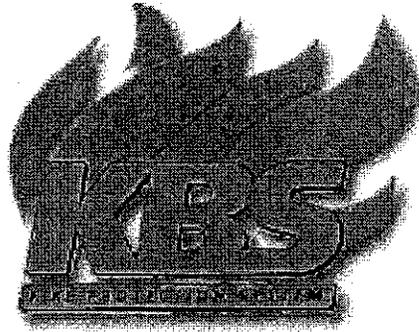


SPECIFIER'S HANDBOOK

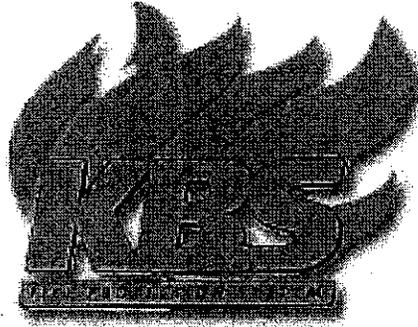
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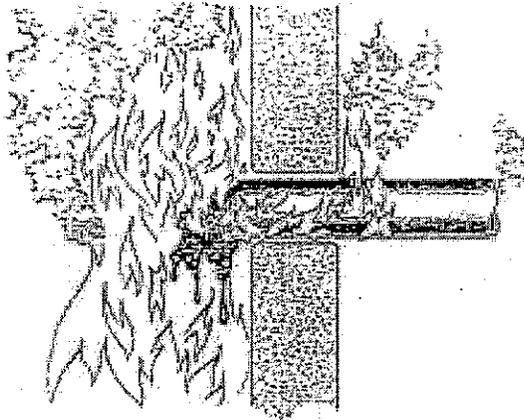


C. Dangers of burning combustible plastic pipes

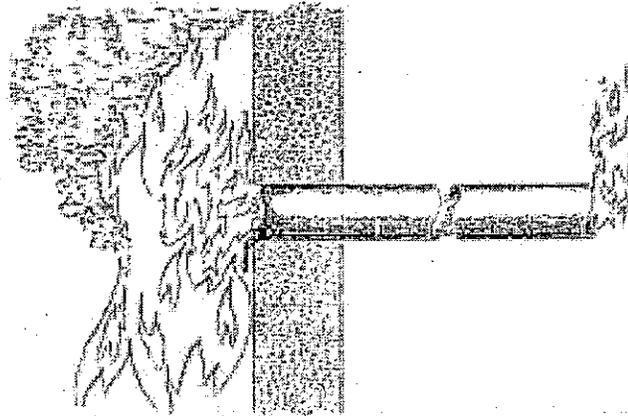
In every modern building plastic pipes are used to transport gases, liquids and even solids. Many of the original incombustible pipes have been substituted by thermoplastic pipes.

These plastic pipes are all combustible, no matter whether the material used is rigid PVC, PE or other plastic material.

Some plastics, once ignited, are propagating (like PE/Polyethylene) and thus can lead the fire from one room to the next: In cases where the opening between the pipe and the wall / floor is not completely closed, the flames can propagate on the outer surface of the pipe from one side of the room to the other.

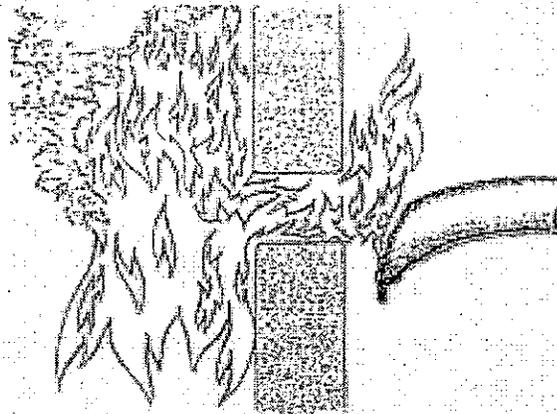


Another possibility is flame propagation along the inner surface of the pipe:



Other plastics – like rigid PVC (Polyvinylchloride) – do not propagate fire (compared to the soft PVC of cable jackets) but the material will soften and melt just before the ignition temperature is reached. This means the molten plastic falls down and fire gases can pass through to the unexposed section of the pipe.

The pipe on the unexposed side will soften, too, and drop off leaving an opening allowing flames and smoke to move into the next compartment:



Additional fires can be caused by burning plastic (for instance PE) dripping onto other combustible material underneath.

Often a combined effect of melting and burning consumes the pipe, allowing fire propagation to the next compartment.

Thermoplastic pipes are produced in diameters of 5 to 1600 mm with nominal pressures up to 25 bar. These pipes can be divided into propagating and non-propagating pipes (see following table).



Plastics used for pipes in buildings

Non-propagating pipes		Propagating pipes	
PVC	Polyvinylchloride	PE	Polyethylene
PVC -U	Rigid polyvinylchloride unplasticized	HDPE	High density polyethylene
PVC -C	Polyvinylchloride chlorinated	LDPE	Low density polyethylene
PVC -HI	High impact polyvinylchloride	PE-X	Crosslinked polyethylene
PVC	Pneumatic Tubes	PP	Polypropylene
PP special	Non-propagating Polypropylene	ABS/ASA	Acrylonitrile-butadiene-styrene/Acrylonitrile-styrene- acrylic ester copolymer
		ABS/ASA/PVC	Acrylonitrile-butadiene-styrene/Acrylonitrile-styrene- acrylic ester copolymer/polyvinylchloride
		ABS/ASA/PVC Mod.	Acrylonitrile-butadiene-styrene/Acrylonitrile-styrene- acrylic ester copolymer/polyvinylchloride modified
		PB	Polybutene

