



인 증 서

회 사 명: (주)케이씨씨 전주3공장

대 표 자: 정 몽 익 외 1

소 재 지: 전라북도 완주군 봉동읍 과학로 801

인증기간: 2016. 1. 3. ~ 2017. 1. 2.

다음 제품은 방재시험연구원 인증업무규정과 인증기준에 따라 품질이 우수함을 인증합니다.

인증품목	인증번호	인증기준	내화등급(별지 참조)
SYSTEM I, II, III, IV	제2000-01호	FS 012	F급 (120~180)분, T급 (0~180)분
SYSTEM V, VI, VII, VIII, IX	제06-07호	FS 012	F급 120분, T급 (0~120)분

2016년 1월 3일



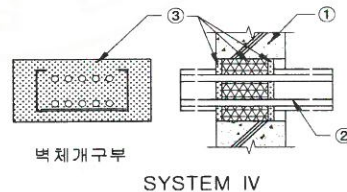
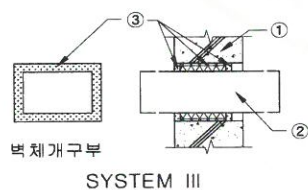
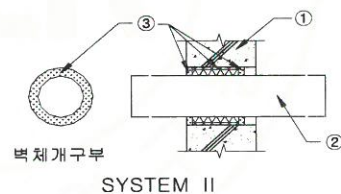
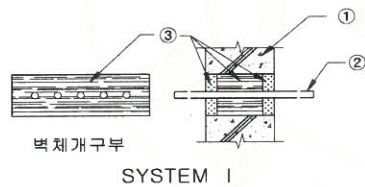
한국화재보험협회
방재시험연구원장





인증 내화충전구조 시방

SYSTEM	벽체 개구부 (mm)	내화등급	관통재/ 개구부 면적비	구 조 상 세		
				①	②	③
I	300×100	F:180분 T:180분	3.35 %	ALC t:150 mm	케이블 600V, CV 3P×8.0 mm ² ×5개	QS119R(25t) + 암면(100K,100t) + QS119R(25t)
II	Ø140	F:120분	51.0 %	ALC t:150 mm	파이프 : 길이1,350 mm St.-Ø100 × 3.5t	QS119R(12.5t) + 유리면 (24K,100t) + QS119R(12.5t)
III	190×140	F:120분	56.4 %	ALC t:150 mm	덕트 : 길이1,350 mm St.-150×100×1.0t,	QS119R(12.5t) + 유리면 (24K,100t) + QS119R(12.5t)
IV	300×150	F:120분 T:120분	4.47 %	ALC t:150 mm	케이블 600V, CV 3P×8.0 mm ² ×10개 ※ 케이블트레이 St.-200×100×1.6t	QS119R(12.5t) + 유리면 (24K,100t) + QS119R(12.5t)



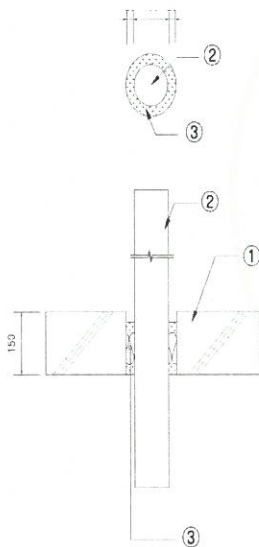
F급 : 가열시험시 시험체 비 가열면에 화염이 발생되지 않고, 주수시험에 적합한 구조

T급 : 가열시험시 시험체 비 가열면이 온도상승조건(관통재 포함하는 이면 각 부위의 온도가 초기온도보다 181 ℃를 초과하지 않음)에 적합하고 화염이 발생되지 않으며 주수시험에 적합한 구조

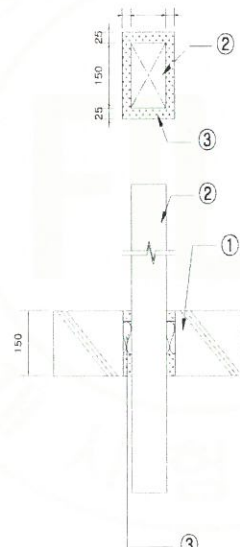


인증 내화충전구조 시방

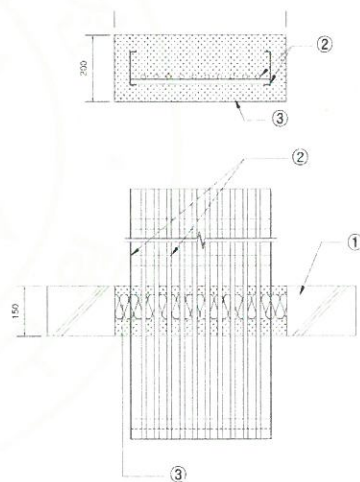
SYSTEM	벽체 개구부 (mm)	내화 등급	관통재/ 개구부 면적비	구 조 상 세 (mm)		
				①	②	③
V	Ø150	F:120분	58 %	ALC 150t	St. pipe (KSD 3507 SPP, Ø100)	· 상하 양면 QS119F 25t · 압면(100kg/m ²) 75t
VI	150×200	F:120분 T:90분	50 %	ALC 150t	St. duct (SS41, 100 × 150)	· QS119F 25t · 압면(100kg/m ²) 75t · QS119F 50t
VII	550×200	F:120분 T:30분	1.8 %	ALC 150t	Cable (600V TFR-CV3C8SQ × 10개) Cable tray (SS41, HDG, 450 × 100)	· QS119F 25t · 압면(100kg/m ²) 75t · QS119F 50t



SYSTEM V



SYSTEM VI



SYSTEM VII

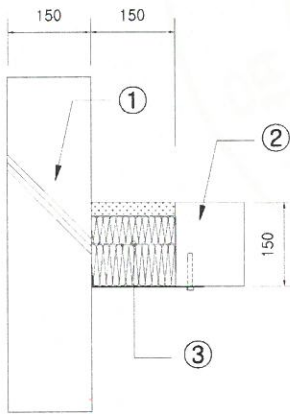
F급 : 가열시험시 시험체 비 가열면에 화염이 발생되지 않고, 주수시험에 적합한 구조

T급 : 가열시험시 시험체 비 가열면이 온도상승조건(관통재 포함하는 이면 각 부위의 온도가 초기온도보다 181 ℃를 초과하지 않음)에 적합하고 화염이 발생되지 않으며 주수시험에 적합한 구조

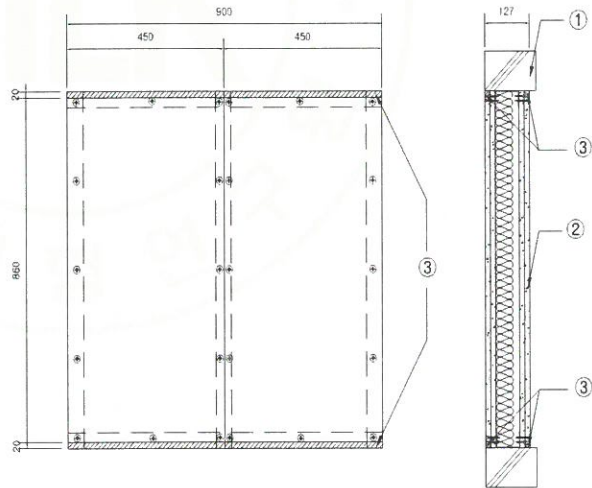


인증 내화충전구조 시방

SYSTEM	내화 등급	구 조 상 세 (mm)		
		①	②	③
VIII	F:120분 T:120분	벽체 ALC 150t	바닥체 개구부 · 1,500 × 150, 깊이 150	<ul style="list-style-type: none"> · QS119F 25 t · 압면(100kg/m²) - 폭 150, 깊이 50 t · 압면(100kg/m²) - 폭 150, 깊이 75 t · St. plate, 1 t (Anchor bolt Ø8×60, @450 고정)
IX	F:120분 T:120분	벽체 ALC 150t	<ul style="list-style-type: none"> · 크기 : 900 × 900 × 127 t · 구성 : 방화석고보드 15 t, 2겹 + 중공부 17 t + 압면(60 kg/m²), 50 t + 방화석고보드 15 t, 2겹 (내부 Stud, C - 65 × 45 × 10 × 0.8t, @450) 	<ul style="list-style-type: none"> · 방화용 아크릴 실란트 (SW9535A) ※ 상하 주위벽과 석고보드의 마감석고보드 사이에 폭 20 mm, 깊이 15 mm 시공



SYSTEM VIII



SYSTEM IX

F급 : 가열시험시 시험체 비 가열면에 화염이 발생되지 않고, 주수시험에 적합한 구조

T급 : 가열시험시 시험체 비 가열면이 온도상승조건(관통재 포함하는 이면 각 부위의 온도가 초기온도보다 181 ℃를 초과하지 않음)에 적합하고 화염이 발생되지 않으며 주수시험에 적합한 구조



CERTIFICATE

Company : KCC CORPORATION JUNJU 3 PLANT

President : Mong Ik, Chung

Address : 801, Gwahak-ro, Bongdong-eup, Wanju-Gun, Jeollabuk-do, Korea

Expiry Date : January 2, 2017

This is to certify that below structures are hereby accepted by FILK in compliance with FILK standard and applicable test criteria

Structures	Certificate No.	FILK Standard	Fire Rating (Refer to the attachments)
SYSTEM I, II, III, IV	2000-01	FS 012	F rating of (120~180) min T rating of (0~180) min
SYSTEM V, VI, VII, VIII, IX	06-07	FS 012	F rating of 120 min T rating of (0~120) min

January 3, 2017

Korean Fire Protection Association

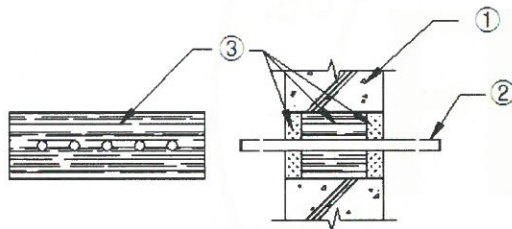
FIRE INSURERS LABORATORIES OF KOREA



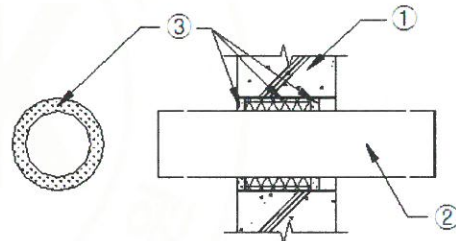
Executive Director

Specification of the certificated systems

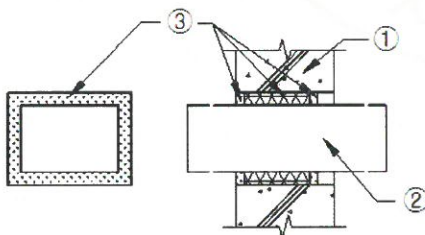
SYSTEM	Wall opening size (mm)	Fire rating	Fill ratio	Details of system		
				①	②	③
I	300×100	F : 180 minutes T : 180 minutes	3.35 %	ALC t:150 mm	Cable 600V, CV 3P×8.0 mm×5 ea	QS119R(25t)+Mineral wool(100K,100t) +QS119R(25t)
II	Ø140	F : 120 minutes	51.0 %	ALC t:150 mm	Pipe : Length 1,350 mm St.-Ø100 × 3.5t	QS119R(12.5t)+Glass wool(24K,100t) +QS119R(12.5t)
III	190×140	F : 120 minutes	56.4 %	ALC t:150 mm	Duct : Length 1,350 mm St.-150×100×1.0t	QS119R(12.5t)+Glass wool(24K,100t) +QS119R(12.5t)
IV	300×150	F : 120 minutes T : 120 minutes	4.47 %	ALC t:150 mm	Cable 600V, CV 3P×8.0 mm×10 ea ※ Cable tray St.-200×100×1.6t	QS119R(12.5t)+Glass wool (24K,100t) +QS119R(12.5t)



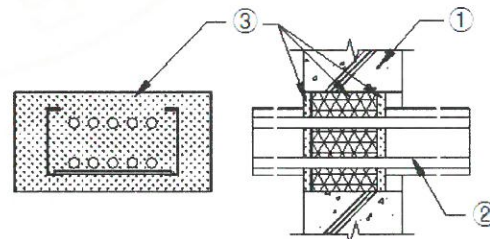
SYSTEM I



SYSTEM II



SYSTEM III



SYSTEM IV

F rating: (a) During the rating period, the system should have no passage of flame through openings, or flaming on the unexposed surface.

(b) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface,

T rating: (a) During the rating period, the system should have no passage of flame through openings, or flaming on the unexposed surface.

(b) During the rating period, the temperature recorded at any measuring position on the unexposed surface should not be more than 181 °C.

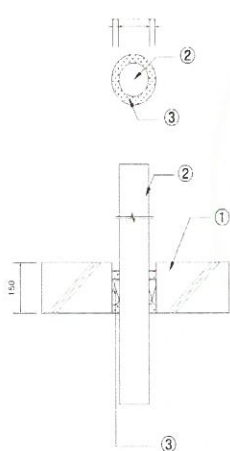
(c) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface.

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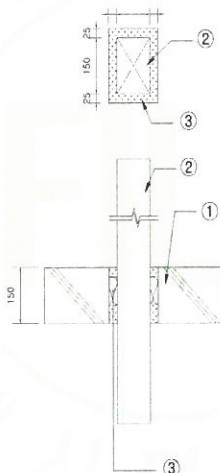


Specification of the certificated systems

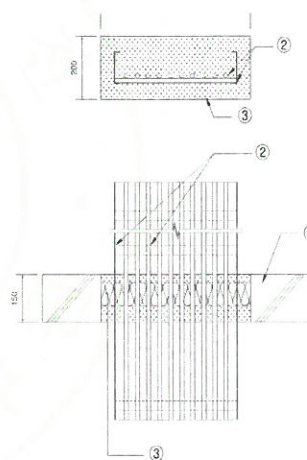
SYSTEM	Wall opening size (mm)	Fire rating	Fill ratio	System in detail (mm)		
				①	②	③
V	Ø150	F: 120 minutes	58 %	ALC 150t	St. pipe (KSD 3507 SPP, Ø100)	• Both sides QS119F 25t • Mineral wool (100 _{kg/m}) 75t
VI	150×200	F: 120 minutes T : 90 minutes	50 %	ALC 150t	St. duct (SS41, 100 × 150)	• QS119F 25t • Mineral wool (100 _{kg/m}) 75t • QS119F 50t
VII	550×200	F: 120 minutes T: 30 minutes	1.8 %	ALC 150t	Cable (600V TFR-CV3C8SQ × 10ea) Cable tray (SS41, HDG, 450 × 100)	• QS119F 25t • Mineral wool (100 _{kg/m}) 75t • QS119F 50t



SYSTEM V



SYSTEM VI



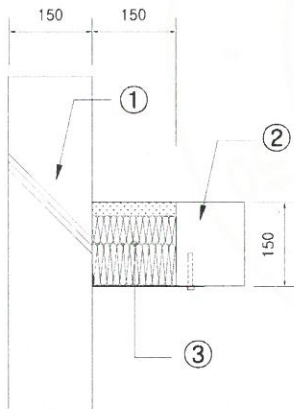
SYSTEM VII

- F rating: (a) During the rating period, the system should have no passage of flame through openings, or flaming on the unexposed surface.
 (b) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface,
- T rating: (a) During the rating period, the system should have no passage of flame through openings, or flaming on the unexposed surface.
 (b) During the rating period, the temperature recorded at any measuring position on the unexposed surface should not be more than 181 °C.
 (c) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface.
 (c) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface.

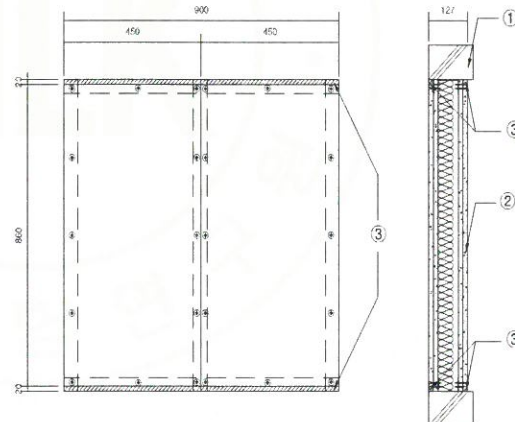


Specification of the certificated systems

SYSTEM	Fire rating	System in detail (mm)		
		①	②	③
VIII	F : 120 minutes T : 120 minutes	Wall ALC 150t	Floor opening size · 1,500 × 150, Depth 150	<ul style="list-style-type: none"> · QS119F 25 t · Mineral wool (100kg/m³) <ul style="list-style-type: none"> - Width 150, Depth 50 t · Mineral wool (100kg/m³) <ul style="list-style-type: none"> - Width 150, Depth 75 t · St. plate, 1 t (Anchor bolt Ø8×60, @450 fixing)
IX	F : 120 minutes T : 120 minutes	Wall ALC 150t	<ul style="list-style-type: none"> · Size : 900 × 900 × 127 t · Structure : Fire rated gypsum wall board 15t, 2 layers + Cavity 17 t + Mineral wool (60 kg/m³) 50 t + Fire rated gypsum wall board 15 t, 2 layers (Internal Stud, C - 65×45×10×0. 8t, @450) 	<ul style="list-style-type: none"> · Fire proof acryl sealant (SW9535A) ※ Constructed between the surrounding wall of the both sides and gypsum wall board : Width 20 mm, Depth 15 mm



SYSTEM VIII



SYSTEM IX

F rating: (a) During the rating period, the system should have no passage of flame through openings, or flaming on the unexposed surface.

(b) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface,

T rating: (a) During the rating period, the system should have no passage of flame through openings, or flaming on the unexposed surface.

(b) During the rating period, the temperature recorded at any measuring position on the unexposed surface should not be more than 181 °C.

(c) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface.

(c) During the hose stream test, the system should not have any opening that would permit a projection of water from the hose beyond unexposed surface.