Work on*

team CORNING
improve office life with gorilla glass
In order to identify and prototype a product in a 'white space' it was necessary to know the current products across the entire office space. Also, it was necessary to see how Gorilla Glass could enter that space. "Speedstorming" was an exercise to help map different materials to different needs through existing products. Members of Team Corning each took turns to write down needs, products and materials on a sheet of paper and switched between tasks after every 60 seconds. Two different mind maps were generated. For the first map, the list was arranged in the form of a tree diagram and links were established first between needs and products and then between those products and materials. Figure 4.7.5 shows the material functionality map obtained as a result of the exercise. For the second mind map, we subdivided the possible use areas for gorilla glass in office environment into two categories: products and special elements. We listed out already existing products used in an office environment where the gorilla glass could be integrated in. The special features included space dividers, walls, floors and lightning.
What ideas can we generate right now?
Based on an observed industry wide push towards openness and collaboration, we decided to explore the functions of collaboration and privacy through transparent surfaces. Writing solutions exist both in digital and tangible forms. Moreover, transparent writing surfaces have also been introduced. Finally, customized privacy has been made possible with the help of variable opacity smart glass.

### Smart Glass Technology

<table>
<thead>
<tr>
<th>Smart Glass Technology</th>
<th>Special features</th>
<th>Disadvantages*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrochromic Devices</td>
<td>• Burst of electricity required for changing opacity.</td>
<td>• Very slow to switch between states.</td>
</tr>
<tr>
<td></td>
<td>• Once change has been affected; no electricity needed for status quo.</td>
<td></td>
</tr>
<tr>
<td>Suspended Particle Devices</td>
<td>• Rod-like particles suspended in a fluid placed between two glass layers. When voltage applied, they align and let light pass.</td>
<td>• Voltage must be applied to maintain transparency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Note: should be the other way around for ‘open offices!’</td>
</tr>
<tr>
<td>Microblinds</td>
<td>• Rolled thin metal blinds on glass.</td>
<td>• With no applied voltage, the micro-blinds are rolled and let light pass through.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• With a potential difference they close off.</td>
</tr>
<tr>
<td>Liquid Crystal Devices</td>
<td>• Liquid mix of polymer and liquid crystals placed between two layers of glass.</td>
<td>• Control of translucence depends on precision of manufacturing operation.</td>
</tr>
<tr>
<td></td>
<td>• No applied voltage.</td>
<td>• Natural state is translucent.</td>
</tr>
<tr>
<td></td>
<td>• Resulting in scattering of light it has a translucent, &quot;milky white&quot; appearance.</td>
<td></td>
</tr>
</tbody>
</table>
Close your eyes and imagine what it sounds like to be in one of these spaces.
Meet “Tiffany”
Early experiential prototyping

Fall started with the testing of writing on vertical and horizontal writing surfaces. This was because of the finding that some people use whiteboards and tables as collaborative writing surfaces.

**Vertical writing surface**
The vertical writing surface was tested using transparent glass and acrylic space dividers that could be utilized as whiteboards. The acrylic board also utilized a curtain behind it so that the user could turn the surface from transparent to non-see through and back. These prototypes are pictured below.

Figure 5.2: Two vertical writing boards. Traditional whiteboard and variable opacity writing board.

**Horizontal writing surface**
The horizontal writing surface was investigated because of its properties to act as a personal note taking device and collaborative tool. The horizontal note taking however has a drawback as markers leave stains and can be harmful because they can be accidentally whipped. Because of this a magnetic pen was also chosen as a test method to test the horizontal writing surface.
### Meet Corning’s Requests
- **Go Big!**
  - Make a *large* impact – so much the better if with *large* sheets of Gorilla.

### Leverage Gorilla Glass Properties
- **Make It Interactive**
  - Maximize the value of Gorilla’s durability by taking it out into the world.

### Satisfy Discovered Office Needs
- **Manage Privacy**
  - Address a business need to seamlessly transition from public to private.

### New Market
- **Explore new spaces outside of digital displays and other Corning markets.**

### Be Flexible
- **Embrace the thin, flexible form factor rather than succeeding in spite of it.**

### Control Sound
- **Balance interaction with privacy by actively managing conversation and ambient noise.**

### Think Corporate
- **Solve real needs in the business world.**

### Transparency
- **Never forget that transparency is a large part of what makes GG unique.**

### Lighten Up!
- **Open up office spaces by allowing light to flow more freely and fostering visibility.**

---

**Summary:**
from the *design proposal* generated by the Corning team near the end of ME310a
Plan for Future Action: Invent or Re-Invent?
As we continue to find products in offices that can naturally benefit from Gorilla Glass, we must decide whether to pursue this type of solution or instead develop an entirely new product offering. Some ideas we plan to explore are:

**Collaborative Writing Surfaces** optimized for both vertical and horizontal orientations that include a mechanism for digitally capturing content and then reproducing it later.

**Adaptable Partitions** which provide active noise cancelling capabilities and can instantly transition from translucent to opaque to meet continually changing privacy needs.

**Workspaces and Storage Solutions** which leverage Gorilla Glass’s translucency to facilitate material discovery and inventory management while maintaining cleanliness.

**Dark Horse Candidates** which include Gorilla Glass business cards, reusable printing surfaces, alternate material facades, and other options yet to be discovered!
So where did they go next?
Sound masking

Covering noise with unobtrusive background sound to achieve more stable acoustic environment.
Stanford-IDEO
like design process
... in reality
(re)Define the Problem
Design never ends

Test
Learn

Prototype
Build

Needfinding and Benchmarking
Understand the users, design space

Bodystorming
Ideate
more benchmarking!
Colors of sound
Testing the Gorilla technically
Testing the Gorilla qualitatively

“Gorilla does better at lower frequencies and sounds nicer because of it”
Testing Sound masking

Speech recognition test
Precision CNC design. Densely packed electronics.
How It Works

Low Power Transducers

LiPo Battery