lent should not differ in appearance, during dry weather, from a similar, untreated wall.

Water repellents are not waterproof. They will not bridge gaps in mortar or sealant joints. Their use is not a fail-safe for poor mortar practice, nor a substitute for damp-proofing. Water repellents have been suspected of contributing to surface scaling in some cases. It is possible that a water repellent allowing vapor transmission may reduce the rate of transmission compared to identical, untreated, substrates.

Water repellents should be applied only on completed walls, with mortar or sealant joints in place. They should not be applied over wet or stained stones, nor to stone backs, nor stones under grade.

Good workmanship is essential in the application of water repellents. As a class, the materials tend to be labor-sensitive; substrate condition, weather condition, application tool, flow rate, etc., should all be in accordance with manufacturers’ instructions.

ILI does not recommend specific types or brands of water repellents. Product types including silicones, stearates, acrylics, silanes, and siloxanes have all been used with apparent success on Indiana Limestone. ILI does recommend that (1) stone samples be treated on only one-half their surface for initial evaluation; (2) manufacturers provide statements on both vapor transmission and guarantee; and (3) applicer and manufacturer agree on the condition of the wall and the weather prior to application.

An understanding of probable retreatment costs, probable length of time until retreatment may be needed, and alternatives to retreatment should be part of the consideration of water repellents.

ILI will respond to requests for further information on this subject.

**GRAFFITI REPELLENTS.** Graffiti materials include pencil, lipstick, felt-tip pen, spray paints, enamels, and lacquers. Each requires its own type of removal process and materials. The only general rule is that prompt cleanup will be the most successful. Specific recommendations for removal are given in other ILI publications.

Graffiti-proof coatings should not be confused with water repellent materials mentioned earlier. Successful coatings tend to be slick or shiny. They offer no “tooth” to which graffiti materials may cling. The coatings also tend to retard the wall’s ability to breathe. Therefore, their use should be limited to those areas subject to graffiti—generally within about eight feet of grade.

These coatings may change the color of the stone by altering the refractive qualities of its surface; thus, they may become a design consideration. Application should be terminated at joints or other natural stops. Some coatings are fragile and easily scratched when damp.

**flooring and paving with Indiana limestone**

As suggested in Note C, Table II, Indiana Limestone can perform satisfactorily as a flooring and paving material. Surface wear due to insufficient abrasion resistance in the stone is seldom a cause of problems with paving except in high-traffic, bottleneck areas. Because bending failure is not a factor in most flooring applications, thickness decisions can be made based on other factors. ILI or its member companies should be consulted on available thickness.

For exteriors, Indiana Limestone will give the most satisfactory performance when no moisture can rise through it from grade, mortar bed or concrete base. In practice, isolating the stone from this “rising damp” can be done by dampproofing ALL unexposed surfaces. (See pp. 30 and 63.) Thereafter, the stone can be set as usual.

Isolation can be achieved also by the use of setting mats or pedestals. Either system allows moisture to move below the stone’s lower face, along the concrete base to properly located drains. For greatest efficiency, these systems are set with open joints, or butt joints, which allow for continuous drainage.

In any setting system, drainage of surface water is of the greatest importance. Especially in frost areas, slope and crown must be properly designed and built, and water must be channeled away from the paving. In mat and pedestal designs, subsurface drains must be kept free-flowing and clear of debris.

Exterior stone will not usually need a sealer or other protective treatment on its upper surface. Allowing the stone to acquire its natural patina with age is usually a better decision than to apply a temporary coating. These products will usually either darken the stone, or cause it to shine, or both. They may increase slipperiness as well.

Limestone used as interior flooring must usually be applied on a mortar bed. “Thin-set” mastic can also be used provided the concrete base is very flat and level. Bituminous mastics will usually not bleed or “telegraph” through limestone. Test applications are recommended.