



Fire Protection
Association®



RISC Authority

**IS FIRE SAFETY AN
AFTERTHOUGHT IN
MODULAR
CONSTRUCTION?**

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OBJECTIVES

- By the end of this presentation, you should better understand
 - The fire performance strengths and weaknesses
 - The warning signs
 - Preventative measures
 - Available resources

SIDE
USING

REGULATION
DEVELOPMENT
FINANCE
ASSET MANAGEMENT
MORE TOPICS

NEWS
IH LIVE
COMMENT
INSIGHT

Government accused of 'suppressing' report into safety of modular building

NEWS 26.09.23 10.30 AM BY PETER APPS

The government has been accused of “suppressing” a report it commissioned into modern methods of construction (MMC), which leaked emails show was delivered in July 2022 and raised concerns about fire safety and structural integrity.



MODULAR FIRE PERFORMANCE

- Pros
 - Greater control
 - Ease of traceability
 - Innovative fire strategies
- Cons
 - Increased voids and cavities
 - Contractors may be unfamiliar with the innovative methods
 - Complex fire strategies
 - Hidden combustible products heavily reliant on the fire strategy



MODULAR - CONCRETE CORE



MODULAR - CONCRETE CORE



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MODULAR - CONCRETE CORE



MODULAR - CONCRETE CORE



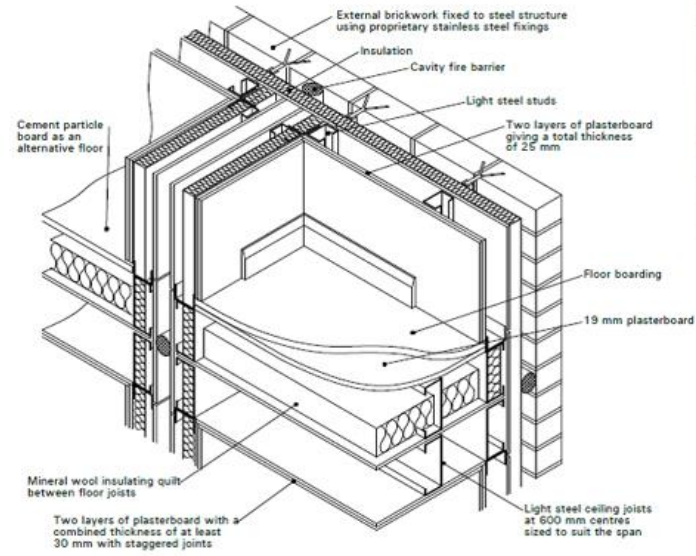
MODULAR - CONCRETE CORE

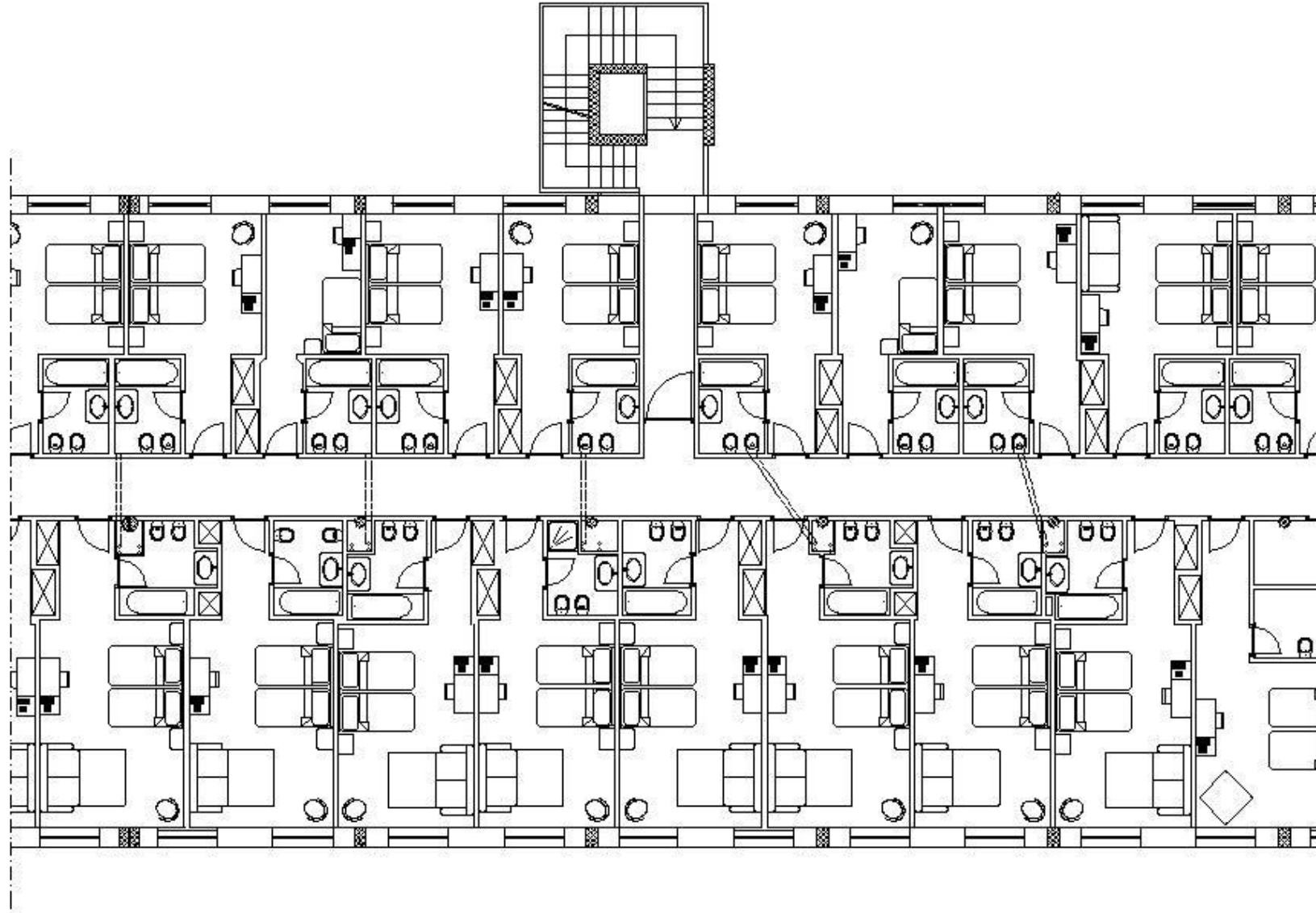


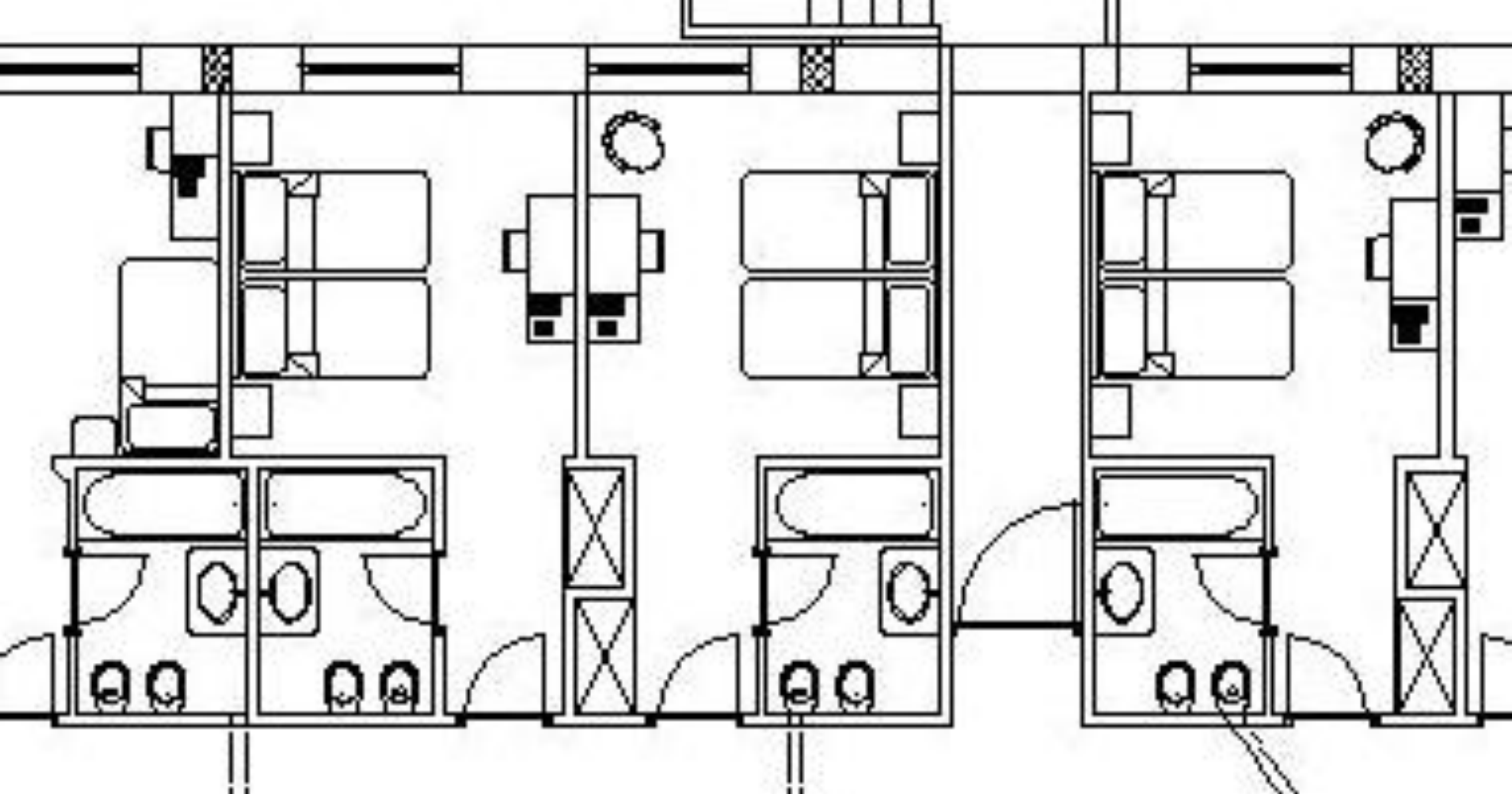
COMBUSTIBLE VOID PROTECTION

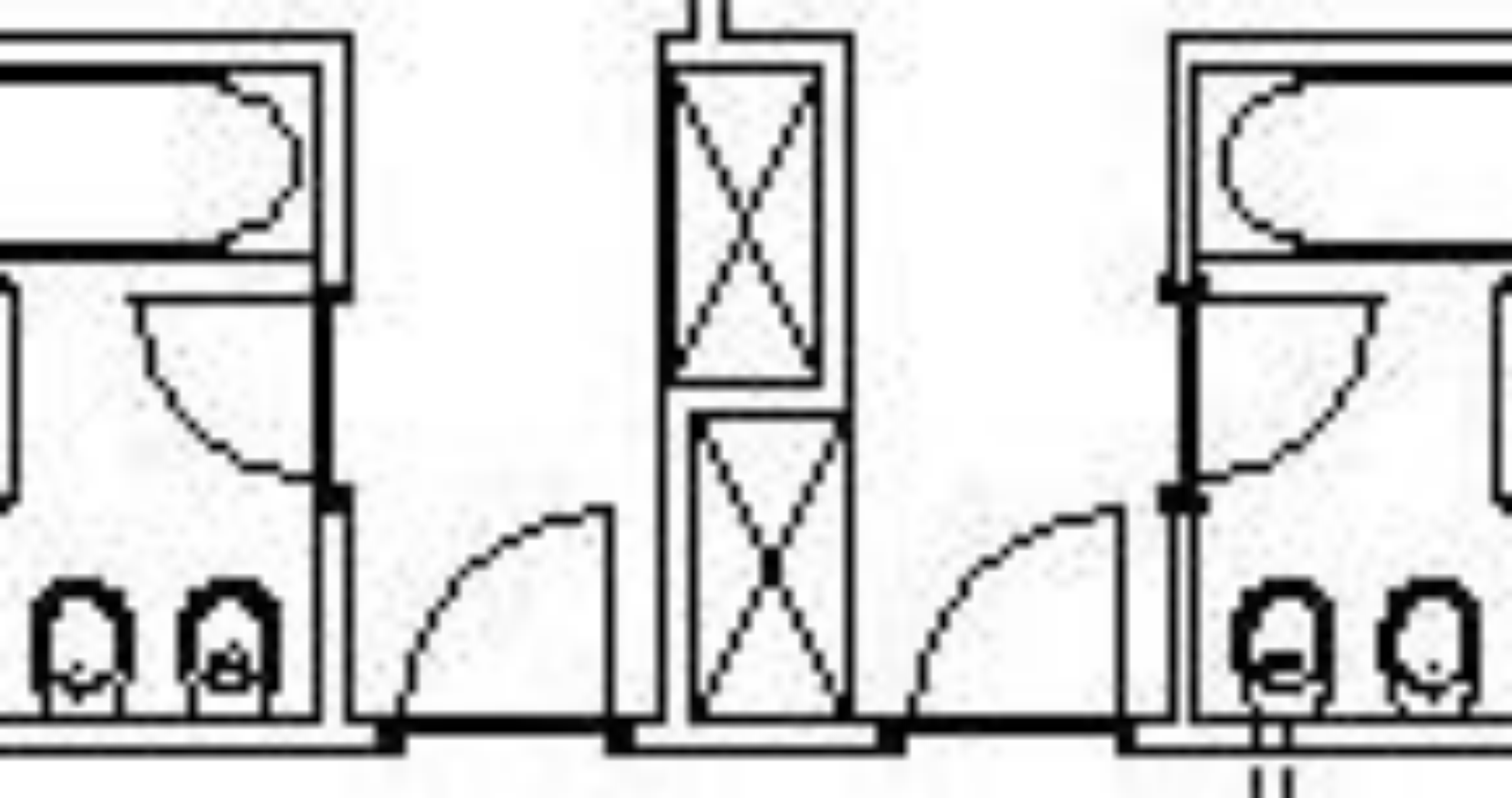


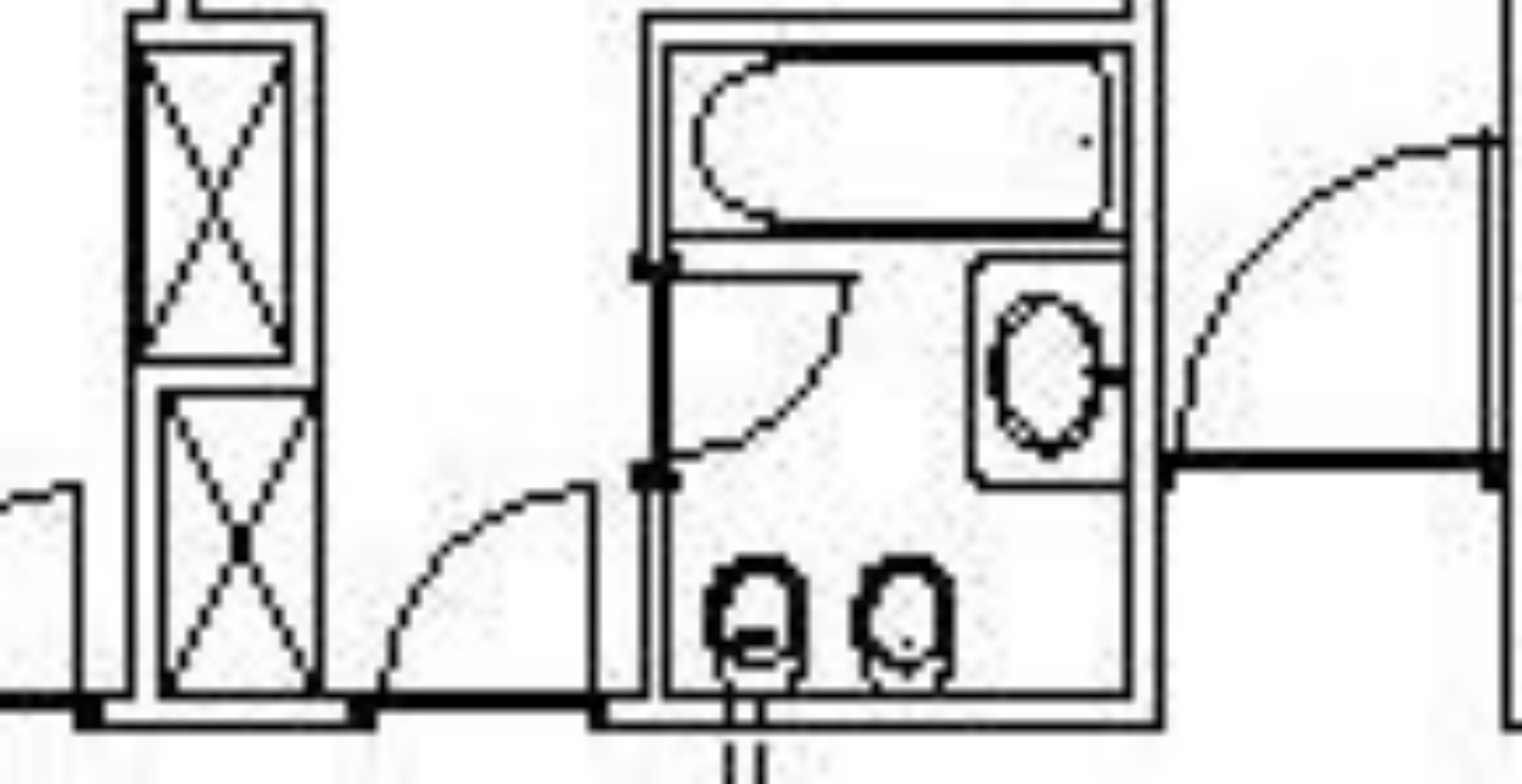
INTERCONNECTED NETWORK OF CAVITIES











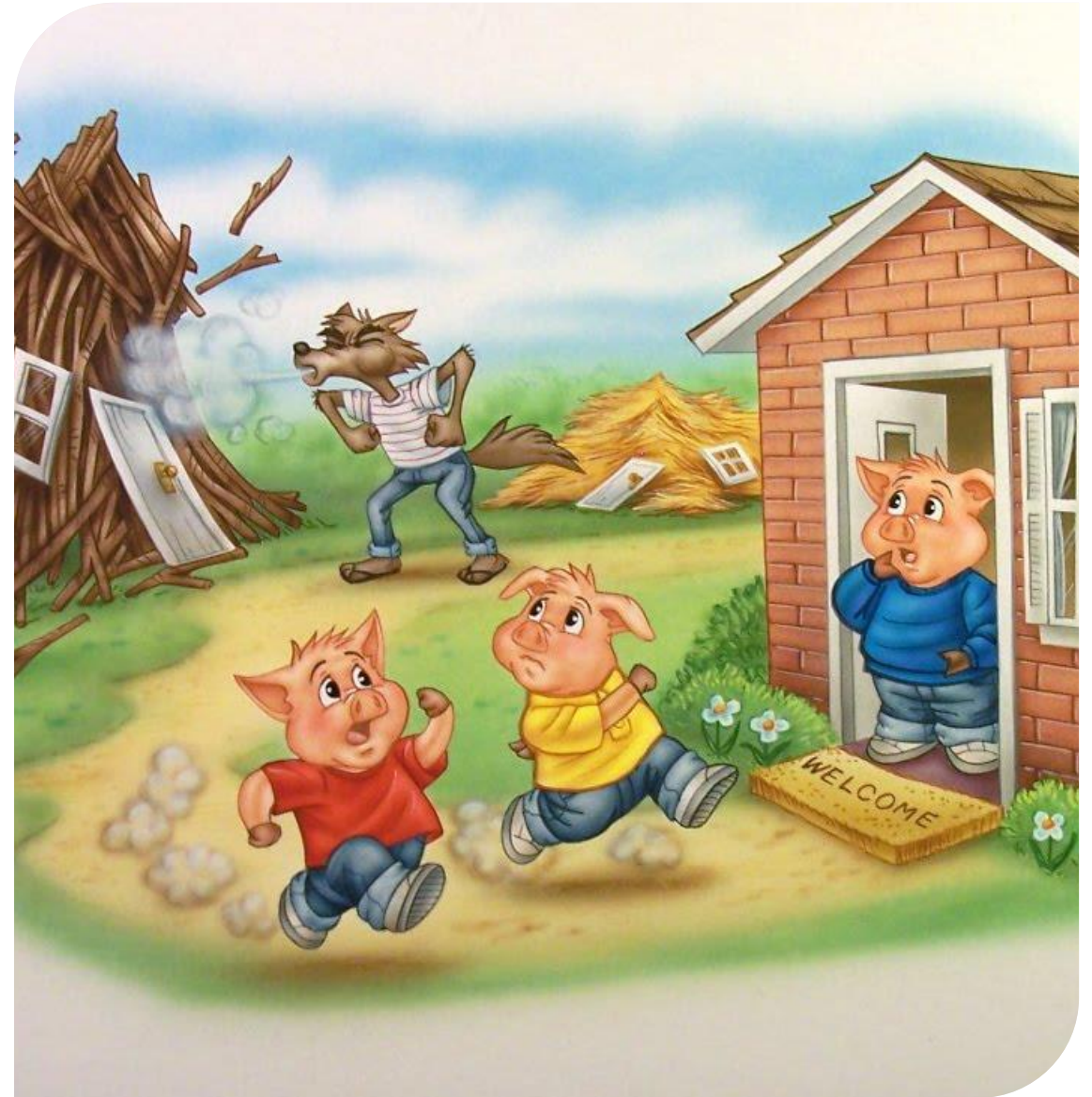
COMPARTMENTATION

- How will the critical detail restraining the Module stack to the Core accommodate Differential Vertical Movement over time while being Fire Protected and achieving Compartmentation?



WHAT IS RESILIENCE?

- No single event should cause a building to fail
- The design should be prepared for any single fire compartment to fail without fire spreading around the building



ESSENTIAL PRINCIPLES FOR FIRE SAFETY

- A: Strategically Assess Resilience
- B: Engage Insurers Early
- C: Support Firefighting Operations
- D: Maximise Non-Combustibility
- E: Anticipate Arson Attempts
- F: Monitor Building Services
- G: Address Occupational Issues
- H: Extend Structural Stability
- I: Reduce Fire Severity
- J: Control Compartment Cavities
- K: Separate External Openings
- L: Resist Fire Ingress
- M: Expect Adverse Weather
- N: Minimise Consequential Damage
- O: Facilitate Simple Repair
- P: Plan Salvage Operations
- Q: Follow Identified Standards
- R: Provide Reliable Detection
- S: Complete Performance Tests
- T: Procure Quality Materials
- U: Require Competent Work
- V: Verify Recorded Information
- W: Manage Fire Safety
- X: Action Statutory Assessments
- Y: Keep maintenance Commitments
- Z: Critically Review Experience



MASS TIMBER

- Combustible Void Protection
- Detection and Suppression Systems (Fire Sprinklers)
- Separation between buildings and compartmentation
- Exposed timber
- Fire fighter Provisions
- Stairwells



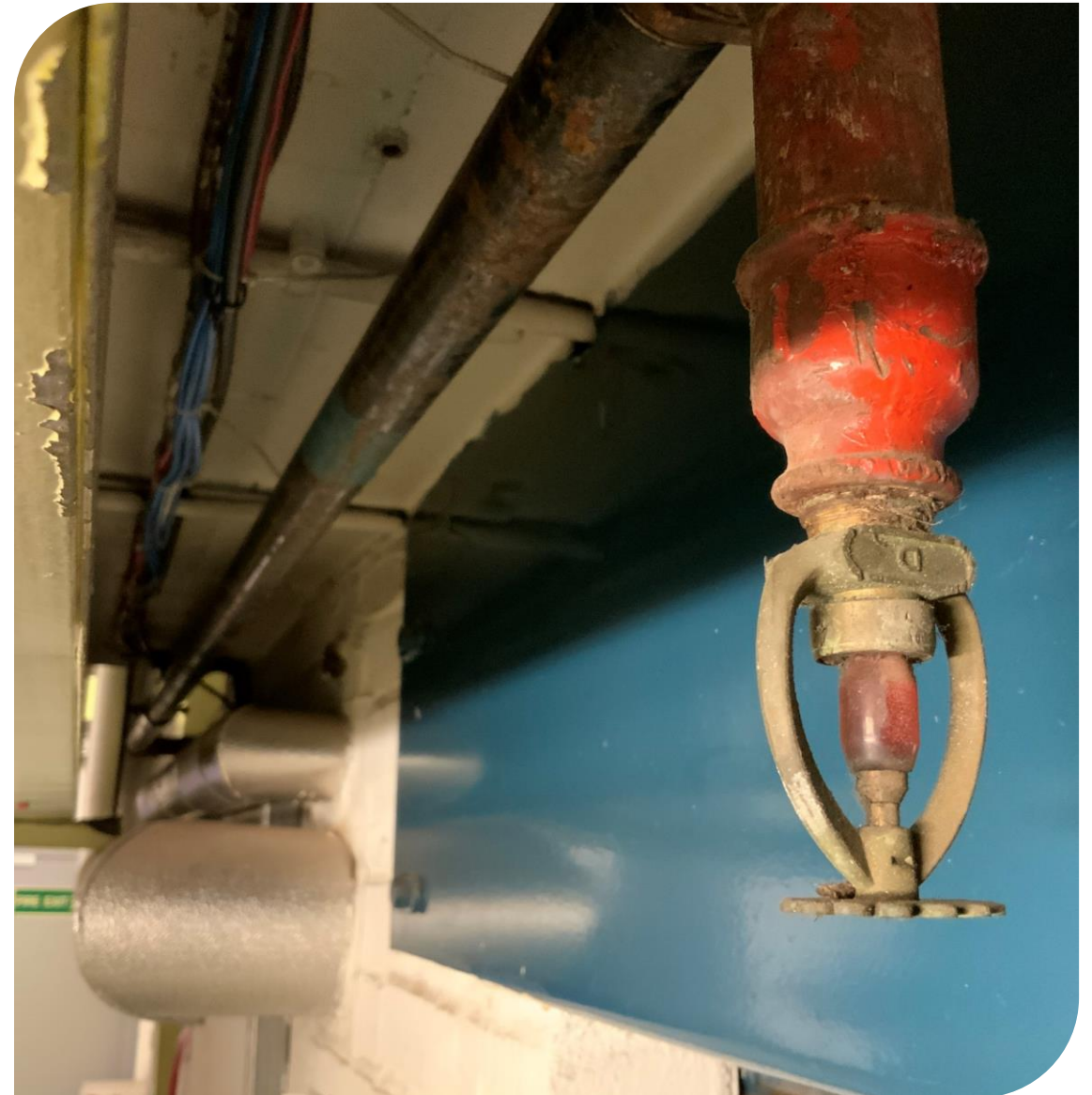
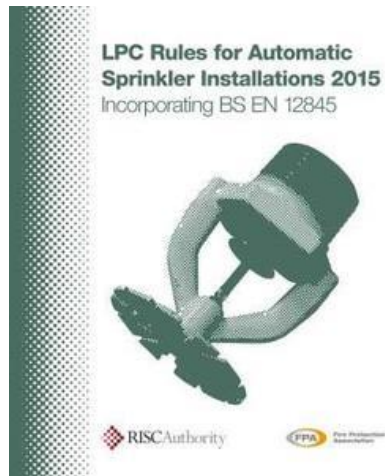
EXPOSED TIMBER

- The amount of exposed timber can be limited by the fire strategy
- This is very important for char development, lamella integrity and self-extinguishment
- As is the size of window and door openings
- Any changes to any of these could upset the balance and turn a self-extinguishing fire, into an unstoppable disaster



DETECTION AND SUPPRESSION SYSTEMS

- Life safety suppression systems are considered un-sprinklered by BDM02
- LPC Sprinkler Rules incorporating BS EN 12845





CAVITY BARRIERS

- “Don’t know what they are”
- “That’s special cavity barrier tape”

SMOKE TOXICITY

- Regulations are changing!
- Hierarchy of toxic chemicals
- Complicated product designs



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REFERENCES/ RESOURCES

- Joint Code of Practice – Fire Risk Mitigation and Fire Prevention on Construction Sites
- BDM01 – The A to Z of Essential Principles for the protection of buildings
- Insurer Questionnaires and Checklists
 - IQ6 – Mass Timber
 - IQ7 – Cladding systems
 - IQ8 – Modular buildings
- Cladding Compliance Toolkit
- RISC 501 – Fire Safety Assessment Tests for External Cladding Systems
- ASBP Mass Timber Insurance Playbook





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