ADMIXTURES:
Various admixes are produced for a number of reasons either increasing bond strength or adding crack and water-resistance. Admixtures should be tested and proven to work with plaster and not used automatically or indiscriminately. Any specified admix should be specifically for portland cement plaster/stucco and used per manufacturer’s recommendations.

The use of chemical admixtures in plaster mixes that contain calcium chloride, such as Anti-hydro®, is not a recommended practice. According to the American Concrete Institute ACI 524 “calcium chloride should not be used when portland cement-based plaster will come into contact with metal lath, anodized aluminum, galvanized steel, or zinc accessory products. Calcium chloride can accelerate the corrosion rate of metals.” Additionally, the Portland Cement Association EB049 states: “Quality plaster that is properly cured does not need water repellent admixtures”. Laboratory tests that measure time of setting and water permeability of plaster show water-repellent compounds may actually retard portland cement hydration and increase permeability. Other admixtures for other cement or concrete-related products are sometimes specified with plaster mixtures with good intentions. However, these admixes could have the opposite effect than the intent.

FIBERS:
Alkaline-resistant fibers are marketed by various manufacturers who claim they reduce shrinkage cracking in concrete and portland cement-based plaster. A variety of different types of fibers, including Alkaline Resistant (AR) glass, nylon, polypropylene and cellulose are considered appropriate for plaster and concrete.

Although fiber manufacturers published literature claims an increase in flexural strength, higher impact resistance and other benefits, in addition to reducing shrinkage cracking, it is the later that we notice most consistently.

Recognized standards such as ASTM C926 contain a reference to fibers stating, “fibers, natural or synthetic – an elongated fiber or strand admixture added to plaster mix to improve cohesiveness or pumpability, or both.” The only fibers of which we are aware that improved pumpability were asbestos fibers and they are no longer allowed to be used.

The Guide to Portland Cement Plastering published by the American Concrete Institute (ACI 524R) suggests, “When accepted by the project specifications, fibers conforming to ASTM C1116 may be used. If glass fibers are used it is important that they are alkali resistant. Fibers should be added to the mix in the manner and amount recommended by the manufacturer.”

Fiber manufacturers recommend proportions vary appreciably. AR Glass fiber producers recommend 1 pound of fiber per 94 pound sack of cement when mixed with sand and two pounds of fiber per sack of cement when lightweight aggregate such as perlite is used instead of sand. Polypropylene and nylon fibers are recommended to be used in lesser portions. Some ¼ inch polypropylene “fiber-short” manufacturers recommend 1/8 pound of fiber per sack of cement.
PLASTICIZERS:
Traditionally hydrated lime has been used with portland cement to increase workability and pumpability. Many regions, especially near the coast, and some insurance policies, prohibit lime in its normal, powder form. Today proprietary plasticizing products are used as a substitute for lime providing they are intended to be used for this purpose and the contractor has a proven track record with the product. Gibco® and EZ SpredTM are just two examples of plasticizers used locally with good results. However, any substitution should be approved by the architect and may require code approval. They are not intended for use with plastic or masonry cement.