An Introduction to Roofing Systems

An Online Continuing Education Course for Engineers

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An Introduction to Roofing Systems

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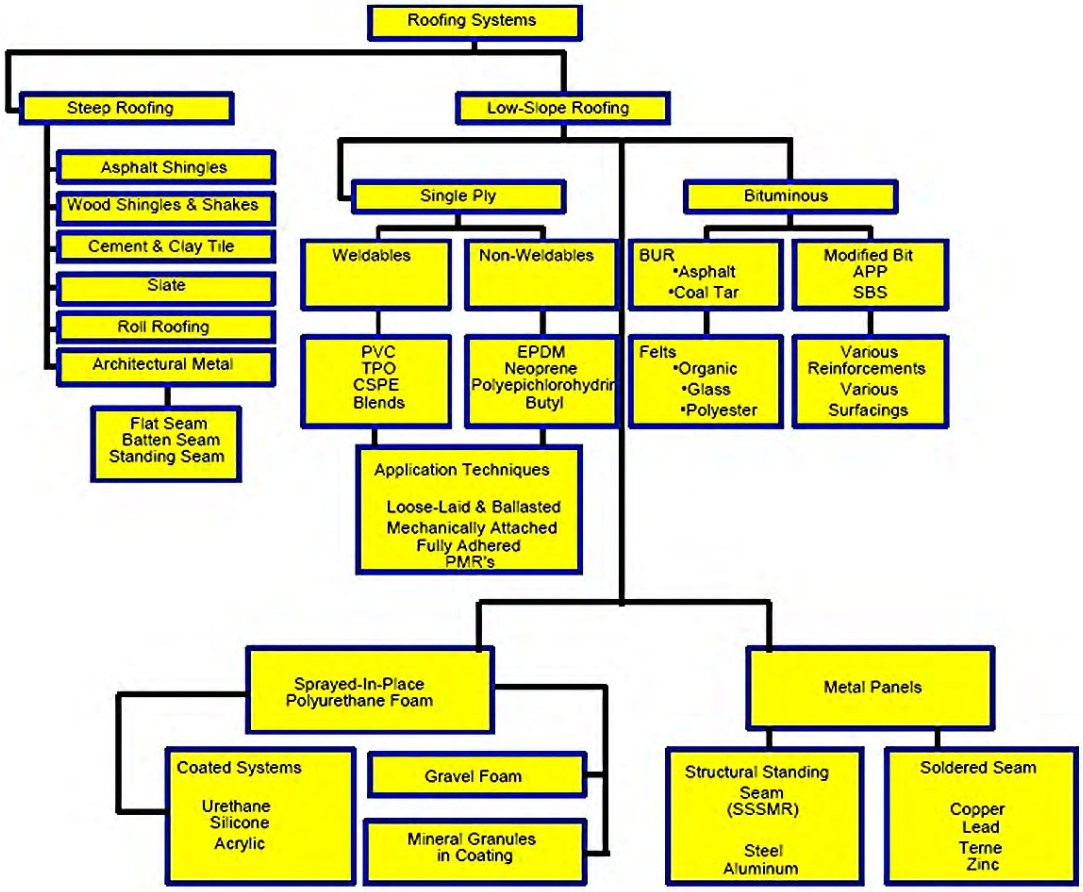
1. STARTING POINTS FOR ROOF SYSTEM SELECTION. This Chapter is intended to introduce the major considerations in selecting a roofing system. Figure 1 depicts the various alternative roofing systems and how they relate. When commencing the selection process there are two different starting points.



Material and Roofing System Options

Figure 1

1.1 New vs. Reroofing. The roof may be part of a new building design; or, it may involve the reroofing of an existing structure (replacement or re-cover). Today, approximately 75% of roofing activity is reroofing.

1.2 Steep-Slope vs. Low-Slope. In new construction the designer is very likely to have a preconceived notion as to whether a highly visible *sloped-roof* is wanted, or whether a less visible *low-slope* roof design is acceptable. Positive drainage is a very important design criterion. When reroofing, it may be feasible to improve drainage by using tapered insulation or sloped deck fills.

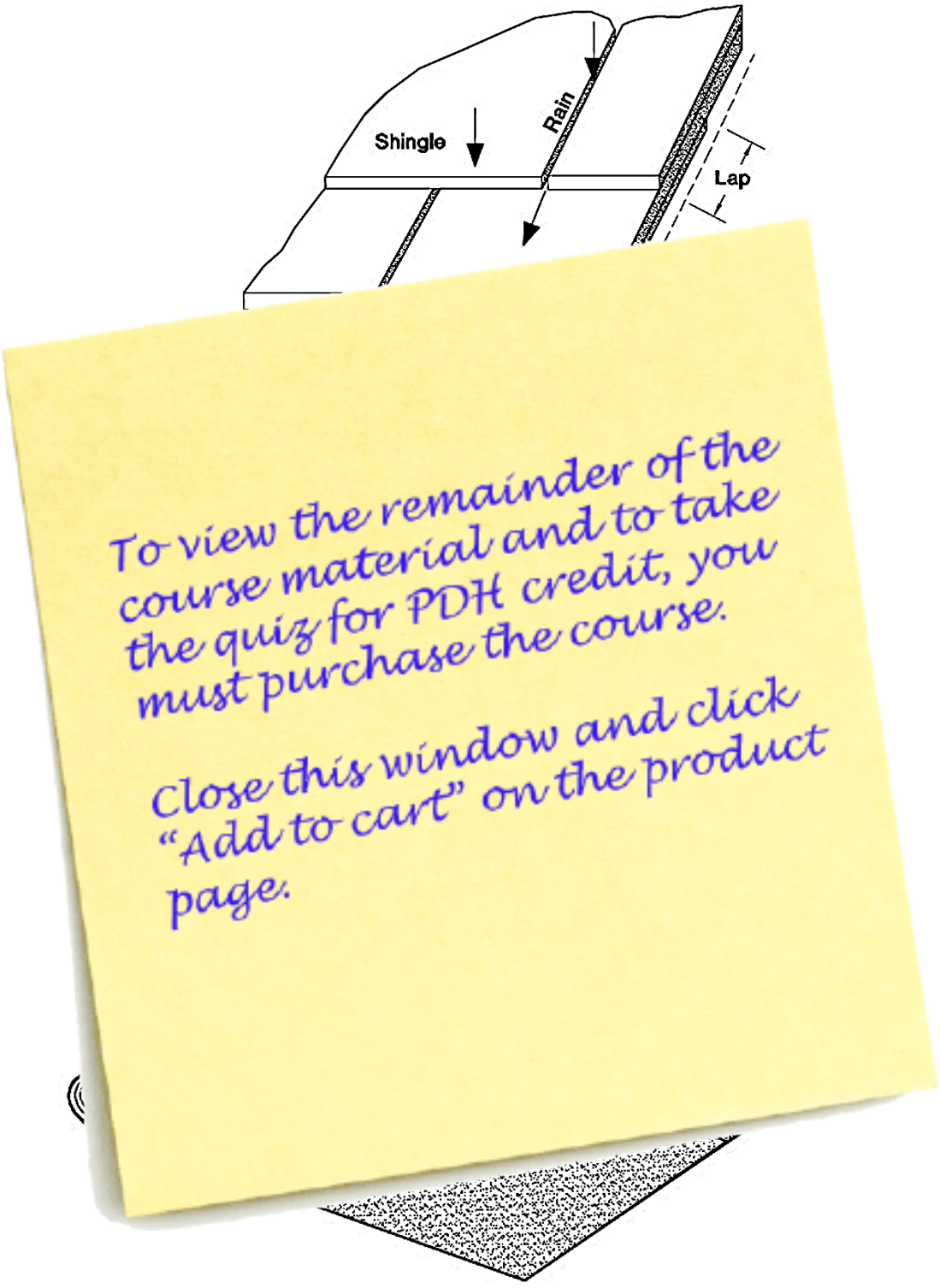
2. SELECTION CONSIDERATIONS FOR STEEP ROOFING SYSTEMS. Table 1 evaluates common steep roofing systems based upon some use criteria.

2.1 Aesthetics. Steep roof systems make a strong visible statement about a building. The texture, shadow-line, and color are major factors in selection.

2.2 Minimum Slope Requirements. Steep roofs function by shedding water rather than by being waterproof (Figure 2). Minimum slopes as shown in Table 13, are required in order to insure proper drainage.

2.3 Categories of Steep Roofing. Major categories of steep roofing include asphalt shingles, wood shingles and shakes, tile, slate, architectural metal, asphalt roll roofing, and fabricated units of metal or plastic intended to look like the others. Only asphalt roll roofing and asphalt or wood shingles may be re-covered.

2.4 Snowshedding and Ventilation. Sloped roofs are effective snowshedders. In addition, the attic space that accompanies steep roofing makes it easy to ventilate the roofing system.



Low-Slope (hydrostatic)

Figure 3