

## **Design Standard Roofing**

### **Purpose**

Roofs are an essential waterproofing component of the building envelope. Roofs of reliable and enduring quality are critical to school operations, since operating budgets preclude expensive or even inexpensive repairs. The purpose of this design standard is to ensure consistency in the provision of roofs, therefore achieving a standard of functionality, maintenance, reliability and quality throughout all renovation and new construction projects.

### **Design Standard**

#### **1. Acceptable Roof Membranes**

The buildings at ESUHSD's suburban campuses are generally single story; there are some two story buildings. These buildings predominantly have flat roofs; some have pitched mansards. There are many portable classroom buildings, with their ubiquitous standing seam metal roofs.

Acceptable roof membranes include:

- Built up, minimum 4 plies, fully adhered with modified bitumen cap sheet
- Single ply, 80 mil TPO
- Standing seam metal
- Shingle (slate, cement, and composition asphalt)
- Clay tile

ESUHSD may consider other membranes as recommended by the design professional.

#### **2. Warranties**

To ensure quality of workmanship and materials, the design professional shall specify these warranty requirements:

- a two year installer's workmanship warranty
- a 30 year non-prorated manufacturer's warranty

A typical roofing membrane is comprised of a variety of components, including insulation, adhesives, flashing, counter flashing, walk pads, fasteners, termination bars, vapor retarders, primers, asphalt-impregnated papers, bitumen sheets, etc. The design professional shall specify all possible components to be sourced from the same manufacturer, to facilitate a single point of warranty.

The warranties shall list as the Owner: East Side Union High School District, 830 No. Capitol Ave, San Jose, California 95133.

### **3. Spare Penetrations**

The design professional shall specify a minimum of two spare roof penetrations (more for larger buildings), for future cabling pathways. Locate the spare penetrations above utility rooms when possible, for ease of future access.

### **4. Walk Pads**

The design professional shall specify walk pads from access hatches or doorways to each piece of equipment (usually mechanical system equipment) that requires service access at monthly or more frequent intervals.

### **5. Roof Drains**

The design professional shall specify cast iron drain screens that are mechanically attached to roof drains. Plastic screens and/or screens that merely sit atop the drain are unacceptable. This requirement ensures that the screen will provide decades of service and won't blow over in a strong wind or be inadvertently displaced, rendering the drain unprotected.

The design professional shall specify that prior to the start of construction (including demolition), the installing contractor must test the roof drains to confirm function. The contractor shall obtain direction from the District on remedial actions required for any clogged drains. The drains must again be tested following construction to confirm that all drains meet or exceed the drainage functionality established prior to roof work. The contractor must repair drains with diminished capacity.

During demolition and construction activities, the contractor shall block all roof drains using expansion type plumbing test plugs, to prevent debris from entering and clogging drains. The contractor shall remove plugs at the end of each work day to return all drains to operating conditions.

### **6. Manufacturers**

The design professional shall provide an open specification that lists a minimum of three manufacturers, and includes an "or equal" clause. The specification shall not be so specific to a single manufacturer's product(s) as to discriminate against and prevent other manufacturers from competitively bidding.

### **Approved Manufacturers**

- Firestone
- GAF
- Garland
- Johns Mansville
- Sika Sarnafil
- Tremco

### **Substitutes Allowed?**

Yes, if performance and quality equivalency can be evidenced.

### **Associated Design Standards and Construction Specifications**

- Not applicable

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