

VASDIP

According to current single-degree of freedom models, blast damage / injury can be communicated with pressure-impulse (P-I) diagrams. VASDIP uses the most recently developed P-I diagrams and allows users to specify detailed properties (including boundary conditions) of 24 different basic structural components and 19 different human body components.

VASDIP is an excellent companion product to BREEZE HExDAM / VExDAM, as it computes the corresponding vulnerability parameters for use within these applications. In addition, users have the capability to compute changes in vulnerability as a function of individual structural / human properties. This functionality makes VASDIP invaluable in cost / risk assessment and analysis.

BREEZE VASDIP capabilities include:

- Capacity to handle both inanimate structures and human body components
- Generate P-I diagrams
- Calculation of damage / injury for a given pressure and impulse
- Calculation of vulnerability parameters for use with BREEZE HExDAM and VExDAM

BREEZE VASDIP generates three distinct outputs. The first is a color-coded P-I diagram that provides the user with a clear picture of the three zones of structural / human response:

- Total destruction / fatality zone
- Partial damage / injury zone
- No damage / injury zone

The second output consists of specific vulnerability parameters used for characterizing a structure / human body with HExDAM and VExDAM software. The third output consists of damage / injury level resulting from a given pressure and impulse.

BREEZE VASDIP calculates explosive safety and physical security parameters for use in predicting possible damage to buildings and humans resulting from an external explosion.

The parameters that can be accounted for with VASDIP vary with each structural/human component and are quite comprehensive. For example, for a reinforced concrete slab, the following parameters can be specified:

- Slab span
- Cross-sectional area
- Section width
- Tensile steel area
- Boundary conditions
- Yield strength of reinforcement
- Compressive strength of concrete
- Depth of tensile reinforcement
- Weight density of section

For human body components, the following parameters can be specified:

- Body weight
- Body height
- Height-to-width ratio

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