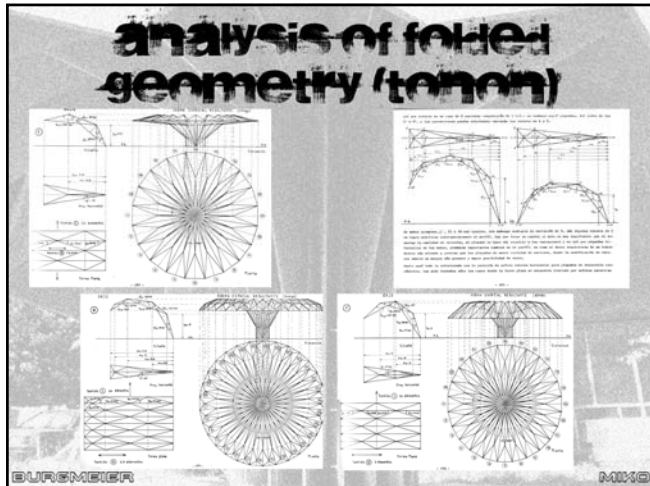
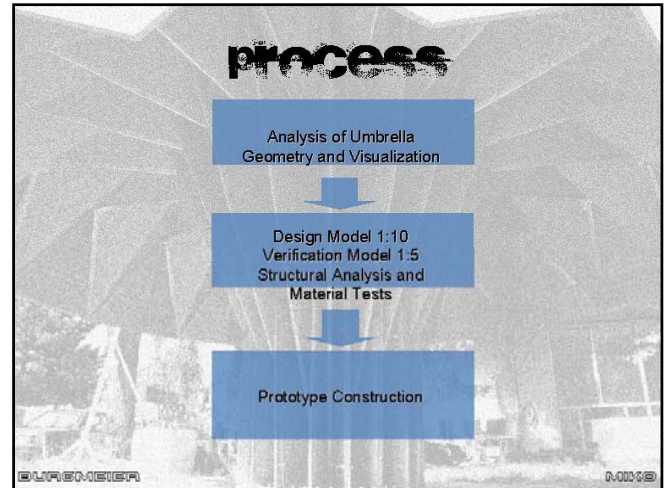


# folded umbrella: design and prototype construction

A Student Seminar Project at  
University of Technology Vienna May-June 2009  
Consultants: Vinzenz Sedlak and Stefan Jaksch

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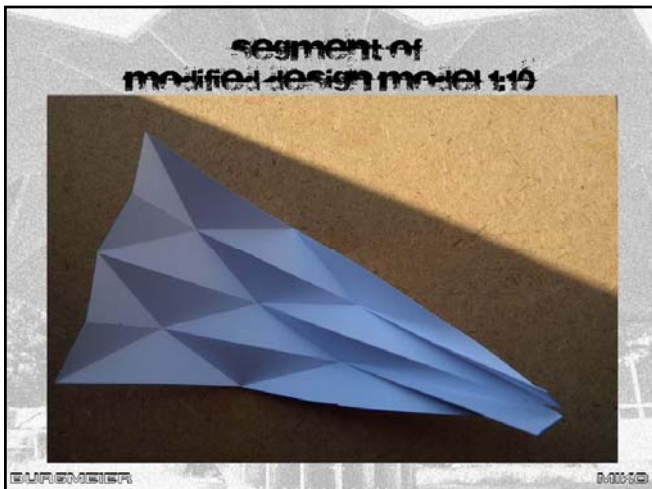
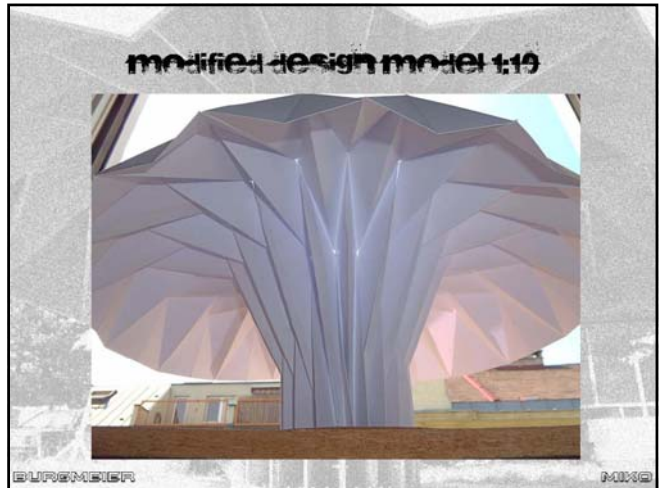
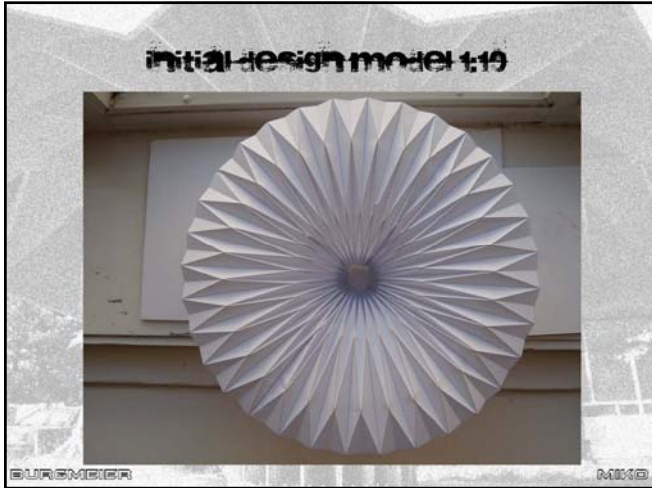


## conclusion of geometry analysis

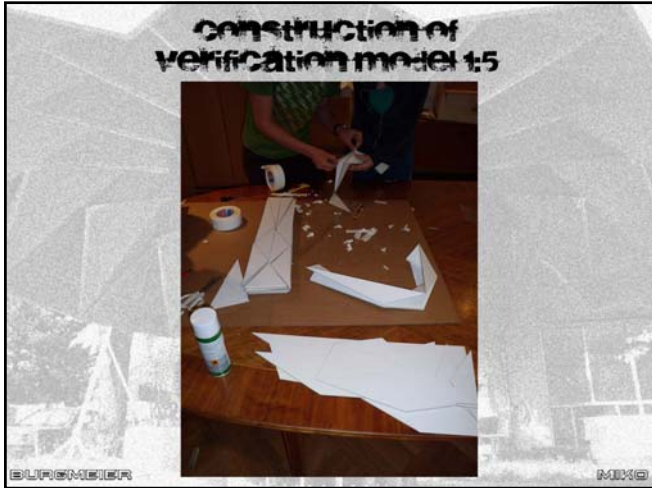
- Form of the umbrella dependant on:
  - number of triangular elements
  - sidelenght triangles
  - number of segments
  - material thickness (7mm corrugated cardboard)

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taping the final joint



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positioning of unfolded umbrella on assembly jig model



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Completed 1:5 model: the entire prototype construction process was developed and confirmed here



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prototype construction: pre-cut individual elements



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prototype construction: joining elements into segments



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waterproofing of segments



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joining waterproofed segments



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joining waterproofed segments



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entire prototype partially unfolded



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metalwork for anchorstraps and assembly jig



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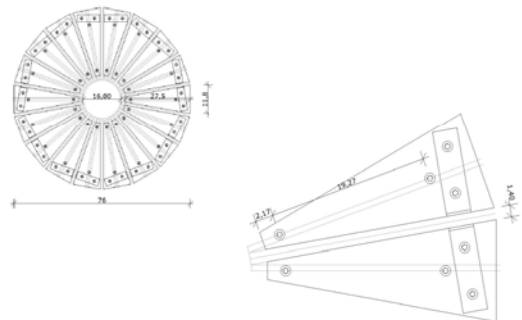
painting of anchorstraps



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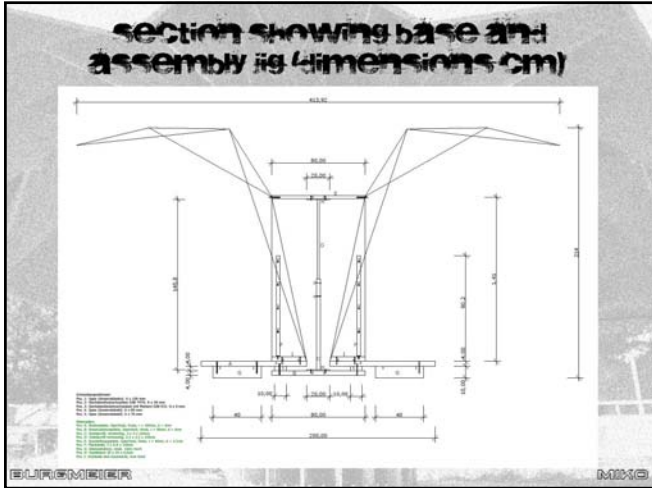
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base jig for prototype trunk-dimensions (cm)



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MIXE



fixing anchoring straps for trunk to the assembly rig



EUR50-5E1R

00010

lifting umbrella onto assembly rig



EUR50-5E1R

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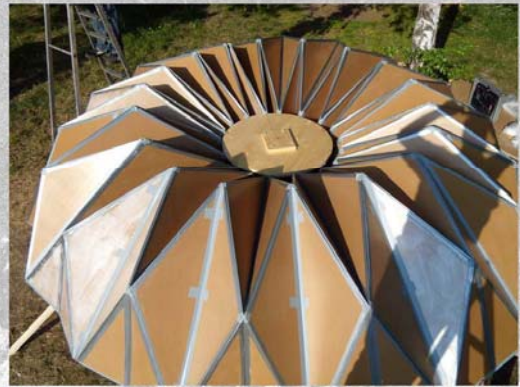
fixing anchor straps to trunk



EUR50-5E1R

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umbrella assembly from above



EUR50-5E1R

00010

detail of taped joints and bolt connections to assembly rig



EUR50-5E1R

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details of external bracing struts and trunk



EUR50-5E1R

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Completed folded umbrella  
prototype from above



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Completed folded umbrella  
prototype from side



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thank you for your  
attention!



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