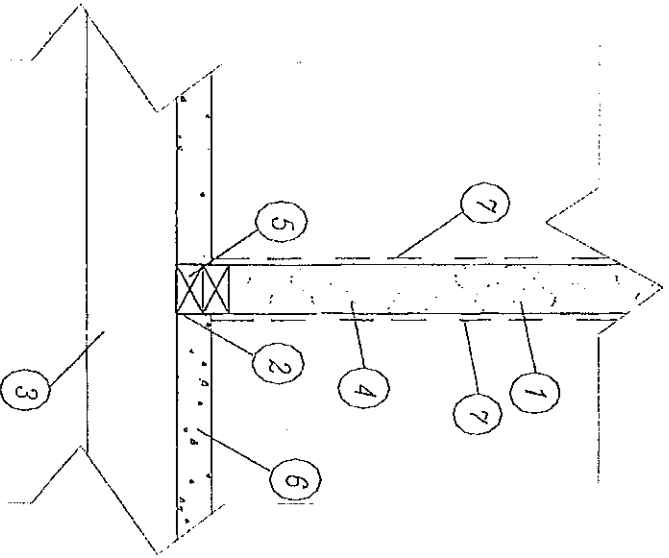
1. Masonry Walls
2. D P C
3. Restraint strap
4. Breather Paper
5. 9.5mm Sheathing Plywood
6. Insulation
7. Wall Ties
8. Soleplate
9. Plasterboard (supplied by others)
10. Vapour barrier in 500g polythene with 100mm laps or vapour control plasterboard

Restraint strap fixing

1. Anchor plate to concrete floor using Hilti nails shot fired at centres as shown on soleplate layout
2. DPM is to be adequately lapped with DPC
3. Soleplates must be level, square & straight. Any mortar bed used for levelling must not exceed 20 mm
4. Butt joints in soleplate should not coincide with joints in panels
5. Restraint strap Must be screwed to masonry & timber frames, nailing is not acceptable To be spaced no more than 2m c/s

Timber frame Standard details

Soleplate Fixing



1. Panel
2. D P C
3. Slab
4. Insulation
5. Soleplate provided as a
Screed (if Applicable)
6. Screed (if Applicable)
7. Plasterboard

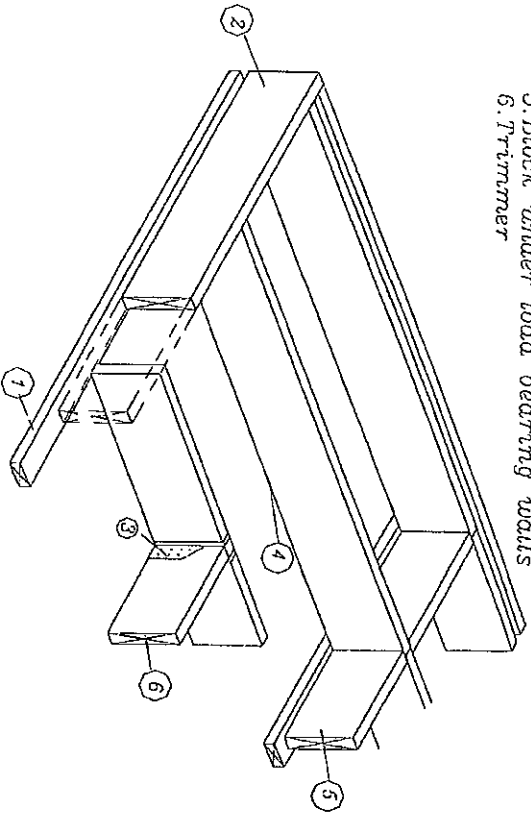
Internal Soleplate Fixing

1. To be fixed as external panels
2. Soleplates must be level, square & straight. Any mortar bed used for levelling must not exceed 20 mm
3. Butt joints in soleplate should not coincide with joints in panels
4. Soleplate anchors nailed @ 800c/s unless stated & each side of openings

Timber Frame Standard details

Joist fixing

1. Soleplate or topplate
2. Rimboard
3. Hanger
4. Traditional joist
5. Block under load bearing walls
6. Trimmer

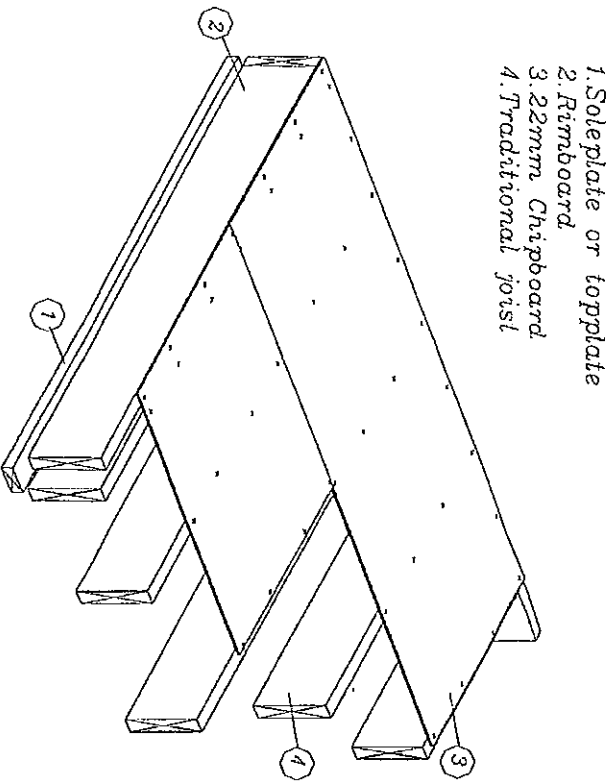


GENERAL NOTES

1. Actual joist positions and sizes to be in accordance with joist layout drawings provided
2. Rimboard on standard joists are to be flush with O.S.B. of panels, Rimboard on LPI joists are to be flush with panels
3. Where non-loadbearing partitions run parallel with joists noggin's are required underneath
4. One run of solid strutting is required if the joist span exceeds 2.4m, if it exceeds 4.5m then two runs of solid strutting will be required.
LPI joist's do not require strutting

**Timber Frame
Standard details**

Chipboard decking fixing

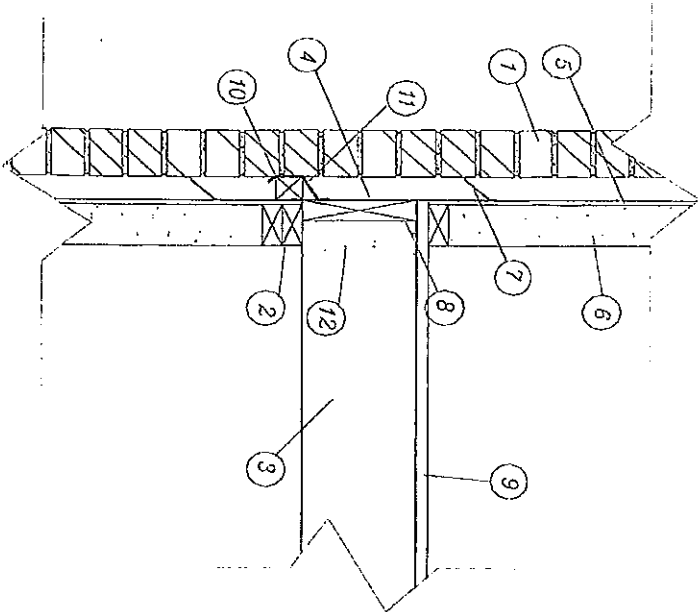


General notes

1. Actual joist positions and sizes to be in accordance with joist layout drawings provided
2. Flooring to edge of rimboard
3. All T & G edges to be glued using water resistant PVA
4. Maximum nailing around perimeter is 300mm c/s
5. Maximum nailing along joists is 400mm c/s
6. Nails to be punched 2mm below surface of decking

**Timber Frame
Standard details**

External Wall First Floor Junction



1. Masonry Walls
2. Topplate
3. Joist
4. Breather Paper to overlap rimboard
5. 9.5mm Sheathing Plywood
6. Insulation
7. Wall Ties
8. Rimboard
9. 22mm Flooring
10. Fire Stop
11. DPC
12. Blocking

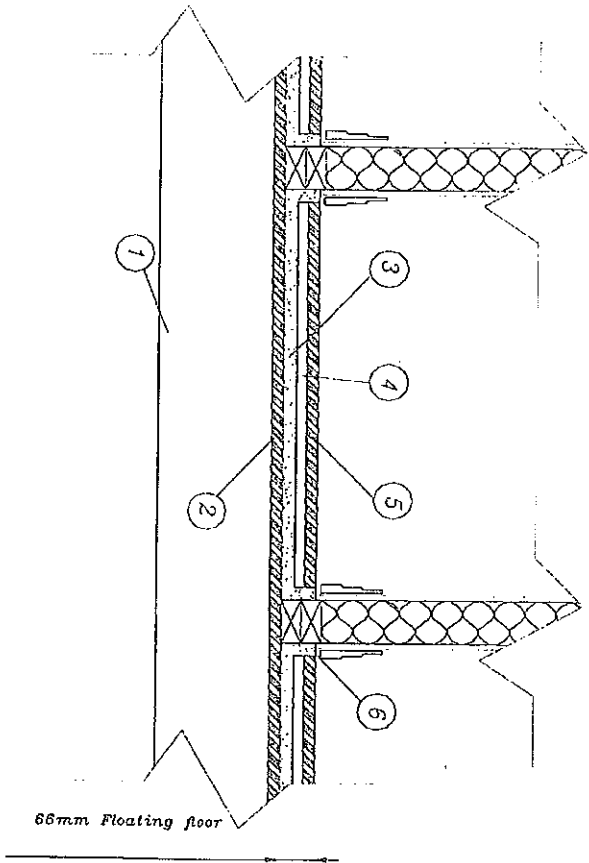
GENERAL NOTES

1. Actual joist positions and sizes to be in accordance with joist layout drawings provided
2. Breather paper is to overlap rimboard
3. Rimboard on standard joists are to be flush with O.S.B of panels. Rimboard on LPI joists are to be flush with panels
4. DPC is to be used to cover fire stop
5. If a joist is running parallel with the external wall, then the joist must be situated half on the wall & half of the wall to allow plasterboard to be fixed
6. Blocking is only required when 140mm panels are used (between each joist)

**Timber Frame
Standard details**

Floating Floor

1. Joist's
2. 22mm chipboard
3. 25mm fibreglass slab
4. 19mm plasterboard plank
5. 22mm chipboard
6. 3mm space between skirting & floor with resilient seal

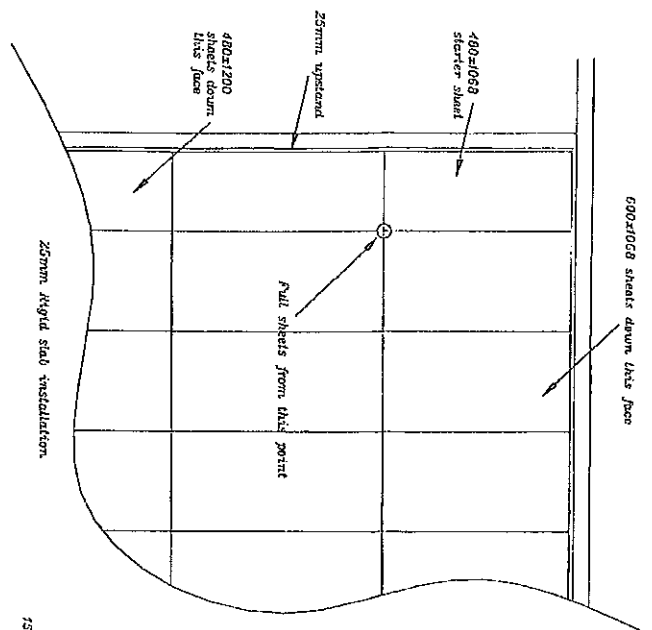


General notes

1. A 10mm expansion gap is to be left around perimeter walls and abutments
2. All T & G edges to be glued using water resistant PVA
3. Chipboard to be bonded to 19mm plasterboard plank with 9mm dabs at 300 c/s of GYPROC sealant
4. Joints between chipboard and plasterboard to be staggered, and board directions reversed
5. 25mm fibreglass rigid floor slab density 75kg/m³ turned up at edges against walls

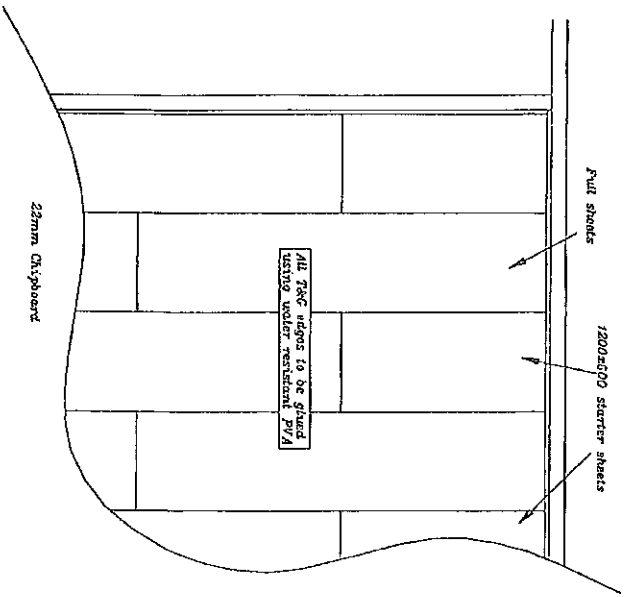
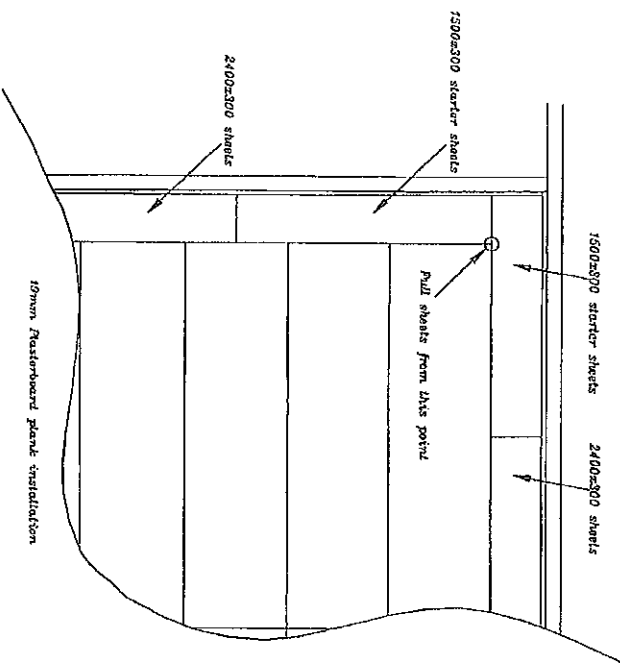
Timber Frame Standard details

Floating Floor Installation details



32mm 'off cuts' from cut sheats
to be used to form 25mm upstand's
round panels & partitions

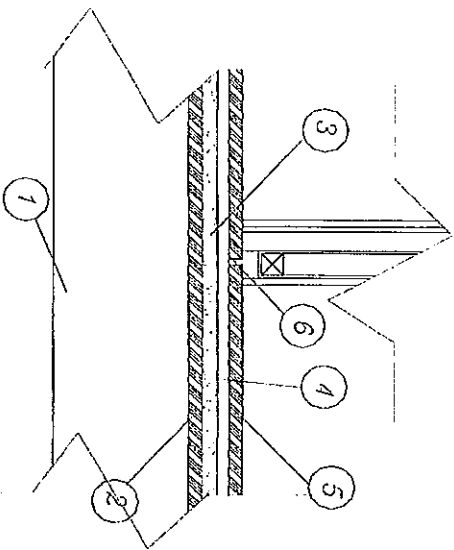
ways ensure that slab, plasterboard
ribs & chipboard are started from
same corner of area to be covered.



Timber Frame Standard details

Floating Floor

- 1. Joist's
- 2. 22mm chipboard
- 3. 25mm fibreglass slab
- 4. 19mm plasterboard plank
- 5. 22mm chipboard
- 6. 10mm expansion gap



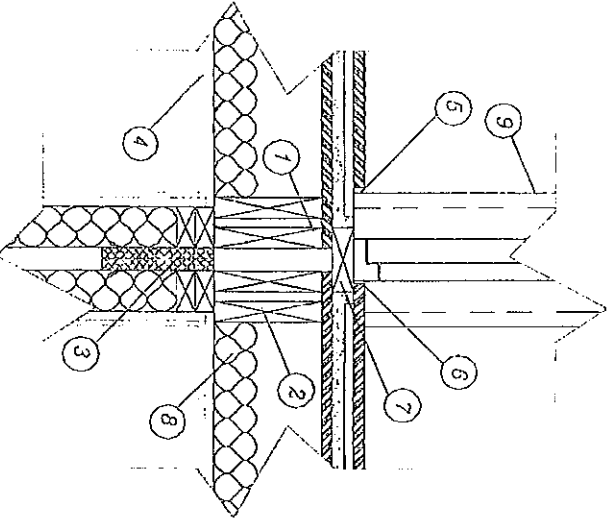
INTERNAL DOOR THRESHOLD DETAIL

- 1. 10mm expansion gap provided within the 22mm t & g chipboard decking, located under internal door
- 2. Expansion gap can be filled with appropriate compressible material if required, by others

Timber Frame Standard details

-floating floor

1. Header joist
2. Solid blocking between joists
3. 50x300mm wide wire reinforced mineral wool cavity barrier
4. plasterboard
5. 10mm space between door
6. 3mm space between skirting & floor with resilient seal
7. 38x140mm support for door frame
8. 100mm fibreglass insulation
9. Plasterboard to local authority's requirements

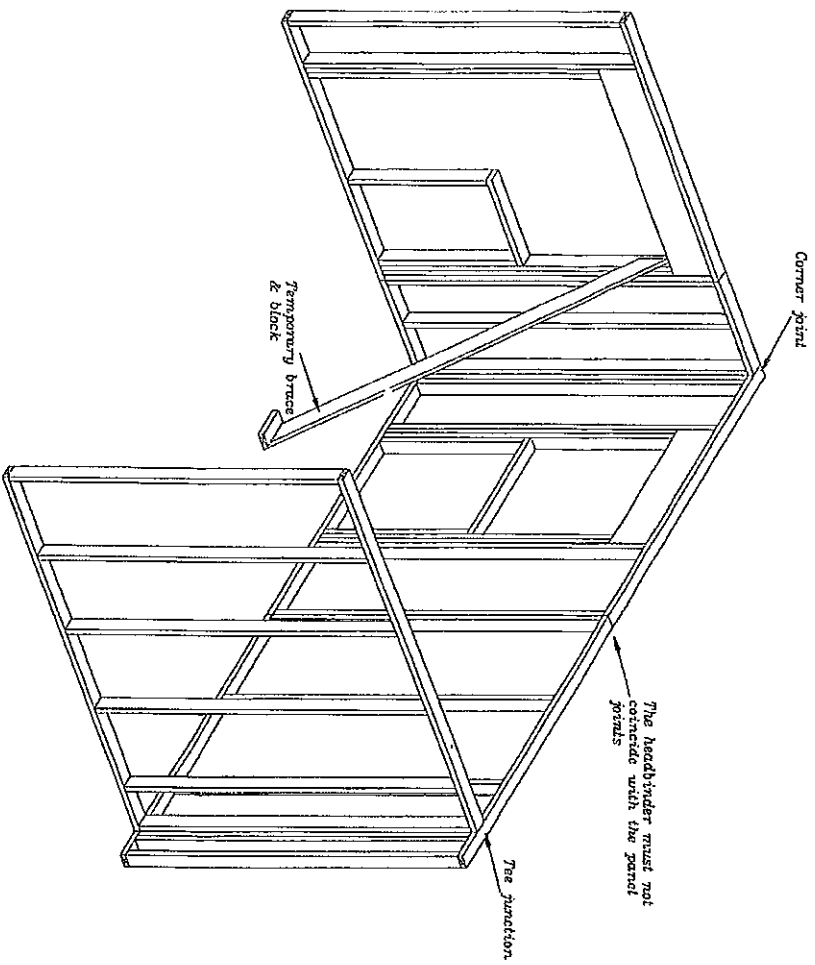


Flat entrance door threshold

1. 10mm space between door frame and floor finish to have a resilient seal
2. 38x140mm batten to provide support for door frame sill, skew nailed to joists
3. Flat entrance door to be fire resistant to local authority requirements

Timber Frame Standard details

Panel erection

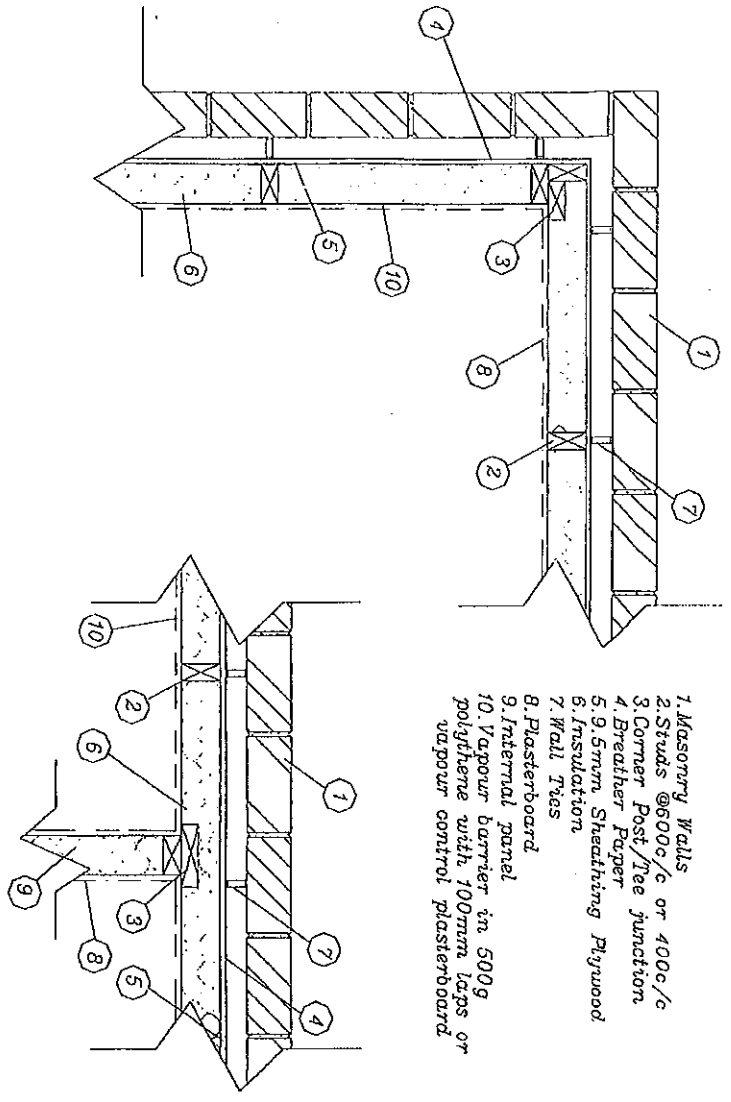


General notes

1. Set out panels in accordance with panel layout supplied with working drawings
2. External panels the sheathing is on the external side
3. Check working drawings when positioning Internal panels which have ply to see what side to position the ply
4. Ensure that panels forming walls are straight and plumb before fixing in permanent position
5. Fix temporary wall braces to each butt joint and at a maximum 4m cts. during the erection sequence

Timber Frame
Standard details

Panel erection



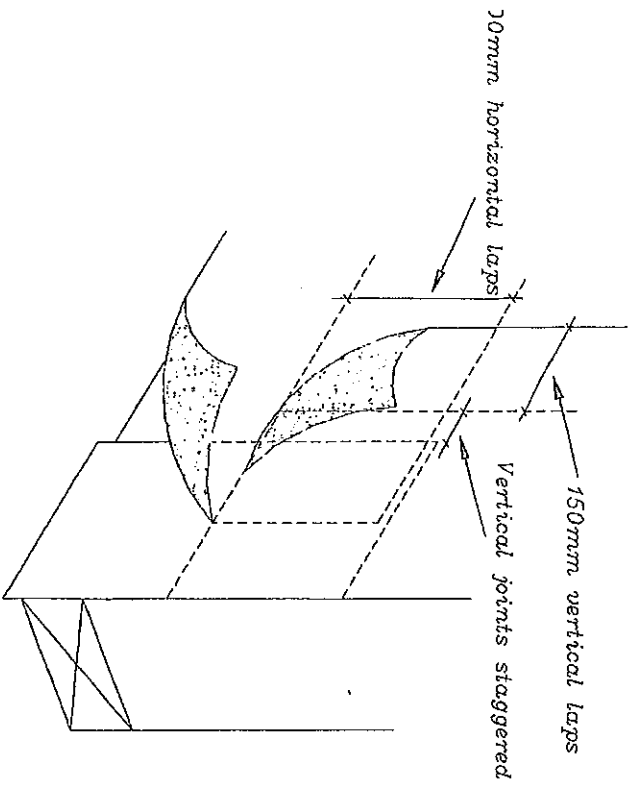
- 1. Masonry Walls
- 2. Studs @600c/c or 400c/c
- 3. Corner Post/Tee junction
- 4. Breather Paper
- 5. 9.5mm Sheathing Plywood
- 6. Insulation
- 7. Wall Ties
- 8. Plasterboard
- 9. Internal panel
- 10. Vapour barrier in 500g polythene with 100mm laps or vapour control plasterboard

General notes

1. When panels meet at butt joints, corner joints or tee joints, nail vertically at 300c/s
2. Nails to be staggered 30mm on butt joints from edge of frame
3. Nails to be staggered 20mm on corner joints and tee joints from edge of frame
4. When internal panels run parallel with joists or trusses, noggins are required to be nailed at 90 deg to bottom of joists or trusses and to top of panel. 2 nails are required into top of panel
5. Noggins are to be spaced at 600c/s

Timber Frame Standard details

Breather paper

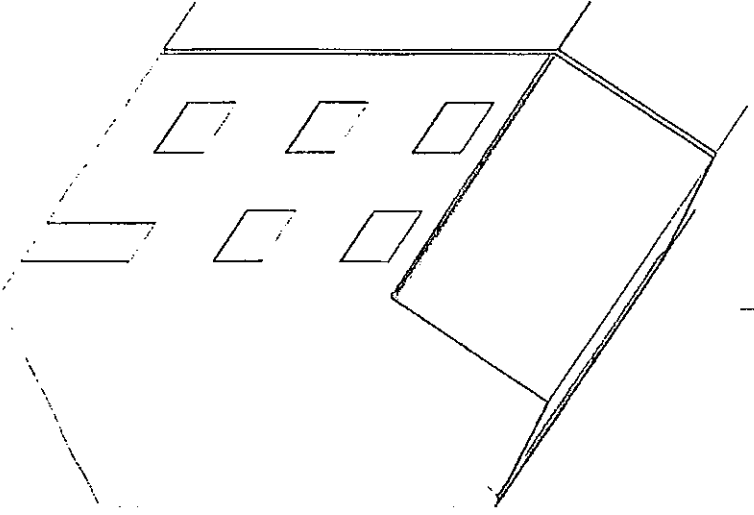
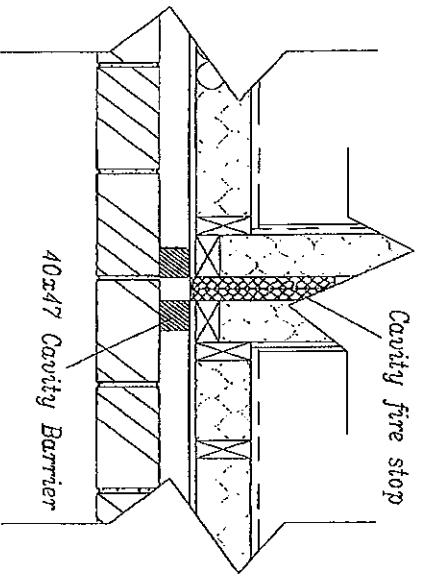


General notes

1. Fix breather paper in horizontal layers with a minimum of 100mm laps over lower layers to ensure run-off
2. Vertical joints must have a minimum lap of 150mm
3. Vertical joints should be staggered wherever possible
4. Breather paper must continue a minimum of 25mm below the lowest timber member
5. Breather paper may not be used as a DPC

Timber Frame Standard details

Cavity barrier

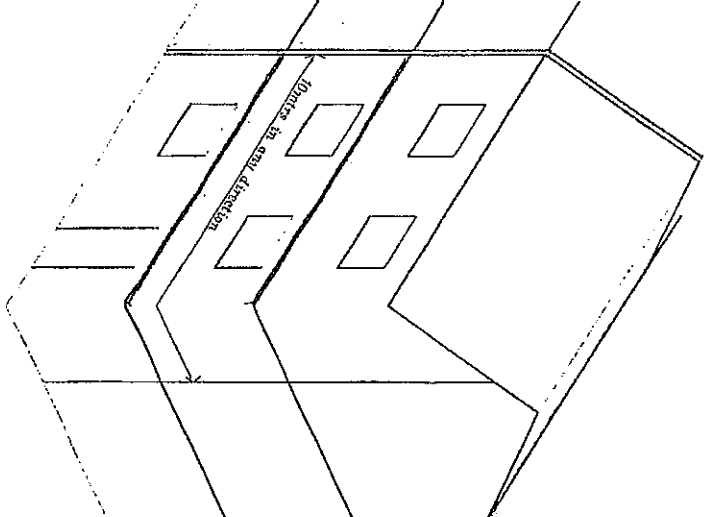
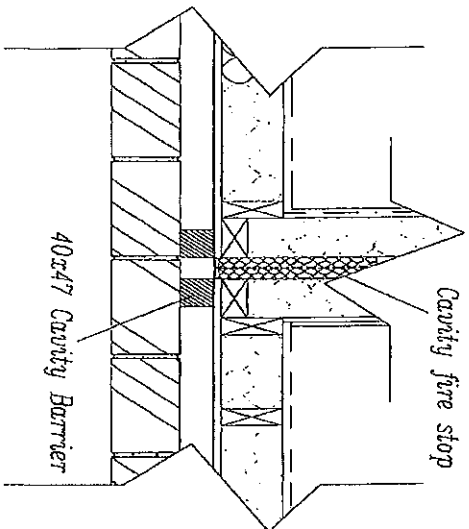


Dwelling houses

1. Cavity barrier at verge and eaves. Link eaves and verge cavity barriers
2. Fire stopping required at junction of wall and external wall and roof
3. 40x47 sw batten around windows, doors and extract fans etc
4. Cavity barrier at party walls as shown on section
5. It is essential that the continuity of cavity barriers is maintained at eaves level
6. 50x300mm wide wire reinforced mineral wool cavity fire stop between timber frame walls

Timber Frame Standard details

Cavity barrier



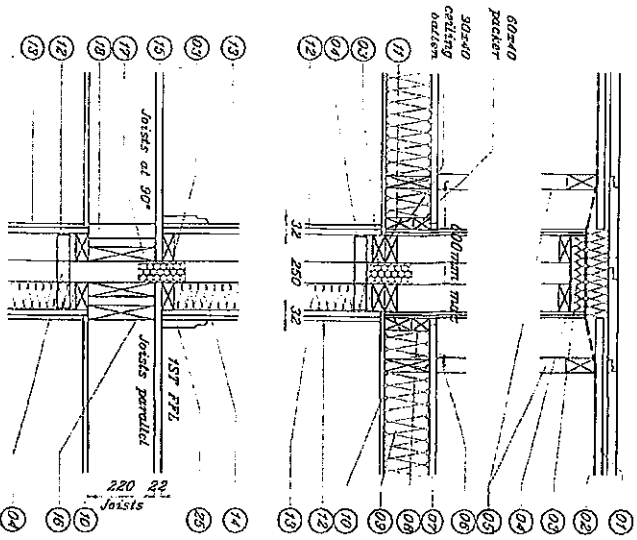
Except Dwelling houses

1. Cavity barrier at verge and eaves. Link eaves and verge cavity barriers
2. Fire stopping required at junction of wall, external wall and roof
3. 40x47 sw batten around windows, doors and extract fans etc
4. Cavity barrier at compartment walls and floors
5. It is essential that the continuity of cavity barriers is maintained at eaves level
6. 50x300mm wide wire reinforced mineral wool cavity fire stop between timber frame walls

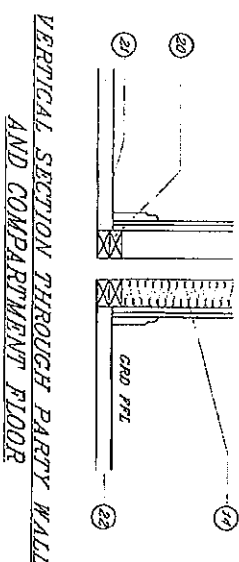
Timber Frame Standard details

Party walls

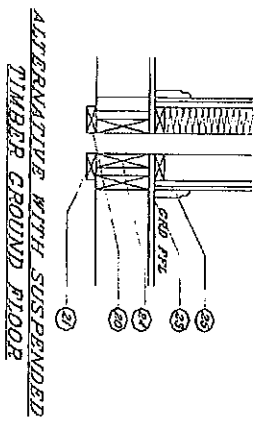
cavity barrier
packed tight between
roof fixing battens



- Party wall*
01. 23x38 fixing battens
 02. Roof sheathing felt
 03. 50x100mm wide wire reinforced general wood cavity barrier
 04. 34x124x40mm gully ms struts at 1800mm c/c fixed with 40x2.5mm gully nails
 05. Roof trusses at 600mm c/c max.
 06. 75x35mm gully nails
 07. 2x16 layers of 12.5mm plasterboard fixed to break joint
 08. 85x100mm binders
 09. Roof insulation
 10. 12.5mm ceiling plasterboard
 11. Batten fixing
 12. 19mm plasterboard plank
 13. 12.5mm plasterboard
 14. 90mm thermal insulation in one leaf of party wall only
 15. Standard flooring finish
 16. Double spaced floor joists
 17. Header joist
 18. Solid blocking between joists
 19. 12.5mm ceiling plasterboard
 20. Pressure treated soleplate
 21. DPC (Damp Proof Course)
 22. Floor finishes as required
 23. Suspended timber floor finish
 24. Suspended timber floor joists
 25. Timber skirting



VERTICAL SECTION THROUGH PARTY WALL AND COMPARTMENT FLOOR



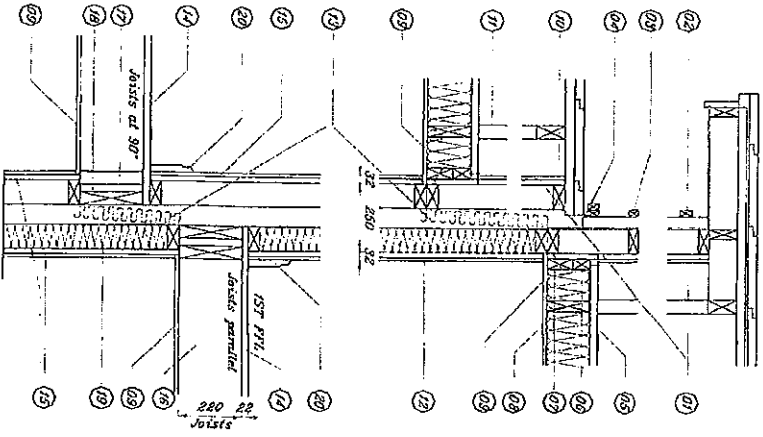
ALTERNATIVE WITH SUSPENDED TIMBER GROUND FLOOR

Party walls

1. Where timber joists are at right angles to the party wall, full joist-depths blocking should be installed between each joist on the line of the edge of the lining to the wall to the block air paths. The blocking should be nailed to the wall plates above and below. The outer joists should be blocked tightly to the perimeter walls.

Timber Frame Standard details

Party Walls



- Steps and staggeres*
01. 12.5mm plasterboard on 19mm plank with staggered joints.
 02. Plain vertical lining on 38x25mm lining battens on 47x40mm counter battens.
 03. Suspenders sheathing finished with breather paper.
 04. Lead flashing dressed up behind tiling battens.
 05. 25x100mm ceiling tie bracing.
 06. 60x40mm parker.
 07. 90x40mm batten.
 08. Raof insulation.
 09. 12.5mm ceiling plasterboard.
 10. 38x25mm support batten.
 11. Party wall roof const. as details.
 12. 19mm plank and 12.5mm plasterboard layers to extend of staggered timber frame.
 13. 50mm thick wire reinforced mineral wool cavity barrier to extend across the full change of levels at 1st floor and ceiling heights.
 14. Standard flooring finish.
 15. 19mm plank and 12.5mm plasterboard.
 16. Double spaced joists.
 17. Solid blocking between joists.
 18. Header joist.
 19. 90mm thermal insulation in one leaf of party wall.
 20. Skirting.

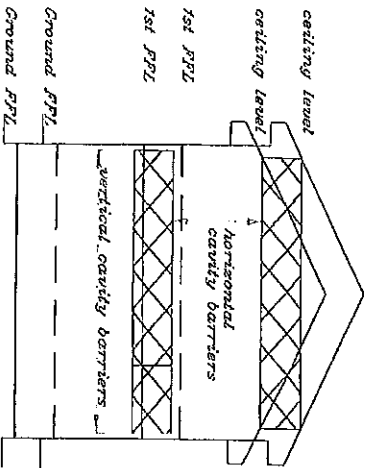


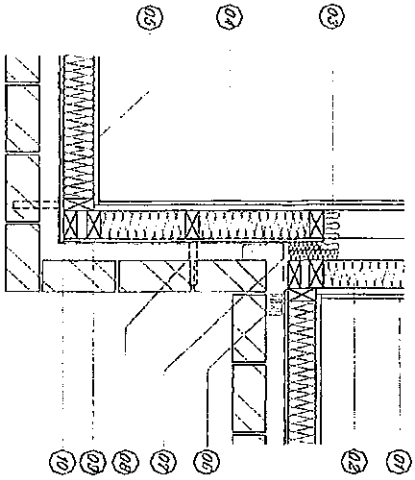
Diagram showing positions of Cavity barriers and Fire Stops

Steps and staggeres

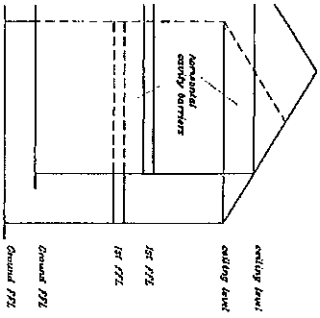
1. Wall area between roofs to have half hour fire resistance externally and to be finished with light weight cladding

Timber Frame Standard details

Party Walls



*PLAN SECTION THROUGH
STAGGERED PARTY WALL*



*VIEW SHOWING POSITIONS OF
1ST, 2ND AND 3RD PFLS*

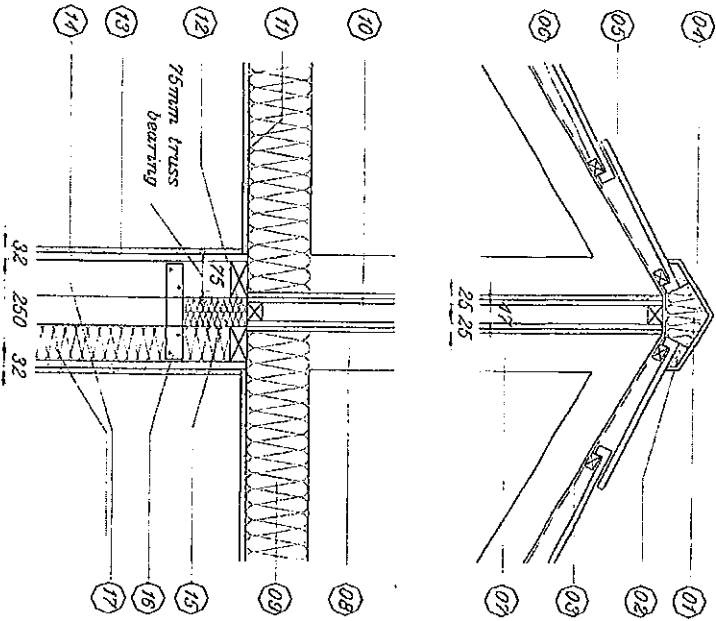
- Stagers**
01. 15mm plaster and 12.5mm plasterboard layers
 02. 50mm thermal insulation to one leaf of party wall only.
 03. 50x300mm wide wire reinforced mineral wool cavity batten
 04. 30mm thermal insulation in external wall timber studwork
 05. Reinfboard and vapour barrier
 06. External wall mineral wool cavity batten
 07. 600mm wide band of site-faced bricklayer paper
 08. 750mm frame brick wall ties membrane
 09. Sheathing layer and bricklayer paper
 10. 300mm wide band of site-faced bricklayer paper.

Stagers

1. Wall area between roofs to have half hour fire resistance externally and to be finished with light weight cladding

**Timber Frame
Standard details**

Party walls

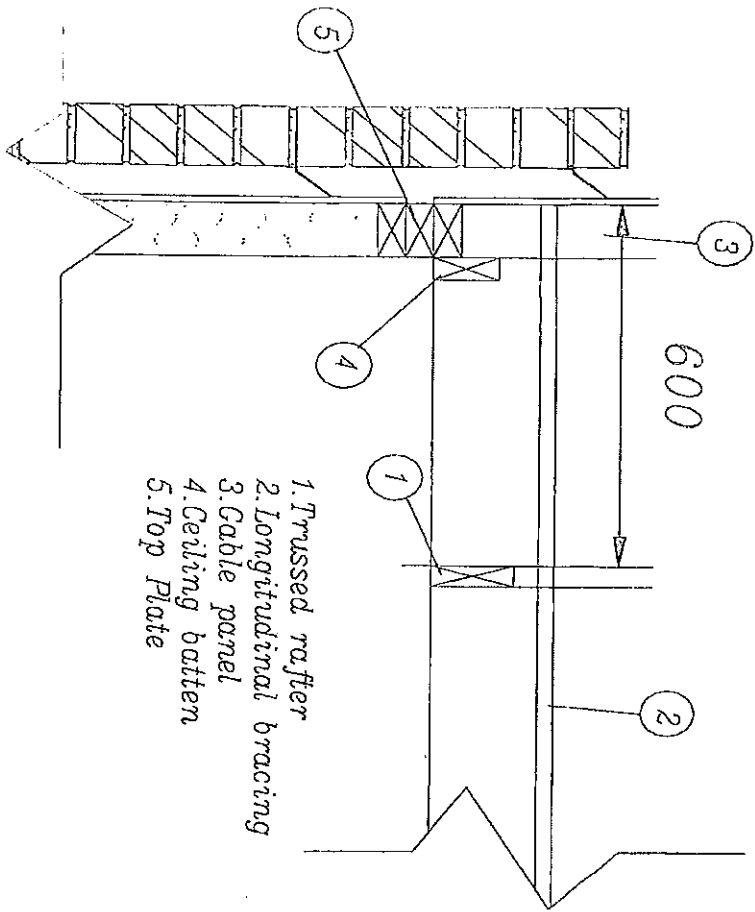


COMPARTMENT WALL THROUGH
ROOF SPACE

- LEGEND**
01. Ridge - fire-stopping with flexible mat mineral wool insulation, to comply with B.S. 3958.
 02. Continuous roof tile edge bedding.
 03. Roof sarking felt.
 04. Universal angle ridge tile.
 05. Concrete interlocking tiles.
 06. 25x38mm fixing battens.
 07. Pressed rafters.
 08. 38x77mm stud wall covered with 2 layers 12.5mm plasterboard, to both sides, laid with staggered joints before panels are lifted into position and before roof trusses are erected.
 09. Roof insulation.
 10. Compartment wall frame constructed from hollow vacuum-treated 38x77mm timber studs at 600mm c/c.
 11. 12.5mm ceiling plasterboard.
 12. Jig cut the cavity at 1800mm c/c max to provide required support for the compartment stud wall frame.
 13. 19mm plasterboard plank.
 14. 12.5mm plasterboard.
 15. 50mm thick x 300mm wide wire reinforced mineral wool cavity barrier.
 16. 3x40x240mm galvan. m.s. strips at party wall/joint wall junctions, fixed with 40x2.65mm galvan. nails.
 17. 38x65mm timber studwork wall panels with 90mm thermal insulation, flexible strips hand pressed between studwork. Insulation only required in one leaf of compartment wall.

Timber Frame Standard details

Roof

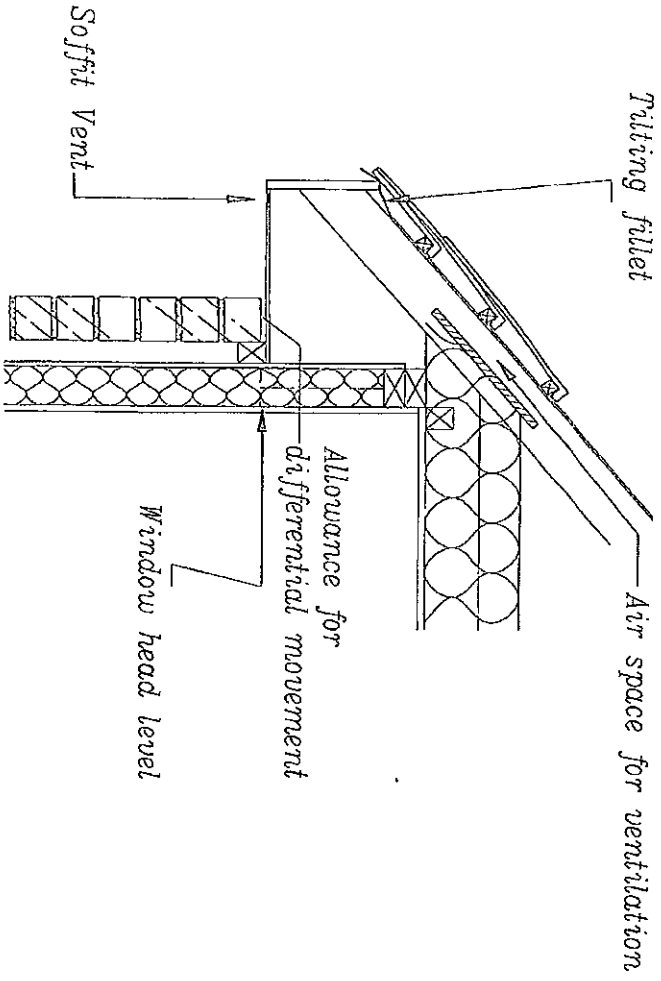


Setting out

1. Put Noggins between studs to be able to fix longitudinal bracing
2. This setting out is only for standard truss types, if attic trusses or raised tie trusses are to be used then the truss is to positioned 50mm away from the gable end
3. See Truss layout provided with working drawings for setting out of trusses, metalwork and loose infill

Timber frame Standard details

EAVES

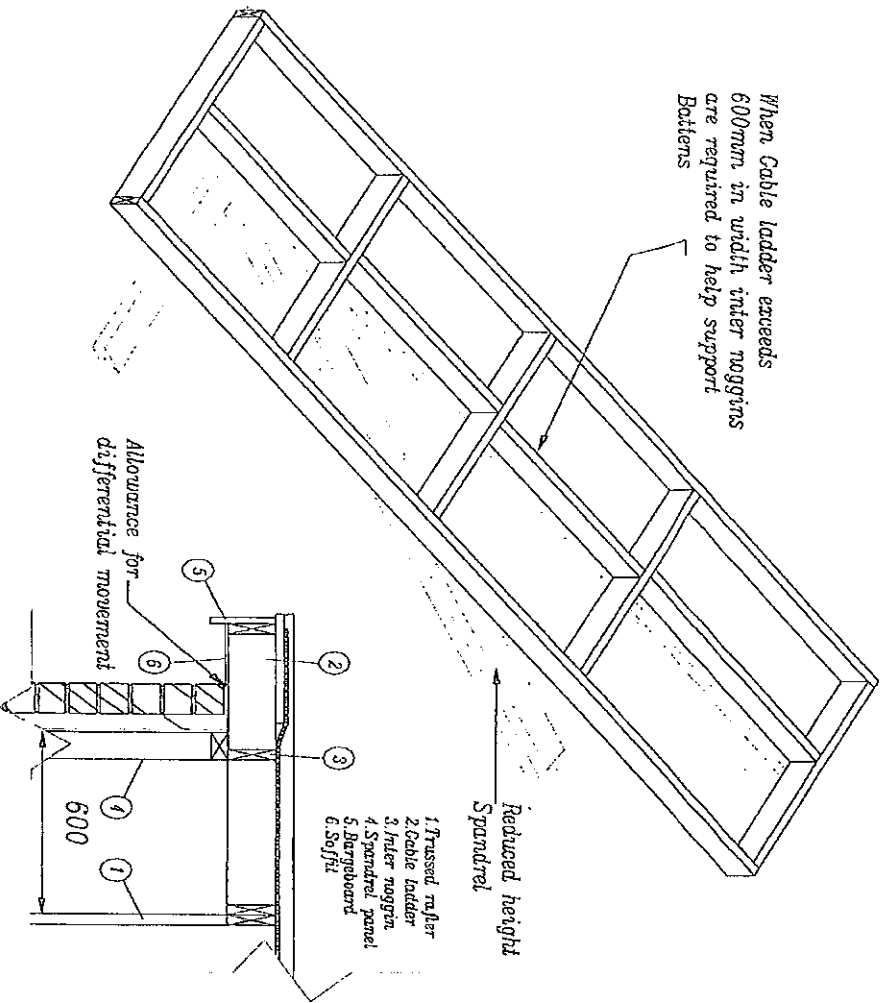


GENERAL NOTES

1. This detail will vary depending on the pitch of the roof, the projection required and the soffit level, which in turn is often related to the window head level.
2. The relevant points to consider are:
 - *Ventilation to roof space via soffit or proprietary over-eaves vents
 - *Adequate tilting to eaves tile to maintain the tile line
 - *The underlay extends into the gutter
 - *Any cavity between the cladding and the timber frame wall is closed at the top by an appropriate cavity barrier
 - *Roof insulation does not inhibit roof ventilation
 - *Adequate precautions are taken to prevent differential settlement

Timber Frame Standard details

Verge

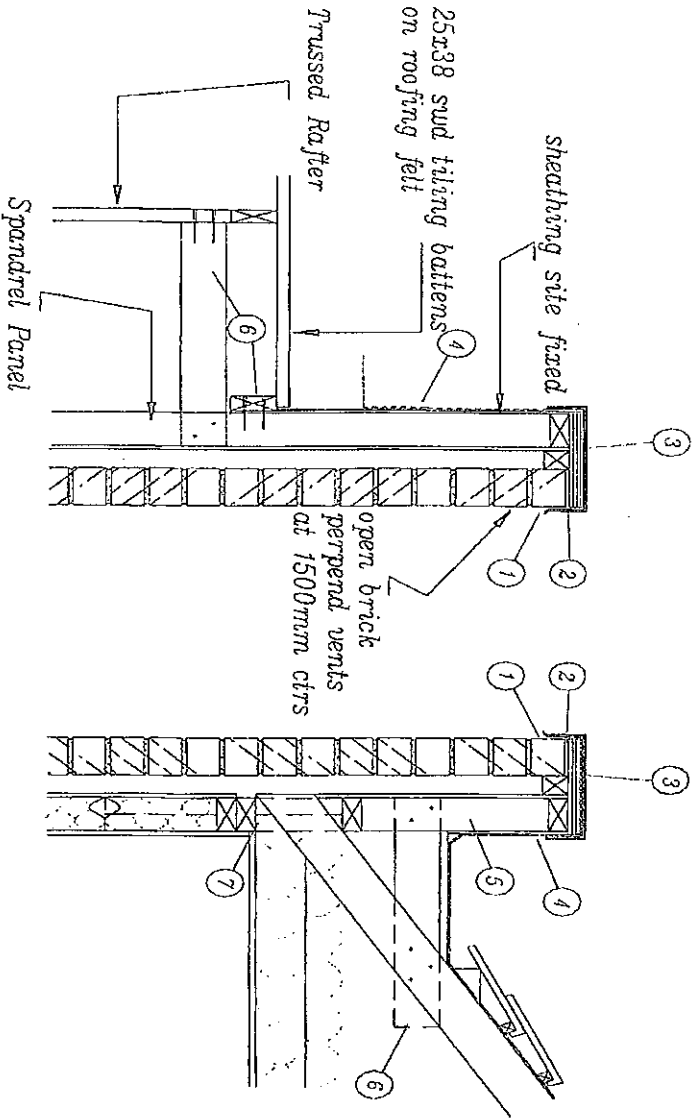


General Notes

1. No soffit bearer is required due to the soffit being fixed directly to the under side of the gable ladder.
2. Attic and raised tie trusses are to be positioned 50mm away from spandrel panel
3. The Timber size of the gable ladders is not the same as rafter size of the truss.
4. Insulation is only required in the spandrel panel if the roof is habitable.

Timber Frame Standard details

Parapet Eaves & Verge

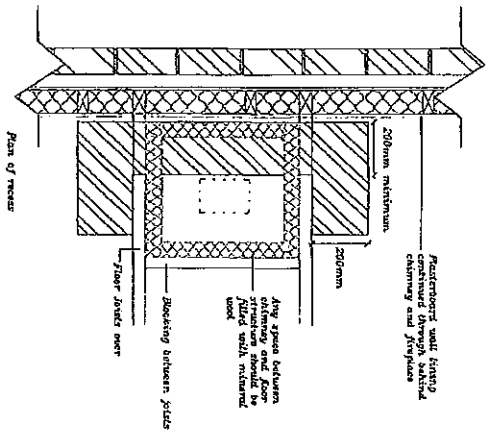
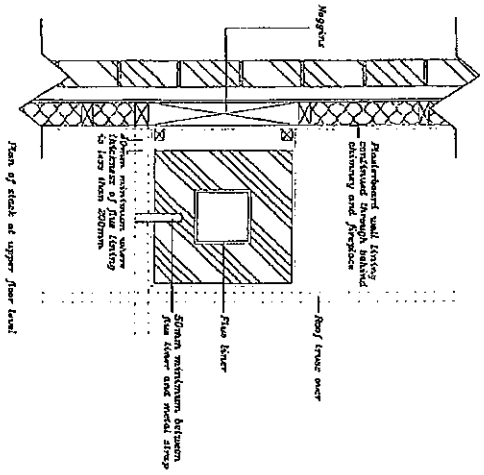
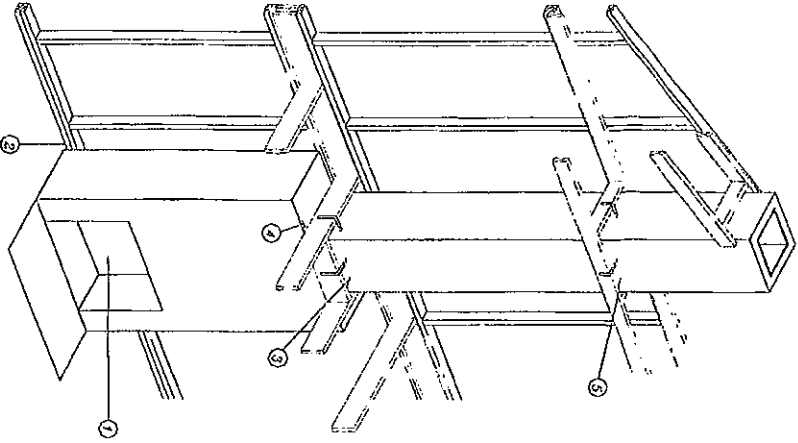


GENERAL NOTES

1. Stone coping to architects specification. Must be stable & self supporting
2. Shrinkage Cap
3. Pressed metal capping on 19x260mm plywood cap
4. Lead flashing or similar to architects specification
5. Parapet timber frame panel with sheathing site fixed
6. 38x89mm bearer
7. Solid blockings between trusses to support parapet frame

**Timber Frame
Standard details**

Chimney

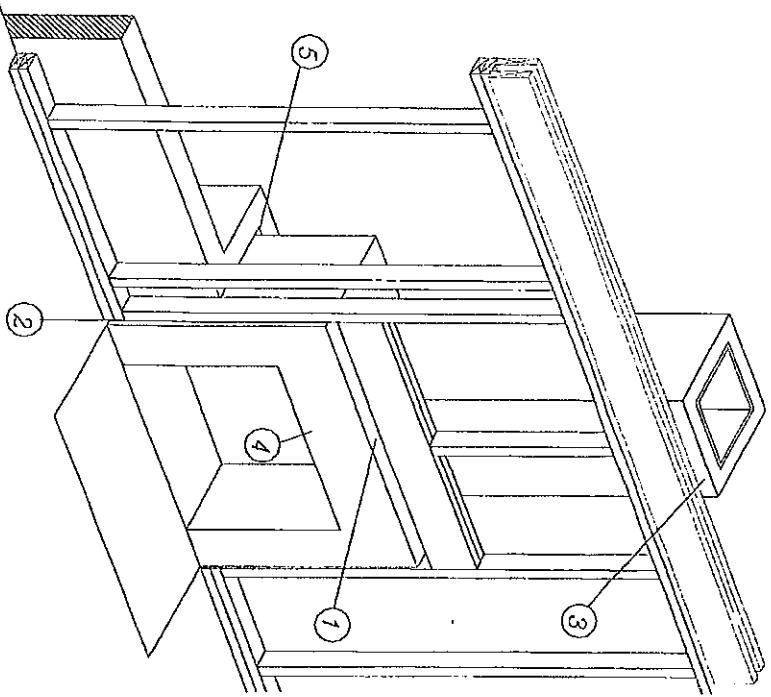


INTERNAL CHIMNEY

1. 200mm minimum non combustible back to fireplace recess
2. Plaster board lining continued behind chimney and fireplace
3. 40mm minimum if thickness of non combustible material around flue liner is less than 200mm
4. Gap for timber movement
5. See point 3 above

Timber Frame Standard details

Chimney

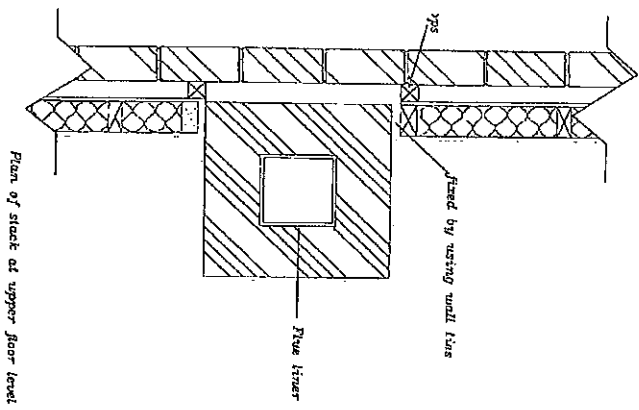
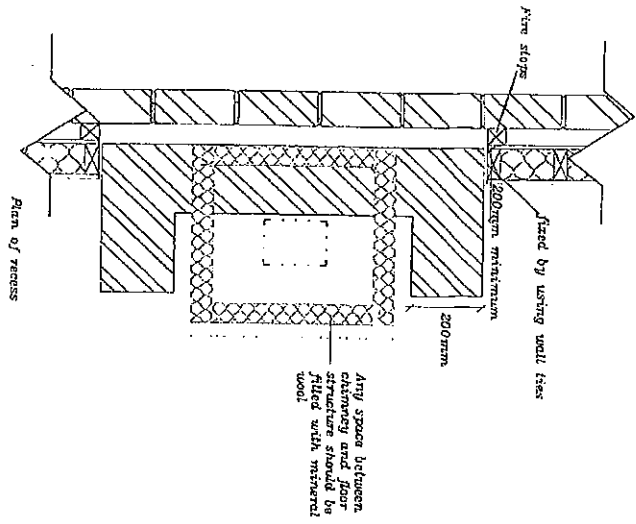


External Chimney

1. Movement gap between timber and masonry to be filled with mineral wool
2. Mineral wool fire stop between fire and chimney
3. 40mm minimum if thickness of non combustible material around flue liner is less than 200mm
4. Timber lintel must be at least 300mm from inner face of flue recess
5. 50mm cavity maintained around chimney with cavity wall ties as required

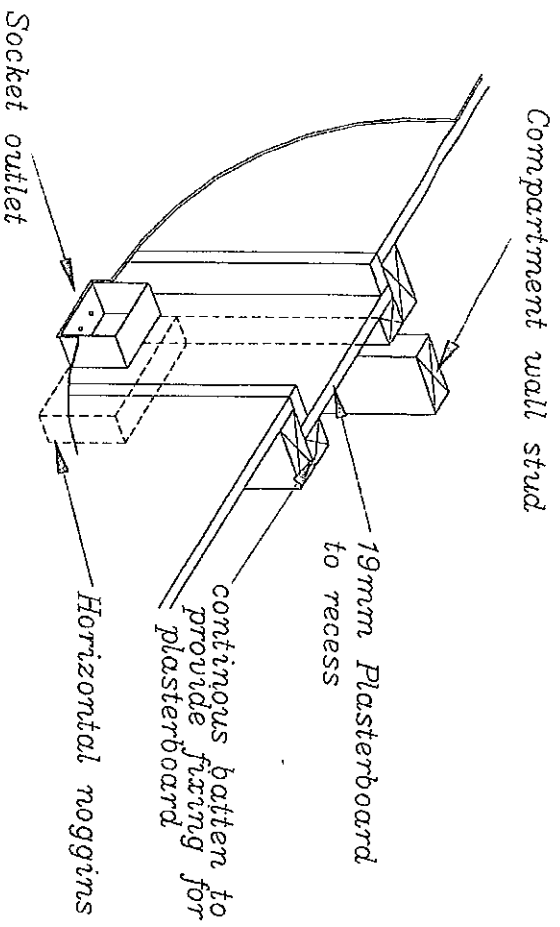
**Timber Frame
Standard details**

Chimney



- ### Interpretation of chimney
1. See working drawings for joist and truss trimming around the chimney area
 2. Build wall ties into chimney after construction of the timber frame to stabilise
 3. Mineral wool fire stop between fire and chimney

Services

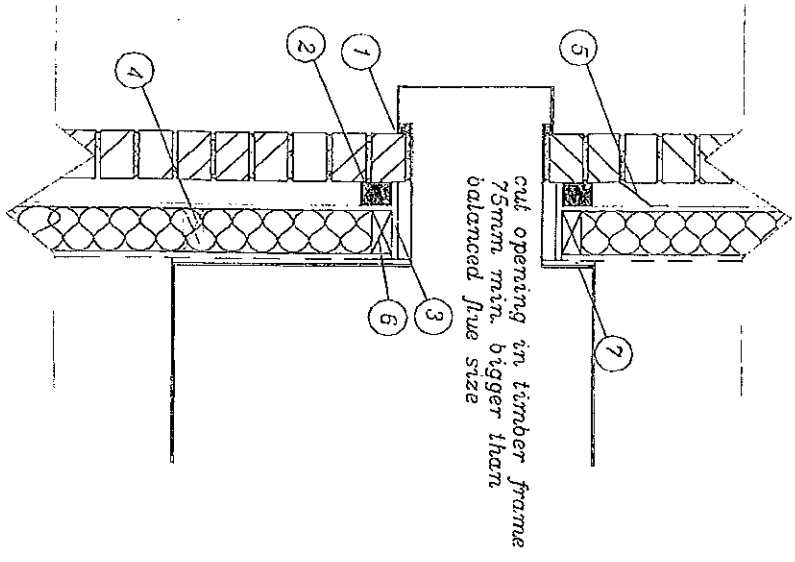


Party wall electrics

1. Wiring can be located in the floor, roof or wall voids in timber frame construction
2. Wherever possible avoid placing the electrical fittings in separating party walls
3. Any services penetrating into the party wall must be adequately fire stopped and sealed for acoustic and sound requirements
4. No outlets should be fixed or installed back to back
5. See party wall details for insulation requirements

Timber Frame Standard details

Services



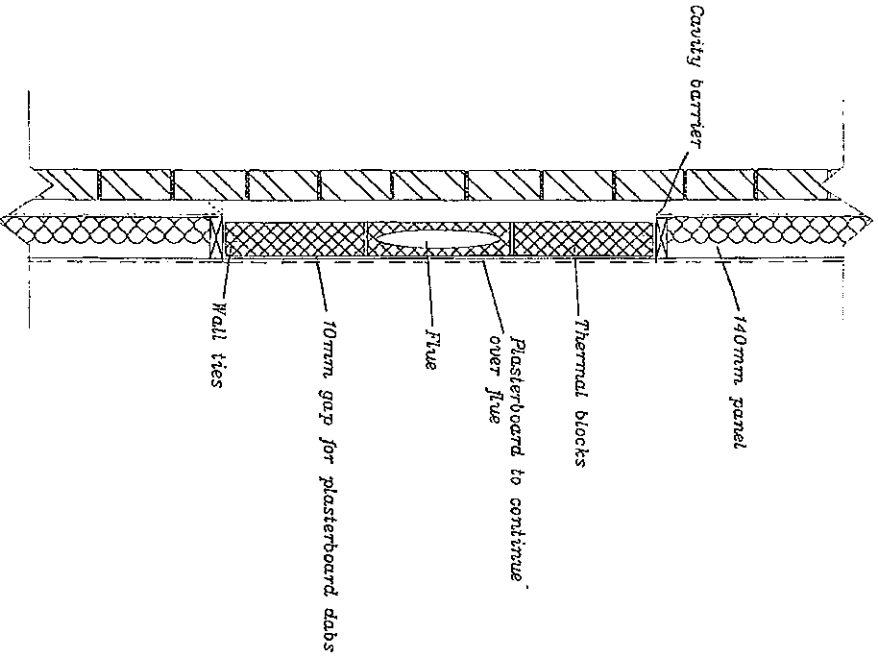
- 1. Mastic sealant
- 2. Wire reinforced mineral wool cavity barrier
- 3. 12.5mm layer of asbestoslax or similar
- 4. Batten for fixing of boiler
- 5. Breather paper cut short and dressed over dpc
- 6. Battens to form surround of boiler
- 7. 12.5mm layer of asbestoslax or similar

Balanced flue

1. Balanced flue size to suit heating appliance. Refer to manufacturer's details
2. Balanced flue terminal to be protected if less than 2m above ground level
3. Refer to boiler manufacturer's installation details, which may have more onerous installation requirements

**Timber frame
Standard details**

Services

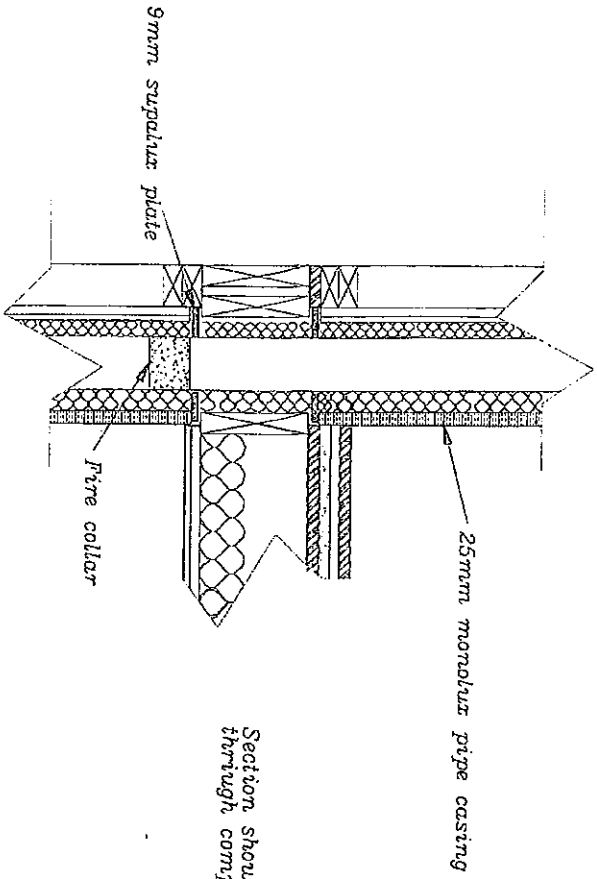


CONCRETE FLOORS

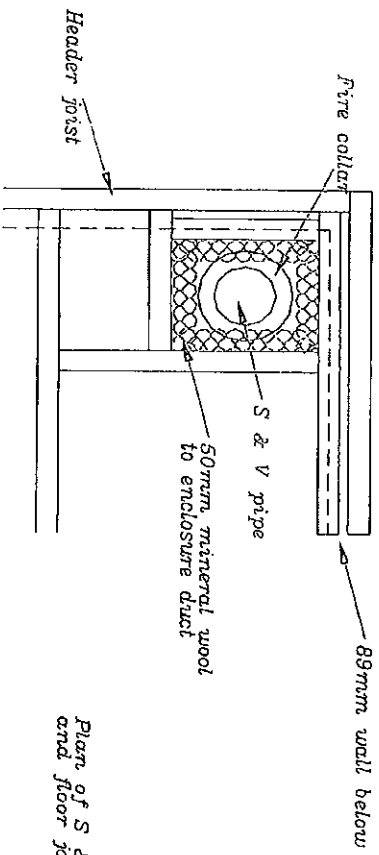
1. The flue is to be done after the completion of the timber frame

Timber Frame
Standard details

Services



Section showing S & V pipe through compartment floor



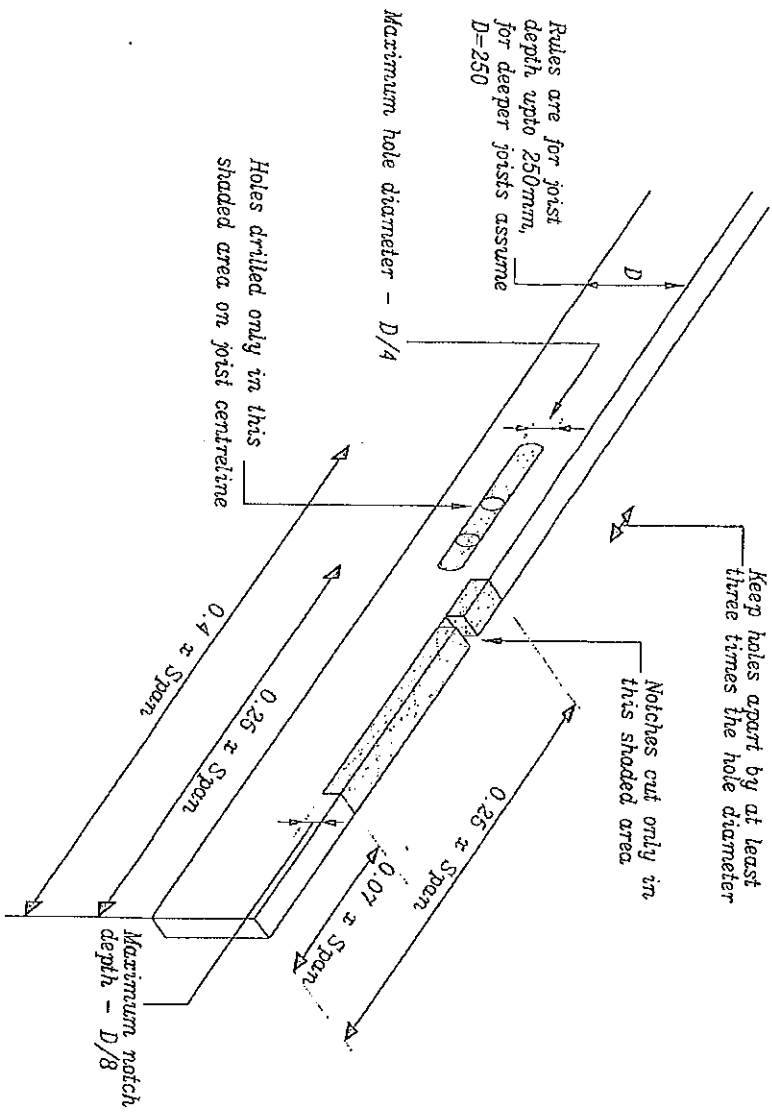
Plan of S & V pipe and floor joists

Soil and vent pipe

1. Soil and vent pipe to be a minimum of 65mm away from joists
2. Maximum diameter of pipe is 160mm
3. Refer to manufacturer's details for fixing
4. Cut away plywood sub-deck and install 9mm supalux plate (approx. 200mm square for 100mm dia. Pipe) with the hole for pipe cut out

Timber Frame Standard details

Services

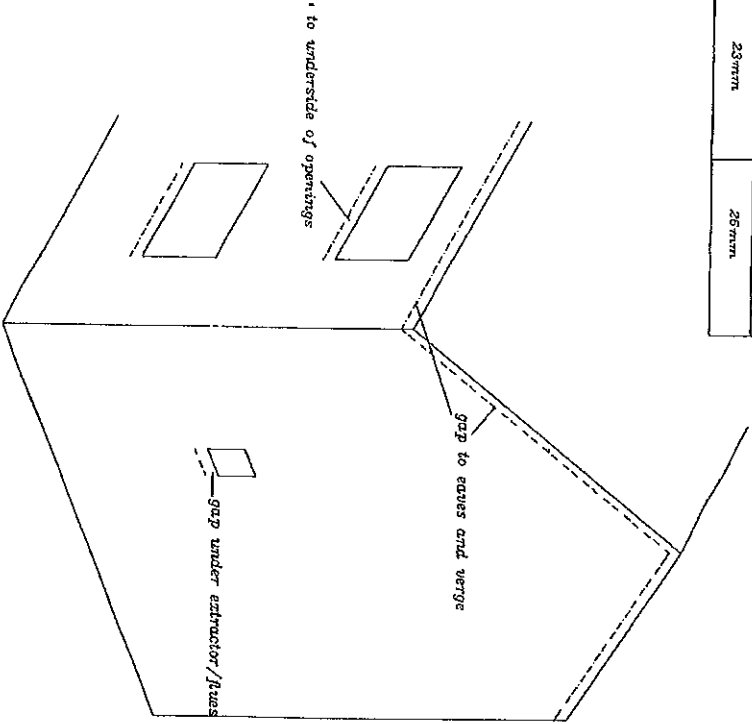


Notching & Holes in Joists

1. Notches may be at the top or bottom of the joist, but not both at the same end. If notches are limited to the area between 0.1 and 0.2 of the span, the maximum notch depth may be increased to 0.15 x joist depth
2. See standard details if I-joist system is to be used.

Vertical Shrinkage

| Location of openings | Solid ground floor | Suspended timber ground floor | Eaves and verges |
|----------------------|--------------------|-------------------------------|------------------|
| Ground floor | 3mm | 5mm | 8mm |
| 1st floor | 5mm | 11mm | 14mm |
| 2nd floor | 15mm | 17mm | 20mm |
| 3rd floor | 21mm | 23mm | 26mm |

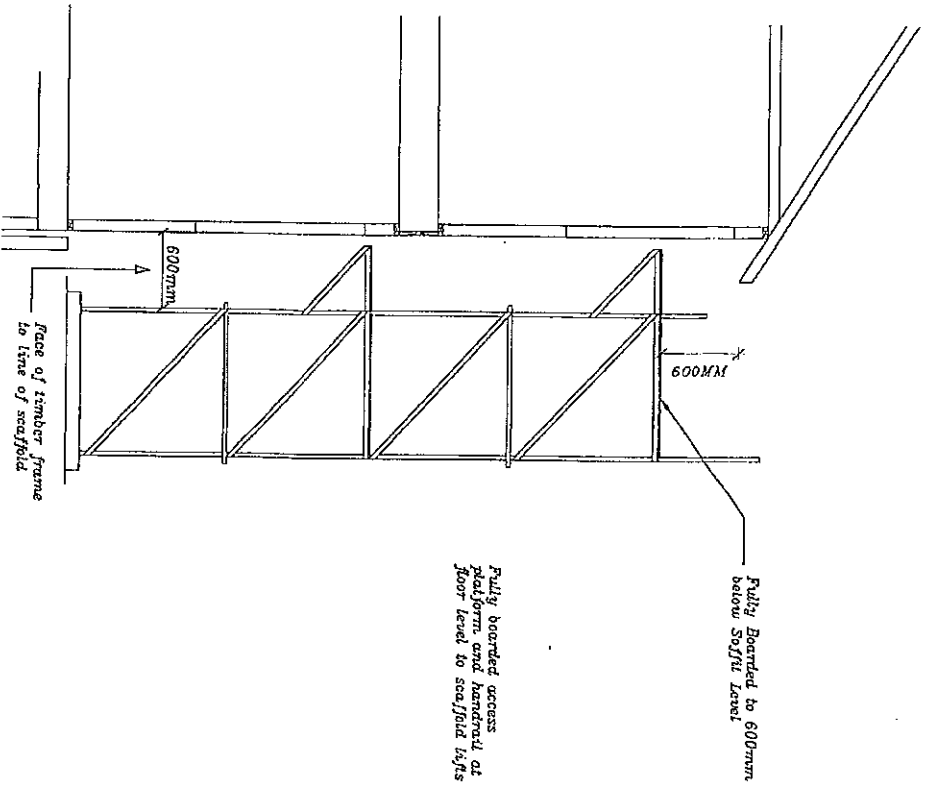


General notes

1. Differential vertical movement between the timber frame and masonry claddings will occur
2. Unless provision is made at the underside of openings and at roof soffit levels, damage may result

Timber Frame Standard details

Scaffolding requirements



Scaffolding

1. Scaffolding to cover all sides except the front when starting job
2. Scaffolding to be sorted before commencement on site
3. Scaffolding required on the front when up to first floor level

Timber Frame Standard details