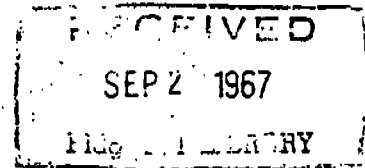


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PLASTICS



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LIBRARY

IF YOU MAKE A METAL PRODUCT ...
DON'T USE JUST ANY COATING ... USE A

**VINYL
COATING**

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**VINYL-
COATED
METAL
MEANS . . .**

FORMABILITY

vinyl-coated metal sheet and coil can be drawn, roll formed, punched, cut and slit without marring the surface.

ECONOMY

precoating metal sheet and coil with vinyl provides uniform coverage with maximum protection. Production lines can be run at high speeds.

DURABILITY

vinyl coating on metal is tough, scuff- and abrasion-resistant and weather-resistant.

LOW MAINTENANCE

vinyl-coated metal resists peeling, chipping, and fading . . . it's virtually maintenance-free. Dirt and stains wash right off.

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**ABOUT
VINYL
COATINGS ...**

Serviceability, economy, protection, distinctive designing—these are advantages offered metal fabricators through the use of coatings based on BAKELITE vinyl resins. Those who must consider the performance of surface coatings on the metal structures and wares they are designing, making, using or maintaining are fast finding out the many merits of vinyl coatings.

This brochure is designed to introduce and acquaint you with the outstanding advantages of coatings for metal based on BAKELITE vinyl resins, their varied applications, and the noteworthy results of actual service operations in a wide variety of uses.

Union Carbide Plastics Company does not supply the coatings described herein. BAKELITE vinyl-based coatings are manufactured and marketed by most of the leading paint, varnish and finish companies in the United States. Contact your nearest Union Carbide Plastics Sales Office (list on the back cover) to learn of a coatings supplier ready to serve your needs.

VINYLS ARE THE BEST COATING FOR METAL BECAUSE:

- 1. VinyIs have excellent adhesion.*
- 2. VinyIs are flexible.*
- 3. VinyIs are long-lasting.*
- 4. VinyIs are versatile . . . they can be readily textured and colored.*
- 5. VinyIs can be easily applied.*

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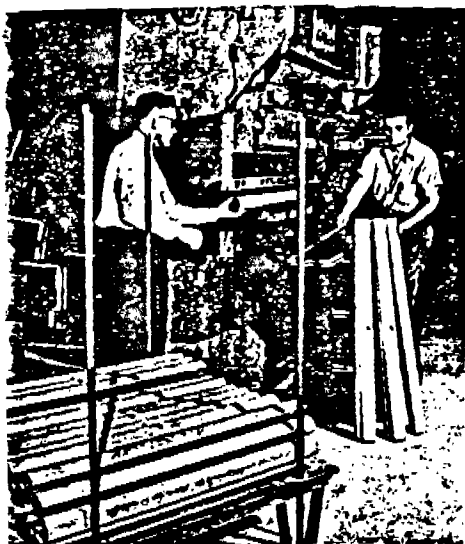


Figure 1

VINYL COATINGS for metal have excellent ADHESION and FLEXIBILITY

Aluminum storm doors and windows produced by a leading manufacturer of the products illustrate the excellent adhesion and flexibility of vinyl-based coatings for metal. The doors and windows are fabricated from aluminum coil which is strip-coated with a vinyl-based finish. In one critical forming operation vinyl-coated aluminum is flanged seven times to 90° to form corners and is also folded back 180° five times (See Figure 2). All this is done without the vinyl cracking or peeling — there's not even a change of color in the fold.

Since vinyl coatings ensure an excellent bond to metal sheet and coil during post-forming operations, they can be applied to steel and aluminum sheet run through roll forming equipment at high speeds to produce residential and industrial siding and building panels and to sheet for stamping a myriad of metal wares.

Figure 1 — Vinyl-coated metals can be sheared, slit, punched, lock seamed and even stamped without damage to the coatings. ■ Figure 2 — Vinyl-coated aluminum answers the need for an attractive material which can withstand abuse both in fabrication and in use as a finished product. Drawing shows critical folds and bends that vinyl-coated aluminum undergoes to be fabricated into storm doors and windows at Security Aluminum, Detroit, Michigan. ■ Figure 3 — Roll forming of vinyl-coated steel at Butler Manufacturing Company. Vinyl-coated metals can be formed and fabricated in generally the same manner as uncoated sheet.

Figure 2

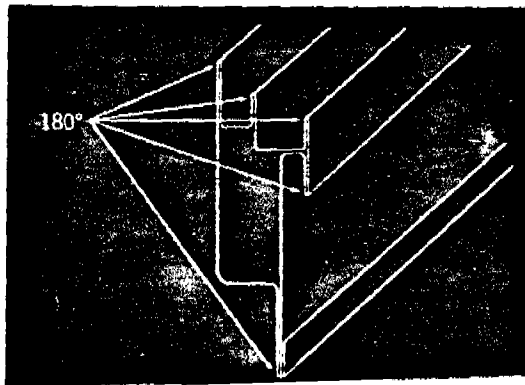
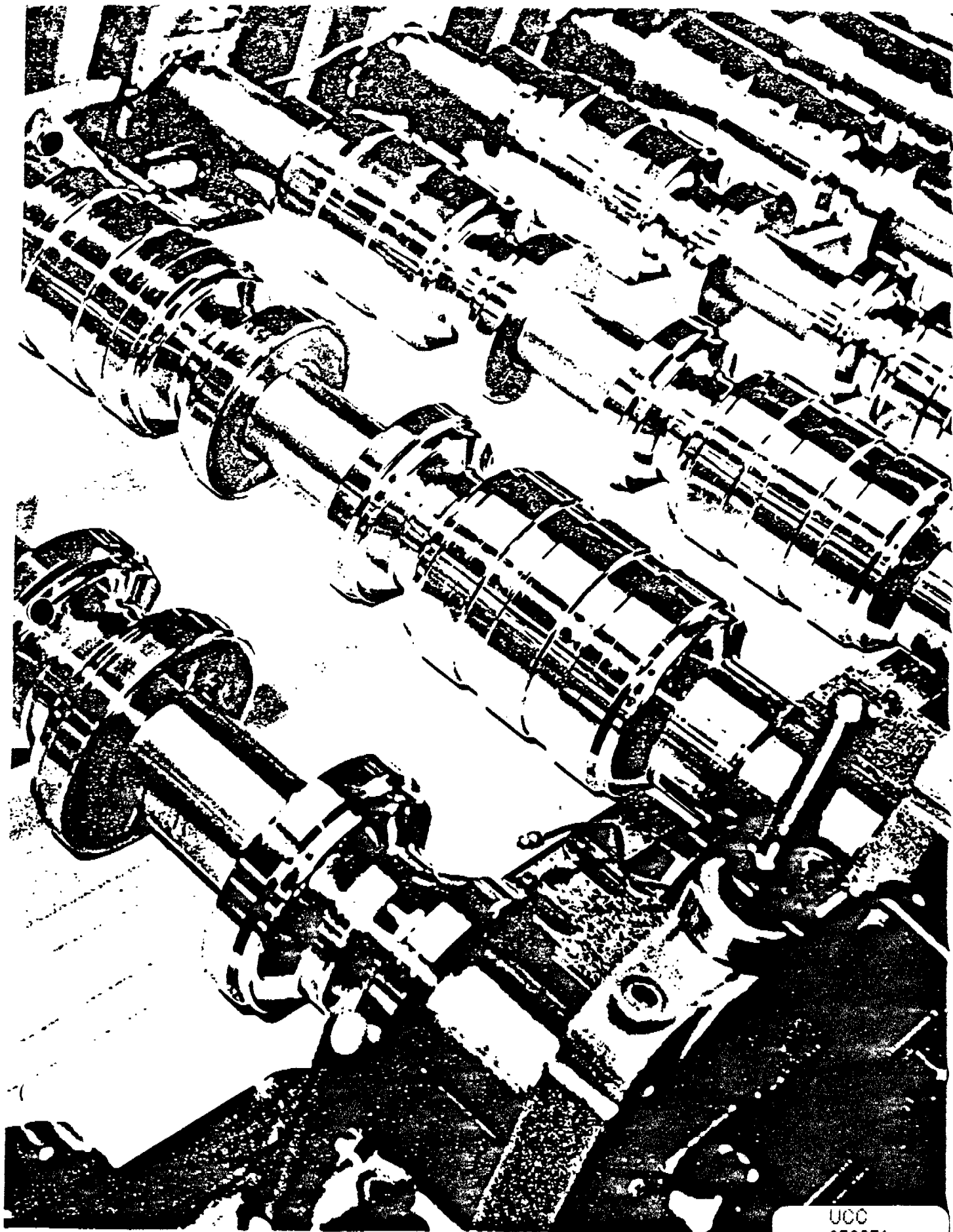


Figure 3

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Figure 4



Further evidence of the outstanding adhesion and flexibility of vinyl-based coatings for metal is given by the following products — all post-formed from vinyl strip-coated metal coil and sheet!



Figure 4 — Security Aluminum production engineers specified vinyl-coated aluminum for the company's storm doors and windows to give them the fabrication performance required during critical roll forming operations.

Figure 5 — Fabrications ranging from slit flat work to deep drawings, such as the box in right foreground, are well within the workability range of vinyl-coated metals.

Figure 6 — The back rest and seat of this functional and attractive combination desk-chair are stamped from vinyl-coated steel by the Irwin Seating Company, Grand Rapids, Michigan.

Figure 7 — The toughness and abuse-absorbing qualities of vinyl-coated steel, plus the fact that it can be worked at the same high production rates as cold rolled steel, makes it an ideal material for stamping movie screen cases at Radiant Manufacturing Corporation, Morton Grove, Ill.

Figure 5



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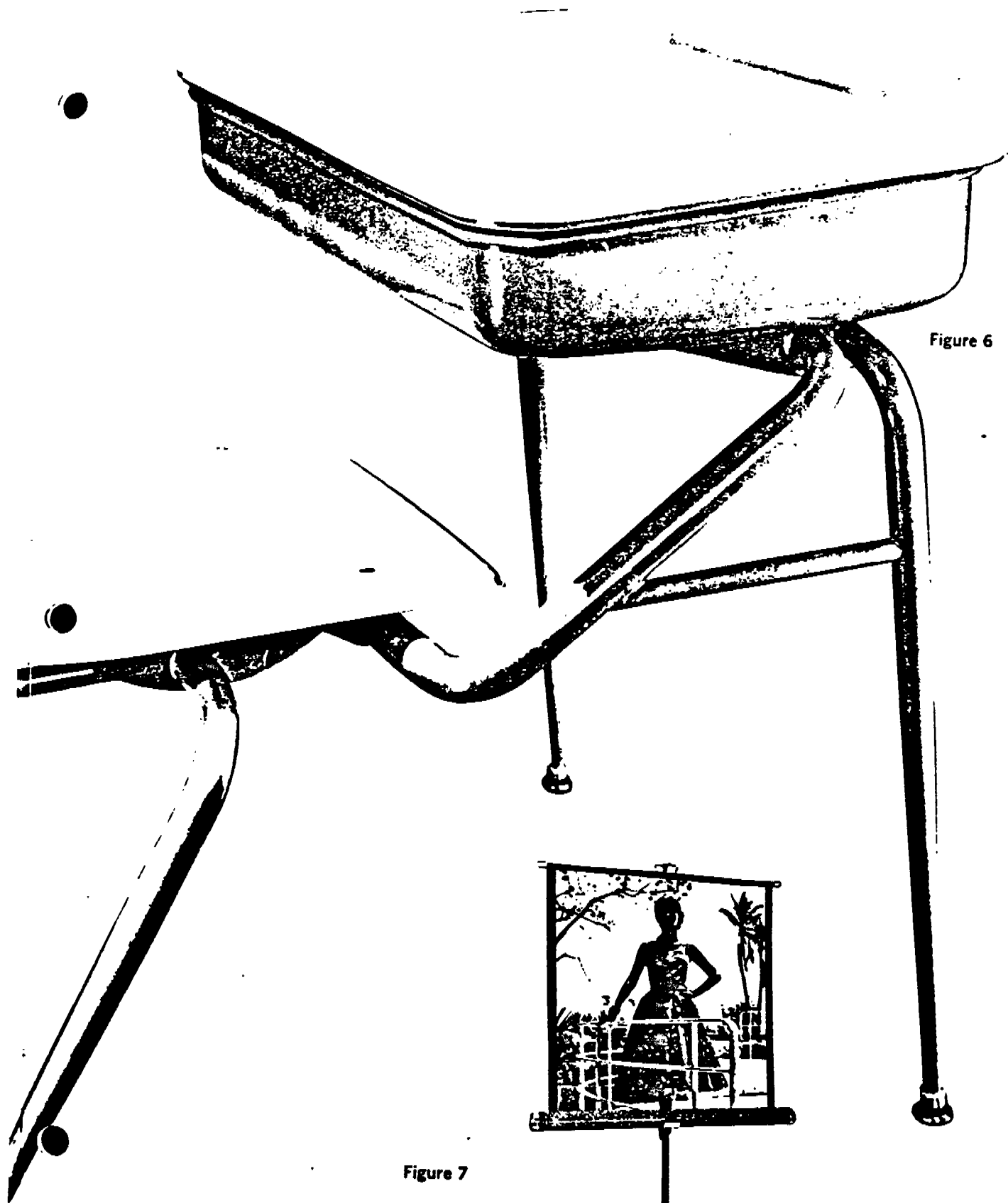


Figure 6

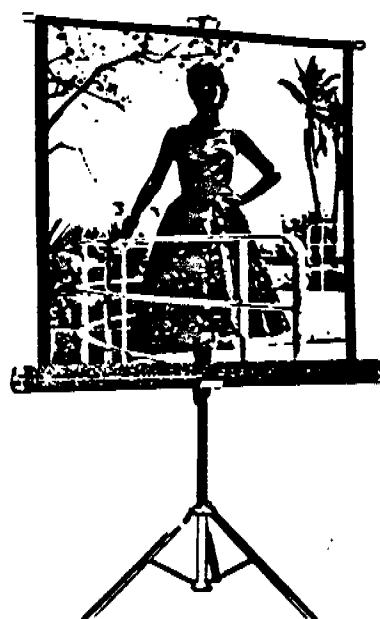


Figure 7

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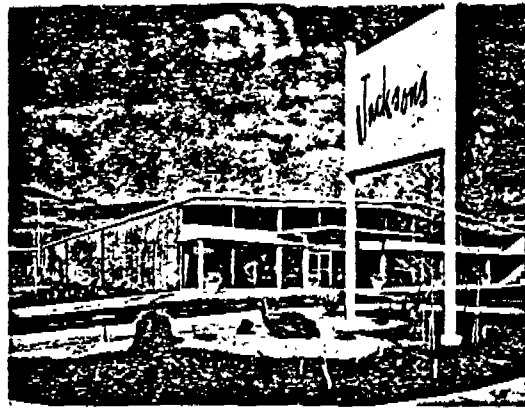


Figure 8

VINYL COATINGS for metal give LONG-LASTING BEAUTY

Tough, weather-fighting vinyl coatings, baked onto metal sheet and coil, give a long-lasting "like-new" appearance to products. Vinyl-coated siding, applied over 13 years ago, looks as fresh today as the day it was originally applied. On the Florida seacoast, test panels have withstood sun and salt air for over 15 years.

Vinyl coatings are the best finish for products requiring a tough wearing, easily maintained finish. The long lasting beauty and low maintenance of these finishes are major factors for the surge of vinyl-coated metal siding and building panels for residential and industrial construction. Cost-conscious businessmen want the maintenance-saving advantages of vinyl coatings.

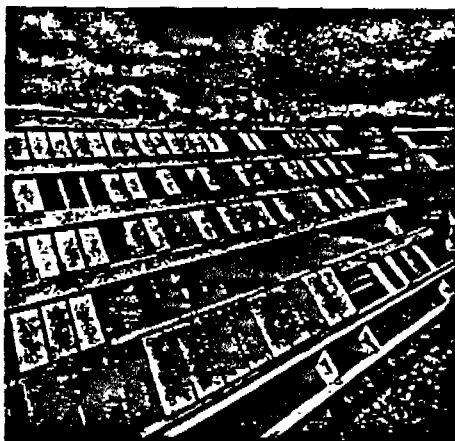


Figure 9

Figure 8 — Vinyl-coated steel building panels are chosen for both their attractiveness and durability. Photo courtesy of Stran Steel, Div. of National Steel Corp. ■ Figure 9 — Vinyl-coated metal demonstrates excellent weatherability. For well over a decade tests like these in all parts of the United States have helped scientists determine how long coatings could be expected to last under actual use conditions. Vinyls have consistently shown up better than any of the other coatings tried. ■ Figure 10 — Vinyl-coated aluminum siding has protected this Milwaukee home against the devastating effects of an industrial atmosphere, weathering, impact and abrasion since June of 1949. Applied over 13 years ago, the vinyl finish is still in top-flight condition, still has superior resistance to staining and still shows no signs of checking, cracking or chipping.

Figure 10



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Figure 11

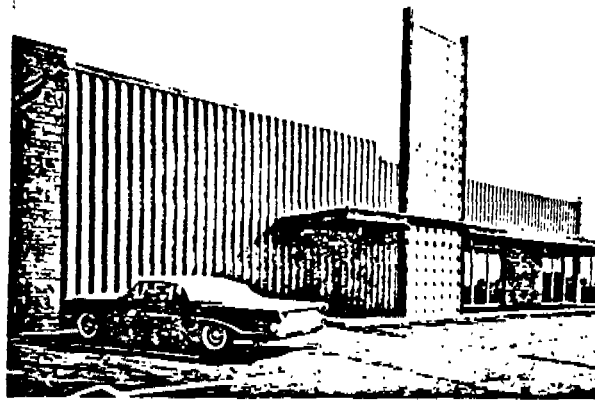
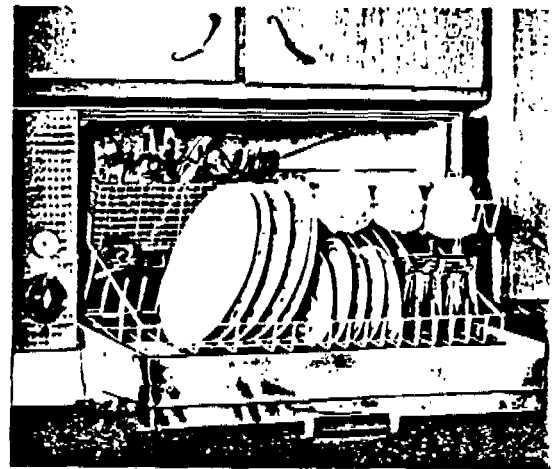


Figure 12



Home owners want to save on their house repainting costs — no paint brush is needed with vinyl-coated aluminum siding, just a hose and water.

Appliance, office furniture, automobile and equipment cabinet manufacturers, plus many more producers of metal wares like vinyl coatings. In addition to their decorative advantages, they provide maximum abuse resistance and they wipe clean with a damp cloth.



Figure 13



Figure 11 — Photo courtesy of Butler Manufacturing Company.

Figure 12 — This dishwasher features a washwell with a vinyl coating that is tough, chip-resistant, and will not soften or peel. The brightly colored vinyl finish is as functional as it is decorative for it also serves as a preventative to possible leak areas in the corners and seams after welding and soldering. Photo courtesy of Ling-Temco.

Figure 13 — Photo courtesy of Stran Steel, Div. National Steel Corp.

Figure 14 — Vinyl-coated metal siding is virtually maintenance-free. An occasional washing will restore the siding to its original beauty.

Figure 14

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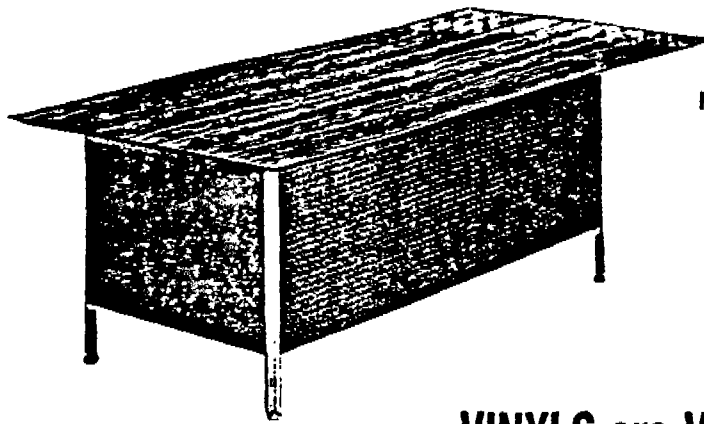


Figure 15

VINYLS are VERSATILE

Figure 15 — In the construction of this smart-looking desk, vinyl-coated steel answers the need for an economical, maintenance-free, structural material that provides color and texture. Photo courtesy Metalatand Company.

Figure 16 — Designers of automobiles pay just as much attention to interior detail as they do the car's crisp, functional styling. Take this automobile dashboard, for example:

They've combined the luxury of a simulated fine wood finish with the durability of steel by specifying vinyl-coated steel . . . and provided high quality at low cost. The coating, is applied to cold rolled steel with a vinyl ink wood grain finish . . . topped with a clear vinyl coating . . . cut to shape and formed without damage to the coating.

Figure 17 — Photo courtesy Stran Steel, Div. National Steel Corp.

Figure 18 — This attractive portable T.V. set utilizes vinyl-coated steel's color and texture to achieve the look of leather and the strength of steel.

Vinyl-coatings for metal are available in an almost unlimited range of colors. Vinyl-coated metal can be colored to blend harmoniously with all styles of architecture and all types of building materials . . . just as it does on the church pictured on the next page where the vinyl-coated steel roofing is a perfect compliment to the wood, glass and stone used in the structure. Colored vinyl coatings cover the hard, cold appearance of metal. Color gives a sense of warmth and feel to metal products.

Vinyl-coated metal sheet and coil can be textured to meet product design specifications. Textured vinyl coatings are soft-to-touch. The effect of leather, wood, cloth or practically any other material can be simulated.

Television cabinets can simulate the fine beauty of leather with the durability of vinyl-coated metal. Automobile dashboards can be styled in the distinctive beauty of wood with the durability of vinyl-coated metal.

Vinyl-coated metal fulfills the need for a tough-wearing, maintenance-free, structural material which is colored and textured. This combination of properties is particularly advantageous for the manufacture of office furniture where service, wearability and appearance are needed.

Vinyl spray coating can be used to coat preformed metal sheet. Factory finishing metal sheet for construction uses is more economical than painting the building panels at the construction site. In-plant control of the finishing operation ensures maximum performance of the vinyl-coated panels.

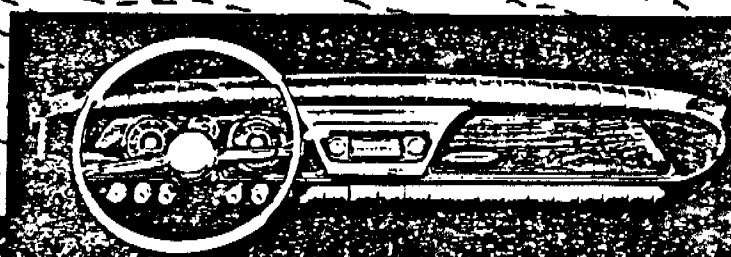


Figure 16

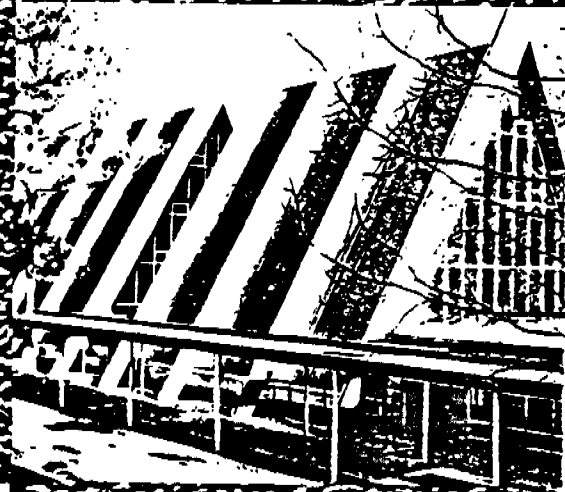
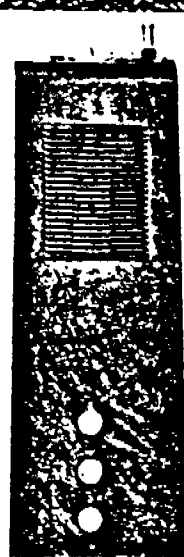


Figure 17

Figure 18



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VINYL COATINGS can be SPRAYED and ROLLER COATED with EASE

Vinyls are easy to handle coatings. They do not present difficulties in being applied to properly treated metal surfaces.

Roller coating with vinyl is basically performed as follows:

1. Metal sheet or coil is cleaned.
2. Prime coat is applied.
3. Next, the sheet or strip passes through a roll-coating booth where applicator rolls apply the vinyl finish coat to the top and bottom surfaces.
4. The vinyl-coated metal is baked to a hard and long-lasting finish in an oven.
5. The vinyl-coated metal is now recoiled, ready for post-forming, or
6. While still hot, the sheet or coil passes through embossing rolls where a texture is impressed in the vinyl coating. After cooling the vinyl-coated metal is cut and formed into an end-use product.



Figure 19

Figure 19 — Automatic spray coating of pre-formed metal sheet is a very economical way of applying vinyls.

Figure 20 — As metal strip passes through the coating rolls of a strip-coating line, it passes under an applicator roll. On opposite side of machines, a second applicator roll coats the under side of the strip as it makes one pass through the line.

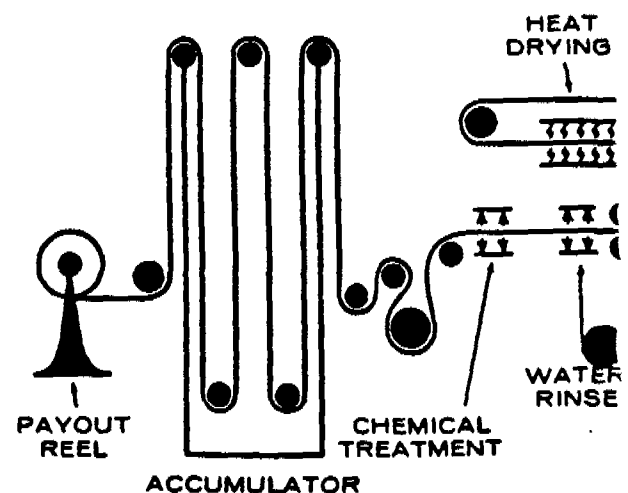
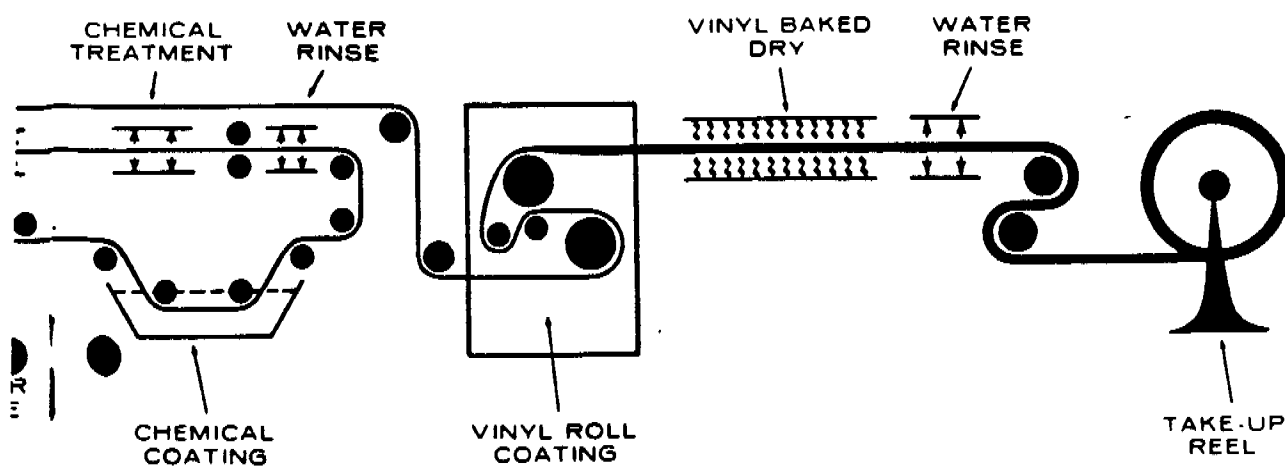
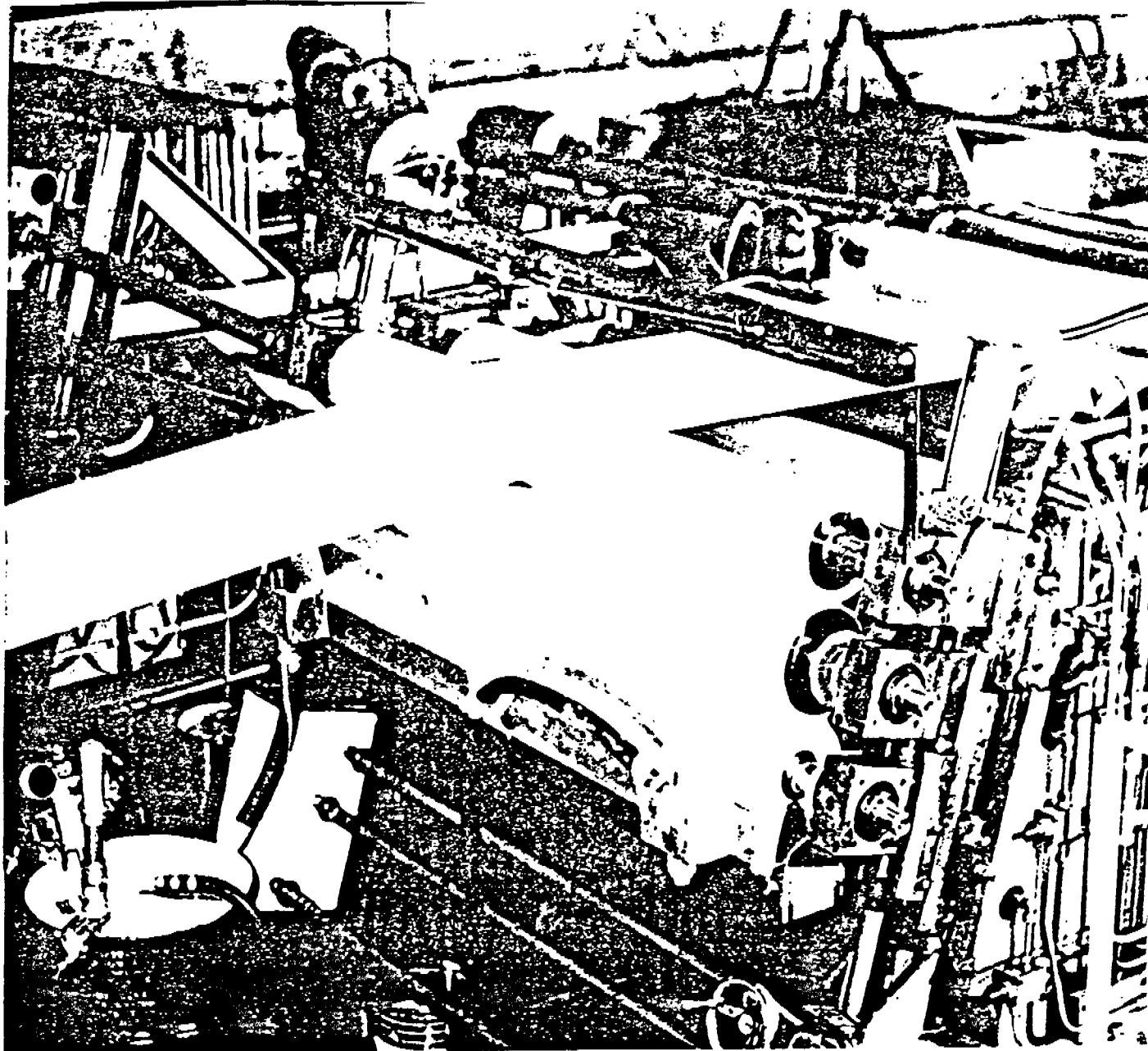


Figure 2



Spray coating with vinyl is basically performed as follows:

1. Metal sheet is formed.
2. Formed metal sheet is cleaned.
3. Prime coat is applied.
4. Finish coat is applied.
5. Vinyl-coated panels are oven baked to a hard finish. After cooling the vinyl-coated metal panels are ready for shipment.

Figure 21

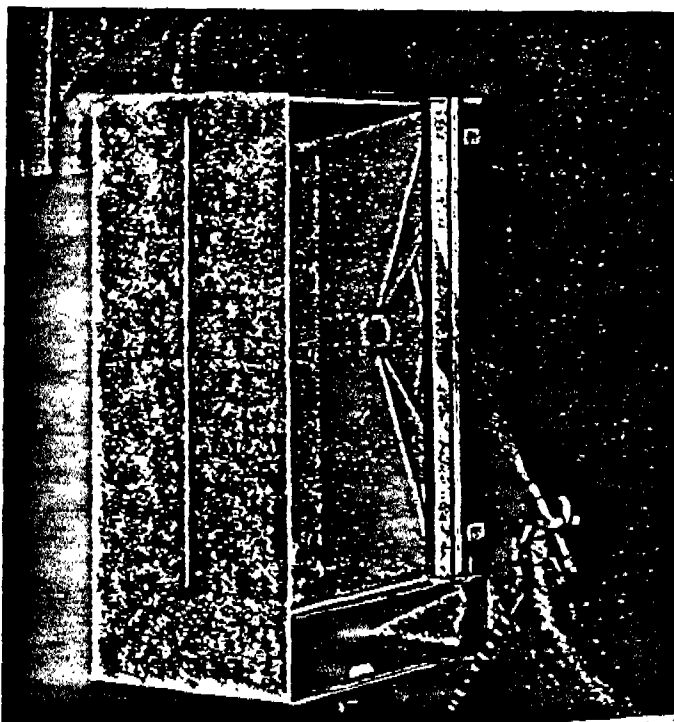
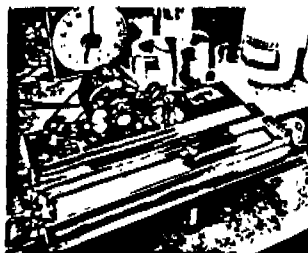


Figure 21 — Hand spraying vinyl coatings to completely shaped metal wares provides maximum coating protection.

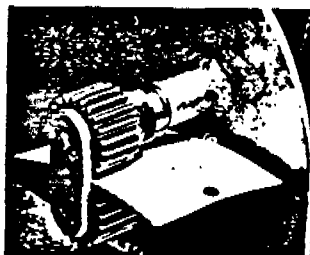
PROPERTIES OF VINYL COATINGS



ABRASION AND SCUFF RESISTANCE:

Coating on Metal	Condition After Test*
BAKELITE Vinyl	Minor abrasion
Acrylic	Severely abraded
Alkyd	Completely stripped

* Gardner Scrub Tester run for 3,000 cycles.



ADHESION AND FLEXIBILITY:

Coating on Metal	Condition After Test*
BAKELITE Vinyl	No damage
Acrylic	Severe peeling and cracking
Alkyd	Slight cracking

* Coated panels run through metal crimper.

STAIN RESISTANCE: *

Did Not Stain	Easily Removed Stain	Stained
India Ink	Coffee	Shoe Polish
Gasoline	Milk	Lipstick
Beer, Whisky	Writing Ink	Ball-Point Ink
Liquid Detergent	Mimeograph Ink	Iodine
	Mercurochrome	Butter
	Carbonated Soft Drink	

* 24 hr. exposure at room temperature.

CHEMICAL RESISTANCE:

Test	Condition of Vinyl-Coating
Salt Spray, 95°F., 3% Salt Solution, 2000 hrs.	No Failure
Detergent Immersion, 1% Detergent at 165°F., 200 hrs.	No Failure
Water Immersion, 100°F., 2 years	No Failure
Humidity Resistance, 100% R.H., 120°F., 2 years	No Failure

Vinyl coatings have also withstood exposure of 2 hours in 10% solutions of sulfuric, nitric and hydrochloric acids at temperatures up to 160°F.

COLOR STABILITY:

Color stability of vinyl coatings is equal to the best paints. Vinyl coatings show no appreciable change in color or finish after 1000 hours exposure in an Atlas Weather-ometer.

Extensive laboratory tests on vinyl coatings have been carefully documented for 15 years. On a Milwaukee, Wisc., home, vinyl-coated aluminum siding applied over 13 years ago is still in top flight condition. The vinyl coating has good color retention and shows no signs of checking, cracking or chipping after this long period of time.

Sales Offices

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Cincinnati 6, Ohio
2330 Victory Parkway
Cleveland 14, Ohio
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Clifton, New Jersey
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6300 N. Central Expressway
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Hartford 3, Connecticut
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Kansas City 41, Missouri
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