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Technical Report: Prevention through Design – A Life Cycle Approach to Safety and Health in the Construction Industry

A Technical Report prepared by ASSP and registered with ANSI



AMERICAN SOCIETY OF
SAFETY PROFESSIONALS

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ASSP Technical Report
Prevention through Design -
A Life Cycle Approach to Safety and Health
in the Construction Industry

A Technical Report prepared by the American Society of Safety Professionals

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FOREWORD

This Prevention through Design (PtD) report was developed to provide information and guidance to the construction industry on a “life cycle design” approach to building construction with the goal of reducing or eliminating injuries, illnesses, and fatalities throughout the entire process of building construction, operation, maintenance, retrofit, and demolition. This technical report reviews and organizes recent research, constructive examples, and educational resources on PtD and is intended to be a resource for the design community. The design community includes those organizations and individuals who are in position to understand, accept, and apply PtD principles early enough to make a difference throughout the “life” of the building.

Prevention through Design in construction, and the focus of this technical report, addresses the building life cycle which includes the design and construction phases of a building, its use, and its eventual decommissioning. Although construction includes many types of projects, such as bridges, highways, and dams, the scope of this document is limited to the construction of *buildings*. The application of PtD principles during the building life cycle differs from other construction efforts. However, the process of PtD can be applied to all construction processes.

Construction work has been described as dangerous. However, the preferable terminology that allows for early identification and correction is “hazardous”. There are hazards inherent to the construction of a building as well as subsequent phases of operations and maintenance (O&M), retrofit, and demolition activities. But the life cycle of a building is only as hazardous as the systems (i.e., design, environment, people, etc.) through which it is created. With PtD, hazards and associated risks can be identified, and eliminated or reduced. With growing evidence that early intervention can result in significant reduction and elimination of hazards in all phases of the building life cycle, it is incumbent on building owners and construction design professionals to engage in the PtD process.

The reader will see the PtD process referred to as “techniques”, “components”, “practices”, and “principles”. The use of these terms, as they fit to the issue being addressed, is an indication of the multi-faceted discipline that PtD represents and the need to ensure that all aspects of safety and health hazard prevention are addressed early in the construction process.

Revisions: The A10 Committee welcomes proposals for revisions to this Technical Report. Revisions are made periodically to incorporate changes that appear necessary or desirable, as demonstrated by experience gained from the application of the information contained herein.

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**ASSP TECHNICAL REPORT TR-A10.100
PREVENTION THROUGH DESIGN –
A LIFE CYCLE APPROACH TO SAFETY AND HEALTH
IN THE CONSTRUCTION INDUSTRY**

1. SCOPE, PURPOSE AND APPLICATION

Scope

This technical report provides guidance on including prevention through design concepts regarding the application of occupational safety and health principles in the construction industry. Through the application of these concepts, occupational hazards and risks can be identified, avoided, reduced, and/ or eliminated before, during and after a building or structure is constructed, renovated, and/or demolished.

This technical report complements but is not intended to replace existing specific standards and procedures, but rather to support those that meet related performance objectives.

The goals of applying prevention through design concepts in an occupational setting are:

- A. Achieve that state in which the hazards are identified early, and the exposures to those hazards are reduced to the lowest extent possible to minimize risks.
- B. Reduce the occurrence of occupational injuries, illnesses, and fatalities.
- C. Reduce the cost of retrofitting necessary to mitigate hazards and risks that were not addressed in the design or redesign processes.
- D. To develop a proactive and collaborative team approach between owners/operators, designers and contractors to develop a safe functioning building and work environment throughout the life of the facility.

Purpose

The purpose of this technical report is to reduce injuries, illnesses and fatalities in the construction industry by incorporating methods and features in the design stage and /or construction planning phase of a new construction project and/or renovation or retrofit of an existing building or facility to make a building or structure safer and healthier to build, maintain, and decontaminate, decommission, deconstruct and ultimately demolish. This document is intended to provide guidance for designers, architects, engineers, constructors and owners/ developers on these methods and features.

Application

The concepts discussed in this technical report may be applied in any occupational setting but concentrate on the construction industry.