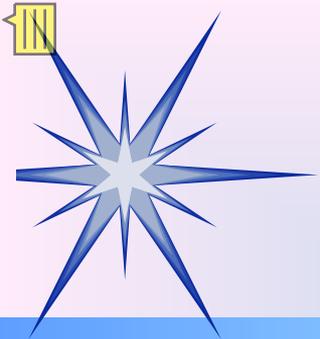


# **The Future of Glass Strength – A Society-Changing Symposium**

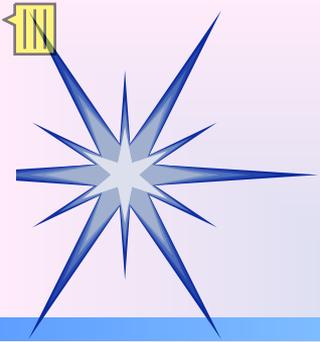
**8<sup>th</sup> PacRim Conference**  
**Vancouver, BC**  
**June 4, 2009**

**Michael Greenman**  
**Glass Manufacturing Industry**  
**Council**  
**Executive Director**



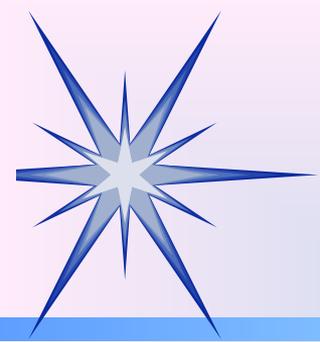
# Strength of Glass

<u>Condition of Glass</u>	<u>lb/Square Inch</u>
➤ Surfaces ground and sandblasted	< 4,000
➤ Pressed Articles	3,000 – 8,000
➤ Blown Ware:	
▪ Hot Iron Molds	4,000 – 9,000
▪ Paste Molds	5,000 – 1,500 10,000
▪ Inner Surfaces	15,000 – 40,000
➤ Drawn tubing or rod	6,000 – 15,000
➤ Window Glass	8,000 – 20,000
▪ <i>LCD (0.65 mm)</i>	<i>~45,000</i>
➤ Annealed fibers	
▪ Annealed	10,000 – 40,000
➤ Freshly drawn	30,000 – 400,000
➤ Gorilla Glass (Samsung – Mobile Phone)	100,000-200,000
➤ <i>Telecommunications Fiber</i>	<i>&gt;100,000</i>



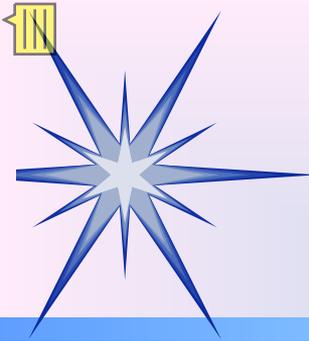
# Realistic Applications

- Structural Glass – (Northwestern U.)
- Stronger Solar Panels (U. of Notre Dame)
- Thin Solar Panels (Friederich Alexander U. – Erlangen, German)
- Skyscraper Agriculture (Alfred U.)
- Glass Roofs (New Mexico I.T.)
- “Everspheres” (MST)



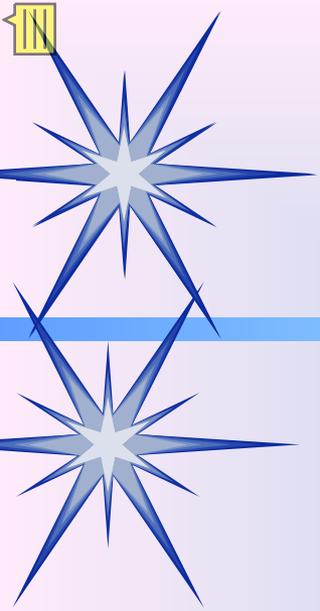
# Glass Strength – Next Steps

- Identification of Research Proposals by GMIC members – 5 projects ready to be undertaken
- Meetings/Conferences
  - “Towards Ultrastrong Glass” (Germany) – September 2008
  - “Glass Structure – Property Relationships” (France) – May 4&5 2009
- Brain Trust
  - Identify experts around the world with interest/knowledge in glass strength.
  - <http://glass-fracture.org>
- Global Conference – at PacRim/GOMD/ICG (Vancouver) – June 2009



# Today

- Thanks to ACERS for providing venue
- ICG and TNO for co-sponsoring
- All of you for coming today
- Structure



[www.gmic.org](http://www.gmic.org)

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