


Job Title St Lukes Church, Reigate		Date Jan'21
Item DESIGN DATA	Job No. E8157	Sheet No. 01
Prepared by MS	Checked by DMG	



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Client		St Lukes Church, Reigate				
Architect		MEB Design Ltd				
Q.S.						
Others						
Design Codes, British Standards & References (Current editions & Parts will be used as appropriate at the time of this design)		BS6399: Dead, Imposed and Wind Loading for Buildings. BS449: The Use of Structural Steel in Buildings BS648: Schedule of Weights of Building Materials BS5268: Structural Use of Timber BS5628: Structural Use of Masonry BS5950: Structural Steelwork		BS8004: Code of Practice for Foundations BS8110: Structural Use of Concrete The Building Regulations CDM Regulations 1994 Others:		
Building Structure Description		Proposed store area inside existing sandstone walled church to be formed in loadbearing timber. Restricted store access & height so limited live load of 1.5kN/m² deemed adequate.				
Fire Resistance		Assumed min 1hour				
Subsoil / Foundation Data		Assumed to be on Hythe Formation Sandstone.				
CDM		Refer to separate designers risk review				
Material Data		Blinding Concrete R.C. Foundations M.C. Foundations Superstructure	Works Cube Strength	Aggregate Size	Cement Content	Max. Free Water/ Cement Ratio
1. Concrete						
2. Reinforcement		A) T High Tensile				

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Item STANDARD LOADING	Job No. E8157	Sheet No. 02
Prepared by MS	Checked by DMG	



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STANDARD LOADINGS (kN/m²)			OUTPUT (kN/m²)		
			DEAD	LIVE	TOTAL
TIMBER FLOORS	BOARDS + JOISTS SOFFIT	0.35	0.50	1.50	2.00
		0.15			
		0.50			
WALLS	TIMBER STUD INTERNAL PLASTERBOARD STUDS PLASTERBOARD	0.15	0.40		0.40
		0.10			
		0.15			
		0.40			

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Item GENERAL NOTES – Sheet 1	Job No. E8157	Sheet No. GN.01 03
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GENERAL NOTES - Sheet 1

- 1) All dimensions to be checked on site.
All details & dimensions relating to Sub-Contractors or Suppliers work must be checked & agreed between the Sub-Contractor or Supplier & the General Contractor.
- 2) DO NOT SCALE FROM THE DRAWINGS.
- 3) This drawing is to be read in conjunction with all relevant Architects and Engineers drawings & specifications.
- 4) The Main Contractor is responsible for ensuring the stability of the structure & the stability of adjacent structures whilst the works are in progress.
- 5) Loadings:
Timber Floors:
Finishes - 0.13 kN/m²
Imposed - 1.50 kN/m²
- 6) Timber:
All timber wall plates to be minimum 100x65dp. All loose timbers to be fixed with framing anchors or truss clips.



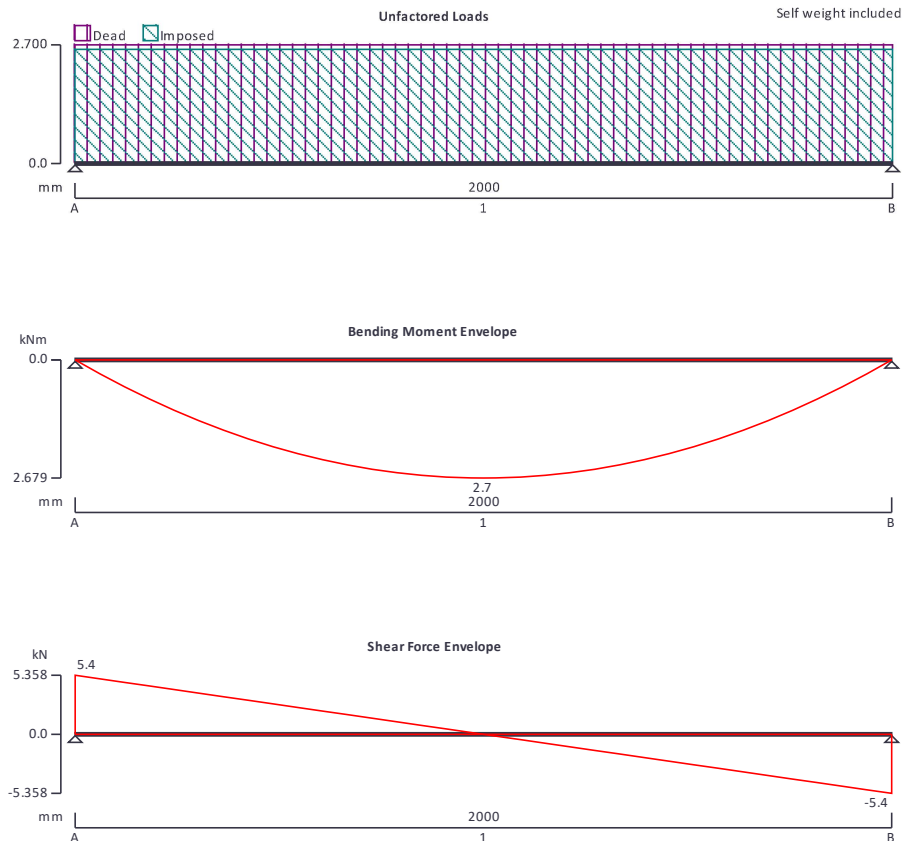
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Project St Lukes Church, Reigate				Job no. E8157	
Calcs for timber lintel to studwall				Start page no./Revision 1	
Calcs by MS	Calcs date 18/01/2021	Checked by DMG	Checked date	Approved by	Approved date

TIMBER BEAM ANALYSIS & DESIGN TO BS5268-2:2002

TEDDS calculation version 1.7.02



Analysis results

Design moment	M = 2.679 kNm	Design shear	F = 5.358 kN
Total load on beam	W_{tot} = 10.716 kN		
Reactions at support A	R_{A_max} = 5.358 kN	R_{A_min} = 5.358 kN	
Unfactored dead load reaction at support A		R_{A_Deal} = 2.758 kN	
Unfactored imposed load reaction at support A		R_{A_Imposed} = 2.600 kN	
Reactions at support B	R_{B_max} = 5.358 kN	R_{B_min} = 5.358 kN	
Unfactored dead load reaction at support B		R_{B_Deal} = 2.758 kN	
Unfactored imposed load reaction at support B		R_{B_Imposed} = 2.600 kN	

Timber section details

Breadth of section	b = 47 mm	Depth of section	h = 150 mm
Number of sections	N = 2	Breadth of beam	b_b = 94 mm
Timber strength class	C24		

Member details

Service class of timber	1	Load duration	Long term
Length of span	L_{s1} = 2000 mm		
Length of bearing	L_b = 100 mm		

Lateral support - cl.2.10.8

Permiss.depth-to-breadth ratio	2.00	Actual depth-to-breadth ratio	1.60
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Project St Lukes Church, Reigate				Job no. E8157	
Calcs for timber lintel to studwall				Start page no./Revision 2	
Calcs by MS	Calcs date 18/01/2021	Checked by DMG	Checked date	Approved by	Approved date

PASS - Lateral support is adequate

Check bearing stress

Permissible bearing stress $\sigma_{c_adm} = 2.640 \text{ N/mm}^2$ Applied bearing stress $\sigma_{c_a} = 0.570 \text{ N/mm}^2$

PASS - Applied compressive stress is less than permissible compressive stress at bearing

Bending parallel to grain

Permissible bending stress $\sigma_{m_adm} = 8.904 \text{ N/mm}^2$ Applied bending stress $\sigma_{m_a} = 7.600 \text{ N/mm}^2$

PASS - Applied bending stress is less than permissible bending stress

Shear parallel to grain

Permissible shear stress $\tau_{adm} = 0.781 \text{ N/mm}^2$ Applied shear stress $\tau_a = 0.570 \text{ N/mm}^2$

PASS - Applied shear stress is less than permissible shear stress

Deflection

Permissible deflection $\delta_{adm} = 6.000 \text{ mm}$ Total deflection $\delta_a = 5.589 \text{ mm}$

PASS - Total deflection is less than permissible deflection

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Item SUMMARY	Job No. E8157	Sheet No. S1 rev A
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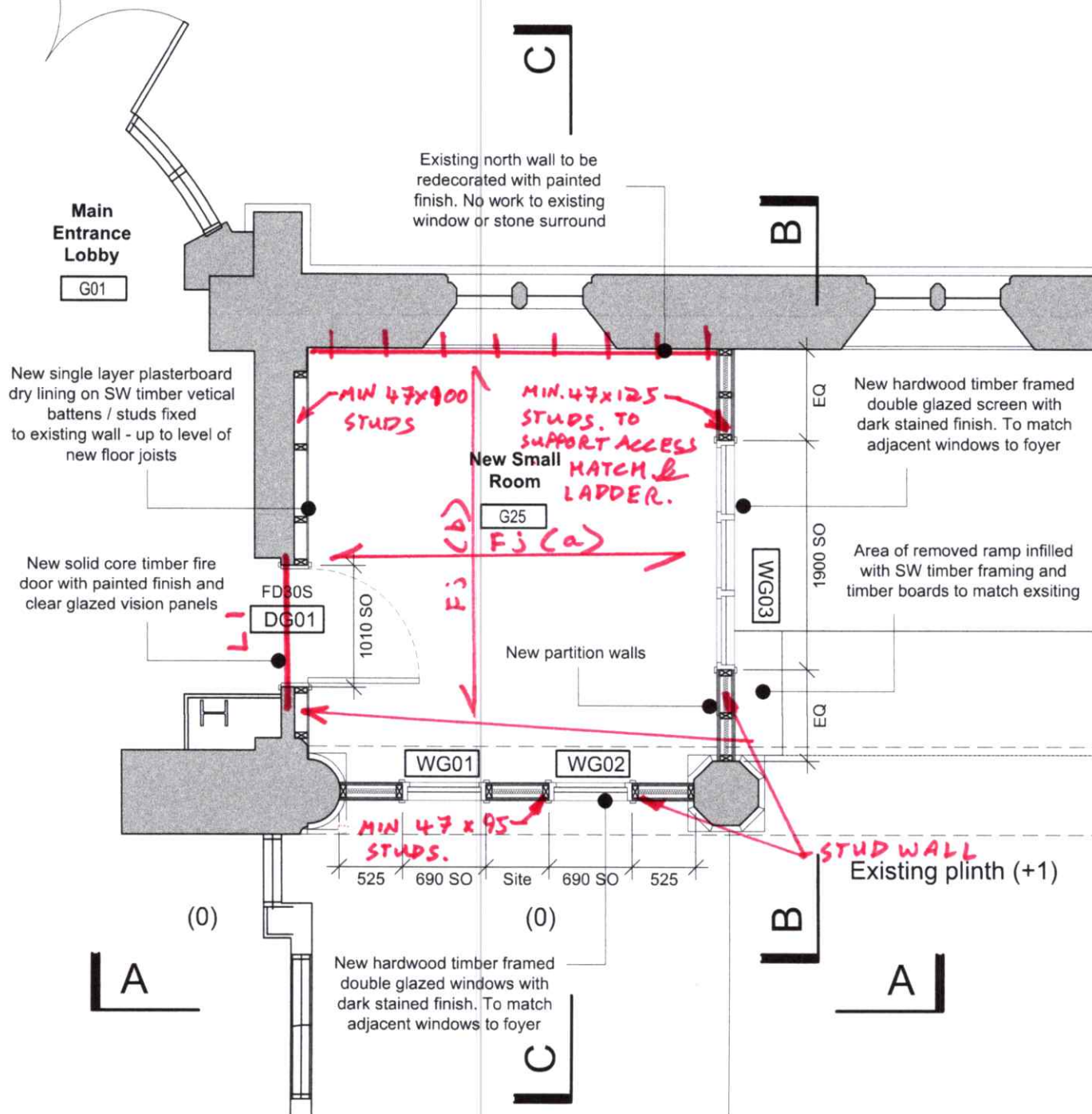
SUMMARY / KEY	
Fj(a)	From Trada table 4.1 provide min 47x170 C24 timber floor joists @ 400crs supported on & fixed to new loadbearing studwalls.
OR	OR
Fj(b)	From Trada table 4.1 provide min 47x170 C24 timber floor joists @ 400crs supported on new loadbearing studwalls internally & joist hangers on similar sized wall plate M8 bolted @ 450crs to external stone wall (care to be taken & approved as required by all parties). Allow noggins & straps to provide restraint between floor & studwall with access ladder.
Studwall	Provide min 47x100 C24 timber studs @ 400crs, double / cripple studs as required to form openings, with min 2No 47x150 timber lintels to span openings. Note – wall panel with access ladder to be min 47x125 C24 studs for detail & restraint with 3No 47x150 timber lintels accordingly & head of wall to be mechanically fixed for lateral restraint.
L1	Assuming existing infill blockwork to original stone arch. Initially check recess for presence of existing lintel, if there is a suitable existing lintel no further structural requirements, simply carefully create new opening in previous opening. If no existing lintel, allow to provide Birtley standard duty box lintel SB100 OR Naylor P100 PCC lintel OR equivalent approved.
Stability	New studwalls to be braced / wedged tightly between existing structural elements for enhanced stability, fixings to existing stone structure to be minimised / approved to reduce risk of damage.
Founding	Assuming loadbearing studwall supported on suitable existing substrate / floor to support nominal loadbearing wall line load.

Job Title ST LUKES CHURCH		Date JAN'21
Item FLOOR PLAN	Job No. EB157	Sheet No. SK01revA
Prepared by MS		Checked by DMG



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210

Proposed Floor Plan *Showing Str. Over*

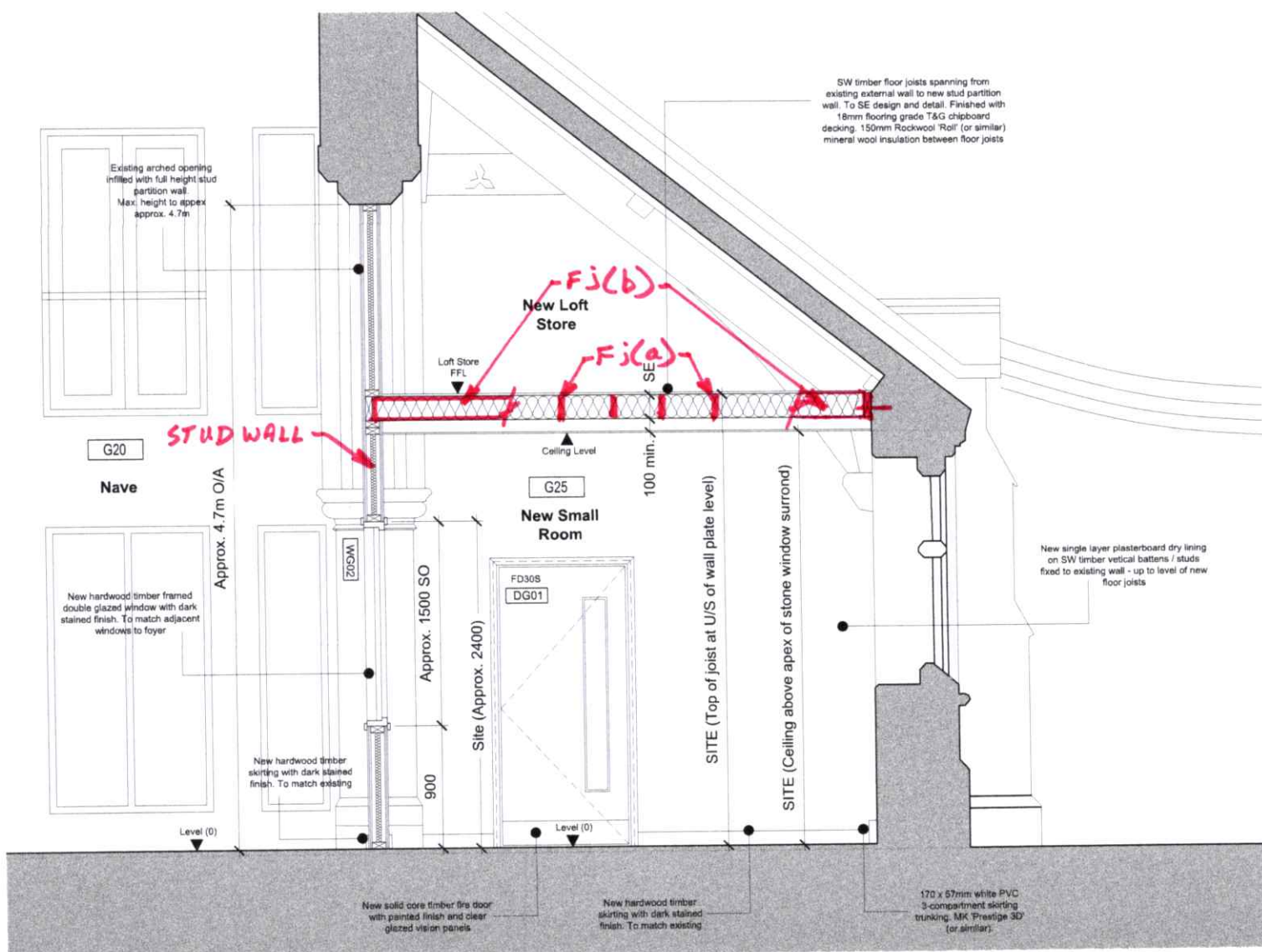
Scale 1:50

Job Title ST LUKES CHURCH		Date JAN'21
Item TYPICAL SECTION	Job No. E8157	Sheet No. SK02
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Proposed Section / Internal Elevation CC

Scale **1:20**

NTS