



MICHAEL A. POLCYN
Manager, Protective Structures
BAKER ENGINEERING AND RISK CONSULTANTS, INC.

Education:

B.S., Civil Engineering, Case Western Reserve University

M.S., Civil Engineering, Case Western Reserve

Areas of Practice:

Michael Polcyn works in the BakerRisk San Antonio office and manages the Protective Structures Section. Mr. Polcyn is highly experienced in the analysis and design of a wide variety of structures subjected to blast or impulsive loads from accidental explosions and security threats, having worked over 30 years specifically in this field. His current activities include overall project management of several large multi-disciplinary research programs on explosion consequences and blast response of buildings and structural components. He is also involved in several projects assessing the response of buildings to blast loads and the development of structural upgrades. In addition, Mr. Polcyn is regularly involved in the investigation of accidental industrial explosions.

Experience:

- Analyzed control rooms, office buildings, warehouses, laboratories, and other structures for blast loads from a variety of industrial explosions, including vapor cloud explosions and bursting pressure vessels. He has developed conceptual and final upgrade designs to strengthen inadequate structural components. He routinely develops designs in accordance with ASCE's "Design of Blast Resistant Buildings in Petrochemical Plants."
- Designed several heavily reinforced concrete test cells and explosives bays for a wide range of explosive quantities and required protection levels. He assisted in the design of an underground structure designed for blast loads transmitted through the soil from adjacent buildings. He also has designed substantial dividing walls for missile and ordnance production facilities. Through his substantial design experience, Mr. Polcyn has become extremely familiar with DoD blast design manuals "Structures to Resist the Effects of Accidental Explosions" (UFC 3-340-2) and "Design and Analysis of Hardened Structures to Conventional Weapons Effects" (UFC 3-340-1).
- Designed steel structures, including explosion containment vessels, vessel components, blast ducts, and a variety of blast doors and access panels.
- Involved in the physical security design or analysis of facilities with high potential for terrorist attack. These have included an overseas office building, a police station, federal courthouses, airport facilities, an aviation support facility, a weapons research facility, a museum, and a military facility.
- Involved in the conceptual design and siting of explosives facilities, which requires an understanding of the various applicable safety regulations and criteria such as DoD 6055.9, DoD 4145-26M, NAVSEA OP-5, and DOE/EV/06194. Mr. Polcyn has applied this knowledge both in the development of new facility layouts and in the safety evaluation of existing facilities such as ammunition plants.
- Performed accident investigations at petrochemical, explosives and propellant handling, and other facilities. These studies have documented explosion damage and determined the magnitude of the explosion based on the damage and descriptions of the operations that led to the event.
- Performed siting studies for petrochemical companies to evaluate the effects of an explosion on facilities and personnel. These have included identification of potential explosion scenarios, prediction of blast loads from such an event, and determination of building damage from associated blast loads. He also helped to define procedures for designing control rooms in potentially hazardous environments.
- Involved with the API committees during the development of API RP 752 and API RP 753.

Professional Chronology:

Case Western Reserve University, (Research Asst, 1982-1984); Southwest Research Institute, (Research Engineer, 1984-1990; Senior Research Engineer, 1990-1998); Baker Engineering and Risk Consultants, Inc., (Sr Structural Engineer 1998; Manager Protective Structures, 1998-2003; Senior Principal Consultant, 2003-2013; Manager Protective Structures, 2013-present).

Professional Certifications:

Certified Fire and Explosion Investigator (CFEI)

Professional Memberships:

National Association of Fire Investigators (NAFI); Precast/Prestressed Concrete Institute (PCI)