Introduction

The past 10 to 15 years have seen an enormous evolution in roofing materials and systems design when compared with the previous 100 years. Two ASTM Special Technical Publications—Roofing Systems, ASTM STP 603 (1976), edited by D. E. Brotherson, and Single-Ply Roofing Technology, ASTM STP 790 (1982), edited by W. H. Gumpertz—contain papers describing these changes. A century ago near-level roofs were constructed of alternate layers of bitumen and paper made of rags and wood by-products. This technology had changed little until relatively recent years. The subsequent proliferation of new roofing systems includes a variety of reinforced or nonreinforced elastomeric and plastomeric sheets, which can be fastened, adhered, or ballasted to the deck, and modified bitumen sheets, with or without reinforcement, applied in one or more layers using hot or cold bitumen adhesives or fused in place using a torch or other heating devices. All of these membranes can be placed above or below the insulation. Finally, there are the liquid-applied membrane systems in use today, and some yet to be developed. There is no reason to believe that we have seen the end to innovations in roofing technology. As in the past, some of these technologies will provide improvements in economy and performance. A few will result in complete or near disaster.

In spite of this onslaught of changes in the roofing industry, roofing standards development has been very slow, and has been for the large part prescriptive in nature. The current standards do little to predict performance, except to prescribe specific products that may have proven field performance credentials. There are many in ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials who feel that the reason for these shortcomings is the low level of nonproprietary roofing research in the United States. This results in a lack of laboratory and field data which may be used to predict the behavior of roofing components and systems when subjected to service environments. It is for this reason that ASTM Committee D-8 decided to conduct the symposium on Roofing Research and Standards Development, which has resulted in this Special Technical Publication. The committee believes that this and similar forums will nurture the development of laboratory and field data of high quality and will further its goal of achieving excellent and timely standards for the continually changing roofing industry.

The improvement of roofing technology is largely a result of the unselfish commitment of ASTM members, both past and present, to excellence in roofing standards development. This publication is dedicated to them.

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