Test No: IIIZ-06-0019
Receipt date: October 23, 2006

Result Report for ignition test of roofing materials

We declare that the test result is exactly as written in this report.

November 28, 2006

General Building Research Corporation of Japan
Research and Testing Center

Result Report for ignition test of roofing materials

Test organization: General Building Research Corporation of Japan
Test No.: IIIZ-06-0019
Performance Evaluation No.: GBRC 建評-06-03A-001
Composition Name: Mariseal 250F+400F/ Hard urethane foam air blast / Coated galvanized steel stick roof ・Wood-Wool Cement board coating / Roof of steel base
Product Name: Isothan System
Applicant: Bufa Concrete Protection Japan Co., Ltd.
3-7-4 Kojimachi Chiyoda-ku, Tokyo

Area: A city area except a firebreak zone and the associate firebreak zone (the Building Standard Law of Japan Article 22 Clause 1)

Materials and Composition (section, Unit: mm)

1) Coating: Mariseal 250F+400F … Thickness 1.1 Quantity 1.4 kg/m^2 (solid) [surface area]
Composition
(1) Top coating: Mariseal 400F (for prevention of Ultraviolet rays)
Thickness 0.1 quantity 0.1 kg/m^2 (solid) [surface area]
Component (quantity %) Aliphatic polyisocyanate pre-polymer … 100
(2) Under coating: Mariseal 250F (waterproofing cating)
Thickness 1.0 Quantity 1.3 kg/m^2 (solid) [surface area]
Component (quantity %) Aromatic polyisocyanat … 100

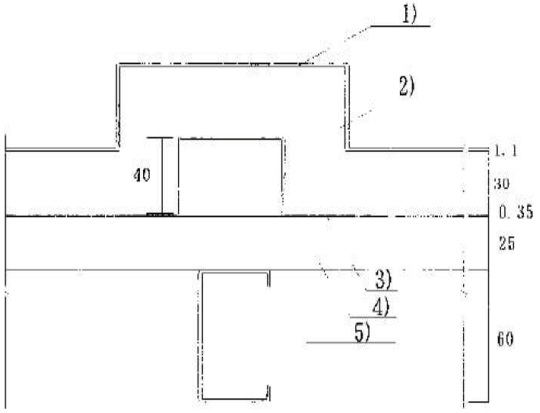
2) Insulator: Hard urethane foam (also for waterproofing) … Thickness 30, Density 40 kg/㎥
Component (quantity %) { Isocyanate…….53
Polyol……47

* Foam is made by carbon dioxide generated by reaction of isocyanate and polyol.

3) Rod-shaped tile roofing: Coated galvanized steel rod-shaped tile roofing
Material: coating / galvanized steel (NM-8697) Board thickness 0.35, Height 40,
Work width 400, Bottom width 350

4) Foundation Board: Wood-Wool Cement board thickness 25

5) Foundation: steel base Shape dimensions ⊂ -60x30x10x1.6 interval 600

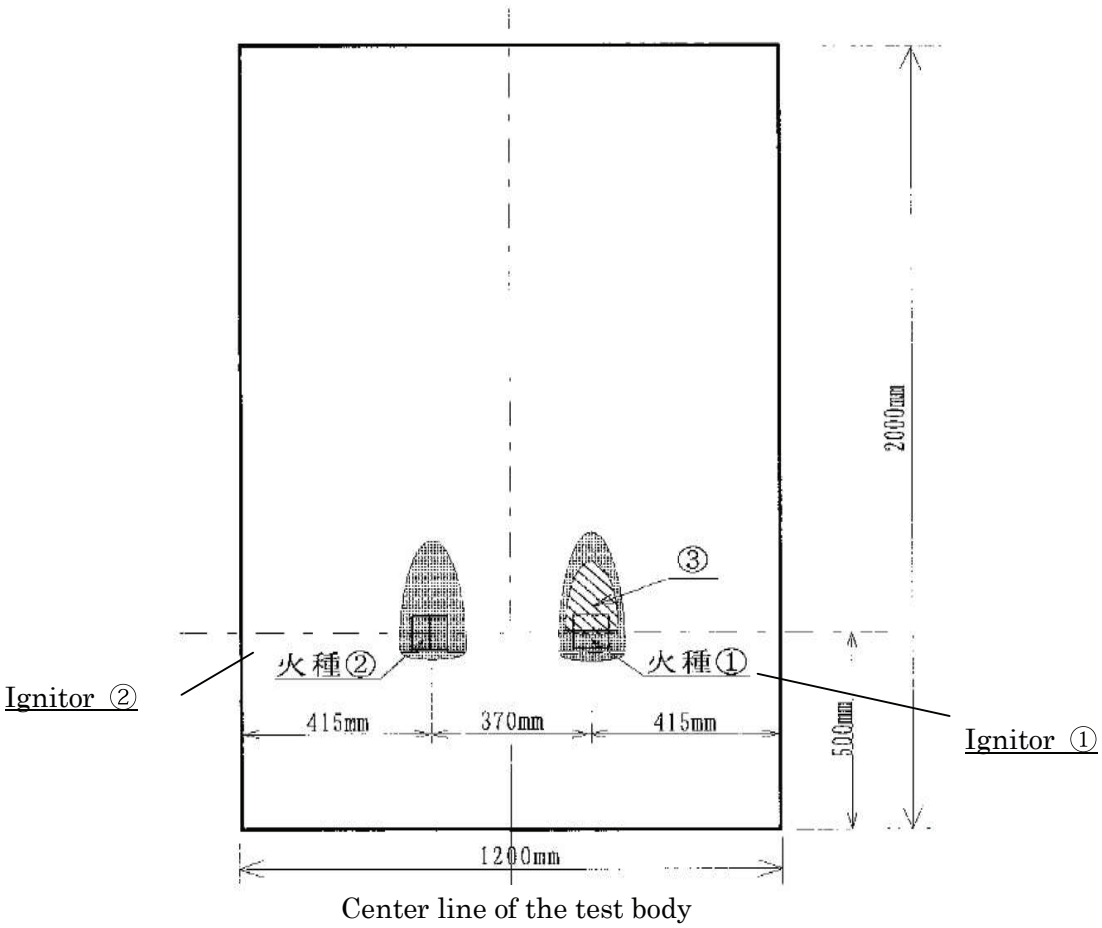


Test standard		"Fire test / Evaluation guideline" Established by General Building Research Corporation of Japan 4.13 leaping flames test of roof materials and Evaluation		
Mark of sample		A		B
Size of sample (mm)		1200 x 2000		1200 x 2000
Incline angle of sample		15 degree		
Ignitor (g)		① 34.0	② 32.9	① 31.9	② 31.5
Production date of sample		September 13, 2006		
Date of test		October 23, 2006		
Record of observations		Chart - 1		Chart - 2
The arrival time of the flame	The base of the windward	None		None
	The tip of the leeward	None		None
	End of right side	None		None
	End of left side	None		None
Combustion time with flame of the back side of the sample during test		None		None
Size of a through-hole at the time of the test end. (mm)		None		None
The result		Pass		Pass
Remarks: show situation of sample to Photo1-8 and see section of sample to Fig. 1				
Person in charge of test: Dobashi (Mr.)		Trier: Dobashi (Mr), Uegaki (Mr.), Yoshida (Mr.)		

Chart. 1 Observation record (Sample A)

Elapsed time (minute: second)	Result
00:00	Ignitor ① set to sample (test starts see photo-2)
04:00	Ignitor ② set to sample (see photo-3)
05:00	Ignitor ① was finished to burn. Lingering force (see ③ of the sketch below)
05:45	Lingering force completely disappears at ③ of the sketch below.
09:30	Ignitor ② was finished to burn. No lingering force.
30:00	The test ended (see photo-4)

* Maximum reach of the flame: 300mm



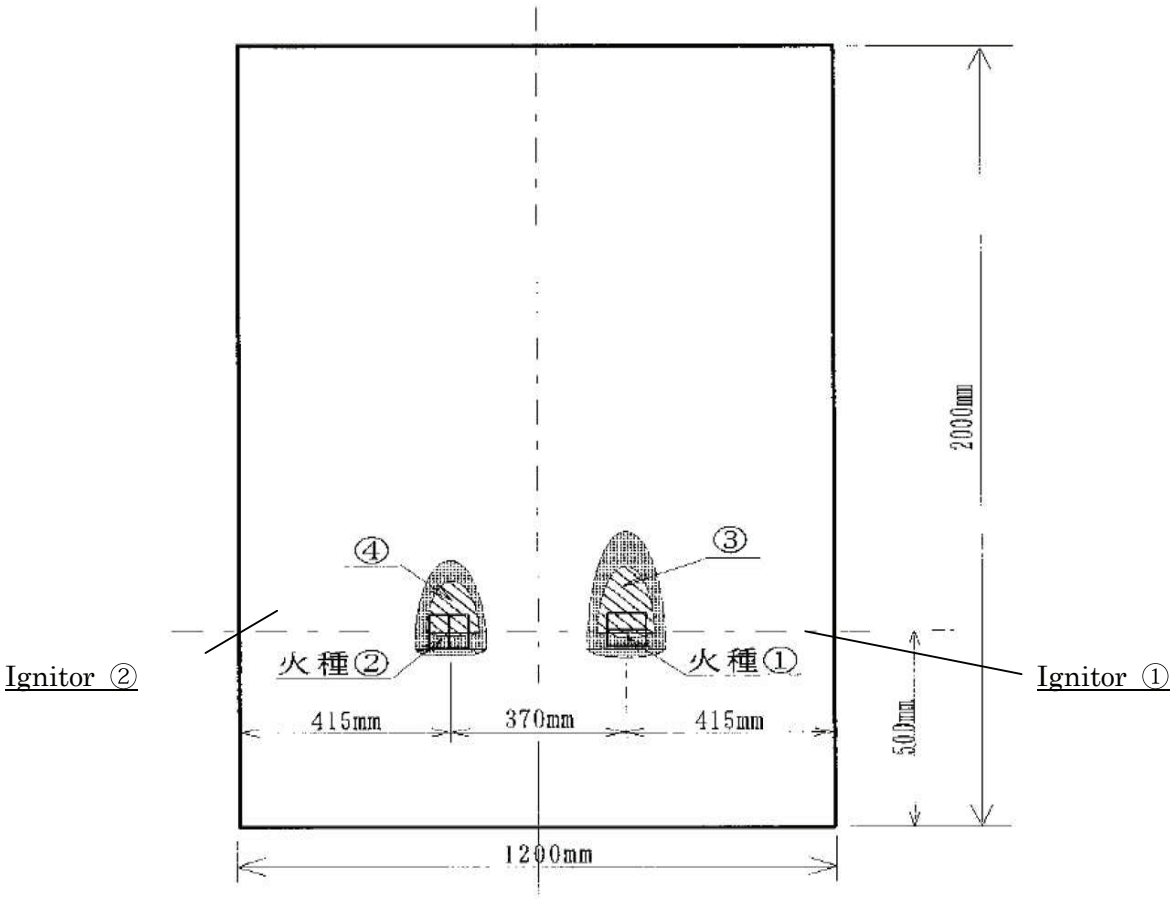
Center line of the test body

(windward)

Chart. 2 Observation record (Sample B)

Elapsed time (minute: second)	Result
00:00	Ignitor ① set to sample (test starts see photo-6)
02:50	Ignitor ① finished to burn. Flames lingered (see ③ of the sketch below)
04:30	Lingering force completely disappears at ③ of the chart below.
04:45	Set ignitor ② to sample (see photo-7)
07:30	Ignitor ② was finished to burn. Lingering force (see ④ of the sketch below)
08:45	Lingering force completely disappears at ④ of the sketch below.
30:00	The test ended (see photo-8)

* Maximum arrival length of the flame: 200mm



Center line of the test body

(windward)

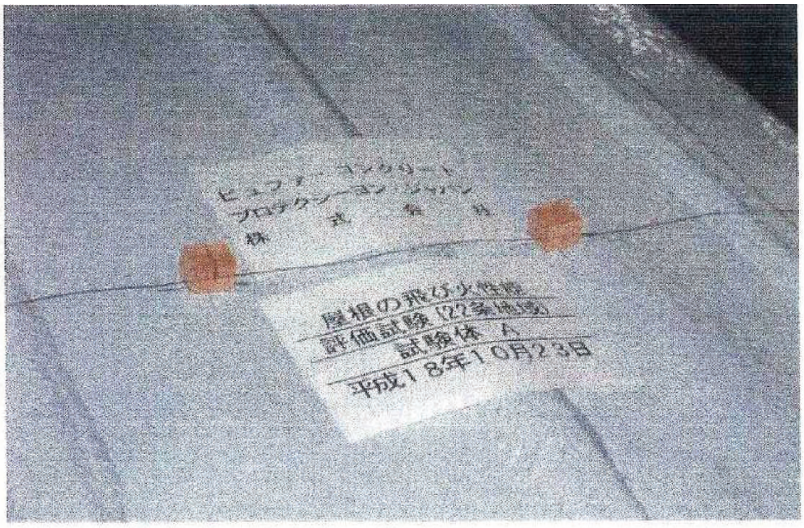


Photo-1

Sample A

Photo-2

Sample A

The situation at the test start
(00:00)

Photo-3

Sample A

The situation during the test
(04:00 after start)

Photo-4

Sample A

The situation during the test
(30:00 after start)

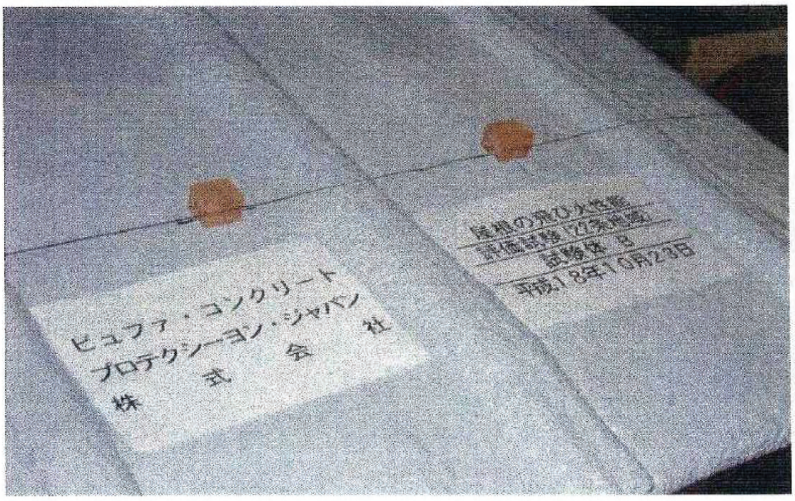


Photo-5

Sample B

Photo-6

Photo-6

Sample B
The situation of the test start
(0:00)

Photo-7

Sample B

The situation during the test
(04:45 after start)

Photo-6

Sample B

The situation during the test
(30:00 after start)

①Mariseal 250F: thickness 1.1, quantity 1.4 kg/m²

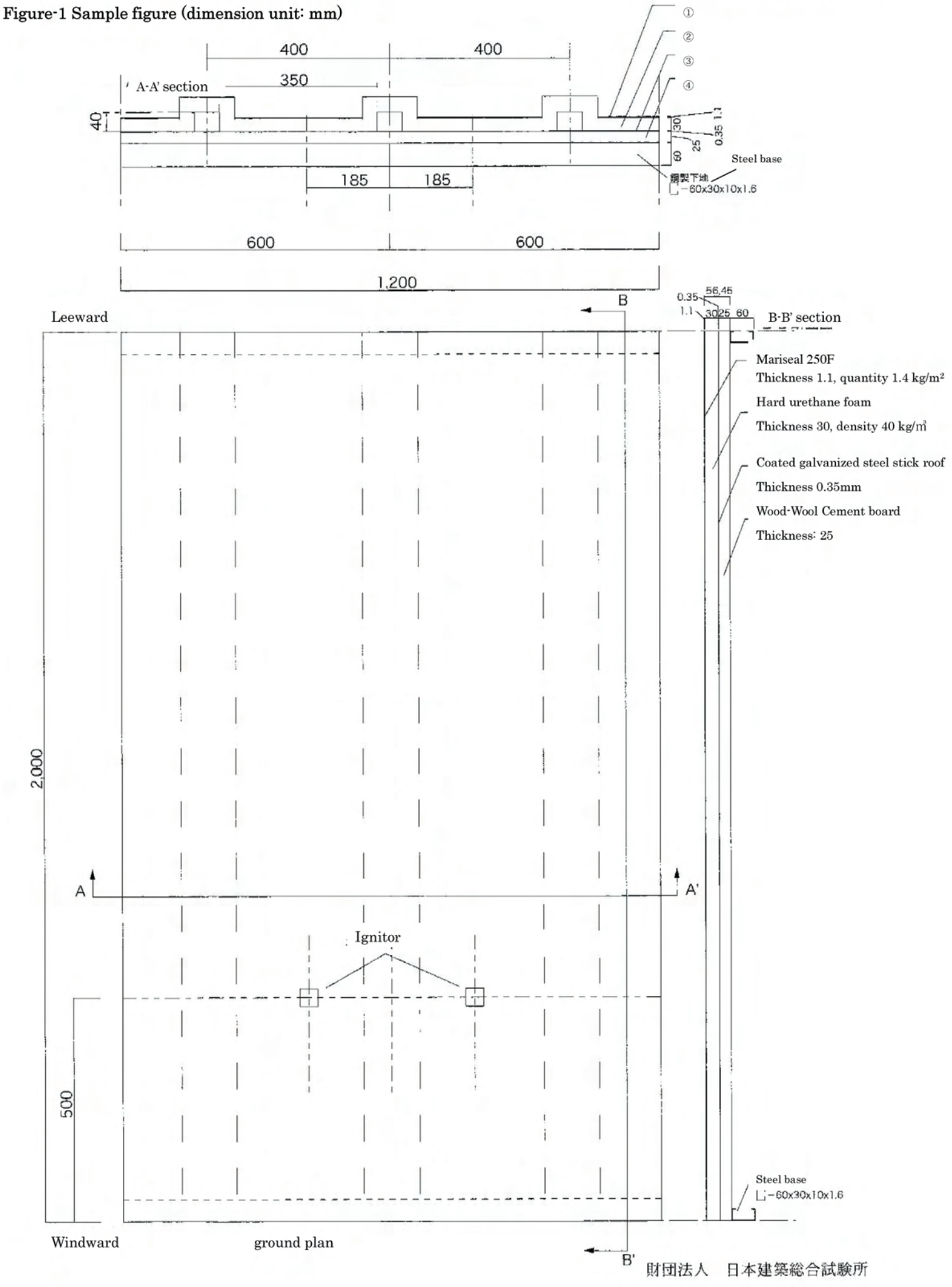
②Hard urethane foam: thickness 30, density 40 kg/m³

③Coated galvanized steel stick roof:

Thickness 0.35mm

④Wood-Wool Cement board: thickness: 25

Figure-1 Sample figure (dimension unit: mm)



財団法人　日本建築総合試験所