



US Army Corps  
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# ENGINEERING AND CONSTRUCTION BULLETIN

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**No. 2005-13 Issuing Office: CECW-CE Issued: 30 August 2005**

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**Subject:** Component Explosive Damage Assessment Workbook (CEDAW)

**Applicability:** Guidance

- 1. Purpose.** This bulletin announces the availability of the Component Explosive Damage Assessment Workbook (CEDAW) for use in the assessment of structures to resist the airblast from detonation of terrorist explosive devices. CEDAW can be downloaded from the USACE Protective Design Center (PDC) website: <https://pdc.usace.army.mil/software/cedaw/>.
- 2. Background.** Department of Defense Instruction (DODI) 2000.16, DoD Antiterrorism Standards, requires vulnerability assessments of installations that include the consideration of explosive threats. The pressure-impulse (P-i) methodology provides a means of rapidly assessing expected damage to structural components. Many blast assessment tools utilize the P-i methodology as contained in the PDC Facility And Component Explosive Damage Assessment Program (FACEDAP) developed in 1991. Since the development of FACEDAP, more refined SDOF techniques have been developed that consider the more complex response modes of tension membrane and arching. Also, considerably more test data for structural component response to blast loads has been generated, showing the importance of the negative phase of the blast load in limiting component response when the peak response occurs after the end of the positive phase of the blast load. These factors have been accounted for in the development of CEDAW, as well as incorporation of the new DOD definitions for levels of protection.
- 3. CEDAW** is an Excel<sup>®</sup> workbook that calculates the P-i and associated charge weight-standoff (CW-S) relationships, for eleven typical structural components. User inputs are the basic structural geometry, component boundary conditions, material properties, and threat (charge weight and standoff distance). CEDAW generates the P-i and CW-S diagrams with threat parameters shown for graphical interpretation of the expected level of protection. CW-S plots for both fully reflected and side-on pressures are provided. See <https://pdc.usace.army.mil/software/cedaw/> for further discussion of features.
- 4. CEDAW** is approved for public release; distribution unlimited.
- 5. The point of contact** for this bulletin is Dale T. Nebuda, CENWO-ED-S, 402-221-4914.

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