

Chapter 1 Introduction

1-1. Purpose

This manual provides guidance on effective and economical selection, evaluation, and use of waterstops, preformed compression seals, and other preformed joint materials in the construction of concrete structures. It provides information on types of waterstops and other preformed joint materials used in hydraulic and non-hydraulic concrete structures, including locks, dams, floodwalls, storage tanks, pavements, buildings, bridge decks, and other concrete structures.

1-2. Applicability

This manual is applicable to HQUSACE elements and USACE commands having civil works responsibilities.

1-3. References

A list of cited references is presented in Appendix A. The reader may refer to American Concrete Institute (ACI) Committee Report 504R-90, "Guide to Sealing Joints in Concrete Structures" for additional guidance.

1-4. Definitions

A list of terms and their definitions is presented in Appendix B. These definitions are not necessarily

applicable beyond this manual. The usefulness of these terms within this manual implies that special care is needed whenever waterstop is described formally in a design memorandum or a construction contract.

1-5. Background

Concrete is normally subject to changes in length, shape, or volume caused by changes in temperature, moisture content, reactions with atmospheric carbon dioxide, or by the application of loads. One method of controlling and minimizing the effect of these changes or movements is to provide joints at which the movement can be accommodated without loss of integrity of the structure. There are many other reasons for providing joints in concrete structures such as at doors, windows, cladding, mechanical breaks, or to simplify construction. These joints must usually be sealed to prevent passage of excessive amounts of gases, liquids, or other unwanted substances into and or through the joint openings. Some preformed joint materials not only prevent the passage of undesirable substances but also prevent the entry of hardened particles into the joint that may eventually cause the concrete to crack or chip along the edge of the joint.