



FACULTY OF ENGINEERING
CHULALONGKORN UNIVERSITY
FIRE SAFETY RESEARCH CENTER



- TYPE OF TEST** : DETERMINATION OF FIRE RESISTANCE OF PROTECTION FOR STRUCTURAL STEEL SECTIONS
- TEST SPECIMEN** : **NEOCOAT INTUMESCENT - W**
The specimens consist of four structural steel sections H 300x300x10x15 mm with the Hp/A value shown in the table below. The intumescent coating NEOCOAT INTUMESCENT - W was applied to the specimens with varying coating thickness of 1072, 2048, 3110 and 4040 μm , respectively, as shown in Appendix C. The details of the fire protection coating are shown in Appendix E. The length of the specimens was approximately 1.00 m. The fire protection material was applied to the outside surface of the specimens. The fire protection of the specimens was provided and installed by the client.
- CLIENT** : **UNIQUE PRODUCTS (THAILAND) Co.,Ltd.**
- DATE OF TEST** : December 25, 2006
- TEST MACHINE** : Medium-scale horizontal furnace (Fire Tester II) at the Fire Safety Research Center, Department of Civil Engineering, Chulalongkorn University. The furnace is capable of producing a standard temperature-time relationship according to several fire resistance standards including ASTM E119-05a.
- TEST METHOD** : The testing procedures follow ASTM E119-05a Standard Test Methods for Fire Tests of Building Construction and Materials: Alternative Test of Protection for Structural Steel Columns. The specimens were exposed to fire on the outside surface. Failure is deemed to occur when the maximum temperature at any point on the specimen exceeds 649 °C or the average temperature of the specimen at any section exceeds 538 °C.
- TEST RESULTS** : The specimens described above have the fire resistance of fire protection coating for the structural steel sections as shown in the following table. The details of the test results and photographs are shown in Appendix B and Appendix D.
(The test results are good only for the specimens tested.)

Specimen	Sections	Average Thickness (μm)	Hp/A (m^{-1})	Fire Resistance (hr:min)	Remarks
1	H 300x300x10x15 mm	1072	149	0:39	Failure occurred when the average temperature of the specimen exceeded 538 °C.
2	H 300x300x10x15 mm	2048	149	0:49	Failure occurred when the average temperature of the specimen exceeded 538 °C.
3	H 300x300x10x15 mm	3110	149	0:48	Failure occurred when the maximum temperature of the specimen exceeded 649 °C.
4	H 300x300x10x15 mm	4040	149	0:51	Failure occurred when the maximum temperature of the specimen exceeded 649 °C.



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On Behalf of Head of Civil Engineering Department

Date: May 21, 2007

Tested by:
(Assistant Prof. Dr. Thanyawat Pothisiri)

