Brandveiligheid – Uw verantwoordelijkheid?! “in praktisch en internationaal perspectief “

Fire Seminar Kingspan 30 oktober 2013

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Inleiding

1. Arup
2. Deregulering in internationaal perspectief:
   - Bouwregelgeving en gelijkwaardigheid
   - “Deemed to satisfy”
3. Deregulering in fire engineering praktijk:
   - Vooroverleg, inspecties in de uitvoering, overdracht en gebruik.
4. Private verantwoordelijkheid – denk verder!
   - Voorbeelden projecten en bedrijfsstandaarden
5. Samenvatting en overzicht

1. Arup

"There can be no happiness in isolation"

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Introduction Arup

- Arup 10.000+ staff
- Fire engineering practice 1970's
- Internationally recognised scientist

- 200 fire engineering staff over 4 continents
- Support from in-house multidisciplinary consultancy

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Sir Ove Arup - Key Speech

"There are two ways of looking at the pursuit of happiness:

One is to go straight for the things you fancy without restraints, that is, without considering anybody else besides yourself.

The other is to recognise that our lives are inextricably mixed up with those of our fellow human beings, and that there can be no real happiness in isolation. Which leads to an attitude which would accord to others the rights claimed for oneself, which would accept certain moral or humanitarian restraints. We opt for the second way."

Ove Arup, 1970

Courtesy of Arup

Nikon

Arup 10+ years of local delivery

Het Nieuwe Rijksmuseum, Amsterdam

Installaties, lichtontwerp, brandveiligheid, samenwerking, Van Heugten, DGMR

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RAI - Elicium, Amsterdam
Architect: Benthem Crouwel Architects
Scope: structures

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DUO: Dienst Uitvoering Onderwijs
Architect: UNStudio
Scope: All engineering: including Building services and structures, building physics wind

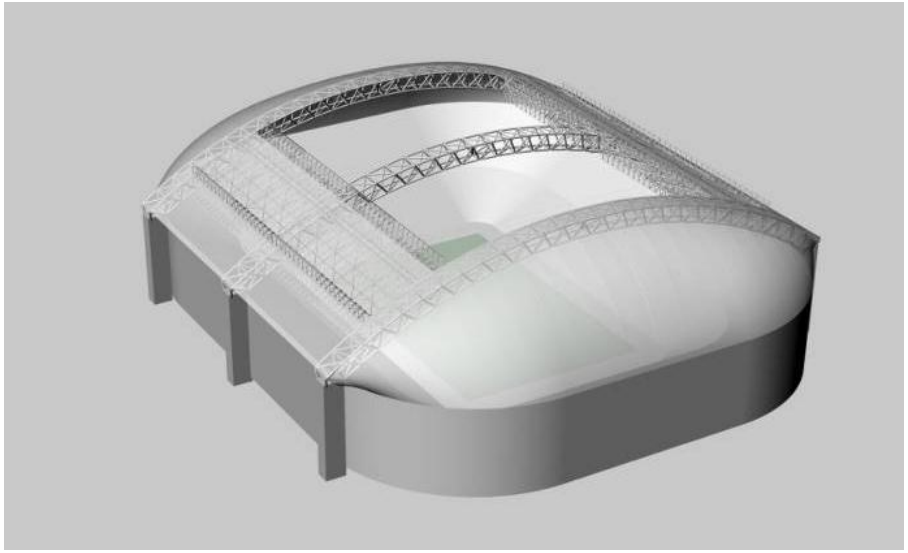
O: Dienst Uitvoering Onderwijs
All engineering: including Building
es and structures, building physics
wind

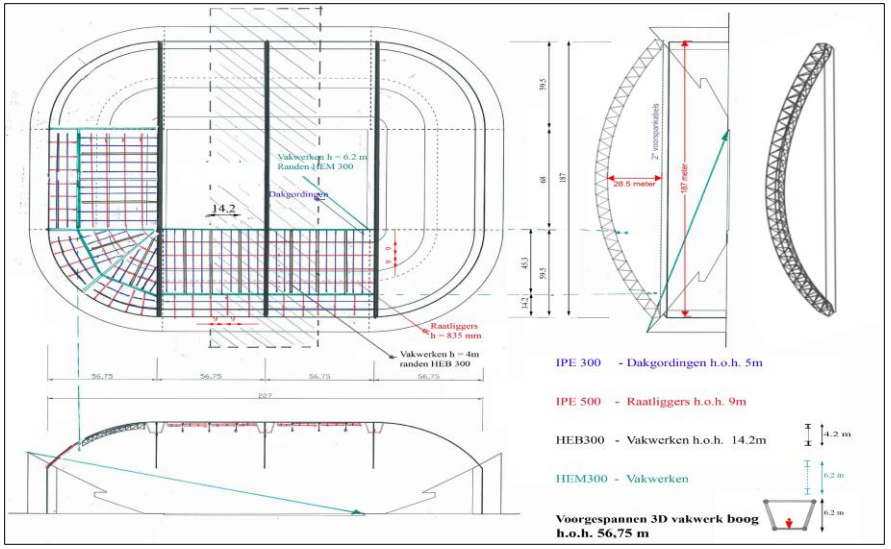
Central Station area

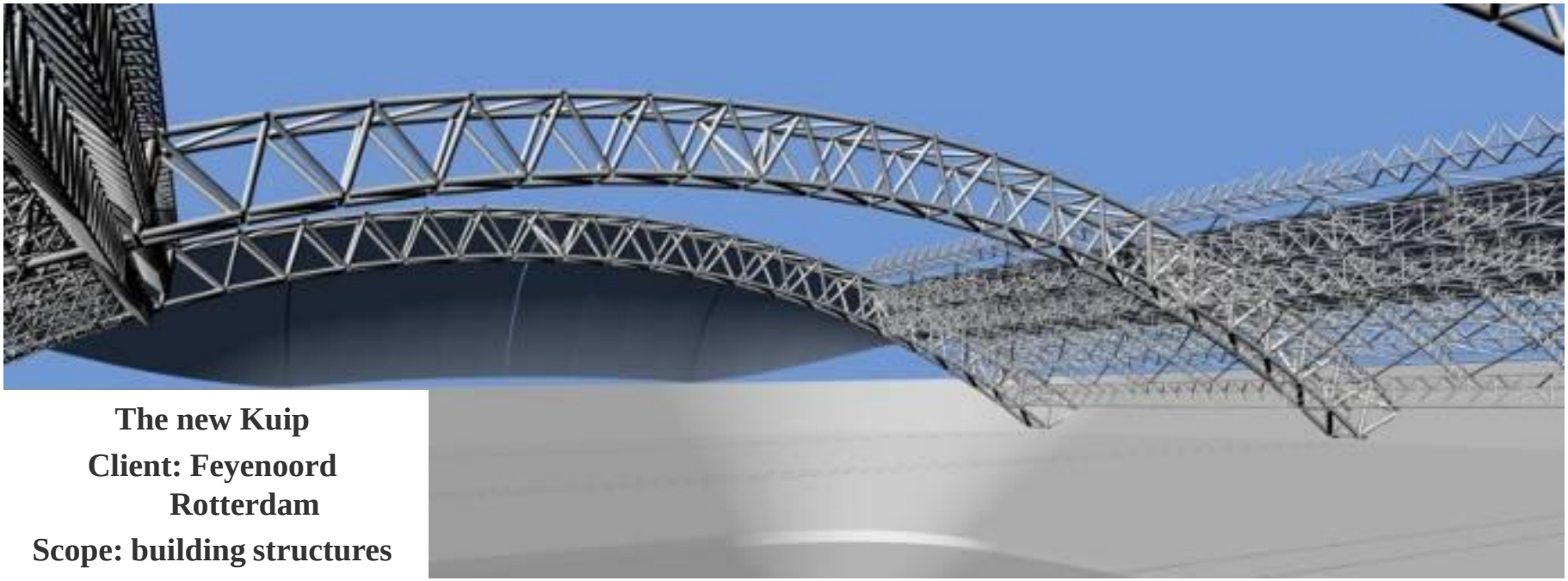
Client: City of Arnhem

Architect: UNStudio

Scope: Masterplanning, building structures, lighting, façade







The new Kuip

Client: Feyenoord Rotterdam

Scope: building structures

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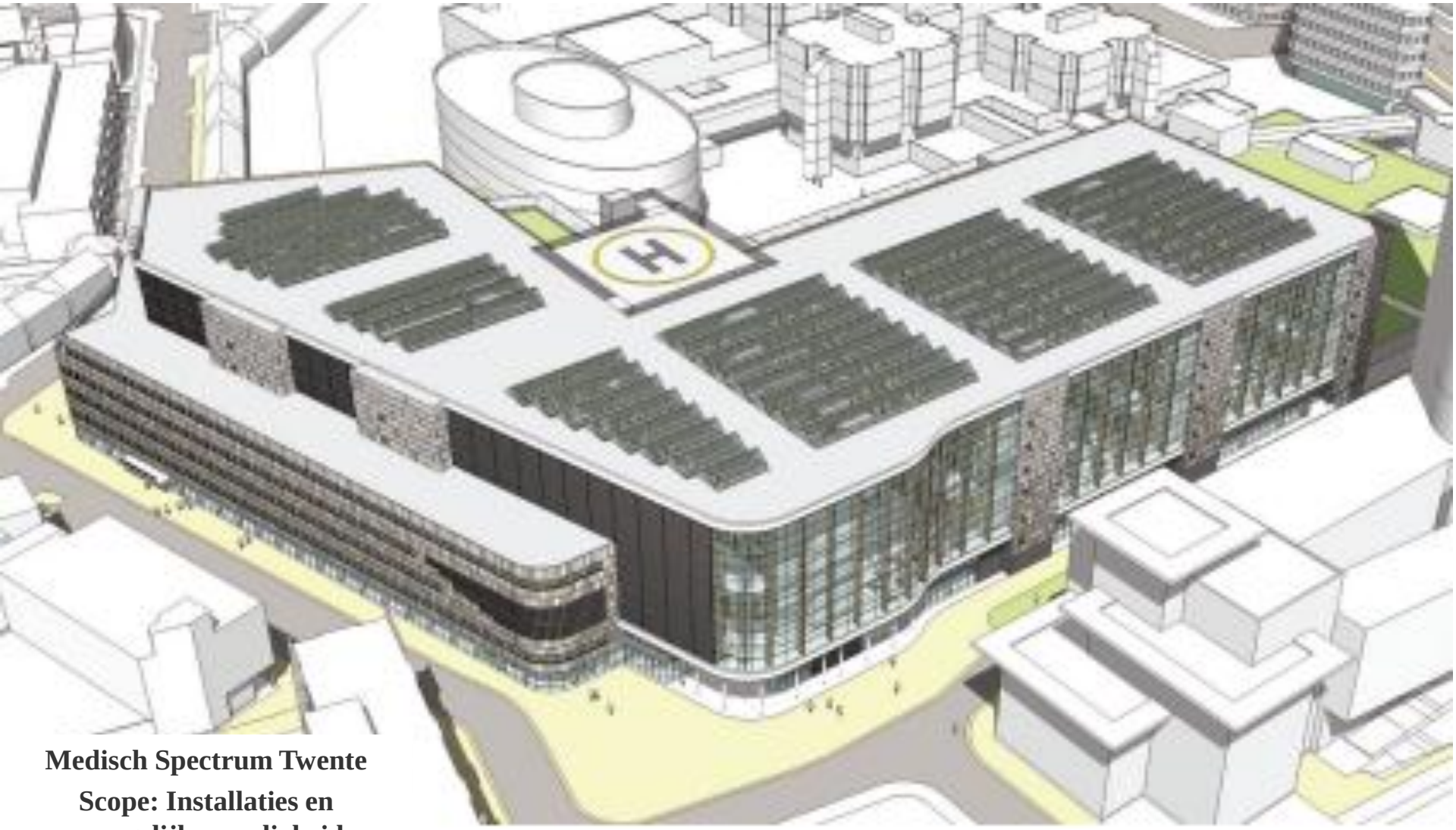
utch Mountain
Passief Huis



Medisch Spectrum Twente

Scope: Installaties en gelijkwaardigheid brandveiligheid atria

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Schiphol Plaza
Brandveiligheid

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2. Deregulering in internationaal perspectief

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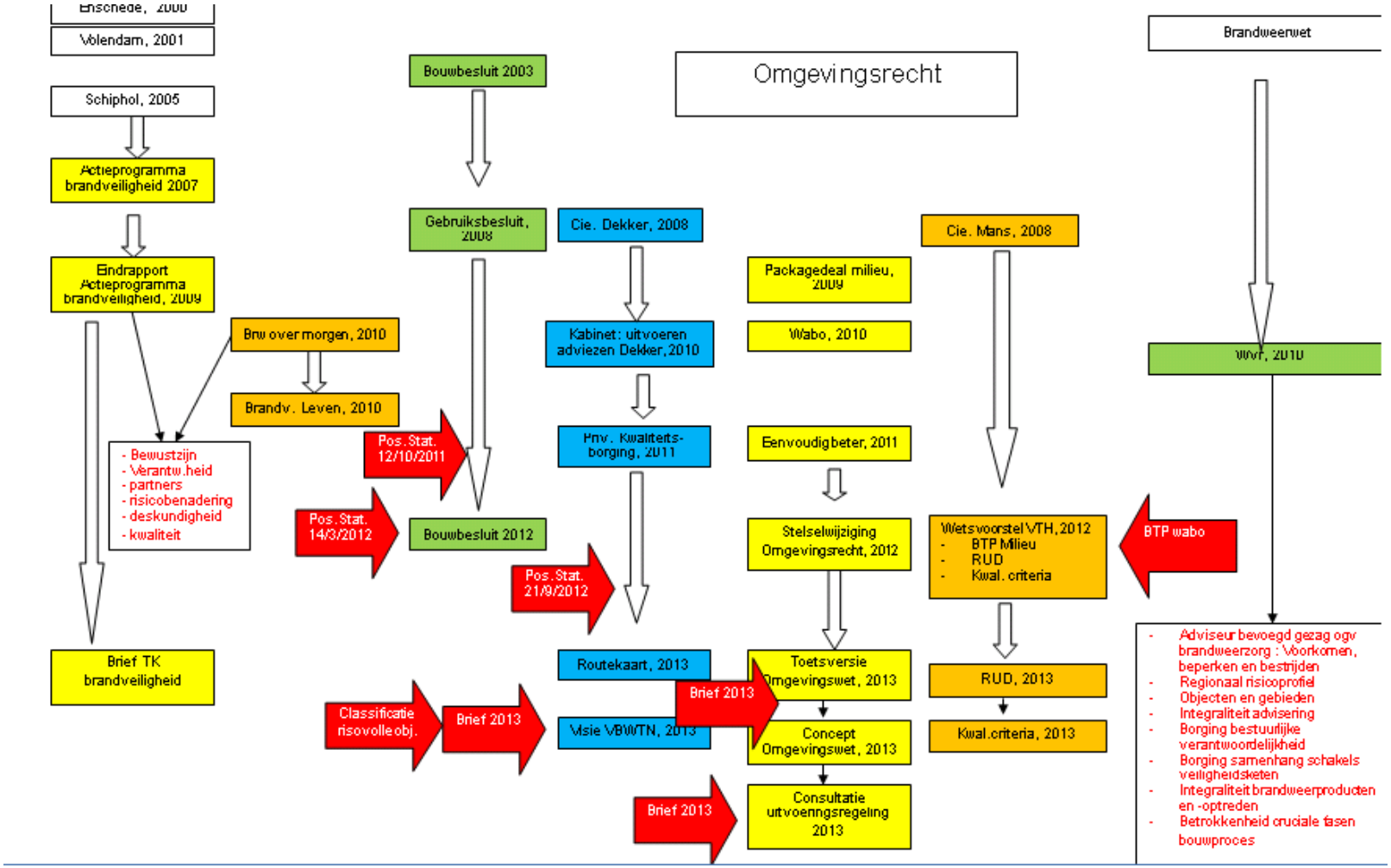
Overzicht ontwikkeling Nederlandse regelgeving



-> Kwaliteitsniveau : uitvoeren - gebruiken / instandhouden

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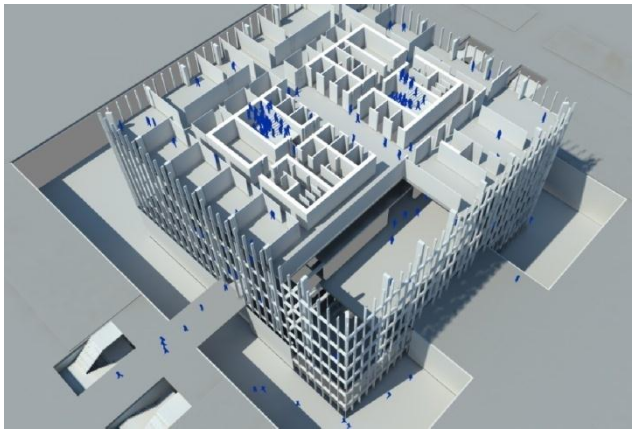
UK – Regelgeving

- Building Regulations
- Construction (Design and Management) Regulations 2007 (CDM) *(verantwoordelijkheden tijdens uitvoering)*
- The Regulatory Reform (Fire Safety) Order 2005 (RRO) *(verantwoordelijkheden in gebruik)*

Wat betekent dit en wie is verantwoordelijk voor het implementeren van deze drie reguleringen?

Wat betekent dit…

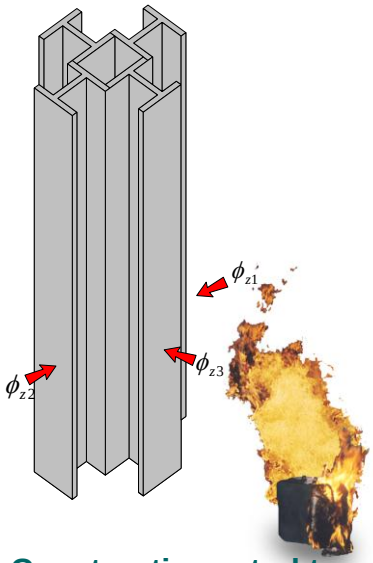
Onderzoek en testen



Menselijk gedrag en evacuatie

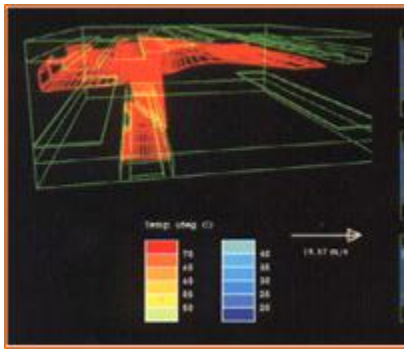
Brandveiligheidssystemen

“ een integraal brandbeveiligingsplan ”



Constructieve sterkte

Brandweertoegang & ervaring



Rookverspreiding

Brandcompartimenten

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1. UK - Building Regulations 2013

Building Regulations 2013 (deel ‘B’ specificeert de brand eisen)

Vijf functionele eisen:

1. Vluchten: ‘The building shall be designed and constructed so that there are *appropriate* provision for the early warning of fire, and *appropriate* means of escape in case of fire…’

Een GESCHIKTE voorziening

5. Brandweer inzet: ‘ The building shall be designed and constructed so as to provide *reasonable* facilities to assist firefighters in the protection of life..’

2. The Regulatory Reform Order (Gebruik)

Verplichtingen voor de **‘verantwoordelijke persoon’**

- De persoon die het gebouw beheert of gebruikt

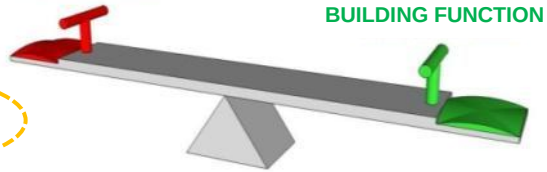
Verantwoordelijkheden:

- Algemene veiligheidsvoorzorgsmaatregelen
- Brand risicoanalyse
- Onderhoud
- Informatie en training voor werknemers
- etc

De rol van de brandveiligheidsadviseur

FIRE ENGINEERING

LIFE SAFETY
PROPERTY PROTECTION
BUSINESS CONTINUITY
SUSTAINABILITY
BUILDING FUNCTION



Overdracht en gebruik

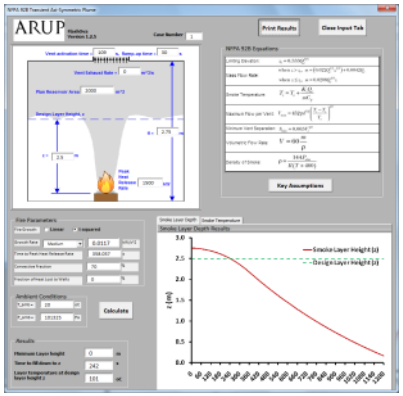
voorbereiding

Fire Engineer

Uitvoering & commissioning

Ontwerp & vergunningen

Specificaties



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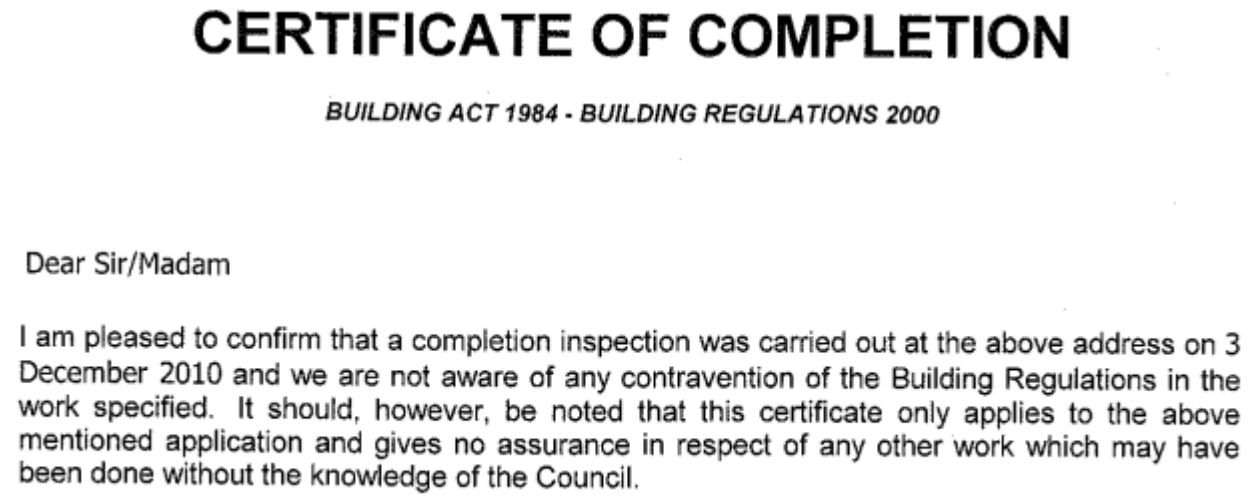
Verantwoordelijkheden

Ontwerp

Specificatie

Uitvoering

Gebruik



CERTIFICATE OF COMPLETION

BUILDING ACT 1984 - BUILDING REGULATIONS 2000

Dear Sir/Madam

I am pleased to confirm that a completion inspection was carried out at the above address on 3 December 2010 and we are not aware of any contravention of the Building Regulations in the work specified. It should, however, be noted that this certificate only applies to the above mentioned application and gives no assurance in respect of any other work which may have been done without the knowledge of the Council.

OFTEWEL: NIET DE OVERHEID, NIET DE BRANDWEER

Wat is de rol van de ‘Approving Authorities’?

Overheid (Building Control) of Approved Inspector

- **Ontwerp**
- **Specificatie**
- **Uitvoering**

Beoordeling van ontwerp, specificatie en uitvoering.

Instemmen maar geen verantwoodelijkheid!

Third party checking

Brandweer

- **Uitvoering**
- **Gebruik**

Recht om gebouwen te sluiten als deze niet voldoen aan de RRO

3. Deregulering in de fire engineering praktijk

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The traditionele rol van een fire engineer

- Provide an **Integrated Fire Strategy**, including:
  - Means of escape – stairs and lifts
  - Fire walls, floors and compartments
  - Structural fire resistance
  - Façade requirements
  - Material specifications
  - Fire safety systems; including sprinklers, watermist and pressurisation
  - Interaction with security and systems
  - Fire brigade access and provisions

- **Support to** team of architect, MEP, client, end-users & others.

- Gain approvals of the fire strategy with **client and authorities**.

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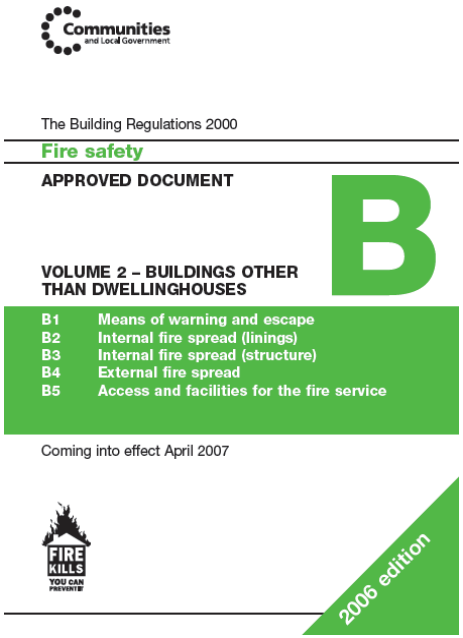
Wat is doel: – life safety – business continuity

Goal	Social	Economic	Environmental
People	Life safety		
Quality of Asset	Quality of space	Cost and value of asset	Construction impact
Quality of Operation	Functionality of space	Operational costs	Operational impact
Protection of Asset	Continuity of asset	Property Protection	Prevention of fire damage to the environment
Protection of Operation	Continuity of function	Business Continuity	Effects on large region / country

Total Cost = Cost of Prevention + Cost of Protection + Cost of Occurrence

Wat zijn geschikte voorzieningen…



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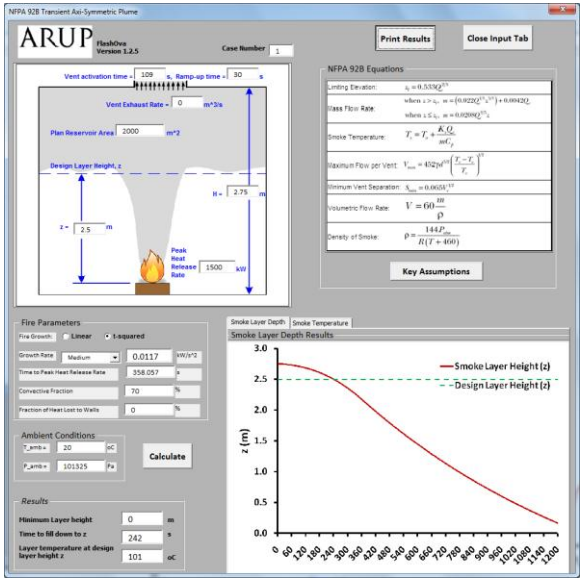

Simpel

Conservatief (veilig)

Snel (minimum risico)

Makkelijk te onderhouden

?

Gecompliceerd

Verminderde veiligheid

Risico met goedkeuring

Speciale onderhouds voorzieningen

Ontwerpen voor gebruik

vs

Materiaal specificaties

‘conflicting advice: did the panels have to be completely fire resistant or zero fire spread rating – flammable but with a surface that doesn’t spread flame’

‘the contractor had used composite cladding panels with zero flame spread. The inquiry found the panels twisted, exposing non-fire resistant panels behind them, causing the flames to spread to apartments above’

‘the replacement of asbestos window panels with composite equivalents that burned in less than five minutes was also an issue’

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4. Deze eigenaren denken verder!

Voorbeelden projecten en bedrijfsstandaarden van bedrijven die hun verantwoordelijkheid kennen en gebruiken

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Goal	Social	Economic	Environmental
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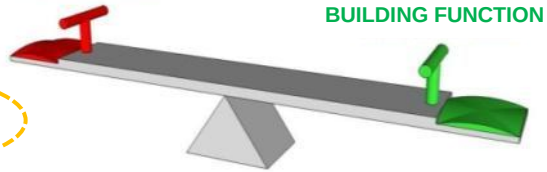

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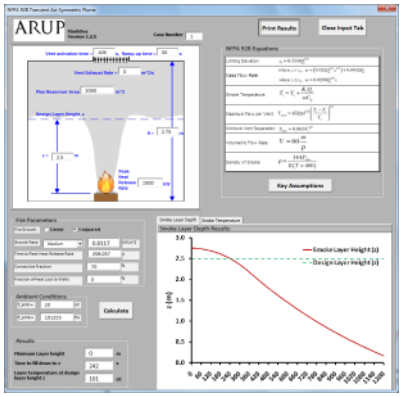

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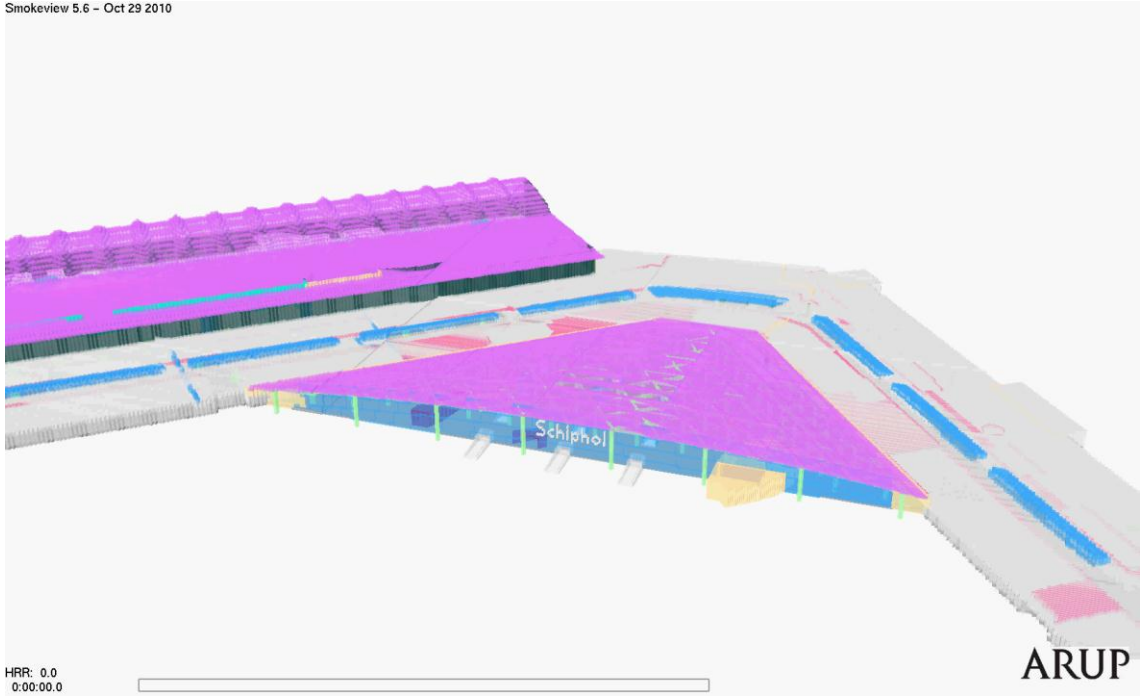
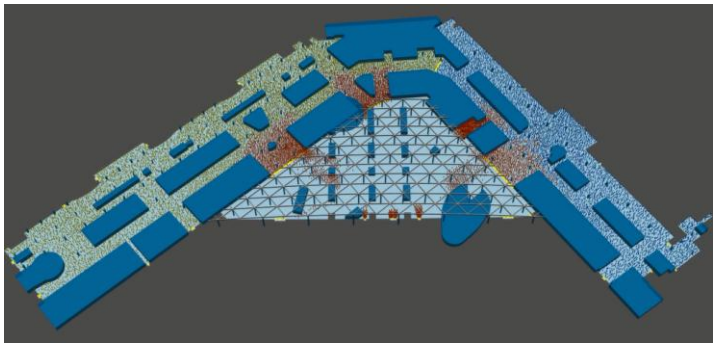
1. Arup – Schiphol Group

Upgrading fire safety provisions for Business Continuity 2013

Fire improvements for business continuity

- Create new and additional smoke and evacuation zones
- Use of fire compartment barriers within existing building
- Smoke control systems (mechanical and natural ventilation)





Main benefits of fire strategy

- Risk based approach identifies fire hazards
- Fire safety level improved by new and existing systems
- Creation of evacuation and smoke zones
- Commissioning of (fire) systems to support integration and quality
- Ongoing operations during constructions works

Arup delivered an innovative fire safety plan for Schiphol Plaza, minimising the impact on passengers flows, business operations and costs.

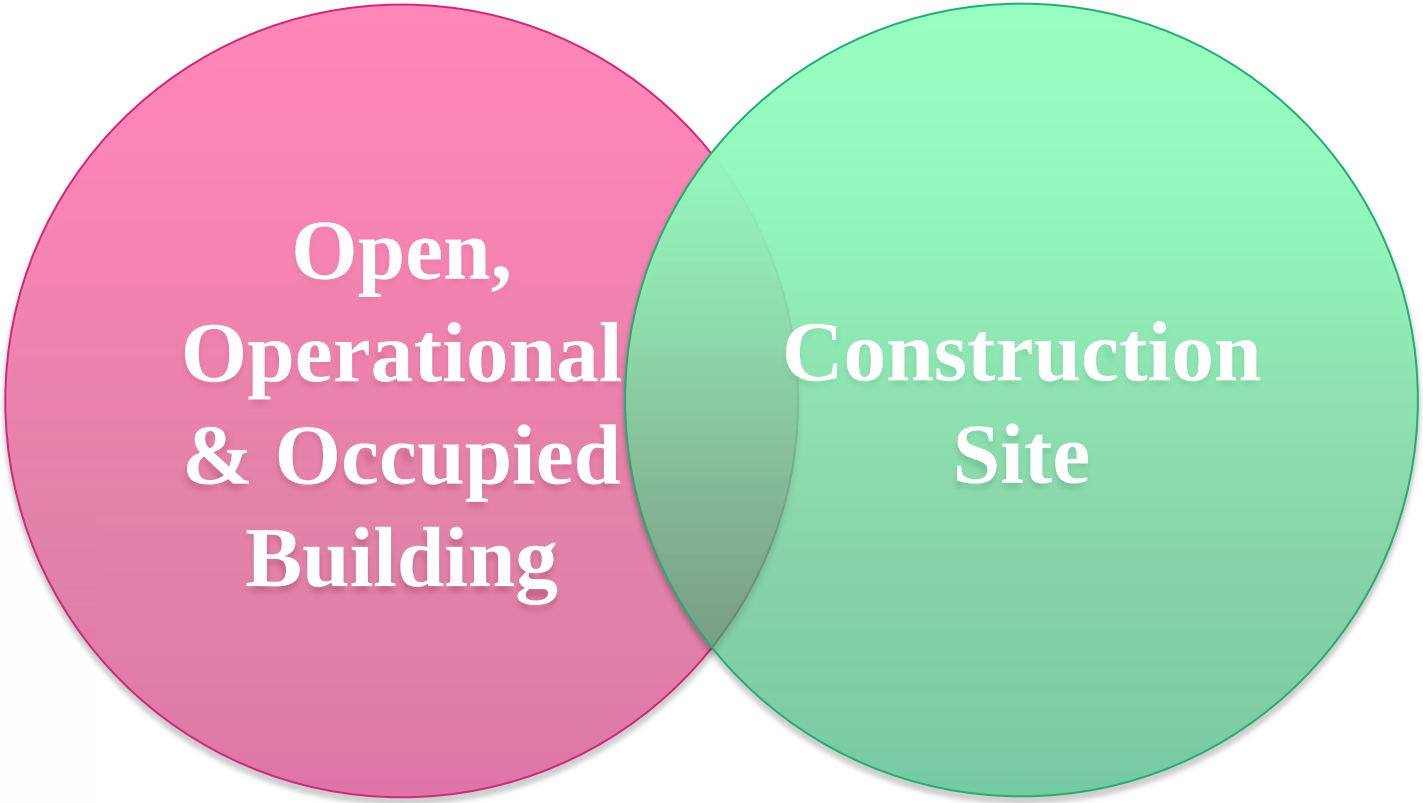
2. Infrastructure
Total engineering – Construction

A Construction Project in a Live Environment

Open, Operational & Occupied Building

Construction Site

A Construction Project in a Live Environment



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3. High-rise
Life Safety & business continuity

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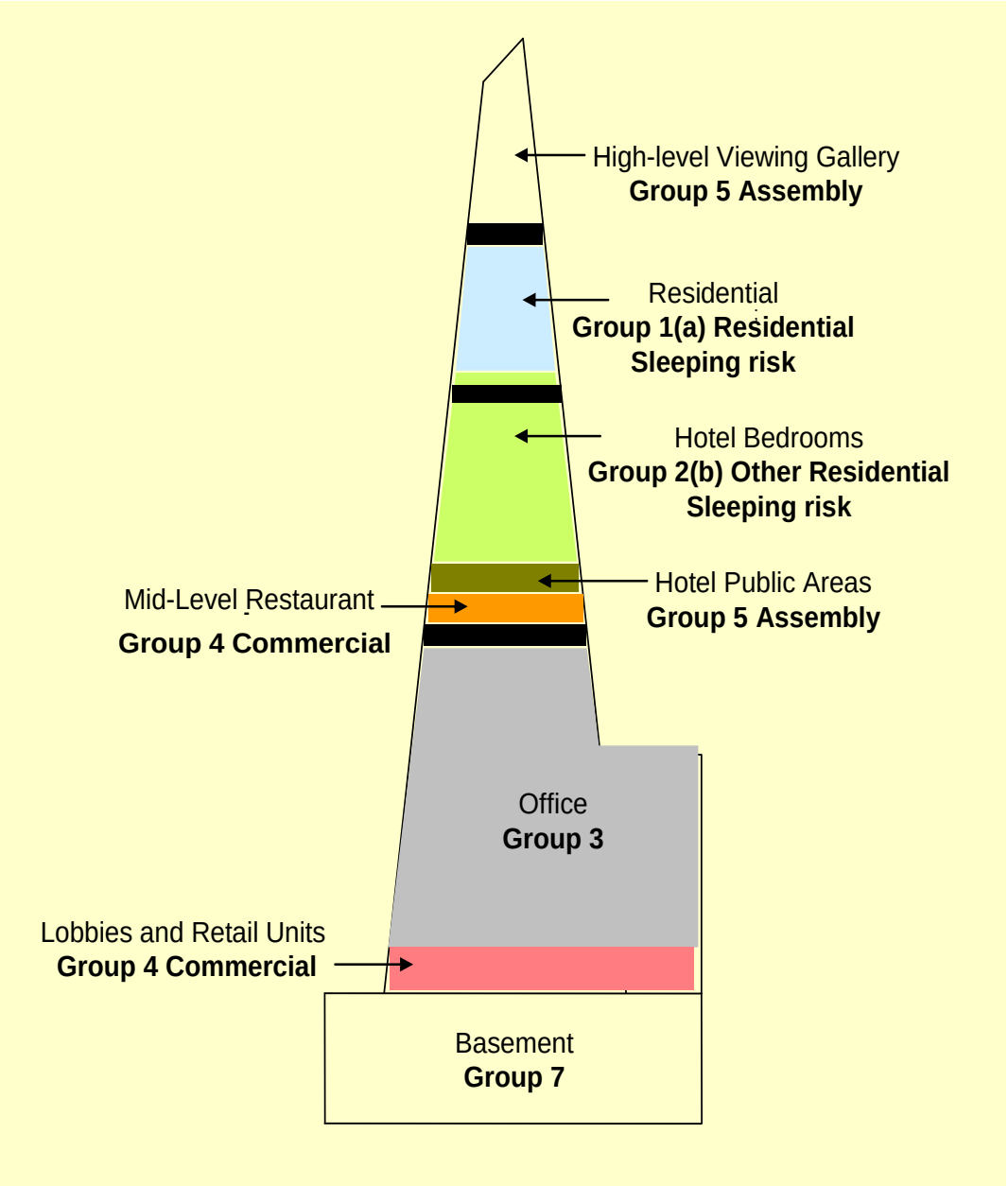
High-rise building overview

- Residential – sleeping risk
- Others, occupants generally awake
- Office – familiar with the building



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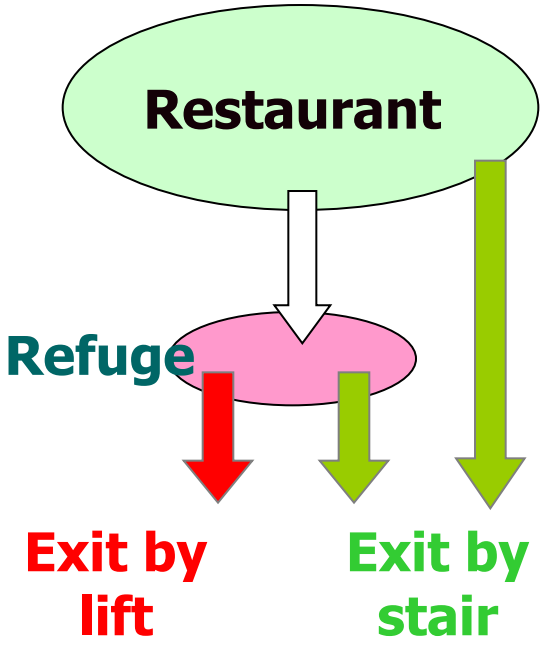
Means of Escape



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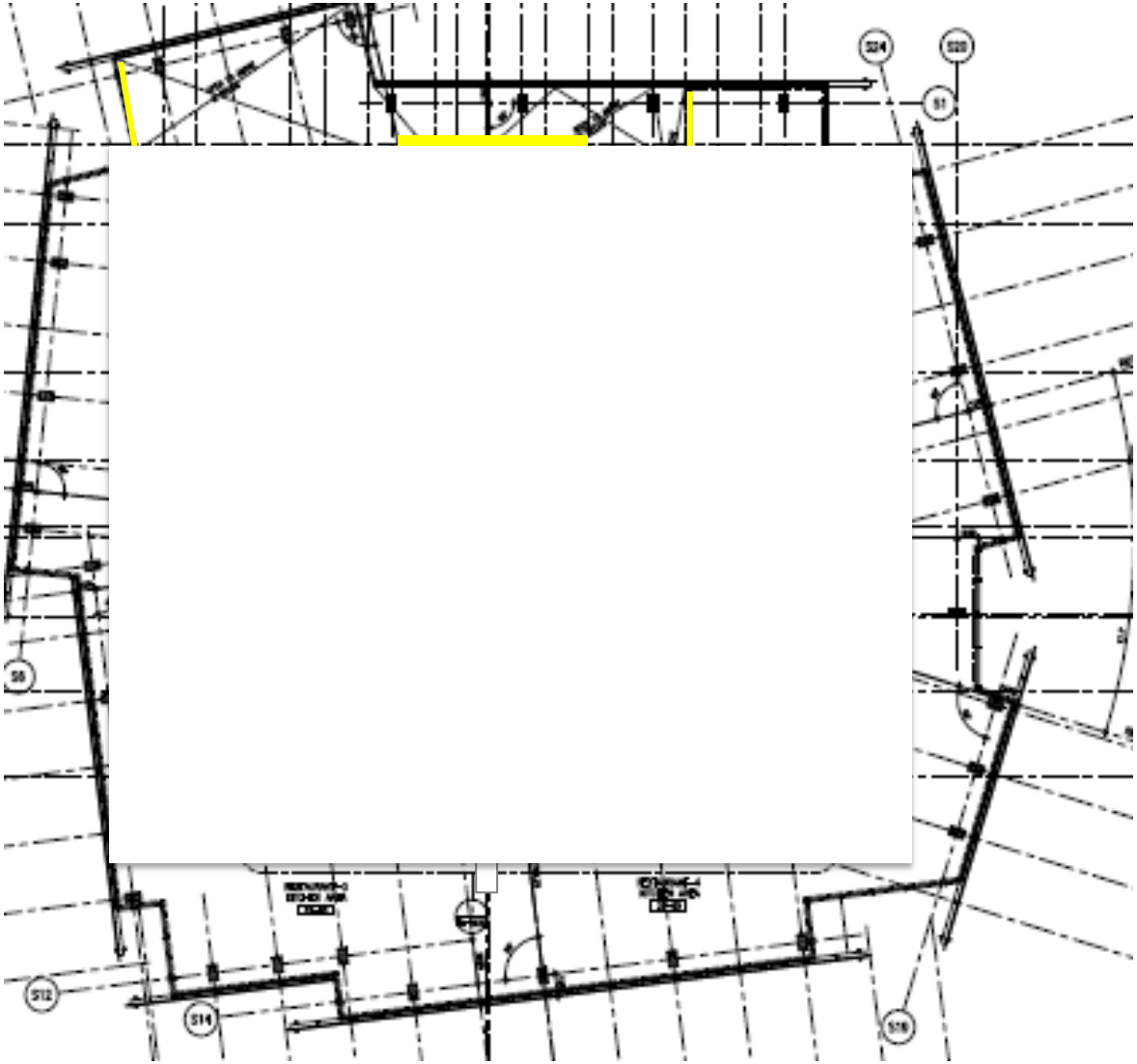

4. Company brand-standards

- Internationale hotels (IHG, Starwood, Hilton, Accor)
- Data centres
- Schiphol brandveiligheidsconcept
- Metro en stations
- Industriele bedrijven
- Eisen vanuit verzekering

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5. Overzicht en samenvatting

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Samenvatting en overzicht:

- Arup gebruikt internationale ervaring in Nederland
- Verandering van onze regelgeving kan aansluiten bij internationale regelgeving
- Kwaliteitsdoelstelling vastleggen (life safety – business continuity)
- Vooroverleg brandweer belangrijk voor aansluiting gebruik
- Inspecties tijdens uitvoering, oplevering en gebruik
- Total fire engineering concept.

Sir Ove Arup - Key Speech

"There are two ways of looking at the pursuit of happiness:

One is to go straight for the things you fancy without restraints, that is, without considering anybody else besides yourself.

The other is to recognise that our lives are inextricably mixed up with those of our fellow human beings, and that there can be no real happiness in isolation. Which leads to an attitude which would accord to others the rights claimed for oneself, which would accept certain moral or humanitarian restraints. We opt for the second way."

Ove Arup, 1970

Vragen?

“in praktisch en internationaal perspectief “

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