

# Managing Panoramic Roofs at RTC's

We are starting to see more vehicles on the road today with panoramic roofs being either a complete glass roof or two sections with one moving as the sunroof to improve the ambience of the internal surroundings whilst driving. Also from the manufacturers point it reduces the weight of the vehicle.

This document is a basic guide for rescuers, should you encounter this type of vehicle where space creation is required.

There are many makes of cars that now come with a panoramic roof, most however it is an optional extra. One of the latest being the Vauxhall Meriva which has a complete glass roof made from Laminated glass.



This complete panel is made from Laminated glass.

Some vehicle makes such as the BMW X5 will have 2 panes of glass with the front piece opening as a sun roof, now as a rule of thumb the small opening panel will be toughened glass and the larger rear piece will be made from Laminated glass or vice versa.



I have been informed that Mercedes fit all panoramic roofs with Laminated glass but as you can see in these pictures this is not the case. The glass here is toughened glass.



Now I can see that this will cause some confusion at the crash scene, I have found it quite difficult to get this information as I have received conflicting information from dealers and Glass replacement experts.

The glass replacement experts inform me that panoramic roofs should be Laminated or similar glass with the exception of the sunroof glass.

I will leave you to make your own decisions on this. As much as I would like to give you the answers, I have found it difficult to obtain the facts and do not want to publish misleading information..

We will be able to determine in most cases the glass type by the markings found on the glass itself.

I have included what the letters and numerals mean at the end of this document.

### **Dealing with these roofs during extrication:**

Firstly, we need to ask ourselves, is the type of roof posing a problem? this should form part of our extrication planning

In most cases roof removal can be carried out in the normal way by cutting the roof posts as per normal procedures.

With good casualty protection at all times during this phase, any glass fragments should not become much of an issue.

Depending on the type of incident, if the glass is toughened, it will in most cases have already been shattered from the impact damage, visual signs and marks on the glass will give us our first sign of the type of glass we are dealing with, can we see the manufactures marks and what do they tell us?

If we need to manage the glass and we are still unsure as to what it is, put in place the correct casualty protection and manage the glass as per sop's, if it doesn't shatter then we know it will be laminated or similar, we can then either leave the glass as it will pose little risk or it can be managed in the same way as we manage the windshield and be cut with a suitable tool, obviously maintaining full casualty and rescuer protection along with respiratory protection if needed.



Photo courtesy of Jörg From Moditech.com



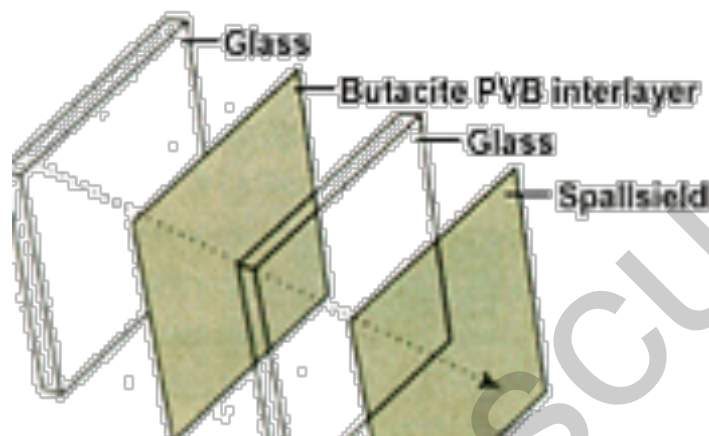
Photo courtesy of Jörg From Moditech.com

Here we can see the rear section of glass being cut on a Mercedes, where the front piece will be toughened glass like a standard sunroof.

There is also a glass being used from DuPont called Spallshield□

DuPont™ Spallshield® is a three-layer composite structure of PVB/PET/hardcoat. The hardcoat is highly durable, chemically resistant and virtually indistinguishable to glass allowing it to replace one of the lites of glass in a glazing structure. This dramatically reduces the final weight of the glazing.

[http://www2.dupont.com/SafetyGlass/en\\_US/assets/pdfs/spallshield\\_brochure.pdf](http://www2.dupont.com/SafetyGlass/en_US/assets/pdfs/spallshield_brochure.pdf)



The Spallshield□ coating prevents glass shards on the inside of the vehicle should the glass be damaged in a crash.

In summary most panoramic roofs will generally be laminated or similar to prevent the occupants from being thrown out of the vehicle in a crash situation, it is not something that we can not deal with, treat laminated roofs the same as you would a standard roof, with the exception that:

1. If you have to manage it use the correct PPE/casualty protection including Respiratory protection.
2. Leave in situ where possible.
3. If in doubt check for glass markings
4. If it doesn't shatter when being managed, is it laminated?
5. They can be cut in the same way as a windshield.
6. If it is of the sunroof type use the sunroof cover to aid glass shard protection.
7. If you are not sure of the glass type and think it may shatter, put into place the correct control measures(PPE--shielding--protection--collection)

The risks and problems from this type of roof are minimal, and is not something that we should worry too much about.

**Good vehicle knowledge and training will prepare us for such incidents.**

## 1. - Types of the window glasses

I. - extra durable windshield

II. - regular multiple layer windshield

III. - multiple layer windshield that underwent special treatment

IV. - plastic glass

V.- other (not windshields) glasses with the limpidity factor of less than 70%

**V-VI** - double glass with the limpidity factor of less than 70%

**Index absence** - the glasses that are not windshields and have limpidity factor of less than 70%

## 2. - A code of a country that gives an official certification

- |                |                 |                             |
|----------------|-----------------|-----------------------------|
| 1 - Germany    | 12 - Austria    | 24 - Ireland                |
| 2 - France     | 13 -Luxemburg   | 25 - Croatia                |
| 3 - Italy      | 14- Switzerland | 26 - Slovenia               |
| 4 -Netherlands | 16 - Norway     | 27 - Slovakia               |
| 5 - Sweden     | 17 - Finland    | 28 - Belarus                |
| 6 - Belgium    | 18 - Denmark    | 29 - Estonia                |
| 7 - Hungary    | 19 - Romania    | 31 - Bosnia and Herzegovina |
| 8 – Czech Rep. | 20 - Poland     | 32 - Latvia                 |
| 9 - Spain      | 21 - Portugal   | 37 - Turkey                 |
| 10 -Yugoslavia | 23 - Russia     | 42 - EU                     |
|                |                 | 43 - Japan                  |

The following information has been kindly sent in from Jörg of Moditech CRS

"Last week I've been at the Opel plant and also spoke to one of their engineers who is responsible for type approval of their cars, in detail for all the glazing.

Unfortunately he could not answer the question if there are regulations which glass needs to be used. But he promised to investigate further and let me know"

On the photos of the panoramic roof of the Opel Meriva you showed the glass stamp. For side windows we encountered that the information on the stamp can often provide the type of glass used. The photo you used showed the term laminated, but I've also seen terms like Lamisafe used here. For German built vehicles (Audi, Mercedes, VW) you'll often encounter the abbreviation VSG which is laminated glass. Tempered glass often carries the term tempered. You call it toughened glass, so I assume the term toughened also refers to tempered glass?! The German abbreviation you'll find sometimes is ESG!

However, I've no idea what is written on a panoramic roof with Spallshield.

In your article you mentioned that the general impression on the accident scene will most of the time help you recognize the type of glass used. I also use this idea (general impression) for airbag scanning: Which airbags do you assume when you see a deployed curtain airbag and a deployed seat mounted side airbag on arrival? From the general impression I know that there are at least 4 un-- deployed airbags in the vehicle.

Another idea for sunroofs as well as panoramic roofs is to use the vehicle equipment to protect the casualty from glass. Most roofs have some sort of shield that you can either bring in front of the glass roof manually or electrically.

Some very valuable information thank you Jörg.

With reference to Tempered and Toughened glass we will see that some vehicles will have Toughened written on the side windows and some will have Tempered, they both mean the same with regards to managing the glass.

If you have any experiences or further information please send it in to [rtc.rescue@gmail.com](mailto:rtc.rescue@gmail.com) thank you.