

Protective Structures Automated Design System (PSADS)

BACKGROUND

The Protective Structures Automate Design System (PSADS) automates the procedures in UFC 3-340-01 "Design and Analysis of Hardened Structures to Conventional Weapons Effects" (DAHS-CWE) dated June 2002. PSADS includes the entire text of the DAHS-CWE manual in HTML format; it automates key equations, tables and implements the capability to digitally read graphs. The DAHS-CWE manual provides methodologies and criteria for design and analysis of hardened structures to resist the effects of conventional weapon effects. Included are weapon and material characteristics along with algorithms to predict the effects of airblast loadings, projectile and fragmentation penetration, ground shock loads on structures, and structural/equipment response to weapon effect loadings. Also provided are considerations for using camouflage, concealment, and deception (CCD) methods to protect structures; supplemental and retrofit hardening methods for structures; tunnel hardening; and chemical, biological, and radiological (CBR) filtration. The PSADS CD Rom contains the PSADS software codes, and the DAHS CWE manual in PDF format.

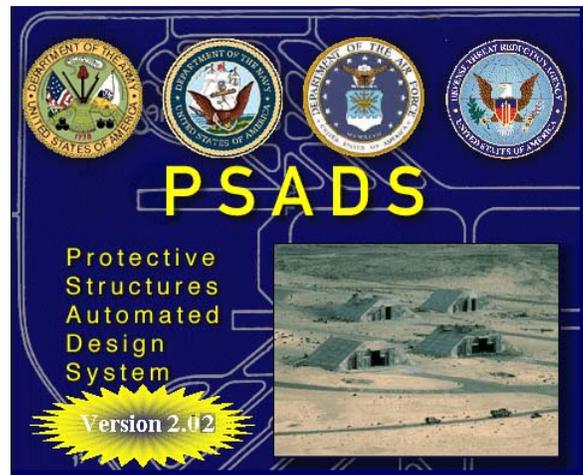
Subject Coverage

Chapters in the DAHS-CWE manual cover the following subjects and capabilities include:

- Conventional Weapon Characteristics
- Design Basis
- Material Properties
- Airblast
- Penetration
- Fragmentation
- Ground Shock and Cratering
- Loads on Structures
- Mechanics of Structural Elements
- Dynamic Response of Structures
- In-Structure Shock Mitigation
- Auxiliary Systems
- Facility Evaluation, Upgrade, and Supplemental Protection
- Camouflage, Concealment, and Deception
- Tunneled Structures
- Sample Design Problems

User

PSADS and the DAHS CWE manual are oriented toward engineers with a working knowledge in weapons effects, structural dynamics, and the design of hardened, protective structures.



PSADS Support Codes

- **BlastX** – internal/external airblast calculation
- **SPAn32** – Single-degree-of-freedom Plastic Analysis
- **GshockW** – Ground Shock Calculation
- **BUDoorW** – Built-Up Door
- **SRCW** – Shock Response Code
- **PenCurv3DW** – Penetrator into Curvilinear geologic material
- **FOILW** – Ground Shock parameters based on SABRE
- **MPQW** – Materials Database
- **SPIDSW** – Shock propagation in Ducts (tunnels)
- **Automated Designer** – Automated system for airblast calculation on walls
- **ISSW** – In-Structure Shock, response of dynamic frame
- **FragWin** – Fragmentation code

POINT OF CONTACT

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