

CONTENTS

How to Take This Independent Study Course	iii
Foreword	iv
Rationale	v
Course Goal	vi
Course Objectives	vii
Course Organization	viii
Final Examination	ix
Chapter I: Introduction to Retrofitting	I - 1
Chapter II: Regulatory Framework.....	II - 1
Chapter III: Parameters of Retrofitting.....	III - 1
Appendix A: Final Examination	A - 1

HOW TO TAKE THIS INDEPENDENT STUDY COURSE

PROGRAMMED INSTRUCTION

This *Independent Study Course* encompasses the basic foundation of knowledge required for acceptance into and successful completion of the course titled *Engineering Principles and Practices of Retrofitting Flood-Prone Residential Structures*.

The course is in a format called “programmed instruction” which allows you to work individually and at your own pace. The speed with which you complete this course is partially determined by your previous level of knowledge of the subject matter.

PROFICIENCY CHECK

Each chapter is preceded by proficiency check questions, that are comprehensive of the chapter’s overall learning objectives. These questions may be answered prior to reading the chapter by those who possess an advanced level of knowledge on the material. If the questions are answered correctly, the summary questions at the end of the chapter may be answered next. If the summary questions are answered correctly, the chapter may be skipped. When a summary question is answered incorrectly, review of specific pages and the questions following those pages allows an advanced learner to review the content on an as-needed basis.

TIME REQUIREMENTS

The estimated time required to complete the entire *Independent Study Course* is 12 hours, or one and one-half days.

COMPREHENSION CHECKS

A relatively small amount of information is presented and is followed by a question or a statement to be completed. The answer appears on the following page. Incorrectly answered questions call for review of the information before continuing. This process is repeated until the chapter is completed.

SUMMARY QUESTIONS

Each chapter ends with a set of summary questions or statements. You are asked to complete the summary questions and check your answers. It is incumbent upon the student to review the information within each chapter until a comfortable level of understanding is achieved.

FOREWORD

There will always be natural disasters. Planning for them, mitigating their impact, responding to them, and recovering from them are responsibilities shared by federal, state and local governments and the private sector. While the capability to meet any disaster must be based essentially at the local level where disasters strike, state and federal governments provide guidance and support during all phases of the response, recovery, and reconstruction process.

The Federal Emergency Management Agency (FEMA) provides support vital to the nation's mitigation efforts through training, programmatic and technical guidance, coordination with other federal agencies, other levels of government, and the private sector, and the provision of financial and technical support.

FEMA's training program is delivered through the Emergency Management Institute (EMI) and the National Fire Academy (NFA). These schools are co-located on the National Emergency Training Center (NETC) campus at Emmitsburg, Maryland. EMI provides emergency management training to enhance emergency management practices throughout the United States for the full range of potential emergencies.

Independent Study Program

FEMA's Independent Study Program is one of the delivery channels EMI uses to deploy training to the general public and to specific audiences. In addition to this course, the independent study program includes courses in floodplain management, radiological emergency management, the role of the emergency manager, hazardous materials, and disaster assistance.

Courses are available at no charge and include a final examination. For additional information about these courses, write to

FEMA Independent Study Program
Administrative Office
Emergency Management Institute
16825 South Seton Avenue
Emmitsburg, MD 21727

INDEPENDENT STUDY COURSE RATIONALE

This *Independent Study Course* is offered both as independent study and as a prerequisite to successful completion of the more technical course (of the same name), offered by the Emergency Management Institute (EMI). The information presented in this course provides essential, nontechnical background knowledge about retrofitting. It is assumed that students planning to attend the technical course at EMI will have mastered this content.

RESIDENT COURSE RATIONALE

In an effort to alleviate the financial burdens that floods have traditionally imposed on individuals and on local, state and federal governments, and to control the rapidly growing costs of flood disaster relief, Congress established the National Flood Insurance Program (NFIP) in 1968. The Federal Insurance Administration (FIA), manages the insurance aspects of the NFIP. The Mitigation Directorate manages the floodplain management aspects of the NFIP. Both are part of the Federal Emergency Management Agency (FEMA).

Part of the Mitigation Directorate's mission, the management of the NFIP, includes helping communities adopt and enforce regulations which meet the minimum floodplain management standards set by the NFIP. The training developed for this project has been designed to increase understanding in a variety of areas related to floodplain management. Among these areas are an understanding of the NFIP, minimum standards of floodplain management, as it relates to the methods of retrofitting. Additionally, this training addresses engineering and related economic factors that must be considered in the decision-making process in order to select the most appropriate retrofitting measures for individual structures.

The primary target population for this training includes the design and construction professionals ultimately responsible for making decisions related to retrofitting residential structures in flood-prone areas. Specifically, this includes engineers, architects, and local code enforcement officials.

COURSE GOAL

The goal of this *Independent Study Course* is to provide essential, nontechnical information about retrofitting existing flood-prone residential structures. The retrofitting measures presented are creative and practical, comply with applicable floodplain regulations, and are satisfactory to homeowners.

COURSE OBJECTIVES

At the conclusion of this course you should be able to do the following:

1. Identify basic retrofitting methods appropriate for residential structures in flood-prone areas.
2. Identify NFIP policy toward retrofitting flood-prone residential structures and the regulations that govern retrofitting projects.
 - 2.1 Define the relationship between NFIP regulations and other codes and regulations that govern retrofitting projects.
3. Evaluate the suitability of retrofitting measures for individual residential structures in terms of
 - 3.1 Technical parameters
 - 3.2 Homeowner preferences
 - 3.3 Federal, state, and local regulations

INDEPENDENT STUDY COURSE ORGANIZATION

CHAPTER	TITLE
I	Introduction to Retrofitting
II	Regulatory Framework
III	Parameters of Retrofitting

FINAL EXAMINATION

The final examination directly reflects the learning objectives of each chapter. Once the *Independent Study Course* has been completed, the final examination should be taken and mailed to:

FEMA Independent Study Program
Administrative Office
Emergency Management Institute
16825 South Seton Avenue
Emmitsburg, MD 21727