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 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Public 05000530
 AUTH. NAME: AUTH. AFFILIATION
 VAN BRUNT, E. E. Arizona Public Service Co.
 RECIP. NAME: RECIPIENT AFFILIATION
 TEDESCO, R. L. Assistant Director for Licensing

SUBJECT: Forwards additional information interaction of corridor bldg
 w/Category I structures per NUREG-0857 & until 810819 ltr.

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P.O. BOX 21666 - PHOENIX, ARIZONA 85036

January 21, 1982

ANPP-19950 - JMA/WFQ

Mr. R. L. Tedesco
Assistant Director of Licensing
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555



Subject: Palo Verde Nuclear Generating Station
(PVNGS) Units 1, 2 and 3
Docket Nos STN-50-528/529/530
File: 82-056-026; G.1.10

Reference: 1) Safety Evaluation Report related to the Operation of
Palo Verde Nuclear Generating Station, Units 1, 2 and 3
NUREG-0857, dated November 1981
2) Letter from E. E. Van Brunt, Jr., APS, to J. Kerrigan
(ANPP-18697 - JMA/WFQ), dated August 19, 1981

Dear Mr. Tedesco:

Enclosed please find our response to Section 3.7.2 of Reference (1) and
Item 19 of Enclosure 2, Reference (2), regarding interaction of the Corridor
Building with Category I Structures.

The response consists of two enclosures:

Enclosure (1) contains the response to the original
question.
Enclosure (2) provides a copy of the Amended page
38-95 of the FSAR, which addresses the design and
analysis procedures for the Non-Category I Structures.

Please contact me if you have any further questions.

Very truly yours,

E. E. Van Brunt, Jr.
APS Vice President
Nuclear Projects
ANPP Project Director

EEVBJr/WFQ/sam
Enclosure

8201250355 820121
PDR ADOCK 05000528
A PDR

cc: T. F. Quan
P. Hourihan
R. Greenfield

A. C. Gehr
F. Miraglia (NRC)
M. Licitra (NRC)

S. Chan (NRC)

Boo!
S/11



STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, Edwin E. Van Brunt, Jr., represent that I am Vice President Nuclear Projects of Arizona Public Service Company, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority so to do, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true.

Edwin E. Van Brunt
Edwin E. Van Brunt, Jr.

Sworn to before me this 21ST day of JANUARY, 1982.

Connie Lou Armstrong
Notary Public

My Commission expires:

June 24, 1983



QUESTION 19: Provide justification that the Corridor Building has been designed to meet SRP section 3.7.II.8.

RESPONSE : The Corridor Building is a steel structure with the majority of the mass concentrated at five, eight inch thick concrete slab elevations. Lateral loads are resisted by bracing in certain bays. The structure is separated from adjacent buildings by a six inch seismic gap.

The interaction of the Corridor Building with the adjacent Category I structures, due to a postulated collapse of the building, was evaluated in the following manner:

An elastic response spectrum analysis was performed in order to determine the maximum kinetic energy (i.e. maximum floor velocities) of the building. The kinetic energy was added to the potential energy associated with the decrease in elevation of the center of mass rotating about the base. This total impact energy was then used to calculate the required ductility of the structural elements of the Auxiliary and Control Buildings.

The following conservative assumptions were used in the evaluation:

The cumulative impact energy of all elevations was assumed to be acting at one elevation (See Figure 1).

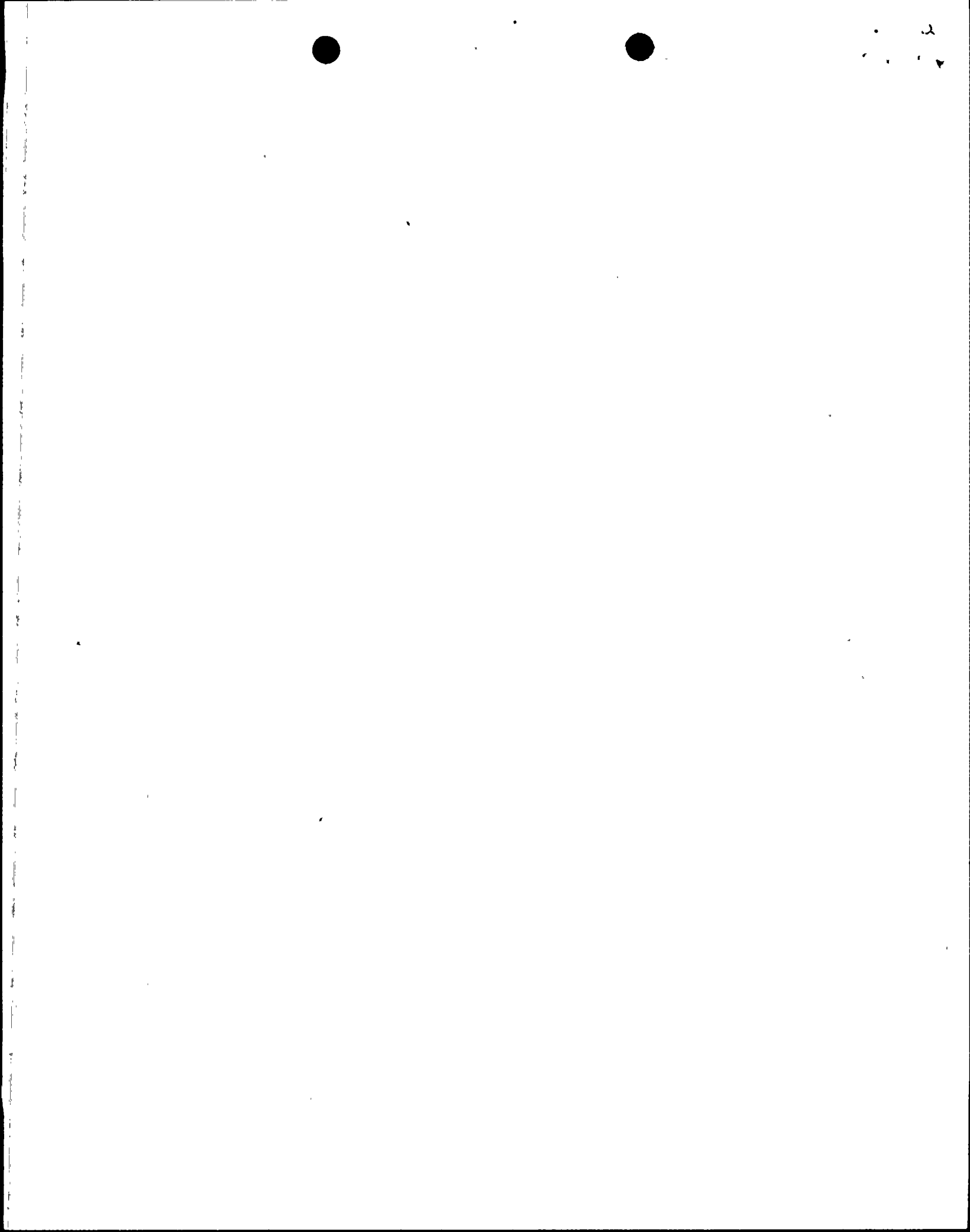
Only a narrow vertical strip of the Auxiliary and Control Building walls was assumed to resist the impact energy (i.e. one-way action) (See Figure 2).

The impact energy was applied at the mid-story height of the Auxiliary and Control Buildings rather than the actual slab elevation (See Figure 3).

Due to the localized nature of the collision, the impact load was treated independent of other loads.

The results of the evaluation, tabulated below, verify that the required ductility ratios of the Category I Structures are within the allowable limits shown in table 3C.3-4 of the FSAR, and therefore, the postulated collapse of the Corridor Building will not impair the integrity of the structures.

Adjacent Cat I Structure	Required Ductility Ratio	Allowable Ductility Ratio
AUX BLDG	9.2	10.0
CONTROL BLDG	6.4	10.0



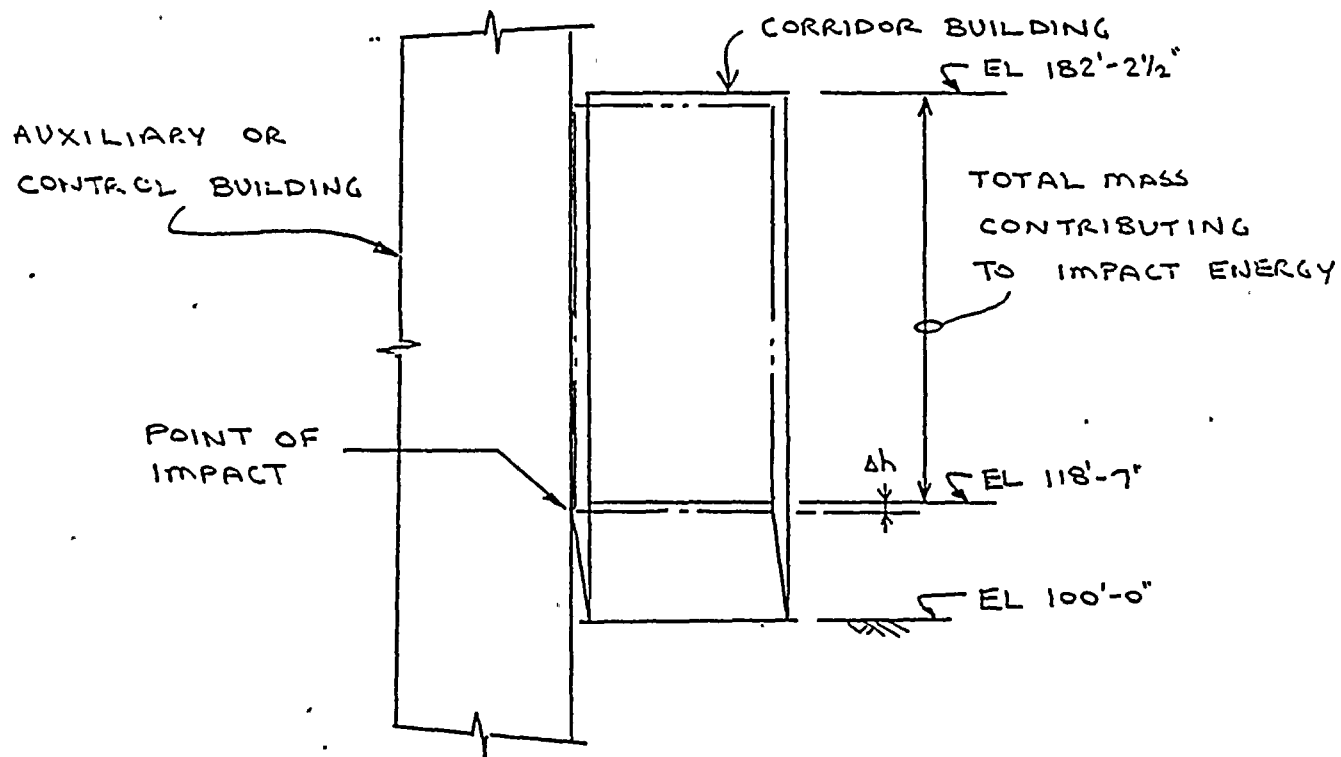


FIGURE 1 ELEVATION

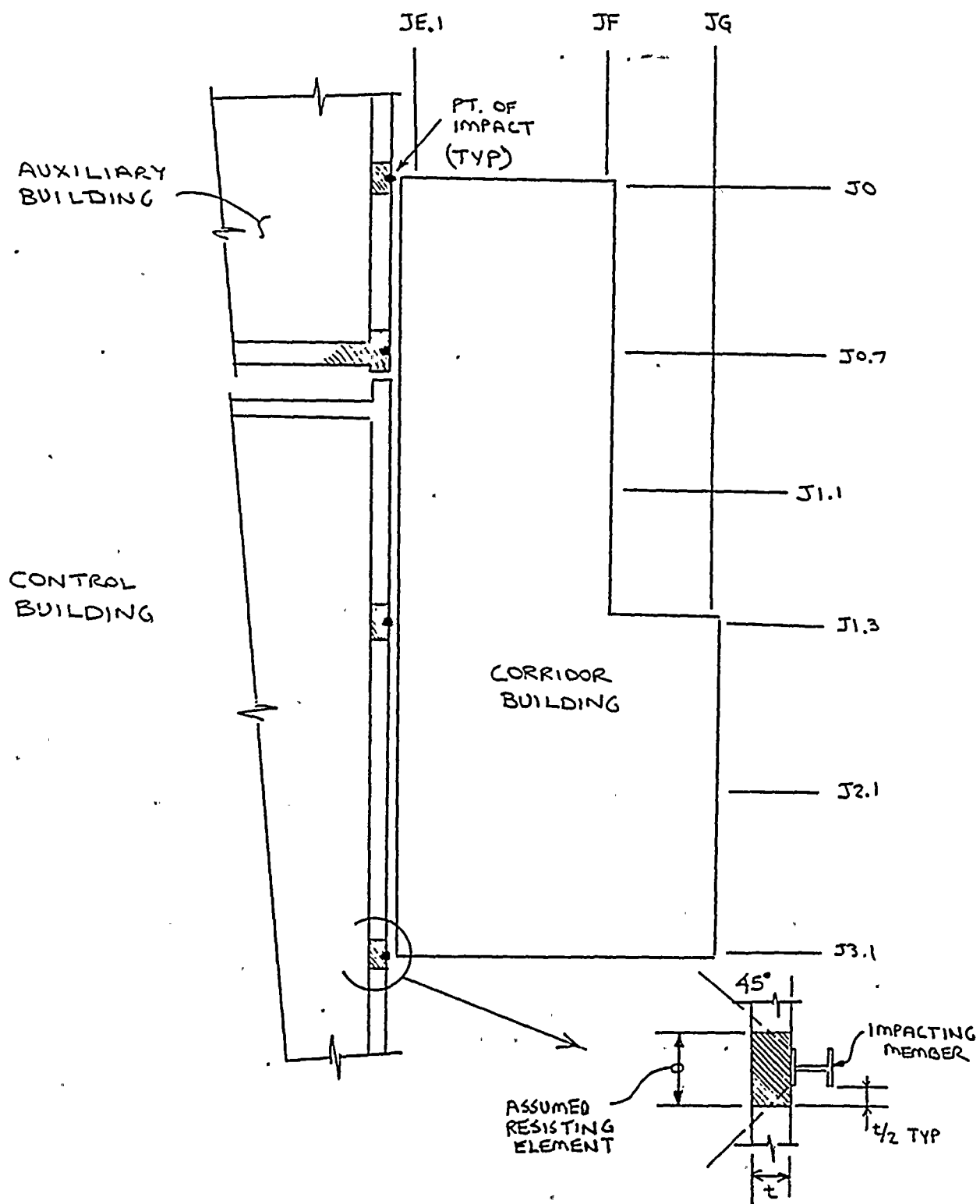


FIGURE 2 PLAN

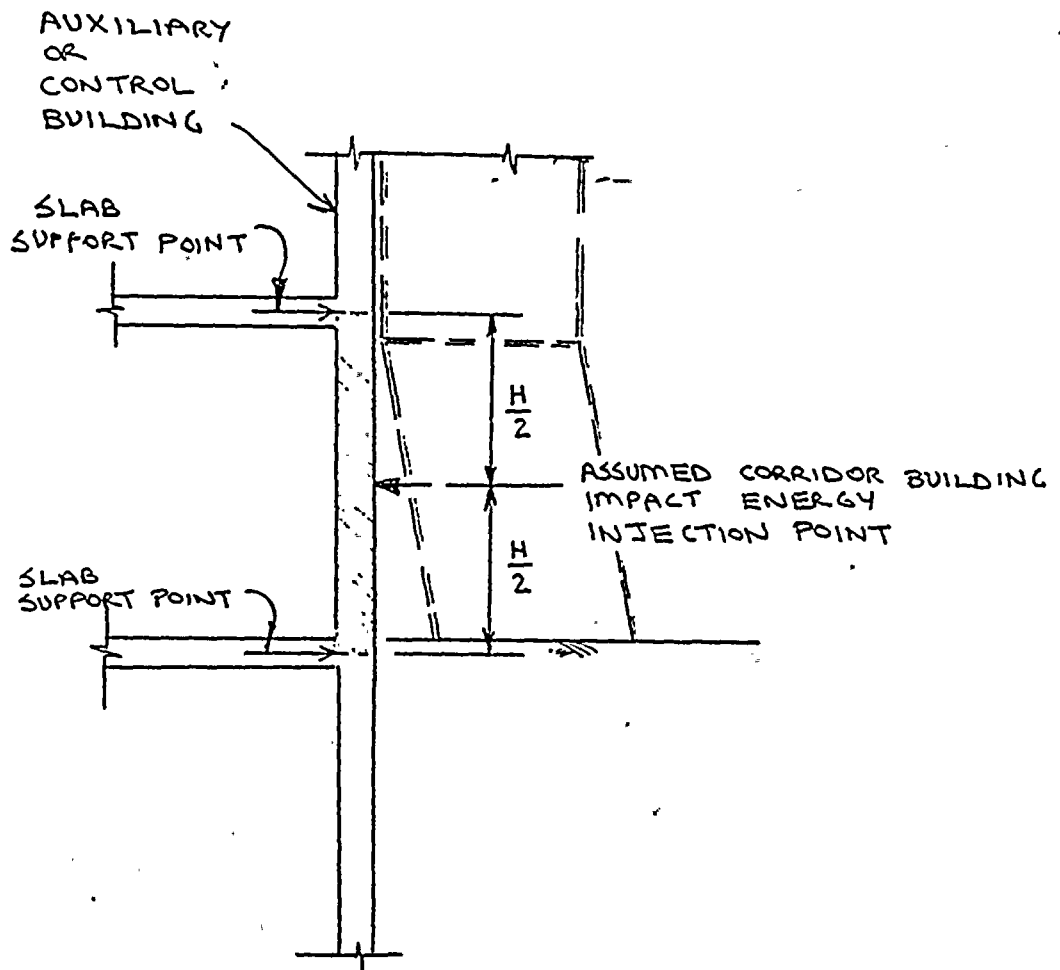


FIGURE 3 PARTIAL SECTION

DESIGN OF
CATEGORY I STRUCTURES3.8.4.2 Applicable Codes, Standards, and Specifications

Other Seismic Category I structures are designed in accordance with the codes, standards, and specifications listed in section 3.8.3.2.

3.8.4.3 Loads and Load Combinations

Other Category I structures are designed for the loads listed in section 3.8.3.3.1 and for the load combinations listed in section 3.8.3.3.2.

3.8.4.4 Design and Analysis Procedures

The design and analyses procedures are similar to those discussed in section 3.8.3.4 for the containment internals except that a three-dimensional finite element model was not used.

Non-Category I structures, whose collapse could result in loss of required function of the Seismic Category I structures, equipment, or systems are analyzed as follows:

- ~~A. Structurally separated to assure that interaction between Seismic Category I and non-Category I structures does not occur.~~
- ~~B. The mode of failure is analyzed in detail to determine that their behavior under the extreme environmental loads (tornado/SSE) will not cause loss of function of adjacent Category I structures.~~

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3.8.4.5 Structural Acceptance Criteria

The limiting values of stress, strain and gross deformations are established by the following criteria:

- Maintain the structural integrity when subjected to the worst load combinations

3

INSERT A

The behavior of the Turbine and Radwaste Buildings was checked under the extreme environmental (tornado/SSE) loads to verify that a collapse would not occur.

The effects of a postulated collapse of the Corridor Building were analyzed to verify that the integrity of the Auxiliary and Control Buildings would not be impaired.

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