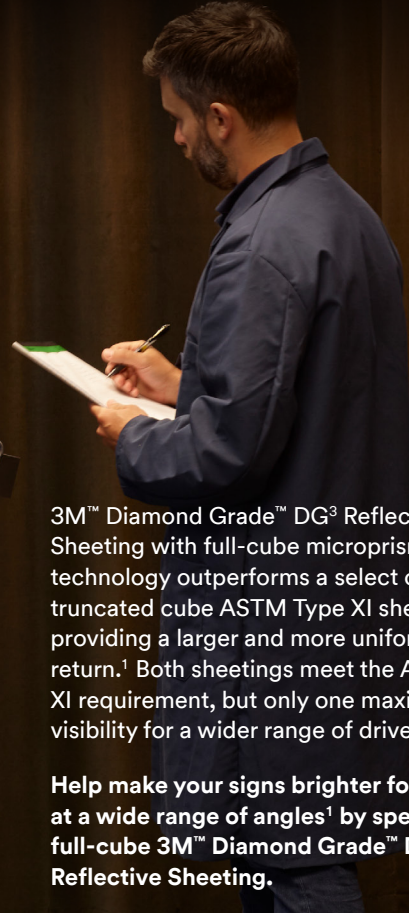




3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting

A select truncated cube competitive ASTM Type XI sheeting



# Side-by-side, it's easy to decide.

Not all sheeting claiming to meet the ASTM Type XI specification is created equal.

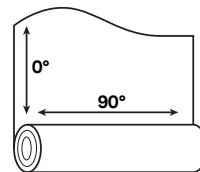
3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting with full-cube microprism technology outperforms a select competitive truncated cube ASTM Type XI sheeting by providing a larger and more uniform light return.<sup>1</sup> Both sheetings meet the ASTM Type XI requirement, but only one maximizes sign visibility for a wider range of drivers.<sup>1</sup>

Help make your signs brighter for drivers at a wide range of angles<sup>1</sup> by specifying full-cube 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting.

## The proof is in the reflective performance.

On guide signs, a select truncated cube competitive ASTM Type XI sheeting isn't as bright at 90-degree orientation (the standard orientation at which sheeting is laminated onto guide signs) and between 0.33°-2.0° observation angles compared to full-cube 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting.<sup>2</sup> The difference can mean guide signs that are brighter and easier to see for drivers at a wide range of observation angles.<sup>1,3</sup> See the exit sign comparison below.

On flat panel signs, 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting is brighter and serves more drivers than a select truncated cube competitive ASTM Type XI sheeting at large observation angles,<sup>1</sup> such as those experienced by drivers of large trucks on highways as well as all drivers on urban roads. See the stop sign comparison below.



Sample signs shown were fabricated at the recommended orientations of 0 or 90 degrees for flat panel signs (stop signs shown below) and at 90 degrees for extruded panel signs (exit signs shown below).

0.7° observation angle/  
-4° entrance angle

1° observation angle/  
-4° entrance angle

1.5° observation angle/  
-4° entrance angle



Signs fabricated with sheeting at a 90-degree orientation and photographed in a controlled lab setting.

These exit signs are simulating a guide sign made with aluminum extrusion panels. As a driver approaches a sign (photos from left to right), the observation angle gets larger. The lighter the signs are in the photos represents how much brighter the signs are on the road.

These stop signs are simulating a flat panel sign. As a driver approaches a sign (photos from left to right), the observation angle gets larger. The lighter the signs are in the photos represents how much brighter the signs are on the road.

**Left half:** White 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting

**Right half:** A select truncated cube competitive ASTM Type XI sheeting

All references on page 2 of the flyer.



# Help make your signs brighter for drivers at a wide range of angles.<sup>1,3</sup>

Stay ahead of evolving vehicle design, new technology and aging drivers by specifying full-cube 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting when upgrading current roads or building new ones. Studies show that drivers are able to read and understand brighter signs substantially faster, giving drivers more time to react<sup>3</sup> and increasing safety by helping to cut nighttime accidents by up to 42%.<sup>4</sup> Sheeting made with full-cube technology is brighter across a wider range of observation angles than sheeting made with truncated cubes.<sup>1</sup>

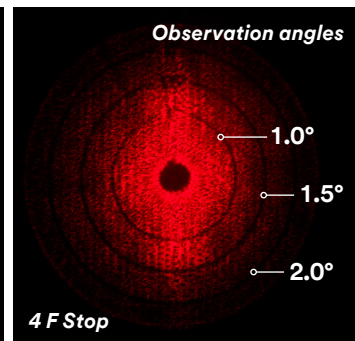
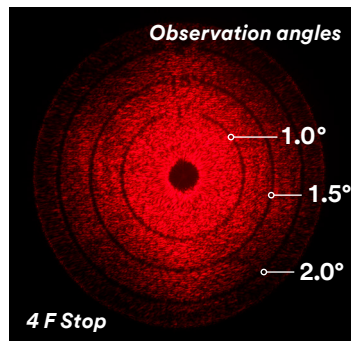
## The wider and more uniform the better.

3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting with full-cube technology serves more drivers than a select competitive truncated cube ASTM Type XI sheeting because it offers a larger and more uniform cone of reflection. This provides more light to more drivers and reflects more light from signs in disadvantaged locations like the left shoulder.

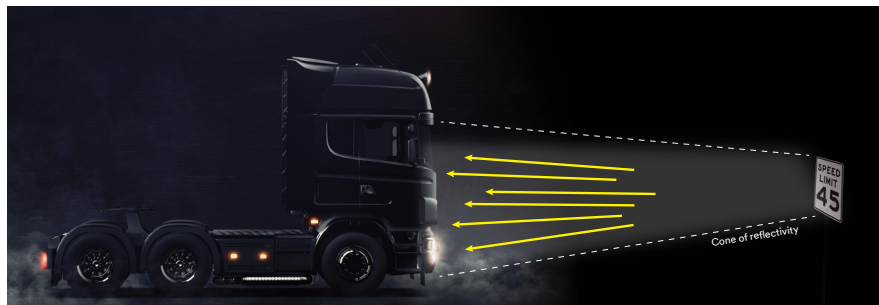
See the difference in cone reflection size and uniformity between the two sheetings below. 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting is brighter versus select competition in a wider range of observation angles (noted by the “1.0°,” “1.5°,” and “2.0°” rings).

**3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting – full-cube technology**

**A select competitive Type XI sheeting – truncated cube technology**



## Full-cube technology delivers light where it counts.



*A select competitive ASTM Type XI sheeting (truncated cube technology): When applied at 90-degree orientation and viewed at higher observation angles (e.g. truck driver's eyes), most light will strike below a driver's eyes.<sup>2</sup>*



*3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting (full-cube technology): When applied at 90-degree orientation or viewed at higher observation angles (e.g. truck driver's eyes), more light will strike a driver's eyes than a select competitive truncated cube ASTM Type XI sheeting.<sup>2</sup>*

1. As shown on the laser images on page 2 of the flyer. Total light return as measured by 3M lab according to ASTM E808-01.

2. As tested by an independent 3rd party lab.

3. Schnell, T., Yekhshatyan, L., Daiker, R., Konz, J., Effect of Luminance on Information Acquisition Time and Accuracy from Traffic Signs. Paper accepted for presentation and publication, Transportation Research Record, Journal of the Transportation Research Board, 2008.

4. Ripley, D., Howard R. Green Company, ITE AB04H313.



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