SUPPLEMENT

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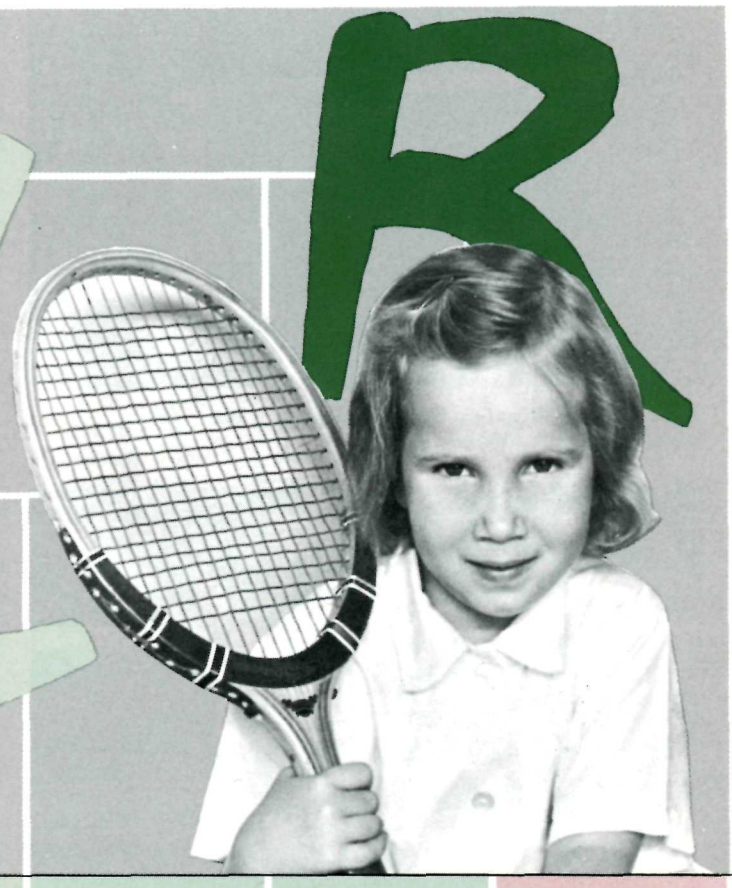
COLOR for your COURTS



ANYONE FOR TENNIS?

In the beginning, the Greeks played a game having a resemblance to tennis, but the modern game had its conception in France during the Middle Ages.

At first, the ball was struck with the hand and hit over a low bank of earth. Later the French introduced the use of the racket. The Royalty of France and England were the first to take up the game, playing on expensive courts in their castles. This caused tennis to be known as the "royal game." Later, the name was changed to "Lawn Tennis" then to "Tennis." The word "Tennis" comes from the French word "tenez," which is a command "to play."

There was a time when only the wealthy played tennis—but not so today. The dramatic increase in popularity of the game is well indicated by the large number of new tennis courts built in the last decade. (See figure #1) Tennis courts are now a "must" for every private club and resort hotel.

Tennis is a major sport in a growing number of public school systems. Their courts often serve a dual purpose, as in Baltimore County, Maryland, for both school athletic activities and as part of the community recreational program. Such positive programs, carried out on a large scale, provide facilities of durable construction without waste and duplication.

Texture of asphalt surface before application of Plexipave - Hardy Playground, Washington, D.C.

Layout of lines for two-tone application of Plexipave - Hardy Playground, Washington, D.C.

Mixer Setup - Hardy Playground, Washington, D.C.

Major park systems are building batteries of multiple courts, lighted for night play. Experience has shown these receive use from early morning to nearly midnight. For the young, "tennis dates" under the lights have become popular. It is an economical sport for players, filled with keen individual competition. The tempo of the game is such that there is no definite cutoff with age, and the tennis facilities of a community or club represent a sound investment serving a large cross section of the members.

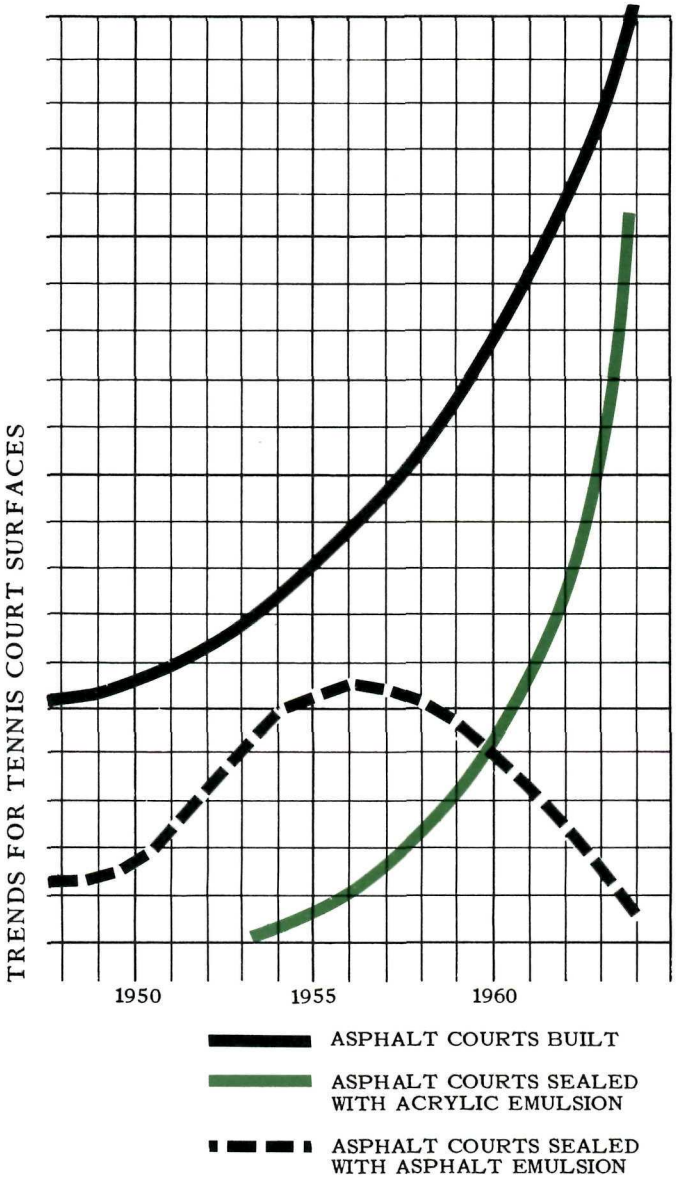
REQUIREMENTS

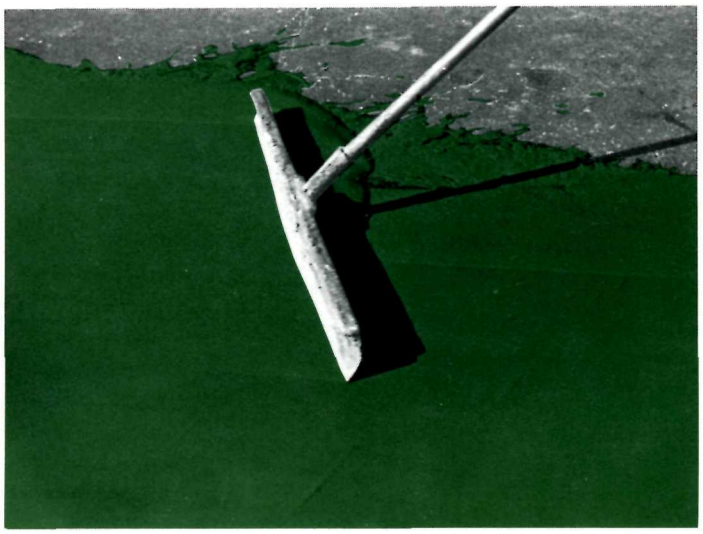
Because of this intensive use of good tennis facilities, they must be available without frequent maintenance and repairs. When it rains, they must drain and dry fast. The surface must have a true re-bounce characteristic, have resiliency, and be attractive. Their initial building cost must be reasonable. This implies a system of construction that is not grossly affected by weather or by long curing time of the materials used. A well-built court requires considerable skill and experience to construct. It is most important that these capabilities be combined with the recent advances in development of ideal new materials. This combination is now attainable and produces trouble-free surfaces of ideal texture in pleasing colors having maximum player acceptance.

EVOLUTION

Just a decade ago, researchers at California Products Corporation in Cambridge, Massachusetts, recognized the outstanding characteristics of acrylic emulsions as a binder for a durable color-coating to be applied over the drab or black surfaces of asphalt all-weather courts. Previous attempts to introduce color into asphalt directly resulted in dismal colors, reduced binding and bonding properties of the asphalt, and discoloration of the tennis balls. Other efforts to use colored granules imbedded in the asphalt caused rapid wear of the tennis balls and quick changes in their characteristics.

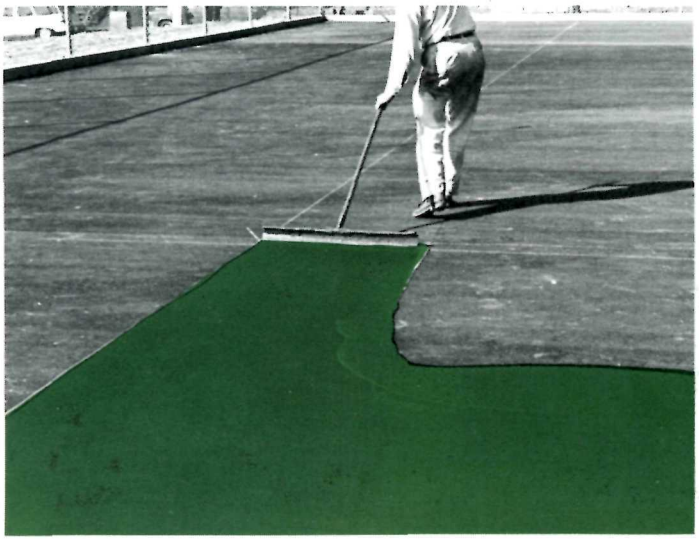
Not until California Products PLEXICHROME was introduced, did asphalt all-weather tennis courts receive full player acceptance. They found the surface (generally grass green) pleasing to their eyes and 10 to 20° F. cooler to play on. Some players even maintained that this color-coating seemed to give a resilient, less-fatiguing surface. The advantages of Plexichrome were quickly recognized by both players and leading tennis court builders who incorporated this finish coat of color into their proprietary specifications.



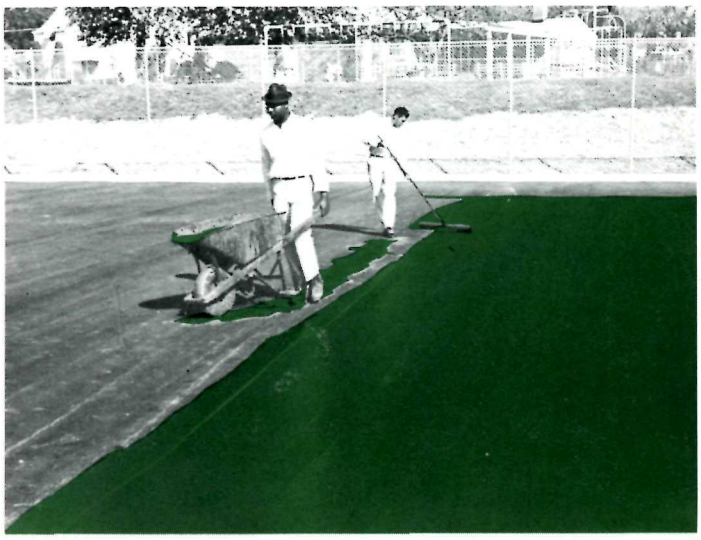


Close-up of squeegee applying first Plexipave Filler Coat - Hardy Playground, Washington, D.C.

Application of Plexipave Filler Coat for two-tone court - Hardy Playground, Washington, D.C.



Application of Plexipave Filler Coat for two-tone court - Hardy Playground, Washington, D.C.



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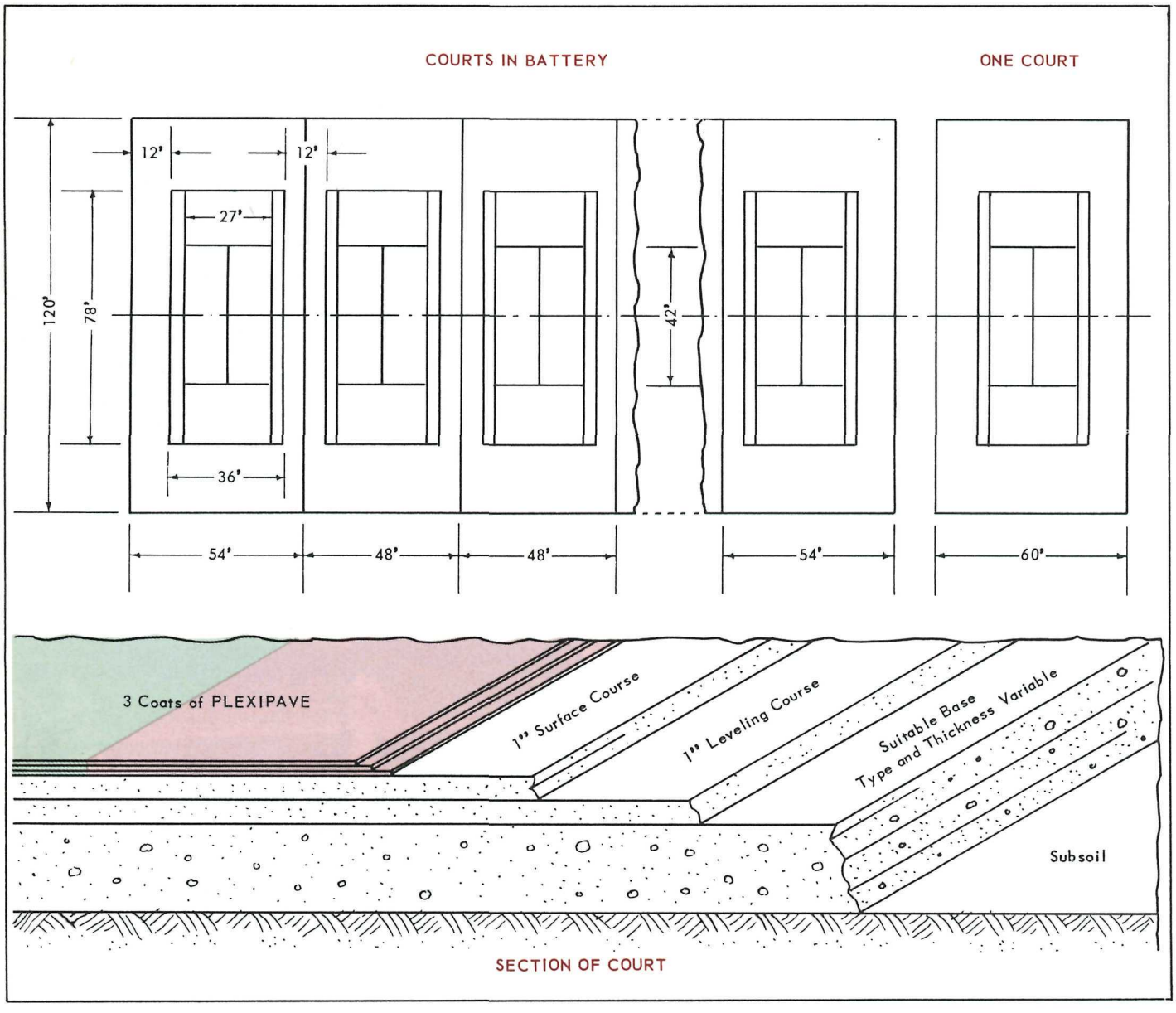
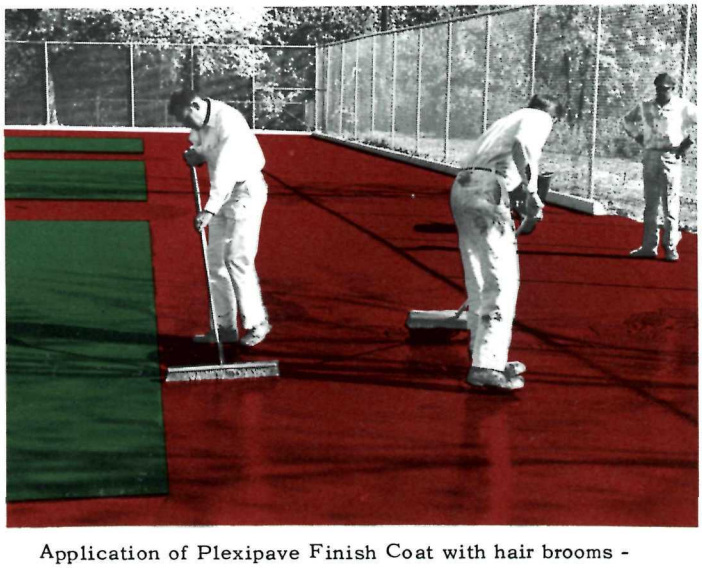


Application of Plexipave Finish Coat -
Congress Heights Playground, Washington, D.C.



Application of Plexipave Finish Coat with hair brooms -
Congress Heights Playground, Washington, D.C.

One method of lining tennis courts

The characteristics of Plexichrome are:

1. Tough, durable film obtained by using the acrylic emulsion binder which bonds to asphalt in such a way that it seems to actually link its molecules to the asphalt producing a monolithic material.

2. Flexible color finish, compatible with the asphalt, having expansion and contraction characteristics so similar that the relatively wide movements of the asphalt do not cause Plexichrome to crack or lift. The acrylic binder never loses its flexibility and film integrity.

3. Protective coating to prevent rapid oxidation of the asphalt due to ultra-violet rays of the sun and from other weather conditions. This property is particularly important to bitulithic pavements subjected to light traffic such as tennis courts and play areas.

4. Adequate "breathing properties," permitting vapor pressure of moisture from below the surface to escape. Tests show that the Plexichrome acrylic color finish has a vapor transmission rate approximately 17 times greater than that of a typical asphalt emulsion. Although permitting vapor pressure to escape through the lattice of its molecules, Plexichrome serves as an effective barrier to water on the surface. It is not affected by detergents so that dirt, dust and leaf-stains can be easily washed off.

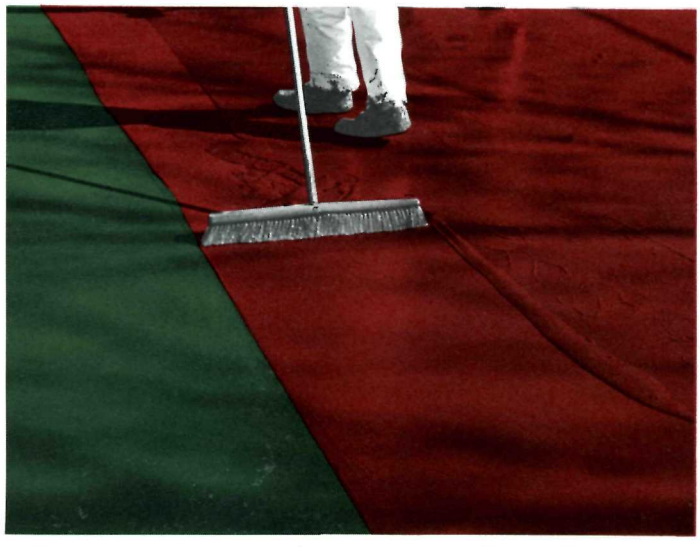
5. Excellent color retention, by using pure inert mineral pigments. Many private courts have not required recoating after 6 - 8 years and numerous public courts have retained over-all color uniformity for 5 years.

6. Rapid drying, quick curing coating which can be easily applied without highly skilled techniques or expensive equipment.

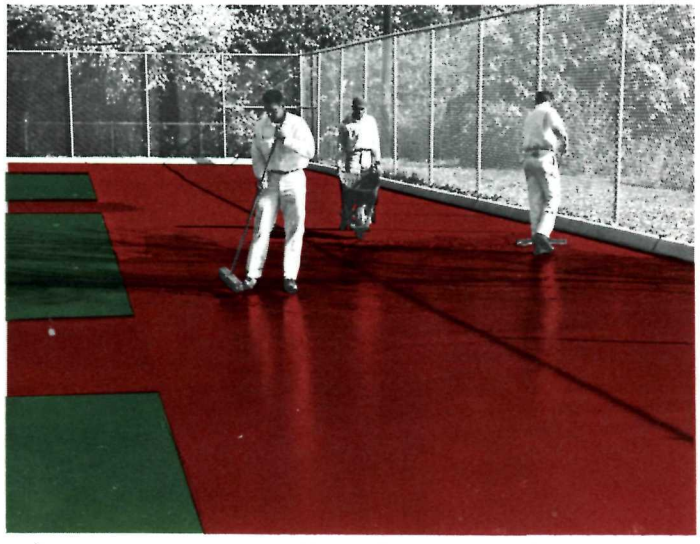
DEVELOPMENT of PLEXIPAVE ACRYLIC COLOR

The construction of all-weather asphalt courts has, in the past, involved the use of certain petroleum extractions in the form of asphalt emulsions. These emulsions, incorporating silica fillers, were used on surface courses to attempt to improve its level and texture uniformity. Even though painstaking care was used in construction, many examples of crazing, cracking, "allegatoring" and interface lifting have been noted. Adquate explanations have eluded many experienced technical people as well as the owners of courts. It is apparent that certain critical properties of bitulithic emulsions limit their practical application. These problems may be related to their physical properties, weather conditions, and/or mixing and application techniques, especially of surface wearing courses.

The apparent need for a more trouble-free, universal wearing surface providing the required filling properties for uniformity and combining the performance characteristics of acrylic Plexichrome was realized by the California Products Corporation. After more than 5 years of development and field applications under all climatic conditions, the PLEXIPAVE ACRYLIC COLOR SYSTEM has proved completely successful.



Close-up of hair broom applying Plexipave Finish Coat - Congress Heights Playground, Washington, D.C.



Application of Plexipave Finish Coat with hair brooms - Congress Heights Playground, Washington, D.C.

COLOR IN DEPTH

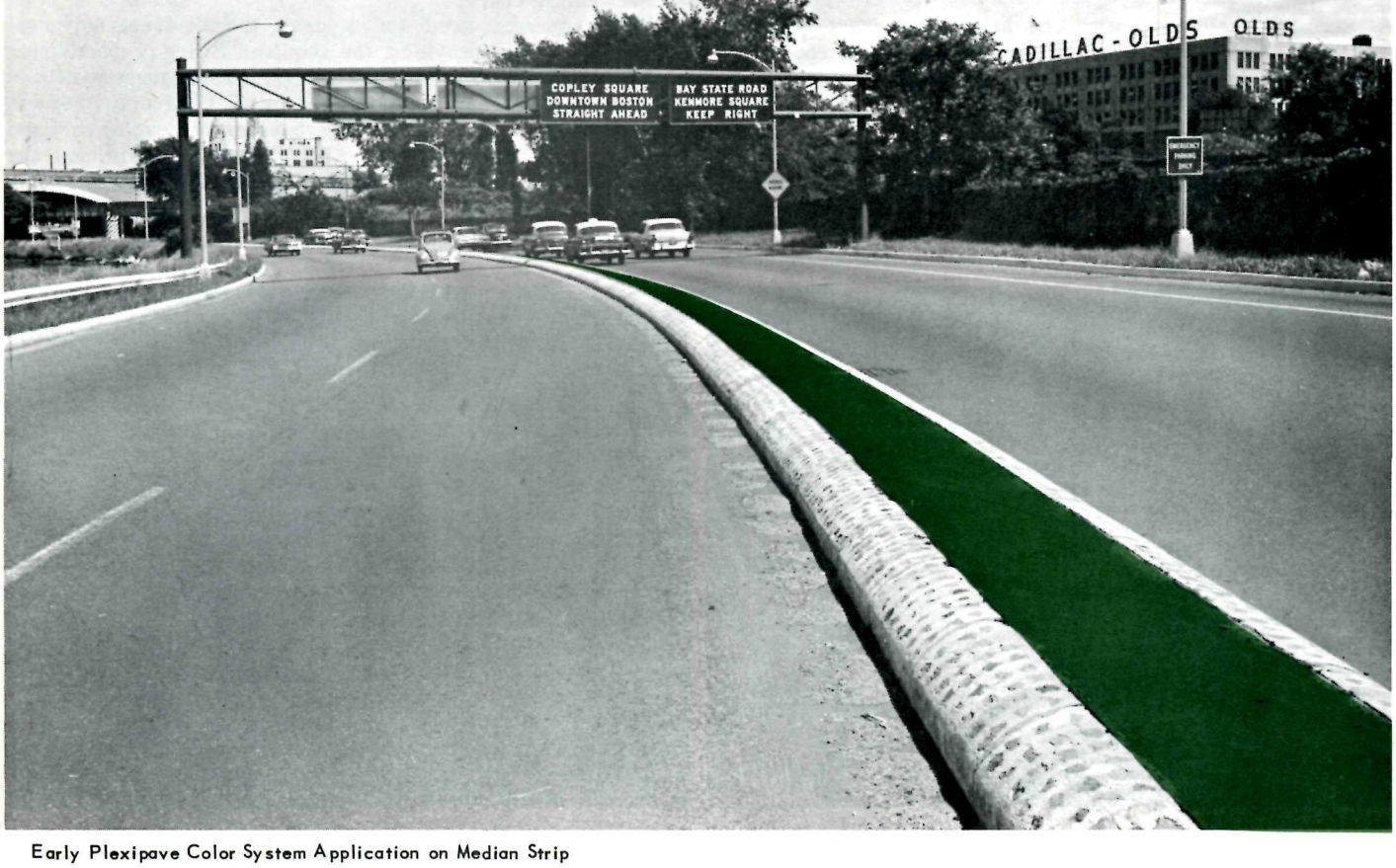
This Plexipave Acrylic Color System not only overcomes the critical limitations of previously-used materials but it provides a significant thickness of color so that wearing performance is greatly improved in the service areas of tennis courts and around the goals of basketball courts. This "color-in-depth" has withstood the usage of street shoes on basketball courts, for instance, for several years.

Plexipave Filler Coats are applied by squeegees directly over most any type of sound asphalt surface courses. The *elasticity and bond are sufficient to permit application directly* to a plant-mix surface course. This suggests the more economical and rapid construction of multiple tennis courts using machine application of standard specification plant-mix asphalt leveling and surface courses. Once grades have been established, these courses can be laid well within the required tolerances by an experienced machine operator. Because Plexipave, as it comes in its containers, is of trowelable consistency, it can be used to fill depressions, low areas, and voids. The Filler Coats hide ordinary seams and variations in the surface course of asphalt.

Plexipave Finish Coat has basically the properties of Plexichrome previously described. It provides the color uniformity to the Filler Coats (two are generally used) and gives an ideal non-slippery, safe playing surface.

Plexipave is available in the following colors: Grass Green, Dark Green, Red, Sand, Blue, Turquoise, Light Gray, Dark Gray, and Line colors, White and Yellow.

Texture of asphalt surface after application of Plexipave Color System



Early Plexipave Color System Application on Median Strip

ECONOMICAL

The Plexipave Acrylic Color System, although utilizing a more expensive and higher quality binder than bitulithic types, provides a notable saving in labor of application and is competitive in over-all cost. This saving is largely due to the ability to apply multiple coats without prolonged curing time between applications and many return trips. There is no priming required before application of Plexipave. Rolling is not required after the application of Plexipave. The acrylic emulsions have the property of being "cured" (molecules are chemically linked) as soon as the material is thoroughly dry. It is not uncommon to apply two Filler Coats of Plexipave, a Finish Coat, and the lines of a tennis court on the same day!

COLOR MAKES THE DIFERENCE IN MANY OTHER USES

The use of the Plexipave Color System on tennis courts is highly essential because of the nature and requirements of the game. Not to be overlooked, however, are the many other applications equally effective and representing a sound investment.

For evaluation of the acrylic color application in a specific project, these factors would be considered in addition to the obvious esthetic values:

1. Safety - Color plays a major part in accident prevention control. Its use for this purpose on playgrounds, public areas, and in certain vehicular traffic applications has been well established. A change in color is an "alert" signal defining limits of play around playground equipment—well illustrated by the Artisani Playground of the Metropolitan District Commission of Boston which actually utilizes seven colors. The unfortunate trend toward placing legal responsibility for alleged negligence on individual officials and supervisors of public recreational facilities is causing extreme and expensive preventive measures to be taken in play area design. The more practical approach illustrated here involves the use of a resilient asphalt, called RESLITE, coated with Plexichrome colors. Applications to the median strips of divided highways reduce monotony to drivers and better delineates boundaries, particularly in bad weather. The color creates an attractive effect resembling grass center strips, yet maintenance-free.

2. Public Care and Appreciation of Facilities - The use of color on play facilities has been shown to create a degree of respect by children greatly reducing ordinary damage and destruction. The pleasant appeal of the "Candy Cane" design, for instance, is not likely to be scratched or marred only to reveal a black or colorless surface. Just as clean facilities promote cleanliness and care, so color implies over-all values to be preserved.

3. Protection and Reduced Maintenance - The sealing properties of the acrylic color system play a major roll in providing long life to the surface. Although low-cost tar sealers without color are available for this purpose, their application labor is approximately equivalent to that for color coatings. With a color system that withstands the wear of a particular functional use there can be no question of the relative merits of it over the ordinary black sealers.

Like the stripes make a zebra--
PROPER LINES
MAKE A TENNIS COURT

The use of ordinary traffic marking paint has long since been discarded as unsuitable for lining asphalt tennis courts and play areas. Its detrimental effect is indicated by cross-cracking within the line and parallel cracking along the edge of the line.

Highway engineers have experienced the same problem with traffic marking paint on asphalt berms and curbings. They now have an easy solution.

The use of acrylic Plexicolor Line Paint prevents any such deterioration and gives a beautiful non-glare, white line. It may be applied by spray, brush, or line marking machines. Less than one gallon is required for a doubles tennis court.

The Results of Solvent-type Traffic Paint on Asphalt Curb After 6 Months

The long wearing properties of the Plexipave System make it suitable for use where thin paint-type coatings would rapidly wear away. Unlike paint coatings of 2 to 5 mils in thickness, proper application of this finish gives a film thickness of 3/64th inch to 1/8th inch with color throughout. With this thickness, Plexipave is not fragile and subject to easy scuffing. The use of street shoes often used around outdoor basketball courts and general play areas cause no difficulty.

A list of the use for the material have included many purposes:

- Outdoor Basketball Courts
- General Purpose Play Areas
- Pathways in Parks and Golf Courses
- Public Accommodation Patios
- Zoological Gardens
- Children's Zoos
- Interior Field House and Gymnasium Floors of Asphalt
- Sidewalks
- Private Drives
- Roof Surfaces (to prevent glare to upper floors)

Unlike asphalt products, the acrylic Plexipave materials are highly resistant to most chemicals. They do not soften and deteriorate when subjected to highly volatile solvents such as toluol or mineral spirits. Chemical fumes do not affect this inert acrylic binder. The use of Plexipave, however, around the aprons of gasoline pumps has not been entirely successful. Spillage seeping into joints may undermine the bond of the coating by softening the asphalt underneath.

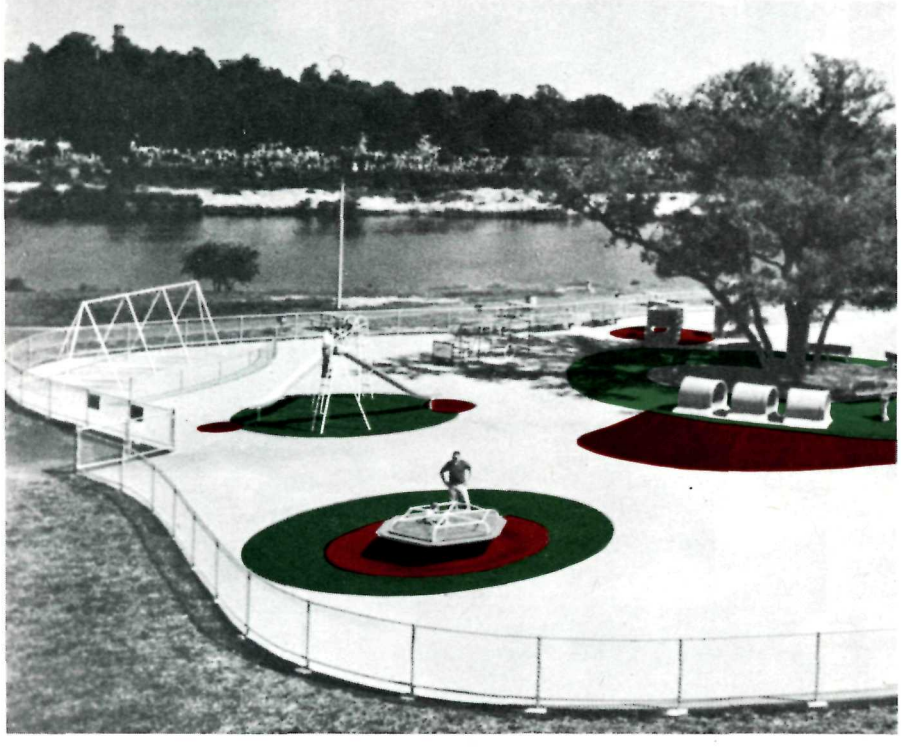
You will note that we have not stressed the use of color materials on surfaces subjected to heavy vehicular traffic. Oil and grease dripping of cars and trucks are actually phenomenal in amounts. The progressive discoloration of these surfaces would necessitate routine cleaning to maintain reasonable color appeal. Skid marks and the effects of chains and snow plows add to discoloration which is more evident than on black areas and may quickly offset the advantages of color. Some use has been made of Plexipave in traffic flow control patterns of parking areas.

Experimental use of color (white, to be exact) on a large filling station beside a heavily traveled road brought a 25% increase in customer traffic to the station. When this experiment was terminated, the reduction to the previous norm was evident. Maintaining a clean color surface in such cases is required along with somewhat more frequent recoating. Further study in this field is under way and products specifically adapted to this use are under development.

The use of color generally involves a small addition (less than 5%) to the over-all cost of a surfacing project. Its tangible values in extension of the life of a surface can readily be estimated with accuracy. These values readily offset the cost. The intangible factors stimulating the care and use of the facility are added to the esthetic design features which site planners can so effectively utilize.

LIMITATIONS

Limitations of the Acrylic Plexipave Color System are important to note: The building of a fine tennis court requires the skill of experienced contractors. No material by itself will overcome limitations of poor workmanship. There are many excellent builders who take pride in creating these surfaces which are most exacting in tolerances of grade, pitch, uniformity of texture and color. They are fully aware that the appreciable initial cost of courts justifies the owner to expect not only a careful over-all job but long-term, trouble free performance. Given these proper materials, they can produce the desired results. The owner must take reasonable steps to safeguard the surface from misuse and to evaluate the over-all appearance realizing that some wear will occur with time and that occasional cleaning may be required to preserve depth of color.



RESLITE resilient asphalt playground with color zones — an important safety feature

Compliments of Zone Marking Co.

Detailed specifications and literature are available for Plexipave Tennis Courts from the manufacturer of the materials:

California Products Corp.
Cambridge, Mass.
U. S. A., 02139

Cover girl: Marilyn Ann Hoover