PLC *Professional Loss Control, Inc.*

STRUCTURAL STEEL ANALYSIS

for

PEACH BOTTOM GENERATING STATION

Calculation No. 94

Unit 2,3

Turbine Building El. 116'-0"

Counting Room

Fire Area 78E

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PEACH BOTTOM GENERATING STATION

1. AREA DESCRIPTION

The area under consideration is the Counting Room on the 116'-0" elevation of the Turbine Building (Fire Area 78E). The bounding walls are constructed of reinforced concrete with an average thickness of 1 ft. The total surface area for heat transfer is 1,242 ft^2 (see Attachment A for a sketch of the area under consideration).

2. COMBUSTIBLE LOADING

There are no combustible liquids or cable trays located in this area.

3. VENTILATION PARAMETERS

There is one door which enters this area.

Door	Size	Location
119	3'-0"x7'-0"	East Wall

4. CASES EXAMINED

Since there are no exposed fixed combustibles in this area, no cases were examined for a general room fire.

5. RESULTS

No general room fire was postulated because of the lack of exposed fixed combustibles in the area.

There are no cable trays in this area to present a localized heating exposure to the structural steel.

6. EFFECTS OF TRANSIENT COMBUSTIBLES

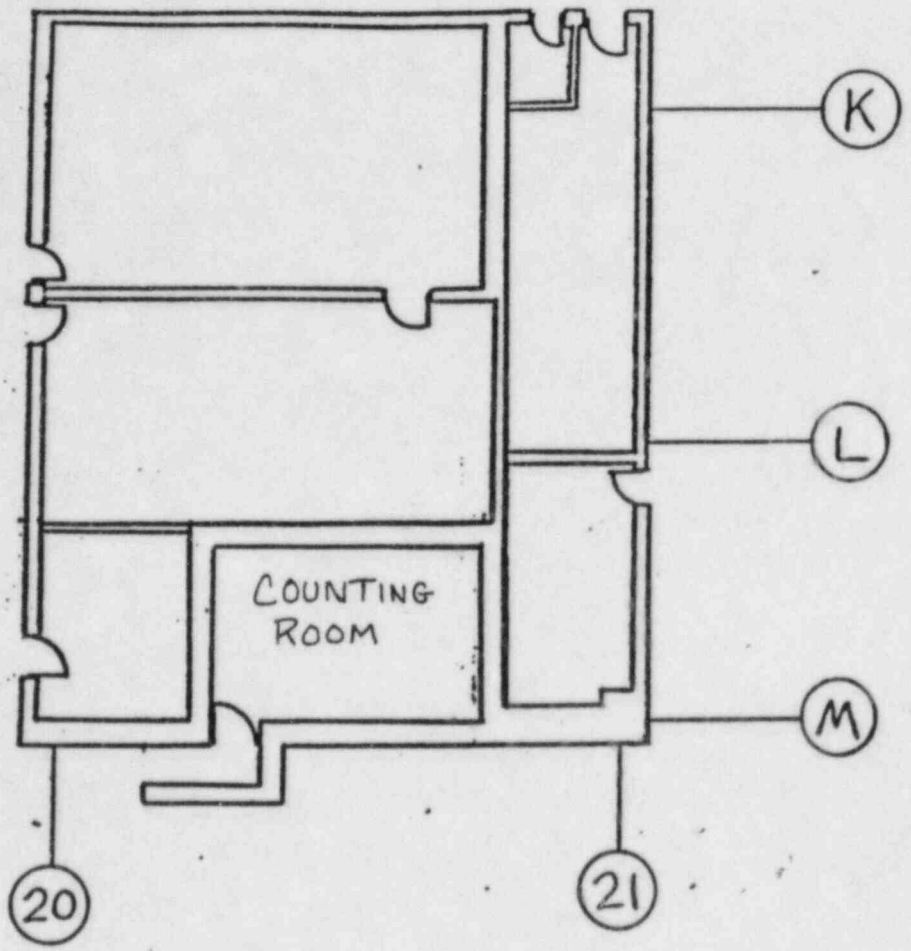
This area contains no exposed fixed combustibles. The table below lists the maximum heat release rate for transient combustibles for different fire durations which result in an area temperature less than 1100°F.

Fire Duration	Q/A (kW/m^2)	Q(kW)
1 hour	10.5	1212
2 hours	8.0	923
3 hours	6.5	750

The distance between the floor and the deepest beams supporting the ceiling is 16'-8 1/2". The heat release rates required of floor level transient combustible fires to produce plume temperatures of 1100°F, 1300°F and 1500°F at the bottom flange of the beam have been determined and tabulated below. For the temperatures greater than 1100°F the time

required to heat the sizes of the beams supporting the ceiling have also been determined.

		Time to 1100°F (min)
T(°)	Q(kW)	W16 x 96
1100	7,257	-
1300	9,549	38
1500	12,042	26



Unit 2,3 Turbine Building, Elevation 116'-0"
Counting Room

Surface Area Calculation

Walls		
North wall	(11' x 18')	198 ft^2
East wall	(18' x 18')	324 ft^2
South wall	(11' x 18')	198 ft^2
West wall	(18' x 18')	324 ft^2
		1,044 ft^2
Ceiling	(11' x 18')	198 ft^2

Total Surface Area Calculation 1,242 ft^2