BUILDING SYSTEMS ANALYSIS AND RETROFIT MANUAL

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC.
www.smacna.org

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SECOND EDITION – MARCH, 2011

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by

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FOREWORD

This second edition updating and revision of the Retrofit manual comes at a time when green building guidelines, standards and codes are either recently finished or nearing completion. These guidelines, standards and codes are markers on the road to a sea change toward new approaches in new building construction. While these new green guidelines, standards and codes also apply to major renovation of existing buildings the focus is on new construction and little has been published to address the much larger issue of energy efficiency in existing buildings.

Historically, new buildings have added less than two percent to the total inventory of commercial buildings in the United States on an annual basis. For meaningful energy use reductions to occur on a national scale, the energy efficiency of thousands of existing buildings must be improved significantly. For the United States to make major progress in reducing its national energy consumption, most, if not all of the existing buildings must use far less energy.

Characteristics of all the green codes and standards are that public transportation be accessible nearby and that new land—greenfields—development is discouraged. Existing buildings are often located near public transportation and development typically occurs on a building's existing footprint. These two "greening" drivers may combine with basic economic factors to produce a compelling incentive for many prospective building owners to choose renovation of an existing building over the construction of new facilities.

The other factors that will help drive the retrofit and upgrade of existing buildings is the rising cost of energy and fuel. As other countries compete more fervently for the world's available fuels, higher prices are inevitable. Payback periods and return on investment intervals will shrink sufficiently to more easily justify capital outlays on the most energy efficient buildings; resulting in modifications to building envelopes, HVAC, plumbing and electrical systems.

The members of the *Building Systems Analysis and Retrofit Manual* task force have shared their expertise in the belief that other contractors will consider and enter the promising field of retrofitting and upgrading existing buildings. Readers of this manual are encouraged to submit additional thoughts and ideas to SMACNA's Technical Resources staff to further add to the building science and art presented in this manual.

SHEET METAL AND AIR CONDITIONING CONTRACTORS'
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