

Computer Models For Fire and Smoke

<i>Model Name:</i>	RECTST
<i>Version:</i>	Version 1
<i>Classification:</i>	Structural Finite Difference
<i>Very Short Description:</i>	Model for the calculation of the fire resistance of insulated rectangular steel columns.
<i>Modeler(s), Organization(s):</i>	T.T. Lie, National Fire Laboratory, Institute for Research in Construction, National Research Council of Canada.
<i>User's Guide:</i>	-----
<i>Technical References:</i>	Lie, T.T., and Harmathy, T.Z., "A Numerical Procedure to Calculate the Temperature of Protected Steel Columns Exposed to Fire," T.T. Lie, "Temperature Distributions in Fire-exposed Building Columns," Journal of Heat Transfer, Transactions of the ASME, Vol. 99, No. 1, 1977.
<i>Validation References:</i>	-----
<i>Availability:</i>	Not Available
<i>Price:</i>	N/A
<i>Necessary Hardware:</i>	-----
<i>Computer Language:</i>	FORTRAN 77
<i>Size:</i>	80 kB
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Detailed Description:

Input:

Dimension of steel and insulation, thermal properties of insulation.

Output:

Average steel temperature at selected times during the exposure to fire.

Assumptions:

RECTST calculates, using a finite difference method, the average steel temperature of insulated rectangular wide flange or hollow steel columns, during exposure to the North American standard fire (any other fire can be substituted). The fire resistance is determined by calculating the time it takes to reach a specific critical steel temperature.