



Good Practice Guide

Helping you raise the bar in construction

Welcome to Version 3 of the LABC Warranty Good Practice Guide.

Written by LABC Warranty’s Technical Team, the Good Practice Guide complements the guidance in the LABC Warranty Technical Manual by bringing our standards to life with examples of best practice from real sites.

What’s new in this edition

Version 3 is a significant shift in the content of the Good Practice Guide. The Guide now puts quality of workmanship and quality of new home construction front and centre.

Where we previously included sections on health and safety, communication, and site tidiness, we now put the spotlight on the quality of a build and what we know to be best practice in pursuit of achieving quality new homes.

This shift in our guidance reflects a corresponding change in LABC Warranty’s awards judging, putting individual unit quality on a pedestal and judging the quality of site management against that criterion.

LABC Warranty’s goal is to work with you to produce sites you’re proud to put your name to, and places that residents are proud to call home.

The Good Practice Guide, along with the Technical Manual and close collaboration with your Risk Management Surveyor, is how we achieve that goal together.

- Sarah Dee Shapland, Head of Technical Services, LABC Warranty

What we look for on your site

When an LABC Warranty Risk Management Surveyor visits your site, every plot or block inspected will be rated against the quality observed in each individual plot or block.

The table below shows how workmanship on your site is evaluated during a warranty inspection, helping to highlight strengths and recognise the quality demonstrated across individual plots or blocks.

	Quality	Definition
1	Very Poor	Significant number of non-compliances with our Technical Manual and/or Building Regulations. Significant risk of a claim and imminent danger in regard to health and safety.
2	Poor	Many minor non-compliances and/or some significant non-compliances with our Technical Manual and/or Building Regulations.
3	Requires Improvement	Some minor non compliances with our Technical Manual and/or Building Regulations.
4	Good	Complies with our Technical Manual and Building Regulations.
5	Very Good	Complies and shows extra attention to detail beyond requirements.
6	Outstanding	Complies and the work seen cannot be improved upon.

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SECTION 1

Foundations

1.1 Work and Site Preparation

- Provide clear and well-prepared access to the plot area in readiness for construction activities and any inspections.
- Assess and plan for any factors that may influence the planned excavation work e.g. proximity of trees, drains and services, and tight boundaries.
- Have clear plans and controls for the storage of soil excavated from the site. Managing the risk of contamination from imported aggregate or construction debris is essential – notably where soils are to be re-used in landscaping.



The early stages of preparation, with areas taking shape. Areas are clear and routes around the site established.



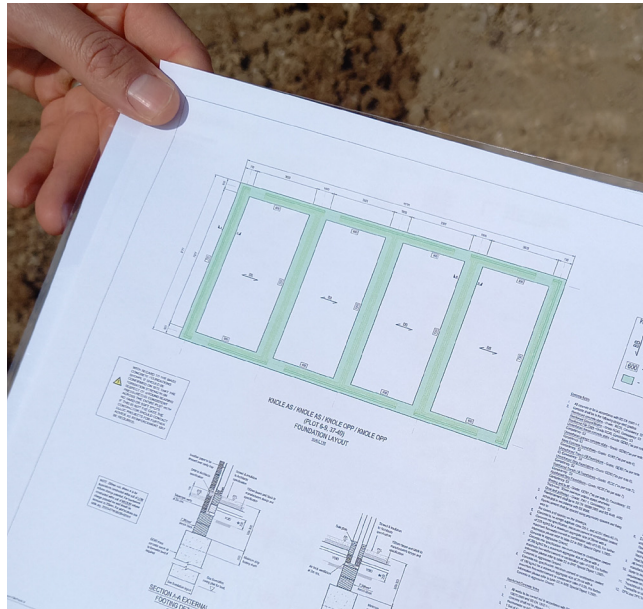
A plot marked out in readiness for excavation activity. Levelled, accessible and clear.



Clear segregation of excavated soils from crushed stone aggregates to avoid risks of mixing materials.

1.2 Strip and Trench Fill - Excavation and Preparation

- Ensure a foundation schedule and all relevant drawings are available to those carrying out the excavation work.
- Ensure the excavation line is straight and true. The base of the excavation should be level and flat with sides and steps that are vertical.
- Ensure that all soft spots, loose material, and groundwater is removed.
- Where required, heave precautions should be formed of the correct materials and to the correct thicknesses. These should be robustly secured into place to avoid displacement during concrete placement work.



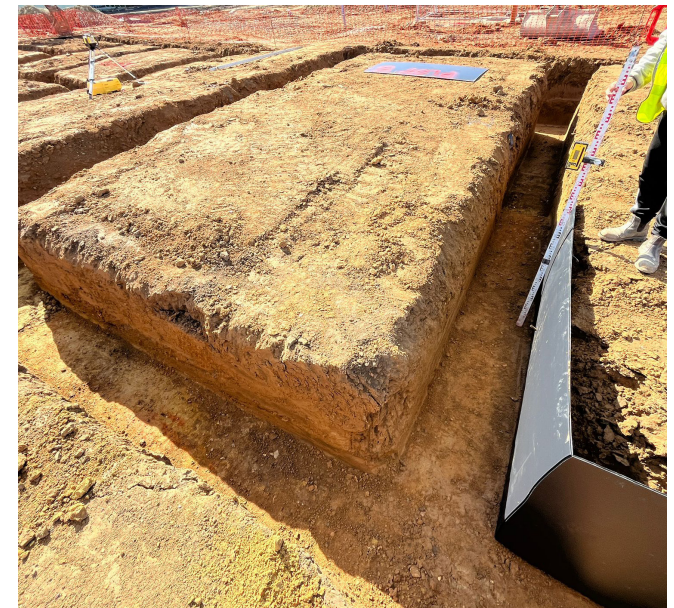
Foundation drawings and specification available at the plot to ensure alignment with the design.



Planning and marking out for accuracy in the excavation formation.



Foundation excavation with precise dimensions, a flat and level base and good verticality in the sides.



Carrying out regular checks to ensure levelled excavation bases are to the required depth.



Steps in the excavation formed with accuracy and good verticality.



A stepping excavation being affected by the strata. Loose material and a loss of strata in the sides of the excavation and collapsing of the step detail. This required further attention to bring up to the required standard.



A completed excavation with surrounding areas levelled and accessible for inspection.



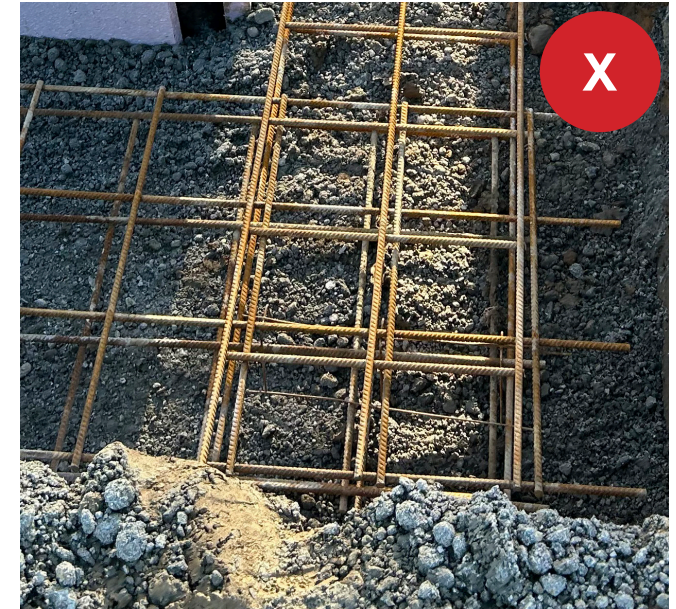
Heave precaution work being undertaken, fixed to the excavations vertical internal face in readiness for concrete placement.

1.3 Strip and Trench Fill - Reinforcement

- Ensure any reinforcement used is of the correct size and type for its designated function – this specification should be determined by an engineer's design.
- Execute lapping and tying at junctions within the reinforcement with care, ensuring that appropriate overlap dimensions are observed and include appropriate ties to avoid displacement when concrete is placed.
- Ensure spacers and supports are the correct size and type. The spacer should ensure appropriate concrete cover is achieved for the reinforcement. Spacers between layers should not obstruct concrete flow.



Correctly sized plastic supports to achieved a 75mm concrete cover as placed directly off strata. Wire stools holding apart layers to allow unobstructed concrete flow between the layers of reinforcement.



Reinforcement has been laid directly off the structural blind and layers are simply stacked. A compromised function due to incorrect placement and diminished durability due to the lack of concrete cover under and around the reinforcement are serious risks here.



The excavation base has been churned up by foot traffic. Concrete spacers have been pushed into the supporting strata losing any chance of providing the required cover and support.

1.4 Strip and Trench Fill - Concrete Placement

- Ensure concrete is placed strictly in accordance with the specification to provide the required strength and durability. Use the correct concrete consistency to enable effective placement, particularly where reinforcement is present.
- Ensure the stability and cleanliness of the excavation is maintained and that excavations and any reinforcement are free of standing water, debris and loose material.
- Adopt appropriate concrete placement techniques, using chutes or pumps to control the process of concrete placement. Appropriate compaction tools are also key to successful placement, notably where reinforcement must be factored in.
- Avoid overspill and aim to achieve a level finish that is set to a height that accounts for brick or blockwork coursing heights.
- Factor in and plan for inclement weather before, during and after the pour. Ready-mixed concrete should not be below 5°C at the time of delivery. Measures should also be put in place to ensure immature concrete is prevented from freezing before sufficient strength has been achieved.
- Ensure appropriate record keeping is undertaken e.g. records of pour schedules and logs for each plot incorporating delivery documents, weather and temperature conditions at the time of placement and any concrete test results e.g. slump testing, cube tests. Supplement written records with photographic evidence where possible to satisfy any auditing.



Concreting chute bucket ready to be attached to assist in a controlled delivery of concrete into the excavation.



Excavation ready for concreting works to start. Demarcation for concrete levels marked on the sides of the excavation.



Overnight rain has resulted in standing water within an excavation. This needs to be cleared and the excavation scraped and cleared of any debris and spoiled strata before any concreting takes place.



Concrete placement underway and being monitored against demarcation for fill levels.



Controlled finishing being executed to achieve a good level surface for follow-on substructure masonry.

1.5 Pile and Ground Beam Foundations - Piles

- All documentation should be explicitly followed with the engineer's pile layout drawings and calculations on site.
- Ensure the accuracy of placement in plan and vertical alignment is monitored and completed works aligned with the stated design tolerances provided by the engineer.
- Pile reinforcement cages must be rigidly tied, containing all specified bars and links.
- Trim piles precisely and to the level required for follow-on pile cap or ground beam works.
- Ensure that accurate and demonstrable record keeping is in effect for piling works.



Reinforcement cages – fabricated as per the engineer's details, complete with protective material to uppermost ends.



Post casting, the piles have been carefully cut down to the required level. The top surface is prepped, and work has been completed to seal around the pile heads. Spacers to support the reinforcement in the follow-on construction are in the process of being placed.



Trimming down to the pile heads has been commenced with one pile head suffering significant damage during the work. The condition of the reinforcement would need to be assessed by an engineer and a remedial plan proposed and agreed to rectify the situation.

1.6 Pile and Ground Beam Foundations - Ground Beams

- All documentation such as the engineer's ground beam reinforcement specifications, designs and bar schedules should be explicitly followed.
- Pile heads should project above the surrounding concrete blinding layer. The base should be stable, level and free from loose material. Pile heads should be suitably prepared to receive the follow-on construction.
- For in-situ cast ground beams, excavations should have vertical sides to prevent unintended ground loads. When using shutters, they too should be straight and vertical.
- Spacers are required to ensure that the minimum concrete cover for reinforcement is achieved as per the design. Spacers should not obstruct concrete flow, and their placement staggered to prevent weak planes developing in the concrete.
- The base of the ground beam should be free of standing water. Bases and reinforcement should be free from debris and loose material.
- For in-situ cast ground beams, the placement of concrete should use chutes or pumps to control the process. Care should be taken to ensure that the height of discharge from chutes and pumps and any subsequent distribution of concrete around the ground beam excavation does not lead to aggregate being separated out from the concrete. Appropriate compaction tools are also key to successful placement of concrete due to the level of reinforcement contained in the ground beam.



Ground beam work being carried out with consistent spacer positioning to facilitate the specified concrete cover.



Ground beams being laid over void formers. Bars are tied and lapped. Formwork is well constructed to give the required support to concrete placement work.

SECTION 2

Drainage, sub-floor services and substructure

2.1 Drainage

- Underground drainage should strictly follow the design drawings and specifications with attention paid to achieving designated falls, positioning of connections, pipe diameters, internal and external layouts
- All drainage runs must be adequately supported on pipe bedding and have sufficient and even falls with no sagging or back-falls present.
- Provide sufficient access on or near the head of each run, at a change of direction, at a change of gradient at a junction (unless it can be cleared from another access point in 2 directions).
- Provide flexible joints where pipes pass through external walls or create openings using lintels maintaining a minimum clearance of 50mm around pipes.
- Internal rest bends (foul) should be supported and be of a long radius specification – typically a minimum bend radius of 200mm.
- Ensure any access chambers, and their associated frames and lids are appropriately sized for the height to invert from ground level. Access chambers should be aligned so that the flow of water is maintained through the main channel to minimise any potential blockages.
- Temporary caps and stoppers should be inserted to prevent construction debris accidentally entering the drain lines. Elements such as inspection chamber lids should be protected against accidental damage occurring during construction works.
- Test the sub-floor drainage system before and after the concreting of the floor slab.



Inspection chambers have been positioned externally to ensure they align with landscaping and footpath details. Excavation work to accommodate drainage and bedding being laid is neat, straight and has uniform widths which allows alignment of the inspection chambers. Prior to backfilling of drain excavation all construction debris should be removed.



Well set out sub-floor drainage runs, supported on well graded pipe bedding material with good lines and sufficient falls. Work area cleared and ready for inspection.



Sub-floor drainage pipes suspended using proprietary brackets where the ground beneath is susceptible to ground movement and conventional bedding techniques are not suitable.



A pipe bedded in a masonry wall with a flexible joint positioned 150mm maximum from the wall and a second flexible joint positioned within 600mm of the first flexible joint.



Concrete bedding being used to secure and hold rest bends to avoid accidental displacement during ground floor work with drains exhibiting good lines and falls.



A temporary stopper inserted at a drain position to prevent construction debris accidentally entering the drain line.



The substructure masonry conflict with drainage was incorrectly resolved by breaking out material, requiring additional work to restore the masonry to the required performance level.

2.2 Sub-Floor Services

- The positioning of sub-floor services should strictly follow the design drawings and specifications with attention paid to points of entry, any required protection materials and type of sleeving.
- Ensure they are properly sleeved through external walls.
- Verify they are accurately positioned and at the required depth.



A missed water feed pipe has resulted in breaking out of structure and damage to a gas membrane. In this instance, a large amount of rectification work and revalidation of performance of the membrane was required to return the situation to an acceptable level.



Sleeves to facilitate the passing of services being built into substructure masonry with appropriate lintels.

2.3 Substructure Masonry - Preparation

- Ensure a safe and suitable working environment for substructure operations, including a clear and level work area.
- Confirm that masonry units placed at the plot are as per the specification and meet the required density and strength. Mortar used below DPC must be as per the specification to ensure that risks contained within the ground are appropriately addressed e.g. sulfate resistance.
- Protect bricks and blocks from adverse weather conditions by supporting off the ground, stacked on pallets with materials covered.



A level and organised area ready to start substructure masonry work.

2.4 Substructure Masonry - Planning

- Have substructure drawings onsite – information boards help to ensure the trades involved have the most up-to-date drawings to build substructure masonry and accurately position openings for services and other penetrations. For Warranty purposes, it also assists with inspections.
- Execution of accurate setting out and thorough checking are essential at this stage. Ensure that all measurements and alignment are precise and verified against issued drawings before proceeding.



Clean work area with well executed laying of trench block and concrete blockwork. All joints filled with mortar and neatly struck.



Setting out work has been carried out incorrectly. The centre line of the substructure masonry should be aligned with the centre line of the foundation

2.5 Substructure Masonry - Execution

- All masonry must be square, plumb, and level. Any cross-walls should be bonded or tied in. All lintels should have an appropriate bearing for their span.
- Joints must have consistency in relation to their size between masonry units. All joints should be fully filled.
- Wall ties should be the correct specification and spaced as per the wall type design and cavity size. Ties should be fully embedded in mortar, a minimum of 50mm onto each leaf of masonry. Wall ties should be set to fall to the outer leaf and should not be bridged by mortar droppings.
- Cavities should be clear from mortar droppings and loose debris. Joints should be struck to ensure cavity widths are not encroached upon.
- Substructure cavities should include lean mix concrete up to 225mm below the lowest DPC level. Lean mix when completed should be level, clean and free of debris.
- Where insulation is installed into substructure masonry cavities, it must have appropriate certification specific to use below DPC level and be installed according to the manufacturer's guidance. Completed work should be well fitted, without voids or gaps.
- Openings required to facilitate the passage of a service, pipe, duct, or telescopic ventilation to sub-floor shall include appropriate lintels.
- Any oversizing of penetrations or openings to facilitate any positional tolerance shall be closed with robust appropriate materials. Where required, any expected movement or settlement should be factored into the design.



Clean cavity to external wall with lean mix set at 225mm below lowest DPC and set to fall to outside leaf.



Lintel placement for a telescopic ventilation penetration into a sub-floor. Oversizing the opening allows for adjustment to fit in with coursing in the external splash course.



Maintaining a clear debris free cavity as work on the splash course progresses.



Splash courses being brought up to level – good clean jointing to the cavity face. The telescopic vent is positioned to course in with external masonry and the penetration is now neatly closed with no gaps or voids.



Insulation fully filling the substructure cavity and wall ties achieving correct embedment dimensions ready for placement of mortar.



Insulation should be placed continuously to avoid gaps creating cold spots in the thermal envelope.



Well executed facework in this splash course masonry. Joints are fully filled and have consistency in relation to their size between masonry units.

SECTION 3

Suspended Ground Floors

3.1 Suspended Ground Floors - Preparation

- Ensure that the immediate hardstanding inside and around the work area is stable and level.
- Confirm that there is a sufficient void below any suspended floor, with a minimum of 150mm observed. For soils susceptible to volume change, e.g. clays, a greater void may be necessary.
- Check and verify that drainage setting out is clear and functional, conducting appropriate testing before covering over the drainage system. Once completed, ensure that all drainage is capped to prevent any blockages or contamination.
- Provide sub-floor ventilation of at least 1500 mm² per metre run and install all telescopic ventilators.
- The sub-floor void should be clean and free from organic material, and the base reasonably level and free from debris. Rectify any low points to maintain a consistent and stable surface.



A cleared and well-presented plot ready for ground floor installation to commence.

3.2 Suspended Ground Floors - Planning

- Inspect units for any signs of damage before handling or storing them.
- Ensure that reinforced or prestressed items are stored on a clean, firm base that is elevated from the ground.



Beams have been temporarily placed onto substructure masonry at the plot to elevate off the ground. Extra precautions for material protection with beam ends painted with a protective coating.

3.3 Suspended Ground Floors - Installation of Beams, Blocks and Coursing Units

- Ensure beam unit ends achieve a full bearing onto supporting masonry and do not project into wall cavities. Beams should be laid on a DPC.
- Edge and beam spacer blocks should be bedded on mortar and never laid dry.
- Ensure a grout or slurry coat is brushed into the pre-wetted beam and block floor construction filling all joints and preventing block movement.



Beam unit ends with a full bearing onto supporting masonry and laid on a DPC.



Beam spacer blocks fully bedded on mortar with fully filled joints to beam ends.



Block infill work in progress - all beams are placed tightly against the blocks. Neatly cut units are being readied for placement.



Coursing blocks laid to a high standard of workmanship, fully supported, and bedded in mortar with perpendicular joints fully filled. Cavities being kept clear and free from mortar.



Beam ends have been allowed to encroach into the cavity. When coursing units are laid, these ends are at risk of creating ledges within the cavity for mortar debris.



Mortar debris has been allowed to drop into the cavity sitting on wall ties and DPC material protruding into the cavity.



Slurry coat brushed into the beam and block floor construction, filling all joints.

3.4 Suspended Ground Floors - DPCs, DPMs and Gas Membranes

- Ensure material specifications have been followed explicitly – material substitution should be avoided notably where materials also provide gas protection.
- Ensure a continuous DPC is provided linking to the DPM or gas membrane.
- Ensure membranes are properly lapped, taped, and sealed, with service penetrations adequately sealed.
- Where gas protection is required conduct checks on detailing across wall cavities, jointing and service entry points to ensure they are constructed as per the design and are correctly sealed.



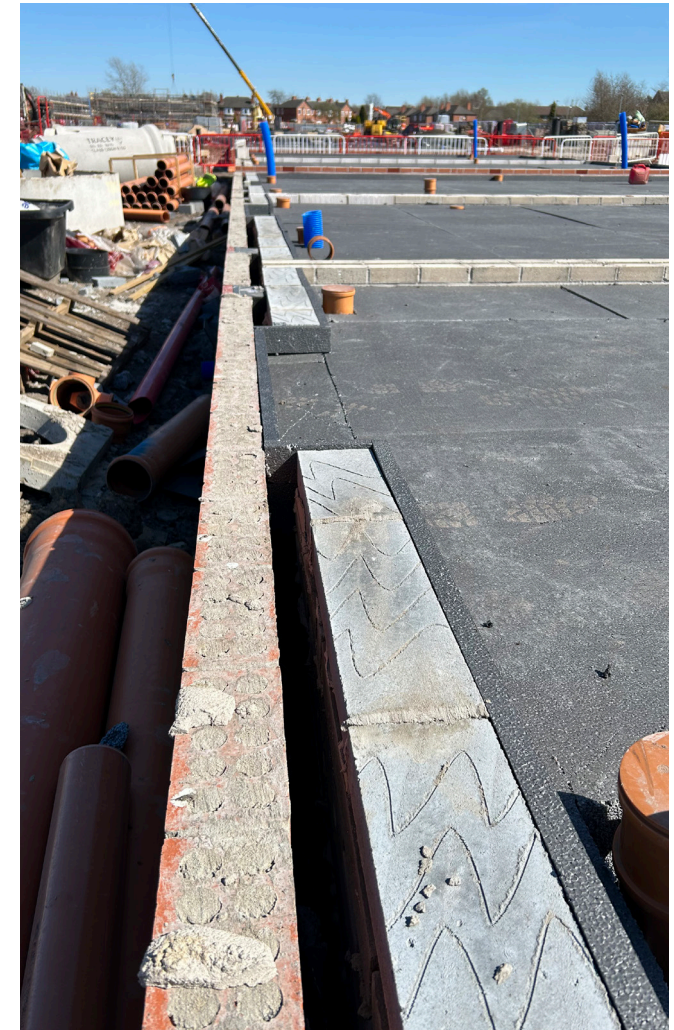
Membrane detailing with DPC has been completed to a high standard. Joints have been sealed with double sided tape and their leading edges secured with single sided tape. The membrane has been sealed to the pipe penetration using a preformed cloak, mechanically secured and its leading edge sealed.

3.5 Suspended Ground Floors - Waterproofing

- Preparation of substrates is key and the surface condition of the element to be waterproofed should be completed to the manufacturer's specifications. Poor levels of surface finish – blow holes in concrete, poorly compacted concrete, honeycombing of concrete, lack of a flush pointed surface in masonry can all give rise to potential leakage paths.
- Ensure design details are explicitly followed and the continuity in protection is achieved. Well-sealed detailing prevents leakage paths.
- Ensure key elements of the design such as fillets, chamfers and other key details at the transfer of a plane of application are included e.g. from horizontal to vertical, around external and internal corners. Omissions in these areas often result in leakage paths.
- Ensure that where required, the manufacturer specified protection boards or fleece backed drainage sheets are applied as soon as practicable after installation.
- Ensure that any backfill material is well graded. Using unsuitable backfill or backfill contaminated with waste materials e.g. cohesive soils such as clay, broken bricks, blocks, kerbs, broken paving, etc., can cause damage and also can create localised perched water pockets against the structure.

3.6 Suspended Ground Floors - Insulation

- Ensure insulation is neatly cut and well seated on the supporting floor structure.
- Accommodate services by cutting insulation boards neatly around their positions.
- Where required by the design, install perimeter edge insulation strips against the inside edge of the inner leaf of the perimeter wall, ensuring they are the correct width and robustly secured.
- Ensure perimeter insulation is continuous notably at opening thresholds and reveal positions.



Insulation placed exhibiting tight joints and neat detailing around the penetrations created by drainage. Edge insulation is detailed around the perimeter and into the threshold areas.

3.7 Suspended Ground Floors - Concrete Screed Toppings

- Screed must strictly follow the specification to ensure it has the required strength and durability. The screed consistency is also a key factor in effective placement, notably when reinforcement work is involved.
- Ensure the area to receive the screed is free of standing water, debris and loose material.
- Adopt appropriate screed placement techniques, using chutes or pumps to control the process.
- Avoid overspill and aim to achieve a finish appropriate to the final floor coverings. Avoid over-working, floating, or tamping too soon after placement to prevent surface cracking.
- Monitor temperatures and apply appropriate protection to placed screeds against adverse weather conditions.
- Avoid overloading risks to any completed construction. The placement of materials or equipment should wait until the screed has attained an appropriate strength. When completed construction can withstand applied loads, be sure to spread the loads accordingly.



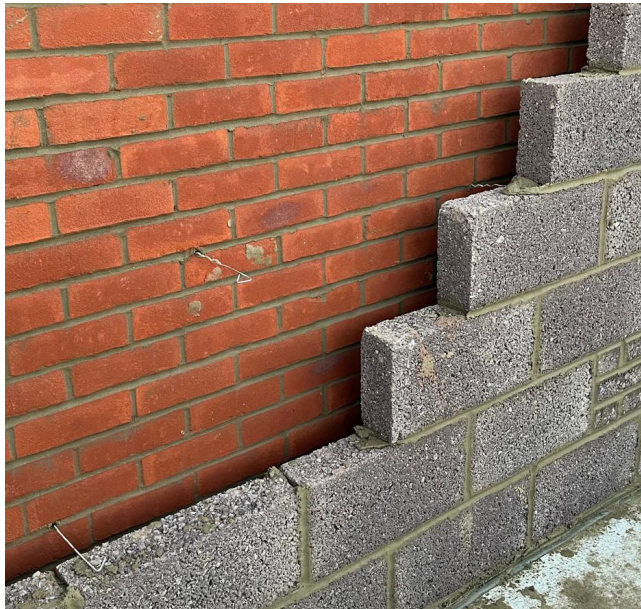
A completed concrete screed exhibiting a level and well finished surface. Edges are cleaned off, avoiding the need for mechanical removal of any excess material which can damage the membrane.

SECTION 4

Superstructure

4.1 Traditional Masonry - Structure

- Ensure masonry units, mortar and all other materials used are aligned with the project specification – the completed construction must have appropriate durability and be capable of supporting and evenly distributing proposed loads and include correctly installed precautions against disproportionate collapse.
- Ensure all constructed masonry is aligned with the structural designs in relation to wall thicknesses, sizing of piers, returns and positioning and fixity of lintels, steel beams and/or posts. Bed reinforcement and expanded metal lath should be installed as designed.
- Walls should be constructed to align with masonry tolerances stated within the Technical Manual.
- Walls should be adequately restrained at all junctions with interfacing construction.
- Ensure appropriate bonding is employed at junctions with internal walls.
- Ensure lateral restraint is provided at junctions with intermediate floors and the roof.
- Ensure all mortar joints and beds are fully filled.
- Masonry leaves must be appropriately tied using appropriate proprietary wall ties installed in a staggered or in a diamond pattern, at the specified density. The number and density of wall ties should be increased around openings, and at verges, gables, piers and movement joints.
- Wall ties should have an overall length to facilitate appropriate embedment into mortar beds.
- Coursing of masonry units should be set to allow wall ties to be laid with a slight fall towards the outer leaf.



Masonry wall construction progressing to a good standard. All joints fully filled with correct wall tie spacing and embedment being achieved. External masonry leaf cavity face has been struck and tooled to ensure a clean cavity is maintained.



External leaf cavity face has been cleanly struck with filled joints. A cavity lath has been used to catch mortar debris as the inner leaf is built. Proprietary metal strap restraints at the junction with the intermediate floor are being accurately built into inner leaf at maximum 2m centres with a section of the strap returning tightly down the cavity to provide points of restraint.



Wall tie placement achieving the required minimum embedment dimension and displaying a fall from inside to outside. Cavity is clean, with all joints fully filled and struck.



Concrete blockwork inner leaf with neatly struck off fully filled joints. A uniform pattern of wall ties can also be observed, coursed to allow follow on insulation boards to be placed.



A masonry opening reveal with increased wall ties set to every block course. Wall ties are set to fall to the external leaf and now require removal of any residual mortar debris as part of the final preparation work.



Reveal closure units being installed around an opening with an increased number of wall ties. Masonry has been struck clean and all joints filled with mortar. Closure units braced to ensure a square opening.



Larger sized masonry units have been installed to a good standard. Joints are fully filled and gaps around the intermediate floor joist ends have been fully pointed with mortar. A cavity lath is being used to control the risk of mortar debris dropping into the cavity below.

4.2 Traditional Masonry - Lintels, Beams and Posts

- Elements of structural support e.g. lintels, steel beams and posts must be properly positioned, supported and fixed at any junctions formed with the masonry.
- Ensure lintels are correctly sized for the opening. Their overall length must achieve the required bearing at each end, landing on a full masonry unit and be fully bedded in mortar.
- Masonry should not overhang lintels by more than 25mm at their outer most edge.
- Steel beams should have padstone units to spread load – the size and strength of the padstone should be determined by the engineer. It should correctly be positioned underneath the end bearing.
- Steel posts should be tied into adjacent masonry panels and base plates appropriately bolted down to a suitable receiving substrate e.g. a padstone. Fixings used to fix down the baseplate must be carefully drilled and positioned to avoid bursting or spalling supporting units.
- All fixings should be tight. Where resin anchors are used to facilitate fixing down, drilled holes should be appropriately cleaned in accordance with manufacturer's guidance before resin and bolts are placed.
- Shimming and grouting of steel baseplates should be executed strictly in accordance with an engineer's design. The use of site mixed mortars should be avoided and non-shrinkable grout used where required.
- All bolted structural connections should be completed as per the engineer's design and specification. All fixings should be tight – any measures, such as thread locking nuts, where specified by an engineer must be employed and routinely checked as part of Quality Assurance procedures on site.



A steel lintel placed over an opening – end bearings are the required 150mm, and the lintel is fully bedded in mortar onto a full block masonry unit.



A large structural beam bearing onto a concrete padstone. Great attention has been paid to completed masonry around the beam end with neat mortar pointing.



Very poorly constructed supporting masonry to a large structural steel beam. This position should have included a padstone and the masonry around it built bonded and fully secured.

4.3 Traditional Masonry - Cavities and Insulation

- Ensure consistent clear cavity width (minimum width 50mm) is maintained. Take precautions to ensure mortar does not rest on ties and upper edges of insulation.
- Bed and perpendicular joints should be fully filled and cleanly struck flush on cavity facing sides.
- Masonry walls incorporating insulation may use fully or partially insulated cavities based on wind-driven rain exposure. Insulation should be without gaps and achieve continuity with other elements of the construction e.g. floor edges, reveal closures, roof eaves.
- Use insulation with appropriate third-party certification and follow manufacturer instructions in relation to installation.
- Where a partial fill cavity is specified the wall ties must include retention discs capable of holding the insulation tight to the cavity face of the inner leaf.
- Avoid cutting or piercing insulation for wall ties unless necessary; align wall ties with insulation joints.
- Where insulation interfaces with cavity trays or lintels, joints should be neatly formed by accurate cutting to the profile of the tray to ensure continuity of the thermal envelope.
- Cavity barriers should be installed to fully close the cavity and should be fixed in accordance with manufacturer or independent certifier's guidance. They should pass through any cavity insulation and be mechanically fixed back to rigid construction at all vertical and horizontal positions.



A view into the cavity of this well constructed masonry wall shows a clean cavity. Wall ties are also clean and all joints are filled and neatly tooled.



Rigid partial fill insulation boards, being installed with a high degree of detail and care. Proprietary retention discs secure the insulation in the cavity, and all board joints and ends have been foil-taped sealed.



Good attention to detail around this opening with cavity insulation being finished tight into the closure unit prior to the follow-on stone surround work commencing.

4.4 Traditional Masonry - Damp Proof Courses and Cavity Trays

- DPC's should be flexible, suitable for their intended use, and have appropriate third-party certification. They should be laid on a mortar bed with correct lapping at junctions and corners and not bridge any cavity unless acting as a cavity tray.
- Cavity trays and/or DPCs should be at least 150mm above adjacent ground levels or paving.
- Cavity trays must rise at least 150mm from the outer to the inner leaf, be self-supporting or fully supported, with lapped and sealed joints.
- Cavity trays must have stop-ends, sufficient weep holes and be positioned correctly over any opening or obstruction within the cavity e.g. structural lintels, meter boxes, ducts and air bricks.
- Where they interact with a door opening, they should include appropriately detailed closures and stop-ends.
- Cavity trays should be installed below and behind any porous pre-cast/stone sills or sills with joints.
- Proprietary preformed systems should be used at stepped abutments and should be set out using profiles.
- Where flashings link with a cavity tray, the horizontal mortar joint immediately under the cavity trays external position should be raked out to a minimum depth of 25mm to receive the flashing.
- Where parapet walls are to be constructed, they must include a fully supported horizontal DPC and a continuous cavity tray below any coping stone. The cavity tray should be detailed to provide continuity with any roof covering to provide complete protection against water ingress.
- When completed, cavity trays should be clear from mortar debris and promote free draining of the cavity.



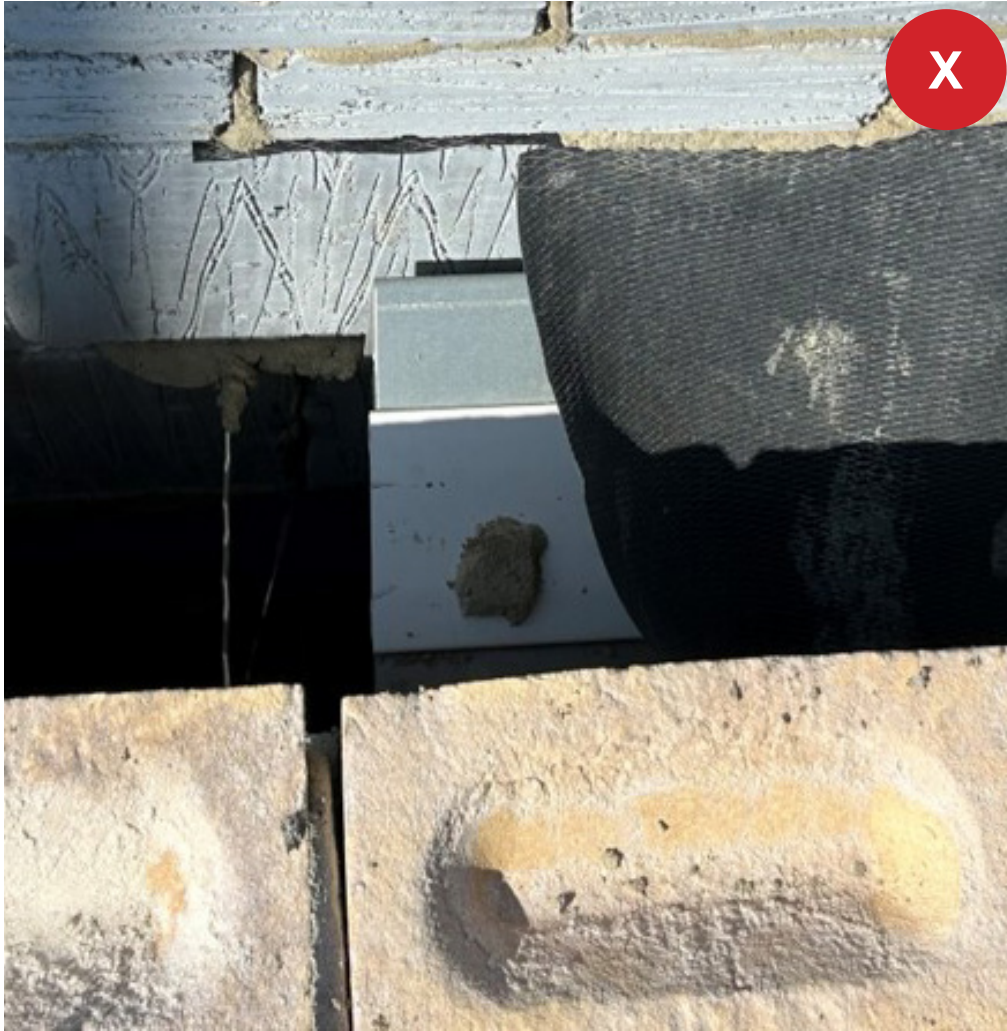
A cavity tray dressed into a vertical perpendicular masonry joint in the external leaf to form a stopped termination. This ensures water does not cascade over the end of the cavity tray.



The position of the cavity tray has been clearly determined. A horizontal raked joint and small widths of removable material have been placed 25mm into the masonry, under the leading edge of the cavity tray in the stepping mortar beds ready to be removed and receive the abutting roof flashings.



On this bay window construction, the cavity tray has been left to extend out through the external leaf of masonry to ensure the abutting flat roof construction water upstands finish under its location. A vertical DPC has been installed at either end to ensure moisture cannot flank around the roof construction where it abuts the masonry.



The cavity tray has been installed but does not extend for the full width of the lintel below as required.



Neat masonry facework above an opening complete with weep holes. Weep holes are clear from mortar and slightly pronounced.

4.5 Timber Frame - Structure

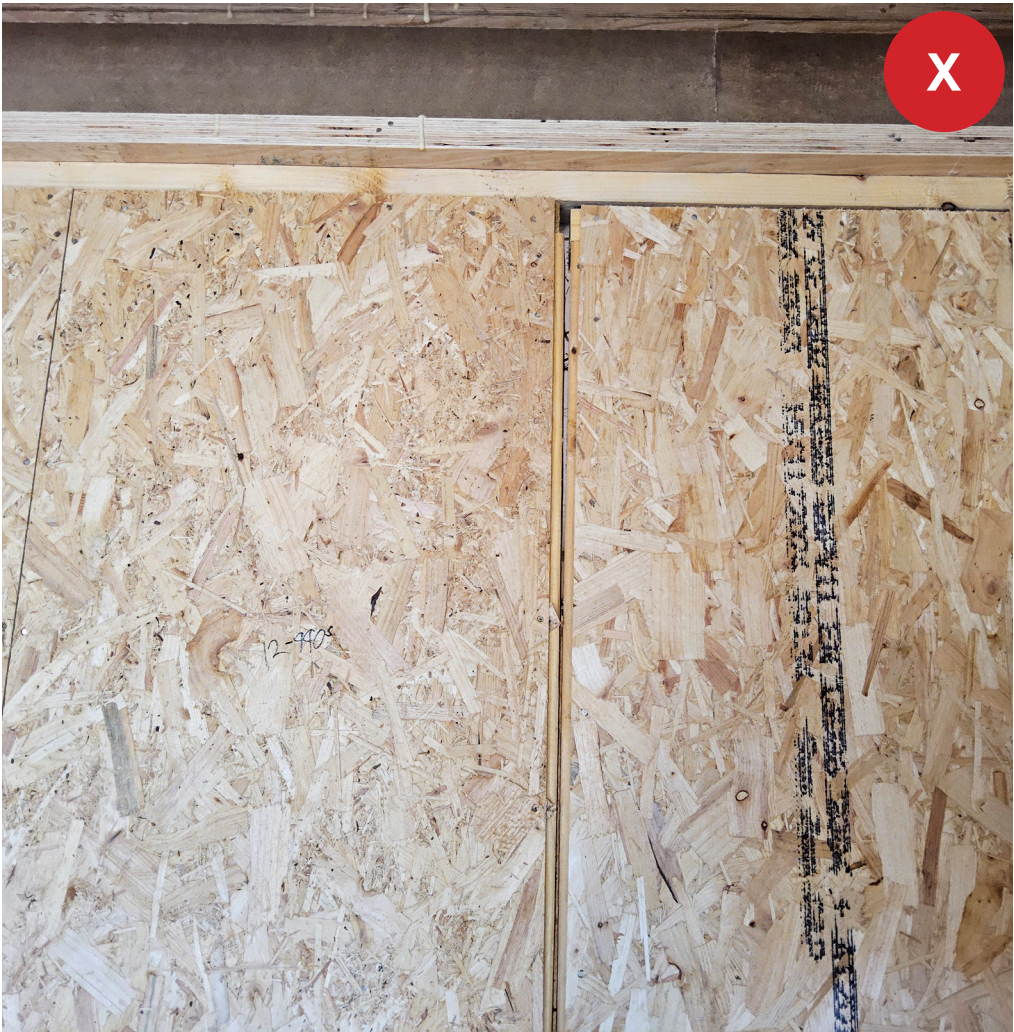
- Ensure all timber frame components, fixings, and materials used in the construction of a timber frame are aligned with the project specification – the completed superstructure must have appropriate durability, be capable of supporting and evenly distributing proposed loads, and include correctly installed precautions against disproportionate collapse.
- Timber frame wall panels should be manufactured according to the engineer's design, consisting of solid timber studs and rails and braced with a structural sheathing board.
- Timber frame panels should be erected to align with structural tolerances stated within the Technical Manual. Joints should be tightly formed between panels.
- Ensure the sole plate is accurately levelled, located, and securely fixed to the substructure to provide a level base for erecting the wall panels. It should be located at least 150mm above finished external ground level.
- A damp-proof course (DPC) should be located directly below all timber sole plates, overlapping at junctions by at least 100mm, flush to the outside edge of the sole plate, and providing a 100mm lap to any air and vapour control layer (AVCL) within the wall panel.
- Install all fixings according to the engineer's specification – typically using one or two fixings per stud bay for bottom rail to sole plate connections, and wall panel to wall panel connections at a maximum of 300mm centres.
- Timber framed wall panels should be adequately restrained at all junctions with interfacing construction incorporating appropriate fixing details at junctions with internal walls and lateral restraint at junctions with intermediate floors and the roof.
- Any multiple stud clusters for the transfer of point loads through wall panels to support substructure should be constructed as per the structural design.
- The alteration or drilling of timber frame panels or individual studs to accommodate the passage of services should be carried out in strict accordance with the structural design.



Ground floor timber frame panels erected. DPC material projects from the base and either side of the internal wall location to facilitate connection with AVCL.



Fixings at corner junctions between panels were noted to have drifted beyond the 300mm specified by the engineer. Additional fixings would be required on a revisit to rectify.



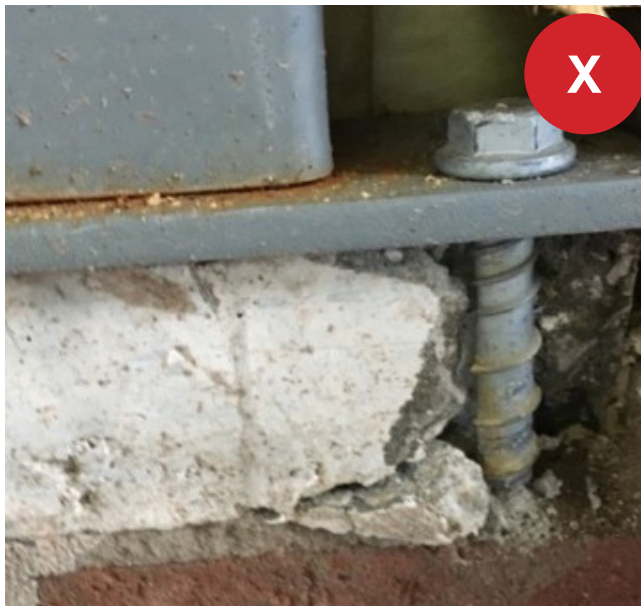
This internal racking wall to a lower ground floor has been installed with prominent gaps in the union between panels. Union must be tight to avoid the opportunity for any movement.

4.6 Timber Frame - Lintels, Beams and Posts

- Where masonry forms the external envelope, lintels should be properly positioned and supported by the external leaf at all openings.
- Lintels shall be appropriate for use with timber frame construction, and appropriate for the cavity width and opening.
- A lintel must have an overall length that achieves the required bearing at each end and be fully bedded in mortar. Masonry should not overhang lintels by more than 25mm.
- Lintels at their upper edge shall be securely fixed back to the timber frame using the manufacturer's proprietary clips/fixings.
- Steel posts should be tied into adjacent masonry panels and base plates appropriately bolted down to a suitable receiving substrate e.g. a padstone. Fixings used to fix down the baseplate must be carefully drilled and positioned to avoid bursting or spalling supporting units.
- All fixings should be tight. Where resin anchors are used to facilitate fixing down, drilled holes should be appropriately cleaned in accordance with manufacturer's guidance before resin and bolts are placed. Any measures, such as thread locking nuts, where specified by an engineer must be employed
- Shimming and grouting of steel baseplates should be executed strictly in accordance with an engineer's design. The use of site mixed mortars should be avoided and non-shrinkable grout used where required.
- All bolted structural connections should be completed as per the engineer's design and routinely checked as part of Quality Assurance procedures on site.



A fully fixed downwind post baseplate.



A fixing anchor has burst the pad stone to this wind post location.

4.7 Timber Frame - Moisture Protection

- All cut ends should be preservative treated. Where sole plates are cut on site, the preservative treatment should be applied as soon as practicable.
- Completed timber frame construction must incorporate a breathable membrane which is water-resistant and moisture vapour permeable. The membrane should be securely fixed with austenitic stainless-steel staples and appropriately lapped at to deflect moisture away from the timber frame and sole plate. When completed, solid timber stud locations should be clearly marked for the structural fixings from the external envelope e.g. wall ties, cladding rails, etc.
- Completed timber frame construction must incorporate an AVCL (Air & Vapour Control Layer) placed on or near the warm side of thermal insulation to restrict moisture vapour passage and mitigate interstitial condensation risk.
- AVCLs should be securely fixed to cover all timber frame external walls, including sole plates, and fully lapped and sealed into window and door reveals with at least 100mm lap and seal at joints. Joints should occur over studs, rails or noggings.
- Small holes should be sealed with self-adhesive tape, and larger holes should be re-covered to lap over adjacent studs and rails. Service penetrations should be sealed accordingly with material of suitable compatibility.



Sole plate cut ends correctly treated with preservative to protect the timber end grain.



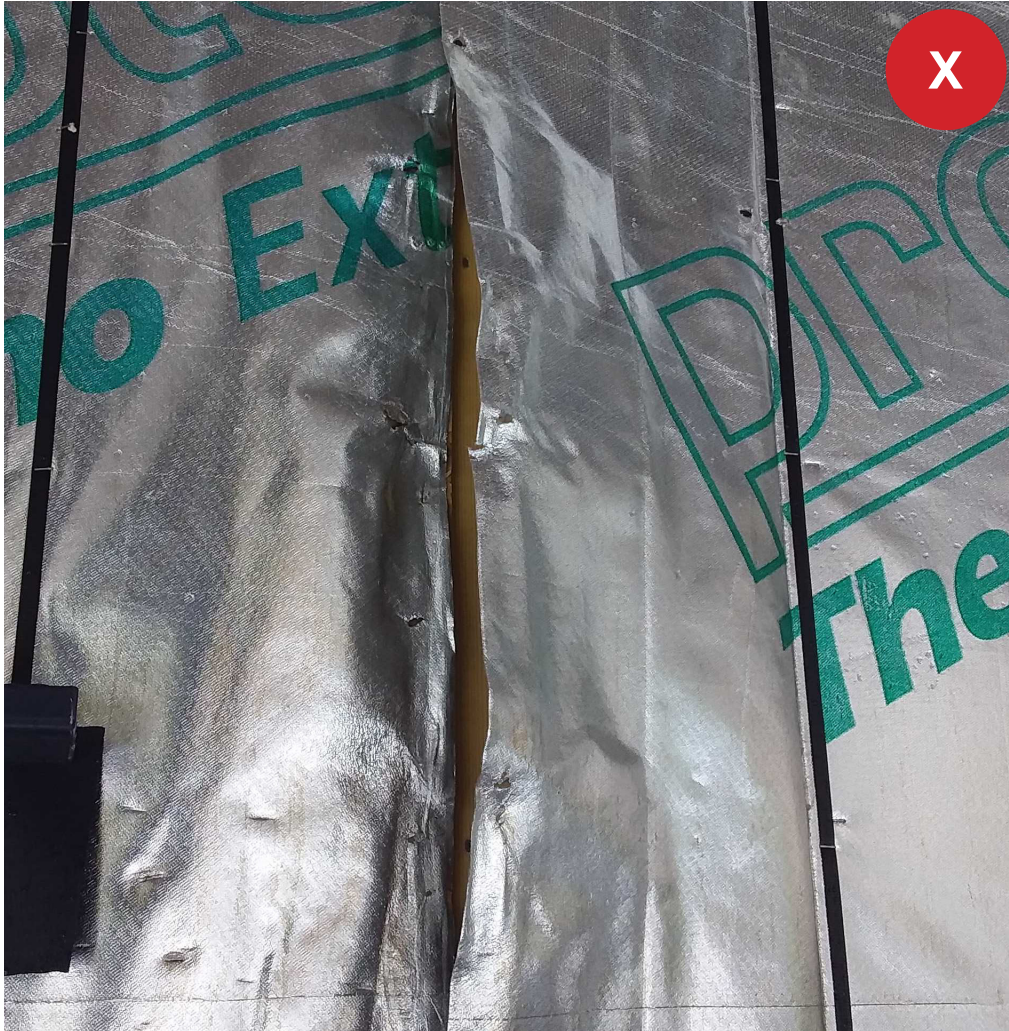
An Air and Vapour Control layer installation executed to achieve continuity around junctions with the ceiling and around internal corners.



Clear Air and Vapour Control layer installation work executed to a good level. Sealed onto the projecting DPC at the base and vertical DPC at the internal wall union. Counter batten work employed to facilitate placement of follow-on services without the need to penetrate the AVCL.



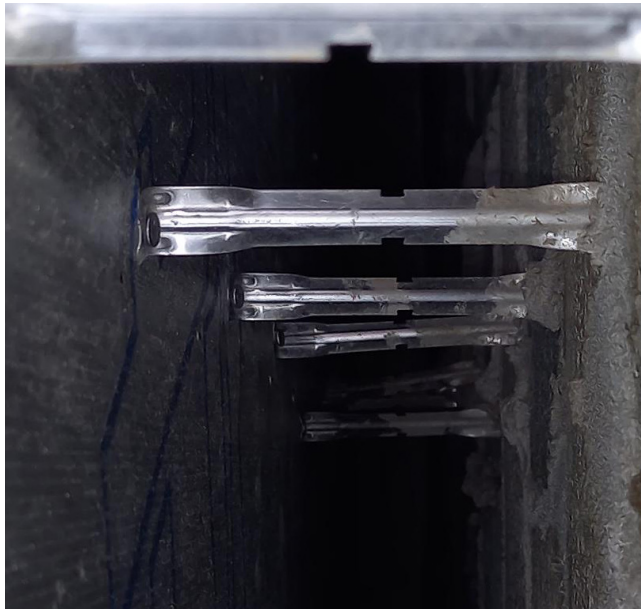
External breathable membrane work carried out to a good standard. Membrane work within opening reveals is continuous and sealed with the internal AVCL. Demarcation taping to stud positions is consistent for wall tie placement and overlapping with the cavity tray at low level has been completed.



A breathable membrane installation where laps have been left open and unsealed. The lack of available material to form an effective overlap will require additional membrane strapping to over seal the joint.

4.8 Timber Frame - Cavities and Insulation

- For timber frame construction, insulation may be specified between load-bearing studs, on the outside, or inside of the timber frame.
- Use insulation with appropriate third-party certification and install in line with manufacturer instructions.
- Insulation installed on the outside of a timber frame must incorporate a breathable membrane on the outer most face of the insulation and then a residual cavity prior to the installation of the external envelope.
- Cavities must be consistent in width and drained and ventilated. The size of the residual cavity will depend on the type of external material used and the exposure.
- Wall ties must be suitable for use with timber frame construction. The installation density and pattern will be dictated by stud centres.
- Wall ties must be fixed directly through any sheathing board into timber studs or rails.
- Avoid cutting or piercing insulation for wall ties unless necessary; align wall ties with insulation joints.
- Cavity barriers should be installed to fully close the cavity by friction fitting for the designed width, fixing locations backed by solid timber studs, rails, or floor joists at least 38mm wide, and in accordance with manufacturer or independent certifier's guidance. They should pass through any partial fill insulation and be mechanically fixed back to the rigid timber frame construction in both vertical and horizontal positions.



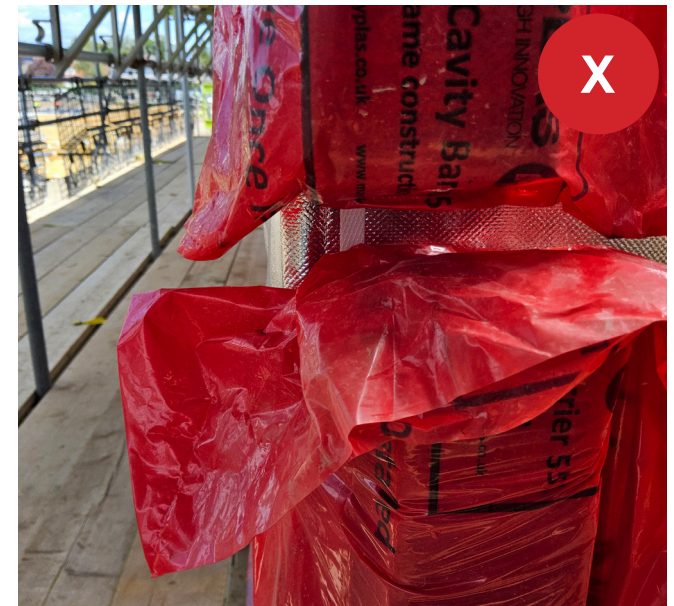
Timber frame wall ties showing a good uniform and regimented spacing, with nail fixings fully driven into the stud behind. Wall ties and cavity are clean and free from mortar debris.



Timber cavity barriers have been installed to close off the cavity around openings. The treated timber section has been fully protected by a DPC, fixed and neatly detailed at corners and junctions with the breathable membrane in the opening reveal.



A good example of cavity fire barrier installation at a compartment wall location. Cavity fire barriers are mechanically fixed and joints are tight where they meet.



A vertical cavity fire barrier installed with gaps in the protection.

4.9 Timber Frame - Damp Proof Courses and Cavity Trays

- Horizontal cavity trays must have stop-ends, sufficient weep vents and be positioned correctly over door and window openings, meter boxes, and air bricks.
- Weep vents should be sized and positioned to facilitate the required rates of ventilation and drainage of the cavity.
- Cavity trays at ground level should be at least 150mm above adjacent ground or paving. Where they interact with a door opening, they should include appropriately detailed closures and stop-ends.
- Cavity trays should be installed below and behind any porous pre-cast sills or sills with joints.
- Cavity trays should be installed directly above a horizontal cavity barrier, lapped up at least 100mm behind the breathable membrane (except at eaves and verges).
- Proprietary preformed cavity tray systems should be used at stepped abutments and should be set out using profiles.
- Where flashings link with a cavity tray, the horizontal mortar joint underneath their position should be raked out to a minimum depth of 25mm to receive the flashing.
- Vertical DPC should be incorporated within bay window detailing with stepped flashings.
- Where parapet walls are to be constructed, they must include a fully supported horizontal DPC and a continuous cavity tray below any coping stone. The cavity tray should be detailed to provide continuity with any roof covering to provide complete protection against water ingress.
- When completed, cavity trays should be clear from mortar debris and promote free draining of the cavity.



External masonry leaf to timber frame with a clean cavity tray. Ventilation and drainage of the cavity facilitated by a series of weep vents within the vertical perpendicular mortar joints in the soldier course.



Masonry completed at this lintel position, weep vents have been uniformly spaced to both drain and ventilate the cavity which is essential for timber frame construction.

SECTION 5

External Envelope

5.1 Masonry

- Masonry joints should be in line, plumb, fully filled and neatly pointed with correct bonding.
- Window and door openings must be square and reveals should be plumb.
- Cavities should be appropriately closed – typically using proprietary thermally insulated closure units.
- Movement joints should follow specific designs for position, size and arrangement.
- Work should be protected against the weather during construction.



Proprietary thermal cavity closure units being built into openings. Bracings have been applied at corners and across the openings to ensure they maintain an accurate shape.



Neat masonry with joints that are well tooled and finished. Bed joints are uniform and level and perpendicular joints have a good vertical alignment.



Verge masonry detailing has been well executed. All joints are neat, uniform in size and well finished. Cut units are precise and well aligned.

5.2 Render

- Apply render to achieve a consistent texture, finish, and colour as per the designer's specifications, noting that some colour variations may occur due to surface suction and wall orientation.
- At the corners of all openings and penetrations, renders should be reinforced as a minimum with an appropriate certified alkaline resistant fibreglass mesh. Reinforcement mesh should be installed as per the manufacturer's specification.
- Angle, corner, and render stop beads must be correctly specified and fixed. For bell casts and other beads, uPVC or stainless-steel products are acceptable.
- Ensure that drips and throating to stone sills and copings project a minimum of 40mm beyond the face of the finished render.
- Weep holes or weep vents should always be provided to rendered masonry walls. Guidance on these provisions can be found within the Technical Manual under 'External Walls - Render'.
- Ensure the completed render is free from significant crazing (fine cracks up to 0.2mm wide), although minor hairline cracking may occur and should not affect performance; patching and repairs should be as inconspicuous as possible. Guidance on acceptable surface deviation can be found within the Technical Manual under 'Tolerances'.

5.3 Movement Joints

- Vertical movement joints should be provided to the outer leaf of cavity walls at dimensions aligned with the Technical Manual or engineer's specific design. Horizontal movement joints which incorporate support angles should be designed and specified by an engineer.
- For any given wall elevation where there is a mix of materials, e.g. brickwork external leaf lower level with a rendered block upper level, the requirement of a full height movement joint should be based on the shorter spacing requirement e.g. for the blockwork at 6m not brickwork at 12m.
- The movement joints must be continued through the render construction and an appropriate weather resistant seal provided to prevent moisture ingress to behind the render finish.
- Wall ties should be provided at 300mm maximum vertical spacing either side of the movement joint, and within 225mm horizontal spacing of the movement joint. Use of debonding slip ties within a movement joint as an alternative should follow an engineer's design and specification – typically following similar vertical spacing.
- Compressible filler, such as polyurethane foam, should be used to form the joint and be sealed to prevent water penetration. This should be completed with an elastic sealant capable of reversible movement.



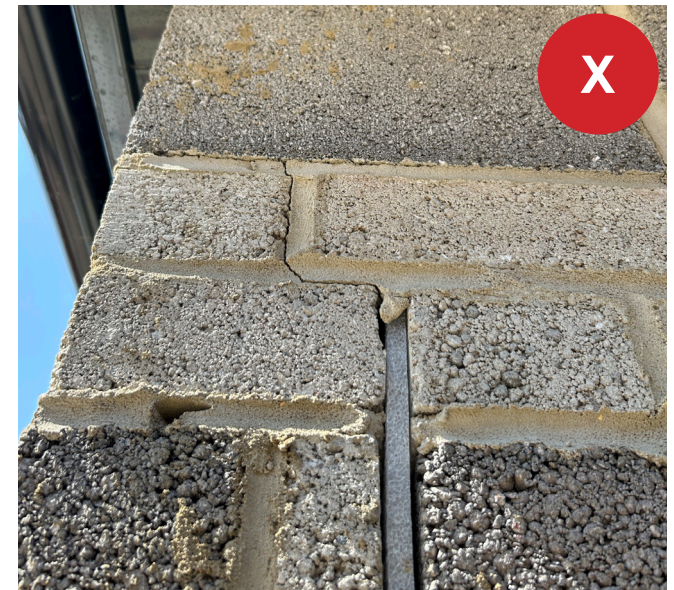
A neatly constructed masonry panel with a centrally located movement joint. Compressible polyurethane foam has been placed during construction to facilitate joint sealant application.



Proprietary slip ties built into the masonry panel at 225mm centres. Compressible polyurethane foam has been neatly placed, set back to facilitate follow on sealant to the correct depth.



Proprietary slip ties built into the masonry panel movement joint. Compressible polyurethane foam has been neatly placed, and a debonding sleeve in place ready to be embedded in mortar.



An incomplete movement joint has resulted in the top section of the wall cracking. These units will need to be removed and the movement joint completed prior to rendering works commencing.

5.4 Stone Sills, Heads and Surrounds

- At sills, any incorporated horizontal DPC or cavity tray should be overlapped by the vertical DPC at the jambs and should be turned up at the back and ends for the full depth of the sill.
- The mortar bed below sills should be trowelled smooth, allowed to set, cleaned off, and then a DPC laid over. The open section below the sill should be sealed with a flexible material only on completion of the structure.
- To control water penetration through joints in window surrounds, e.g. at junctions between jambs and mullions and sills, rectangular and T-shaped water bars should be provided as per manufacturer's guidance.
- Stone jambs, mullions, and heads should not project into the cavity and insulated cavity closers should be included within detailing to prevent cold bridging.
- Stone jambs and mullions should be fixed at the top and bottom with stainless-steel pins. Stainless-steel frame-type cramps can also be used to give extra stability at jambs.
- Non-structural heads require a soft joint between the top of the head and the steel support lintel. The completed construction should be protected by a cavity tray.



Architectural feature stonework completed to a high standard around this window opening. Joints between units are uniform and stone faces are extremely clean. Protection has been built into the jambs to protect the stone sill from mortar deposits. This can be neatly trimmed off when masonry works are completed.

5.5 Parapets

- Where parapet walls are to be constructed, they must include a fully supported horizontal DPC and a continuous cavity tray below any coping stone. The cavity tray should be detailed to provide continuity with any roof covering to provide complete protection against water ingress.
- Fully supported horizontal DPCs should be of suitable material specification, with particular attention to mortar bond as part of the engineer's design. Any penetrations created by mechanical restraints employed by the coping stone must be fully sealed using manufacturer-approved, durable sealant materials to prevent moisture ingress.
- The cavity tray must be fully supported and made of suitable materials with the correct mortar bond performance and verified by appropriate third-party certification for minimal load situations.
- Proprietary self-supporting trays should be used where possible - flexible cavity trays should only be used with a manufacturer's proprietary continuous support board.
- Joints should be minimised, and where unavoidable, form and seal laps according to manufacturer's instructions, using preformed cloaks for complex geometries and obstructions such as wind posts.

5.6 Differential Movement

- Measures to combat differential movement should be factored into the external envelope where required e.g. timber frame construction.
- Designs should consider various locations e.g. windows, doors, balconies, service openings, eaves, verges, cavity wall ties, floor zone battens, mixed cladding junctions, etc.
- Differential movement detailing should accommodate expected shrinkage or expansion safely whilst maintaining the external envelopes structural integrity, weather resistance, and durability.
- When installing fillers or seals in differential movement gaps, account for their fully compressed dimension in gap size calculations, and choose materials suitable for compression, expansion, or shear forces expected in service.



Allowance for movement between the timber frame and the external masonry has been provided underneath this sill location. The materials used to fill the final gap should allow for settlement in the timber frame due to shrinkage.



This rendered gable has a differential settlement gap between the completed render stop bead and the soffit at the roofs verge. When settlement occurs, the gap will close up. The attention to detail on display here is that the exposed masonry in the gap has been painted black rather than left as a bare concrete surface.



The gap left between the top of the external masonry and the underside of the soffit is not enough to facilitate the expected settlement at this location.

SECTION 6

Intermediate Floor Structure

6.1 Joists, Beams and Trimming Joists

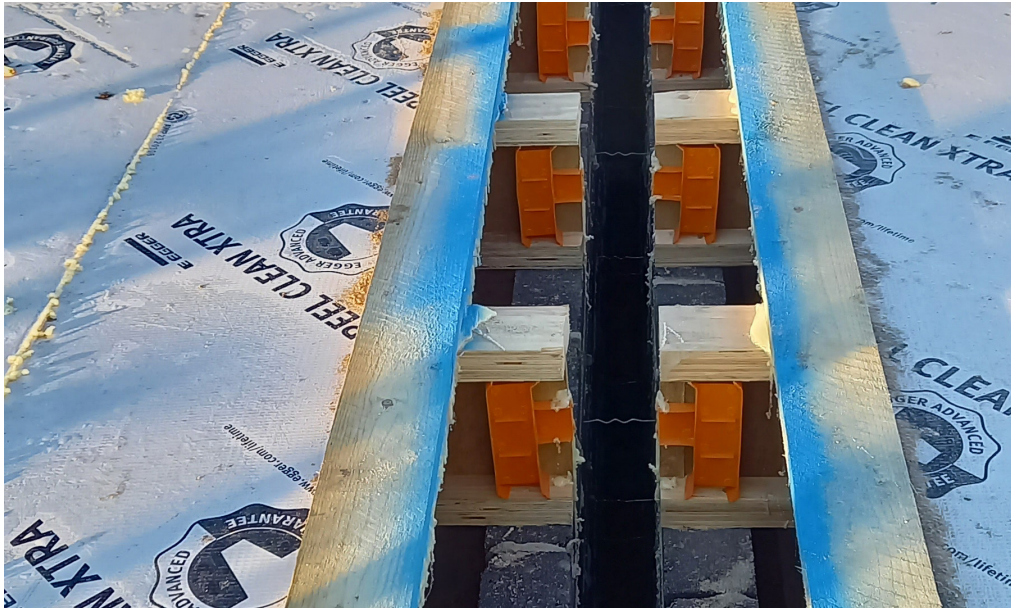
- Ensure all joists, beams and trimming joists are installed in accordance with the specific design in relation to member sizing, bearings, span, centres and arrangement.
- Floor joists must be laid reasonably level and onto suitable solid and level bearings. Guidance on levelness and deflection limits of floor joists can be found within the Technical Manual under 'Tolerances'.
- Walls should be adequately restrained at the junction formed with the intermediate floor.
- Joist end bearing dimensions should be determined by the type of joist used – solid timber joists and engineered timber I joists should have a minimum end bearing of 90mm. The masonry around the bearing ends of the joists should be fully pointed.
- Joints in joist layouts should only be in place over a load-bearing support.
- Double joists should be correctly fixed together using fixings of appropriate length to an engineer's fixing pattern.
- Ensure proprietary metal work such as hangers, bracketry and fixing methodology is completed to the design and manufacturer's instructions.
- Joist installation using restraint type hangers should align with the manufacturer's seating and bearing dimensions. The hanger must be suitable for the loadings and wall substrate type.
- Where hangers are used there should be no gaps between the hanger back-plate and the face of the wall. For masonry walls, they should be bedded directly onto the masonry with least 450mm of masonry above the hanger position.
- Joists should be restrained at supports using tightly fitted strutting.
- Where lateral restraint is provided by means of 30mm x 5mm galvanised or stainless-steel restraint straps, they must be set at a maximum 2m centres. In masonry, they must be positioned over a full block and fixed as per the manufacturer's guidance.
- Where strutting has been included within a design it must be installed. It may be provided either by timber members, timber strongback members (open web joists) or by a proprietary metal product.
- Where non-load partitions are located, appropriate support should be provided either with multiple members fixed together aligned with the wall or perpendicular timber members spanning between joists at centres determined by the floor design.



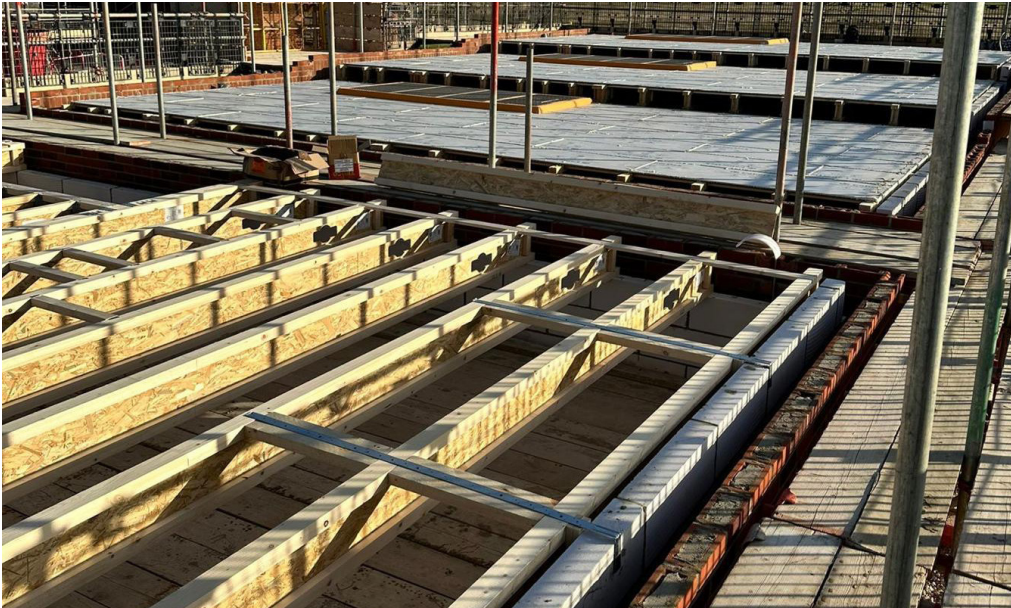
A completed intermediate engineered timber joist floor and the commencement of structural floorboard installation.



Engineered I-joists with a full end bearing onto masonry. Metal end caps have been attached to protect and stiffen end bearing. These caps also facilitate neat and tight masonry placement around end bearings. Joists also incorporate tightly fitted strutting to reduce risks of rotation.



Engineered I-joists with a full end bearing onto an internal masonry wall. Plastic end caps have been attached in this instance, again to facilitate neat and tight masonry placement around end bearings.



Correctly installed lateral restraint straps. Fully blocked out with noggings and positioned over a full block at the interface with the masonry.



Final blocking piece between masonry set and fixed. Lateral restraint strap is now set and ready for masonry work.



Full depth nogging work completed on this engineered I-joist floor. The lateral restraint is set on top of this nogging arrangement to restrain the parallel masonry as required.



A timber strongback member in an engineered I-joist floor provides lateral stability and reduces deflection risk ensuring the floor system's overall strength and performance.



Bridging noggings have been correctly provided at right angles to joist span direction to support a non-load partition located above.



Engineered I-joists fully seated and fixed into metal hangers onto an engineered timber beam. All nailing has been completed to the beam and the I- joists.



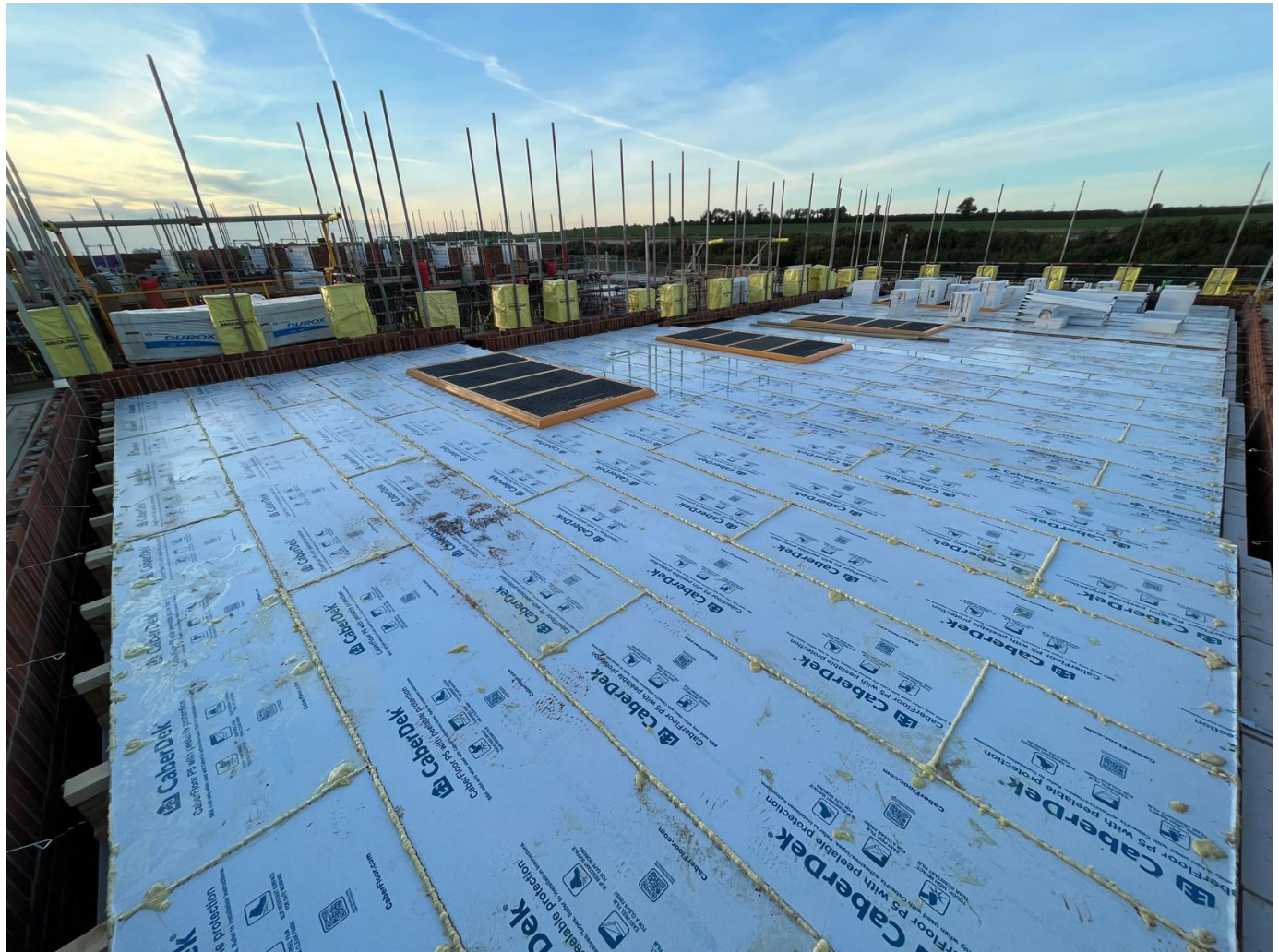
Load sharing metal connectors are installed on these I-joists to promote even load distribution across these adjacent joists. This improves stiffness, stability, and mitigates the effects of potential movement between joists.



Bolted solid timber joists have been connected here to create a stronger, more stable built-up beam arrangement. Bolted connections have been well executed, with a uniform linear pattern down the centre line.

6.2 Structural Floor Boarding

- Ensure structural floor boarding is installed in accordance with the specific design in relation to material type and thickness.
- Fixings should be in accordance with the manufacturer's recommendations. Where this is not provided, the guidance within the 'Upper floors' section of the Technical Manual may be referenced.
- Where gluing is required, boards should be glued to the joists and between board joints, using a suitable adhesive.
- Ensure square edged boards are supported on all edges by joists or noggings.
- Tongue and groove boards should be laid with long edges at right angles to joists. Short edges should be supported on joists or noggings, or they should be cut back to form a butt joint over a joist.
- Perimeter gaps between the edge of the boards and a wall or other abutments should be at least 10 mm wide or 2mm per metre run, whichever is the greater.
- Structural floor boarding when completed should be protected from follow on construction operations and the effects of weather until the structure is suitably weathertight.



A completed structural deck with all joints glued. Boards have been staggered as required and all protective coverings intact to protect the board material from construction work and the effects of weather until the building becomes weather tight.

SECTION 7

Roofing

7.1 Pitched Roofing - Structure

- Roof framing and all associated bracing members must be installed as per the structural design. All timber member sizing, bearings, span, centres and arrangement should be explicitly followed.
- Timbers should be free from damage and splits. Correct storage of trussed rafters immediately prior to installation is an important aspect of avoiding damage.
- Wall plates need to be fully bedded level, with all joints half-lapped. Wall plates should have vertical wall plate restraint straps installed. Straps should be a minimum 30mm x 5mm and 1m long.
- End bearing dimensions of roof members should be determined by the design and strictly adhered to. The installation of proprietary metal work such as hangers, bracketry and fixing methodology should be suitable for the intended use and completed to the manufacturer's instructions.
- All metal work facilitating fixity and restraint must be fully nailed and completed prior to loading.
- Any cut work required during the erection of the roof should be executed accurately.
- In pitched roofing, the use of 'birds mouth' seating cuts in a traditional cut roof should provide the bearing as determined by design – typically a minimum of 45mm and to a maximum depth of one-third of the rafter depth.
- Walls should be adequately restrained at junctions formed with the roof structure.
- Where lateral restraint is provided by means of 30mm x 5mm galvanised or stainless-steel restraint straps, they must be set at a maximum 2m centres, fixed over a minimum of 3 rafters and include timber noggings/bracing timber. In masonry superstructure, they must be positioned to connect to the wall over a full block.
- Roof bracing sections should be twice fixed to all roof trusses. In pitched roofing, any diagonal bracing should extend from the wall plate to the highest longitudinal brace and should be fixed to the wall plate. Longitudinal bracing should be tight against gable walls.
- Dormer constructions should be adequately supported by the roof structure – typically from multiple rafters. Where they are completed using cut roof techniques, they must follow a specific design and specification which includes timber sizes, sheathing board type and fixing methodology.
- In flat roofing, lantern or skylight construction should be adequately supported by the roof structure – typically using multiple members, trimming sections or steel beams.
- Where preformed or off-site dormers or skylights are specified, they must be installed in accordance with manufacturer's instructions.
- Where any multiple roof members are to be joined together e.g. multiple rafters, multiple trussed rafters, trimming beams, etc., they should be correctly fixed together using fixings of appropriate length and to a designed fixing pattern.



An example of a well-arranged trussed rafter storage area. Stored securely and off the floor, the trussed rafters avoid damage and soiling from surrounding site operations.



A wall plate bedded level, with the running joint half-lapped and nailed.



A correctly positioned trussed rafter, fully nailed and fixed using a proprietary metal bracket.



Proprietary truss hangers fixed onto a multiple trussed rafter arrangement. Hangers are fully nail fixed.



Trussed rafters being erected – longitudinal braces are fixed at the node points and diagonal bracing fixed into place. Unions in the bracing are correctly detailed with the side-by-side placement of bracing timbers to create continuity.



A diagonal bracing has been correctly nailed at its union with the wall plate.



A ladder frame construction fixed to the last trussed rafter. Its height location and level are set off adjacent trussed rafter backs using temporary horizontal timber bracing. Additional solid blocking has then been introduced and squarely fixed into the ladder frame and the head of the timber spandrel.



Vertical proprietary metal straps correctly fixed through into stud locations within this spandrel panel and into the blockwork below. Longitudinal bracing is tightly abutting the face of the spandrel and further secured with restraint straps.



This gable spandrel panel has horizontal proprietary metal twist straps fixed onto longitudinal bracing and into vertical studs within the panel alongside vertical strapping down to the masonry below.



Lateral restraint is provided by means metal restraint straps. These are within the 2m maximum centres and correctly fixed over 3 trussed rafters and bracing timbers and turned down the face of the spandrel panel.



This arrangement has the lateral restraint fixed onto the longitudinal brace. The strap has been neatly located through a perpendicular mortar joint and 'hooked' within the cavity at a full block.



This arrangement has the lateral restraint incorrectly surface fixed into masonry instead of being located through a perpendicular mortar joint and 'hooked' within the cavity at a full block.



A ply valley board on a trussed rafter roof, secured and set to finish level with the upper surface of the rafter backs. Additional noggings have been fixed to support valley edges providing a solid base for the placement of the follow-on roof covering work.



A hip to a trussed rafter roof securely fixed to the trusses at appropriate intervals with good alignment and level, giving support and stability to the roof structure.



An example of well executed eaves detailing. Appropriately sized timber sections have been secured to the projecting trussed rafter end facilitating the construction of the eaves' components of fascia and ventilated soffit.

7.2 Pitched Roofing Underlays and Roofing Battens

- Underlays for tiles and slates can be installed to be fully supported or unsupported and draped.
- Specification can be HR (high water vapour resistance) or LR (low water vapour resistance, also known as vapour permeable) depending upon the chosen ventilation strategy.
- Underlays should be classified based on geographic location and wind zone, ensuring the design wind pressure does not exceed the declared wind uplift resistance to avoid contact between the underlay and the underside of tiles.
- Eaves support trays should be installed to ensure any water on the surface of the underlay is directed to the gutters and does not pool behind fascia boards.
- Any proprietary ventilation tray units (rafter roll) should be fitted and secured to the rafter backs prior to membrane installation – the distance laid up the rafter back should correspond to the height of the horizontal insulation which abuts them when installed within and onto the ceiling joists.
- Lay the underlay parallel to the eaves or ridge with horizontal overlaps as specified and ensure vertical side laps are at least 100mm. Minimise gaps at laps and drape the underlay sufficiently for drainage.
- Laps must be secured according to manufacturer's guidelines for the specific wind zone and batten spacing.
- Fix the underlay with the specified fixings, keeping perforations to a minimum. Handle and fix the underlay carefully to avoid tears or punctures and repair any damage before tiling.
- Ensure the underlay does not block ventilation at eaves, ridge, or in the main roof, and properly weather any holes for pipes or other penetrations.
- Horizontal battens and counter battens must be suitably preservative treated, graded and have visible demarcation stamps. Each batten should be permanently marked with the supplier, origin, grading, and size.
- Horizontal battens should be at least 1200mm long, supported at each end and intermediately by at least three rafters. Stagger butt joints over intermediate supports and splay nail each batten end to the rafters.
- For batten gauges greater than 200mm, do not have more than one joint in any four consecutive battens on the same support. For batten gauges less than 200mm, do not have more than three joints together in any 12 consecutive battens on the same support.
- Batten sizing must be based on rafter support centres and primary roof covering type.
- Nail fixings should be positioned along the centre line of the batten and rafter below to penetrate at least 40mm into rafters (smooth shank). Counter battens should be fixed at a maximum 300mm vertical centres up each rafter back.
- Cut ends should be preservative treated.



Underlay with horizontal overlaps secured with a timber batten. Underlay has been draped to allow sufficient drainage of any water that enters the batten space.



Proprietary valley linings being installed with underlay membrane dressed onto unit edges. The membrane laps are being taped sealed to negate the need for a battened lap.



A proprietary closure unit for a GRP valley lining ensuring the valley unit is fully sealed at its end and correctly discharges into the gutter line.



A proprietary eaves support tray installed to give full support to the underlay and ensure any water on the surface of the underlay is directed to the gutters and does not pool behind fascia boards.



An incorrectly formed eaves detail on this counter battened roof has resulted in a water 'trough' being inadvertently created behind the fascia board.

7.3 Pitched Roof - Coverings

- All roof coverings should be fixed in accordance with a site-specific roof fixing specification from the manufacturer/supplier of the roof covering material.
- The fixing type and length should also be included in the specification. Ensure nails securing tiles do not penetrate the underside of battens or the underlay.
- All head and side laps should be suitable for the roof pitch and site exposure and should be in accordance with the manufacturer's fixing specification.
- Where possible use purpose-made tile-and-a-half tiles or slate-and-a-half units at verges, hips and valley detailing to minimise the risk of undersized units or small cuts being used.
- At the eaves the primary roof covering should overhang 45mm-55mm horizontally or to the centre of the gutter, whichever is the lesser dimension.
- Ensure the fascia board inclusive of any additional over fascia vents, and/or comb fillers (for profiled tiles) is at the correct height to prevent the roof covering from kicking up or dipping.
- Proprietary dry ridge or dry hip fixing systems where specified must be fixed as per the manufacturer's recommendations. Units bedded on mortar without any mechanically fixing are not acceptable.
- Verge detailing should include a sufficient batten projection to overlap onto the outer skin of brickwork to allow installation of a proprietary verge system e.g. proprietary cap units. Fixing of these units should be completed to the manufacturer's recommendations.
- Where detailing uses an under cloak with mortar, it must include appropriate mechanical tile fixings alongside an appropriate mortar mix. Any bedding and pointing of verge detailing tiles should be completed in one operation with mortar kept clear from batten ends.
- Ensure the roof structure adequately supports the valley lining. Detailing of the primary roof covering into the valley should align with the material chosen e.g. lead, proprietary GRP units. Lead valley work should align with the appropriate Code of Practice; any proprietary valley product should be installed in line with the manufacturer's recommendations.
- Lead flashings, soakers, gutters, aprons and saddles should be of an appropriate code for their position and exposure – typically Code 3, 4, or 5 however for extreme conditions or exposure it may be higher.
- All lead detailing should include appropriate laps or soldering techniques, and account for any foreseeable expansion and contraction.
- Abutments must have an appropriate lead upstand as determined by the location of the detailing e.g. top edge abutment, side abutment.
- Step and cover flashing or secret gutters can be used with single lap interlocking tiles. Soakers and step flashings must be used where double lap plain tiles or slates abut a wall.
- Install all flashing work around chimney stacks to be continuous with any aprons or cavity trays in the masonry, completing any stepping detailing to align with approaches taken from abutments.
- Proprietary prefabricated chimney units should have their flashing work completed in line with manufacturer's recommendations.
- Any penetrations for pipes or flues should incorporate either a preformed lead unit or proprietary flashing unit which is dressed into the surrounding roof covering.
- Exposed completed lead flashing work should receive a coat of patination oil.
- Rooflights should use proprietary flashing kits supplied by the manufacturer. Installation of the flashing kits must be in accordance with the manufacturer's guidelines.
- The weatherproofing of dormer constructions and their interfaces with the primary roof covering shall be completed to an approved site-specific design.
- Where preformed or off-site dormers are specified, they must be installed in accordance with manufacturer's instructions.



An example of a neat simple roof covering installation – tiles are installed to a good level and lateral shunt has been effectively utilised to ensure tiles are well gauged running into the verge to avoid small cuts. The ridge tiles are well aligned, fixed and levelled.



An example of a more complex roof covering installation – the appearance of the tile work is well blended. Hips and ridge work is installed to a high level and the often complex union is neat and well detailed to form good joints.



Eaves tile line has been correctly set to an overhang of 45mm when measured horizontally from the fascia. Importantly the proprietary preformed verge unit is aligned to discharge into the gutter ensuring no water collected in the verge unit misses the gutter.



A well-executed installation of a proprietary dry hip fixing system. The ventilated hip roll is neat and uniformly laid and each tile union is well fixed with a union seal and fixing plate.



A dry ridge installation, all unions fixed and the use of a block end ridge tile alongside these proprietary verge units gives a good degree of security to prevailing winds on this exposed ridge line.



A neatly installed preformed valley. Tile lines are well aligned and cutting work neat and tidy.



A neatly installed open preformed valley. Tile lines are well aligned and cutting work neat and tidy.



Lead work completed to this dormer construction – corner welts have been formed correctly with the forward-facing jamb side dressed around to finish onto the dormer cheek. Joints are secured down with welted joints. Edge clips have been fixed at uniform centres.



A well-presented rooflight installation. Proprietary flashing kits have been used and the bottom apron flashing aligns well with adjacent slate coursing. Cut work is neat and tidy and the slate termination detailing into the rear of the flashing kits observes the required gap.

7.4 Flat Roofs - Structure and Decks

- Roof framing and all associated trimming, beams, firrings, strutting and nogging members must be installed as per the structural design.
- Ensure all timber members and deck materials are installed in accordance with the specific design in relation to member sizing, bearings, span, centres and arrangement.
- Structural decks should be 18mm minimum and be of a suitable material – typically an appropriately graded plywood or OSB and fixed with appropriate fixings and expansion gaps.
- Timbers should be free from damage and splits.
- Wall plates need to be fully bedded level, with all joints half-lapped. Wall plate should have vertical wall plate restraint straps. Straps should be a minimum 30mm x 5mm and 1m long.
- End bearing dimensions of roof members should be determined by the design and strictly adhered to. The installation of proprietary metal work such as hangers, bracketry and fixing methodology should be suitable for the intended use and completed to the manufacturer's instructions.
- All metal work facilitating fixing and restraint must be fully nailed and completed prior to loading.
- Any cut work required during the erection of the roof should be executed accurately.
- Walls should be adequately restrained at junctions formed with the roof structure.
- Where lateral restraint is provided by means of 30mm x 5mm galvanised or stainless-steel restraint straps they must be set at a maximum 2m centres, fixed over a minimum of 3 joists, and include timber noggings. Where the wall type is masonry, they must be positioned to connect to the wall over a full block.
- Lantern or skylight construction should be adequately supported by the roof structure – typically using multiple members, trimming sections or steel beams.
- Where any multiple roof members are to be joined together e.g. multiple rafters, multiple trussed rafters, trimming beams, etc., they should be correctly fixed together using fixings of appropriate length and to a designed fixing pattern.

7.5 Flat Roofs - Coverings and Drainage

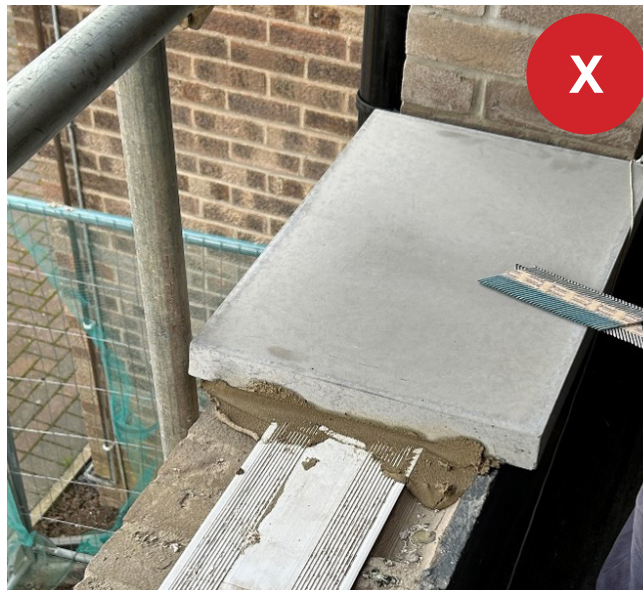
- Flat roof drainage and covering installation must be completed to a site-specific design which includes the number of outlets, overflows and fall layouts.
- A flat roof membrane manufacturer's approved installer must be used in the installation of all flat roof coverings.
- Flat roofs shall have a finished fall of 1 in 80. Where two roof planes intersect at a cross fall, the line of the crossfall junction that is formed must achieve a minimum 1:80 fall along its length.
- Rainwater must discharge from the roof area to a suitable drainage system.
- All detailing must be installed to site-specific junction details provided by the designer - upstands must extend 150mm above the finished roof level, and where down stands of separate metal or other flashings are incorporated, they should lap the upstand by a minimum 75mm.
- Junctions with cavity trays should be formed to provide continuous protection - cavity trays should drain over any flashings or upstands.
- Where parapets are included, flat roof covering upstands must extend 150mm above the finished roof level and linked to the cavity tray within the wall construction. Where parapets are fully encapsulated with roof covering material returning onto the head of the parapet wall, weatherproofing termination should be completed to a site-specific design factoring in the type of coping or capping detailing.



Work on going to a single ply flat roof installation. Parapets are fully encapsulated with the roof covering material returning onto the head of the parapet wall.



Work on going to a built-up felt roof installation. Parapets are fully encapsulated with the roof covering material with well-formed joints clearly exuding a consistent bead of bitumen. Lead work neatly formed on the outside edge, with uniform edge clipping. A proprietary capping system will complete the detailing.



The coping stone to this parapet wall has no horizontal DPC linking with the waterproofing. Any water passing through the joints would by-pass the waterproofing and penetrate the wall below.

7.6 Fire stopping

- Appropriate fire stopping materials should be provided at any separating walls or compartment wall junctions formed with the roof structure.
- Compartment or separating party walls should be terminated 25mm below the top of the rafter line and a soft fire-resistant packing, such as mineral wool, should be used to close the space whilst allowing for movement in roof structure and prevent distortion of the roof covering.
- The fire stopping should be continuous through any eaves level at compartments – typically eaves detailing incorporates mechanically fixed fire stopping material such as a fire-resisting board or a wire reinforced mineral wool blanket to fully fire stop the boxed eaves.
- All materials used to form a fire barrier must have relevant third-party certification or be CE marked in accordance with the Construction Products Regulations.
- The materials must be installed in accordance with the manufacturer's instructions and recommendations.



A proprietary polyethylene sleeved fire stopping product installed over a compartment wall spandrel panel. The spandrel panel has been set to ensure the fire stopping finishes touch tight with the roofing underlay material.

7.7 Insulation and Ventilation

- In flat roofing, ventilated flat cold deck roofs over 3m² in area are not acceptable. Warm deck flat roofs should be advocated wherever possible.
- All pitched roof construction must incorporate ventilation. The prescribed rates of ventilation shall be determined by the roof configuration. Each situation is comprehensively covered within the Technical Manual.
- If an LR underlay is used, interstitial condensation is unlikely to occur, provided the ceiling is well sealed and the eaves have a minimum continuous ventilation opening of 3mm. If the ceiling is not well sealed, openings equivalent to 7mm should be used – typically the inclusion of a 10mm eaves vent system will satisfy both requirements.
- When specifying a close fitting roof covering which is relatively airtight, such as fibre cement slates, the batten space should be ventilated.
- In all roof constructions, thermal insulation should be installed and fixed to a site-specific design. The design and specification should incorporate appropriate Air and Vapour Control layers.
- In flat roofing, insulation should be fully supported, laid to a staggered bond pattern and tightly butted to prevent thermal bridging from gaps.
- Thermal insulation should not block ventilation paths into any part of the roof structure.
- In pitched roofs, where thermal insulation is provided at the ceiling level it should be continuous and installed without gaps – typically built up using multiple layers which are laid at right angles. Junctions with the perimeter wall installation, e.g. at the eaves, should be continuous to avoid risks of thermal bridging.
- Where insulation is provided within the rafter line, it should be completed to a site-specific design. Where a residual ventilation space is provided above any insulation, it should be appropriately ventilated at the prescribed rate and should not be obstructed or blocked.



A proprietary eaves panel vent installed to ensure the cold pitched roof is appropriately ventilated. A portion of insulation has been installed neatly behind the wall plate whilst this area is accessible from the underside, ensuring continuity is achieved with the cavity wall insulation and behind the timber wall plate.



A portion of insulation has been installed in between the last trussed rafter bottom chord and base rail of the timber spandrel panel whilst this area is accessible from the underside. An example of good forward thinking to ensure continuity of the thermal envelope is maintained.



Rigid insulation installed in between rafters in a pitched roof. Cutting of the board has been completed accurately to be tightly friction fit.



Ongoing work to a flat roof construction – rigid insulation installation in the warm roof configuration is well executed with staggered and tape sealed joints.

SECTION 8

First Fix

8.1 External Windows and Doors

- External windows and doors must be completed as per the installation schedule for the project.
- Windows and doors should be compliant and, where required, include the provision of means of escape and safety glazing.
- Frames should be level, plumb and square within their openings.
- When fitting, ensure a seal is provided between any sill and frame – the seal should not block any frame drainage holes.
- Appropriate fixings should be used to secure the frame to appropriate surrounding structure without distortion to the frame.
- Fit tolerances in relation to perimeter gaps should be sized accordingly to allow for thermal movement and acceptable sealant application.
- Opening parts of the window or door should be free moving and fully operational. Gaps or binding should be rectified during the installation process.
- Handles, hinges and locking mechanisms should operate freely.



Proprietary fixing brackets installed to secure frame to appropriate surrounding masonry reveal without distortion to the frame.



Protection to handles being utilised from the outset to avoid damage from follow on construction operations.

8.2 Non-Load Bearing Studwork

- Studwork timbers should be appropriately sized. Where they are formed from timber sections, the material must be dimensionally stable, dry, and free from damage and splits.
- Cut work should be executed with precision with tight and flush fitting joints.
- Fixings used at joints within studwork should be appropriately sized.
- Erected stud work should be accurately spaced, aligned, plumbed and levelled. Horizontal straightness and vertical alignment should be within any stated tolerance.
- Stud centres should be relevant to the plasterboard thickness – reduced centres may be required or extra studs and bracing/nogging included adjacent to areas of high traffic, walls with an increased risk of impact, walls receiving tiling or where multiple linings (double boarding) are employed and additional studs are needed to catch board edges.
- Extra studs and noggings should be provided to catch board edges e.g. within corners, junctions with intermediate floors. They should give the required bearing to allow plasterboard fixings to be driven squarely.
- Openings within stud work should be plumb, square and free from twist. Tolerances in the opening size should not be excessive as this leads to excessive packing and filling when door casings are installed.
- The fixing of stud work into the surrounding structure should be robust and free from movement. Fixings used must be appropriately sized and suitable for the receiving substrate.
- Where required contact points with surrounding structure should include a sufficient width of DPC material – situation dependent, this safeguards against construction moisture transfer from screeds and can also facilitate continuity of AVCL's within framed superstructure.
- Where stud work base rails are fixed into timber intermediate floors, fixings and support must be provided using either appropriately positioned joists or series of noggings fixed at right angles to the line of the stud.
- The inclusion of noggings, timber board linings or pattresses (e.g. plywood, OSB) to carry internal fitments, appliances or equipment should be fully fixed with appropriately sized fixings and completed with tight fitting and neat joints.
- Pattress fixing in between and into surrounding stud work should include secured grounds that facilitate squarely driven fixings, avoiding issues of splitting and edge damage often created by skew nailing or screwing the material faces.
- Where deflection head detailing is required, it should be carried out to a site specific detail.
- Where studwork is completed to create the boxing in of services e.g. SVPs, its execution should be of an equal standard to the above. Boxing in should be square and plumb, and sized to accommodate any required clearances to material and fitting held within.



A well constructed timber stud work wall with studs accurately spaced, aligned, plumbed and levelled. Appropriate horizontal nogging has been set and electrical sockets supported by fixed grounds. An opening has been accurately formed for the door casing to be installed without excessive amounts of packing.



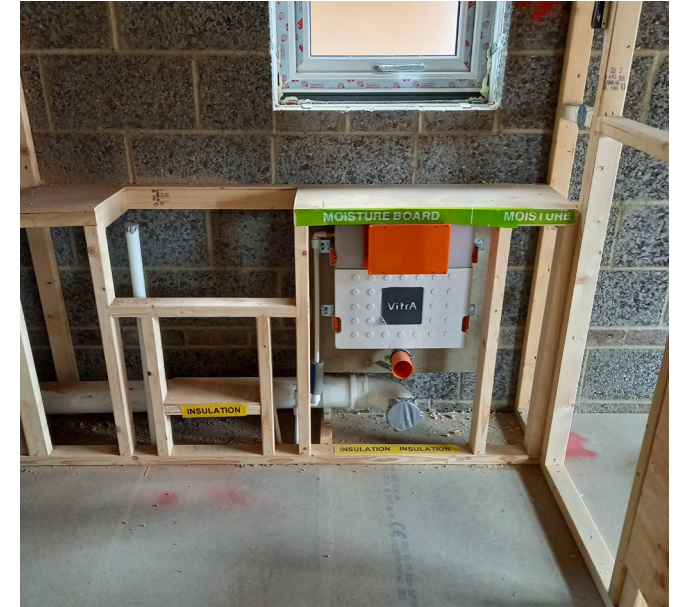
A staircase bulkhead boxing out with timber sections executed with precision with tight and flush fitting joints ready to receive plasterboards.



Boxing out to an SVP has been well constructed with the acoustic insulation to reduce noise transfer in place prior to construction. DPC has been placed at contact points with the wall and floor to safeguard against any residual moisture in the substrates.



Attention to detail in the setting out process to ensure the boxing into the SVP in square and plumb when fixed.



Well constructed framework to form a housing and support for a concealed cistern and recessed sink arrangement. Informative demarcation has been placed for follow on trades.



Attention to detail around this pattress work. Timber grounds have been correctly included to facilitate squarely driven fixings to ensure the element of support is well secured.



Uniformly executed pattress work to facilitate the fixing of kitchen cabinets. Again, timber grounds have been correctly included to facilitate squarely driven fixings to ensure the element of support is well secured.



The fixing of stud work into the masonry structure. Shot fired nails have been used to set plumb and then screwed fixings have been employed to secure the stud work. Steel washers have been used in this instance to ensure the screwed fixings achieve maximum fixity.



DPC material installed beneath the bottom rail of the stud work to safeguard against construction moisture transfer from screeds.



DPC material at the junction with the external wall and stud work to facilitate continuity of the AVCL within timber frame superstructure.

8.3 Staircases

- All stair flights and components should be protected from excessive moisture. Staircases and components delivered into a plot prior to installation should be protected from any weather or construction activity that may lead to damage or deterioration.
- During staircase construction, all joints between strings and newels should be glued and securely fixed. Treads and risers should be wedged and glued. Kite winders and turn landings should include additional support across their width formed from appropriately fixed timber sections.
- When installed, strings should be firmly secured to adjacent walls using appropriate fixings and blocking where required.
- A minimum of 2m clear headroom should be achieved when installed and suitably account for any follow-on fabric e.g. plasterboard.
- The last riser and newel drop detailing should be tight to trimming joists and fully secured with appropriate fixings and glued blocking where required.
- DPC protection should be provided to avoid the effects of residual moisture in adjacent or contacting elements of construction e.g. underneath newel ends, bottom risers, support stud frames under the flight and any stair spandrel panels.
- Fixed staircases should be free from movement when completed.
- Newel posts should be plumb and treads level across their width and depth.



The wall string firmly secured to the adjacent wall using frequently spaced fixings.



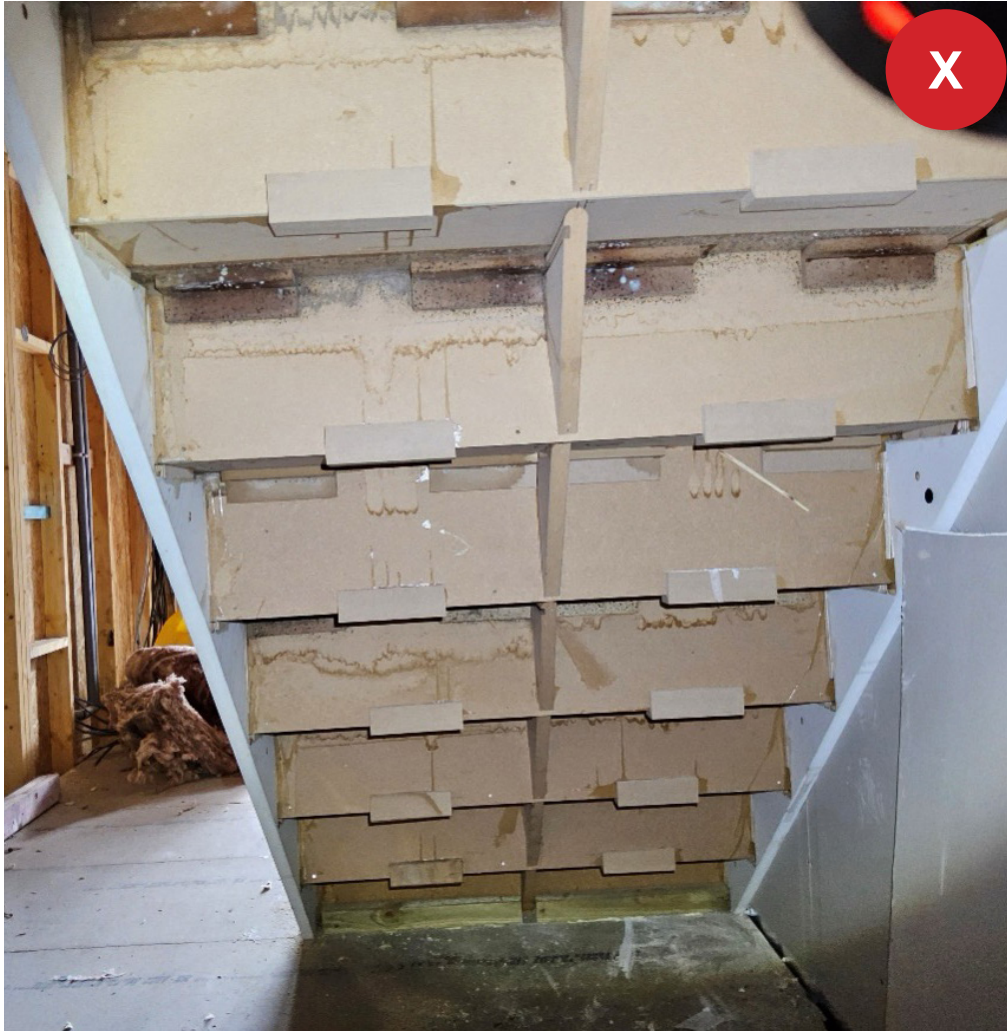
The wall string firmly secured to the adjacent wall with blocking included to ensure the string is in full contact with the adjacent wall when fixing.



Additional timber frame installed under the staircase to support to kite winders at the base of the stair flight.



A straight flight installed with acoustic insulation to reduce noise transfer, secured in place prior to plaster boarding.



The staircases and components have been subjected to excessive moisture which has manifested as severe water staining and mould growth.

8.4 Door Casings

- Door casings should be plumb, square and free from twist. Fitting gaps to the opening should be even – gaps should be addressed with solid sections of appropriately sized timber sections where they are excessive.
- Fixings should be as per the fixing specification – typically paired at equal distances up the jambs. Head fixings may be required on wide openings.
- Fixings used must be appropriately sized and suitable for the receiving substrate. Heads should be recessed or sunken to allow for filling during decoration.
- Packing materials should be suitably sized and formed from a suitable material. Expanding filling foams can be used to offer additional fixity in between screw fixed points.
- Fire door assemblies and fire door sets must be installed strictly in accordance with their fire certification inclusive of any packing and sealing materials used within their installation.



An example of paired fixings to the jambs of a door casing to fully secure the frame into the surrounding substrate.



A door casing with solid timber continuous packing used to close fitting gaps to the structural opening. An expanding filling foam has been used to offer additional fixity in between mechanically fixed points.

8.5 Window Boards

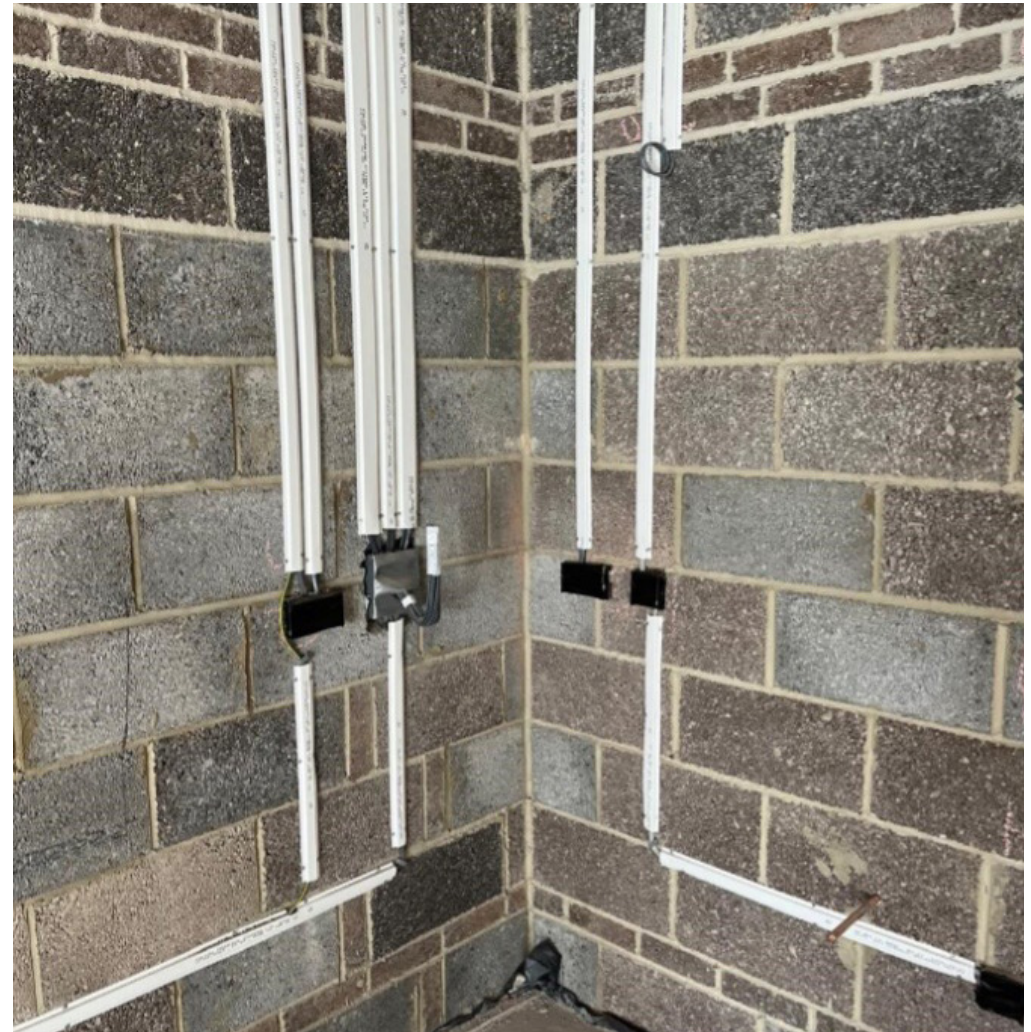
- Window boards should be appropriately fixed and secured to be level across their width and depth.
- Cutting and forming of returns should be square and neatly fitting into the reveal.
- Projecting edges and returns should be consistent in their size, profile and appearance. The depth of projection should be parallel to the wall surface below and have a consistent overhang.



Equally set steel angle brackets fixed to the underside of this window board and then secured to the masonry below. Expanding foam has been used in between fixed points to offer additional fixity.

8.6 Electrical Services

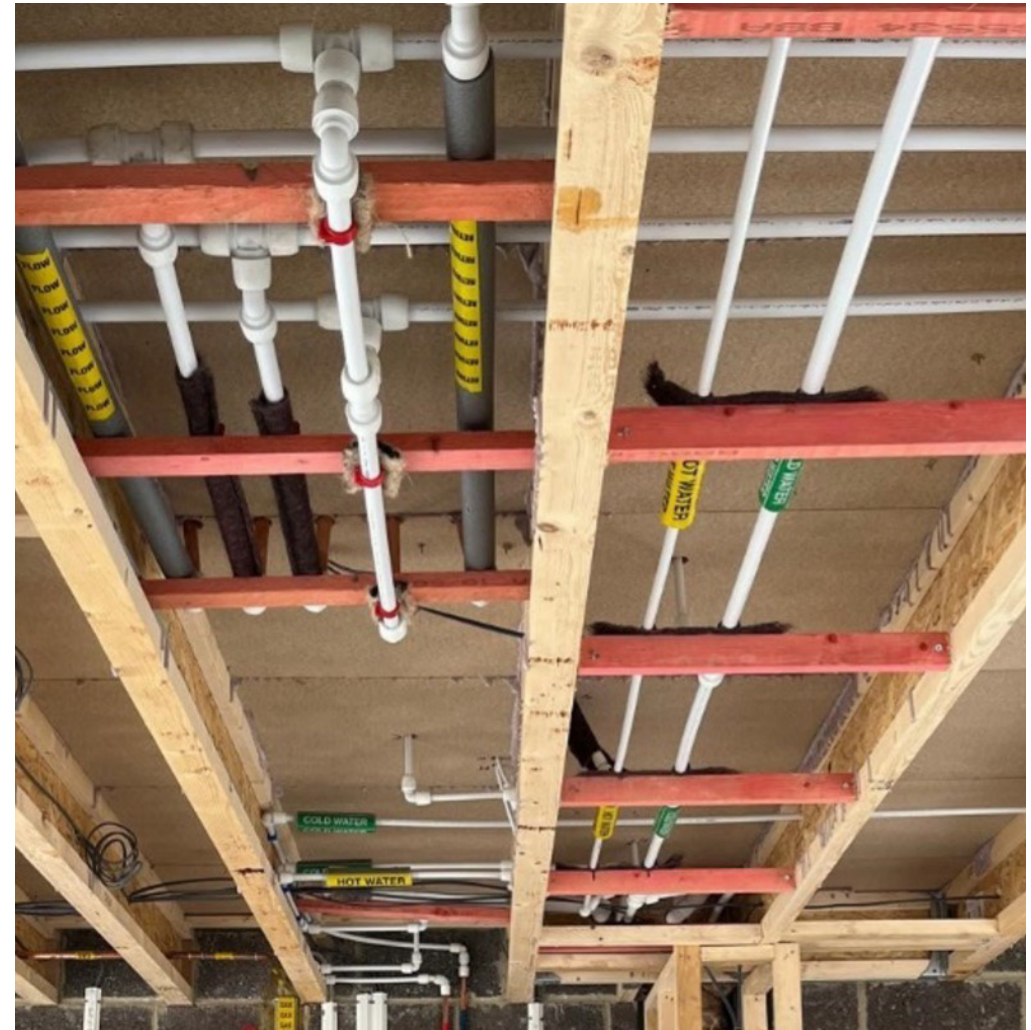
- Electrical installations must be completed as per the installation schematic drawing package for the project.
- Cables should be installed within designated safety zones.
- Cables should be positioned 50mm from the wall or ceiling finished surface or protected by suitable protection e.g. a metal plate, metal trunking. Penetrations should be neatly formed, adequately sized and positioned within permissible areas.
- Cables should be appropriately fixed and secured – fixing and support centres should be determined by cable size and orientation. PVC-covered cables should not be in contact with polystyrene insulation.
- If chases in masonry walls are necessary, their depth should not exceed one-sixth the thickness of the single leaf for horizontal chases and one-third the thickness for vertical chases.
- Backing boxes should be securely fixed to the receiving substrate.
- Dry lining boxes should be fitted into accurately formed cut outs and secured to avoid movement.
- Timber framing and joists should not be excessively notched or drilled when routing cables – the relevant guidance of the system provider or manufacturer should be followed.
- Cable drops and tails should be located accurately to correspond with the final and fixed positions of outlets or switches – this ensures that removal or excessive alteration of plasterboard linings is not required during 2nd fix stages.
- Where fire stopping is installed around cabling that penetrates fire-resisting floors, walls or partitions, all fire-sealing and fire stopping materials used must be fully compatible with the cabling. Guidance on compatibility should be sourced from the manufacturer's of interacting materials in the first instance.



A neat cable installation with cables installed within the designated safety zones located horizontally or vertically from a switch or outlet positions.

8.7 Plumbing and Gas Services

- Plumbing and gas installations must be completed as per the installation schematic drawing package for the project.
- Pipes should be appropriately fixed and secured – fixing type and support locations and centres should be determined according to pipe size, material type and orientation. Fixings should not restrict thermal movement.
- Timber framing and joists should not be excessively notched or drilled when routing pipe work – the relevant guidance of the system provider or manufacturer should be followed. If chases in masonry walls are necessary, their depth should not exceed one-sixth the thickness of the single leaf for horizontal chases and one-third the thickness for vertical chases.
- Heating pipework located within floor construction should be neatly clipped and secured to the sides of joists. Penetrations should be neatly formed, adequately sized and positioned within permissible areas.
- Any insulation required to protect pipes or avoid heat loss, should be securely fixed and fitted without gaps in the protection.
- Only manufacturer specified metallic tracer tapes should be applied to plastic pipework to allow detection equipment to easily locate their position in service.
- SVPs and other sanitary pipework should be installed in accordance with manufacturer's recommendations.
- Sanitary pipework should have adequate falls. It must be appropriately fixed and secured – fixing type, support locations and centres should be determined according to pipe size, material type and orientation.
- The soil and waste system requires appropriate ventilation. Where SVPs terminate to an Air Admittance Valve (AAV) within the building, they must be positioned in areas that are not liable to freezing, have adequate ventilation (at least 2500mm² or as specified by the manufacturer), and be accessible for maintenance.
- SVPs and sanitary pipework should be wrapped in acoustic insulation to reduce noise transfer in operation. The material should be fully secured to ensure it remains in position throughout its service life.
- Gas pipe work should be completed in line with relevant Approved Codes of Practice and industry standards, such as those published by the Institution of Gas Engineers and Managers (IGEM) or Gas Safe Register (GSR).
- All appliances, heating systems and components associated with their installation must follow the manufacturer's installation guidance.
- Where fire stopping is installed around pipework that penetrates fire-resisting floors, walls or partitions, all fire-sealing and fire stopping materials used must be fully compatible with the pipes. Guidance on compatibility should be sourced from the manufacturer's of interacting materials in the first instance.



A neat pipe work installation with pipe support set at regular intervals utilising timber battens.



A neat pipe work installation with pipe support set at regular intervals utilising proprietary metal brackets. Sanitary pipe work passing through joist positions has been sleeved with felt fabric to allow thermal expansion to occur unhindered and without the risk of associated noise.



An SVP secured and supported by a proprietary bracket. A felt fabric has been placed to ensure any thermal movement in the pipe is not restricted.



Metallic tracer tape applied to a DPC fixed over plastic pipe work to allow detection equipment to easily locate their position in service. The DPC avoids any issue created by tape adhesive and pipe material compatibility.

8.8 Extraction and Ventilation Services

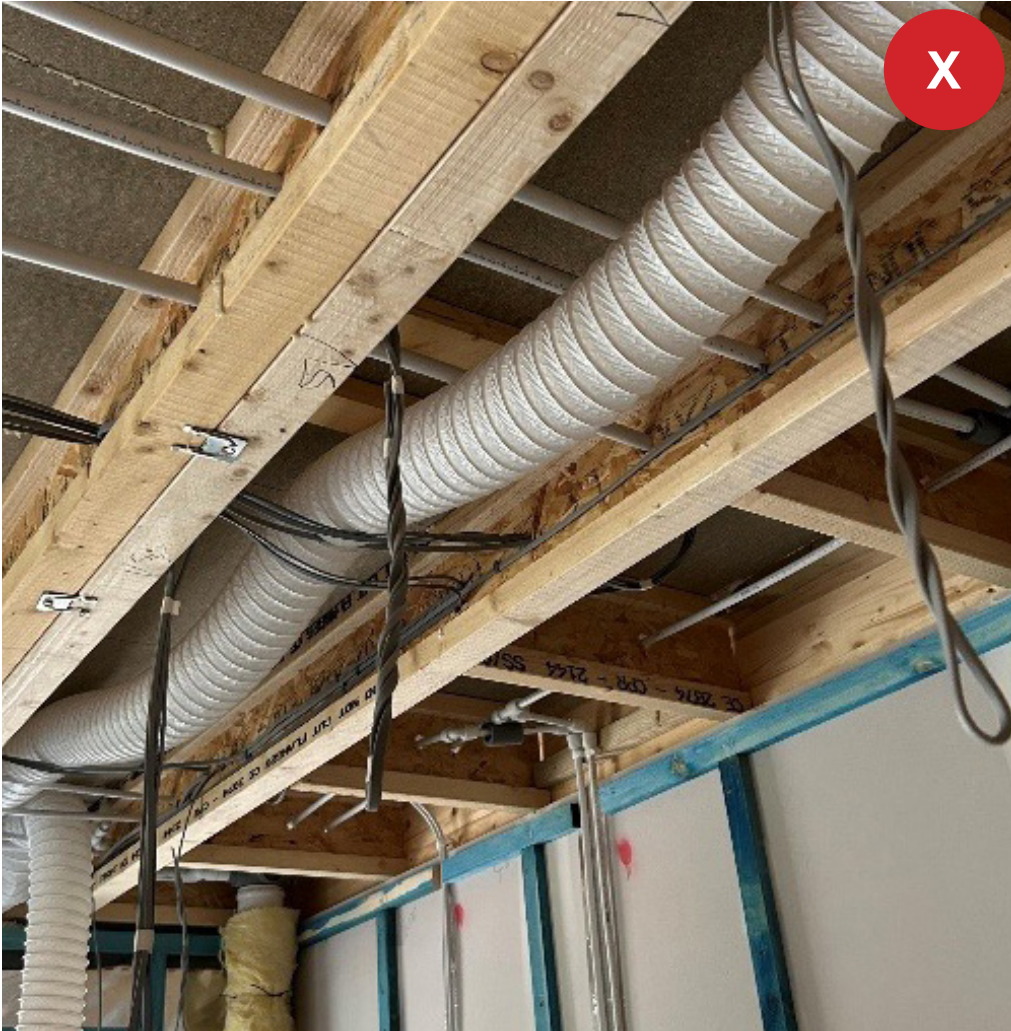
- Ventilation systems must be completed as per the installation schematic drawing package for the project.
- Duct work should be appropriately fixed and secured – fixing type and support locations and centres should be determined according to pipe size, material type and orientation. Fixings should not restrict thermal movement.
- The line, level and orientation of duct work should not restrict or reduce the efficacy of the system or fan component – straight lines using rigid ductwork with minimal bends are advocated in installation.
- Flexible ducting should only be used for final connections. Where utilised, they should be a maximum length of 1500mm, and free from undulation, compression, or constriction.
- All joints and connections should be mechanically fixed and sealed in accordance with duct work manufacturer's guidance.
- Duct work passing through cold spaces needs adequate insulation and a condensate trap where necessary.
- Duct work should not be in direct contact with other surfaces, such as plasterboard ceilings, as this can transfer operating noise.
- Where duct work passes through an external wall, it should be positioned to slope slightly outwards to prevent water entering the building. Penetrations should be neatly formed, adequately sized and positioned within permissible areas.
- Concealed equipment and components should be appropriately fixed and secured in accordance with the manufacturer's instructions. Where required, they should be accessible for inspection and maintenance.
- Where fire stopping is installed around fire-resisting duct work that penetrates fire-resisting floors, walls or partitions, all fire-sealing and fire stopping materials used must be fully compatible with the duct material. Guidance on compatibility should be sourced from the manufacturer's of interacting materials in the first instance.
- Where duct work requires the installation of intumescent collars or sleeves at points of penetration through fire-resisting construction or incorporates fire dampers, they must be installed to a site-specific design and specification.



Well supported rigid duct work with a short section of flexible pipe used for final connection. The penetration through the external wall is neatly formed and sealed.



A timber truss and ground used to accurately locate the duct. The mechanical fan outlet has also been provided with a robust fixing position during 2nd fix.



Extensive use of flexible ducting and lack of adequate support has created this undulating line which gives rise to air flow reduction and subsequent collection of water if condensation in the pipe occurs. Flexible ducting should only be used for final connections with a maximum length of 1500mm.

8.9 Plaster Boarding

- The building must be weathertight. The internal environment should be dry and substrates free from damp prior to commencing any plaster boarding installation work.
- Plaster boarding works must be executed to the approved specification – attention must be paid to ensure moisture-resistant boards are installed in wet areas and acoustic boards for internal and compartment walls where required.
- Board placement should be plumb and level.
- Board joints should be tight – typically gaps should be no greater than 3mm in width.
- Staggered joints should be used on ceilings and any vertical detailing where multiple boards are installed e.g. stairwells.
- Where walls and ceilings are doubled boarded, joints between layers must be staggered and each layer secured directly into supporting structure.
- Reveals should be plumb and square with equal margins to fitted window boards.
- When adhesively bonding plasterboard, ensure the substrate is clean, dry, and free from any loose debris or dust. Any irregularities should be filled and smoothed out to provide a good surface for adhesion.
- Adhesive dabs should be evenly spaced, with centres based upon the board thickness. Dabs are typically sized at 250mm long by 50mm with a continuous ribbon of adhesive used at wall perimeters, around window openings and around services such as sockets and gas pipes.
- Where mechanically fixed by screws, the fixing type and length should be aligned with the plasterboard manufacturer's guidance.
- Fixing centres should be determined by the situation and at centres defined by the manufacturer.
- Typically screws for wall linings are located at 300mm centres with reduced centres used at external angles. Ceilings have fixing centres located at 230mm and 150mm centres at board ends, with encasement or boxing in detailing fixed at 150mm centres.
- Screws heads should be recessed but not driven to a depth which punches through the paper facing.



Excellent levels of preparation for plaster boarding works with demarcation tapes being used to ensure correct board specification is followed.



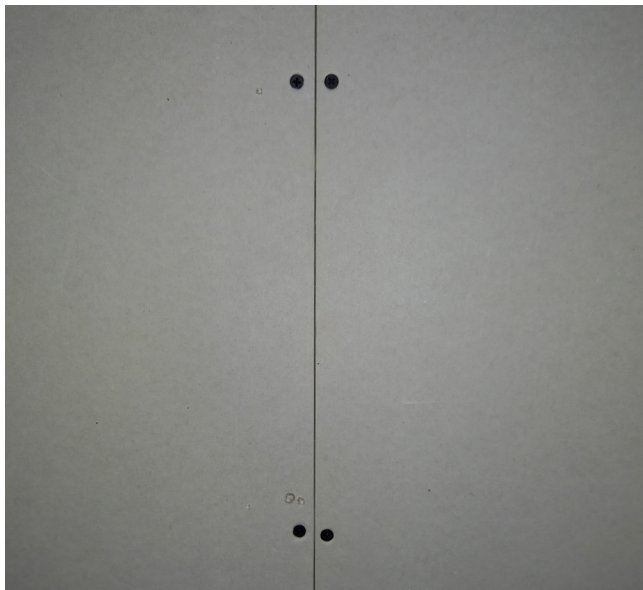
Pipes being protected by a metal plate to safeguard against potential fixing strikes.



Evenly spaced adhesive dabs at 250mm long by 50mm. A continuous ribbon of adhesive has been used at wall perimeters and around the socket location.



Uniform and correctly spaced screws securing the wall plaster boarding. Board joints are nominally 3mm in width. Cut out work around socket is neat and square.



Screws heads recessed but not driven to a depth which punches through the paper facing.



Uniform and correctly spaced screws securing the ceiling plaster boarding.



Tape and filling work ongoing to these staggered joints formed in this two-storey high wall. Staggering horizontal plaster board joints reduces the risk of horizontal linear cracking.



Well presented plaster board reveals with plumb and square board application, achieving equal margins to window jambs. Board termination under window board is neat and the gap is not excessive.

SECTION 9

Second Fix - External

9.1 Windows and Door - Operation and Appearance

- All doors should be installed in accordance with the manufacturer's guidance and recommendations.
- Verify that the fit of doors and windows achieves satisfactory performance in terms of weathertightness and exclusion of draughts.
- Doors and windows must open, close, and lock smoothly without excessive force.
- Hinges, handles, latches and locks should be securely fixed and aligned. Letterboxes and all other ironmongery should be secure and operational.
- Sliding and bi-fold systems should glide and engage correctly.
- Frames must be square, plumb and level with consistent gaps around opening lights and leaves to ensure proper sealing and aesthetics.
- Doors should not bind on thresholds or frames.
- Thresholds and sills should be free from damage and scratches – they must shed water away from the threshold and be detailed correctly.



A window installation undergoing final checks – hinges, operation and locking mechanisms should be verified by the installer to satisfactory performance in terms of security, weathertightness, and exclusion of draughts.



An entrance door with consistent gaps around the door leaf perimeter to ensure acceptable sealing and aesthetics.

9.2 Windows and Doors - Perimeter Sealants

- Gaps around external windows and doors should be sized to allow for thermal movement and this will vary depending on the material of the frame.
- All sealant used should be aligned with the project specification to ensure compatibility, exposure and joint movement is correct.
- Any PU foam used as a backing material for sealant to the perimeter gap around frames should be neat and to the correct depth. Avoid deep filling if the sealant relies on atmospheric moisture to cure.
- When using impregnated tapes, follow the manufacturer's instructions, as over-capping with a wet sealant is generally not required.
- Ensure continuous sealing of perimeter joints on both the outside and inside of the frames.
- Sealant should be smooth and free from gaps and smears.
- Finishing trims where used must be compatible with the materials used within the frame, robust in their attachment, and must not negatively impact the performance of the junction or any trickle vents or framing drainage outlets.



A continuous seal of the perimeter joint to this door. Sealant is well tooled and free from gaps and smears.

9.3 Movement Joints - Sealing

- Ensure backing materials and sealants are to the project specification – this is essential to ensure compatibility and compressibility required at the joint is correct.
- Ensure any backing material is set to the correct depth.
- Movement joints should be continued through any render construction.
- Sealant application should be continuous and free from gaps and smears.
- Any blisters and irregularities within the product should be removed – its final appearance should be compressed and smooth, and to a neat surface finish.

9.4 Canopies

- Canopies must be constructed using durable and structurally capable materials.
- Prefabricated canopies must be suitably accredited for their intended use.
- They must be securely fixed with appropriately graded and durable brackets and fixings.
- Fixings must be as per the specification – they should be suitable for the substrate type and capable of withstanding foreseeable loads e.g. wind and snow.
- Canopies must be level, symmetrical and visually aligned with doors or windows.
- Junctions with walls should be sealed to prevent water ingress where required.
- Any supportive components should not obstruct access into the building.



A large, tiled canopy – it is essential that such elements are securely fixed to a site-specific design specification. The specification should detail the type, size and material for brackets. Fixings must be suitable for the substrate type and capable of withstanding foreseeable loads e.g. dead load, wind, and snow.

9.5 SVPs, Gutters and Rainwater Goods

- SVPs and any adjoining pipe work must be securely fixed using appropriate brackets and fixings.
- Brackets should be spaced at appropriate intervals to prevent sagging.
- SVPs must be vertically plumb and any branch pipes set to a correct gradient.
- Rodding points and access fittings should be in place and easily accessed.
- Penetrations through into the building must be sealed.
- The tops of SVPs should be 900mm above any opening occurring with 3m of its position and have appropriate cowls to prevent debris and pest entry.
- Gutters should have the required falls – typically a nominal gradient of between 1mm over 1 metre and 3mm over 1 metre is required.
- Gutters must be fixed securely with appropriate brackets typically no more than 1 metre apart, or as recommended by the manufacturer. Additional support should be provided at angles, corners, and outlet positions.
- Downpipes should be placed as per the design. Fixing should be to the specific manufacturer's guidelines as these can vary based on the material (e.g. plastic, aluminium, galvanised steel) and design of the downpipe.
- Ensure downpipes are installed plumb and supported and fixed securely to the wall at regular intervals – typically at 1.2-1.8m centres to ensure that the downpipe is adequately supported and can withstand the weight of water flow.
- Downpipes terminating into gullies should do so below the grating but above the water seal, preferably using a back inlet gully.



A rainwater down pipe secured at 1.8m centres using proprietary clips.



A neatly arranged series of branch connections into the SVP stack. Penetrations through the masonry have been neatly formed and well sealed.

9.6 Meter Boxes

- Meter boxes should be securely fixed. They should be level and plumb and sealed to the surrounding masonry. Sealant should not block weep holes or weep vents from any associated cavity tray.
- Boxes should be easily accessible and all safety features such as shut off valves and earth bonding clearly visible and identified.
- Door hinges and locks should be operational.
- Entry points within the box should be accurately cut and free from rough edges. All penetrations should be sealed.
- Exposed external conduit or pipe work (hockey sticks) should be plumb and securely fixed.
- Sealant used around the meter box perimeter must be continuous, smooth and free from gaps and smears.



Sealant used around the meter box perimeter is well executed, and smooth and free from gaps and smears. All penetrations are sealed. All safety features such as shut off valves and earth bonding clearly visible.

9.7 External Lights and Sockets

- External electrical fixtures should be suitably IP-rated for external conditions. All components and wiring should be outdoor rated.
- Fixtures and cabling should be secured to the wall. Casings should be appropriately sealed to prevent water ingress – all drainage holes should be clear.
- Screws and brackets should be suitable for external use, resisting rust and degradation.
- Positioning should avoid creating obstruction or interference with doors, windows and pathways.

9.8 External Taps

- External taps must be secured to the wall using appropriate fixings.
- They should be positioned at a convenient height – typically 450mm to 1200mm from ground level.
- The installation should include backflow protection – typically via a double check valve.
- Taps should be fitted with isolation valves inside the property to allow shut off in winter. Externally they should be insulated to prevent freezing of the pipe work.
- Pipe work should be neatly routed and be secured using external grade clips with all penetrations through the external wall sealed.
- Taps should be operable and free from stiffness.

SECTION 10

Second Fix - Internal

10.1 Electrical

- Sockets, switches and consumer units must be positioned at the correct heights and correct horizontal distances from sanitary fixtures, sinks and hobs.
- Install sockets, switches and other visible electrical components neatly – backing boxes and face plates should be secure, square and level.
- Ensure smoke alarms and heat detector units are correctly positioned and appropriately distanced from light fixtures and walls.
- Label the consumer unit correctly and fit blanks to any gaps. MCBs and RCDs switches should be accessible and any covers fully secured. Access doors and flaps should be fully operational.
- Ensure all earth bonding is completed as required e.g. gas meters and associated pipe work.
- Ensure any cabling within visible areas is clipped and routed tidily.



A series of switches – neatly aligned and spaced, and square and level.



A labelled consumer unit fitted with blanks. MCBs and RCDs are accessible and operational, and the cover fully secured.

10.2 Plumbing

- Exposed pipe work should be tidy and fully secured by even spaced clips or brackets. Within boiler and cylinder cupboards it should be neatly routed and insulated.
- Insulation material should be secured preferably with cable ties and all joints neatly formed.
- Accessible shut off and isolation valves should be easily identifiable and located to ensure easy access and operation when required.
- Safety features on Unvented Hot Water Storage Systems, e.g. a tundish, overflow/ discharge pipe work, should be positioned so they are clearly visible. All pipe work and associated components must be positioned and installed to manufacturer's instructions.
- Holes created for the passage of pipe work should be neat and sealed.
- Boilers must be installed to ensure full access can be gained to all parts subject to maintenance and periodic inspection.
- Adequate clearances must be maintained around the boiler as per the manufacturer's installation instructions.
- Flue terminals must be correctly positioned and terminate to outside air. Gaps around flue penetrations should be fully sealed.



Exposed pipe work in these heating appliance cupboards has been fully insulated. Insulation material secured with cable ties and all joints neatly formed.



A boiler flue terminal with all gaps around the penetration pointed to create a seal prior to the proprietary flue collar being fitted.

10.3 Radiators

- Radiators must be securely fixed to walls using appropriate brackets. They must be level and plumb.
- Radiators should not obstruct access to switches, sockets or controls.
- Exposed pipe work and pipe tails must be clipped securely, and be tidy, symmetrical on each side and aligned with the radiator valves.
- Radiators should be accessible for maintenance and servicing. TRV's and bleed valves should be accessible.
- Radiators should be free from scratches and dents.

10.4 Sanitary Fixtures - Kitchens and Utility Rooms

- Kitchen sinks should be securely fixed and level with the worktop. Taps should be firmly mounted with no wobbling or movement.
- Sealant used around the sink perimeter must be continuous, smooth and free from gaps and smears.
- Waste fittings and overflow connections must be secure and functional and include appropriate water trap seals.
- All pipework should be neat and fully clipped and supported. Accessible shut off and isolation valves should be easily identifiable and located to ensure easy access and operation when required.
- All plumbing connections should be tested for leaks e.g. hot and cold feeds, waste pipe and water trap seals.
- Water should be delivered at the appropriate pressure and temperature. Water flow from taps should be smooth, with no splashing or irregular spray.



All pipework is neat and well presented. Accessible shut off and isolation valves have been tagged and located to ensure easy access and operation when required.

10.5 Sanitary Fixtures - Bathrooms, WCs, Shower Rooms and En-suites

- Sanitary fixtures e.g. baths, shower trays, wash hand basins, pedestals, toilet pans, cisterns, shower units and components should be securely fixed to the wall and/or floor with appropriate brackets or fixings.
- Completed installations should be level and stable, with no movement in use.
- Taps and shower heads should be firmly mounted with no wobbling or movement.
- Sealant used to seal any parts of the sink/pedestal to tiling or supporting substrate must be continuous, smooth and free from gaps and smears.
- Waste fittings and overflow connections must be secure and functional and include appropriate water trap seals. Flush mechanisms should operate smoothly.
- All pipework should be neat and fully clipped and supported. Where possible pipework to wash hand basins and toilet pans/cisterns should be appropriately concealed e.g. neatly fixed behind the pedestal.
- Accessible shut off and isolation valves should be easily identifiable and located to ensure easy access and operation when required.
- All plumbing connections should be tested for leaks e.g. hot and cold feeds, waste pipes, pan connectors and water trap seals.
- Shower trays and baths must be fully supported to prevent flexing or distortion in use. Where adjustable feet are provided, they should be appropriately secured to the floor and adequately distribute loads. On timber intermediate floors, timbers should be located under the feet to spread the load to joist positions.
- Shower trays, baths and any associated screens or enclosures should be fully sealed to adjacent wall surfaces to manufacturer's recommendations.
- Any drainage slots or holes within screens or enclosure framing should not be blocked by sealant. Baths should be filled and then sealant allowed to cure to ensure correct sealing is achieved.
- Sealant lines must be continuous, smooth and free from gaps and smears.
- Water should be delivered at the appropriate pressure and temperature. Water flow from taps should be smooth, with no splashing or irregular spray.



A bath installation with adjustable feet fully supported on timbers to spread the load in operation to joist positions.



Neat waste fittings. All pipework appropriately concealed e.g. neatly fixed behind the sink.



Examples of neat and well-presented sanitary fixture installations.



Examples of neat and well-presented installations.

10.6 Joinery

- All joinery items e.g. skirting, architraves, window boards, doors and ironmongery must be neatly fitted.
- Surfaces should be smooth, clean, and free from damage and excessive filler.
- Internal doors must be hung square, level and free from twist and bind to operate smoothly. Gaps should be consistent and not excessive. Arris edges of doors should be appropriately eased.
- Hinges, latches, locks and handles should be securely fixed, aligned and have smooth operation. Screws should be aligned and heads free from damage.
- Skirting board and architrave joints must be tight, aligned and neatly formed. External corners of skirting boards should be mitred whilst internal corners should be scribed to suit the section profile.
- Fixings should be appropriately sunken to allow for filling e.g. nails punched, screws counter-sunk.
- Staircase balustrades, handrails and newel posts must be securely fixed and aligned. Newels and balustrading must be vertically plumb.



Architraves neatly fitted. Even margins with joint surfaces smooth, clean, and free from damage and excessive filler.



Skirting board with tight mitred external corners and internal corners accurately scribed to suit the section profile.



Great attention to maintaining detailing lines on this skirting board and architrave work.



Great examples of well executed ironmongery installation – tightly fitted into accurate recesses, and free from scratches and damage.



A well executed handrail installation – multiple changes of direction and angles have been neatly formed.

10.7 Kitchen Fitting

- Kitchen base and wall units must be securely fixed to supporting structure using the manufacturer's supplied fixings.
- Wall anchors must be appropriate for the receiving substrate. Where timber grounds have been provided within the walls, they should be used.
- Units should be level, plumb and aligned with no rocking or movement. All unit backs must be intact and where cut outs are required, they must be neatly cut and free from rough edges.
- Doors and drawer fronts should be evenly spaced and aligned. Consistent margins should be achieved to adjacent units, panels and the underside of work surfaces.
- Cornices, pelmets, end panels, filler strips, trims and plinths must be neatly fitted and aligned.
- Worktops must be securely fixed and level. Joints should be tight, sealed and free from gaps, and excess adhesive or joint sealant.
- Cut outs for sinks and hobs must be clean and exposed edges sealed to prevent water ingress.
- Sealant used to seal work tops to tiling or supporting substrate must be continuous, smooth and free from gaps and smears.
- Handles, hinges, and drawer runners must be securely fixed and operate smoothly.
- Integrated appliances e.g. hobs, ovens, washing machines, dishwashers, fridges and freezers must be securely fitted and level to prevent movement or vibration, and should align flush with adjacent units, panels and doors.
- All appliances should be installed in accordance with manufacturer's guidance including all required dimensions and clearance measurements.
- Integrated dishwashers and washing machines must be connected to the water supply and waste system without leaks. All isolation valves must be clearly visible and operational.



All integrated appliances should be securely fitted and level to prevent movement or vibration. Appliance doors should align flush with adjacent units, panels and doors to provide a neat finish.



Neat, well executed finish work – butt and scribe joint to the worktop accurately completed.



A well presented kitchen installation.



All drawer runners and internal storage racks must be securely fixed and operate smoothly.

SECTION 11

Completion

11.1 Internal Finishes - Decoration

- Plastered or dry-lined surfaces must be smooth, with no visible trowel marks, ridges, or nail pops beneath the paint.
- Painted surfaces e.g. walls and ceilings should be consistent in colour, texture, and sheen. Brush marks, roller lines, or patchiness should not be present.
- Cutting-in around sockets, switches, skirting, and architraves must be neat and precise. No paint bleed or uneven borders.
- Decoration should be free from scuffs, chips, cracks, or stains. Surfaces must be cleaned and ready for inspection.
- All surfaces should have full coverage with no missed areas, especially around corners, edges, and behind radiators.
- Joint sealants and caulking must be neatly applied and colour-matched where visible. Excess sealant or gaps are not acceptable.
- Wallpaper and wall coverings must be aligned, free from bubbles, tears, or lifting edges. Pattern matching should be accurate.
- Internal woodwork must be prepared, primed and finished to a suitable quality.
- Surfaces not intended to be painted, such as stair goings and risers, must be free of paint marks.
- Painted surfaces should be free from noticeable runs, dust, and brush marks.



Internal woodwork finish free from brush and roller marks.



Balustrade completed with full coverage and well executed paintwork to all areas.



Painted surfaces free from noticeable runs, dust, and brush marks.

11.2 Internal Finishes - Flooring

- Floor finishes should be consistent in texture, colour, and pattern across the room. Variations must be minimal and not visually disruptive.
- Surfaces must be free from chips, cracks, stains, or excessive adhesive marks. Protective coverings should be removed before inspection.
- Floors should be flat and free from noticeable undulations or lipping between tiles, boards, or panels. Tolerances are defined in Technical Manual guidance.
- Edges where flooring meets walls, skirting, or other surfaces should be cleanly cut and sealed. Transitions between different flooring types must be smooth and well-aligned.
- Grout lines, expansion joints, and seams must be neat, consistent, and in line with the flooring type and layout.
- Flooring should be laid neatly with straight, even joints, and set out to minimise unsightly cuts.
- Completed work must be adequately protected from subsequent trades.



Edges where flooring meets walls, skirting, or other surfaces should be cleanly cut and sealed.



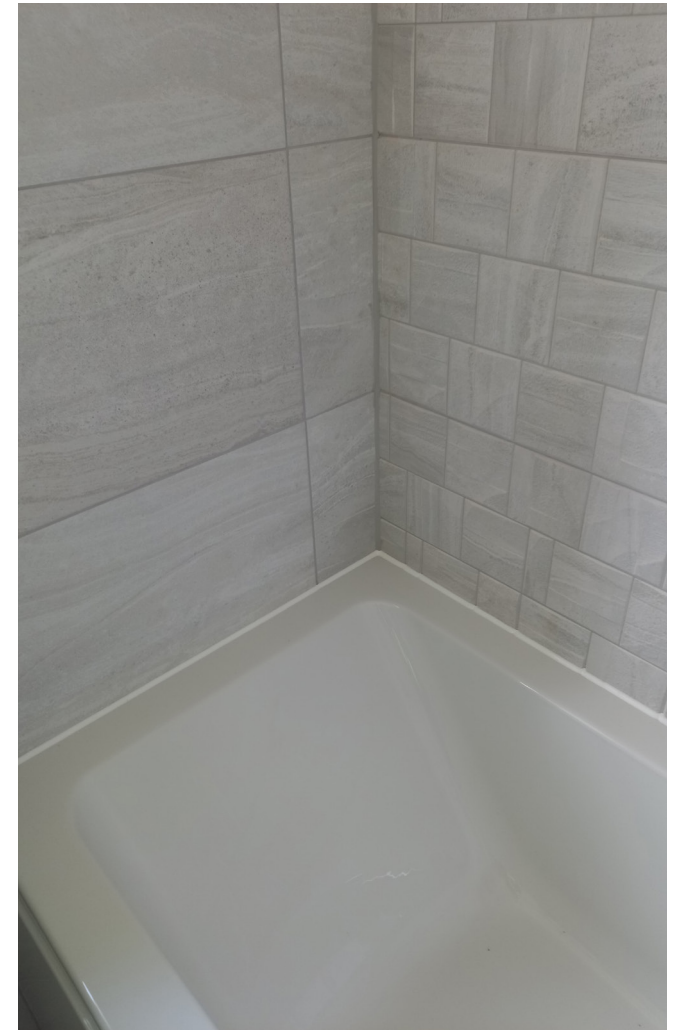
Flooring laid with straight even joints. Edge detailing in this example has been completed with neat scotia trim with neat and well executed jointing.

11.3 Internal Finishes - Wall Tiling

- Tiles should be consistent in colour, texture, and pattern. Any intentional variation (e.g. rustic or handmade tiles) must be evenly distributed.
- Tiling must be aligned horizontally and vertically with consistent spacing. No visible lipping or uneven grout lines.
- Grout should be clean, uniform in width, and free from smears or gaps. Colour should be consistent and appropriate for the tile type.
- Cut tiles must be neatly trimmed and positioned in less visible areas. Edges should be finished with trims or neatly sealed.
- Tiles must sit flush against the wall with no protrusions or depressions that disrupt the surface.
- Tiles should be free from chips, cracks, or surface defects. Protective films must be removed before inspection.
- Sealant at junctions (e.g. between tiles and baths or worktops) must be neatly applied, mould-resistant, and colour-matched where visible.



Cut tiles to this window area have been neatly cut and completed with edge and corner trims.



Sealant at the junctions between tiles and the bath have been neatly applied. The sealant has been colour-matched to match the grout in the vertical junction between wall tiling.

11.4 External Finishes - External Façades

- External walls should be free from excessive mortar smears, staining, or discolouration that detracts from the overall appearance.
- Efflorescence is a natural and temporary issue however persistent or heavy deposits should be treated or cleaned to maintain visual quality before handover.
- All visible debris, paint splashes, adhesive, or cement staining must be cleaned off before handover. This includes around windows, sills, and decorative features.
- Mortar joints should be uniform in colour and texture. Inconsistent pointing or patch repairs that are visually obvious may be considered unacceptable.
- Areas around windows, doors, and service penetrations must be cleanly finished, sealed with no visible gaps, smears, or rough edges.
- Rendered or clad surfaces must be free from algae, streaks, or patchy finishes. Any protective coatings or films should be removed prior to inspection.
- Painted or rendered surfaces should be consistent in tone, texture, and sheen. Patchiness, streaks, or roller marks are not acceptable.
- Decorative coatings must be free from drips, smears, or overspray onto adjacent surfaces like windows, sills, or brickwork.
- All visible painted areas should be fully coated, including around downpipes, vents, and service penetrations.



A well presented façade - free from excessive mortar smears, staining, or discolouration that detracts from the overall appearance.

11.5 External Finishes - Freestanding Walls

- Visual symmetry and alignment of walls with surrounding features is essential.
- Neat coursing and jointing, especially in curved masonry, should be maintained.
- Capping details (e.g. crease tiles or drip edges) must be tidy and consistent.
- Movement joints should be cleanly executed and integrated into the design.



A well executed curved freestanding wall with neat coursing and jointing.



Neat detailing to the coping stones and well blended masonry units in this free-standing wall.



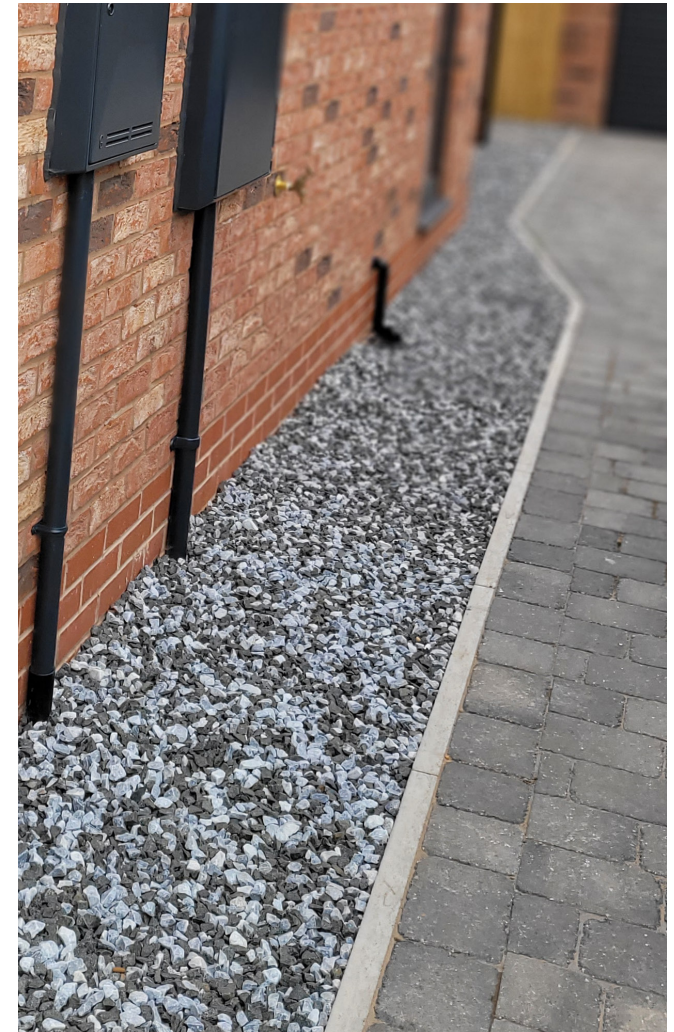
A brick and timber panel boundary wall. Masonry is well executed with clean detailing to the brick capping details. Timber panel work is neat, level and even all around.

11.6 Drainage - Positioning and Covers

- Drain covers must be flush with surrounding surfaces.
- Drainage and ground-based service covers e.g. water stop taps should be positioned accurately ensuring they are located in one substrate or medium e.g. not half-on/half-off a footpath.
- Covers must be durable, secure, and allow easy access for maintenance.

11.7 External Finishes - Paths, Drives and Soft Landscaping

- Paths and drives must be stable and free from trip hazards. Gradients and falls should be as per the specific design.
- Paving and edging units should be accurately cut and with correct alignment.
- Edging and transitions between surfaces must be well-defined.
- Steps must be evenly spaced, with consistent compliant rise and tread dimensions.
- Where handrails and guarding are provided, this should be as per the specific design, compliant and securely fixed.
- Landscaping should be well presented, with neat and well executed planting and turfing works. Bare soil should be worked to a suitable level and ground cover material such as bark contained to beds.
- No part of the external works should obstruct any air bricks.
- Tarmac, gravel margins, ground cover material, edging and paving should be 150mm below DPC other than where level threshold detailing is in effect.



A neat and well presented drive with setts and edging units - accurately cut and aligned. Gravel margins to the edging are 150mm below DPC.

SECTION 12

Summary

A site can truly stand out by surpassing industry standards and exceeding expectations.

This can be achieved by taking the initiative to implement innovative solutions that prioritize quality and precision. When combined with a site manager's professionalism and a high standard of workmanship, these efforts culminate in a quality site that sets a new benchmark for excellence.

By embracing a proactive and forward-thinking approach, sites can not only meet but exceed industry standards, ultimately leading to a more successful and impressive project.



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