

SpaceJoist Design Information Request

CLIENT GUIDE



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Preface

The intention for this document is to act as a guide to clients who require a quotation or design to be completed for their project. Recommendations contained within are general to most SpaceJoist floor jobs and are intended to promote awareness as to why the information is required as early as possible within the quotation / design process & the reason for it.

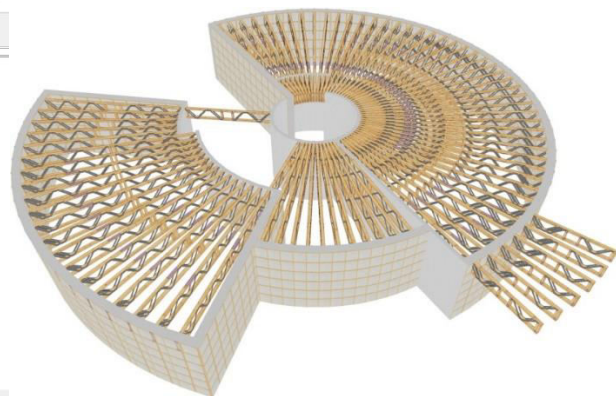
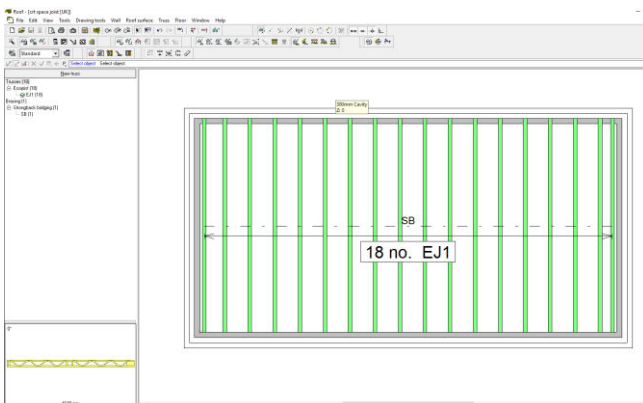
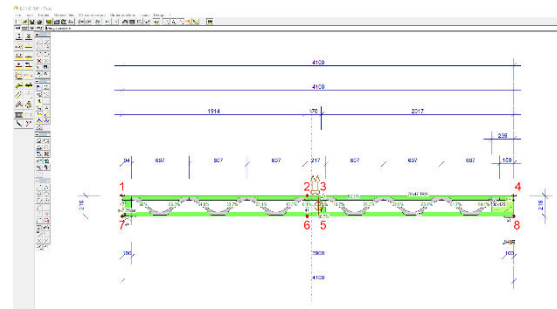
Additional specific information may also be required throughout the quotation / design process depending on the type of project being designed.

1. Exchange of Information

Design Process

Quotes & Designs are created in GNRoof which is an advanced engineering software that is bespoke to the truss / Joist industry. The prime advantage of this software is that it enables designers to simultaneously:

- Create drawing layouts & Joist sections
- Create 3D information
- Engineer all floor components
- Design Connections
- Produce calculations
- Generate quotation values.



The GNRoof software is designed specifically to minimise the time taken to produce designs & quotes to meet client deadlines. Any revision of the initial information given, potentially means that areas of the roof will have to be re-calculated & re-engineered. It is critical that the design process is as quick and smooth as possible to allow maximum time for manufacture.

Manufacturing Process

It is still a common misunderstanding within the construction industry that joists required for a building are simply selected from a rack of standard types.

Almost every building has bespoke joists designed and manufactured to suit its individual requirements.

Any revision of information made during the manufacturing process, not only means joists may



have to be re-designed, it could also mean that joists and their components will have to be re-manufactured, causing not only a delay to that particular job, but also to other jobs in the production line.

2. Considerations

Specifications

Inclusion of client specification documents are important to enable the designer to obtain critical information that could have a significant influence of the design and price of a structure, for example:

SpaceJoist Span

The designer must be told if the project engineer requires joists to span in a certain direction. Also, if joists are required to be at predetermined center's



Aperture Details



It is important for a designer to be aware of the max size of ducts that are in the SpaceJoist zone.

Web	Depth	Circular	Rectangular	Square	Max height
TW8	195	120	73 208	107	125
SJ9	219	120	75 210	105	125
SJ10	254	154	97 208	133	158
SJ12	304	192	121 215	155	209
TW14	375	252	160 283	204	285
TW16	425	265	178 264	212	330

Dimensions shown in mm.

These dimensions include a 3mm clearance. Dimensions are approximate as discrepancies may occur in manufacture.

3. Recommended Drawings

These are an example of what a roof designer would typically require as a minimum.

Floor Plans

Floor plans need to show dimensions to all walls and features that could affect the floor design.

See Section 4 for more details.

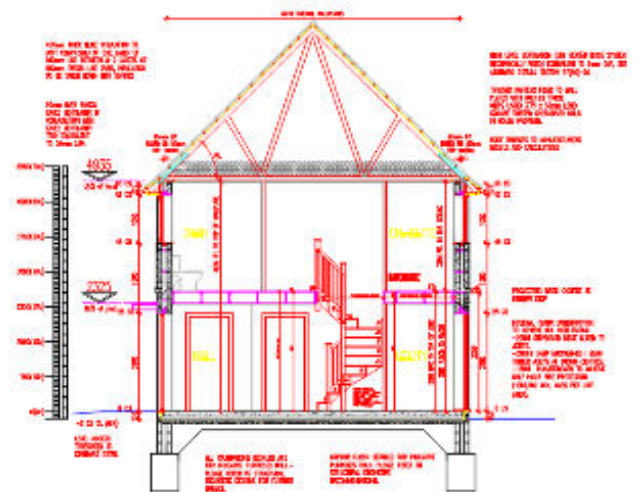


Sections

Sections are critical for the floor designer to get an understanding of the SpaceJoist requirements. They should show floor & ceiling heights.

In addition, they should show the supporting wall levels.

Sections also give an indication of the loading on a floor by showing coverings & insulation depth.



Details

Detail information is crucial for the designer to be able to set out the joist correctly, specifically if relation to the support arrangement at walls.

See section 5 for a further breakdown of information required.

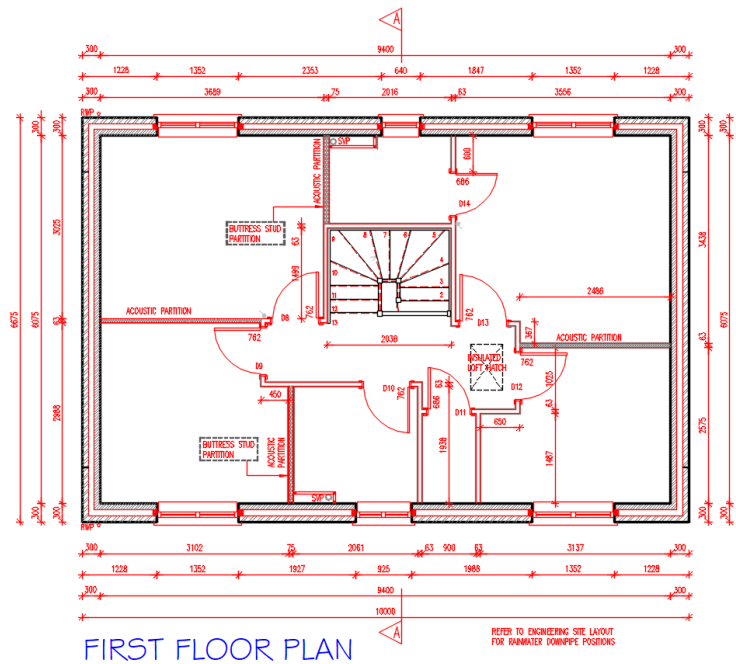
4. Walls & Supporting Structures

Dimensioned Floor Plans

SpaceJoists are designed to suit exact setting out.

As such, floor plans must be provided with all dimensions for both external and internal walls.

Any discrepancies during construction may mean that the SpaceJoists will not fit and may require re-designing.



Wall Construction

It is important for a designer to have confirmation that walls used within the design for supporting the SpaceJoists are load bearing.

The loading capacity of the wall is also sometimes required for the specification of masonry hangers.

It is important to remember that any connection of the floor structure to the building must be reviewed and confirmed by the building designer.

SUBSTRUCTURE BLOCKWORK LEGEND (2010 REGS)

External Walls

100mm BLOCKWORK - 7.3N/mm² AIRCRETE (600-800kg/m³, 0.15W/mk).

100mm BLOCKWORK - 3.6N/mm² AIRCRETE (600-800kg/m³, 0.15W/mk).

Internal Walls

3.5N/mm² AGGREGATE (1350-1600kg/m³) FOR INTERNAL LOAD BEARING WALLS (7.0N/mm² TO APARTMENTS), 3.6N/mm² AIRCRETE (600-800kg/m³) OR 100mm DENSE BLOCK - 7N/mm² (1900kg/m³) CAN BE USED IN LIEU OF AGGREGATE, DEPENDANT ON STRUCTURAL CALCULATIONS

Party Walls

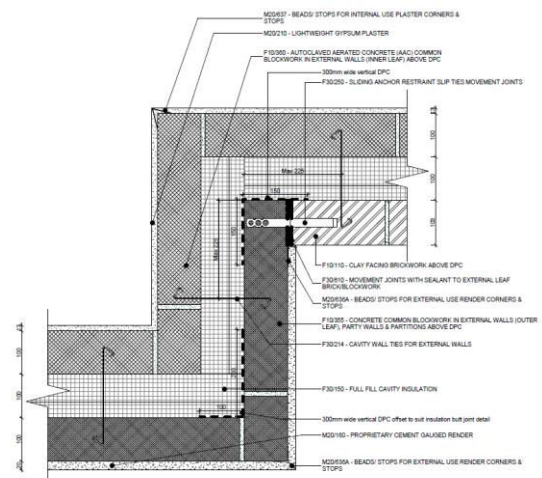
100mm BLOCKWORK - 3.5N/mm² AGGREGATE (1350-1600kg/m³, 0.47W/mk) FOR E-WM-11 OR E-WM-20, ALTERNATIVELY - 3.6N/mm² AIRCRETE (600-800kg/m³, 0.15W/mk) FOR E-WM-6, DEPENDANT ON SITE SPECIFICATION

Wall Setting out

The wall arrangement can also have an impact on the setting out span of a joist.

Designers need to know what the wall arrangement is, particularly if there are multiple wall types on the building.

Variations to the cavity width and thickness of cladding to the external face need to be taken into consideration when the roof truss setting out is being determined.



5. Support Details.

Details should be provided as to how the SpaceJoists are intended to be supported. Details shown below are the most common- for more details and information please see the SpaceJoist technical guide- available to download at www.itwcp-offsite.co.uk

Masonry

SD1- Build-in to Masonry



SD2-Hanger Support onto Masonry



TF1 - Standard Bottom Chord Support - External Wall



Timber Frame

TF3 - Top Chord Support on Over-height Panel - External Wall

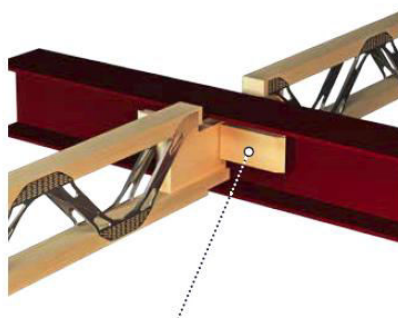


SD13 - Top Chord Support onto Steel



Use noggins between joists to prevent movement.

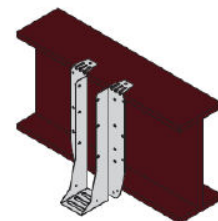
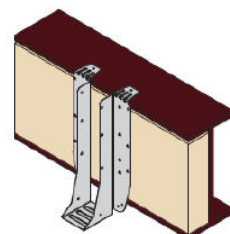
SD14 - Notching into Steel



35 x 97mm solid blocking nailed between joists each side of beam.

Steel Beam

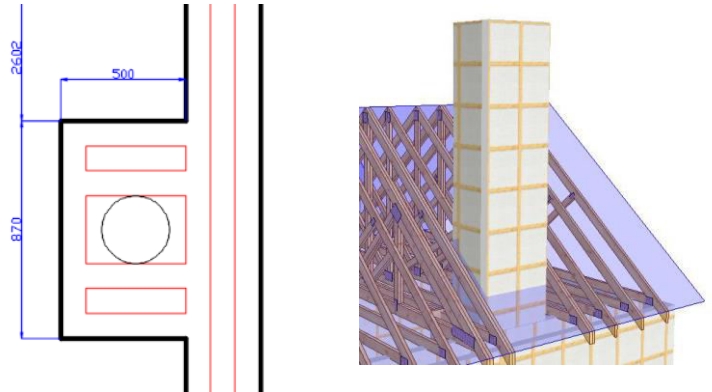
HD1- Hanger onto Steel



6. Floor Features & Penetrations.

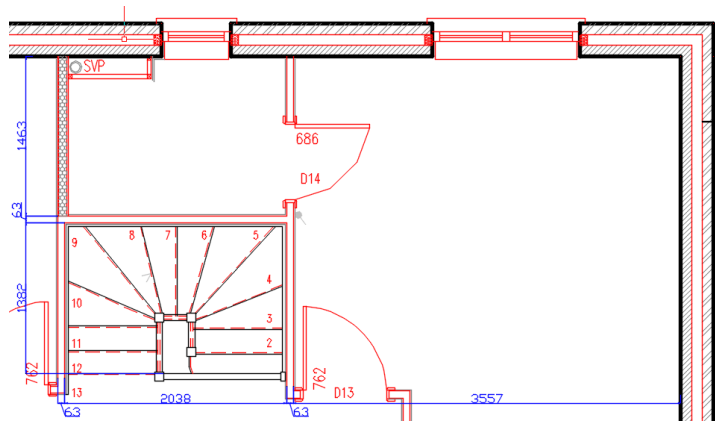
Chimney

- Size of chimney as it passes through the floor.
- Position of chimney as it passes through the floor.



Stairwell

- Stairwell position
- Stairwell opening size
- Location indicated of stair support position on floor.



7. Loading requirements

Coverings & build up

- What is the floor covering type?
- What Insulation type & depth is being used?
- What is the ceiling covering type & thickness?
- What is the buildings intended use? Domestic, Office, Storage etc.
- Are there any services within the floor zone?

Span directions

- Does the building designer have any stipulations as to where SpaceJoists can span to?
- Are there any load bearing walls that must be used?
- Are there any walls that should not be utilized to support the floor?

Building use loads

- Will there be any disability hoists with tracks fixed to the SpaceJoists?
- Will there be any sliding partitions on tracks fixed to the SpaceJoists?
- Any areas of special load or maximum deflection that need to be applied?

Restraint

- Do any of the walls require restraining?
- Are there any other restraint details that need to be adhered to?

8. Building Designer Responsibility

Building restraint & bracing

The floor designer takes responsibility for the bracing of the floor structure, however, the bracing of the building and therefore the connection of the floor bracing to the structure is the responsibility of the building designer.

Loadings

It is the building designer's responsibility to inform the floor designer of all the loads being applied to the floor structure. The building designer should review the design to ensure the SpaceJoist designer has accounted for all necessary loadings.

Connection of timber structure to building

Specifications of connections of the floor structure to the building are the responsibility of the building designer, these must be reviewed during approval to ensure they meet requirements. Building designers should particularly ensure that actions of wind onto a building have been taken into consideration.



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