



**DuraSystems Barriers Inc.**

# **TEST INDEX**

**(ISSUE 34)**

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# 1 DuraSteel

## 1.1 MATERIAL TESTS - All Building Sectors

### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
F1	DuraSteel Non-Combustibility	YARSLEY	C 70178/2	BS 476 Part 4 1970	21.11.80
F3	DuraSteel Impact Test	YARSLEY	D 60333/6	BS 1811 Part 2 1969	22.02.77
F4	DuraSteel Thermal Transmittance	YARSLEY	D 64309/1	BS 874 1973	06.04.77
F5	DuraSteel Thermal Conductivity	YARSLEY	U 6409/2	BS 874 1973	06.04.77
F7	DuraSteel Non-Combustibility- U.S. A.	Commercial Testing	25357	ASTM E136 1979	24.10.83
F11	DuraSteel Non-Combustibility- France	CSTB	85.222962	Arête of 30.06.83	23.01.86
F12*	Physical strength bending stress DuraSteel	AUES	AUES/M/002/93	Bending Strength	28.0.93
F13	Acoustic insulation of 9.5mm DuraSteel	AIRO	L 1427	BS 2750 1956	28.01.77
F14	Flooring panel- 5DF3	YARSLEY	D82432/1	PSA MOB 08.801	18.04.88
F15	DuraSteel Non-Combustibility	Warnock Hersey	50493-C7-57680	CAN4-S114-M80	18.07.89
F16	CDL in-house fire test furnace	BRE	FRO512/12	BS 476 Parts 20-24	02.02.90
F17	Non-Combustibility DuraSteel a) German b) English	IfBt	PA-III 4.596	DIN 4102 Teil 1	08.02.90
F18	Asbestos Free a) English b) German	LDF	903077	Asbestanalytik	13.12.90
F22	Impact resistance of DuraSteel	TRADA	MT1027	BS 5669 Part 1 1989	07.11.91
E3	Radio Frequency shielding	EMC	Cape 3/192	MIL-STD-285: Sect 4	20.01.92
L3	Impact/Projectile resistance	ULIRC		Ad-hoc test	Feb. 92
F23	Radian heat test	YARSLEY	J8990211	Ad-hoc test	12.03.92
F26	Pressure test on DuraSteel up to 21psi	SCI	SCI-RT-149	Ad-hoc pressure test	Jul. 90
F28	Durastop: Non-combustibility	WFRC	55800	BS 476 Part 4 1970	29.11.91
F29	Thermal conductivity at ambient temperatures of Durastop, and Durastop Promaflex	AEA		Ad-hoc	Feb. 92
F31	Non toxicity test	IHA	PA-III 4.596	DIN 4102 Teil 1	13.08.90
F32	Frost cycling and resistance test	IBMB	3310/2492	ÖNORM B 3303	Dec. 92
F36	Water tightness	CEE	4114	BS 4624 1981	17.12.92
F37	Soaking & impact DuraSteel Followed by fire test. 3 hr. integrity	BTC	BTC 5281F	BS 476 Part 22 1987	19.01.94
F49	Strength of 6.0 and 9.5mm thick panels	NDT	12036/95		Dec. 95
F51	Impact test for 6.0mm DuraSteel	TRADA	ACT/F96071		Jul. 96
F58	DuraSteel Surface Burning Characteristics	UL	SV8757	ANSI/UL723, ASTM E84	Jul. 05

\* Report re-written from original of April 1986

### SUPPORTING CERTIFICATION

Cert. No.	Other References	Certificate Details	Authority	Number	Date
FF1	F1	DuraSteel Asbestos Free Systems	BRE	FRS/35/01/FCA	30.09.80
FF4	A4	Table of Radiation Levels for DuraSteel	BRE		14.04.80
FF5	F1	Acceptance of DuraSteel Sheet	NCB	PW20393 Ap. No. 1773	20.07.81
FF18	Various	Acceptance of DuraSteel Systems	MC	RM/SG	10.03.87
FF25	F2, F13	Acoustic insulation 6.0mm DuraSteel	AIRO	MS/CAR/L194/L1	30.03.88
FF53	CDL various	Use of CDL test furnace	BRE	FR0512/4 FT91/145/BS	19.07.91
FF58	Various	Performance of stainless steel DuraSteel	BRE	RO512/4 FT92/29	27.04.92
FF90		Use of non-combustible materials	LPC	Letter	Feb. 96

**1.2.1 PARTITIONS - General, Industrial, Commercial, Power Generation****INDEPENDENT TESTING**

Test. No.	Type	Testing Laboratory	Number	Standard	Date
A1	2 hr. Fire Check	FIRTO	TE 3451	BS 476 Part 8 1972	11.05.79
A2	4 hr. Fire Check	FIRTO	TE 3417	BS 476 Part 8 1972	09.03.79
A3	4 hr. Fire Check (Monel)	FIRTO	TE 3798	BS 476 Part 8 1972	04.11.80
A4	4 hr. Fire Check and Cold Face Radiation Test	FIRTO	TE 3598	BS 476 Part 8 1972	07.01.80
C8	3 hr. Fire Resistance U.S.A.	UL	ULR 11164-1	UL263, ASTM E119, NFPA 251	26.10.84
G7	2 hr. Fire Check, 90 min. insulation	FIRTO	TE 5522	BS 476 Part 8 1972	14.11.85
A5	4 hr. Fire Barrier with Folding Fire Shutter	WFRC/CDL	DB/LD	BS 476 Part 8 1972	26.11.86
A6	4 hr. Fire Check Acoustic Test	AIRO	L1427	BS 2750 1956	28.01.84
A7	3 hr. Fire Check - 2 hr. insulated barrier with penetration seals	CTICM	87-U-003P	French Home Secretary	07.01.87
A8	3 hr. Barrier Test - English Translation	CTICM	87-U-003P	French Home Secy. Appendix No. III	07.01.87
A9	2 hr. fully insulated barrier using silicone and neoprene seals	WFRC/CDL	43486	BS 476 Part 20 1987	28.01.88
A10	4 hr. integrity barrier with fire damper	WFRC/CDL	DB/KC	BS 476 Part 8 1972	25.11.86
G8	1 1/2 hr. fire resistance - single skin & Mandolite spray	FIRTO	TE 3181	SOLAS	22.02.78
A11	2 hr. insulated / 4 hr. integrity partition	Warnock Hersey	5727	CAN4-S101-M82 ASTM E119-88	10.05.89
A12	4 hr. stability & integrity firewall	Warnock Hersey	5767	CAN4-S101-M80	02.11.89
A13	4 hr. fire insulated barrier	FM	JI 1R Q3.AC (4510)	ASTM E119	25.10.90
A14	F180 - A special fire barrier	IBMB	3682/3950	DIN 4102 Teil 3	25.01.91
A15	F90 - A special fire barrier	IBMB	3152/1521	DIN 4102 Teil 3	01.07.91
A16	E240 – Fire barrier	IBMB	3423/3641	DIN 4102 Teil 2	15.11.91
A17	2 hr. insulated firewall with penetration seal	FRI	92/09/292	BS 476 Part 22 1987	14.09.92
A18	2 hr. Fire Integrity	FROSI	2695	BS 476 Part 1 1953	08.08.62
A19	4 hr. Fire Integrity	FROSI	6562	BS 476 Part 8 1972	Dec. 76
A20	4 hr. Fire Integrity supported from Dexion Speedlock racking system	LPC	TE 82786	BS 476 Part 22 1987	16.09.92
A21	4 hr. Fire Integrity - fast-track construction	LPC	TE 83352	BS 476 Part 22 1987	02.03.93
A22	Composite barrier with door, hatch, Penetration and socket enclosure	LPC	TE 83775	BS 476 Part 22 1987	02.07.93
A23	E240 – firebarrier measuring standoff Temperatures (German Language)	IBMB	3423/3641	DIN 4102 Teil 2	02.01.92
A24	F90 Lean Construction (in German)	IBMB	3372/7233	DIN 4102 Teil 3	24.10.93
A25	F90 Acoustic Rw=48 (in German)	IBMB	2109/3341	DIN 52210, DIN 4109	26.01.94
A26	F90 Acoustic Rw=52 (in German)	IBMB	2109/3342	DIN 52210, DIN 4109	26.01.94
A27	F90 Acoustic Rw=54 (in German)	IBMB	2109/3343	DIN 52210, DIN 4109	26.01.94
A28	F90 Acoustic Rw=56 (in German)	IBMB	2109/3344	DIN 52210, DIN 4109	26.01.94
A29	1 hr. insulated barrier (air gap)	BTC	BTC 5224F		Jun. 95
A32	Indicative Tests 2 & 4 hr. insulated panels	LPC	TE87107/8	BS 476 Part 20	Jan. 96
A33	Durabloc 902 - 90 min insulation, 2 hr. stability & integrity (in French)	CTICM	95-V-356	Arête du 21 Avril 1983	Aug. 95
A34	Durabloc 1202 - 2 hr. stability insulation	CTICM	95-V-020		Jan. 96

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Test. No.	Type	Testing Laboratory	Number	Standard	Date
A35	Acoustic tests on indicative panels Rw46 to Rw49	AIRO	L/2461		Sept. 96
A36	LT Barrier 4 hr. stability and integrity	LPC	TE88748		Jan. 97
A37	4 hr. fire resistant insulated barrier which incurred impact test at the 2 and 4 hr. point of the test	EN	CVB-R0563	EN 1364-1: 1999, NEN 6069: 2005	Sept. 06
A38	4 hr. fire resistant insulated barrier to North American standards	UL/ULC	06CA48259 / 10CA33745	UL263, ASTM E119, NFPA 251, CAN/ULC- S101-04	Jan. 07
A39	1 ½ & 2 hr. fire resistant insulated barriers to North American standards	UL/ULC	07CA07694 / 10CA33745	UL263, ASTM E119, NFPA 251, CAN/ULC- S101-04	Jun. 07
A40	6 Hour DuraBarrier Test	BFTC	BFTC 06/14	ASTM E119	Jul. 06
A41	DuraBarrier Hose Stream Test	ULC	SV16502	UL 263, ASTM E119, NFPA 251, CAN/ULC- S101	Nov. 09
A49	3 Hour DuraSteel Shaft Wall System	UL	10CA33803 / 12CA42620	UL 263, ASTM E119, NFPA 251, CAN/ULC- S101	Oct. 10
A50	2" DuraBarrier Sound Absorption Panel	ATI	A2071.02-113- 11	ASTM C423	Sept. 10
A51	4" DuraBarrier Sound Absorption Panel	ATI	A2071.01-113- 11	ASTM C423	Sept. 10
A52	DuraSteel for Trailer Blast Resistance	U of Ottawa	RD025	CSA S850	Sept. 12
A53	DuraSteel/LFS overlay system for CMU construction	Intertek	101000831- SAT003	ASTM E119	Apr. 13
A54	DuraSteel/Promatect 250 Panel Acoustic Testing	ATI	A8339.01A	ASTM E90	Apr. 11
A55	1.5" DuraBarrier Sound Absorption Panel	ATI	D5431.01-113- 11	ASTM C 423	Feb. 14
A56	2 hr. fire integrity test, fire barrier with 6.0mm DuraSteel	BFTC	BFTC 04/13	BS 476 Part 22 1987	May 04
A57	DuraSteel/Promatect 250 STC Report	NGC	2015070	ASTM E90, E413, E1332	Jun. 15
A58	DuraSteel/Promatect 250/SFS STC Report	NGC	2015069	ASTM E90, E413, E1332	Jun. 15

**SUPPORTING CERTIFICATION**

Cert. No.	Other References	Certificate Details	Authority	Number	Date
AA1	A1	2 hr. Fire Check Acceptance (Monel)	BRE	FRS A134 FL220 FCA	22.09.81
AA2	A1	2 hr. Fire Check Acceptance (Stainless Steel)	BRE	FCA/IC	28.04.82
CC4	C8	4 hr. Assessment non-load bearing wall	WRCSI	36027	11.01.85
GG17	G7	6m Height Assessment	BRE	FRO430/107 MRR/TT	26.08.86
AA5	A1	2 hr. Barrier Acceptance	HK	BOO G 4/65V	15.07.80
AA6	A1	2 hr. Fire Check Approval	Malaysia	JPPB/0278/2	02.03.86
AA7	A1	2 hr. Fire Check from Either Side	BRE	FRO430/107 MRR/GG	18.06.86
AA8	A2	4 hr. Assessment using CR channels & self drilling/self tapping screws	BRE	FRO430/107 MRR/EJB	26.09.86
AA9	A1, A2	2 hr. and 4 hr. Fire Check constructions with fire from either side	BRE	FRO430/107B MRR	17.10.86

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Cert. No.	Other References	Certificate Details	Authority	Number	Date
AA10	A1	2 hr. complex oversize barrier offering pressure resistance	BRE	FRO430/107 MRR	21.10.86
AA11	A2	4 hr. complex oversize barrier offering pressure resistance	BRE	FRO430/107 MRR	21.10.86
AA12	A2, D1	4 hr. Barrier Assessment with damper, door and duct openings	WFRC	40816	06.02.87
AA13	A1, A2	2 & 4 hr. Barrier Assessment with cables, pipes, dampers or door penetration	WFRC	41057	19.03.87
AA14	A1, A2, A4	9.5mm DuraSteel - 22 min. insulation 6.0mm DuraSteel - 15 min. insulation	BRE	FRO430/107	18.12.87
AA15	A4	4 hr. Barrier Incorporating Sliding Door	BRE	FRO430/107/F87/191	01.10.87
AA16	C8	4 hr. Barrier Using Different Steels	WFRC	41190	03.04.87
AA17	A2	4 hr. Barrier with corner details including doors	WFRC	40943	26.02.87
AA18	A2, A1	2 hr. and 4 hr. Integrity Barrier of 4.5m Height	WFRC	C42716	22.10.87
GG21	G7	1 ½ hr. Fire Resistance Duraslim, 4m height	BRE	FRO430/107/F87/409	23.02.88
AA19	A7, A8	Insulated (2 hr. /3 hr.) Firewall assessed to 6m height	CTICM	Extension no. 89/1	29.05.89
AA20	KK7, FF21	Composite Firewall using multilayer construction with Vermiculux and DuraSteel providing 2 hr. Fire insulation to AS1540 Pt 4	BRE	FRO512/4 FT88/208/BS	07.02.89
AA21	CDL Drg. 3020/ FE1 & FE2	Fast-Track Firewall using 9.5mm DuraSteel with self drilling/tapping screws providing 4 hr. fire integrity	BRE	FRO512/4 FT89/170/BS	19.07.89
AA22	C.8	3 hr. fire resistance for Canada (ULC Design No.W005)	ULC	CRO2030 89T182	31.08.89
AA23	A.1, A.2	2 hr. fire integrity -high bay firewall of 44m height	BRE	FRO512/4 FT89/471/BS	21.06.90
AA24	CDL application 9.10.91	Blanket' assessment of single skin barriers up to 12m high with 3mm cold rolled channels, up to 4 hr. fire integrity	BRE	FRO512/4 FT91/275/BS	17.10.91
AA25	A2	4 hr. Firewall Approval	BOO	BLD(B)GR/BM/2- (156)-F(2)	12.12.90
AA26	A19, CDL Drg.: CI/DR/3859/ FE100	Glazed Screen with 1 hr. Fire Resistance	BRE	FRO512/4	13.11.91
BB80	A2, AA9	Assessed to 4 hr. fire integrity to BS 476 Part 22 (Pac. 4)	BRE	FRO512/4 FT91/333/BS	03.12.91
EE2	A15, A16	F30 Lining for container wagons	IBMB	314/Nau/ips	21.07.92
AA27	G3	Acceptance of 2 hr. single skin, 2 hr. double skin, and 6 hr. triple skin constructions	HKFS	FPB 240/0040	19.03.79
AA28		Acceptance of 2 hr. Fire Integrity (6.0mm DuraSteel)	BOO	BOO G4/65V	15.07.80
AA29	A15	Assessment of F90 Barrier faced with plasterboard	IBMB	284/Nau/Md	11.08.92
AA30	A7	Assessment to include door in French Firewall	CSTB	ALD/GA 89/491	02.10.92
AA31	A15	Assessment of F90 Barrier including T90 hinged door	IBMB	412/Nau/Schu	02.10.92
AA32	A15	Assessment of F90 Barrier including penetrating pipe of 150mm diameter	IBMB	312/Nau/Md	02.10.92

Cert. No.	Other References	Certificate Details	Authority	Number	Date
AA33	None	Comparison of BS 476 Part 8 with BS 476 Parts 20 to 24 1987	BRE	FRO572/4 FT92/329/BS	13.01.93
AA34	A2, CDL Drg. RD/DR/PS953/ SK1	4 hr. Fire Integrity – face fixing to angles	BRE	None	25.05.93
AA35	A21	2 hr. Insulated Fire Barrier	LPC	CC 84162	22.10.93
AA36	A2, A1, A21	2 hr. Fire Integrity, Fast-Track Construction	LPC	CC 84161	14.10.93
AA37	CDL Drgs. L/DR/ 4050-FE1B & 2B	1 hr. Fire Integrity of Barrier with Multiple Access Panels- Site Specific	BRE	FRO512/4 FT92/237/BS	22.01.93
AA38	F34	4 hr. Insulated Barrier	LPC	CC84658	15.03.94
AA39	F34	4 hr. Insulated Barrier	LPC	CC85095	02.08.94
AA40		4 hr. Insulated Barrier (no cover strips)	LPC	CC87733	May 96
AA41		DuraSteel & Plasterboard Barrier, 2 hr., SI & I	LPC	CC87904	Jul. 96
AA42	A21, A29, F34, F35	Assessment of Single and Double Skin Partitions to 15m	WFRC	133548	Mar. 04
AA43		Promat H Partitions and External Walls	Warrington	CF 622	Jun. 08
AA44	A38, A39	LFS board in UL V460, V466 and ULC W457 and W461 assemblies	UL	12CA46456	Sept. 12

## 1.2.2 PARTITIONS - Exterior (Outdoor) Barriers

### INDEPENDENT TESTING

Test. No.	Type	Testing Laboratory	Number	Standard	Date
A1	2 hr. fire check	FIRTO	TE 3451	BS 476 Part 8 1972	11.05.79
A2	4 hr. fire check	FIRTO	TE 3417	BS 476 Part 8 1972	09.03.79
A3	4 hr. fire check (Monel)	FIRTO	TE 3798	BS 476 Part 8 1972	04.11.80
A4	4 hr. fire check and cold face radiation test	FIRTO	TE 3598	BS 476 Part 8 1972	07.01.80
A19	4 hr. fire integrity	FROSI	6562	BS 476 Part 8 1972	Dec. 76
A21	4 hr. fire integrity - fast-track construction	LPC	TE 83352	BS 476 Part 22 1987	02.03.93
A40	6 hr. fire integrity test, DuraBarrier	BFTC	BFTC 06/14	Adhoc to ASTM E119 time temperature curve	Jul. 06
A41	DuraBarrier Hose Stream Test	ULC	SV16502	UL 263, ASTM E119, NFPA 251, CAN/ULC-S101	Nov. 09
A42	3 hr. fire integrity test, DuraBarrier	ULC	08CA37087	Special services test to ASTM E119 temperature curve	Nov. 08
A43	Blast & ballistic test, DuraSteel assemblies	LKD	DBI-75/2006	Adhoc	11.01.07
A44	Ballistic test, additional bulletproof material for DuraBarrier	LKD	DBI-84/2008	Adhoc	20.10.08
A45	Blast test, DuraSteel assemblies	LKD	DBI-74/2006	Adhoc	18.12.06
A46	Blast test, DuraSteel rooms	LKD	DBI-73/2006	Adhoc	09.11.06
A47	Sound absorption test, DuraBarrier	Vibro-Acoustics	VA #4222	ASTM C423-08	09.10.08
A48	Sound transmission loss test, DuraBarrier	ATI	88766.01-113-11	ASTM E90-04	30.01.09
A59	DuraBarrier SF 4hr Hydrocarbon	BTAC	BTAC16914	Adhoc	Aug. 16

## 1.2.3 PARTITIONS - Offshore Oil and Gas Platforms

### INDEPENDENT TESTING

Test. No.	Type	Testing Laboratory	Number	Standard	Date
G1	A60 1hr.	NbL	45987	SOLAS 60	26.06.75
G2	A120	FROSI	6376	BS 476 Part 8 1972	Mar. 76
G3	A330	FROSI	5914	BS 476 Part 8 1972	Jul. 74
G4	H60 1hr.	FIRTO	TE 4549	SOLAS 74 Mod. H. Carbon	22.03.83
G5	A60 w/w/out door W/w/out seals	AIRO	L1711/1-2-3	BS 2750 1980 BS 5821 1980	22.12.83
G6	H120	FIRTO	5270	SOLAS 74 Mod. H. Carbon	22.02.85
G7	A60 Duraslim 94 min. insulation	FIRTO	5522	BS 476 Part 8 1972	14.11.85
A1	2 hr. Fire Check (AO)	FIRTO	TE 3451	BS 476 Part 8 1972	11.05.79
A2	4 hr. Fire Check (AO)	FIRTO	TE 3417	BS 476 Part 8 1972	09.03.79
A3	4 hr. Fire Check (AO)	FIRTO	TE 3798	BS 476 Part 8 1972	04.11.80
G8	A90 Single skin 6.0mm & 35mm Mandolite	FIRTO	TE 3181	SOLAS	22.02.78
G9	Radiant Heat- Type A	WFRC	R11862	Ad hoc	30.05.95
G10	Radiant Heat- Type B	WFRC	R11863	Ad hoc	30.05.95
G11	Radiant Heat- Type C	WFRC	R11864	Ad hoc	30.05.95
G12	Radiant Heat- Type D	WFRC	R11959	Ad hoc	30.05.95
G13	DuraSteel H0 - 2 hour.	LPC	TE88905	IMO Resolution A.754 (18)	06.05.97
G14	DuraSteel H0 Bulkhead	Exova	194302	IMO Resolution A.754 (18)	Jun. 10
G15	H60 DuraSteel Barrier	Exova Warrington	319091	IMO MSC 307(88)	Oct. 12
G16	H120 DuraSteel Barrier	Exova Warrington	319090	IMO MSC 307(88)	Oct. 12
L2	H120: Fireblast System 2 hr. integrity	WFRC	54839	D. En H-test Issue 1: 1990	13.11.91

### SUPPORTING CERTIFICATION

Cert. No.	Other References	Certificate Details	Authority	Number	Date
GG1	G1	Change of Construction approval - A60	SINTEF	WG/tb	09.09.77
GG2	G1	NMD Certificate - A60	NMD	A39909/75	23.04.75
GG3	G1	A60 (9mm)	Lloyd's	SVG/F93/278	30.06.93
GG4	G1	A60 (6mm)	Lloyd's	SVG/F93/277	30.06.93
GG5	G1	A60 (9mm)	DnV	F9971	10.03.89
GG6	G1	A60 (6mm)	DnV	F9972	10.03.89
GG7	G2	A120	Lloyd's	SVG/F93/279	30.06.93
GG8	G4	H60	Lloyd's	SAS F030416	14.10.03
GG9	A2	4 hr. Fire Check - (A60)	Lloyd's	SVG/F93/276	30.06.93
GG10	A1	2 hr. Fire Check - (A0)	Lloyd's	SAS F980421	11.07.98
GG11	A3	4 hr. Stability and Integrity Fire Check (Monel) - (A0)	Lloyd's	ICD/F80/256	31.12.80
GG12	G4	DnV Certificate - H60	DnV	F7421	12.02.85
GG13	G2	NMD Certificate - A120	NMD	A59767	08.08.85
GG14	G4	NMD Certificate - H60	NMD	A60036	08.08.85
GG15	G6	DnV Certificate - H120	DnV	F7698	30.08.85
GG16	G7	NMD Certificate - A60 Duraslim	NMD	A60037	08.08.85



Cert. No.	Other References	Certificate Details	Authority	Number	Date
GG17	G7	A60 Duraslim 2 hr. Stability, Integrity, 1 hr. Insulation	BRE	FRO430/107 MRR/TT	26.08.86
AA7	G2	A120 From either side	BRE	FRO430/107 MRR/GG	18.06.86
GG18	G7	A60 Duraslim Certificate 2 hr. Stability, Integrity, 1 hr. Insulation	Lloyd's	SAS F020250	07.06.02
GG19	G7	A60 Duraslim - orientation of steels, 2 hr. Stability, Integrity, 1 hr. Insulation	BRE	FRO430/107C F87/260	09.11.87
GG20	G8	A90 Single skin + Mandolite spray	Lloyd's	ICD/F83/590	14.06.83
GG21	G7	A60 Duraslim	BRE	FRO430/107 F87/409	23.02.88
GG22	G2	DnV Certificate - A60 - 2 hr. Insulation	DnV	F9166	04.01.88
GG23	G5	Acoustic Report	JMCA	18.1893. R1	08.07.88
GG24	A19, G4	Assessment of single skin for H0 rating	BRE	FRO512/4 FT92/206/BS	07.10.92
GG25	A19, GG24	H0 Certificate	Lloyd's	SAS F070072	07.03.07
GG26	CDL 401	H0 Fire test maintaining 4 hr. integrity	BRE	FRO512/4 FT92/270/BS	27.11.92
GG27	G7, G4, G6 CDL Drgs RD/ DR/PS-835/1 to 4	A60, H60, H120, demountable constructions	LPC	83233	20.01.93
GG28	G13	H0 Wall	DnV	F-19427	01.06.10
GG29	G14	H0 Wall	Lloyd's	SAS F160165	02.06.16
NAC6		DuraSteel H0/H60 Acceptance	IMP	40084001	26.04.94

### 1.3.1 DOORS - General, Industrial, Commercial

#### INDEPENDENT TESTING

Test. No.	Type	Testing Laboratory	Number	Standard	Date
B1	Duraleaf 2 hr. 2 single leaf doors	FIRTO	TE 3781	BS 476 Part 8 1972	17.10.80
B2	Duraflush 4 hr.	FROSI	FROSI 435	BS 476 Part 1 Sec 3 1953	06.10.53
B3	Duraflush 4 hr. twin door	FROSI	FROSI 435	BS 476 Part 1 Sec 3 1953	06.10.53
B4	Duraslide 4 hr. integrity	BTC	BTC 5383F	BS 476 Part 22 1987	24.08.94
B5	Durafire Heavy Duty 4 hr. hinged-single	FIRTO	TE 5329	BS 476 Part 8 1972	27.04.85
B6	Durafire Heavy Duty 4 hr. integrity hinged-double	FIRTO	TE 5329	BS 476 Part 8 1972	21.06.85
B7	Durafire Prestige hinged single door with single latch - 4 hr.	FIRTO	TE 5672	BS 476 Part 8 1972	09.05.86
B8	3 hr. Insulated single	TIANJIN FSRI	870308	ISO 834 1975	29.04.87
B9	3 hr. Insulated twin	TIANJIN FSRI	870313	ISO 834 1975	29.04.87
B10	Durafire Prestige Twin - 4 hr. fire integrity	LPC: FIRTO	TE6307	Method 6: BS 476 Part 22 1987	14.07.87
B11	Channel Tunnel Shuttle Trains- Wagon end fire doors - 1/2 hr. fire resistance	FIRTO	TE6500	BS 476 Part 22 1987	18.03.88
B12	Insulated door and vision panel in partition	FIRTO	TE4586	BS 476 Part 8 1972	03.06.83
B13	Channel Shuttle train pass 1/2 hr. fire test	FULMER YARSLEY	J 84569/1	BS 476 Part 22 1987	05.10.89
B14	Air leakage test on twin leaf bi-directional door set	WFRC	47814	BS 476 Section 31.1	20.08.89
B15	Duraflush - 100,000 cycle test	SISIR	G141663/AWI	Appendix F of SS 332: 1988	06.03.90

Test. No.	Type	Testing Laboratory	Number	Standard	Date
B16	DuraLeaf & Duraflush, A 2 hr. integrity, B 4 hr. integrity	BTC	BTC 5305F	BS 476 Part 22 1987	23.02.94
B17	'Prestige' (A60) 1 hr integrity	BTC	BTC 5380F	BS 476 Part 22 1987	29.07.94
B18	'Prestige' single leaf 1 hr. insulation	BTC	BTC 5412F	BS 476 Part 22	17.03.95
B19	'Smooth' door single leaf 2 hr. integrity	BTC	BTC 5433F	BS 476 Part 22	28.06.95
B20	'Smooth' door twin leaf	BTC	BTC 5459F	BS 476 Part 22	08.02.96
B21	3 Hour Hollow Metal Fire Door and Frame in 4 Hour DuraSteel Metal Studded Wall	UL	10CA33804	UL 10C	Apr. 11

### SUPPORTING CERTIFICATION

Cert. No.	Other References	Certificate Details	Authority	Number	Date
		<b>Duracheck</b>			
BB5	B2	Door approval from FOC/LPC	FOC/LPC	317	02.12.81
BB8	B2	Assessment as 2 hr. fire door	BRE	FRS/308/FCA	21.12.79
BB50	CDL Drg.'s 4839/DE1 RevC	Assessment of hinged twin leaf door with Transom panel	BRE	FRO512/4 FT89/057/BS	01.06.89
BB52	CDL Drg.'s T212 Rev B	Combination Durafush/Duracheck door with partition detail	BRE	FRO512/4 FT88/298/BS	04.04.89
BB57	B2	Single leaf door assessed at 2200mm wide x 2500mm high	BRE	FRO512/4 FT89/176/BS	18.09.89
BB58	B2, BB57	Single leaf door assessed at 2200mm wide x 3500mm high	BRE	FRO512/4 FT89/176/BS	22.09.89
BB59	B2	Standard construction assessed for single and twin leaf formats	BRE	FRO512/4 FT89/181/BS	12.09.89
BB63	PP2-01	Standard construction faced with stainless steel assessed for 2 hr. fire integrity	BRE	FRO512/4 FT89/506/BS	27.02.90
BB70	CDL Drg. PP2-01 Rev 1	Non standard construction assessed for 2 hr. integrity	BRE	FRO512/4 FT89/559/BS	26.03.90
BB75	BB34, BB30, CDL Drg. T175 Rev B	Twin leaf door assessed at 2100mm wide x 2800mm high	BRE	FRO512/4 FT90/474/BS	17.01.91
BB76	CDL Drg. SK833	2 hr. fire door approval	BOO	BLD(B)GR/HM/2(5)	15.04.87
BB97	CDL Drg. SK833	Acceptance of standard Duracheck construction	HKFS	FPB206/0126(12)	22.04.87
BB99	CDL Drg. PP2-01 Rev 1	Assessment of Duracheck construction with tower bolts	BRE	FRO512/4 FT91/357/BS	24.12.91
		<b>Durafush</b>			
BB3	CDL Drg. SK455	Assessment of oversize twin leaf doors, up to 4200mm wide and 3594mm high	BRE	FRS308/FK304 FCA/DME	14.05.81
BB4	B3	Door approval from FOC/LPC	FOC/LPC	316	02.12.81
BB7	B3	Assessment as 4 hr. fire door	BRE	FRS308/FJ486/FCA	01.04.80
BB26	B2	Double tier, twin leaf door assessed for 2 hr. integrity	BRE	FRO430/107	09.06.87
BB27	B3, B5	Twin leaf door with wicket inset for 4 hr. fire integrity	BRE	FRO430/107 F87/195	01.10.87
BB38	B3	Size assessments for single and twin leaf constructions Single leaf door: 1083mm wide x 2119mm high Twin leaf door: 1533mm wide x 2119mm high	BRE	FRO430/107 F87/432	04.03.88
BB47	CDL Drg. T225	Twin leaf door with or without wicket door, assessed using stainless steel construction	BRE	FRO512/4 FT88/270/BS	28.03.89
BB51	CDL Drg. T233 Rev B	Twin leaf door with side partition assessed for 4 hr. fire integrity	BRE	FRO512/6 FT88/298/BS	04.04.89

Cert. No.	Other References	Certificate Details	Authority	Number	Date
BB52	CDL Drg. T212 Rev B	Combination Duraflush/Duracheck door with partition detail	BRE	FRO512/4 FT88/298/BS	04.0489
BB60	B3	Single leaf oversized door with wicket door assessed for 4 hr. fire integrity	BRE	FRO512/4	22.01.90
BB68	B2	Assessment of current manufacturing method	BRE	FRO512/4	16.05.90
BB78	B2, CDL Drg. Dt/DR/7-424 rev. A	Large twin leaf door with wicket door for 2 hr. integrity	BRE	FRO512/4 FT91/301/BS	08.11.91
BB84	BB3	Acceptance for large twin leaf doors	HKFS	FPB206/0126(12)	22.04.87
BB85	B2, BB4	Acceptance for large single leaf doors	HKFS	FPB206/0126(15)	29.10.85
BB91	BB27, CDL Drg. T175B	Acceptance of large twin leaf door with wicket door	HKFS	FPB206/0126(12)	29.01.88
BB92	BB63, BB70	Acceptance of modifications to facings, frame and hardware for transformer rooms	HKFS	FPB206/0126(12)	04.06.90
BB93	BB92, BB99	Acceptance of modifications for all buildings	HKFS	FPB206/0126(12)	27.03.92
BB95	CDL Drg T-175 B	Assessment to BS 476 Part 22 for 4 hr. fire integrity of twin door with wicket	BRE	FRO512/4 FT92/135	29.07.92
BB108		Duraflush twin lead doors up to 2400mm x 2400mm	LPC	CC87600	Jun. 96
BB110		Duraflush alternative latching system	LPC	CC88500	Nov. 96
BB111		Duraflush door with bolted channel binding	LPC	CC8705	Jul. 96
<b>Duraleaf</b>					
BB1	B1	Door approval from FOC/LPC	FOC/LPC	367	11.10.82
BB2	B1	Single leaf door assessed at 1000mm wide x 2750mm high	BRE	FRS A134 FCA 1C	20.10.83
BB29	B1, B6	Twin leaf door assessed for 2 hr. fire integrity	LPC	CC/10428/01360/RH E/BD	15.12.87
BB30	B6	Twin leaf door with wicket, assessed for 2 hr. fire integrity	BRE	FRO430/107 F87/330	30.12.87
BB36	B1	Single leaf door assessed at 930mm wide x 2500mm high	BRE	FRO430/107D F87/397	12.02.87
BB40	B1	Single and twin leaf doors, with vision panel and flush steel finish	BRE	FRO430/107 F88/171	21.07.88
BB54	B1, B6, BB2	Oversize single and twin leaf doors: Single: 1300mm wide x 2700mm high Twin: 2160mm wide x 2700mm high	BRE	FRO512/4 FT89/369/BS	18.12.89
BB55	B1, B6, BB2	Oversize single and twin leaf doors Single: 1500mm wide x 2000mm high Twin: 3000mm wide x 3000mm high	BRE	FRO512/4 FT89/369/BS	18.12.89
BB62	B1	Twin leaf door with removal transom panel	BRE	FRO512/4 FT89/498/BS	22.02.90
BB66	B5	Single leaf door assessed at 1000mm wide x 2500mm high	BRE	FRO512/4 FT90/266/BS	24.09.90
BB73	B1, B6	Oversize twin leaf door assessed at 3000mm wide x 3000mm high	BRE	FRO512/4 FT89/396/BS	06.03.91
BB76	B1	2 hr. fire approval	BOO	BLD(B)GR/HM/2(5)	15.04.87
BB80	B1, BB2	Assessed to 4 hr. fire integrity BS 476 Part 22, (Pac. 1)	BRE	FRO512/4 FT91/333/BS	03.12.91
BB87	CDL Drg T-44	Acceptance of single leaf construction	HKFS	FPB206/0126III	23.08.84
BB90	B1, BB36	Acceptance of single leaf construction	HKFS	FPB206/0126(12)	02.05.88
BB96	CDL Drgs T-44 CI/DR/5562/SK1 CI/DR/5562/BE1B CI/DR/5562/BE2A	Assessment using lightweight blockwork as infill around frame	BRE	FRO512/4 FT92/137	28.07.92
BB103	B1	Modified Zed frame	BRE	FRO512/4	02.06.93

Cert. No.	Other References	Certificate Details	Authority	Number	Date
BB104	B1	Assessed for 2 hr. integrity to BS 476 Part 22	BRE		04.05.93
<b>Durafire Heavy Duty</b>					
BB22	B5	Twin lead door approval FOC/LPC	FOC/LPC	402	12.12.85
BB23	B6	Single leaf door approval from FOC/LPC	FOC/LPC	403	12.12.85
BB25	B5, B6	Oversize single and twin leaf doors Single: 1090mm wide x 3056mm high Twin: 2103mm wide x 3056mm high	BRE	FRO430/107 MRR/GG	12.09.86
BB28	B5	Twin leaf door assessed at 2000mm wide x 2500mm high	BRE	FRO430 Pt C F86/101	16.03.87
BB34	B5, BB30	Twin leaf door with wicket: 2600mm wide x 2800mm high	BRE	FRO430/107 PtDF87/384	08.02.88
BB37	B5, CDL Drg T-44 T184, BB34	Twin lead door with wicket: using alternative frame detail	BRE	FRO430/107D F87/397	12.02.88
BB39	CDL Drg T166	Twin leaf door, assessed at 2500mm wide x 2500mm high	BRE	FRO430/107/F87/480	24.03.88
BB67	B6	Single and twin doors with stainless steel facing sheets	BRE	FRO512/4 FT90/372/BS	19.11.90
BB77	B5, B6	Single and twin leaf approval from BOO	BOO	BLD(B)/GR/BM/2(5)- F(15)	12.10.90
BB80	B5, B6	Assessed to 4 hr. fire integrity to BS 476 Part 22 (Pac. 3)	BRE	FRO512/4 FT91/333/BS	03.12.91
BB89	B5, B6, BB28, CDL DrgS T165, T166	Acceptance of Durafire doors	HKFS	FPB206/0126(12)	22.04.87
BB94	BB30, BB42, BB72 CDL Drgs: T-184A, T209B	Acceptance of twin leaf door + wicket + vision panel	HKFS	FPB206/0126(12)	01.07.91
<b>Duraslide &amp; Durafire Sliding Doors</b>					
BB3	CDL Drg SK456	Assessment of oversize sliding doors up to 5120mm wide and 5600mm high	BRE	FRS/308/FK304 FCA/DMB	14.05.81
BB6	B4	Door approval from FOC/LPC	FOC/LPC	326	02.12.81
BB19	B5, B6	Assessment for Durafire Sliding Door	BRE	FRS/134 FRCA/DMB	02.07.85
BB48	B4	Assessment for 30 min. Fire Insulation	BRE	FRO512/4 FT88/193/BS	01.02.89
BB49	B4	Bi-parting leaves for opening 7000mm wide x 3800mm high	BRE	FRO512/4 FT89/074/BS	09.06.89
BB71	B4	Assessment for size: 5000mm wide x 4000mm high	BRE	FRO512/4 FT90/024/BS	23.04.90
BB76	CDL Drg SK416	4 hr. fire duration, approval	BOO	BLD(B)GR/HM/2(5)	15.04.87
BB84	BB3, CDL Drg SK456	Acceptance for large sliding doors	HKFS	FPB206/0126(12)	22.04.87
BB86	BB19, B5, CDL Drg T-117 Rev A	Acceptance of sliding door construction	HKFS	FPB206/0126(12)	19.12.15
<b>Drop/Rising Shutters</b>					
BB9	B4	Assessment of construction for 4 hr. fire integrity	BRE	FRS/A134/FCNIC	19.10.83
BB45	CDL Drg's T194, T195	Rising shutter assessed for 1 hr. fire integrity	BRE	FRO512/4 FT88/220/BS	13.02.89
BB83	BB9, CDL Drg R. 7986B	Acceptance for 4 hr. fire integrity up to size: 2450mm x 2150mm	HKFS	FPB206/0126(12)	11.02.88
<b>Trapdoors</b>					
BB43	B3, CDL Drgs T197, T198, T211	Single and twin lead trapdoors assessed up to 4 hr. fire integrity	BRE	FRO500/41/FT88/48/ BS	16.11.88

Cert. No.	Other References	Certificate Details	Authority	Number	Date
BB74	BB43, CDL Drg T211	Single and twin leaf trapdoor size assessment: Single: 1060mm x 1060mm or 700mm wide x 1500mm Long twins: 1200mm x 1200mm	BRE	FRO512/4/FT90/470/BS	14.01.91
BB79	A18, G3	Large single leaf composite trapdoor of 2 hr. fire integrity	BRE	FRO512/4FT91/327/BS	22.11.91
BB91	BB98, CDL Drgs T197A, T198A, T211A	Acceptance of single and twin leaf trapdoors	HKFS	FPB206/0126(12)	08.07.91
BB98	BB43, BB74	Assessment of pull handles	BRE	FRO512/4 FT91/103/BS	17.06.91
<b>Door Furniture</b>					
BB10	B2, B3, G1	Surelock 3-way shoot bolt assessment	BRE	FRS/308/FJ419/FCA/GG	21.02.80
BB11	B2, B3, G1	3-way crash bar mechanism assessment	BRE	FRS/A1 FCA 1C	26.07.83
BB12	CDL Drg SK758, B2, B3, G1	Assessment of the range of hinges, applicable sizes & uses	BRE	FRS/308FJ419/FCA/GG	21.02.80
BB14	CDL Drg SK390 PT 150B	Assessment of vision panel construction: 100mm wide x 150mm high	BRE	FRS A134 FCA/IC	18.07.80
BB16	B2, B3, B4, BB8	Assessment of modified vision panel detail	BRE	FRS/308 FCA	19.10.83
BB17	B1, B2, B3	Asbestos-free door constructions, assessment	BRE	FRS/A134 FCA/IC	21.10.83
BB20	B1, B2, B3	Assessment of lock mechanisms	BRE	FRS/A134 FCA/MEF	21.10.85
BB24	BB13, BB14	Acceptance of door hardware range	HK	FPB 206/0126(12)	10.10.86
BB42	B1, B5, B6, CDL Drg T209	Acceptance of vision panel assessments	BRE	FRO500/41/FT 88/31/BS	04.11.88
BB44	CDL 106	Vision panel of 100mm x 50mm for single skin constructions	BRE	FRO500/41/FT 88/139/BS	22.12.88
BB46	CDL Drg. T184	Vision panel of size: 600mm wide x 800mm high for 1 hr. fire integrity	BRE	FRO500/41/FT 88/136/BS	20.12.88
BB56	BB47, CDL Drg T225	Vision panel - detail change	BRE	FRO512/4 FT89/227/BS	18.09.89
BB69	B7, CDL Drg DT/DR/DDR/1001/5&6&7	Modifications to furniture on Prestige door including: vision panels, sill plate and panic bar	BRE	FRO/Si 2/4 FT90/396/BS	21.11.90
BB72	BB42, CDL Drg T209 rev B	Modification to vision panel assembly for single skin constructions	BRE	FRO512/4 FT90/589/BS	18.03.91
BB76	BB14, CDL Drg PT 150	2 hr. fire rated vision panel approval	BOO	BLD(B)GR/HM/2(5)	15.04.87
BB81	Various	Stainless steel furniture assessment	BRE	FRO512/4 FT92/42/BS	23.05.92
BB82	CDL 356, CDL Drg RD//PS657/SK-2A	Vision panel of size: 500mm x 125mm wide for 2 hr. fire integrity	BRE	FRO512/4FT92/76BS	09.07.92
BB100	B1, B5, BB47, BB63, BB67, CDL DrgS. T130	Dorma TS73 & TS83 door closers	BRE	FRO512/4	23.07.93
BB101	T175, T165	Stainless steel facings on Durafire Heavy Duty twin and single & Duraflush single, twin and wicket door types	BRE	FRO512/4	08.07.93
BB102	BB72, CDL Drgs. T165, T166	Positions and sizes of vision panels	BRE	FRO512/4 FT92/333/BS	15.01.93
BB106	None	Vision panels: percentage glazing	BRE	FRS93/994/11	19.11.93
BB107		Vision panels (Pyran S glass) in Duraleaf doors	LPC	CC87601	May 96

### 1.3.2 DOORS - Offshore Oil and Gas Platforms

#### INDEPENDENT TESTING

Test. No.	Type	Testing Laboratory	Number	Standard	Date
H1	A60 Single	STATSPROVEANSTALTEN	B10354/76	SOLAS 60	23.01.76
H3	A60 Slider	FIRTO	TE 4295	SOLAS 74	07.07.82
H4	A60 Twin	FIRTO	TE 4327	SOLAS 74	29.07.82
H5	H60 Single	FIRTO	34908	SOLAS 74 MOD	07.06.84
H6	H60 Slider	WRCSI	TE 5649	SOLAS 74 MOD	21.03.86
H7	A60 Single leaf with A60 vision panel	FIRTO	TE 82425	SOLAS/BS 476 Part 20 1987	13.05.92
H8	A60 Twin leaf with A60 vision panel	LPC	TE 82426	SOLAS/BS 476 Part 20 1987	20.05.92
H9	H120 Single	LPC	TE 82868	SOLAS	10.11.92
H10	H0 Single leaf door (after blast test)	LPC	TE 86858	BS 476 Part 22	Jan. 96
H11	H0 Single leaf door 2 hr.	WFRFC	140115	IMP FTPC Part 3	11.11.04
H12	DuraSteel H60 Single Blast Door	Exova	304225	IMO Resolution A.754 (18) Hydrocarbon	Aug. 11

#### SUPPORTING CERTIFICATION

Cert. No.	Other References	Certificate Details	Authority	Number	Date
HH1	H1	A60 Single	DnV	F8103	07.04.86
HH2	H1	A60 Single	DSS	Y952L1 Reg 1-2-6511	27.02.81
HH3	H1	A60 Single	Lloyd's	SAS F970389	20.09.97
HH5	H3	A60 Slider	Lloyd's	ICD/F88/406	30.06.88
HH6	H3	A60 Slider	DnV	F5921	13.02.84
HH7	H4	A60 Twin	Lloyd's	SAS F970390	30.09.97
HH8	H4	A60 Twin	DnV	F9973	10.03.89
HH10	H3	A60 Slider	Lloyd's	ICD/F88/411	30.06.88
HH11	H1	Triple Latching system for A0 and A60	Lloyd's	ICD/324/SB/B227/1	29.08.84
HH12	B2, B3	A0 Single with vision panel	Lloyd's	ICD/F88/409	30.06.88
HH13	B2, B3	A0 Single - NMD Certificate	NMD	A62617	14.10.85
HH14	B4	A0 Slider - NMD Certificate	NMD	A62675	14.10.85
HH15	H1	A60 Single - NMD Certificate	NMD	A80038	08.08.85
HH16	H4	A60 Twin NMD Certificate	NMD	A60039	08.08.85
HH17	H3	A60 Slider NMD Certificate	NMD	A60040	08.08.85
HH18	H5	H60 Single NMD Certificate	NMD	A60041	08.08.85
HH19	B2, B3	A0 Hinged Single- smoke tight	Lloyd's	LON/508057/1	11.12.85
HH20	HH10, H3	A0 Slider- smoke tight	Lloyd's	LON/5080057/2	20.12.85
HH21	H1 H4 H3	A60 Single A60 Twin A60 Slider B15 Twin hinged A60 Single hinged CMB marine door	ABS	T-15-2	05.11.85
HH22	H5	H60 Single	Lloyd's	SAS F070073	07.03.07
HH23	H6	H60 Slider - reinforcement modification, stability/integrity 2 hr. insulation 1 hr.	BRE	FRO430/107C F87/165	27.04.87
HH24	H6, HH23	H60 Slider with reinforcement modification	Lloyd's	SVG/F92/487	13.11.92
HH26	G5	34dB Assessment - A60 door w/out mineral wool	AIRO	MS/VF/L1905/L1	15.07.87

Cert. No.	Other References	Certificate Details	Authority	Number	Date
HH27	HH5	A60 Vision panel for A60 door	Lloyd's	ICD12324/SB/FIRE B227/01/09	13.03.85
HH28	H6	H60 Slider	Lloyd's	SAS F030265	14.10.03
HH29	H4	A60 Single 1 hr.	BRE	FRO512/4 FT88/238/BS	08.03.89
HH30	H5	H60 Single with removable jamb 2 hr. integrity 1 hr. insulation	BRE	FRO512/4 FT89/483/BS	01.02.90
HH31	H7	A60 Single with A60 vision panel certificate	Lloyd's	SVG/F92/367	30.09.92
HH32	H8	A60 Twin with A60 vision panel certificate	Lloyd's	SVG/F92/368	30.09.92
HH33	H4, H5	H60 Twin assessment	BRE	None	07.06.93
HH34	H9, CDL Drg RD/DR/3026/SK	H120 Single	Lloyd's	SVG/F93/046	09.02.93
HH35	H6	H60 sliding door alternative construction	LPC	CC87282	07.02.96
HH36	H10	H0 (Duracheck) door - single leaf hinged	DnV	F-16816	27.02.02
HH37	H11	H0 Single Door	DnV	F-20339	12.12.12

## 1.4 DUCTS - General, Industrial, Commercial, Institutional

### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
F6	DuraSteel Duct Test/Plenum Ceiling	FIRTO	TE 4220	Ad hoc Test	11.05.82
F8	DuraSteel Duct Test - 4 hr. integrity for fire inside and outside	FIRTO	TE 5124	ISO/DIS 6944	03.09.84
F9	DuraSteel Duct Test - 4 hr. integrity for fire and outside	FIRTO	TE 5157	BS 476 Part 8 1972	15.10.84
F19	F and H fastrack ducting (4 hr. integrity)	BRE/CDL	FRO512/4 FT90/423/BS	BS 476 Part 24	12.12.90
F20	2 hr. fire insulated duct construction	WFRC/CDL	C51720	BS 476 Part 24	10.09.90
F21	Sound transmission loss for DuraSteel duct compared with galvanized steel duct	BVA	VA2572	Ad hoc sound transmission test	10.06.91
F24	2 hr. duct fire integrity test	ULC	CR2280, 7939	ISO 9944 1985	04.09.91
F25	Duct pressure/leakage test to 5000Pa (minus kPa)	BSRIA	10528/1	Ad hoc leakage test	26.03.92
F27	Kitchen extract ducting test for zero clearance' applications	ULC	CR2354, 10260	ULC & NFPA 96	09.09.92
F30	Vibration and displacement fatigue testing	MIRA	K271915/1	Ad hoc: 60,000 cycles	25.09.92
F33	Excessive displacement (back break) fatigue test, followed by leakage test: Class D	MIRA	K271915/2	Ad hoc: 1.3 million cycles leakage test: DW142	05.11.92
F38	2 hr. insulated duct	LPC	TE84477	BS 476 Part 24 1987	17.03.94
F39	2 hr. insulated duct (acoustic test)	BTC	BTC2591A	BS 2750 Part 3	29.04.94
F40	Vibration test 2 hr. insulated duct - 1.3 million cycles	MIRA	272096/1	Ad hoc	12.07.94
F41	Insulated duct test	LPC	TE 84477	BS 476 Part 24 1987	17.03.94
F42	Flat pack ducts 2 hr. Stability Integrity Insulation	LPC	TE 85412	BS 476 Part 24 1987	29.04.94
F44	Insulated Duct to BS7346 PT 2 (smoke temperatures)	LPC (witnessed)	CDL 544		16.08.95
F47	Duct airflow resistance	BSRIA	120832/2		Nov. 95
F48	2 hr. insulated Type A duct	LPC	TE 84477A	BS 476 Part 24 1987	Jun. 96
F50	DuraDuct LT test report (Type B) 2 hr. Stability Integrity	LPC	TE 87812	BS 476 Part 24 1987	Jul. 96

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Test No.	Type	Testing Laboratory	Number	Standard	Date
F52	DuraDuct LT test report (Type A)	LPC	TE 87812/A	BS 476 Part 24 1987	Jul. 96
F53	Vibration of DuraSteel panels	AUES	AUES/M/003/93		Feb. 93
F54	Blast testing of DuraDuct & DuraDuct LT	SwRI		Ad hoc	Dec. 04
F55	DuraDuct LT 1hr. listed UL/ULC system	UL/ULC	04CA17311	ISO 6944 1985	Jan. 05
F56	Sound Transmission Loss for DuraDuct LT	Vibro-Acoustics	VA 4147	Ad hoc sound test	Feb. 05
F57	DuraDuct HP Air Leakage and Deflection Test	DASS	PPT- 1	ANSI/ASHRAE/SMAC NA 126-2000	Sept. 05
F60	DuraDuct SD - 2 hr. listed UL/ULC	UL/ULC	06CA59582	ISO 6944 1985	Apr. 07
F61	DuraDuct GNX 2 hr. UL/ULC Listed system	ULC	07CA43920	ISO 6944 1985	Mar. 08
F62	DuraDuct SD Blast Test	SwRI	18.18096.02.016	Ad hoc	Jan. 09
F64	DuraDuct GNX & SD Pressure and Leakage test	Flowset		SMACNA	Aug. 11
F65	DuraDuct KEX Impact Test	Intertek	100922403SAT-009C	UL 1978	Dec. 13
F66	DuraDuct KEX Longitudinal Force Test	Intertek	100922403SAT-009D	UL 1978	Dec. 13
F67	DuraDuct KEX Joint Load Test	Intertek	100922403SAT-009E	UL 1978	Dec. 13
F68	DuraDuct KEX E119 Wall Test	Intertek	100922403SAT-041	ASTM E2336/E119	Dec. 13
F69	DuctDuct KEX Vertical Support Test	Intertek	100922403SAT-009F	UL 1978	Jan. 14
F70	DuctDuct KEX Elbow Load Test	Intertek	100922403SAT-009G	UL 1978	Feb. 14
F71	DuctDuct KEX Internal Leakage Test	Intertek	100922403SAT-045L	UL 1978	Mar. 14
F72	DuctDuct KEX Internal Fire Test	Intertek	100922403SAT-011	UL 1978	Apr. 14
F73	DuctDuct KEX Fire Engulfment Test	Intertek	100922403SAT-012	UL 1978	Jun. 14
F74	DuraDuct KEX Transmission Loss Test	ATI	E0569.01-113-11	ASTM E90	Oct. 14
F75	DuraDuct SED Test	Intertek	101782793SAT-002	UL 1978	Oct. 14
F76	DuraDuct SED Test	Intertek	101782793SAT-003	UL 1978 / CAN/ULC S662	Mar. 15
F77	DuraDuct LXD - Pressure Decay Test	Exova	15-06-P0251	ASME N510	Dec. 15
F78	DuraDuct LXD - SMACNA Leakage & Deflection Test	Exova	15-06-P0290-1	ANSI/ASHRAE/SMAC NA 126-2000	Dec. 15

**SUPPORTING CERTIFICATION**

Cert. No.	Other References	Certificate Details	Authority	Number	Date
FF2	F8, F9	Air flow resistance of 4 sided duct	CBP		08.03.82
FF3	F6	GLC Assessment	GLC	AR/BR/CS/503/RFC	18.11.82
FF6	F8, F9	GLC Assessment 4 hr.	GLC	AR/BR/CS/508/TA	12.06.85
FF7	F8, F9	LPC Assessment- Kitchen Extract Ducts	LPC	CC/10 229 RHE/TVD/LS	18.07.86
FF12	F8, F9	3mm Internal Angle Framing	BRE	FRO430/107 A134 MRR/DMB	29.05.86
FF13	F8, F9	Substitution of 3DF2 DuraSteel	BRE	FRO430/107 MRR/GG	18.06.86
FF14	F8, F9	Duct construction using self drilling self tapping screws 4 hr.	BRE	FRO430/1078 MRR/RQ	10.10.86
FF15	C8, G7	Dust covers for cable trench - 2 hr. fire resistance assessment (Singapore MRTC)	WFRC	40648	09.01.87
FF16	F6	2 hr. ceiling	BRE	FRO430/1078 F86/25	23.02.87



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Cert. No.	Other References	Certificate Details	Authority	Number	Date
FF17	F8, F9	Calculation of nominal air resistance (with example)	BSRIA	4808: No. 1	Mar. 87
FF20	F8, F9	4 hr. ducting system, up to 2200mm wide	BRE	FRO430/107	17.07.87
FF21	F9	Assessment for 2 hr. insulated smoke duct	LPC	CC/10372/0817/VW	20.08.87
FF23	F9	Assessment for 3 hr. insulated smoke duct	LPC	CC/10427/01328/BD	10.12.87
FF26	F8, F9	Ducts without external angle trim	BRE	FRO430/107PtD F87/384	08.02.88
FF27	C8, CDL Drg. CPMI to CPM6	Assessment of 3 hr. insulated duct	WFRC	C43873	28.03.88
FF28	FF21	Composite 2 hr. insulated ceiling	BRE	FRO430/107 F88/172	26.07.88
FF29	F8, F9	Kitchen extract duct incorporating an oil drainage tap	LPC	CC10542/01992/RHE /BD	24.05.88
FF30	CDL6	Dust cross section	BRE	FRO430/107PtD F88/162	19.07.88
FF31	C8	3 hr. insulated duct wall panel enclosing steel duct	WFRC	C43873	28.03.88
FF33	F8	Equivalence of testing standards and test results between ISO6944 and BS 476 Part 24, 1987.	BRE	FRO430/107/F88/193	31.08.88
FF36	F8, F9, CDL 93	Revised sealing of duct system using COROFIL C144	BRE	FRO430/107/F88/281	17.10.88
FF37	F8, F9	Duct assessment 4 hr. integrity	BRE	FRO500/41 FT88/85/BS	30.11.88
FF38	F8, F9	Duct systems as for FF37 but assessed using M6 BUILDEX screws	BRE	FRO512/4 FT88/85/BS	01.02.89
FF42	F9, CDL Drg. C665-1	2 hr. fire integrity vertical cable shaft enclosure	BRE	FRO512/4 FT89/161/BS	13.07.89
FF43	F8, F9	Duct assessment - 2 hr.	BRE	FRO512/4	13.09.89
FF44		Vermiculux duct assessment 2 hr. stability & insulation Aus. Std. 1530 Part 4 Section 9	BRE	FRO512/4 FT89/198/BS	12.09.89
FF45	F6, F8	CDL Inhouse witnessed test of duct joints & sealing 4 hr.	BRE	FRO512/4 FT89/371/BS	Dec. 89
FF46		Approval of DuraSteel ducts to "Specification for smoke extract system"	HKFS	(61)FPB 312/61 III	15.03.90
FF47	F8, F9	Heat radiation assessment	WFRC	CL 10297	17.07.90
FF48	F8, F9	'F and H' fastrack ducting of 4 hr. fire resistance	BRE	FRO512/4FT90/357/B S	05.11.90
FF49	CDL 241	'F and H' fastrack ducting system assessing practical heat radiation	BRE	FT90/423/BS	12.12.90
FF50	F9	Assessment of 'fitness for purpose' Stability and Integrity 4 hr.	LPC	CC 10932/RHE	18.04.90
FF51	CDL Drg ASCEX 90/01 rev.B. AND CDL 208	Australia duct 4 hr. fire integrity	BRE	FT90/155/BS	09.07.90
FF52	F8	Heat radiation from 4 hr. ducting system	WFRC	CL 10297	17.07.90
FF54		Approval of ducts for kitchen extract	CoL	DH/DA	26.04.91
FF55	F9, CDL Drgs Various	Access panel to service duct to meet AS1530	BRE	FRO512/4/FT90/580/ BS	18.03.91
FF56	F24	ULC Listing of Canadian ducts	ULC	CR2280: Report 1779	28.11.91
FF57	F6, F8, F9	4 hr. fire rated ducting approval	BOO	BLD(B)GR/BM/2(14)	02.07.87
BB80	F8, F9	Assessment of ducting system to BS 476 Part 24, (Pac. 2)	BRE	(18)FPB316/2311	03.12.91
FF60	F6, F8, F9	Acceptance for 4 hr. fire integrity ducts	BOO	FRO512/-FT92/BS	02.07.87
FF61	F8, FF38, F22	Acceptance for ducts	HKFS	BLD(B)GR/BM/2(14)	03.12.91
FF63	CLD Drg PS750/6	2 sided vertical shaft assessed to 2 hr. fire integrity	BRE	FRO512/-FT92/BS	14.10.92.
FF64	BB80 (Pac 2), F8	Acceptance of 4 hr. horizontal duct construction	BOO	BLD(B)GR/BM/2(14)	24.03.92

Cert. No.	Other References	Certificate Details	Authority	Number	Date
FF65	BB80 (Pac 2), F9	Acceptance of 4 hr. smoke extract duct	BOO	BLD(B)GR/BM/2(14)	24.03.92
FF66		2 hr. insulated ducts using Conlit 150 wrap	BRE	None	02.04.93
FF67	F8, CDL DRGS: RD/DR/PS- 925/SK06 to 08	2 hr. insulated double skin ducts	BRE	None	02.04.93
FF74	F41, F8, F9	Insulated duct (Newtherm) assessment for: sheet steel lining 1 hr. or 4 hr. insulation	LPC	CC84867	03.08.94
FF80		Flat Pack Ducts 2 hr. insulated	LPC	TE85412	03.01.95
FF81	F8, F9, F38	Duraduct 30 4 hr. 1/2 hr. insulation	LPC	CC85452	06.01.95
FF85	F8, F9	2 hr. insulated duct (DuraSteel/min wool/steel)	LPC	CC86888A	Nov. 95
FF86	F8, F9, FF85	4 hr. insulated duct (DuraSteel/min wool/steel)	LPC	CC86888B	Nov. 95
FF88	F8, F9	4 hr. stability/integrity duct	LPC	CC86889	Jan. 96
FF89	F8, F9	Insulated duct 90 min hydrocarbon fire	LPC	CC86446	Jul. 95
FF91		2 & 3 sided insulated ducts - 2 hr. insulation	LPC	CC87223	Feb. 96
FF92	F8, F9	Enclosures for building services (4 sided)	LPC	CC87283	Feb 96
FF93		2 hr. DuraDuct with 50mm thick Newtherm 1000 board lining	LPC	CC87284	Mar. 96
FF94		2 & 3 sided insulated ducts - 2 hr.	LPC	CC87285	Mar. 96
FF95		Single skin horizontal ventilation ducts	LPC	CC87456	Mar. 96
FF96	F8, F9	2, 3 and 4 sided enclosures for building services	LPC	CC87283A	Apr. 96
FF97	F8, F9	DuraSteel - 2 hr.	LPC	CC87459	Apr. 96
FF100		Duct hanger sizes	LPC	CC87735	Jun. 96
FF102	F8, F9	4 hr. insulated duct- Type A	LPC	CC87736	Jun. 96
FF103	F8, F9	Insulated building services enclosures	LPC	CC87907	Aug. 96
FF104	F8, F9	Assessment of large ducts	LPC	CC88245	Sept. 96
FF105		Alternative hanger rod bracket (one anchor bolt)	LPC	CC88501	Jan. 97
FF106		LT2 Duct - assessment of clamping angles	LPC	CC88940	Feb. 97
FF108		New York City MEA Fire rated duct system 2 hr.	NYC BUILDINGS	MEA 162-05-M	Jan. 06
FF109	F68	DuraDuct 2HR Wall Panel	Intertek	DSB-IMWP 120-01	Jun. 17

## 1.5 CEILINGS & FLOORS - General, Industrial, Commercial, Institutional

### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
F6	DuraSteel Plenum ceiling	FIRTO	TE4220	Ad hoc	11.05.82
F34	4 hr. insulated and loaded floor (5kN/m <sup>2</sup> )	LPC	TE82867	BS 476 Parts 20 & 21	10.11.92
F35	4 hr. integrity ceiling - fire from below	LPC	TE83248	BS 476 Parts 20 & 22	04.02.93
F63	4 Hour DuraSteel Ceiling	UL	10CA22278 / 12CA42620	UL 263, ASTM E119, NFPA 251, CAN/ULC- S101	May 11

**SUPPORTING CERTIFICATION**

<b>Cert. No.</b>	<b>Other References</b>	<b>Certificate Details</b>	<b>Authority</b>	<b>Number</b>	<b>Date</b>
FF19	G7, FF24	3 hr. ceiling	WFRC	41536	08.06.87
FF24	F6, A2	3 hr. fire integrity plenum ceiling	WFRC	40897	24.02.87
FF32	FF24	4 hr. integrity ceiling fixed to lightweight concrete block	BRE	FRO430/1 07D F88/1 94	31.08.88
FF34	F6	4 hr. fire integrity to BS 476 Part 22	BRE	FRO500/41 FT88/85IBS	30.11.88
FF35	F6	2 hr. fire integrity to BS 476 Part 22	BRE	FRO430/107 FT88/255	04.10.88
FF39	CDL Drg. T235	2 hr. fire integrity Plenum ceiling for road tunnels	BRE	FRO51214 FT88/187/BS	06.02.89
FF40	CDL Drg T235	As for FF39, but using 9.5mm DuraSteel	BRE	FRO512/4 FT88/1 87/BS	06.02.89
FF57	F6, F8, F9	4 hr. fire rated ceiling approval	BOO	BLD(B)GR/BM/2(14)	02.07.87
FF59	G2	4 hr. Assessment of ceiling as soffit protection for concrete floor	BRE	FRO512/4	16.07.92
FF62	F6	Assessment of 1 hr. insulated suspended ceiling beneath steel beams supporting a concrete deck	BRE	FRO512/4 FT92 188/BS	21.09.92
FF68	F34	4 hr. insulated floor - loaded to 10kPa	LPC	CC83683A RHE/MB	26.05.93
FF69	F35	2 hr. fire resistant ceiling with fire above or below membrane	LPC	CC83683C	16.07.93
FF70	F35	4 hr. fire integrity ceiling with alternative channel supports	LPC	CC84001/rak	31.08.93
FF71	F34	4 hr. insulated and loaded floor with 1 beam supports	LPC	CC84000/rak	31.08.93
FF72	F35	2 hr. fire insulated ceiling with fire below	LPC	CC83683C	16.07.93
FF73	F34	Acceptance of loaded floor construction	BOO	(5)in BLD(B)GR/BM/2 (272)	15.06.93
FF75	F34, F35	4 hr. insulated ceiling - fire above or below	LPC	CC85096B	04.08.94
FF76	F34, F35	4 hr. insulated ceiling - fire above or below	LPC	CC85096A	04.08.94
FF77	F34, F35, A1, A2	2 hr. insulated ceiling - fire above or below	LPC	CC850978	04.08.94
FF78	F34, F35, A1, A2	2 hr. insulated ceiling (62 mm) - fire from below	LPC	CC85097A	04.09.94
FF79	F34, F35	Ceiling to AS1530: Pt 4 (Australia)	LPC	CC85084	29.07.94
FF82	F34, F35, A21	Assessment for 2 hr. plenum ceiling, fire above or below	LPC	CC85656	22.12.94
FF83	F34	Assessment for 2 hr. loaded floor	LPC	CC85898	01.03.95
FF84	F34, F35	Assessment for 4 hr. ceiling, fire above or below	LPC	CC85920	07.03.95
FF87	F35	2 hr. insulated ceiling - Rockwool laid over	LPC	CC86886	Nov. 95
FF98	F35	2 hr. insulated ceiling - calcium silicate	LPC	CC87598	Apr.96
FF99	F35	4 hr. insulated ceiling - calcium silicate	LPC	CC87599	Apr. 96
FF101	F35	2 hr. ceiling - 6.0mm DuraSteel	LPC	CC87734	Jun. 96
FF107	F34, F35	2 and 4 hr. ceiling assessment	WFRC	C126658D	Jan. 03

## 1.6 FIREBLAST® WALLS - Offshore, Petrochemical & Explosion Hazards

(Structural barriers designed to withstand the dual risks of gas explosions followed by hydrocarbon fires)

### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
L1	Range of gas explosion tests up to 2 bars overpressure	BRE	TCR 5/91	Industry standard	25.10.90
L2	H120: FIREBLAST system	WFRC	54839	D. En H-test Issue 1: 1990	13.11.91
L3	Impact/projectile resistance	ULIRC		Ad hoc testing	Feb. 92
L4	Development & validation of FIREBLAST	SCI	SCI-RT-187	Blast testing	Jan. 91
L5	Series of blast tests on H60, Duracheck & Durafush doors	BRE	TCR 112/95	Blast testing	Jan. 96

### SUPPORTING CERTIFICATION

Cert. No.	Other References	Certificate Details	Authority	Number	Date
LL1	L2	H0 Wall	Lloyd's	SAS F160167	10.03.16
LL2	L2	H60 Certificate	Lloyd's	SAS F160169	02.06.16
LL3	L2	H120 Certificate	Lloyd's	SAS F160168	02.06.16
LL4	L2, G6, LL1, LL2, LL3	LR Type Approval - FIREBLAST	Lloyd's	92/00031(E2)	16.10.03
LL5	L2, G6, LL3	FIREBLAST with jet fire certification (H120/J60)	Lloyd's	CSD/SVS/FIRE/DGG/2556	16.08.93
LL6	H12	H60 Single Blast Door	Lloyd's	SAS F160166	02.06.16
LL7	L5	Stainless Steel Blast Door Assessment	IRELAND ENGINEERING	5085	11.10.05
DD9	LL5, CDL DrgS RD/DR/PS1003/SK 111 & SK12	Penetration seals through FIREBLAST (H120/J60) for cables and pipes	Lloyd's	CSD/SVS/FIRE/DGG/2556	24.09.93
DD10	LL5, CDL Drgs RD/DR/PS1003/SK 9	For single pipes	Lloyd's	CSD/SVS/FIRE/DGG/2556	05.10.93

## 1.7 DURASHAFT® - Commercial

### INDEPENDENT TESTING

Test. No.	Type	Testing Laboratory	Number	Standard	Date
K1	1 hr. insulated DURASHAFT	CDL BRE (witnessed test)	FRO512/4 FT90/444/BS	BS 476 Part 20	03.01.91
K2	2 hr. insulated DURASHAFT	CDL BRE (witnessed test)	FRO512/4 FT90/445/BS	BS 476 Part 20	03.01.91
K3	2 hr. insulated DURASHAFT sealing system	CDL BRE (witnessed test)	FRO512/4 FT90/446/BS	BS 476 Part 20	04.01.91
K4	1 hr. insulated DURASHAFT - improved construction/plasterboard facing fire	CDL BRE (witnessed test)	FRO512/2 FT92/218/BS	BS 476 Parts 20 & 22	18.12.92
K5	1 hr. insulated DURASHAFT - improved construction/ DuraSteel facing fire	CDL BRE (witnessed test)	FRO512/2 FT92/218/BS	BS 476 Parts 20 & 22	18.12.92
K6	2 hr. insulated DURASHAFT - improved construction/ plasterboard facing fire	CDL BRE (witnessed test)	FRO512/2	BS 476 Parts 20 & 22	18.12.92
K7	2 hr. insulated DURASHAFT - improved construction/ DuraSteel facing fire	CDL BRE (witnessed test)	FRO512/2 FT92/316/BS	BS 476 Parts 20 & 22	24.02.93

**1.8 CABLE MODULES & FIRE BARRIERS - Power Generation****INDEPENDENT TESTING**

Test No.	Type	Testing Laboratory	Number	Standard	Date
C1	Module 1 hr. Fire Resistance	WRCSI	29177	BS 476 Part 8 1972	10.05.82
C2	1 hr. Fire Resistance	FIRTO	TE 4665	BS 476 Part 8 1972	19.07.83
C3	1 hr. Fire Resistance	FIRTO	TE 4666	BS 476 Part 8 1972	12.07.83
C4	1 hr. Fire Resistance	FIRTO	TE 4679	BS 476 Part 8 1972	26.07.83
C5	Durafoil Crossover Fire Wall	WRCSI	33156	BS 476 Part 8 1972	23.08.83
C6	Barrier Mechanical Test	TRADA	MT219		20.07.82
C7	Barrier Mechanical Test	TRADA	MT327		12.08.83
C8	Barrier 3 hr. Fire Resistance, USA	UL	Underwriters Lab R11164-1	UL263, ASTM E119, NFPA 251	26.10.84
C9	Composite barrier, including door and penetration seals for 3 hr.	LPC	TE 83509	BS 476 Part 20 E/TSS/EX5/7080: Issue 7	Sept. 93

**SUPPORTING CERTIFICATION**

Cert. No.	Other References	Certificate Details	Authority	Number	Date
CC1	C1	Module Modification Assessment 1 hr.	WRCSI	30241	30.03.82
CC2	C3	Assessment for Fire from Either Side 2 hr. stability/integrity 1 hr. insulation	BRE	FRS/A 134 F83/528	24.01.84
CC3	C8	3 hr. Assessment Non-Load Bearing Wall	WRCSI	36026	11.01.85
CC4	C8	4 hr. Assessment Non-Load Bearing Wall	WRCSI	36026	11.01.85
CC5	C3, C4 and Various CDL in-house tests.	Type Approval to CEGB Standard: E/TSS/EX5/7080: Issue 6	CEGB	EPA210/2	Jun. 86

**1.9 ENCLOSURES - Valve Actuator Boxes, Computer Enclosures, Hazardous Material Stores, Container Wagons****INDEPENDENT TESTING**

Test No.	Type	Testing Laboratory	Number	Standard	Date
E1	Actuator Box	YARSLEY	D 74054	Hydrocarbon engulfment	19.08.83
E2	Actuator Box	YARSLEY	E 77347/3	Hydrocarbon engulfment	23.08.85
E3	Radio frequency shielding	EMC	CAPE 3/192	MIL-STD- 285	20.01.92
E4	Hazardous material storage enclosure for LUL. 1 hr. integrity/insulation	WFRC	56013	BS 476 Part 20 ad hoc fire from inside	07.09.92
D32	1 hr. insulated pen. seal for LUL enclosure	WFRC	57384	BS 476 Part 20 ad hoc	29.10.92
E5	Actuator Box	LPC	TE82869	Pool fire engulfment	21.10.92
E6	Actuator Box 30 min.	LPC	TE83090	Pool fire engulfment	15.12.92

**SUPPORTING CERTIFICATION**

<b>Cert. No.</b>	<b>Other References</b>	<b>Certificate Details</b>	<b>Authority</b>	<b>Number</b>	<b>Date</b>
EE1	E2	Replacement of stainless steel with galvanized steel DuraSteel	BRE	FRO512/4 FT90/593/BS	18.03.91
EE2	A15, A16	F30 lining for container wagons	IBMB	314/Nau/ips	21.07.92
EE3	E4, D32	1 hr. insulated relay box	WFRC	C80436	26.01.93
EE4	E4	1 hr. insulated enclosure, alternative construction	WFRC	C80560	26.01.93
EE5	E4, EE4	1 hr. insulated 'linking collar' for adjacent enclosures	WFRC	X80759	17.08.93

**1.10 COMPOSITE SYSTEMS - General, Industrial, Commercial, Institutional****SUPPORTING CERTIFICATION**

<b>Cert. No.</b>	<b>Other References</b>	<b>Certificate Details</b>	<b>Authority</b>	<b>Number</b>	<b>Date</b>
KK1	C8	Hatch covers, 4 hr. insulated removable trench covers, using angle frame support.	WFRC	40783	20.02.87
KK2	C8	Hatch covers, 4 hr. insulated removable trench covers, using rebated concrete floor support	WFRC	41056	18.03.87
KK3	A1, A2, A10, D25	2 hr. and 4 hr. integrity barrier construction in incorporating pen seals, a twin door & a fire damper, all capable of withstanding 4g shockwave and be gas-tight	WFRC	41057	19.03.87
KK4	C8, A10, D25	4 hr. insulated barrier construction incorporating: pen seals, a twin door & a fire damper, all capable of withstanding 4g shockwave and be gas-tight	WFRC	C42278	08.09.87
KK5	C8	Hatch covers- 4 hr. insulated removable trench covers, panel size 3000mm x 1050mm x 198mm	WFRC	40716	20.01.87
KK6	C8, G7	Hatch covers - 2 hr. insulated removable trench cover, using brick supports	WFRC	40648	09.01.87
KK7	FF21, CDL51	Vertical bulkhead and ceiling for fire escape passage providing 2 hr. insulation	BRE	FRO430/107 F88/172	26.07.88
KK8	CDL Drg T291B	2 hr. demountable firewall with Duracheck door to AS1530: Part 4	BRE	FRO512/4 FT91/150/BS	29.07.91
KK9		Column encasement with DuraSteel and Conlit 150P	IBMB	08/Nau/Rm	11.03.91

## 2 DuraWall

### 2.1 MATERIAL TESTS - All Building Sectors

#### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
M1	DuraWall acoustic testing	CSTB	AC97-216	NF S 31-049, S 31-050, S 31-051, S 31-045, EN ISO 717-1	Dec. 97
M2	DuraWall growth promotion analysis	CCFRA	FH/REP/67949/1	Japanese Seal Method	Aug. 02
M3	DuraWall water absorption properties	CCFRA	FH/REP/67949/2	CP-BM-2/67-2	Sept. 02
M4	DuraWall bacteria growth test	CCFRA	FH/67949/3	Ad hoc	Oct. 02
M5	DuraWall wall and ceiling installation to an unlimited height	FM APPROVALS	3016766	FM 4880	Oct. 05
M6	DuraWall non-combustibility	ULC	06CA62101	CAN4-S114-05	Dec. 06

### 2.2 PARTITIONS - General, Industrial, Commercial, Institutional

#### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
NP1	4 hr. integrity, 2 hr. insulation	Warrington Fire Research	127950	BS 476 Part 22	Mar. 03
NP2	3 hr. system	Warrington Fire Research	127952	BS 476 Part 22	May 03
NP3	4 hr. having increased heights and spans assessment report	Warrington Fire Research	148955	BS 476 Part 22	Aug. 05
NP4	4 hr. system	Warrington Fire Research	147018	BS 476 Part 22	Aug. 05
NP5	3 hr. system	Warrington Fire Research	158380	BS 476 Part 22	Nov. 06
NP6	Exterior DuraWall	BRE	CC 220366	BS 476 Part 22	Mar. 06
NP7	Interior DuraWall fire performance assessment report	BRE	CC 214575	BS 476 Part 22	Mar. 06
NP8	1 hr. thru 3 hr. having increased heights and spans assessment report	Warrington Fire Research	159925	BS 476 Part 22	Dec. 06
NP9	North American panel 45min wall system non-bearing	UL/ULC	07CA40986	UL263, ASTM E119, NFPA 251, CAN/ULC - S101-04	Oct. 07
NP10	North American panel 2 hr. wall system non-bearing wall and partition assembly	UL/ULC	06CA58550	UL263, ASTM E119, NFPA 251, CAN/ULC - S101-04	Mar. 07
NP11	Durawall Blast Test	Health & Safety Laboratory	XS/08/11	adhoc	Jan. 08

**2.3 CEILINGS - General, Industrial, Commercial, Institutional****INDEPENDENT TESTING**

<b>Test No.</b>	<b>Type</b>	<b>Testing Laboratory</b>	<b>Number</b>	<b>Standard</b>	<b>Date</b>
NC1	DuraWall 1 hr. ceiling integrity and insulation	Warrington Fire Research	127651	BS 476 Part 22	Mar. 03
NC2	DuraWall 2 hr. ceiling	Warrington Fire Research	150114	BS 476 Part 22	Feb. 06



## 3 Calcium Silicate Products

### 3.1 MATERIAL TESTS - All Building Sectors

#### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
O1	Promatect H flammability test	UNITED STATES TESTING	95726-1	ASTM E136-79	Mar. 87
O2	Promatect H smoke and fame spread testing	UNITED STATES TESTING	96847-4	ASTM E84-84a	Aug. 87
O3	Promat H surface burning characteristics test	UNITED STATES TESTING	97636	ASTM E84-86	Nov. 87
O4	Promat L smoke and flame spread testing	OMEGA POINT LABORATORIES	8806-88031	ASTM E84-84a	Nov. 88
O5	Promat L combustion test	OMEGA POINT LABORATORIES	8806-88011	ASTM E136-82	Sept. 88
O6	Promat L toxicity of combustion test	OMEGA POINT LABORATORIES	8806-88006	University of Pittsburg Toxicity Test	Jan. 89
O7	Promat H toxicity of combustion test	OMEGA POINT LABORATORIES	8806-88007	University of Pittsburg Toxicity Test	Jan. 89
O8	Radiation exposure endurance testing of Promat H and L	OMEGA POINT LABORATORIES	8806-89007	Ad hoc	May 89
O9	Testing for nonmetallic thermal insulation austenitic stainless steel	OMEGA POINT LABORATORIES	8806-80002/3	U.S. Atomic Energy Commission	Jan. 89
O10	Wicking effects of Promat H and L	OMEGA POINT LABORATORIES	8806-88040	Ad hoc	Jan. 89
O11	Airborne particle when sawing Promat H material analysis	OMEGA POINT LABORATORIES	8806-90244	OSHA	Jun. 90
O12	LFS Steady State Thermal Transmission	Intertek	100922403MID-029	ASTM C518	Jul. 13
O13	LFS Surface Burning Characteristics	Intertek	100922403SAT-028A	ASTM E84	Jul. 13

### 3.2 PARTITIONS - General, Industrial, Commercial, Power Generation

#### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
OP1	Hydrocarbon fire test for Promat H protecting concrete	VTEC LABORATORIES	100-75B	Ad hoc	Apr. 87
OP2	Hydrocarbon fire test for Promat H protecting concrete	VTEC LABORATORIES	100-130	Ad hoc	Jun. 88
OP3	4 hr. hydrocarbon fire test for Promat H protecting concrete	OMEGA POINT LABORATORIES	8806-80054	Ad hoc	Jan. 89
OP4	2 hr. Promat H metal stub loading wall test	UL	89NK22185	ANSI/UL 263, ASTM E119	Dec. 89
OP5	Load testing of a 2 hr. wood stud wall	ATI	ATI-7008-1	ASTM E72-80, ASTM E564-76	Jan. 90
OP6	Load testing of a 2 hr. solid wall	ATI	ATI-7008-3	ASTM E72-80, ASTM E564-76	Jan. 90
OP7	4 hr. 15mm of Promat H board fastened a non-fire rated block assembly	OMEGA POINT LABORATORIES	8806-90030	ASTM E72-80, ASTM E564-76	Feb. 90
OP8	3 hr. Promat H cladding solid wall/ceiling assemblies	OMEGA POINT LABORATORIES	8806-90254	ASTM E119	Jun. 90

Test No.	Type	Testing Laboratory	Number	Standard	Date
OP9	2 hr. curtain wall/floor intersection protection system	OMEGA POINT LABORATORIES	8806-90560	ASTM E119	Oct. 90
OP10	1 Hour Solid Promat H Wall	UL	88NK11307	ANSI/UL 263, ASTM E119	Feb. 89
OP11	2 Hour Solid Promat H Wall	UL	88NK28691	ANSI/UL 263, ASTM E119	Feb. 89
OP12	5 Hour Solid Promat H Wall	OMEGA POINT LABORATORIES	8806-90970	ASTM E119	Dec. 90
OP13	Promat H & L hydrocarbon protection of structural steel	SINTEF	250060/85.214	Hydrocarbon	Jul. 86

### 3.3 CEILINGS - General, Industrial, Commercial

#### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
OC1	1 hr. Promat H Ceiling	SwRI	01-1902-619	ASTM E119-83	Apr. 89

### 3.4 CONDUIT/CABLE TRAY - Power Generation, General, Industrial, Commercial

#### INDEPENDENT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
OCT2	1 hr. Promat H cable tray protection	OMEGA POINT LABORATORIES	8806-1HRSS-01	ANI/MAERP RA	Apr. 88
OCT3	1 hr. Promat H cable tray protection	SwRI	01-2299-001	ANI/MAERP RA	Dec. 88
OCT4	Sprinklers resistance for 1 hr. Promat H cable tray protection	OMEGA POINT LABORATORIES	8806-88049a	Ad hoc	Feb. 89
OCT5	Sprinkler resistance for 3 hr. Promat H & L cable tray protection	OMEGA POINT LABORATORIES	8806-88049b	Ad hoc	May 89
OCT6	3 hr. Promat L cable tray protection	OMEGA POINT LABORATORIES	8806-89006	ANI/MAERP RA	May 89
OCT7	3 hr. Promat H & L conduit protection against concrete	OMEGA POINT LABORATORIES	8806-89004	ANI/MAERP RA	May 89
OCT8	3 hr. Promat H & L cable drop protection integrity	OMEGA POINT LABORATORIES	8806-88053	ANI/MAERP RA	May 89
OCT9	3 hr. Promat H & L cable tray protective system	OMEGA POINT LABORATORIES	8806-89017a	ANI/MAERP RA	May 89
OCT10	3 hr. Promat L Free Standing Conduit	OMEGA POINT LABORATORIES	8806-89017b	ANI/MAERP RA	Apr. 91
OCT11	Ampacity Derating 1 Hour Enclosure	OMEGA POINT LABORATORIES	8806-ADR-01	adhoc	Sept. 88
OCT12	Ampacity Derating 3 Hour Enclosure	OMEGA POINT LABORATORIES	8806-ADR-02	adhoc	Sept. 88
OCT13	3 Hour Class 1E cable tray enclosure	NGC	FC-763	GL 86-10 sup. 1	Apr. 11
OCT14	Ampacity Derating for 3 hour Class 1E cable tray enclosure	Intertek	100372300SAT-005	IEEE 848 - 96	Aug. 11

### 3.5 MARINE SYSTEMS

#### SUPPORTING CERTIFICATION

<b>Cert. No.</b>	<b>Other References</b>	<b>Certification Details</b>	<b>Authority</b>	<b>Number</b>	<b>Date</b>
OMT1		European Union Promarine- 640/B-15 Certificate	Warrington	WCL MED0159QA	25.08.04
OMT2		UK and Northern Ireland Promarine-640 Certificate	Warrington	WCL MED0160TE	25.08.04
OMT3		European Union Promarine-450/B-15 Certificate	Warrington	WCL MED0161QA	25.08.04
OMT4		UK And Northern Ireland Promarine 450 Certificate	Warrington	WCL MED0162TE	25.08.04

## 4 Firestopping and Miscellaneous Products

### 4.1 PENETRATION SEALS - Power Generation, Industrial, Commercial, Offshore

#### INDEPENDANT TESTING

Test No.	Type	Testing Laboratory	Number	Standard	Date
	<b>Duras.t.o.p.® Mortar</b>				
D1	2 hr. Fire Resistance	WRCSI	33646	BS 476 Part 8 1972 App. A	15.11.83
D2	Non Combustibility	WRCSI	34928	BS 476 Part 4 1970	07.11.90
D3	Vibration Testing	PLESSEY	4334	E/TSS/EX5/7080: Issue 5	17.02.84
A7	3 hr. integrity/ 2 hr. Insulation pen seals in barriers	CTICM	87-U-003P	French Home Secretary	07.01.87
D23	4 hr. seal in concrete floor and 6 hr. seal in brick or block work wall	WFRC/CDL	43485	BS 476 Part 20 1987	04.02.88
D24	4 hr. integrity in horizontal DuraSteel single skin barrier with penetration seal	WFRC/CDL	40652	BS 476 Part 8 1972	12.01.87
D25	4 hr. integrity in horizontal DuraSteel double skin barrier with penetration seal	WFRC/CDL	MC(828)	BS 476 Part 8 1972	19.11.86
D30	Water Penetration Class III	CNPP/EDF	P.F.87 403703	ESEPE 8743-B	03.012.87
D31	2 hr. fire resistance	CNPP/EDF	P.F. 87 402103	ESEPE 85 26-A	14.12.87
F29	Thermal conductivity at ambient	AEA		Ad hoc	Feb. 92
D32	1 hr. insulated system for enclosures	WFRC	57384	BS 476 Part 20 ad hoc	29.10.92
D39	Aging Durastop	BTC	BTC 5282F	BS 476 Part 22 1987	31.01.84
D40	Vibrated Durastop and fire test	BTC	BTC 5283F	BS 476 Part 22 1987	31.01.84
D41	Vibration 3 hr.	MIRA	94-272064	CEGB 7080 Section 7.3.8	12.01.94
D44	Durastop with cables through wall	CTICM	96-P-508	BS 476 Part 22 1987	Jan. 97
D45	Durastop with cables through ceiling	CTICM	96-P-509	BS 476 Part 22 1987	Jan. 97
NA1	3 hr. FTH with duct through concrete slab	ULC	24495	ULC S115	14.05.98
NA2	4 hr. FTH with ducts through concrete slab	ULC	24533	ULC S115	13.03.98
NA3	2 hr. FH, 1 & 2 hr. FTH cables and pipes through concrete slab	ULC	24576	ULC S115	14.08.98
NA4	DuraSTOP Non-Combustibility	ULC	10CA61504	ULC S114	Jan. 11
NA9	DuraSTOP Fragmentation Device Testing	MREL	TR-141007-01	STANAG 4569, Level 1	Oct. 14
NA10	DuraSTOP Ballistic Testing	UL	4786568959	UL 752	Nov. 14
NA12	3 Hour Large Scale DuraSTOP in V460 - Assorted Penetrants	UL	4786358931	UL 1479 / CAN S115	Dec. 15
NA13	DuraSTOP in Concrete - Teichen Cable Tray Pull Out Test	DuraSystems	TPT-KFS-001	ASTM E3037	Jan. 17
	<b>Durastop Building Gap Seals</b>				
D34	3 hr. fire resistance of cruciform joint configuration fully deflected	LPC	TE82552	BS 476 Part 20 + Hose Stream Test	Aug. 92
D35	Air leakage test fully deflected	AEA	E 01689	Ad hoc test	24.06.92
D36	Hydrostatic water leakage at 8.1psi	AEA	T120/92	Ad hoc test	02.07.92
D37	Air leakage test at 105°C, 3.8psi	AEA	T121/92	Ad hoc test	02.07.92
D38	Hydrostatic water leakage at 8.1psi fully deflected	AEA	T122/92	Ad hoc test	02.07.92
D42	Flexible gap seal - Duraflex C19N31	BTC	BTC 5470F	BS 476 Part 22	Jul. 96
D43	Flexible gap seal - Duraflex C91	BTC	BTC 5471F	BS 476 Part 22	Jul. 96
D33	Flexible composite fabric gap seal	LPC	TE 82551	BS 476 Part 22 + Hose Stream Test	Aug. 92

Test No.	Type	Testing Laboratory	Number	Standard	Date
	<b>FGC Intumescent</b>				
NA5	DuraSTOP Through Penetration Firestops in DuraSteel Walls	UL	10CA33737	UL 1479, ULC S115	Apr. 12
NA6	3 Hour FGC Through Penetration in 4 Hour DuraSteel Wall	UL	12CA30651	UL 1479, ULC S115	May 13
NA7	3 Hour BFB Boot Through Penetration in 4 Hour DuraSteel Wall	UL	12CA30651	UL 1479, ULC S115	Dec. 13
NA8	3 Hour FGC Dynamic Head of Wall Joint	UL	13CA19747	UL 2079, ULC S115	Oct. 13
	<b>SFS Insulation</b>				
NA11	SFS Stud Cavity Insulation Thermal Conductivity	NGC	TT-1502	ASTM C518	Jun. 15

### SUPPORTING CERTIFICATION

Cert. No.	Other References	Certificate Details	Authority	Number	Date
DD1	D1	Assessment of Fire Resistance, 2 hr.	WRCSI	35148	03.07.84
DD2	D1 & various CDL in house Tests	1 hr. Type Approval of CEGB standard: E/TSS/EX5/7080: Issue 6	CEGB	EPA211	Jul. 85
DD3	D1	Durastop acceptance	Singapore	SFS/ED/bm/72	22.03.86
DD4	D2	Durastop - non combustibility acceptance	Lloyd's	ICD/2604/JHCR/FIREB /27/1/1	16.07.86
DD5	D14	4 hr. fire resistance to PVC pipe within steel pipe	BRE	FRO512/4 FT90/246/BS	04.09.90
DD6	CDL Drg CDL/R/391/44	Composite seal configuration using Durastop, Mineral wool, and Interflex for 4 hr. fire insulation	BRE	FRO512/4 FT90/587/BS	22.03.91
DD7	CDL Drg T419	DuraSteel sliding plate extension gap seal	BRE	FRO512/4 FT91/122/BS	09.07.91
DD8		Durastop acceptance	BOO	BDD(B)GR/BM/2 XI	25.06.84
DD9	LL5, CDL Drgs RD/DR/PS 1003/SK11 & SK12	Offshore penetration seal: H120/J60 for cables & pipes	Lloyd's	CSD/SVS/FIRE/OGG/2 556	24.09.93
DD10	LL5, CDL Drgs RD/DR/PS 1003/SK9	Offshore penetration seal: H120/J60 for single pipes	Lloyd's	CSD/SVS/FIRE/DGG/2 556	05.10.93
DD11	D2	Durastop - test assessment	LUL	6220-JIU-F9575-TSK 9907	26.04.93
DD12		Durastop batts fire seal	LPC	CC86860C	Oct. 95
DD13		Durastop pillow	LPC	CC86860B	Oct. 95
DD14		Durastop expansion seal	LPC	CC86860A	Oct. 95
DD15		Durastop FR intumescent acrylic sealant	WFRC	54260/B	Sept. 95
DD16		Durastop FR intumescent acrylic sealant	WFRC	54845/B	Sept. 95
DD17		Durastop FR intumescent acrylic sealant	WFRC	59021	Sept. 95
DD18		Durastop FR intumescent acrylic sealant	WFRC	59022	Sept. 95
DD19		Durastop FR intumescent acrylic sealant	WFRC	57133	Sept. 95
DD20		Durastop FR 55 silicone seal	WFRC	C81890	Oct. 95
DD21		Duraflex C19N31 - fire from both sides	BTC	0268FA	Aug. 96
DD22		Duraflex C19 - fire from both sides	BTC	0269FA	Aug. 96
DD23		FGC - German national building material approval	DIBt	Z-19.11-1599	May 12
DD24		FGC - Austrian national building material approval	OIB	ETA-11/0206	Aug. 11
NAC1	NA1	3 hr. FTH Durastop, mineral wool, silicone for FRD-1	ULC	SP847	17.09.98
NAC2	NA1	3 hr. FTH Durastop, mineral wool, silicone for FRD- 2	ULC	SP848	17.09.98

<b>Cert. No.</b>	<b>Other References</b>	<b>Certificate Details</b>	<b>Authority</b>	<b>Number</b>	<b>Date</b>
NAC3	NA2	4 hr. FT intumescent pillows, mineral wool, silicone for FRD-1 (pressurization duct)	ULC	SP849	17.09.98
NAC4	NA2	4 hr. FT intumescent pillows, mineral wool, silicone for FRD-2 (kitchen exhaust duct)	ULC	SP850	17.09.98
NAC5	NA3	2 hr. FH, 1 & 2 hr. FTH Durastop, silicone sealant, intumescent sealant for pipes and cables	ULC	SP851	23.09.99
NAC7		Durastop acceptance	IMP	40084002	26.04.94
NAC8	NA1	2HR FT Rating for DuraDuct SD & GNX	UL	11NK15948	Dec. 11
NAC9		2HR F Rating for DuraDucts HP, SD & GNX through drywall partition	UL	12CA41761	Aug. 12
NAC10	NA5	Penetrant Movement in 4HR DuraS.T.O.P	NGC		Oct. 12
NAC11	NA6	Penetrant Movement in 3HR Through Penetration Firestops	UL	12CA30651	May 13
NAC12	NA12	3 Hour Large Scale DuraSTOP in Concrete - Assorted Penetrants	UL	4787336504	Apr 16
NAC13	NA12	3 Hour Cable Tray Through Concrete	UL	4787336504	Apr 16
NAC14	NA12	3 Hour Large Pipe Through Concrete	UL	4787336504	Apr 16
NAC15	NA12	3 Hour Metallic Bushings Through Concrete	UL	4787336504	Apr 16

## 4.2 GREASE DUCT ACCESS DOORS

### INDEPENDENT TESTING

<b>Test No.</b>	<b>Type</b>	<b>Testing Laboratory</b>	<b>Number</b>	<b>Standard</b>	<b>Date</b>
AD1	Grease Duct Access Door	UL/ULC	MH26975	UL 1978	Apr. 02
AD2	Grease Duct Access Door Leakage Test	Flowset		SMACNA	Feb. 13
AD3	KEX Grease Duct Access Door	Intertek	100922403SAT-009B	UL 1978	Nov. 13

## 5 Glossary

### LABORATORIES

AEA	Atomic Energy Authority Industrial Technology
AIRO	Acoustical Investigation and Research Organization
ATI	Architectural Testing Inc. - Pennsylvania, USA
AUES	Aberdeen University Engineering Services
BFTC	Blackburn Fire Test Centre
BRE	Building Research Establishment Fire Research Station, part of Department of the Environmental Borehamwood UK
BSRIA	Building Services Research and Information Association
BTAC	Bluewater Technology Access Center, Lambton College, Canada
BTC	Building Test Centre
BVA	BVA systems, Vibro-Acoustics - Ontario, Canada
CCFRA	CCFRA Technology Limited - UK
CDL	Cape DuraSteel Ltd.
CEE	Cape Environmental Engineering - Warwick, UK
CNPP	Centre National de Prevention, et de Protection - Champs-sur-Marne, France
COMMERCIAL TESTING	Commercial Testing Company - Georgia, U.S.A.
CSTB	French approved independent testing house in Paris, France
CTICM	French approved commercial testing house in Maziers-Le-Metz, France
DASS	Dass Enterprises Inc. - Mississauga, Ontario, Canada
DIBt	German Institute for Building Technology
EDF	Electricite de France
EMC	Electromagnetic Compatibility Consultants - Bishops's Stortford, UK
EN	Efectis Nederland BV
Exova	Exova – Mississauga, ON
Exova Warrington	Exova Warrington Fire - Warrington, UK
FIRTO	Fire Insurers Research and Testing Organization - Part of LPC
Flowset	Flowset Balancing
FM	Factory Mutual Research - Massachusetts, USA
FM APPROVALS	Member of the FM Global Group
FRI	Forest Research Institute, Malaysia
FROSI	Fire Research Organization Special Investigation - Ministry of Technology and Fire Offices' Committee Joint Fire Research Organization
FULMER YARSLEY	Fulmer Yarsley Limited - UK
Health & Safety Laboratory	Health & Safety Laboratory - Buxton, UK
IBMB	Institut für Baustoffe, Massivbau und Brandschutz - Braunschweig, Germany
IfBT	Institut für Bautechnik - Berlin, Germany
IHA	Institut für Hygiene und Arbeitsmedizin - Aachen, Germany
IMP	Instituto Mexicano del Petroleo
Intertek	Intertek - Elmendorf, Texas, USA
LDF	Labor Dr. Fechter – Berlin, Germany
LKD	LKD Technologies Inc. - Canada
LPC	The Loss Prevention Council - Borehamwood, UK
MIRA	Motor Industry Research Association - Nuneaton, UK
MREL	MREL Explosives Technical Services – Kingston, ON
NbL	Norge Brann tekniske Laboratorum - Trondheim, Norway
NDT	Non-Destructive Testers (Midlands) Limited
NGC	NGC Testing Services - Buffalo, New York, USA
NNC	National Nuclear Corporation

OMEGA POINT LABORATORIES	Omega Point Laboratories - Texas, USA
PLESSEY	Plessey Assessment Services Limited - Hampshire, UK
SCI	Steel Construction Institute - Ascot, UK
SINTEF	Norges Branntekniske Laboratorium (Norwegian Fire Research Laboratory) - Trondheim, Norway
SISIR	Singapore Institute of Standards and Industrial Research
STATSPROVEANSTALTEN	National Institute for Testing of Material - Copenhagen, Denmark
SwRI	South West Research Institute - San Antonio, Texas
TIANJIN FSRI	Tianjin Fire Services Research Institute - China
TRADA	Timber Research and Development Association
U of Ottawa	University of Ottawa
UL	Underwriters Laboratories - Chicago, USA
ULC	Underwriters Laboratories of Canada - Ontario, Canada
ULIRC	University of Liverpool Impact Research centre
UNITED STATES TESTING	United States Testing Company Inc. - New Jersey, USA
Vibro-Acoustics	Vibro-Acoustics Noise Control Producers and Systems
VTEC LABORATORIES	VTEC Laboratories Inc. - New York, USA
Warnock Hersey	Warnock Hersey Laboratories - Vancouver, Canada
Warrington Fire Research	Warrington Fire Research Centre Limited - Warrington, UK
WFRC	Warrington Fire Research Centre - Warrington, UK
WRCSI	Warrington Research Centre Special Investigation (NATLAS) - Warrington, UK
YARSLEY	Yarsley Technical Centre incorporating Yarsley Research Laboratories (NATLAS)

## AUTHORITIES

ABS	American Bureau of Shipping - London, UK
AIRO	Acoustical Investigation and Research Organization
ANI/MAERP RA	American Nuclear Insurers - Mutual Atomic Energy Re-insurance Pool
ANSI	American National Standards Institute
AS	Australian Standards Institute
ASTM	American Society for Testing Materials
BOO	Building Ordinance Office - Building and Lands Department, Hong Kong
BRE	Building Research Establishment Fire Research Station - part of Department of the Environmental Borehamwood, UK
BSI (BS)	British Standards Institution (BS)
BSRIA	Building Services Research and Information Association
BTC	Building Test Centre
BV	Bureau Veritas - Paris, France
CBP	Cape Boards and Panels Limited - Uxbridge, UK
CCG	Canadian Coastguard
CEGB	Central Electricity Generating Board - Generation Development & Construction Division – Barnwood, UK
CoL	City of London
COM	Melbourne City Council
CSTB	French approved independent testing house in Paris, France
CTICM	French approved commercial testing house in Maziers-Le-Metz, France
DnV	Det Norske Veritas - Oslo, Norway
DOT	Department of Trade (Marine Surveyors) - London, UK
DSS	Direktorater for Statens Skibstilsyn - Copenhagen, Denmark
EDF	Electricite de France
FOC	Fire Offices' Committee - London, UK
GLC	Greater London Council - London, UK
HK	Hong Kong



HKFS	Hong Kong Fire Services Department
IBMB	Institut für Baustoffe, Massivbau und Brandschutz - Braunschweig, Germany
IMP	Instituto Mexicano del Petroleo
IRELAND ENGINEERING	Ireland Engineering Associates Ltd - Ontario, Canada
ISO(DIS)	International Standards Organization (Draft International Standard)
JMCA	James Madden Cooper Atkins - Acoustic Consultants, Australia
Lloyd's	Lloyd's Register of Shipping - London, UK
LPC	The Loss Prevention Council - Borehamwood, UK
LUL	London Underground Limited - Scientific Services Division, London, UK
Malaysia	Ibu Pejabat, Jabatan Perkhidmatan, Bomba, Malaysia
MC	City of Melbourne
MVVWS	Ministrie van Verkeer en Waterstaat, Scheepvaartinspectie - Rijnsijk, Netherlands
NCB	National Coal Board Mining Department - Doncaster, UK
NFPA	National Fire Protection Association
NMD	Norwegian Maritime Directorate - Oslo, Norway
NNC	National Nuclear Corporation
NSASN	National Swedish Administration of Shipping and Navigation
NYC BUILDINGS	NYC Department of Buildings - New York, USA
OIB	Austrian Institute for Building Technology
Singapore	Government of Singapore
SINTEF	Norges Branntekniske Laboratorium (Norwegian Fire Research Laboratory) - Trondheim, Norway
SOLAS	International Conference on the Safety of Life at Sea
UL	Underwriters Laboratories - Chicago U.S.A.
ULC	Underwriters Laboratories of Canada - Ontario, Canada
Warrington	Warrington Certification Limited - Warrington, UK
WFRC	Warrington Fire Research Centre - Warrington, UK
WRCSI	Warrington Research Centre - Warrington, UK

## STANDARDS

ANI/MAERP RA	Standard fire endurance test method to qualify a protective envelope for class 1E electrical circuits
ANSI/ASHRAE/SMACNA 126	Method of testing HVAC air ducts and fittings
ANSI/UL 263	Fire tests of building construction and materials
ANSI/UL 723	Standard for test for surface burning characteristics of building materials
ASME N510	Testing of Nuclear Air Treatment Systems
AS 1530 Part 4	Methods for fire tests on building materials, components and structures
Asbestanalytik	Asbestanalytik, Berlin, Germany
ASTM C423	Standard test method for sound absorption and sound absorption coefficients by the reverberation room method
ASTM C518	Standard test method for steady-state thermal transmission properties by means of the heat flow meter apparatus
ASTM E72	Standard methods of conducting strength tests of panels for building construction
ASTM E84	Standard test method for surface burning characteristics of building materials
ASTM E90	Standard test method for laboratory measurement of airborne sound transmission loss of building partitions and elements
ASTM E119	Standard test methods for fire tests of building construction and materials
ASTM E136	Standard method of test for behaviour of materials in a vertical tube furnace at 750°C
ASTM E413	Classification for rating sound insulation
ASTM E564	Standard method of static load test for shear resistance of framed walls for buildings
ASTM E1332	Standard classification for rating outdoor-indoor sound attenuation
ASTM E2336	Standard test methods for fire resistive grease duct enclosure systems

ASTM E3037	Standard Test Method for Measuring Relative Movement Capabilities of Through-Penetration Firestop Systems
BS 1811 Part 2	Methods of test for woodchip boards and other particle boards
BS 2750	Methods of measurement of sound insulation in building and of building elements
BS 4624	Water tightness test
BS 476	Fire Tests on Building Materials and Structures
BS 476 Part 1	Method for carrying out fire resistance tests on structural elements
BS 476 Part 4	Non Combustibility Test for Materials
BS 476 Part 8	Test Method and Criteria for the Fire Resistance of Elements of Building Construction
BS 476 Part 8 CEGB Approx A	Test as BS 476 Part 8 with modified time/temperature curve
BS 476 Part 11	Method for assessing the heat emission from building materials
BS 476 Part 20	Method for determination of the fire resistance of elements of construction
BS 476 Part 21	Methods for determination of the fire resistance of load bearing elements of construction
BS 476 Part 22	Methods for determining the fire resistance of non load bearing elements of construction
BS 476 Part 23	Methods for determination of the contribution of components to the fire resistance of the structure
BS 476 Part 24	Method for determination of the fire resistance of ventilation ducts
BS 476 Sec 3	Fire Resistance Tests of Structures
BS 476 Section 31.1	Methods of measurement under ambient temperature conditions (smoke penetration through door sets and shutter assemblies)
BS 5669 Part 1	Particleboards – methods of testing, including impact test
BS 5821	Method for rating sound insulation in buildings and of building elements
BS 874	Methods for determining thermal insulation properties
CAN4-S101	Standard method of fire endurance tests of building construction and materials
CAN4-S114	Standard method of test for determination of non-combustibility in building materials
CAN/ULC-S101	Standard method of fire endurance tests of building construction and materials
CAN/ULC-S662	Standard for factory built grease ducts
CP-BM-2/67-2	Determination of water transmission under pressure
CSA S850	Design and assessment of buildings subjected to blast loads
D. En H-test Issue 1	Dept. of Energy , hydrocarbon fire resistance test for elements of construction for offshore installations
DIN 4102	Fire behaviour of building materials and components
DIN 4102 Teil 1	Fire behaviour of building materials and components – building materials (requirements, tests)
DIN 4102 Teil 2	Fire behaviour of building materials and components – components (requirements, tests)
DIN 4102 Teil 3	Fire behaviour of building materials and components – fire walls, non-bearing exterior walls
DIN 4109	Sound insulation in buildings
DIN 52104	Testing of natural stone: freeze-thaw cyclic test: method Z
DIN 52210	Tests in buildings acoustics – airborne and impact sound insulation
DIN EN 13501	Fire classification of construction products and building elements
DW142	HVAC test: specification for air leakage of duct work
E/TSS/EX5/7080	National Power standard for fire resistance of barriers in power stations
EN 1364-1	Fire resistance tests for non-load bearing elements – Part 1: walls
ESEPE 85 26-A	Fire resistance and gas tightness in penetration seals
ESEPE 8743-B	Water retention test for penetration seals
FM 4880	Class 1 fire rating of insulated wall or wall and roof/ceiling panels, interior finish materials or coatings and exterior wall systems
GL 86-10 sup. 1	U.S. Nuclear Regulatory Commission Generic Letter 86-10 Supplement 1: Fire endurance test acceptance criteria for fire barrier systems used to separate redundant safe shutdown trains within the same fire area
IEEE 848	Standard procedure for the determination of the ampacity derating of fire-protected cables
IMO MSC 307(88)	Maritime Safety Committee Adoption of 2010 FTP
IMO Resolution A.754 (18)	Fire resistance tests to marine equipment
ISO 834 1975	Fire resistance of building elements
ISO 9944	Determination of electrical conductivity of resin extracts
ISO/DIS 6944	Fire resistance tests of ventilation ducts

MIL-STD-285	Requirements for electromagnetic shielding enclosures, attenuation characteristics and measurements (US military standard)
NEN 6069	Testing and classification of resistance to fire of building products and building elements
NF EN ISO 717-1	Acoustics - rating of sound insulation in buildings and of building elements - airborne sound insulation
NF S 31-045	Acoustics - measurement of the acoustic insulation of building and building components. laboratory measurement of insulation against airborne noise of small sized building components
NF S 31-049	Acoustics - measurement of sound insulation in buildings and of building elements - specifications relating to fidelity
NF S 31-050	Acoustics - measurement of the acoustic insulation of building and building components - specifications relating to laboratories
NF S 31-051	Acoustics - measurement of the acoustic insulation of buildings and building components - laboratory measurement of insulation against airborne noise of building components
NFPA 251	Standard methods of tests of fire resistance of building construction and materials
NFPA 96	Vapour removal from cooking equipment: 1991
ÖNORM B 3303	Testing of concrete
OSHA	Occupational Safety and Health Administration
PSA MOB 08.801	Performance specification for platform floors (raised access floors)
SMACNA	SMACNA HVAC Air Duct Leakage Test Manual, 1995 edition
SOLAS	International Conference on the Safety of Life at Sea
SOLAS 60/74/83	Conventions
SOLAS 74 Mod. H. Carbon	Conventions modified by Norwegian Petroleum Directorate's Regulations
SS 332	Specification of Fire Doors - Singapore
STANAG 4569	Protection Levels for Occupants of Armoured Vehicles
UL 10C	Positive pressure fire tests of door assemblies
UL 1479	Standard for fire tests of through-penetration firestops
UL 1978	Standard for grease ducts
UL 2079	Standard for tests for fire resistance of building joint systems
UL 263	Standard for fire tests of building construction and materials
UL 752	Bullet-Resisting Equipment
ULC S114	Standard method of test for determination of non-combustibility in building materials
ULC S115	Standard method of fire tests of firestop systems

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