

# Fire Safety in Construction Management

Regulatory issues?

## 2. Fire Safety in Construction Management

- An overview of the Construction Design and Management Regulations
- How do they dovetail with Building Regulations?
- How does Fire Safety feature and what is the Client role?

**Speaker: David Thomas, Senior Lecturer, University of Greenwich**

# Issues

Building Regulations

Regulatory Reform (Fire Safety) Order

Construction Design and Management Regulations 2017

Equalities Act

Competence?

# Considerations

Design Phase

Construction Phase

Operational / Maintenance Phase – Tenant 1

Refurbishment

Operational / Maintenance Phase – Tenant 2

.....

Demolition

People with mobility issues

# How can you effect Fire Safety Management

## Design

- Capital Budget (Cheaper Borrowing)?
- Reliance on Equipment not people
- Difficult and expensive to retrofit
- Maintenance Issues
- Landlord pays

## Operational

- Revenue Budget
- Reliance on people not equipment
- Supports flexible workplace
- Perpetual
- Tenant Costs

# Fire Strategy?

What is it?

Who writes it?

Who is involved in deciding what it covers?

Does the strategy

Can be effected by design

# Building Regulations

Domestic (Dwelling Houses) and Commercial



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# Approved Document B – Dwelling Houses

ONLINE VERSION



The Building Regulations 2010

**Fire safety**

**APPROVED DOCUMENT**

# B

**VOLUME 1 – DWELLINGHOUSES**

- B1** Means of warning and escape
- B2** Internal fire spread (linings)
- B3** Internal fire spread (structure)
- B4** External fire spread
- B5** Access and facilities for the fire service

Coming into effect April 2007



**2010 edition**  
incorporating 2010 and  
amendments

Reference to “Interaction with  
other legislation”

Its about the ‘completed  
building’

# Communal Areas

## Sheltered housing

**0.24** Where a sheltered housing scheme consists of individual houses then each unit may be designed in accordance with this volume of Approved Document B. Any communal facilities that are provided within the scheme should be designed in accordance with Approved Document B Volume 2 (Buildings other than dwellinghouses).

What happens if the warden is not resident, i.e. mobile?

Communal Areas for non sheltered housing



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# Approved Document B – Buildings other than Dwelling Houses

ONLINE VERSION



The Building Regulations 2010

Fire safety

APPROVED DOCUMENT

# B

VOLUME 2 – BUILDINGS OTHER  
THAN DWELLINGHOUSES

- B1 Means of warning and escape
- B2 Internal fire spread (linings)
- B3 Internal fire spread (structure)
- B4 External fire spread
- B5 Access and facilities for the fire service

Came into effect April 2007



For use in England\*

ONLINE VERSION

2006 edition  
Incorporating 2007,  
2010 and 2013  
amendments

“Use of Guidance”

Reference to “Interaction with other legislation”

Its about the ‘completed building’

## Interaction with RR (FS) Order

Although these requirements are applicable to premises whilst in operation, it would be useful for the designers of a building to carry out a preliminary fire risk assessment as part of the design process. If a preliminary risk assessment is produced, it can be used as part of the Building Regulations submission and can assist the fire safety enforcing authority in providing advice

at an early stage as to what, if any, additional provisions may be necessary when the building is first occupied.

# Fire Service "Sign Off"



Buckinghamshire & Milton Keynes Fire Authority  
**MAKING YOU SAFER**  
 PREVENTING PROTECTING RESPONDING  
 WWW.BUCKSFIRE.GOV.UK

APPENDIX PART B  
 Form FSD026

**THE BUILDING ACT 1984 - BUILDING REGULATIONS**  
**THE BUILDING (APPROVED INSPECTORS) REGULATIONS 2010 (AS AMENDED) - REGULATION 13**

## CONSULTATION

APPLICATION/B REGS NO:	12/0008/OTHFP	For ATTN:	[REDACTED]
PLANS NO:			
DATE RECEIVED:			
PREMISES ADDRESS	[REDACTED], Exchange Street, Aylesbury.		
OUR REF. (FILE NO).	A1127	FSEC Cat.	Hotels
Document used by supplying agent	AD B		
Document used to check application	AD B		

### SECTION A - MATTERS COVERED BY BUILDING REGULATIONS

- |  |               |     |                                     |    |                          |                              |
|--|---------------|-----|-------------------------------------|----|--------------------------|------------------------------|
| 1. Means of Escape in Case of Fire (B1)  | Satisfactory? | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> |                              |
| 2. Emergency/Safety Lighting (B1) installed according to BS5266,   | Satisfactory? | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | N/A <input type="checkbox"/> |
| 3. Access and Facilities for the Fire Service (B5)   | Satisfactory? | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | N/A <input type="checkbox"/> |
| 4. Exit Notices and Signs in accordance with Health & Safety (Safety signs and Signal) Regs 1996         | Satisfactory? | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | N/A <input type="checkbox"/> |
| 5. Fire Alarm/Fire Detection System in accordance with BS5839 Pt 1 Category: M, L1, L2, L3, L4 or L5,6,3 | Satisfactory? | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/> | N/A <input type="checkbox"/> |

### BUILDING REGULATIONS OBSERVATIONS

No observations.

Assume plans for [REDACTED] fit out will follow in due course?

- |  |     |                                     |    |                                     |
|--|-----|-------------------------------------|----|-------------------------------------|
| 6. Have any variations been agreed in the passing of plans?<br>If yes Specify: | YES | <input checked="" type="checkbox"/> | NO | <input type="checkbox"/>            |
| Access   |     |                                     |    |                                     |
| 7. Would a joint inspection on completion be beneficial?                       | YES | <input type="checkbox"/>            | NO | <input checked="" type="checkbox"/> |

<sup>1</sup> We recommend compliance with the "preferred" lighting levels in BS 5266-1:2005  
<sup>2</sup> A Fire Alarm system to BS 5839 Pt 1: 2002 is recommended in all bar the smallest premises  
<sup>3</sup> The audibility of the Fire Alarm/Fire Detection system should be confirmed as satisfactory throughout the premises as they become occupied

## SECTION B - MATTERS THAT HAVE TO BE COMPLIED WITH UNDER THE REGULATORY REFORM (FIRE SAFETY) ORDER 2005 WHEN THE BUILDING IS OCCUPIED

8. Article 9. - (1) Completion of a fire based risk assessment in accordance with the above Order   
 (6) As soon as practicable after the assessment is made or reviewed, the responsible person must record the information prescribed by paragraph (7) where—  
 (a) he employs five or more employees;  
 (b) a licence under an enactment is in force in relation to the premises; or  
 (c) an alterations notice requiring this is in force in relation to the premises.
9. Article 11. - (1) Implement Fire Safety Arrangements in accordance with the above Order   
 (2) The responsible person must record the arrangements referred to in paragraph (1) where—  
 (a) he employs five or more employees;  
 (b) a licence under an enactment is in force in relation to the premises; or  
 (c) an alterations notice requiring a record to be made of those arrangements is in force in relation to the premises.

Please note: article 9 - (6) requires that the significant findings of the risk assessment and the arrangements made under article 11 above are recorded where a) he employs 5 or employees, b) a licence under an enactment is in force in relation to the premises; or c) an alterations notice is in force requiring this is in force in relation to the premises.

10. Firefighting Equipment installed in accordance with BS5306 Pt 8 2000

## SECTION C - MATTERS THAT ARE ONLY ADVISORY AND NOT ENFORCEABLE UNDER CURRENT LEGISLATION

11. Sections A, B, & C of the above only relate to life safety matters and the applicant should consult with the building insurers with regards to property protection.
12. It is the policy of Buckinghamshire & Milton Keynes Fire Authority to support the installation of automatic fire suppression sprinkler installations, in new developments or in significant alterations of existing buildings. Sprinkler systems can facilitate improved safety for the occupants of buildings, greater protection of buildings and contents; they can also improve the resilience profile of the "as build environment" which can lead to a significant reduction on insurance premiums. Sprinkler systems should be designed, installed and maintained in accordance with BS EN 12845.

## OBSERVATIONS SECTIONS B & C

Provision of the goodwill recommendations above should assist compliance with any such statute in respect of Fire Precautions

Signature and Rank of officer: [REDACTED] Date: [REDACTED] 03:13

Correspondence address: [REDACTED] District Fire Safety Office  
 High Street  
 Great Missenden  
 Bucks  
 HP16 0PB

Telephone Number: Office 01494 [REDACTED] Mobile

Email Address: [REDACTED]@bucksfire.gov.uk

**ACFO Jason Thelwell: Director of Public Safety**  
 Buckinghamshire Fire and Rescue Service  
 Brigade Headquarters, Stocklake, Aylesbury, Bucks HP20 1BD  
 Tel: 01296 424666 Fax: 01296 744600

# Regulatory Reform (Fire Safety) Order

Replaced Fire Precautions Act 1971

The Fire Precautions (Workplace) Regulations 1997

The Fire Precautions (Workplace) (Amendment) Regulations 1999

(Introduced principle of Risk Assessment)

# Responsible Person

You're responsible for fire safety in business or other non-domestic premises if you're:

- an employer
- the owner
- the landlord
- an occupier

# Responsibilities



# Legislation



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STATUTORY INSTRUMENTS

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2005 No. 1541

**REGULATORY REFORM, ENGLAND AND WALES**

**The Regulatory Reform (Fire Safety) Order 2005**

Made - - - - - 7th June 2005  
Coming into force in accordance with article 1

ARRANGEMENT OF ARTICLES

PART 1  
GENERAL

1. Citation, commencement and extent
2. Interpretation
3. Meaning of "responsible person"
4. Meaning of "general fire precautions"
5. Duties under this Order
6. Application to premises
7. Disapplication of certain provisions

PART 2  
FIRE SAFETY DUTIES

8. Duty to take general fire precautions
9. Risk assessment
10. Principles of prevention to be applied
11. Fire safety arrangements
12. Elimination or reduction of risks from dangerous substances
13. Fire-fighting and fire detection
14. Emergency routes and exits
15. Procedures for serious and imminent danger and for danger areas
16. Additional emergency measures in respect of dangerous substances
17. Maintenance
18. Safety assistance
19. Provision of information to employees
20. Provision of information to employers and the self-employed from outside undertakings
21. Training
22. Co-operation and co-ordination
23. General duties of employees at work
24. Power to make regulations about fire precautions



HM Government

endorsed by the

**Disability  
Rights  
Commission**

**fire safety** risk assessment

Supplementary guide

Means of Escape for Disabled People

# Definitions

- Non-domestic premises
- Shared premises
- Alterations, extensions and new buildings

# Carrying out the Assessment

- Identify the fire hazards.
- Identify people at risk.
- Evaluate, remove or reduce the risks.
- Record your findings, prepare an emergency plan and provide training.
- Review and update the fire risk assessment regularly.

# Identification of Fire Hazards



offices and shops



# Risk Considerations

Building regulations

Façade construction

Compartmentation

The 'stay put' principle

Evacuation Systems

Fire Alarms

Sprinklers

Tactical response

# FIRE SAFETY RISK ASSESSMENT

▶ Follow the 5 key steps ▶ Fill in the checklist ▶ Assess your fire risk and plan fire safety

## 1 Fire hazards

Fire starts when heat (source of ignition) comes into contact with fuel (anything that burns), and oxygen (air).

You need to keep sources of ignition and fuel apart.

### How could a fire start?

Think about heaters, lighting, naked flames, electrical equipment, hot processes such as welding or grinding, cigarettes, matches and anything else that gets very hot or causes sparks.

### What could burn?

Packaging, rubbish and furniture could all burn, just like the more obvious fuels such as petrol, paint, varnish and white spirit. Also think about wood, paper, plastic, rubber and foam. Do the walls or ceilings have hardboard, chipboard, or polystyrene? Check outside, too.

- Have you found anything that could start a fire?

*Make a note of it.*

- Have you found anything that could burn?

*Make a note of it.*

## 2 People at risk

### People at risk

Everyone is at risk if there is a fire. Think whether the risk is greater for some because of when or where they work, such as night staff, or because they're not familiar with the premises, such as visitors or customers. Children, the elderly or disabled people are especially vulnerable.

### Have you identified?

- Who could be at risk?  
 Who could be especially at risk?

*Make a note of what you have found.*

## 3 Evaluate, and act

### Evaluate

First, think about what you have found in steps 1 and 2: what are the risks of a fire starting, and what are the risks to people in the building and nearby?

### Remove and reduce risk

How can you avoid accidental fires? Could a source of heat or sparks fall, be knocked or pushed into something that would burn? Could that happen the other way round?

### Protect

Take action to protect your premises and people from fire.

- Have you assessed the risks of fire in your workplace?  
 Have you assessed the risk to staff and visitors?

- Have you kept any source of fuel and heat/sparks apart? If someone wanted to start a fire deliberately, is there anything around they could use?  
 Have you removed or secured any fuel an arsonist could use?  
 Have you protected your premises from accidental fire or arson?

### How can you make sure everyone is safe in case of fire?

- Will you know there is a fire?  
 Do you have a plan to warn others?  
 Who will make sure everyone gets out?  
 Who will call the fire service?  
 Could you put out a small fire quickly and stop it spreading?

### How will everyone escape?

- Have you planned escape routes?  
 Have you made sure people will be able to safely find their way out, even at night if necessary?  
 Does all your safety equipment work?  
 Will people know what to do and how to use equipment?

*Make a note of what you have found.*

## 4 Record, plan and train

### Record

Keep a record of any fire hazards and what you have done to reduce or remove them. If your premises are small, a record is a good idea. If you have five or more staff or have a licence then you must keep a record of what you have found and what you have done.

### Plan

You must have a clear plan of how to prevent fire and how you will keep people safe in case of fire. If you share a building with others, you need to coordinate your plan with them.

### Train

You need to make sure your staff know what to do in case of fire, and if necessary, are trained for their roles.

- Have you made a record of what you have found, and action you have taken?

- Have you planned what everyone will do if there is a fire?  
 Have you discussed the plan with all staff?

### Have you?

- Informed and trained people (practised a fire drill and recorded how it went)?  
 Nominated staff to put in place your fire prevention measures, and trained them?  
 Made sure everyone can fulfil their role?  
 Informed temporary staff?  
 Consulted others who share a building with you, and included them in your plan?

## 5 Review

Keep your risk assessment under regular review. Over time, the risks may change.

If you identify significant changes in risk or make any significant changes to your plan, you must tell others who share the premises and where appropriate re-train staff.

### Have you?

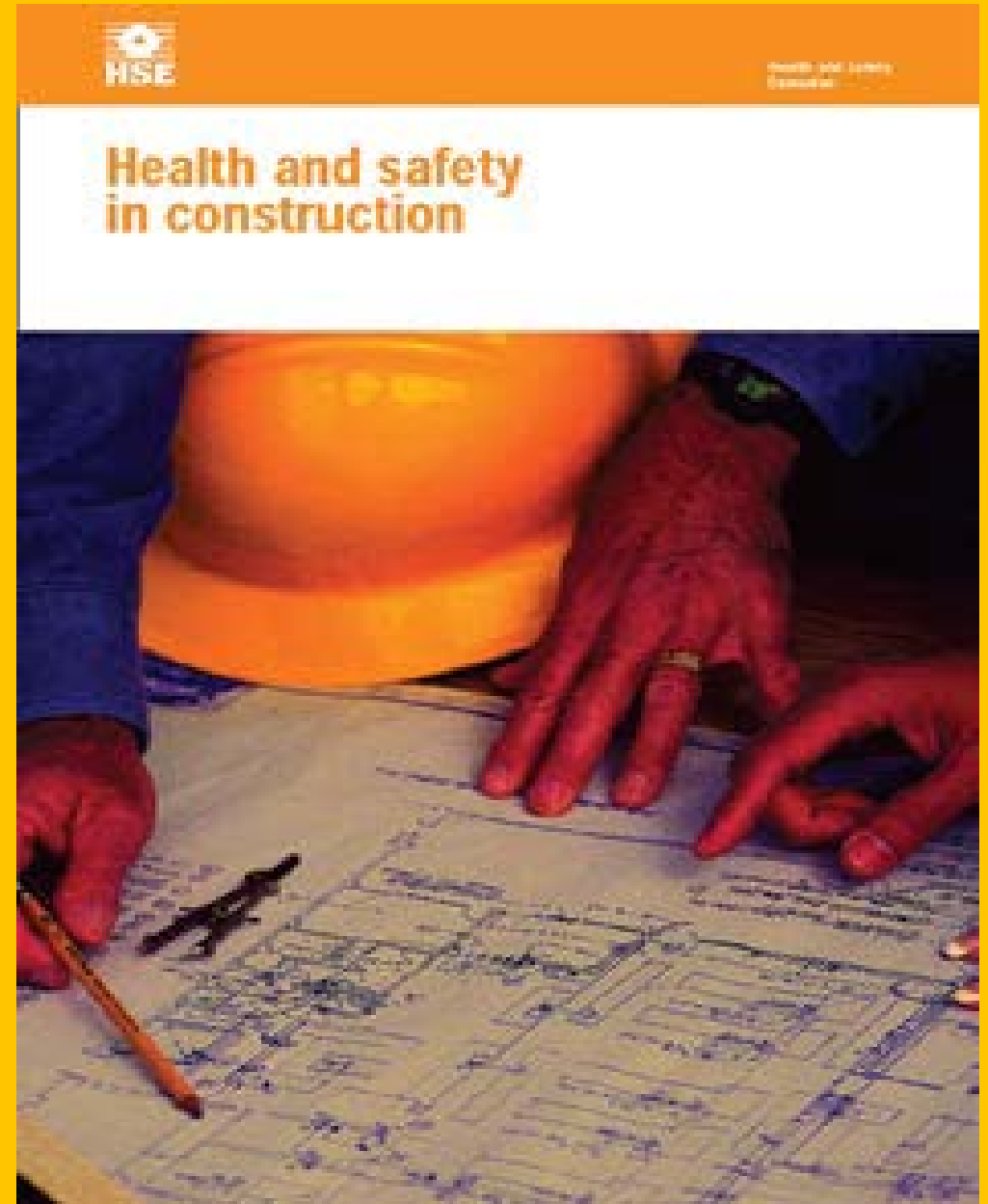
- Made any changes to the building inside or out?  
 Had a fire or near miss?  
 Changed work practices?  
 Begun to store chemicals or dangerous substances?  
 Significantly changed your stock, or stock levels?  
 Have you planned your next fire drill?

## Completed the checklist? Do you need more information?

The checklist above can help you with the Fire Risk Assessment **but** you may need additional information especially if you have large or complex premises.

We have produced a series of guides for different business sectors. These guides will give you more information about how to carry out a Fire Risk Assessment, with specific advice for your type of premises. These guides are free to download at [www.communities.gov.uk/fire](http://www.communities.gov.uk/fire)

# CDM 2015



# CDM

Fire Safety

On Site

For the Future

# Planning

Regulation 29 Prevention of risk from fire, flooding or asphyxiation

Regulation 32 Fire detection and fire-fighting

## Managing health and safety in construction

Construction (Design and Management) Regulations 2015



# Enforcement

Regulation 36 Enforcement in respect of fire





## Regulation 9 Duties of designers

**Designers** are those, who as part of a business, prepare or modify designs for a building, product or system relating to construction work.

When preparing or modifying designs, to eliminate, reduce or control foreseeable risks that may arise during:

- construction; and
- the maintenance and use of a building once it is built.

Provide information to other members of the project team to help them fulfil their duties.

See paragraphs 72–93 for more guidance.



# Evacuation

# Challenges – Evacuation



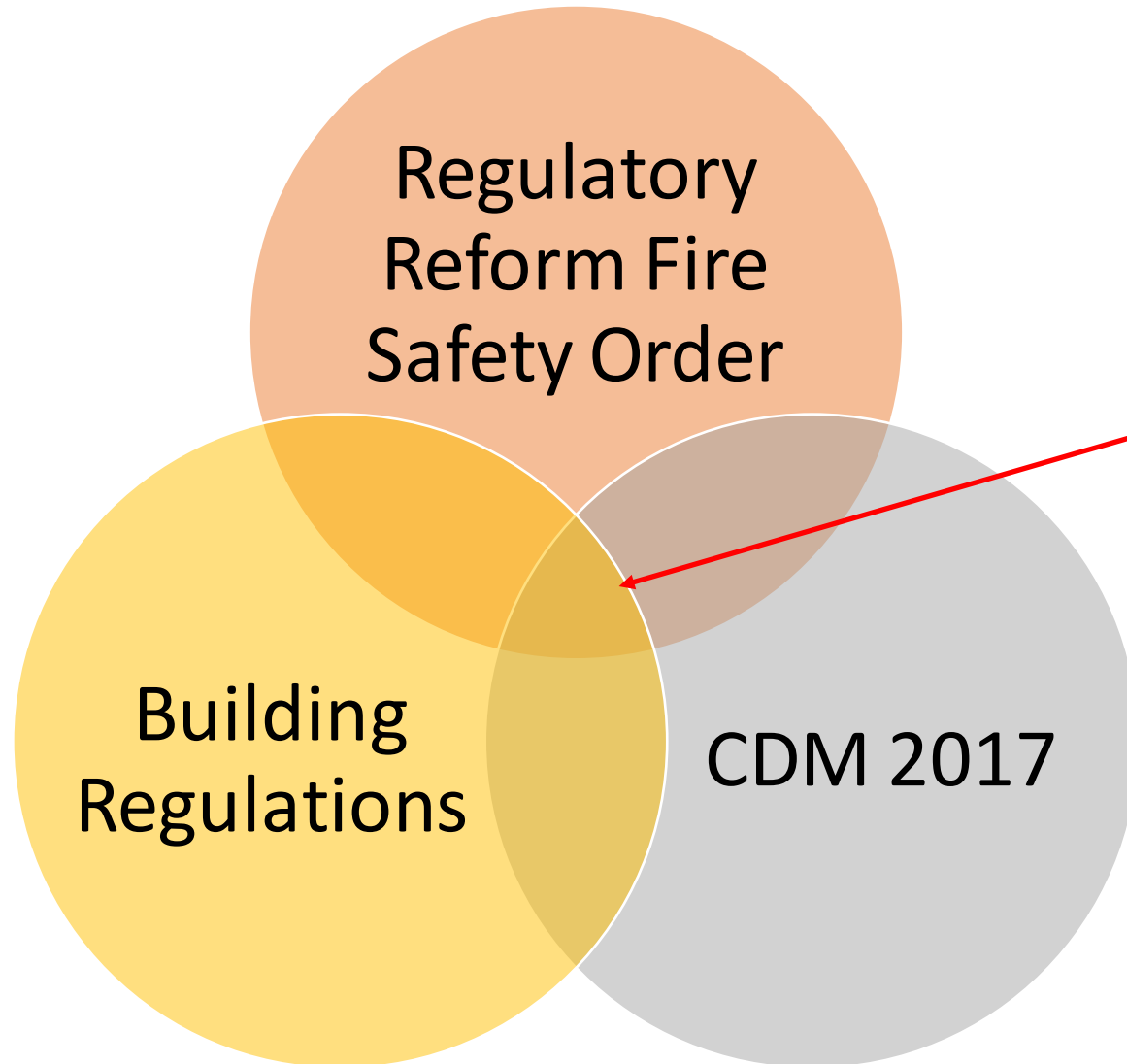
# Evacuation Lift



Secondary Electric Supply  
Additional protection in shaft  
Design in at start  
Difficult to retro fit

# Summary

# Relationship



Where we need to  
be working

# The Tenant /Building Users

- Need to be involved as engineering may be needed
- How

# Evacuation

## Student Accommodation

### Portsmouth student tower sprinkler plan criticised

🕒 5 August 2011 | Hampshire & Isle of Wight



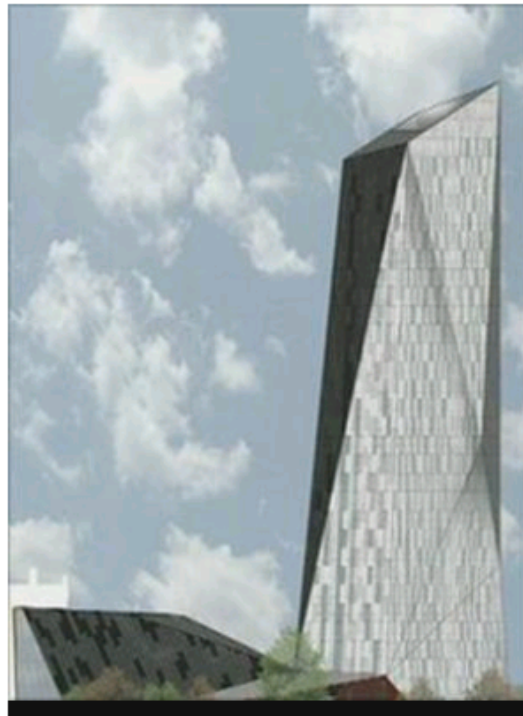
A plan to build a 33-storey accommodation block in Portsmouth without a sprinkler system could put lives at risk, fire chiefs have said.

The Blade is being built to house 600 University of Portsmouth students, but the developers said it was not required to have sprinklers.

Hampshire's fire service said it was "extremely disappointed" by the plan.

Developers Watkin Jones insisted the design was "fully in compliance" with regulations.

Hampshire Fire and Rescue Service was told at a meeting with the developers on Tuesday that sprinklers



### Portsmouth Blade student tower sprinkler plan reversed

🕒 15 August 2011 | Hampshire & Isle of Wight



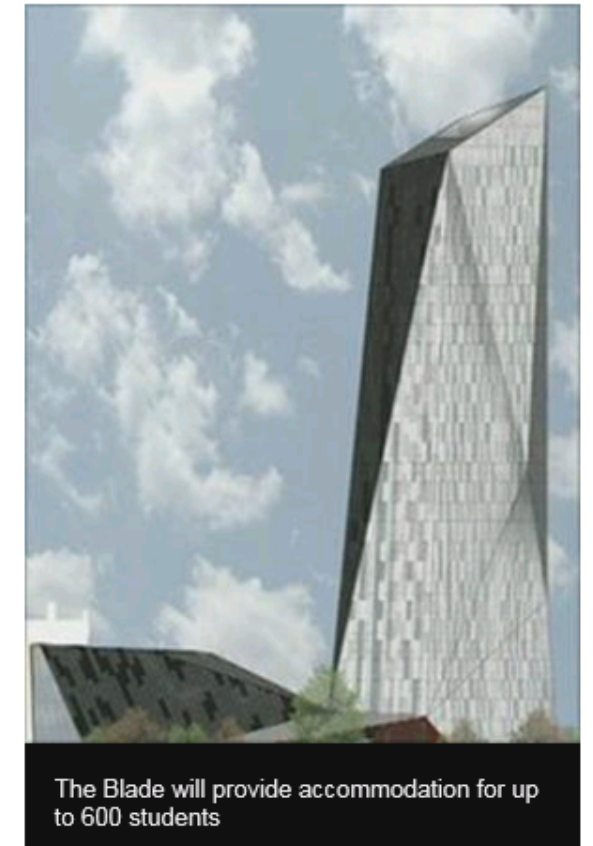
**A 33-storey student accommodation block in Portsmouth will be fitted with a sprinkler system, following a U-turn by developers.**

Fire chiefs had warned the decision to build the 110m (360ft) Blade without sprinklers would put lives at risk.

Following further talks, developers Watkin Jones said it was now making a commitment to fitting a system.

Hampshire Fire and Rescue's Mick Crennell called it a "fantastic outcome".

The service was originally told that sprinklers would not be installed in the 110m (360ft) building designed for the



# Questions



**CHANGE  
STARTS  
HERE**

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