Shellular Skate Park
Madrid, Spain
Erika Meller, Munenari Hirrata, Zach Price, David Nunez
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>2</td>
</tr>
<tr>
<td>Floor Plan</td>
<td>3</td>
</tr>
<tr>
<td>Form Generation</td>
<td>4</td>
</tr>
<tr>
<td>Section</td>
<td>5,6</td>
</tr>
<tr>
<td>Rendering</td>
<td>7,8</td>
</tr>
<tr>
<td>Structural Analysis</td>
<td>9</td>
</tr>
<tr>
<td>Lighting scheme</td>
<td>10</td>
</tr>
<tr>
<td>Test model</td>
<td>11,12</td>
</tr>
<tr>
<td>Construction theory and method</td>
<td>13,14</td>
</tr>
<tr>
<td>Model</td>
<td>15,16</td>
</tr>
</tbody>
</table>
[Shellular Skate Park]
Madrid, Spain

The form of the shell appears to manipulate the ground plan as it ripples from the earth, mimicking the abstract curves of skating bowls and ramps. The foundation is hidden to emphasize how the shell flows seamlessly into the earth, to excite the minds of the skaters using the park. Hidden footings also give the illusion that our shell is structurally supporting itself. Transition to the ground are designed using the natural curvature of our edge conditions, harmoniously integrating the shell to the existing park. A smooth shell also helps create seamless changes in thickness of the shell itself, allowing the shell to be very thin where it can be, and thicker where it structurally needs to be. Promoting more skater interaction, the shell’s large oculus is a skate-able opening equipped with a ramp which drops off into the skate bowl inside the shell. Two of the shell’s ground points are cast-in seats. Two of the other legs of the shell allow for skating on up until a certain height, marked off by a change in surface textures.

During the day the shell allows in natural sunlight through the funicular openings and the small oculi patterns. Large funicular openings visually connects the interior of the shell to the exterior park. At night LED strips run along the opening lips and illuminate the shell. Additional ground lighting fixtures point out from the ground to illuminate the walls of the shell as well, expressing the smooth underside of the shell and its cohesiveness. The transition of passive day light to colored LED light at night invites occupants to take shelter in this structural haven.
Level 1

Tapas Bar

Raised Seating

Below Ground Restroom
Form Generation

Tapas bar and Seatings

Skate bowl

Two Main Program

Combine and Expand

Changing Height
Passive Daylight Oculi

Night Time LED
1.5 inch SAP model

Improved SAP

Lateral Gravity Load

Max shell stress time history
Small Model Process
Plaster and 5mm plastic
Formwork Process

1. Flattened Formwork
2. Heat Sealed Edges & Inflated
3. Pool Noodle Edge Condition
Cardboard Pattern

Flattened Formwork
Flattened form generated from Squish command in Rhino

Outer bubbles heat sealed to arches.
Edges that block concrete pour made of sliced pool noodles, secured with duct tape.
Oculus form made of cardboard.
Cardboard and noodles adhered with duct tape to make water tight
Inflatable formwork works!