BRIEF EVALUATION REPORT

ASTM E - 662: Specific Optical Density of Smoke Generated by Solid Materials

Date of Evaluation	:	27-08-2003 & 28-08-2003
Sponsor	:	M/s DSCL Building Products Plot no. 812, Phase- V, Udyog Vihar, Gurgaon-122 015.
Description of Product	:	Finesta UPVC window section in casement and horizontal sliding system. Both these systems have 56 mm depth section. Profiles are hollow, multi-chambered with an outer wall thickness of 2 mm and steel reinforcement. (Product description has been prepared on the basis of the information provided by the sponsor).
Specimen dimensions	:	75 mm x 75 mm x 25 mm
Duration of exposure in Flaming Mode	:	20 min
Duration of exposure in Non-flaming Mode	:	20 min
Specific Optical Density Of Smoke Generated Dm (Corr)	:	**218 (Non-flaming Exposure Mode)** **461 (Flaming Exposure Mode)**

The evaluation results relate only to the behaviour of the specimens of a product under the particular conditions of the evaluation, they are not intended to be the sole criterion for assessing the potential fire hazard of the materials in use.

Rakesh Kumar

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BRIEF EVALUATION REPORT

BS : 476-Part 5 : Ignitability Evaluation for Materials.

Date of Evaluation	:	11-08-2003
Sponsor	:	M/s DSCL Building Products Plot no. 812, Phase- V, Udyog Vihar, Gurgaon-122 015.
Description of Product	:	Finesta UPVC window section in casement and horizontal sliding system. Both these systems have 56 mm depth section. Profiles are hollow, multi-chambered with an outer wall thickness of 2 mm and steel reinforcement. (Product description has been prepared on the basis of the information provided by the sponsor).
Specimen dimensions	:	228 mm x 228 mm x 50 mm

Results

Duration of exposure to specified flame	:	10 sec.
Duration of flaming after removal of specified flame	:	NIL
Time for burning to reach the edge of specimen	:	Not applicable
Extent of burning of specimen within 20 sec.	:	NIL
Classification	:	**' P ' NOT EASILY IGNITABLE**

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BRIEF EVALUATION REPORT

BS : 476-Part 6 : Method of evaluation for Fire Propagation for Products

Date of Evaluation	:	27-08-2003 & 28-08-2003
Sponsor	:	M/s DSCL Building Products Plot no. 812, Phase- V, Udyog Vihar, Gurgaon-122 015.
Description of Product	:	Fineste UPVC window section in casement and horizontal sliding system. Both these systems have 56 mm depth section. Profiles are hollow, multi-chambered with an outer wall thickness of 2 mm and steel reinforcement. (Product description has been prepared on the basis of the information provided by the sponsor).
Specimen dimensions	:	225 mm x 225 mm x 50 mm
Results		
Number of specimens evaluated	:	Three
Fire propagation Index, I	:	**5.46**
Sub-indices	:	$i_1 = 1.66$, $i_2 = 2.13$, $i_3 = 1.67$

The evaluation results relate only to the behaviour of the specimens of a product under the particular conditions of the evaluation, they are not intended to be the sole criterion for assessing the potential fire hazard of the materials in use.

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BRIEF EVALUATION REPORT

Together with observations of Fire Resistance Evaluation of Fenesta UPVC Window (with fixed pane of wired glass) sent by M/s DSCL Building Product, Plot No. 812, Phase V, Udyog Vihar, Gurgaon - 122 015 (Haryana) under cover of our registered letter No. 212(1)/FR/2003 dated 23.03.2004.

1. Date of Evaluation	:	August 22, 2003
2. Ambient Temperature	:	32°C
3. Specimen Evaluated	:	Fenesta UPVC Window (with fixed pane of wired glass)
4. Name of Sponsor	:	M/s DSCL Building Product, Plot No. 812, Phase V, Udyog Vihar, Gurgaon – 122 015 (Haryana)
5. Dimensions of Fenesta UPVC Window	:	1200 mm(H) x 900 mm(W)
6. Construction	:	As per drawing attached
7. Evaluation	:	Fire Resistance

7.1 General

The fire resistance evaluation of Fenesta UPVC Window (with fixed pane of wired glass) of size as shown in Figure – 1 was carried out on 22/08/2003. The Fenesta UPVC Window was evaluated in the wall furnace by mounting it in a 1200 mm(H) x 900 mm(W) aperture specially built in a 225 mm thick brick wall. During the evaluation furnace was regulated according to standard heating conditions as specified in IS:3614 (Part-2) and BS:476 (Part 20 & 22) 1987.

7.2 Furnace Control

The specimen was subjected to standard heating conditions in a furnace which can be run on positive pressure.

The temperature of the furnace shall be controlled to vary with time as closely as possible in accordance with the following relationship :

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$$T - T_o = 345 \log_{10}(8t+1)$$

Where t = time in minutes,

T = furnace temperature in ^oC at time t,

and T_o = initial furnace temperature in ^oC

The relationship is illustrated by the following points calculated by means of the above formula to give the standard time-temperature curve :

Time (min.)	Temperature rise in furnace (^oC)
05	596
10	659
15	718

(a) During the first ten minutes the area under the curve of mean furnace temperature shall not vary by more than $\pm$15% of the area under the standard curve.

(b) During the first half-hour the area under the curve of mean furnace temperature shall not vary by more than $\pm$10% of the area under the standard curve.

(c) For any period after the first half-hour the area under the curve of mean furnace temperature shall not vary by more than $\pm$5% of the area under the standard curve.

(d) At any time after the first ten minutes the mean furnace temperature shall not differ from the standard temperature by more than $\pm 100^oC$.

7.3 Observations

7.3.1 Integrity

Observations should be made of cracks, holes or other openings in the specimen through which flames or hot gases could pass to ignite a cotton pad.

7.4 Performance Criteria

7.4.1 Stability

According to BS : 476-Part-20, it is the Part of integrity which implies that stability is achieved if integrity of the specimen remains intact.

7.4.2 Integrity

Failure of integrity should be deemed to have occurred when collapse or sustained flaming on unexposed face occurs. Failure shall be deemed to have occurred when

(i) The 6 mm diameter gap gauge can penetration a through gap such that the end of the gauge projects in to the furnace and the gauge can be moved in the gap for a distance of at least 150 mm.

(ii) The 25 mm diameter gap gauge can penetrate a through gap such that the end of the gauge projects in to the furnace.

8.0 Results

8.1 Temperature Measurement

The furnace time-temperature curve resulted during the evaluation of Fenesta UPVC Window (with fixed pane of wired glass) carried out on 22/08/2003 is shown in Figure – 2.

8.2 Evaluation Observations

Observations made during the evaluation of Fenesta UPVC Window (with fixed pane of wired glass) carried out on 22/08/2003 are given in Table – 1.

9. Conclusion

The data of evaluation reveal that the Fenesta UPVC Window (with fixed pane of wired glass) sent by M/s DSCL Building Product, Plot No. 812, Phase V, Udyog Vihar, Gurgaon – 122 015 (Haryana) was able to withstand standard heating condition for **12 minutes (Twelve minutes only) with respect to integrity.**

Disclaimer

The responsibility of this Insititute is limited only to technical evaluation of the specimen of Fenesta UPVC Window (with fixed pane of wired glass) submitted by M/s DSCL Building Product, Plot No. 812, Phase V, Udyog Vihar, Gurgaon – 122 015 (Haryana).

All procedural, commercial, legal and operational matters will be the responsibility of the manufacturer of the door specimen. The CBRI, Roorkee is no way responsible for any of these.

Evaluation was witnessed by:

Mr. Ashok Aggarwal, DSCL Building Product, Gurgaon (Haryana)

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Table 1

Observations made during evaluation of the specimen Fenesta UPVC Window (with fixed pane of wired glass) carried out on August 22, 2003 for fire resistance.

Time Min.	Observations
00	Furnace was started at – 0.2 mm Wg furnace pressure.
05	Burning of Rubber started. Furnace pressure was normal.
10	Frame degraded smoke continues. Furnace pressure was normal.
12	Glass softened completely and fell down due to the top profile of frame. Furnace pressure was normal.
	Furnace stopped.

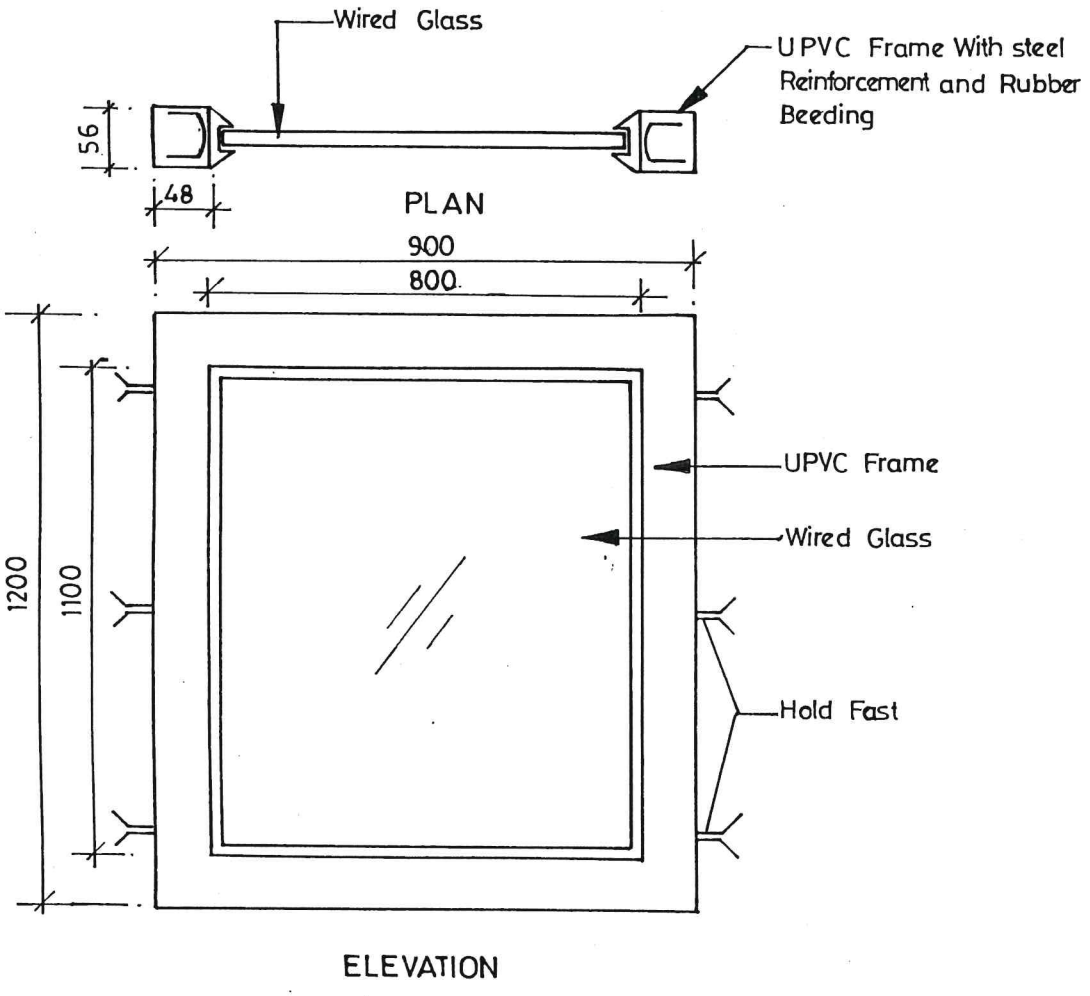

Figure 1: Construction details of the Fenesta UPVC Window specimen carried out on August 22, 2003 for Fire Resistance.

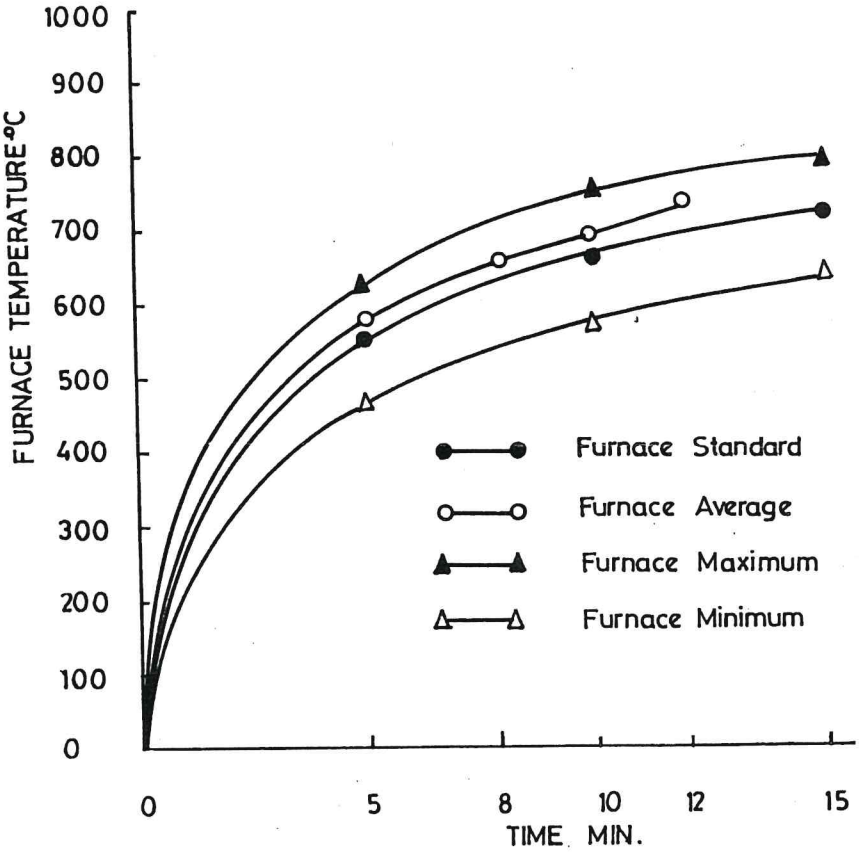

Figure 2: Furnace Time-Temperature Curves maintained during the Fire Resistance Evaluation of Fenesta UPVC Window (with fixed pane of wired glass) carried out on 22.08.2003.

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BRIEF EVALUATION REPORT

BS : 476-Part 7 : Method for Classification of the Surface Spread of Flame

Date of Evaluation : 16-09-2003

Sponsor : M/s DSCL Building Products
Plot no. 812, Phase- V, Udyog Vihar,
Gurgaon-122 015.

Description of Product : Finesta UPVC window section in casement and horizontal sliding system. Both these systems have 56 mm depth section. Profiles are hollow, multi-chambered with an outer wall thickness of 2 mm and steel reinforcement.

Specimen dimensions : 900 mm x 270 mm x 50 mm

Observation : Evaluation results

Specimen	Spread of Flame at 1.5 min	Spread of Flame at Termination/10 min.
	mm	mm
01	NIL	NIL
02	NIL	NIL
03	NIL	NIL
04	NIL	NIL
05	NIL	NIL
06	NIL	NIL

Classification : **CLASS – 1**

The evaluation results relate only to the behaviour of the specimens of a product under the particular conditions of the evaluation, they are not intended to be the sole criterion for assessing the potential fire hazard of the materials in use.

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