Tips for Translucents

Sign makers guide to creating new profits with 3M translucent products and technologies

3M *Innovation*

Table of Contents Page

Expanding your capabilities and business with just a little more IMAGEination

This book is about adding new customers and adding new business from existing customers. It's about expanding your capabilities without adding equipment or cost. On the bottom line, it's about increasing your profits through just a little more IMAGEination.

IMAGEination is the combination of 3M Commercial Graphics Division technology and your sign making imagination and skills.

3M™ Scotchcal™ Translucent Films and 3M™ Panaflex™ Awning and Sign Facing are probably familiar examples to you of the many 3M technologies. You may already be taking advantage of the following features:

- Vast color selection to meet customer requirements.
- Consistent, bright colors.
- Uniform appearance.
- Durability for continued customer satisfaction.
- Fast, easy cutting and weeding for productivity.
- Worldwide availability.

And when you use 3M Commercial Graphics technology, you get the 3M™ MCS™ Warranty.

MCS Warranty

Finished 3M™ MCS™ Graphics and Scotchprint® Graphics manufactured with all 3M matched components — graphic films, inks, toners and flexible sign facings are backed by the MCS warranty — your assurance that all components have been designed, developed, tested and manufactured for compatibility, performance, and your peace of mind.

Based on that, it should be no surprise that 3M can offer a unique warranty on combinations of 3M products when properly applied according to 3M installation instructions.

Scotchprint® Graphics
3M™ MCS™ Graphics

From the moment your graphics are applied, they are warranted against color fading, loss of adhesion, and shrinkage for the time specified in the 3M Product Bulletins. Other important provisions are stated in the Worldwide 3M™ MCS™ Warranty Packet.

In the unlikely event, that you do have a problem while under the standard warranty, 3M will replace any faulty 3M film or material, according to the Warranty of Products Bulletin.

Techniques...

in this book are intended to stimulate your imagination into developing new and more dramatic ways of using 3M technology. The information can help you create and offer the kind of innovative signs, awnings and fascias that attract prospects and help customers look their best. IMAGEination is a foundation for going beyond being an ordinary sign shop.

On the following pages you'll find basic, advanced and special effect techniques. Each technique is divided into first and second surface applications.

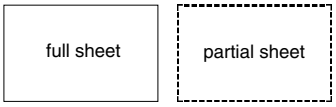
First surface applications...

are generally used when a customer wants a matte finish. The image and background color (if used) are applied to the front side of a flexible or rigid substrate. The substrate is usually diffuse white. Images are cut to be right reading.

Second surface applications...

are generally used for a glossy finish or for additional protection of the graphics. The image and background color (if used) are applied to the back side of a clear, rigid substrate. Images are cut to be reverse reading.

In the graphics throughout this guide, a solid line indicates a full sheet. A dotted line means a partial sheet.



NOTE: When using polycarbonate as a substrate, remember that polycarbonate absorbs moisture and will outgas, so it must be dried according to manufacturer instructions before film application. Film over undried polycarbonate will trap moisture from outgasing and form bubbles. Increasing the layers of film increases the potential for bubbles.

Full support

Whatever your sign, awning or fascia requirement, large or small, local, national or international, the 3M Commercial Graphics Division has the systems, technology and expertise to meet your requirements.

Support is always available from your 3M Commercial Graphics Division sales representative, or through the Technical Service Hotline: 1-800-328-3908.

In Canada, call 1-800-265-1840.

BASIC TECHNIQUE 1 White background with color image, or white image on color background

The bread and butter technique of the sign shop is a single color image on a white background, or a white image reversed out of a single color background.

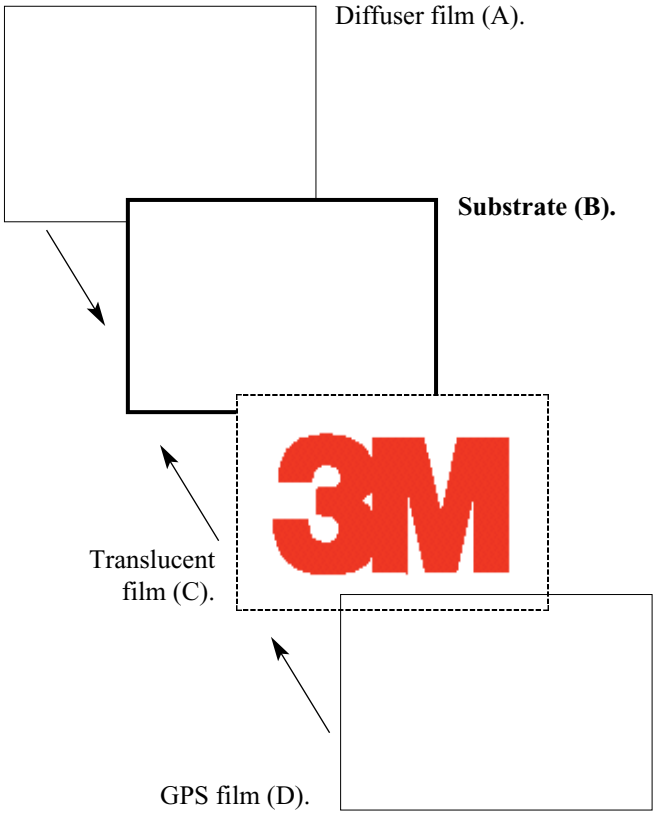
Both are a simple letter cutting and film application technique that can be done either by hand or on an electronic film cutter.

White background: *day* **White background: *night*** **Color background: *day*** **Color background: *night***

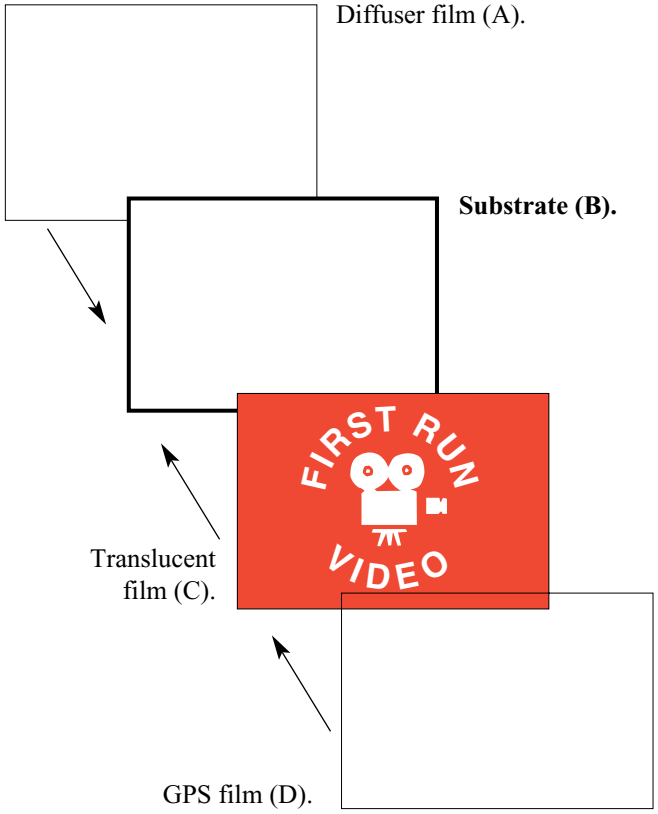
First Surface Assembly

1. Cut, weed and prespace translucent film image (C).
2. Prep substrate (B).
3. Apply translucent film graphics (C) to front of substrate (B).
4. Apply diffuser film (A) to back of substrate (B) if using *clear* substrate.
5. Apply GPS film (D) over translucent film (C) if you need maximum graphic protection.

White background



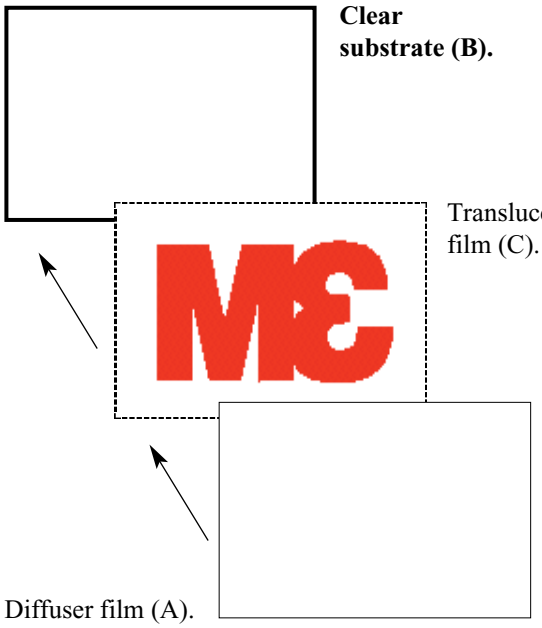
Color background



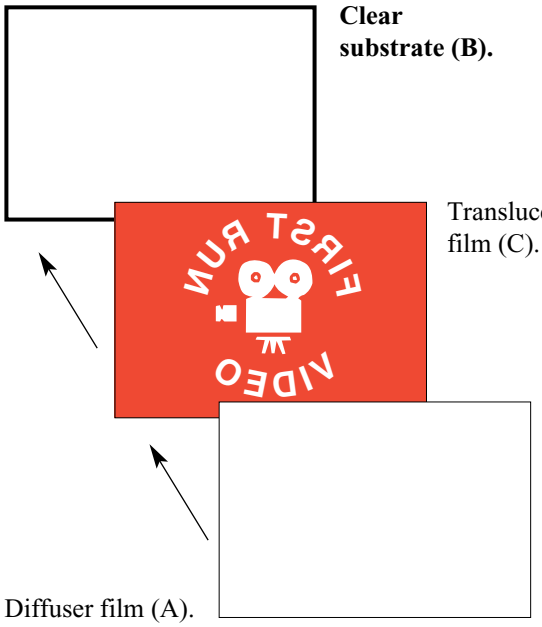
Second Surface Assembly

1. Reverse cut, weed and prespace film image (C).
2. Prep *clear* substrate (B).
3. Apply translucent film graphics (C) to back of clear substrate (B).
4. Apply diffuser film (A) to back of film (C).

White background



Color background



Materials and tools for basic technique 1

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(C) Translucent film (3M™ Scotchcal™ Transcluent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(D) Optional GPS film (3M™ Scotchcal™ Transparent Film 3642 – see Product Bulletin 3642).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

BASIC TECHNIQUE 2 Color background with color image

Day

Night

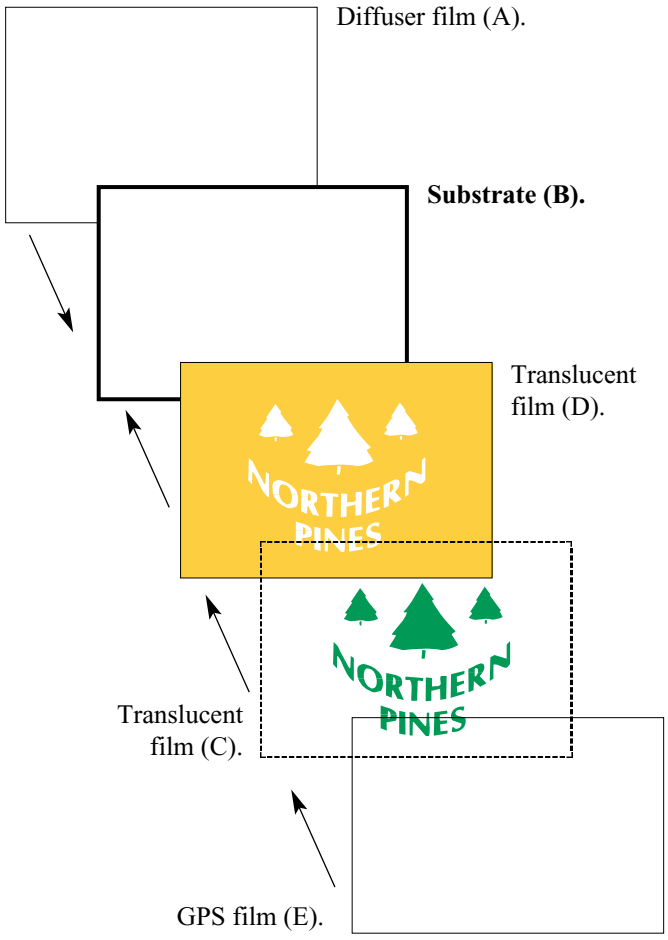
A color background with color image is more complex than basic technique 1, but you can still easily add it to your sign shop capabilities.

Since the role of color is increased in technique 2, important considerations for your customers include contrast, eye appeal, legibility and lay-out.

First Surface Assembly

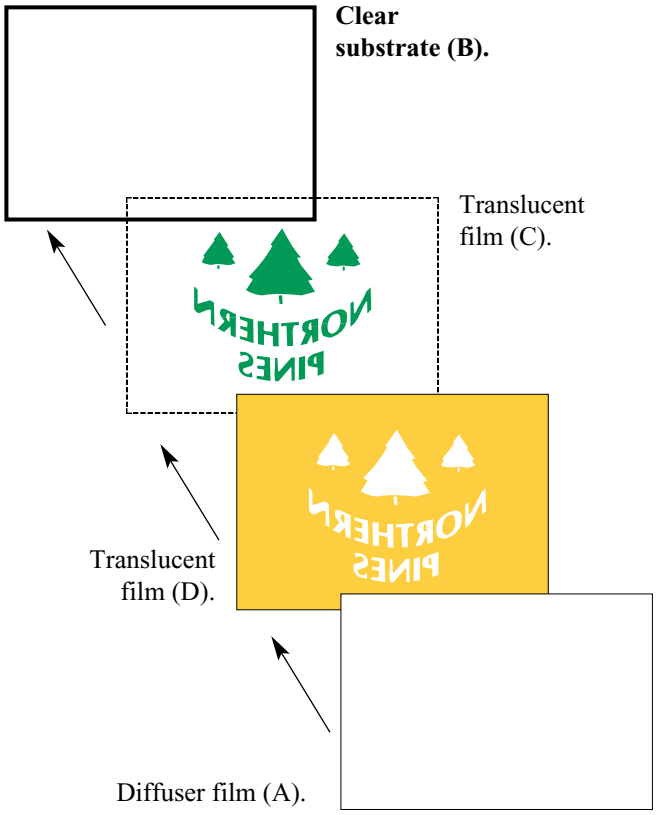
TIP: Always assemble dark colors over light colors when possible.

1. Cut and weed translucent film background color (D).
2. Cut, weed and prespace translucent film image (C).
3. Assemble film image (D) to background color (C) using common premask.
4. Prep substrate (B) and apply assembly (D/C) to front of substrate.
5. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
6. Apply GPS film (E) over translucent film (D/C) if you need maximum graphic protection.



Second Surface Assembly

1. Reverse cut and weed translucent film background color (D).
2. Reverse cut, weed and prespace translucent film image (C).
3. Assemble film image (C) to background color (D) using common premask.
4. Prep *clear* substrate (B) and apply assembly (C/D) to back of substrate.
5. Apply diffuser film (A) to back of assembly (C/D).



Materials and tools for basic technique 2

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(C/D) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

BASIC TECHNIQUE 3

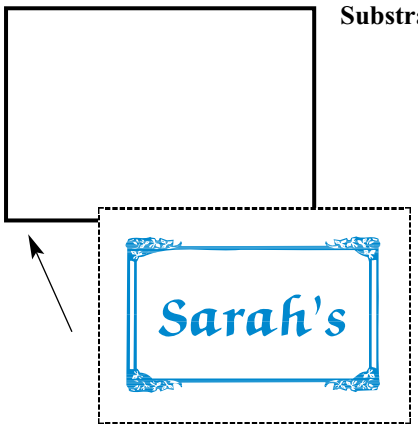
Acid-etched or sandblasted effects on glass

With 3M™ Scotchcal™ Special Effects Films, you can create the appearance of etched or sandblasted glass with a basic application technique.

You can use 3M special effects films for interior or exterior graphics at a fraction of the cost of etching glass.

First Surface Assembly

1. Cut, weed and prespace film image (A).
2. Prep substrate (B) and apply graphics (A) to front of substrate.

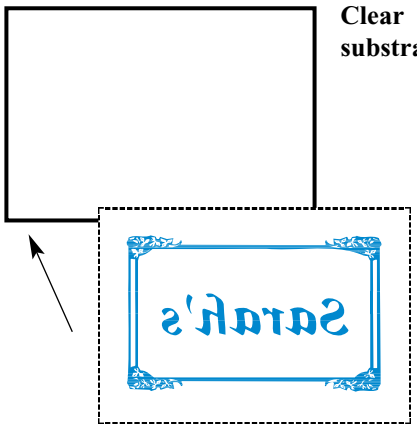


Substrate (B).

Translucent special effects film (A).

Second Surface Assembly

1. Reverse cut, weed and prespace film image (A).
2. Prep substrate (B) and apply graphics (A) to back of *clear* substrate.



Clear substrate (B).

Translucent special effects film (A).

Materials and tools for basic technique 3

Materials:

(A) Special effects film (3M™ Scotchcal™ Special Effects Film Series 7725 SE or Series 210 – see Product Bulletin 7725 SE).

(B) Substrate: glass or rigid plastic.*

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-53X.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application of translucent pressure sensitive and changeable films to flat glass, *Bulletin 5.8*

* See polycarbonate note on page 3.

ADVANCED TECHNIQUE 4

Multiple color effect with one color film

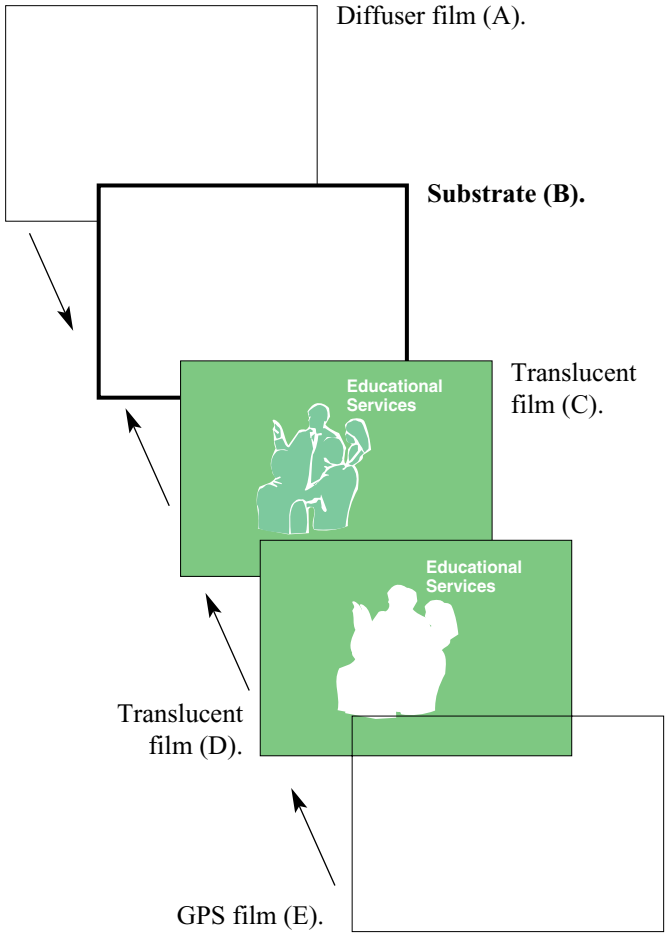
Day

Night

Using a single color 3M™ Scotchcal™ Translucent Film, you can create a graphic that appears to be multiple color. For best results, check the combination of film layers before fabrication.

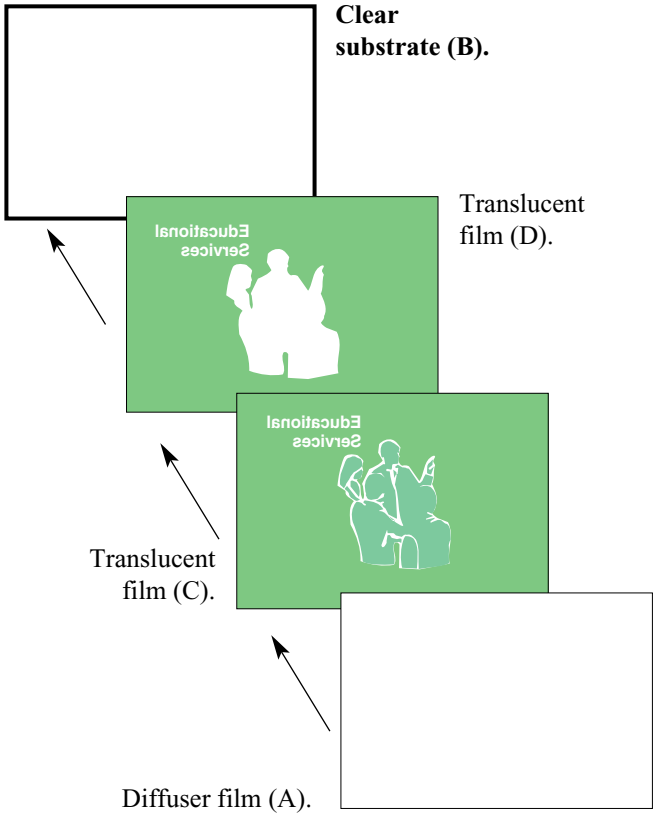
First Surface Assembly

1. Cut, weed and prespace translucent film background color (C).
2. Cut, weed and prespace image (D) using the same color film as the background film (C).
3. Prep substrate (B) and apply translucent film (C) to front of substrate.
4. Apply translucent film (D) over translucent film (C).
5. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
6. Apply GPS film (E) over translucent film (D) if you need maximum graphic protection.



Second Surface Assembly

1. Reverse cut, weed and prespace translucent film background color (C).
2. Reverse cut, weed and prespace image (D) using the same color film as the background film (C).
3. Prep *clear* substrate (B) and apply translucent film (D) to back of clear substrate.
4. Apply translucent film (C) over translucent film (D).
5. Apply diffuser film (A) to back of entire assembly (B/D/C).



Materials and tools for advanced technique 4

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(C/D) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

ADVANCED TECHNIQUE 5 White background with multiple color image

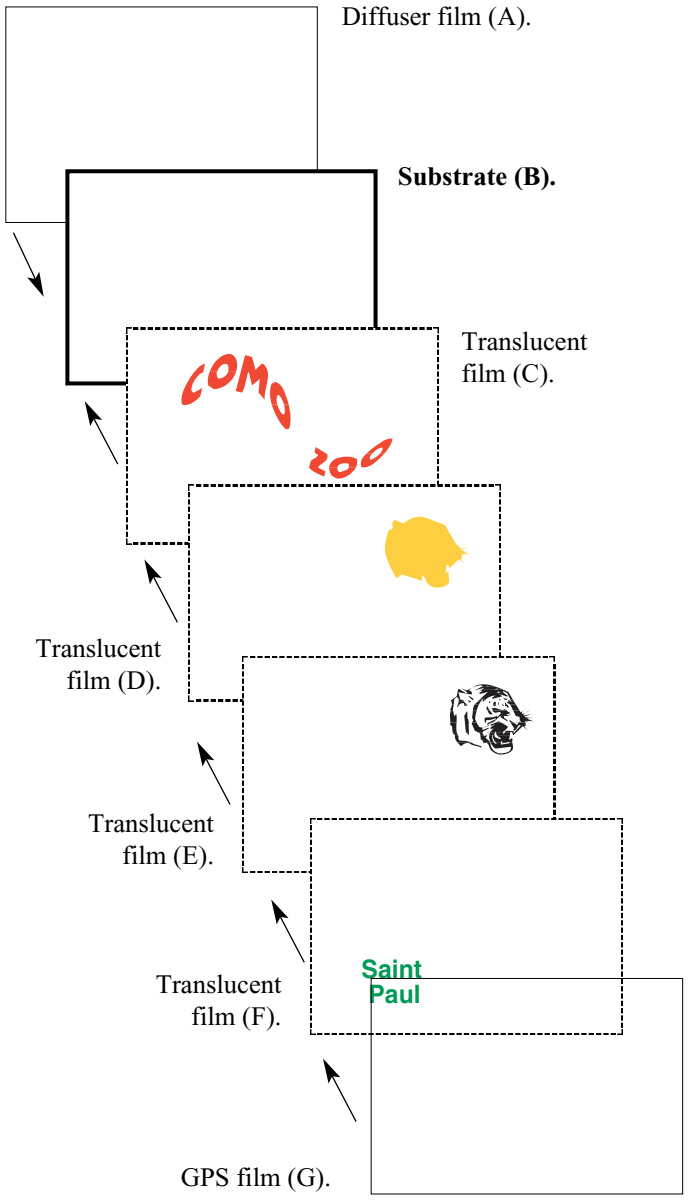
Day

Night

One of the most common multiple color signs involves a multi-color image on a white background. To meet customer demand, you'll want to know the details of the technique. For additional reference, see the 3M Multiple Color Graphic Assembly literature. Also, see color sequence tip on page 6.

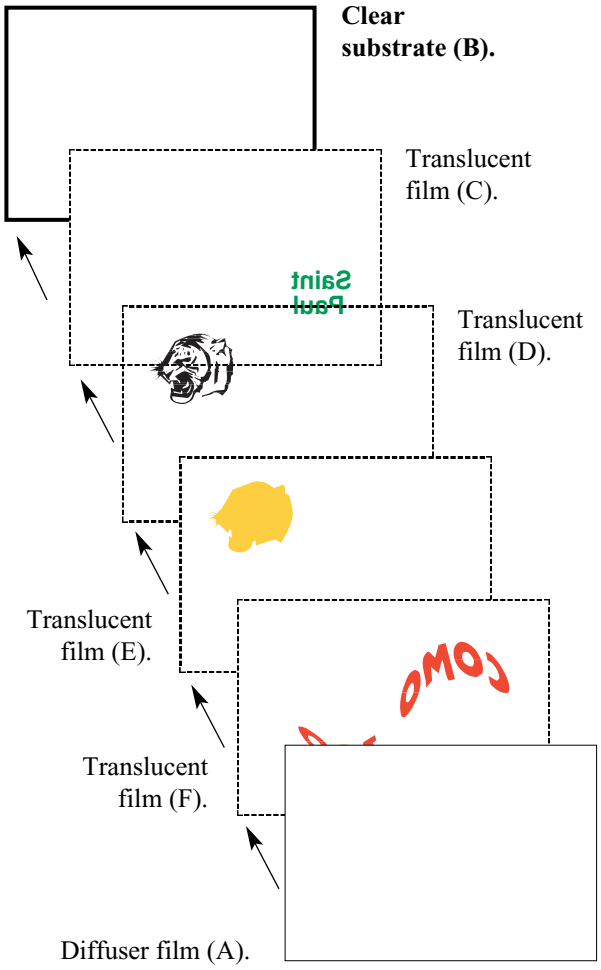
First Surface Assembly

1. Cut and weed all translucent films (C, D, E, F).
2. Assemble films (C, D, E, F) on a common prespace using the Multiple Color Graphic Assembly Technique.
3. Prep substrate (B) and apply assembly (C/D/E/F) to front of substrate.
4. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
5. Apply GPS film (G) over translucent film (F) if you need maximum graphic protection.



Second Surface Assembly

1. Reverse cut and weed all translucent films (C, D, E, F).
2. Assemble films (C, D, E, F) on a common prespace using the Multiple Color Graphic Assembly Technique.
3. Prep *clear* substrate (B) and apply assembly (C/D/E/F) to back of clear substrate.
4. Apply diffuser film (A) to back of entire assembly (B/C/D/E/F).



Materials and tools for advanced technique 5

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(C/D E/F) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(G) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

ADVANCED TECHNIQUE 6 Color background with multiple color image

Day

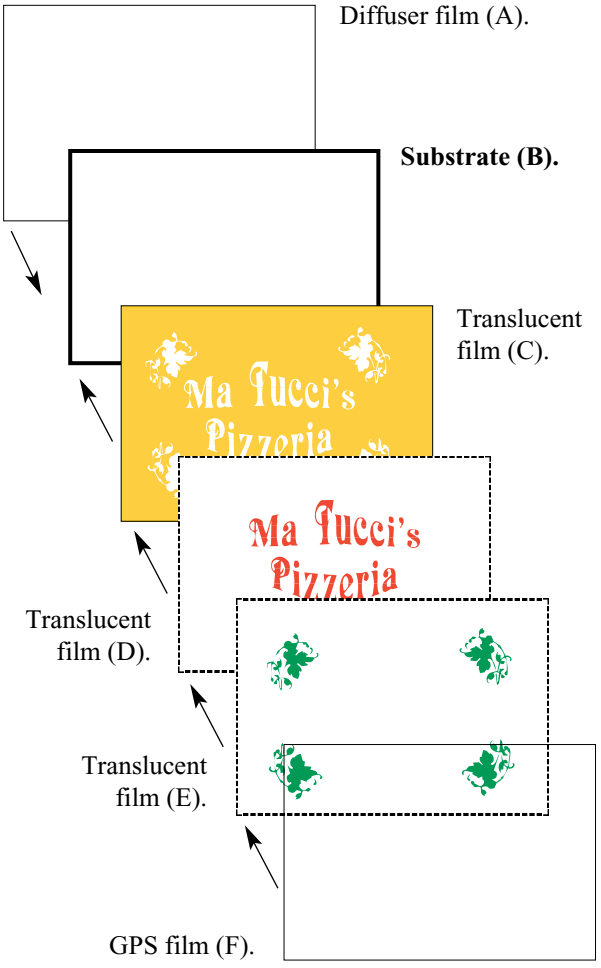
Night

This advanced technique is similar to advanced technique 5 on page 12, except that with advanced technique 6 your customer will have a color background instead of a white background. Choice of specific film colors will be important for aesthetics and image contrast. See tip on page 6.

For additional reference, see the 3M Multiple Color Graphic Assembly literature

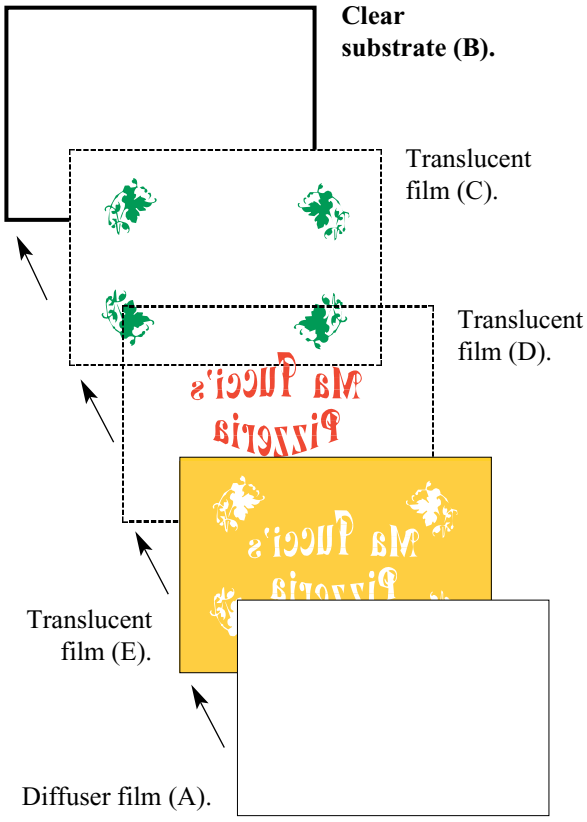
First Surface Assembly

1. Cut and weed all translucent films (C, D, E).
2. Assemble films (C,D,E) on a common prespace using the Multiple Color Graphic Assembly Technique.
3. Prep substrate (B) and apply assembly (C/D/E) to front of substrate.
4. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
5. Apply GPS film (F) over translucent film (E) if you need maximum graphic protection.



Second Surface Assembly

1. Reverse cut and weed all translucent films (C, D, E).
2. Assemble films (C, D, E) on a common prespace using the Multiple Color Graphic Assembly Technique.
3. Prep *clear* substrate (B) and apply assembly (B/C/D) to back of clear substrate.
4. Apply diffuser film (A) to back of entire assembly (B/C/D/E).



Materials and tools for advanced technique 6

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(CD) E) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(F) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 7 White background by day; black background by night

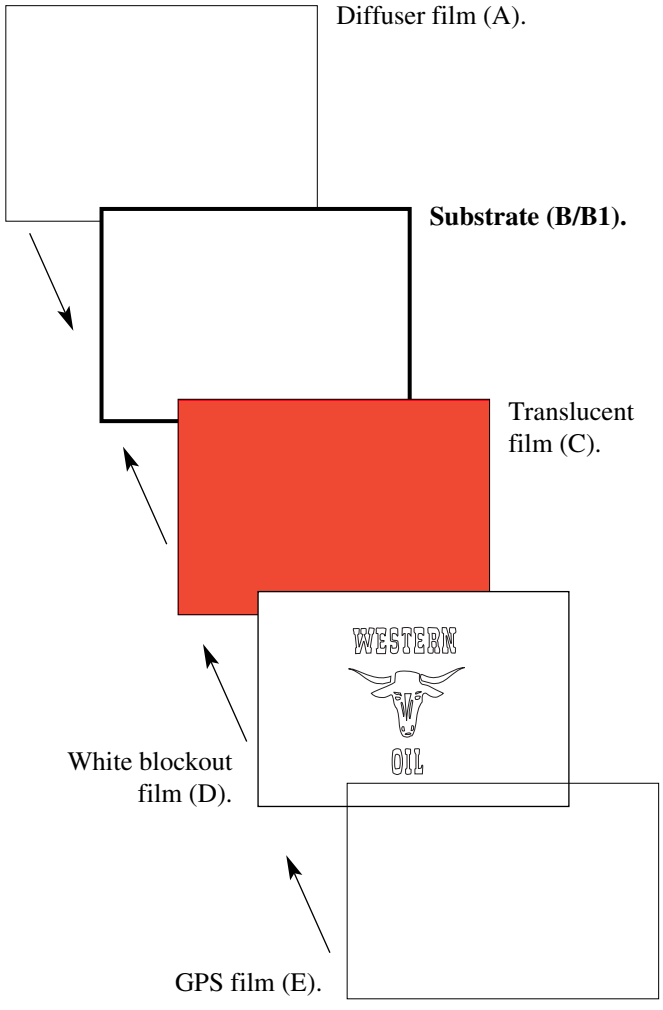
Day

Night

With this special effect technique, your customer will have a background that appears white by day and black by night. At night, the color image will appear to float, similar to the appearance created by push-through letters in a routed metal face. The color image will be the same color by day or night.

First Surface Assembly

1. Prep substrate (B) and apply color translucent film (C) to front of substrate.
2. Cut, weed and prespace image in 3M white blockout film (D).
3. Apply blockout film (D) over translucent film (C).
4. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
5. Apply GPS film (E) over blockout film (D) if you need maximum graphic protection.



SPECIAL EFFECT 7A White background by day; neon effect by night

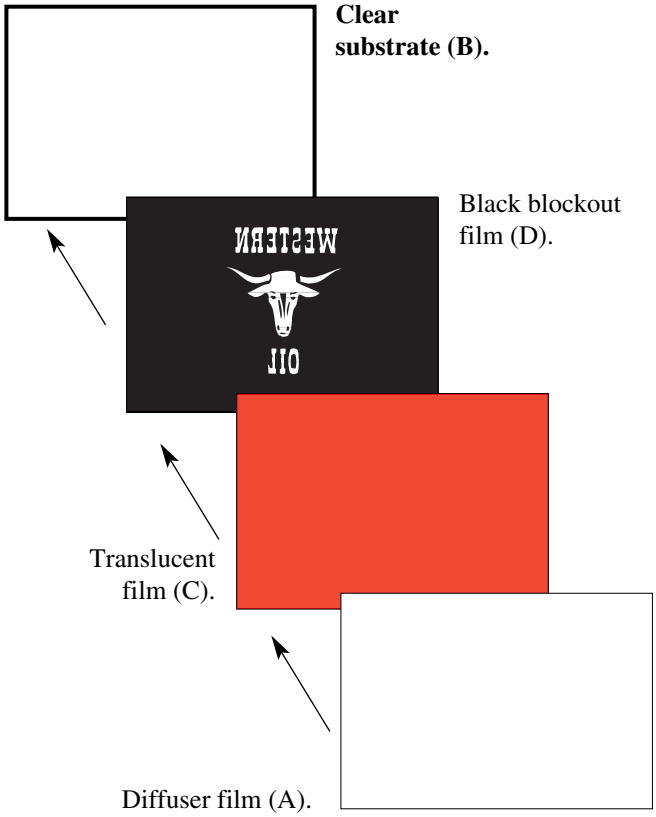
Day

Night

With this special effect technique, your customer will have a background that appears white by day. At night, the color image will appear to glow, giving the appearance of a neon sign.

Second Surface Assembly

1. Reverse cut, weed and prespace image in black blockout film (D).
2. Prep back of the *clear* substrate (B) and apply black blockout film (D) to back of clear substrate.
3. Apply color translucent film (C) to back of blockout film (D).
4. Apply diffuser film (A) to back of color translucent film (C).



Materials and tools for special effect 7A

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) ⅛″ rigid clear plastic* second surface or first surface.

(B1) Substrate (3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI — see (B) previous page).

(C) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(D) Blockout film (3M™ Blockout Film 3635-22B (black) — see Product Bulletin 3635).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol,™ isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

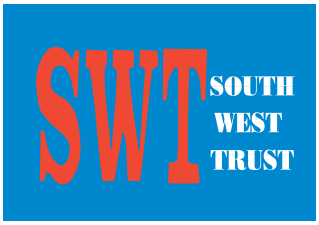
Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

* See polycarbonate note on page 3.

SPECIAL EFFECT 8 Color background by day; black background by night

Day

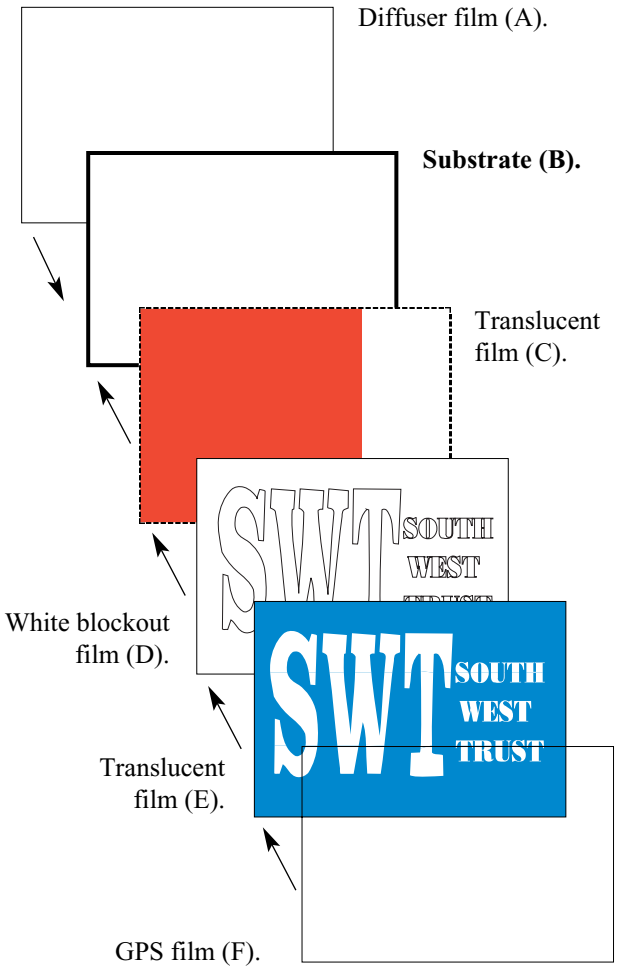


Night

With this special effect technique, your customer will have a background that appears in color by day and black by night. At night, the color image will appear to float, similar to the appearance created by push-through letters in a routed metal face. The color image will be the same color by day or night.

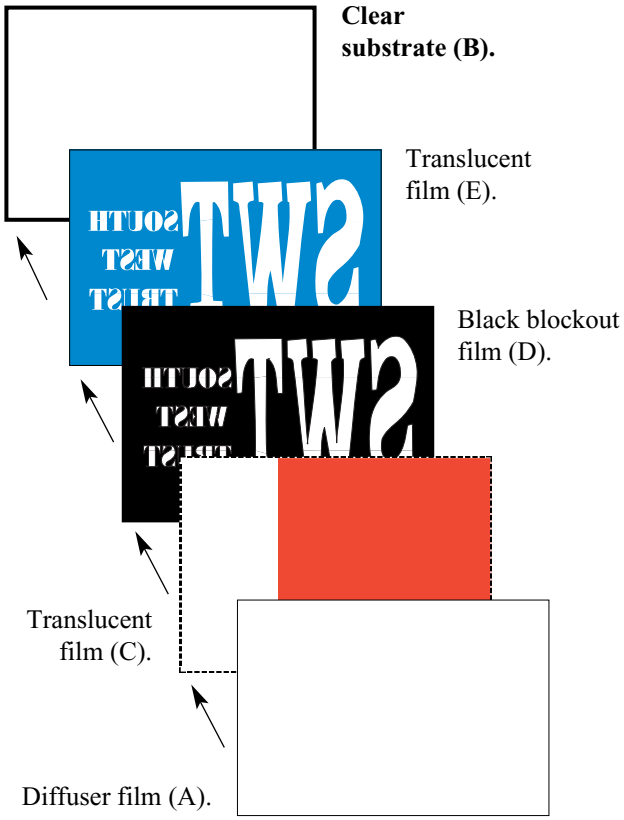
First Surface Assembly

1. Prep substrate (B) and apply color translucent film (C) to front of substrate.
2. Cut, weed and prespace image in white blockout film (D).
3. Apply blockout film (D) over translucent film (C).
4. Cut, weed and prespace image in translucent film (E).
5. Apply translucent film (E) over blockout film (D).
6. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
7. Apply GPS film (F) over translucent film (E) if you need maximum graphic protection.



Second Surface Assembly

1. Reverse cut, weed and prespace image in color translucent film (E).
2. Prep *clear* substrate (B) and apply color translucent film (E) to back of clear substrate.
3. Reverse cut, weed and prespace image in black blockout film (D).
4. Apply blockout film (D) to top of substrate/film assembly (B/E).
5. Apply color translucent film (C) to top of blockout film (D).
6. Apply diffuser film (A) to back of color translucent film (C).



Materials and tools for special effect 8

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(C/E) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(D) Blockout film (3M™ Blockout Film 3635-20B (white) or 3635-22B (black) – see Product Bulletin 3635).

(F) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 9 Message hidden until illuminated

Internal lamp off

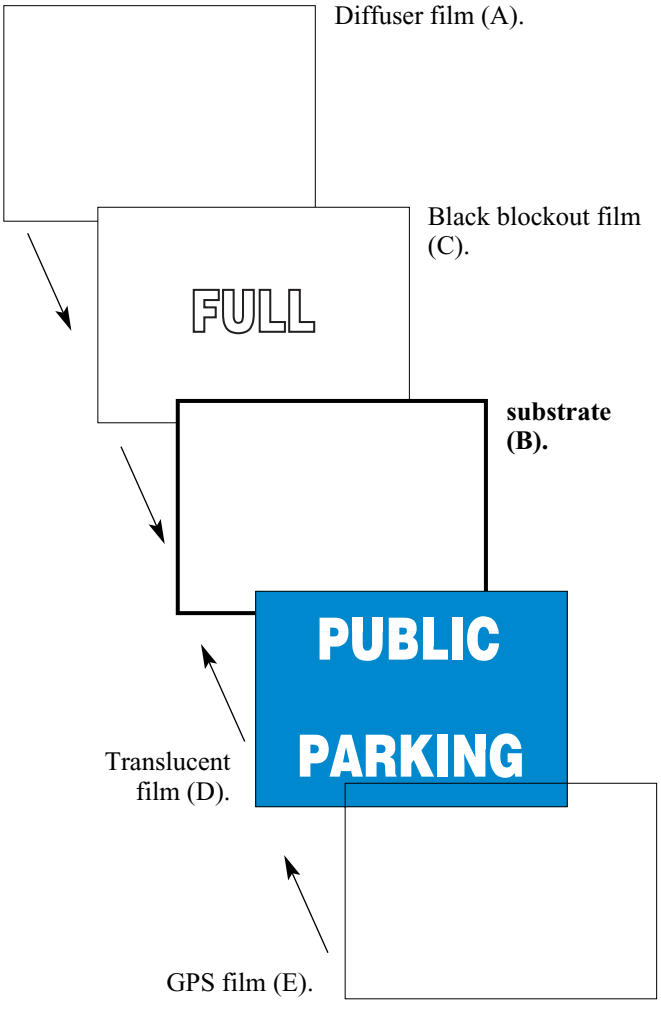
Internal lamp on

Turning internal lamps off and on, changes the message with this easy-to-make special effect sign. Part of the message is hidden until illuminated.

Use a color background that best meets your customer requirements for aesthetics and impact.

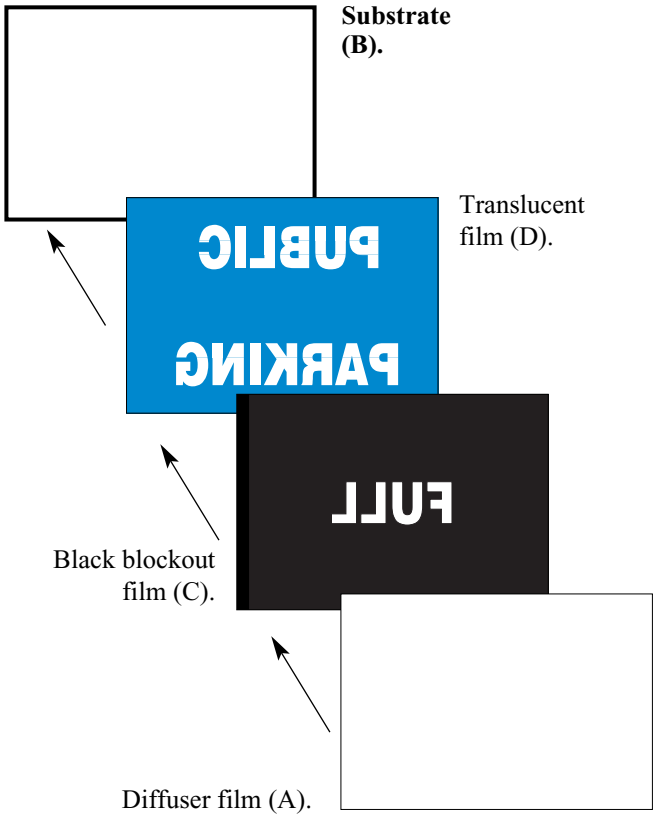
First Surface Assembly

1. Cut, weed and prespace color translucent film (D).
2. Prep *clear* substrate (B) and apply translucent film (D) to front of substrate. Additional layers of translucent film can be added as necessary.
3. Reverse cut, weed, prespace and apply black blockout film (C) to back of substrate (B).
4. Apply diffuser film (A) to back of blockout film (C).
5. Apply GPS film (E) over translucent film (D) if you need maximum graphic protection.



Second Surface Assembly

1. Reverse cut, weed and prespace color translucent film (D).
2. Prep *clear* substrate (B) and apply translucent film (D) to back of substrate. Additional layers of translucent film can be added as necessary.
3. Reverse cut, weed, prespace and apply black blockout film (C) to back of translucent film (D).
4. Apply diffuser film (A) to back of blockout film (C).



Materials and tools for special effect 9

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, or rigid plastic* – see Product Bulletins 945 or 645).

(C) Blockout film (3M™ Blockout Film 3635-22B (black) – see Product Bulletin 3635).

(D) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 10 Dark by day, white or color by night

Day

Night A

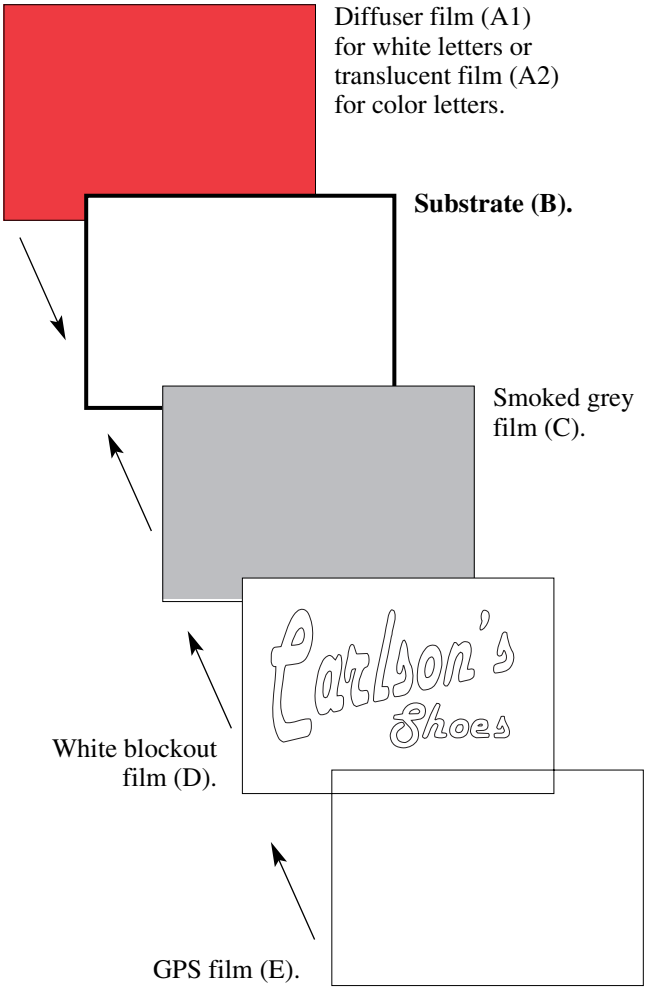
Night B

First Surface Assembly — Panaflex Substrate

With this technique, you can fabricate channel letters or a sign with the appearance of dark letters during the day and white or color letters at night.

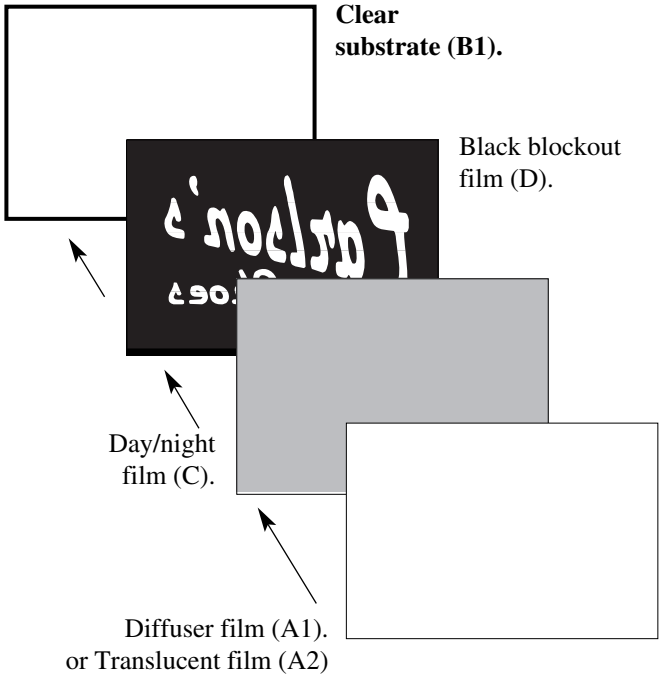
Using 3M™ Day/Night Film 3635-91 and 3M™ Panaflex™ Awning and Sign Facing 945 GPS, you can create a cost-effective flexible sign or channel letter.

1. Prep substrate (B) and apply day/night film (C) to front of substrate.
2. Cut, weed and prespace image from white blockout film (D).
3. Apply blockout film (D) over day/night film (C).
4. Apply GPS film (E) over blockout film (D) if you need maximum graphic protection.
5. Apply diffuser film A1 to the back of substrate (B) if white is required.
6. Apply color translucent film (A2) to the back of the substrate (B) if a color other than white is required.



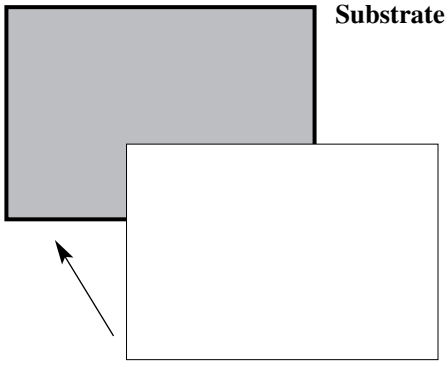
Second Surface Assembly – Clear Plastic

1. Reverse cut, weed and prespace image in black blockout film (D).
2. Apply blockout film (D) to back of *clear* rigid substrate (B1).
3. Apply smoked film (C) to back of blockout film (D).
4. Apply diffuser film (A1) or translucent film (A2) to back of film (C) day/night.



Second Surface Assembly – Smoked Plastic **

Apply diffuser film (A) to back of substrate (B2).



** **NOTE:** Technique assumes use in channel letter with plastic cut to shape.

Materials and tools for special effect 10

Materials:

(A1) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(A2) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI – see Product Bulletins 945 or 645).

(B1) Substrate: clear, rigid plastic*.

(B2) Substrate: bronze or smoked, rigid plastic**.

(C) Day/night film (3M™ Day/Night Film 3635-91).

(D) Blockout film (3M™ Blockout Film 3635-20B (white) or 3635-22B (black) – see Product Bulletin 3635).

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

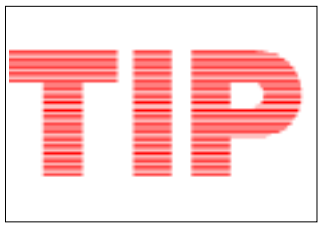
Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 11 Color by day, white by night

Day



Night

With this technique you can fabricate low cost channel letters or rigid sign faces that appear to have solid color letters by day and white letters by night when internally illuminated.

Spacing of colored film strips must be precise as shown below in schematic at left.

First Surface Assembly

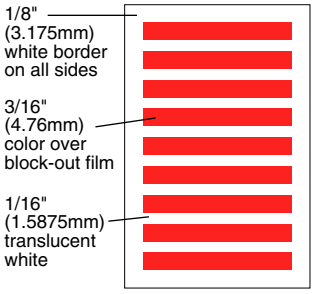
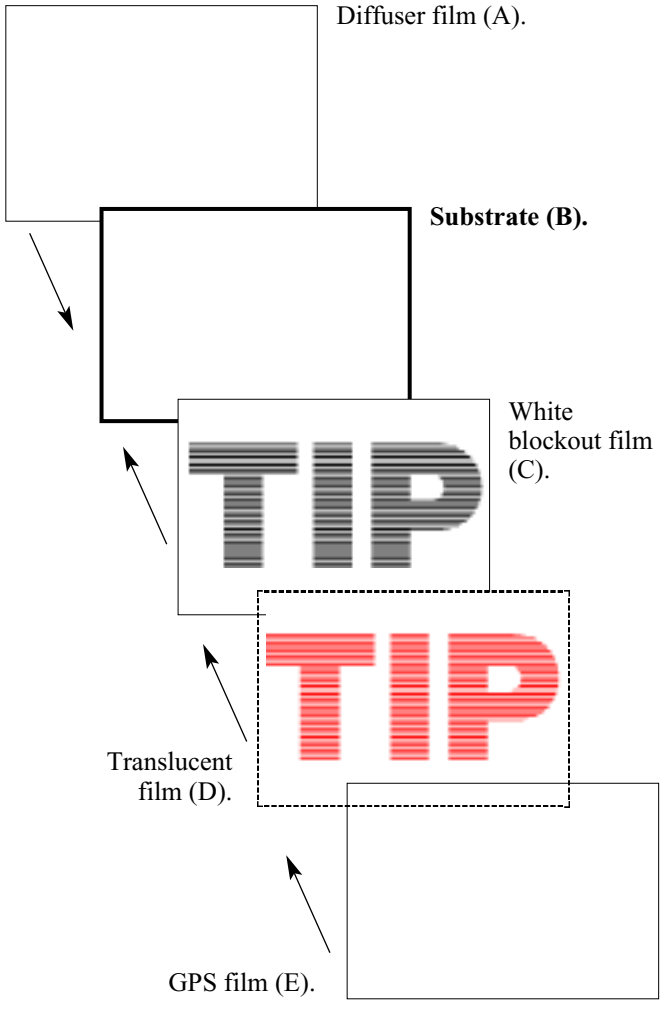


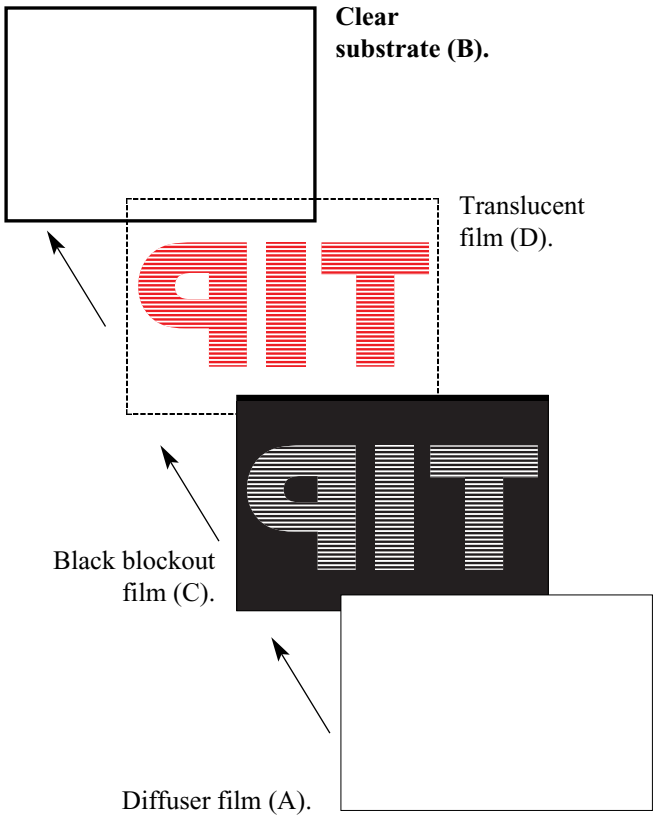
Fig. A
Spacing illustrated above is representative only, and not actual precise scale.

1. Laminate color translucent film (D) to white blockout film (C).
2. Cut, weed and prespace striped image from the laminated films (D/C). See figure A at left.
3. Prep substrate (B) and apply assembly (D/C) to front.
4. Apply diffuser film (A) to back of substrate (B) if *clear* substrate is used.
5. Apply GPS film (E) over translucent film (D) if you need maximum graphic protection.



Second Surface Assembly

1. Laminate color translucent film (D) to black blockout film (C).
2. Reverse cut, weed and prespace striped image from laminated films (D/C). See figure A at far left.
3. Prep *clear* substrate (B) and apply assembly (D/C) to back.
4. Apply diffuser film (A) to back of blockout film (C).



Materials and tools for special effect 11

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Substrate (3M™ Panaflex™ Awning and Sign Facing 945 GPS, 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI – see Product Bulletins 945 or 645).

(C) Blockout film (3M™ Blockout Film 3635-20B (white) or 3635-22B (black) – see Product Bulletin 3635).

(D) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Application of translucent film to Panaflex awning and sign facing 945 GPS, *Bulletin 5.9*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 12 Reflective signs

Day

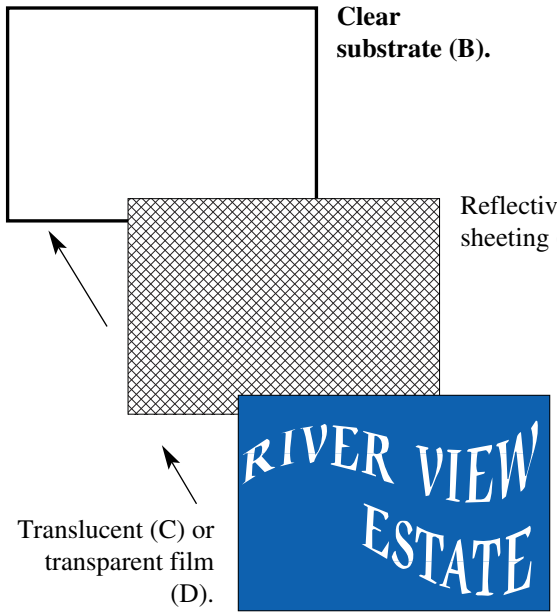
Night

With 3M™ Scotchlite™ Reflective Sheeting in the dark or low-level light, incoming light rays from vehicle headlights strike the sheeting and are reflected back to the light source for visibility and message effectiveness. For internally-illuminated signs, 3M™ Scotchlite™ Diamond Grade™ Reflective Sheeting is also transparent to the internal light, providing the double visual impact of reflectivity and internal illumination.

First Surface Assembly

1. Prep *clear*, rigid plastic substrate (B) and apply Scotchlite reflective sheeting (A) to front of substrate.
2. Cut, weed and prespace image from translucent (C) or transparent film (D) and apply to reflective sheeting (B).

NOTE: When using translucent film, the reflective sheeting will reflect only through the weeded, open areas of the translucent film.



Materials and tools for special effect 12

Materials:

(A) Reflective Sheeting (Scotchlite Diamond Grade sheeting series 3970G).

(B) Substrate: clear, rigid plastic*.

(C) Translucent film (3M™ Scotchcal™ Film Series 230 or Series 3630 – see Product Bulletin 230 or 3630).

(D) Transparent film (3M™ Scotchlite™ Electronic Cuttable (E.C.) Film Series 1170 – see Product Bulletin 1170).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™, isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application, general procedures for interior and exterior dry applications, *Bulletin 5.5*

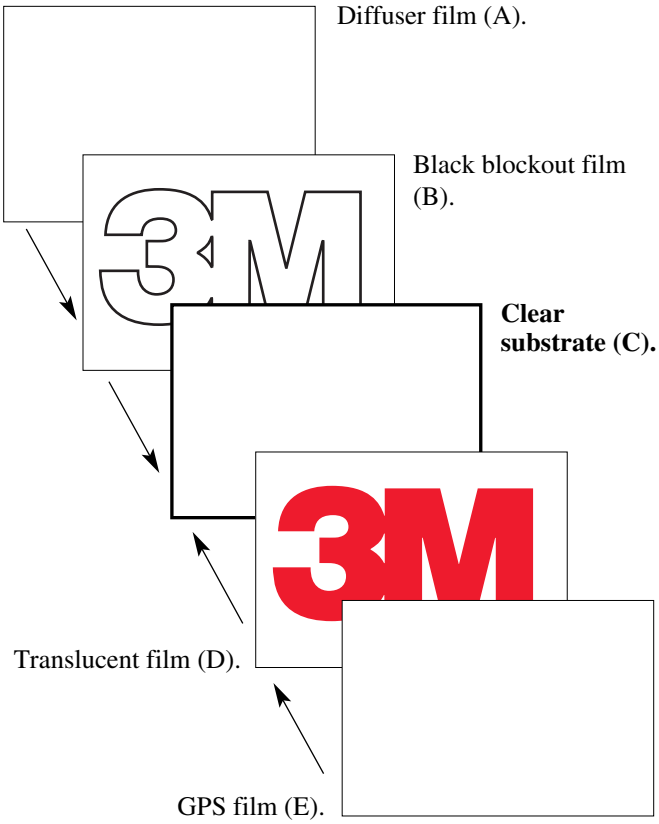
* See polycarbonate note on page 3.

SPECIAL EFFECT 13 White halo background with color image

White background: *day* **Halo background: *night***

First Surface Assembly

1. Cut, weed and prespace translucent film image (D).
2. Prep the clear substrate (C).
3. Apply translucent film graphics (D) to front of the clear substrate (C).
4. Reverse cut, weed and prespace in black blockout film (B) the same image as was used with the translucent film (C).
5. Apply the blockout film graphic (B) to the back of the clear substrate (C). Make sure that it is properly aligned with the translucent graphics (D) that was applied to the front of the substrate.
6. Apply diffuser film (A) to the back of the blockout film (B).
7. Apply GPS film (E) over the translucent film (D) if you need maximum graphic protection.



With this special effect technique there will be a halo of light around the color image.

Materials and tools for special effect 13

Materials:

(A) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(B) Blockout film (3M™ Blockout Film 3635-22B (black) – see Product Bulletin 3635).

(C) Substrate clear, rigid plastic*

(D) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 – see Product Bulletin 3640).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol,™ isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

* See polycarbonate note on page 3.

SPECIAL EFFECT 14 Color by day; Different color by night

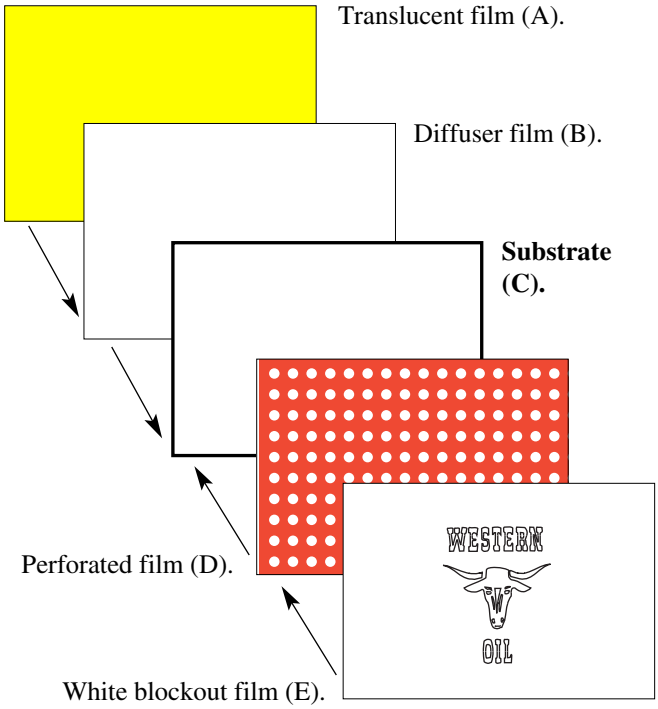
Day

Night

With this special effect technique you can fabricate signs that appear to have one color by day and a different color by night when internally illuminated.

First Surface Assembly

1. By screen print or Scotchprint® Graphic System, color the 3M™ Scotchcal™ Perforated Window Graphic Film 8671(*ES*) (D).
2. Prep front of the substrate (C) and apply the printed perforated window marking film (D) to the front of the substrate.
3. Cut, weed and prespace image in white blockout film (E).
4. Apply blockout film (E) over perforated window marking film (D).
5. a. Prep back of the substrate (C) and apply diffuser film (B) to back of substrate (C) if clear substrate is used.
   b. Prep back of the substrate (C) and apply color translucent film (A) to the back of substrate (C) if 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI or white plastic is used.
6. Apply color translucent film (A) to diffuser film (B) if clear substrate (C) is used.
7. Apply GPS film (not shown) over the blockout film (E) if you need maximum graphic protection.



Materials and tools for special effect 14

Materials:

(A) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(B) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(C) Substrate (Panaflex *enhanced image* sign facing 645EI – see Product Bulletins 645).

(D) Perforated window graphic film 8671 – see Product Bulletin 8671.

(E) Blockout film (3M™ Blockout Film 3635-20B (white) – see Product Bulletin 3635).

(F) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 and 3642 – see Product Bulletin 3640 and 3642) for maximum graphic protection (not shown).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol,™ isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

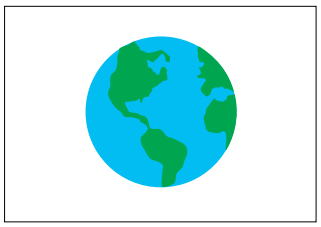
Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 15 Color image by day; Different color image by night

Day

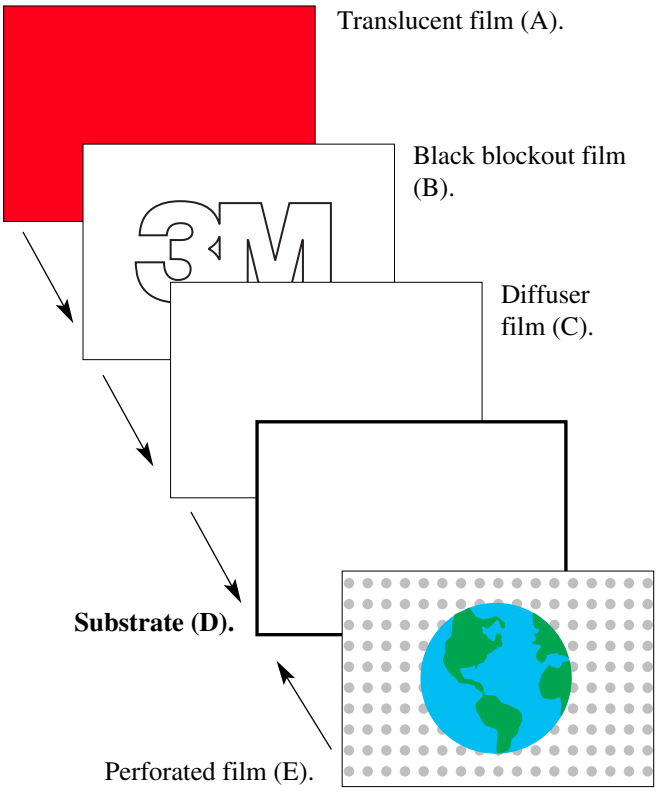


Night

With this special effect technique you can fabricate signs that appear to have a colored image by day and a different colored image by night when internally illuminated.

First Surface Assembly

1. By screen print or Scotchprint® Graphic System, color the 3M™ Scotchcal™ Perforated Window Graphic Film 8671(*ES*) (E) with a desired graphic.
2. Prep front of substrate (D) and apply perforated window film (E) to the front of the substrate (D).
3. Prep back of the substrate (D) and apply diffuser film (C) to back of substrate (D) if clear substrate is used.
4. Reverse cut, weed and prespace image in black blockout film (B).
5. Apply blockout film (B) to the back of the substrate (D) or diffuser film (C) if used.
6. Apply color translucent film (A) to the back of the imaged blockout film (B).
7. Apply GPS film (not shown) over the perforated film (E) if you need maximum graphic protection.



Materials and tools for special effect 15

Materials:

(A) Translucent film (3M™ Scotchcal™ Translucent Film Series 230, 3630 or 3631 – see Product Bulletins 230, 3630 or 3631).

(B) Blockout film (3M™ Blockout Film 3635-22B (black) – see Product Bulletin 3635).

(C) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(D) Substrate (3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI – see Product Bulletin 645).

(E) Perforated window graphic film 8671 – see Product Bulletin 8671.

(F) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 and 3642 – see Product Bulletin 3640 and 3642) for maximum graphic protection (not shown).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™ isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

SPECIAL EFFECT 16 One graphic by day; Different graphic by night

Day

Night

With this special effect you can fabricate signs that have one colored graphic by day and a different colored graphic by night when internally illuminated.

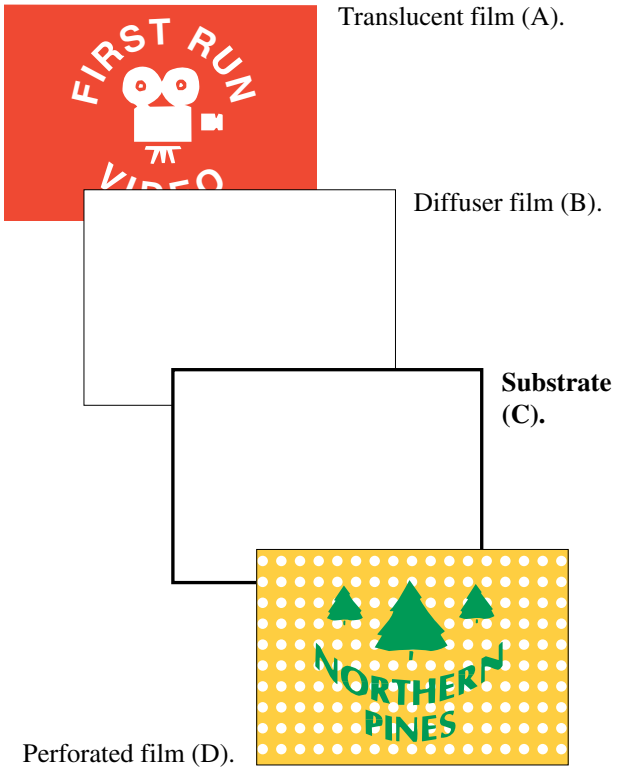
First Surface Assembly

1. By Screen print or Scotchprint® Graphic System, color the 3M™ Scotchcal™ Perforated Window Graphic Film 8671 (*ES*) (D) with the desired graphic.
2. Prep front of substrate (C) and apply perforated window film (D) to the front of the substrate (C).
3. Prep back of the substrate (C) and apply diffuser film (B) to back of substrate (C) if clear substrate is used.
4. By Screen print or Scotchprint® graphic system, reverse print the translucent film (A) with a different graphic.

5a. Apply imaged translucent film (A) to diffuser film (B) if clear substrate (C) is used.

5b. Prep back of substrate (C) and apply imaged translucent film (A) to the back of the substrate (C).

6. Apply GPS film (not shown) over the perforated film (E) if you need maximum graphic protection.



Translucent film (A).

Diffuser film (B).

Substrate (C).

Perforated film (D).

Materials and tools for special effect 16

Materials:

(A) 3M™ Scotchcal™ Translucent Film or 3M™ Scotchcal™ Electrostatic Translucent Graphic Film 8628 (*ES*) – see Product Bulletin 8628).

(B) Diffuser film (3M™ Diffuser Film 3635-30 or 3635-70 – see Product Bulletin 3635).

(C) Substrate (3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI – see Product Bulletin 645).

(D) Scotchcal perforated window graphic film 8671 (*ES*) – see Product Bulletin 8671.

(E) Optional GPS film (3M™ Scotchcal™ Transparent Film 3640 and 3642 – see Product Bulletin 3640 and 3642) for maximum graphic protection (not shown).

Tools and supplies:

1. 3M™ Applicator PA-1.
2. Detergent and water solution.
3. Razor knife/cutter.
4. Ruler.
5. Cleaners (DuPont Prep-Sol™ isopropyl alcohol). Refer to solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.
6. Lint-free wipes.
7. 3M™ Masking Tape 232.
8. 3M™ Prespace Tape SCPS-2.
9. 3M™ Premask Tape SCPM-3.

Instruction bulletins:

Using 3M application tapes; premasking and prespacing of films and sheetings, *Bulletin 4.3*

Application, substrate selection, preparation and substrate-specific application techniques, *Bulletin 5.1*

Application of translucent pressure sensitive and changeable films to flat rigid plastic signs, *Bulletin 5.7*

Applying GPS film to 3M™ Scotchcal™ Transparent Film 3640 GPS and 3642 GPS, *Bulletin 5.10*

Graphic application and attachment; 3M™ Panaflex™ *Enhanced Image* Sign Facing 645EI, *Bulletin 5.21*

* See polycarbonate note on page 3.

Tips for productivity

Substrate preparation

1. Wash the surface with water containing a liquid synthetic dishwashing detergent. Avoid all soaps. Also avoid detergents containing cremes, lotions or scents. These can leave a film and interfere with film adhesion. Wipe dry with lint-free paper towel.
2. Saturate a clean paper towel with a solvent such as DuPont Prep-Sol™ or isopropyl alcohol and wipe the surface dry with lint-free paper towels before the solvent evaporates.

CAUTION: Refer to the solvent container label and the manufacturer's Material Safety Data Sheet for health, safety and handling information.

Roll lamination

For long signs with solid color background and signs with stripes, translucent films can be cold-roll or hot-roll laminated quickly and easily to a variety of substrates. You must test and approve the lamination process to determine suitability for your operation.

Detergent and water application

1. Make a wetting solution with one teaspoon (6ml) of mild liquid detergent (not soap or enzyme detergent) mixed in one quart (liter) of cool water.
2. Hold film face down on clean surface and begin liner removal at a corner. While removing the liner, spray wetting solution onto the exposed adhesive. Continue to spray until liner is completely removed. **Do not get liner wet prior to removal.**
3. For small pieces of film, thoroughly wet the adhesive side with a spray bottle. For large pieces, you can thoroughly wet the adhesive side with a pressurized garden sprayer.

   NOTE: Avoid wetting prespaced markings on the non-adhesive side of the prespacing tape. Moisture will wrinkle the weeded areas and slow application.
4. Thoroughly wet application surface with wetting solution.
5. Position film with the wet adhesive against the wet application surface. If the film is not premasked, spray wetting solution on the top surface.
6. Squeegee from center to edges using light, overlapping strokes to smooth out wrinkles. A large window squeegee may be used to remove the water solution, but in all other squeegee operations, only Plastic Applicator PA-1 will provide the desired results.
7. To adhere film to substrate, re-squeegee from center to outside edges with firm, overlapping strokes. Dry with clean cloth or soft paper towel, then re-squeegee edges. If film is premasked, continue with steps 8 and 9. If not premasked, go to step 10.
8. To remove premask, wait 15-20 minutes then begin at a corner, carefully pulling the premask away from the film at a 180° angle.
9. Re-squeegee all edges.
10. To remove bubbles, puncture film with a pin at one end of the bubble (do not use a knife or razor). Press out the bubble with your thumb moving toward the puncture.

CAUTION: Film and edges must be re-squeegeed after 24 hours to help prevent edge lifting and possible graphic lifting from the substrate.

For more details, refer to Commercial Graphics Division Instruction Bulletin.

Seaming translucent film

Rather than butting film and risk a noticeable light leak, film pieces are overlapped 1/32" (.8mm). This overlap leaves only a slight line visible when viewed from a short distance. To make the least noticeable overlap –

1. Tape a cutting strip to the sign surface where the film will overlap. Use 3M™ Masking Tape 232. The cutting strip can be 16 to 18 gauge (0.050" to 0.062" or 1.3mm to 1.6mm) sheet metal or plastic, 1" to 1 1/2" (25mm to 38.1mm) wide. Strip thickness determines overlap width. The thicker the strip, the wider the seam. A minimum 1/32" (.8mm) overlap helps prevent potential light leaks as the sign weathers.
2. Apply first piece of film, overlapping the width of the cutting strip. Prior to seaming, remove any premask in the overlap area.
3. Apply second piece of film, overlapping the width of the cutting strip. Squeegee both pieces over the strip.
4. With a razor and straight edge, cut through both films along the entire length of the overlap.
5. Remove top film weed, then fold back overlapped film to remove underneath film weed.
6. Remove cutting strip and apply wetting solution where the strip was positioned.
7. Squeegee the first piece of film onto the sign surface, followed by the second to create the overlap seam.
8. Re-squeegee after 24 hours to help prevent lifting.

Tips for productivity continued on next page.

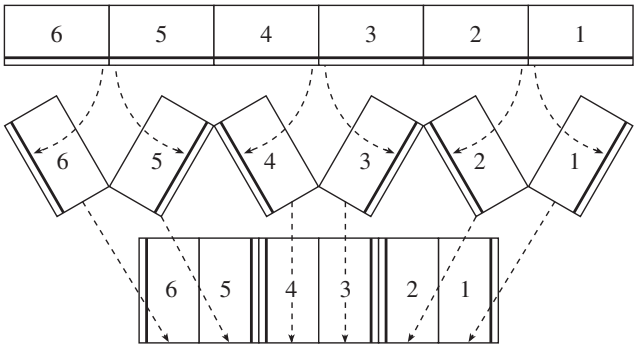
Tips for productivity *(continued)*

Color order

For multiple color signs, it is generally good practice to put darker colors over lighter colors. The darker color should overlap the lighter by a minimum 1/32" (.8mm) and maximum 1/16" (1.6mm). This compensates for registration errors without being readily noticeable. The darker overlap line helps frame the lighter color.

Matching

When two or more pieces of the same color translucent film are seamed into a continuous band, they must be from the same roll or lot and matched as shown below. This is the only way to assure uniform appearance.



In the diagram above, the dark line represents one edge of the film from one roll. The matching edges are always swung to meet each other. Panels 1 and 2 are a matched set. Panels 1, 2 and 3 are matched, etc. With this method, you can match as many sheets from a roll as required for the sign size.

Hiding lamps

If a sign face is in a shallow depth sign cabinet, the internal lamps may show on the face as unacceptable light streaks, hot spots or even as bright outlines of the lamps.

One method of eliminating or reducing such undesirable effects is to apply 3M™ Diffuser Film 3635-30 or 3635-70 to the back of the sign face. Diffuser film helps distribute light uniformly over the sign face. In some cases when the lamps are much too close to the sign face, you may need several layers of diffuser film or use a deeper cabinet.

Premasking/prespacing transfer tape techniques

Premask and prespace tapes are two types of transfer tapes designed for different purposes. Refer to 3M Commercial Graphics Instruction Bulletin 4.3 for methods to provide the best possible appearance.

Multiple color graphic assembly

There are four main assembly techniques:

1. Overlay
2. Underlay
3. Cut out and insert
4. Butt and tape.

For more information, contact your 3M Commercial Graphics Division representative, or call 800-374-6772.
For technical questions or assistance call 800-328-3908
In Canada, call 800-265-1840.

3M

Commercial Graphics Division

3M Center, Building 220-6W-06
PO Box 33220
St. Paul, MN 55133-3220 USA
General Info. 800-374-6772
Technical Info. 800-328-3908
Fax 651-736-4233

3M Canada

PO Box 5757
London, Ontario
Canada N6A 4T1
800-265-1840
Fax 519-452-6245

3M Mexico, S.A. de C.V.

Av. Santa Fe No. 55
Col. Santa Fe, Del. Alvaro Obregón
Mexico D.F. 01210
52-5-626-0400
Fax 52-5-728-2299

3M Puerto Rico, Inc.

Puerto Rico Industrial Park
PO Box 100
Carolina, PR 00986-0100
787-620-3000
Fax 787-750-3035

Fax-on-Demand US/Canada 800-364-0768 or Int'l 651-732-0106
www.3M.com/us/graphicarts

Scotchprint® Graphics
3M™ MCS™ Graphics

This symbol certifies that your graphic has been produced using only 3M matched components and is protected by the 3M ™ MCS ™ Warranty-the most comprehensive warranty in the industry.