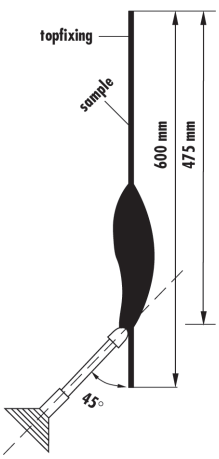
Tests on electric and optical fibre cables under fire conditions

Description	EN 60332-1-2 acc. to IEC 60332-1-2	EN 60332-2-2 acc. to IEC 60332-2-2
	Tests for vertical flame propagation for a single insulated wire or cable - procedure for 1-kW pre-mixed flame	Tests for vertical flame propagation for a single small insulated wire or cable - procedure for diffusion flame
Length of specimen	600 mm/23.62 inches	600 mm/23.62 inches
Burner	acc. to IEC 60332-1-1	acc. to IEC 60332-2-1
Test temperature	1 kW flame	defined by the stipulated setting of the flame length
Position of specimen	vertical	vertical
Position of flame	45° to vertical specimen	45° to vertical specimen
Duration of flaming	see table 1	20 seconds
Conditions	Cable must be self-extinguishing. The damage or carbonization may only reach max. 50 mm/1.97 inches under the upper fixing clamp.	Cable must be self-extinguishing. The damage or carbonization may only reach max. 50 mm/1.97 inches under the upper fixing clamp.



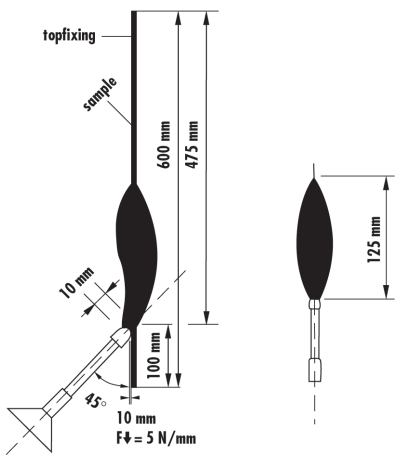
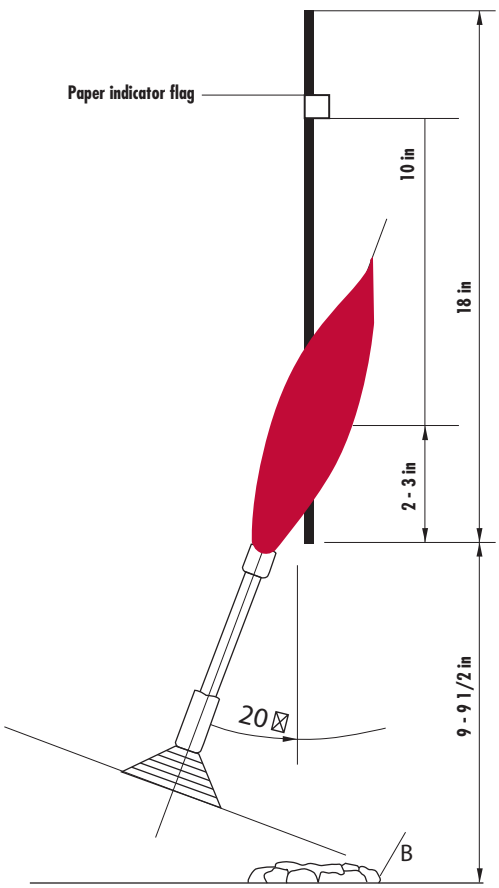


Table 1

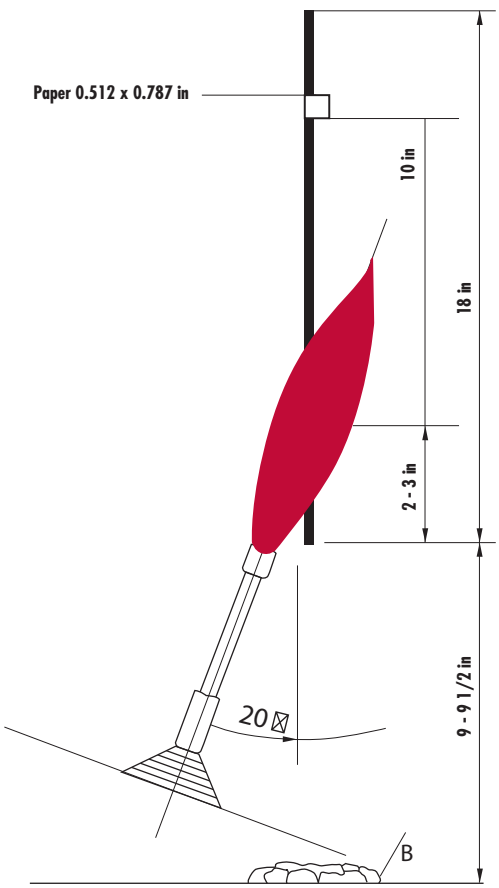
outer diameter *) of specimen	Duration of flaming in seconds
D ≤ 0.98 inches (25 mm)	60
0.98 inches (25 mm) < D ≤ 1.97 inches (50 mm)	120
1.97 inches (50 mm) < D ≤ 2.95 inches (75 mm)	240
D > 2.95 inches (75 mm)	480

*) If cables or insulated cables are tested that are not round (e.g. flat twin cables) their dimensions is to be measured and an equivalent diameter must be calculated from this.

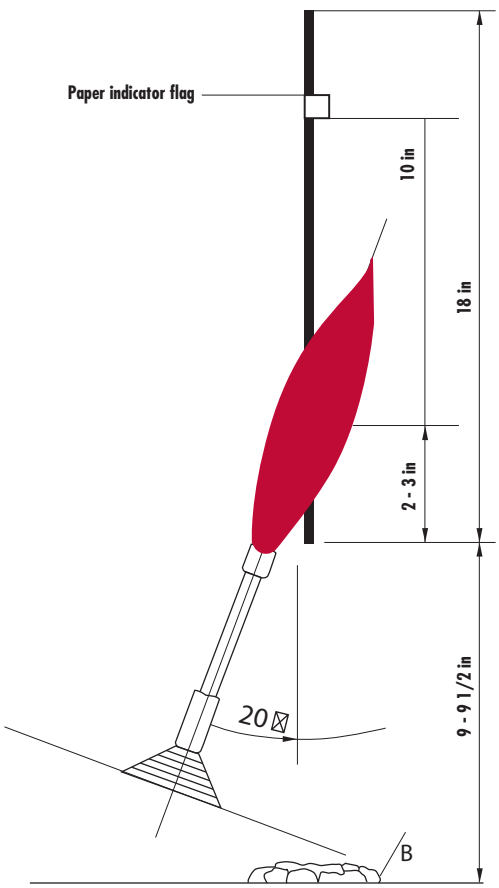
Description	UL 1581 section 1080 (VW-1 Flame Test)
Length of specimen	455 mm/17.913 inches
Burner	Bunsen burner with additional air supply (Tirril gas burner) ø 9.5 mm/0.374 inches
Test temperature	500 W flame
Position of specimen	vertical
Position of flame	20° to vertical specimen
Duration of flaming	5 x 15 seconds with at least 15 seconds flaming break
Conditions	Paper max. 25% carbonized. The specimen may keep on burning for max. 1 minute after any application. Material dropping must not ignite the cotton (B) lying under the specimen.



Description	UL 1581 section 1061 (Cable Flame Test)
Length of specimen	455 mm/17.913 inches
Burner	Bunsen burner with additional air supply (Tirril gas burner) ø 9.5 mm/0.374 inches
Test temperature	500 W flame
Position of specimen	vertical
Position of flame	20° to vertical specimen
Duration of flaming	3 x 60 seconds with 30 seconds between each flaming
Conditions	Paper max. 25% carbonized. The specimen may keep on burning for max. 1 minute after the last application. Material dropping must not ignite the cotton (B) lying under the specimen.



Description	UL 1581 section 1060 (Vertical Flame and FT1 Test)
Length of specimen	455 mm/17.913 inches
Burner	Bunsen burner with additional air supply (Tirril gas burner) ø 9.5 mm/0.374 inches
Test temperature	500 W flame
Position of specimen	vertical
Position of flame	20° to vertical specimen
Duration of flaming	5 x 15 seconds with each 15 seconds flaming break
Conditions	Paper max. 25% carbonized. The specimen may keep on burning for max. 1 minute after the last application.



Examination of the vertical flame length of vertical extended bundle of wires and insulated cables

Description	IEC 60332-3-..., EN 50266-2-...
Length of specimen	3500 mm/137.8 inches
Burner	Flat burner (Ribbon gas burner of American Gas Furnace Co.)
Test temperature	defined by stipulated flow of gas and air
Position of specimen	vertical
Position of flame	horizontal
Duration of flaming	Category A, B: 40 minutes Category C, D: 20 minutes
Conditions	The burned portion of the sample must not be longer than 2.5 m/98.425 inches measured from the bottom edge of the burner, as far as not otherwise specified in the relevant standards.

	EN 50266-	IEC 60332-
Category A – 7 l/m	2 - 2	3 - 22
Category B – 3,5 l/m	2 - 3	3 - 23
Category C – 1,5 l/m > 12 mm cable-ø	2 - 4	3 - 24
Category D – 0,5 l/m ≤ 12 mm cable-ø	2 - 5	3 - 25

Volume percent of non metallic material per meter.