

The Changing Nature of Building Contents

Jan Lagerblad

IKEA Group Risk Management

Jan Lagerblad



Småland, Sweden

Fire & Rescue Services:

- Fire Protection Engineer

IKEA:

- Risk Manager (Sweden)
- Area Risk Manager (AP)
- Safety & Security specialist (Concept owner)
- Fire Safety Manager

Agenda:

- IKEA Group introduction
- IKEA - Fire Risk Handling
- The Changing Nature of Building Contents
 - Fire load – goods & range configuration
 - Type of storage solutions
 - New fire risks
 - Building components

The Changing Nature of Building Contents

IKEA Store Perspective



1952



1958



2013



11 new stores in nine countries



Co-workers

139,000



IKEA.com > 1 billion visits

TOP 5 SELLING COUNTRIES

Germany	14%
USA	12%
France	9%
Italy	6%
Russia	6%



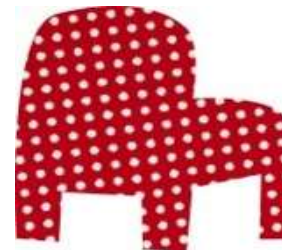
Sales increased by 9.5%



The IKEA Catalogue was printed in 212 million copies

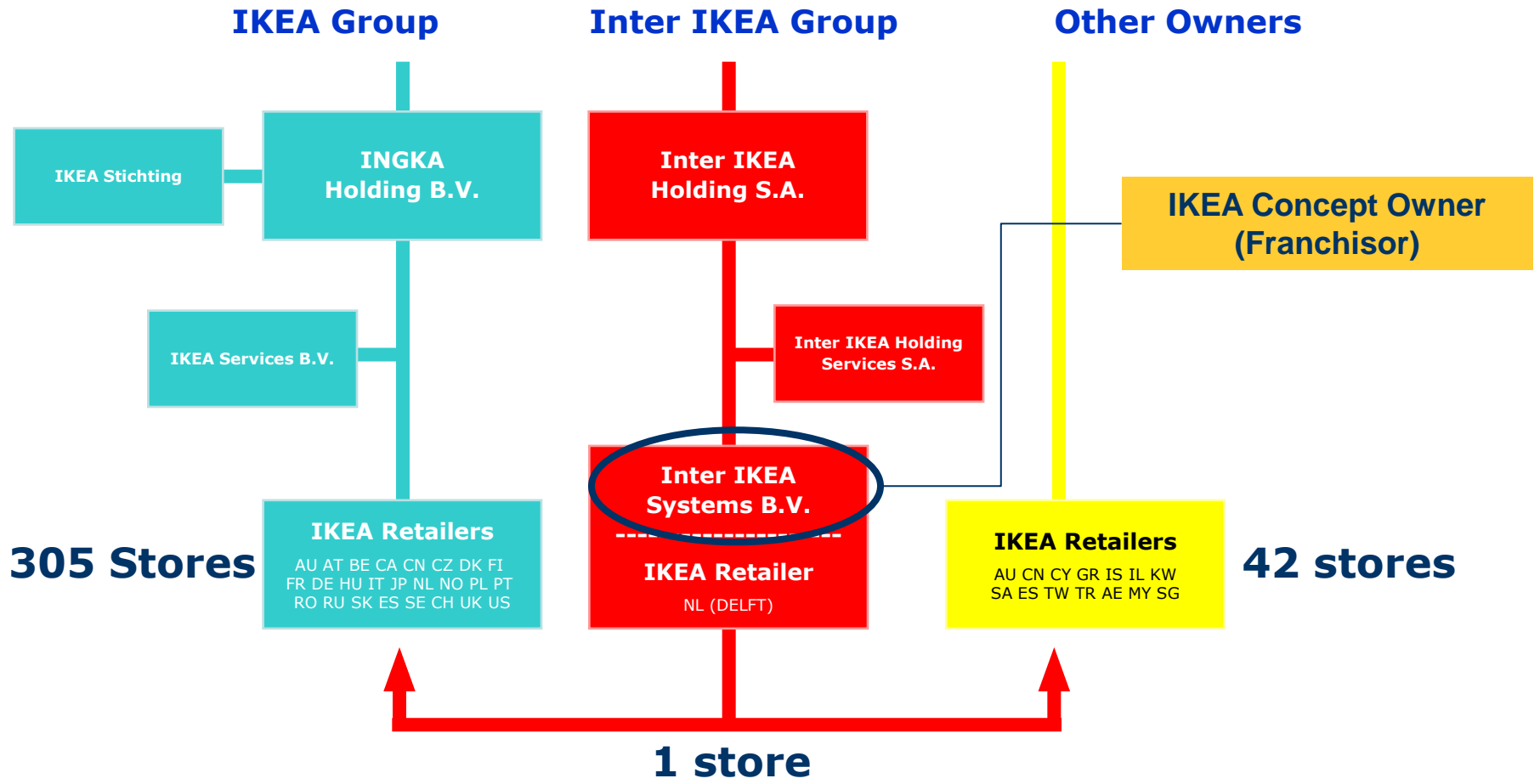


IKEA Group stores 690 million visits



The IKEA range 9,500 products





Total number of IKEA Store: 348 Stores

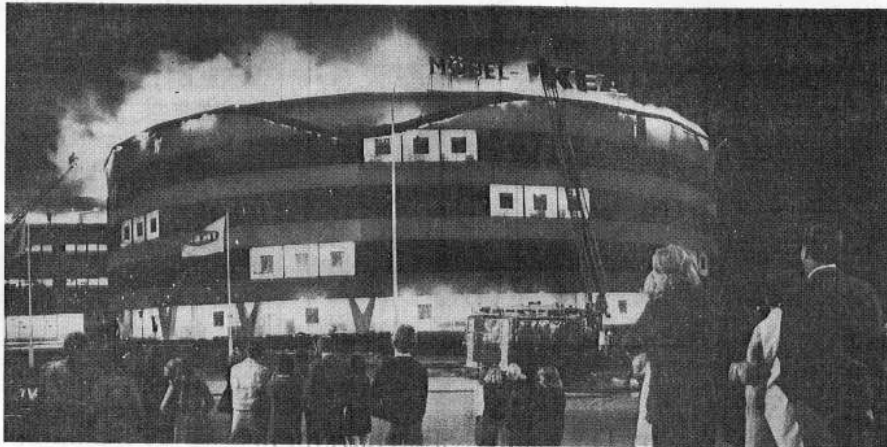
**Shopping Centre
Distribution Centre (DC)**



IKEA – Fire Risk Handling

Historical perspective:

Katastrofbrand ödelade Ikea



Branden började i taket, men spred sig g snabbt i det stora möbelhuset.

FOTO: LEIF ENGBERG

435 anställda

Lördagskvällen svåra brand är den första som drabbar Ikea vid Kungens kurva. Möbelhuset stod klart sommaren 1965. Det var då flera Europas största varuhus. Byggekostnaderna öppade till cirka 17 miljoner kr. Det runda möbelhuset mäter 60 meter i diameter. Det inbyggda lager- och kontorshuset i tre våningar mäter 60x30 meter. Den totala ytan i komplexet är 32 000 kvadrater. Möbelhuset sysselsätter i dag 435 personer.

Skador för 50 miljoner

Möbelhuset Ikea vid Kungens kurva i Stockholm eldhärjades på lördagskvällen så svårt att man måste bygga ett nytt hus. Det uppgav platschefen Hans Ax vid midnatt, då branden fortfarande rasade i det stora möbelkomplexet. Skadorna uppgår till cirka 50 miljoner kr. Branden började vid 20.30-tiden i neonskylten på taket. Tre brandkårer tillkallades men man hade ingen möjlighet att stoppa den våldsamma branden. Via luftintagen fortsatte den ner i huset. Även den inbyggda lager- och kontorsbyggnaden härjades mycket svårt.

Se sidan tjugoåtta



Fire: The Kungens Kurva store, Sweden - 1970.

Fire: The Wallau store, Germany - 1984.

IKEA – Fire Risk Handling

Historical perspective:



- Israel 2011
- NOT IKEA Group owned unit!

IKEA – Fire Risk Handling

Concept development – Building content



Development IKEA concept:

- Concept layouts
- Sales solutions
- Logistic handling
- Store equipment
 - Restaurant
- Money handling
 - IKEA range
- Packaging concept
 - Etc.



Risks :

- **Fire**
- Accident
- Crime
- Natural hazards
- Etc.



IKEA Safety & Security “proven solutions”

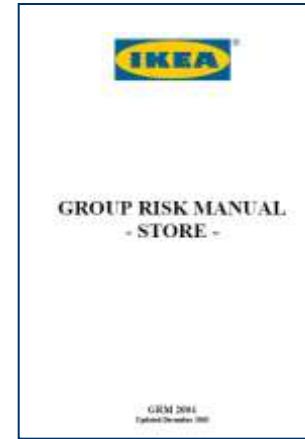
More then 50 years of experience!
IKEA GROUP - 305 stores!

Inter IKEA Systems Manual



National codes

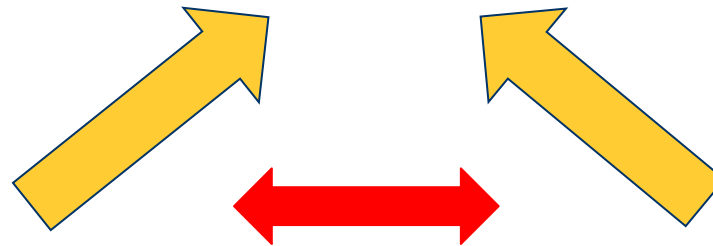
IKEA Group Risk Manual



IKEA Engineering & Construction Manual



IKEA Store



Harmonization?

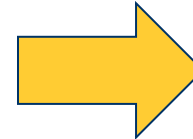


International standards: Design:

**IKEA Group Risk
Manual**



**IKEA
Engineering & Construction
Manual**



- EN
- CEA
- NFPA
- FM

The Changing Nature of Building Contents

IKEA Store Perspective:

- Fire load – goods & range configuration
- Type of storage solutions
- Building components
- New fire risks

The Changing Nature of Building Contents

Fire load – goods & range configuration

- 1958 – 1970
 - Most wooden products
 - More or less everything in cardboard boxes



The Changing Nature of Building Contents

Fire load – Goods & Range configuration

- 1980 – 2013
- More plastic products in our range
 - New products / range
 - Not packaged in cardboard boxes
 - Shrink wrapping



The Changing Nature of Building Contents

Fire load – goods & range configuration

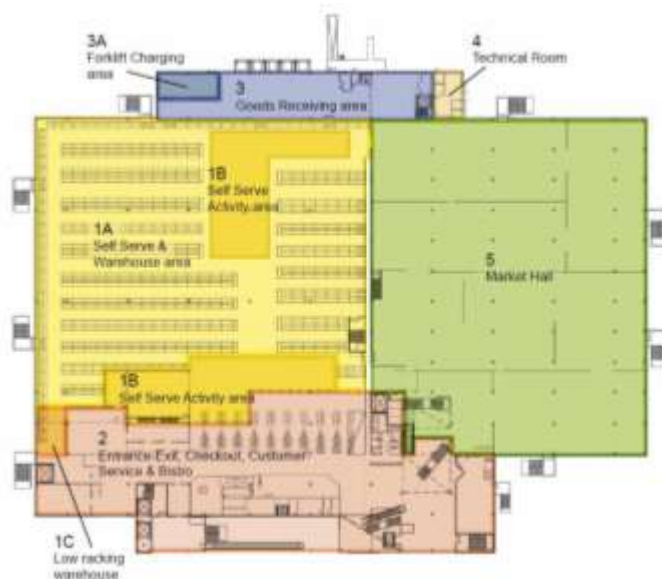


Test at FM1999-2000

- Exposed Expanded Plastics
- Rolled mattresses
- IKEA testing 1980-
 - SP, FM, Vds, Viking, CCI, UL
- Challenge:
 - Few international standards?
 - In-rack solutions – flexibility?
 - IKEA standards – Approval authorities
 - Sensible solutions – Flue space
 - Expensive installations

The Changing Nature of Building Contents

Fire load – Study Goods & Range configuration (2008-9)



- Showroom
- Restaurant
- Market hall
- Self serve furniture area
- Warehouse

The Changing Nature of Building Contents

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High fire load – Focus area!

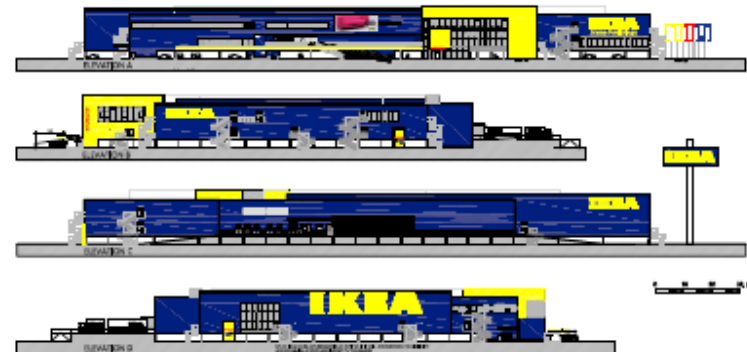
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Fire load – Study goods & range configuration (2008-9)

BOLINGBROOK PRODUCT CLASSIFICATION

RANGE GROUPING	ARTICLE NO.	ARTICLE NAME	PIECES STORED IN WAREHOUSE RACKING	PIECES PER PALLET	PALLETS STORED IN WAREHOUSE RACKING	COMMODITY CLASSIFICATION
Fabric sofa program	20066729	EKTORP LS SB CVR IDEMO DBLU	6	32	0.19	III
Fabric sofa program	20103158	IEEA STHLM EASY CHR RÖSTANSA WHI NA	6	4	1.50	EXP PLASTIC
Fabric sofa program	20118145	KARLSTAD CHSE FRM LNG CLTH NA	2	1	2.00	EXP PLASTIC
Fabric sofa program	20118447	KARLSTAD CHR CVR KORNDAL BLU	2	48	0.04	IV
Fabric sofa program	20118659	KARLSTAD CVR LVST KORNDAL GRN	6	28	0.25	IV
Fabric sofa program	20118683	KARLSTAD CVR LVST KORNDAL RED	3	24	0.13	IV
Fabric sofa program	20118701	KARLSTAD CVR SOFA KORNDAL BLU	3	24	0.13	IV
Fabric sofa program	20122802	EKTORP NN CRN SO FRM 2+2LNG CLTH NA	5	1	5.00	EXP PLASTIC
Fabric sofa program	20122848	LILLBERG N CSH SET NA	33	11	3.00	III
Fabric sofa program	30126502	TYLÖSAND LVST CVR/ARM REPHLT PURPUS	2	24	0.08	III
Fabric sofa program	30047360	EKTORP LS SB CVR BLEKINGE WHI	6	30	0.17	III
Fabric sofa program	30073194	KLIPPAN LVST FRM LNG CLTH NA	9	3	3.00	EXP PLASTIC
Fabric sofa program	30107366	TYLÖSAND SB CVR EVEROOD DRG US	3	20	0.15	IV
Fabric sofa program	30107373	TYLÖSAND CVR SOFA EVEROOD DRG US	5	24	0.21	IV
Fabric sofa program	30107677	EKTORP LFT-ARM CHSE CVR BERGVIK BGE	2	56	0.04	III
Fabric sofa program	30107904	KRAMFORS CVR LVST ULLEVI GRN US	3	44	0.07	III
Fabric sofa program	30118140	KARLSTAD FTST FRM LNG CLTH NA	8	1	8.00	EXP PLASTIC
Fabric sofa program	30118437	KARLSTAD CHR CVR KORNDAL RED	4	48	0.08	EXP PLASTIC
Fabric sofa program	30118601	EKTORP SLVCR CORNER 2+2 IDEMO BLK	4	20	0.20	EXP PLASTIC
Fabric sofa program	30152940	TYLÖSAND LVST CVR/1 ARM EVER BLK US	4	40	0.10	EXP PLASTIC
Fabric sofa program	40066733	EKTORP SLVCR CORNER 2+2 IDEMO DBLU	2	16	0.13	EXP PLASTIC
Fabric sofa program	40106383	EKTORP LS SR CVR TOFTAHOLM BLU	3	56	0.05	III
Fabric sofa program	40106702	TYLÖSAND CVR 1-8T SEC REPHULT DBRUS	2	48	0.04	III
Fabric sofa program	40107377	TYLÖSAND RT CHSE CVR REPHULT WHI US	1	24	0.04	EXP PLASTIC
Fabric sofa program	40118413	KARLSTAD FTST CVR LINNERYD NAT	18	120	0.13	EXP PLASTIC
Fabric sofa program	40118677	KARLSTAD CVR LVST LINNERYD NAT	3	96	0.06	EXP PLASTIC
Fabric sofa program	40118781	KARLSTAD CVR/ADON CHSE KORNDAL GRN	2	48	0.04	EXP PLASTIC
Fabric sofa program	40122001	EKTORP NN CHR FRM LNG CLTH NA	40	4	10.00	EXP PLASTIC
Fabric sofa program	40123805	KARLSTAD CVR CHASE LNG KORNDAL BRN	4	48	0.08	EXP PLASTIC
Fabric sofa program	40152030	TYLÖSAND CVR FTST EVEROOD BLK US	3	48	0.06	EXP PLASTIC
Fabric sofa program	50047590	EKTORP SLVCR CRN 2+2 BLEKINGE WHI	4	18	0.22	EXP PLASTIC
Fabric sofa program	60073107	TYLÖSAND LVST FRM/1 ARM LNG CLTH NA	12	2	6.00	EXP PLASTIC

Approx. 10000 articles
2000 in Warehouse
(Rack storage)

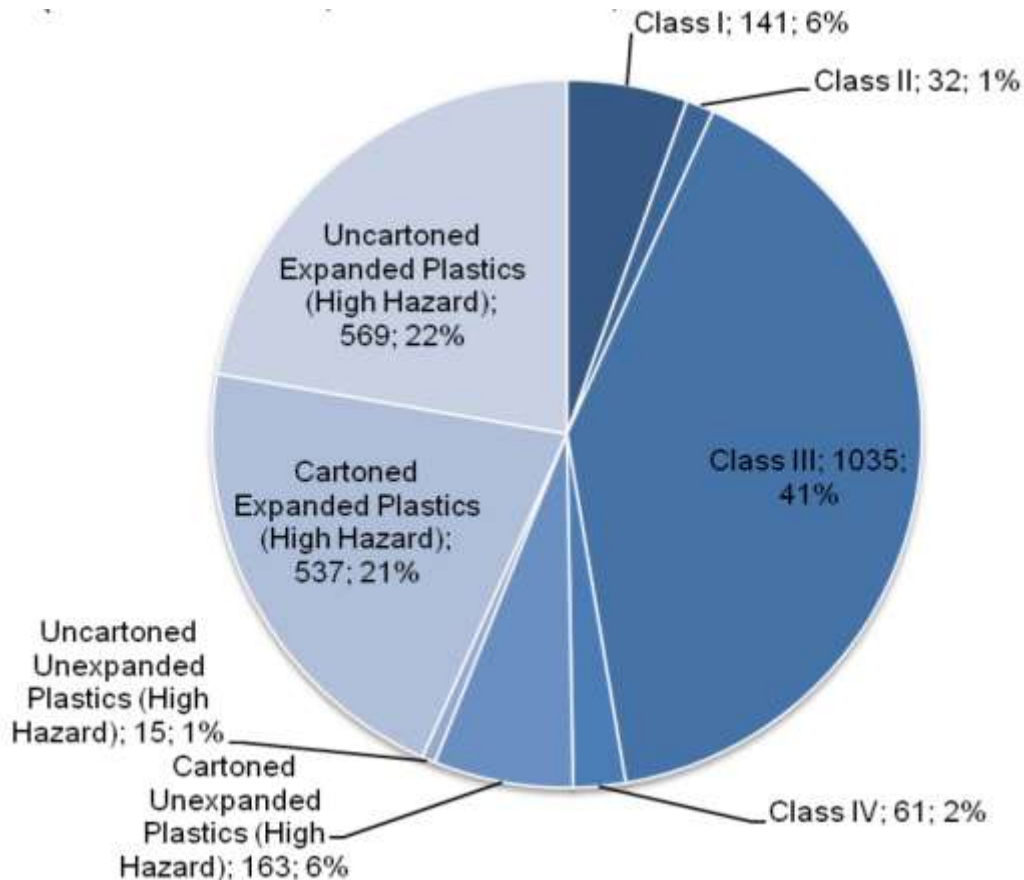


Classification according:

- Chapter 23 of the 2006 International Fire Code (IFC).
- NFPA 13-2007, *Standard for the Installation of Sprinkler Sprinklers.*

The Changing Nature of Building Contents

Fire load – Warehouse goods configuration



- Generally the volume of plastic have increased
- More Exposed Expanded Plastic

**BOLINGBROOK - 11 DECEMBER 2008 - STORAGE IN WAREHOUSE
(CLASSIFICATION; NO. OF PALLETS; PERCENTAGE OF PALLETS)**

The Changing Nature of Building Contents

Fire load – Comparison study (2010)



Polyurethane



Latex Mattresses



IKEA
Mattresses



Latex



Standard Commodity:
The Exposed Expanded
Group A Plastic

The Changing Nature of Building Contents

Fire load – Sprinkler test (2012-13)



- Develop NFPA sprinkler protection criteria -Expanded exposed Group A plastic commodity
- Vertical barriers
- NFPA 13 (2016) revision process

The Changing Nature of Building Contents

Fire load – Showroom & Market hall configuration



- Fire load
 - Range development
 - Different load
- Sales solutions
 - Obstructions
 - Storage height

We have a lot to be proud of!



Cost-saving

Branding

Efficiency

Simplicity

Ease of shopping

Sustainability



The Changing Nature of Building Contents

Type of storage solution: Sales solutions



- Storage - Sales
 - Change of fire load
 - Goods -storage
 - Range - selling

The Changing Nature of Building Contents

Fire load – Sprinkler design

Figure 1: Store Layout Ground floor

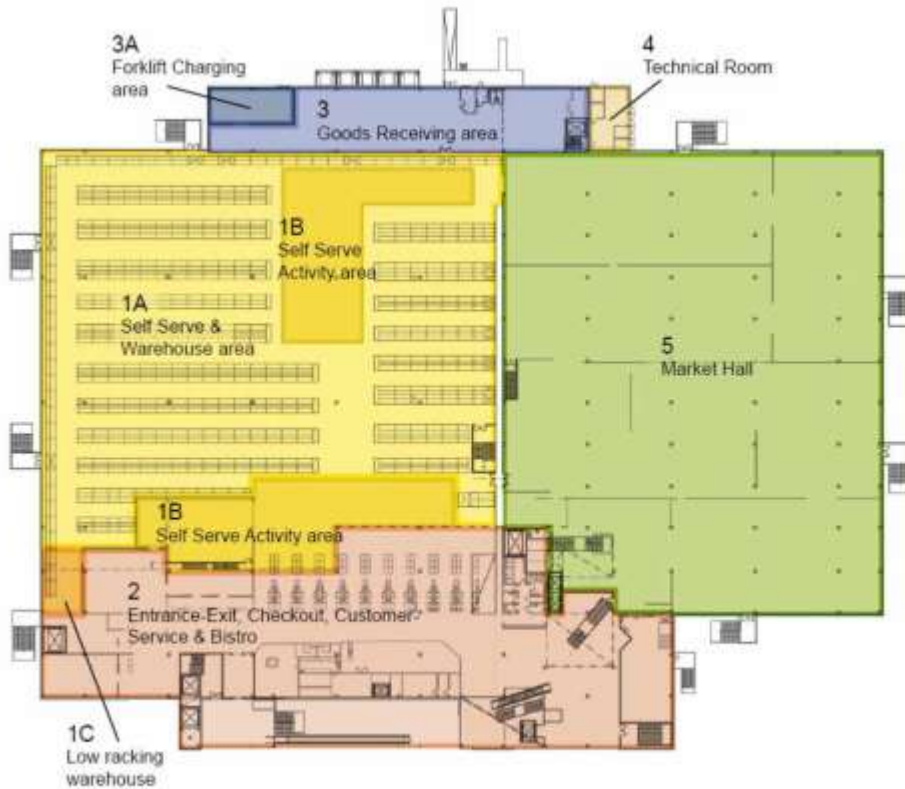


Table 7-1 Area Classification European Standard and NFPA 13

Area	European standards		NFPA 13	
	Hazard classification	Goods classification	Hazard classification	Goods classification
Self serve and warehouse	HHS	4	Storage	Group A expanded exposed plastics
Activity area	HHS	3	Storage	4
Goods unloading	HHS	4	Storage	Group A expanded exposed plastics
Market hall	HHS	3	OH2	4
Entrance	OH3	-	OH1	-
Restaurant	OH3	-	OH1	-
Show room	OH3	3	OH2	4
Office	OH1	-	LH	-
Tech. rooms	OH1	-	OH1	-

IKEA Engineering & Construction manual

The Changing Nature of Building Contents

New fire risks

NEW
OCT12



FIXA hammer drill
li-ion 14.4 V



- Lithium batteries
- Storage
- Usage
- Battery management



The Changing Nature of Building Contents

Fire load – Building components



- Combustible insulation
- Roof & Walls
- Freezers
- Solar panels

The Changing Nature of Building Contents

Fire load – Building components



Ikea Standard



Hot Work!

The Changing Nature of Building Contents

Conclusion - Vision

- High level of fire safety
- Awareness
- Technical development
 - Flexibility
 - Simplicity
 - Cost efficient
 - Sustainable

Most things still remain to be done. A glorious future!

