



Technical Update

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Technical Consultant

Agenda



Forward thinking for Technical

Can we get to where we want to be if we don't look where are going?





Change

- Lorem ipsum dolor sit amet,

Nor is there anyone who loves or pursues or desires to obtain pain of itself, because it is pain



Technical change



Carbon



Insurance



Fire Safety

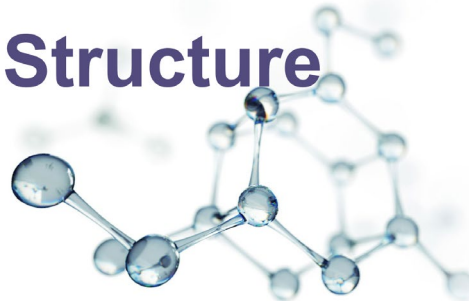


What is the use of this building?			
Page number	Area	Room number	Room name
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2	102	102	102
3	103	103	103
4	104	104	104
5	105	105	105
6	106	106	106
7	107	107	107
8	108	108	108
9	109	109	109
10	110	110	110

Heat and Power



Structure



Durability



Insurance



Project Questionnaire for Builder's Risk Insurance

1. Resilience Strategy Definition



COMPLIANCE

INSURANCE

CLIENT

About RISCAuthority

RISCAuthority is a research scheme administered by the Fire Protection Association and supported by many UK insurers which, through the operation of its technical working groups, seeks to support measures that improve and promote property and business resilience measures.

The Massive Timber Working group was formed to analyse, address, and communicate the insurance challenges that these newer proposed building methods give rise to with a view to assisting future dialogue in creating buildings that meet all needs of safety, carbon reduction, and resilience to the insured perils of fire, escape of water and flood.



Insurance challenges of massive timber construction and a possible way forward



David Williams
Chairman of RISCAuthority

“It should not be a surprise that insurance models and insurance customer expectations developed around historic solid walled, non combustible construction types, may need to alter quite radically to address these very substantial changes in construction methods and material use”



Fire Safety



Fire Safety Act 2021



Building Safety Act 2022

CHAPTER 30

- ❑ Building Safety Regulator
- ❑ HSE – BUILDING REGULATIONS FOR FIRE
- ❑ BUILDINGS IN SCOPE

DEVELOPING A NATIONAL STRATEGY FOR FIRE SAFETY

Seeking a framework to effectively manage fire risk to help achieve a sustainable and safer society



Volumetric modular buildings and fire

Report ID: 1065

A report has been received concerning volumetric modular construction, in the form of permanent stacked modular buildings.

#SaferStructures

PAS 9980:2022

Fire risk appraisal of external wall construction and cladding of existing blocks of flats – Code of practice



Fire Safety



BS 9991:2015



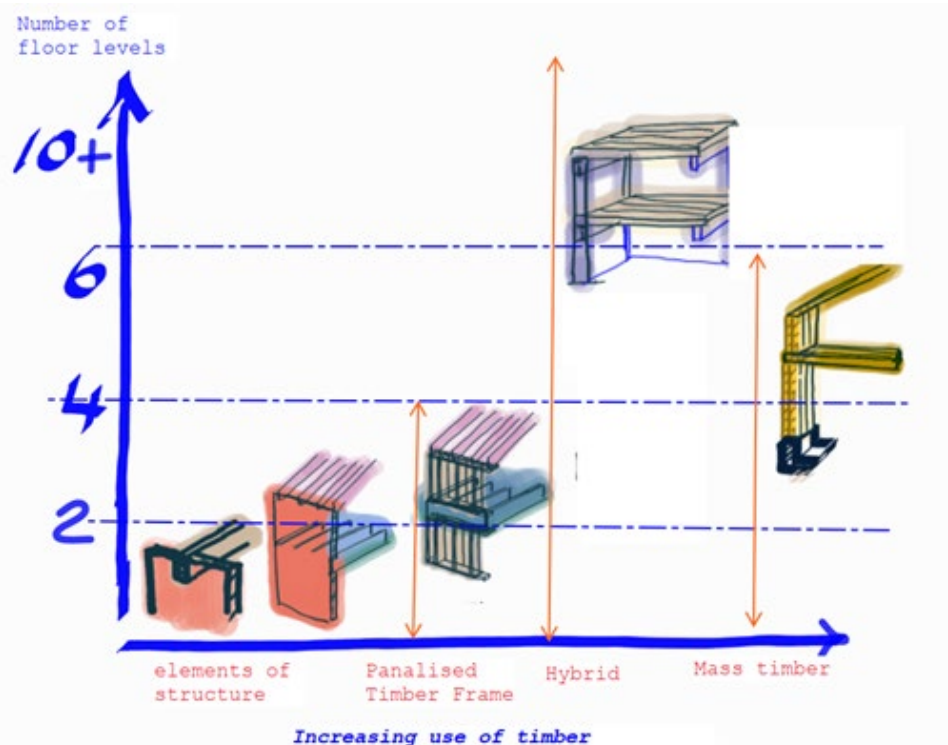
Fire safety in the design, management and use of residential buildings. Code of practice

Structural timber buildings fire safety in use guidance Volume 5 - Timber frame structures; Building Regulation compliance B3(1)

Structural timber buildings fire safety in use guidance Volume 6 - Mass timber structures; Building Regulation compliance B3(1)

STA fire safety research and guidance project
Version 2.0 - April 2023

bsi.



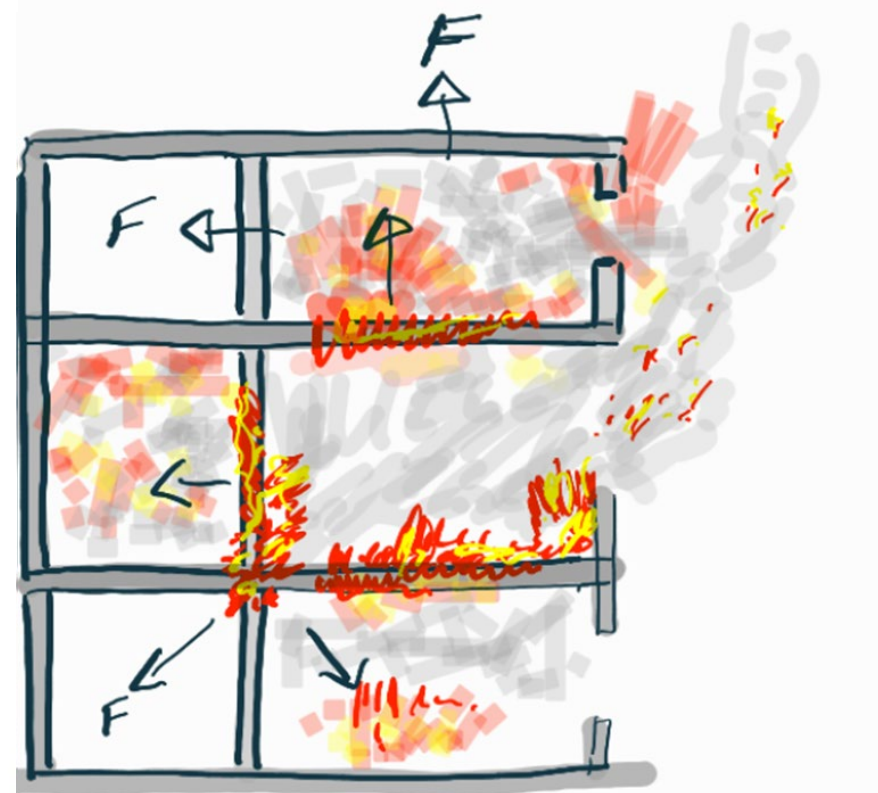
B3 (1) Internal fire spread (structure)

The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period




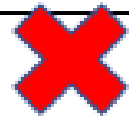
Structural (fire) safety objective

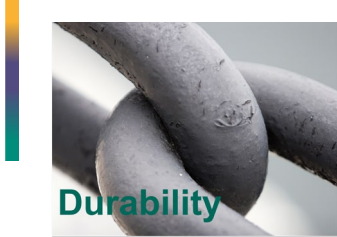
Adequate likelihood of surviving burn-out

Provision of adequate time
cognisant of building size and use



What is the use of the building

Single dwelling	Multi occupancy - Below 11m upper floor level	Multi occupancy but no greater than 18m upper floor level	Multi occupancy
			
Prescriptive approach	Prescriptive approach likely to be acceptable	Prescriptive approach may not be suitable and is to be checked against user and escape strategy	Not suitable for external walls Performance design for internal elements



STA STRATEGY STEPS IN LINE WITH RIBA PLAN OF WORK

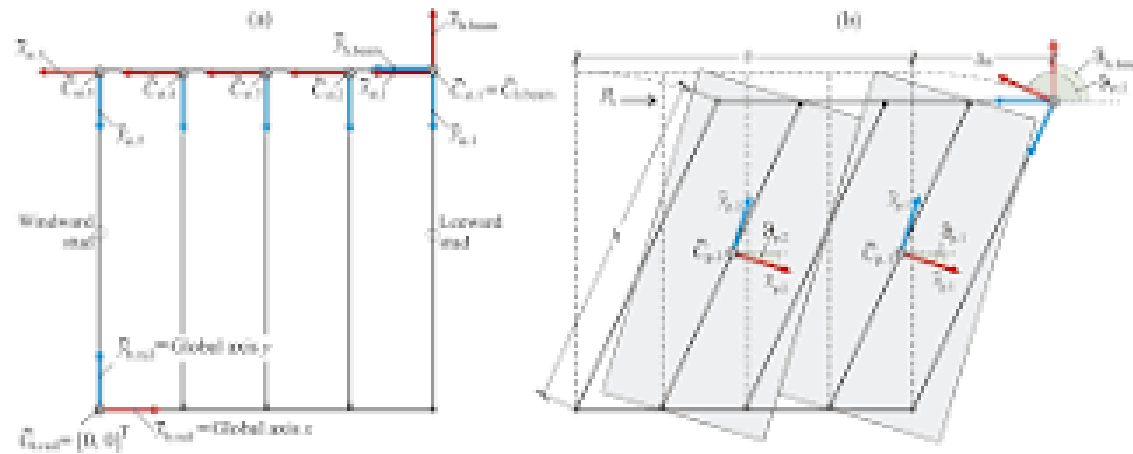
KEY PROJECT OUTPUTS; THE 7 STEPS	STEP 1 Outline responsibility matrix	STEP 2 Outline moisture management strategy	STEP 3 Updated stage 3 moisture strategy document including 'what if' list of issues and risk mitigation	STEP 4 Updated stage 4 moisture strategy document and risk mitigation check list	STEP 5 Manual for moisture management; audit trail and remedial action recorded	STEP 6 Carepoint document for handover to in use customer plus maintenance schedule hand over	STEP 7 Care points on condition maintained
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Part 4 - Responsible for durability

Each project will have a different make up of professional designers, managers, quantity surveyors, buyers, constructors, material supply chain, specialists and building facilities management.

PERIOD	CLIENT	DESIGNER	MATERIAL/ PRODUCT SUPPLY CHAIN	FABRICATION SUPPLY CHAIN	CONSTRUCTION	BUILDING FACILITY MANAGERS
APPOINTING A COMPETENT PROFESSIONAL DESIGN TEAM	✓	✋ Duty to warn				✓ In use
APPOINTING A COMPETENT TEAM FOR FABRICATION AND CONSTRUCTION	✓			✋ Duty to warn	✋ Duty to warn	✓ In use
DESIGNING FOR DURABILITY		✓	✋ Duty to warn	✋ Duty to warn	✋ Duty to warn	
SPECIFICATION OF MATERIALS FOR DURABILITY		✓	✓	✋ Duty to warn		
TECHNICAL SUPPORT ON DURABILITY			✓			
DUTY TO WARN OF VULNERABILITY AND LIMITATIONS		✓ ✋ Duty to warn	✓ ✋ Duty to warn	✓ ✋ Duty to warn	✓ ✋ Duty to warn	
QUALITY OF BUILD SPECIFICATION/ DETAIL		👍 Check			✓	
HANDOVER OF ELEMENT TO WHICH YOU'RE RESPONSIBLE		✓	✓	✓	✓	
MAINTENANCE SCHEDULE		📖 Specify				✓
UNDERTAKE MAINTENANCE						✓



Eurocode 5: Design of timber structures General.
Common rules and rules for buildings

Project number and title:

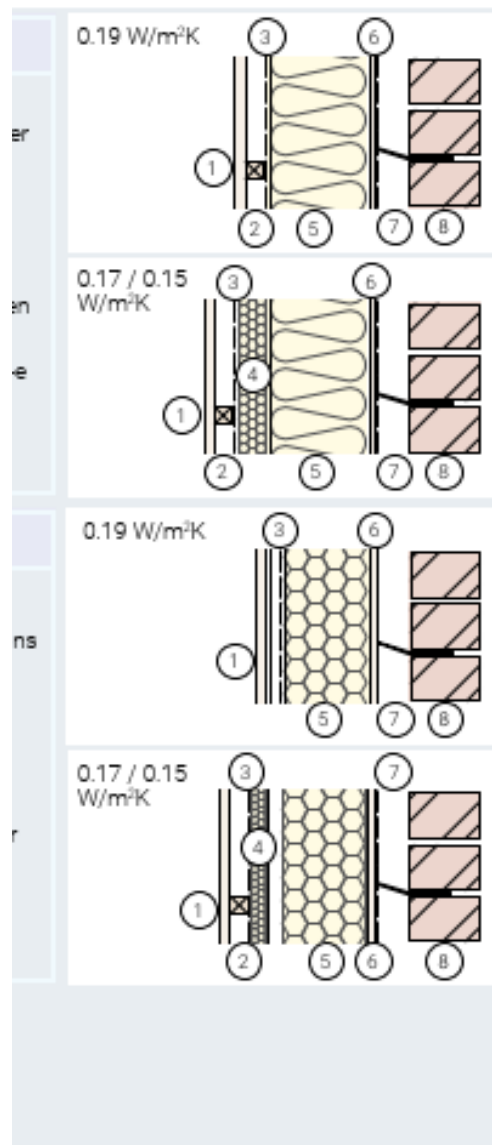
ISO/CD 24323 - Design methods for vibrational serviceability of timber floors

PD 6693-1:2019 Recommendations for the design of timber structures to Eurocode 5: Design of timber structures. General - common rules and rules for building



Heat and
Power

Scotland Section 6 Energy



Part L 2021

Where to start

A photograph of a timber frame construction, showing the wooden skeleton of a building under construction.

Future Homes Hub

A guide for housebuilders and their advisors
Timber construction

24.04.2023

April 2023 update

Part O 2021

Where to start

A photograph showing a window and a roof, illustrating the context of Part O 2021.

Future Homes Hub

Part O 2021 (England)
Builders Guidance

14.09.2022

Future
Homes
Hub

HM Government

The Building Regulations 2010

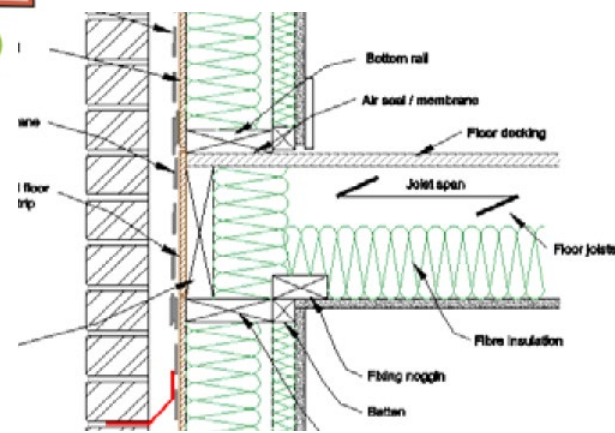
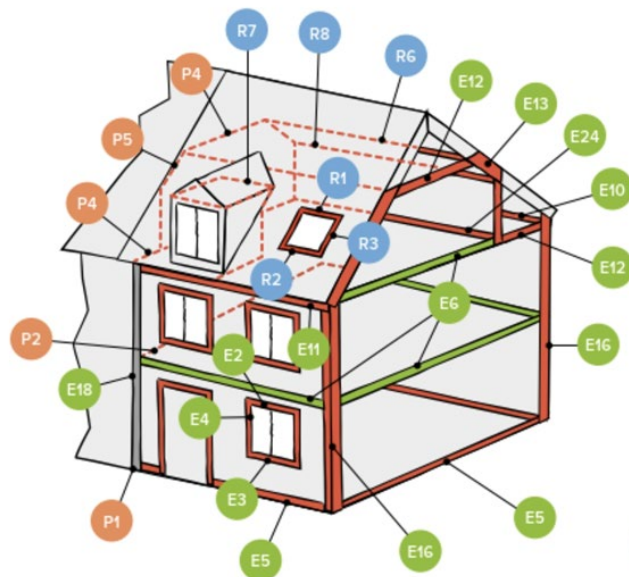
Conservation of
fuel and power

APPROVED DOCUMENT

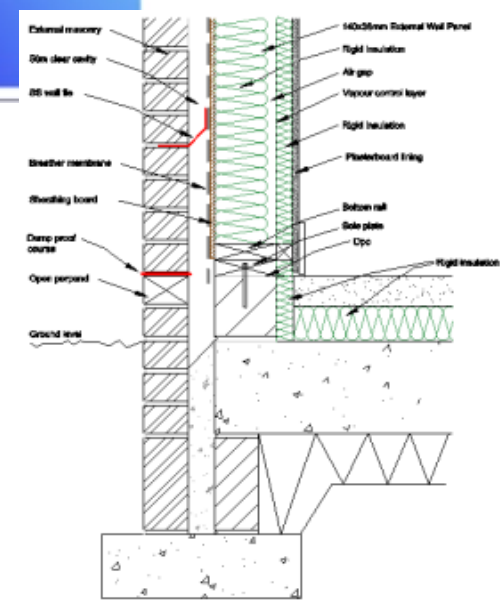
L1A

L1A Conservation of fuel and power
in new dwellings

Advice Note 6.2



Description of Junction Elements:	
Member Assoc.	E05 - Ground floor (normal)
Primary Business	Wall: 15mm plasterboard, 36mm service void, 20mm LowE residual cavity, A0.022 in 140mm timber frame, 9mm sheathing board, 53mm LowE cavity 100mm brickwork
	Floor: 70mm screed, 80mm PIR A0.022, 215mm solid concrete floor
Shire	Temperature Distribution
2140	
By: Sen	
Body: son Ltd	
e only valid tail drawn bed below	



Linear Thermal Transmittance (W/mK)

$$\Psi = 0.094$$

Carbon



Wall type 1

Carbon (A1-A3): 24.287 kgCO₂e/m²

Cond			Density	Thickness
x	Membranes	Reflective Breather Membrane		
x	Boards	OSB/3	640kg/m ³	9.0mm
x	SW Studs	38mm Studs @600c/c	27kg/m ³	140mm
x	Insulation	PIR	30kg/m ³	100mm
x	Insulation	PIR	30kg/m ³	25mm
x	Membranes	Vapour Control Layer		
x	SW Lumber	38mm Battens @600 c/c	27kg/m ³	25mm
x	Boards	Plasterboard	750kg/m ³	15.0mm
			Total	

Carbon				
A1-A3		A4	A5w	Sequestration
0.5	national	0.0	0.0	0.0
2.6	national	0.2	1.1	-9.4
1.0	national	0.1	0.1	-6.1
12.0	national	0.1	1.3	0.0
3.2	national	0.0	0.3	0.0
0.4			0.0	0.0
0.2	national	0.0	0.2	-1.1
4.4	national	0.4	1.4	0.0
24.3		0.8	4.5	-16.6

kgCO₂e/m²

Carbon



Insurance

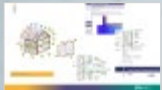


Fire Safety

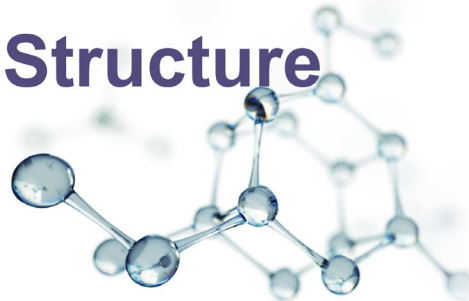


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53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

Heat and Power



Structure



Durability







STA members need to be aware

Members are recommended to provide appropriate information for their project relevant and in proportion to the scale and type of building..

What members are advised to consider

sign off for the completed build will require a “*golden thread*” technical trail of what was built.

digital records of assembly and a digital technical trail of design to installation.



- Insite to know what cladding is being proposed for the building
- Be aware of the STA technical documents eg Cavity barriers
- Know the limits of responsibility for fire safety, structure and thermal
- Provide the project design team information for the Principal Designer

 Thanks

