Computer Models For Fire and Smoke

Model Name: SQCON

Version: Version 1

Classification: Structural Finite Difference

Very Short Description: Model for the calculation of the fire resistance of square reinforced concrete columns.

Modeler(s), Organization(s): T.T. Lie, National Fire Laboratory, Institute for Research in Construction, National Research Council of Canada.

User's Guide: -----

Technical References: Lie, T.T., Lin, T.D., Allen, D.E., and Abrams, M.S., "Fire Resistance of Reinforced Concrete Columns," DBR Paper No. 1167, NRCC 23065, 1984.

Validation References: -----

Availability: Not Available

Price: N/A

Necessary Hardware: -----

Computer Language: FORTRAN 77

Size: -----

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Detailed Description:

Input:

Dimensions of the column, concrete type, concrete strength, location and dimensions of reinforcing steel.

Output:

Temperature and stress distribution at midheight column section, axial deformation of column, and the maximum load that the column can carry at selected times during the exposure to fire.

Assumptions:

The temperatures in a square concrete column exposed to the North American Standard fire (any other fire can be substituted), suing a finite difference method.

The strength of the column during the exposure to fire, using a finite element method.