



SIS Launching Promotion

Multi Functional Leisure Boots
Skate / Inline Skate / Ski

IPO
Infinity Plus One

IPO (Infinite Plus One) - Team 1
2006. 12. 13. Wed



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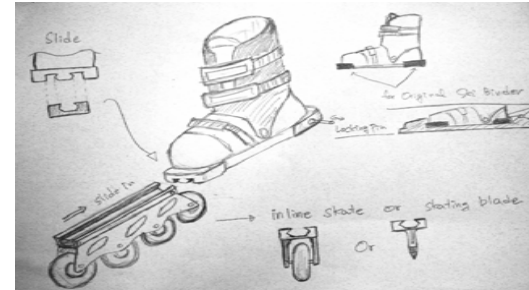
5. Design for X - Conclusion

6. Cost Analysis (Reference)

Road map

Brainstorming / Subject Selection

Freehand Sketch



Solid Works Design

Cosmo Works Analysis

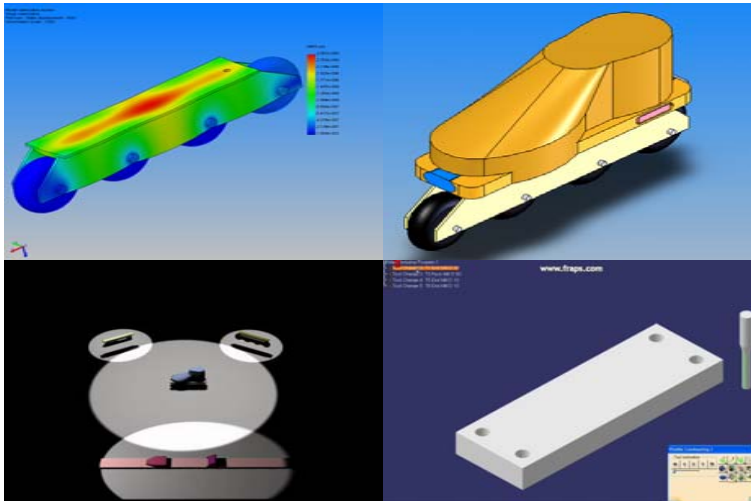
3D Max Animation

Catia Mold Design

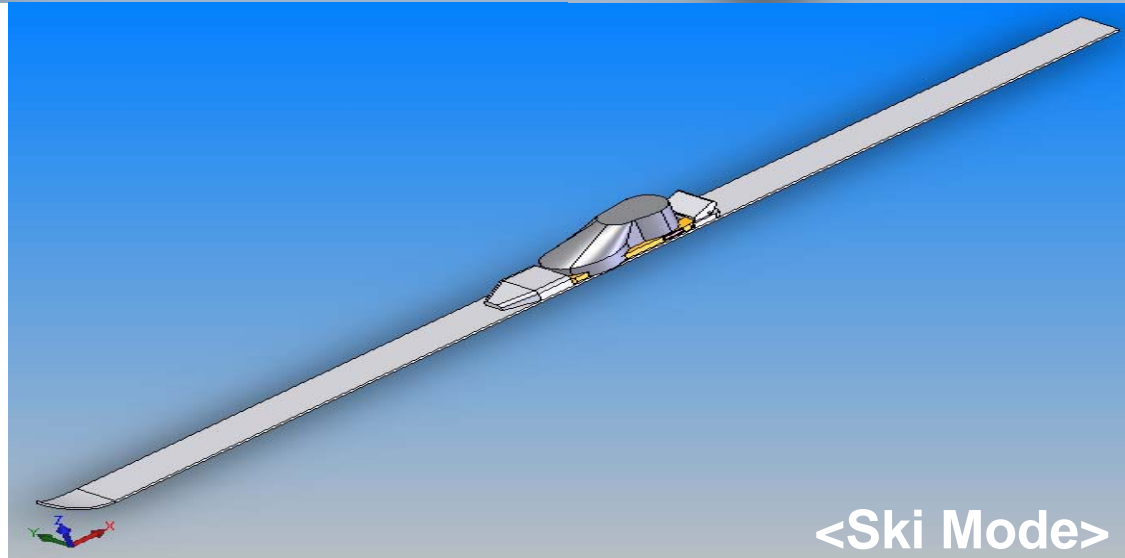
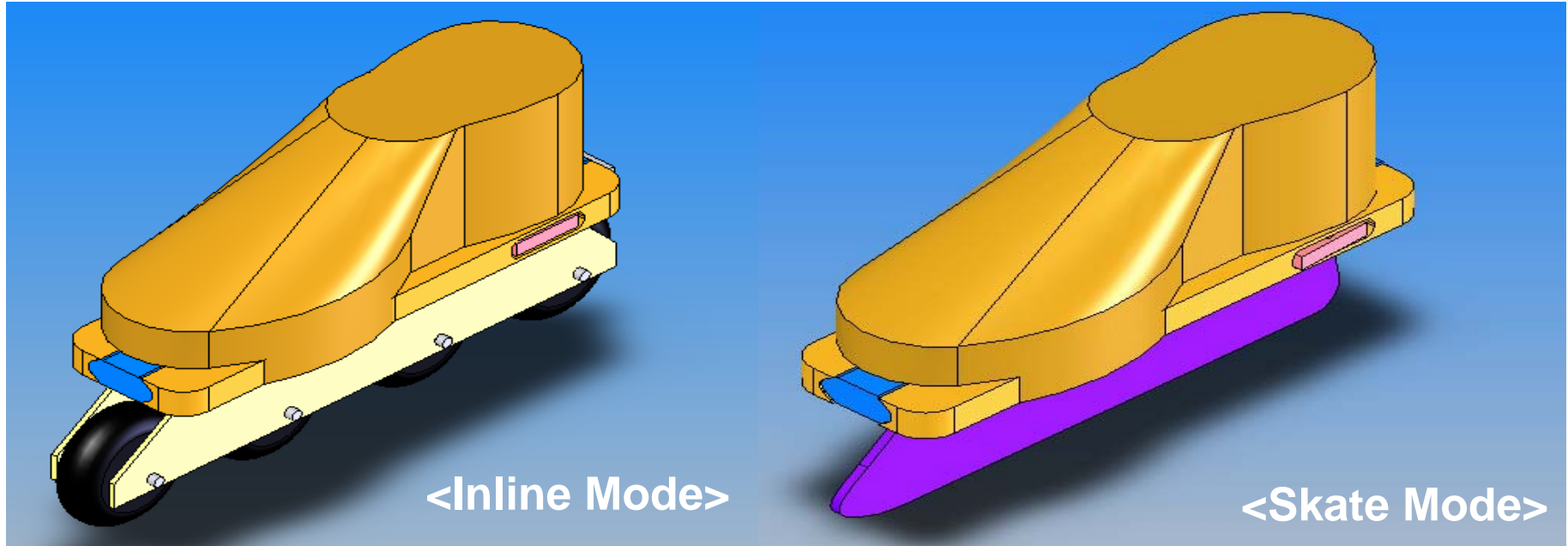
Alias Modeling

Manufacturing Prototype

Trial Performance

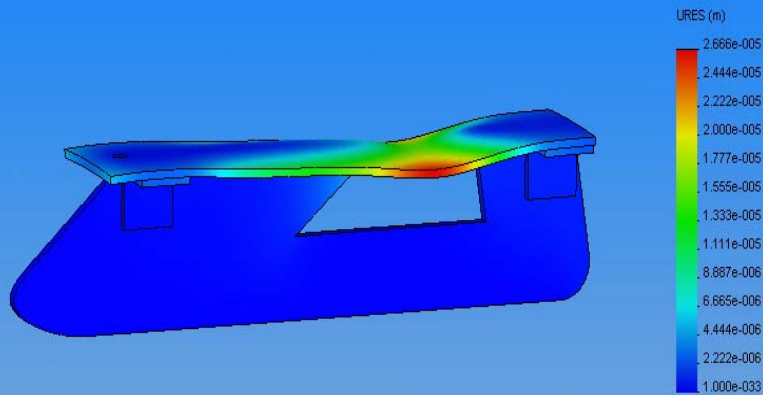


Review 1 – Solid Works

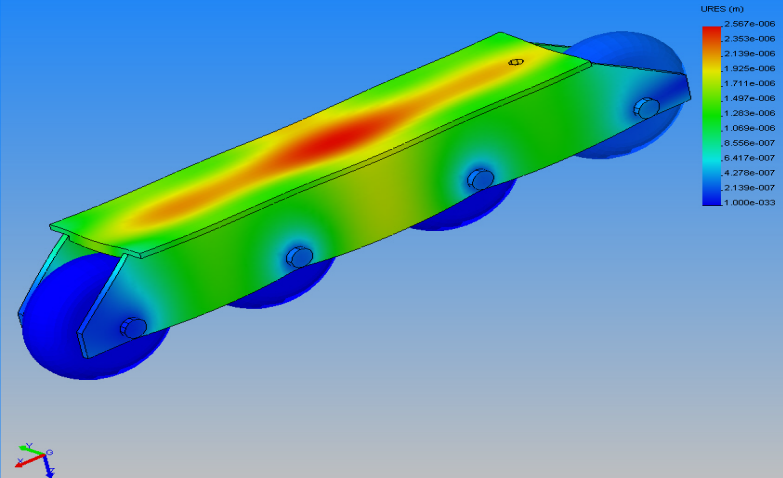


Review 2 – Cosmos Works

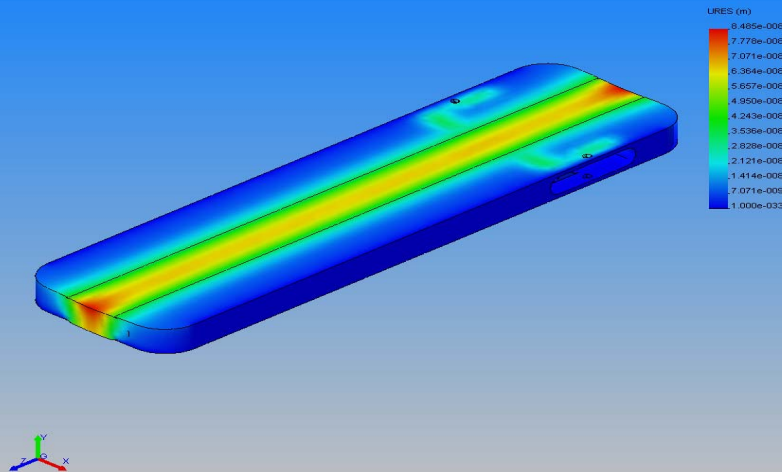
Model name: Skate FEM
Study name: 11
Plot type: Static displacement - Plot1
Deformation Scale: 200



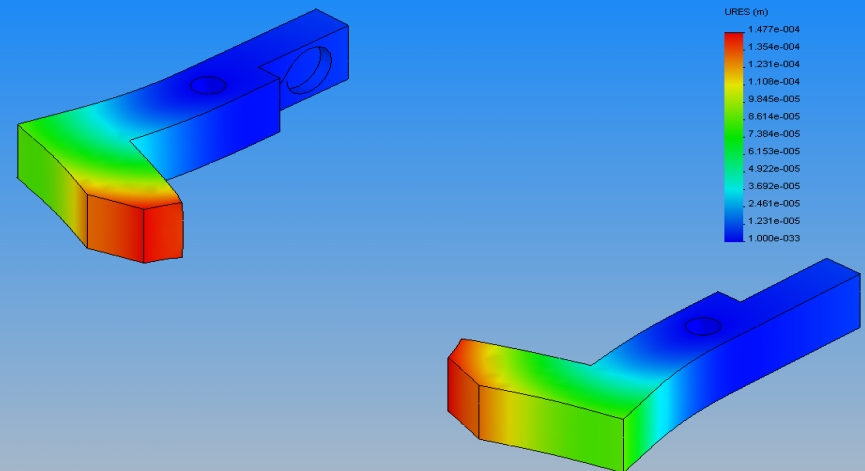
Model name: inline-assem
Study name: inline
Plot type: Static displacement - Plot1
Deformation Scale: 1250



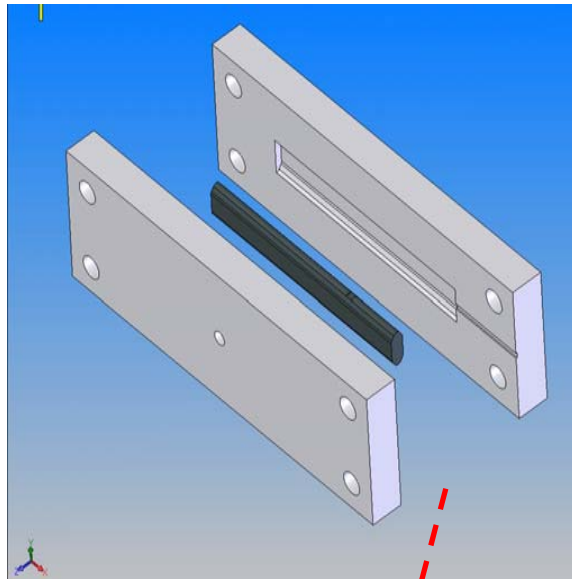
Model name: skate-rail
Study name: Rail
Plot type: Static displacement - Plot1
Deformation Scale: 10000



Model name: inline-rail
Study name: Latch
Plot type: Static displacement - Plot1
Deformation Scale: 50



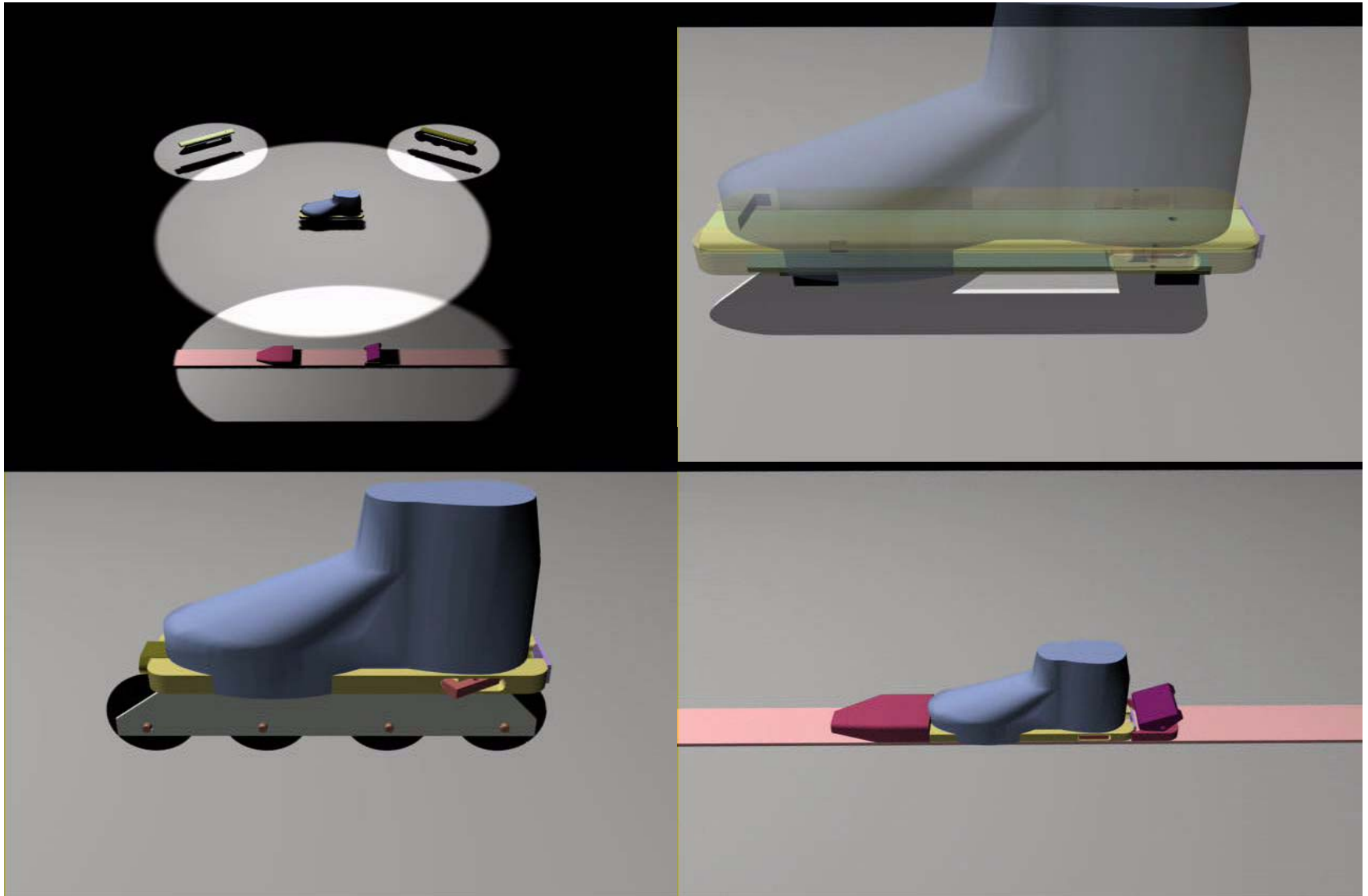
Review 3 – Catia NC



Catia NC



Review 4 – 3D Max



Alias Modeling – Product Brochure



SIS Launching Promotion
10:00AM @ 301-105



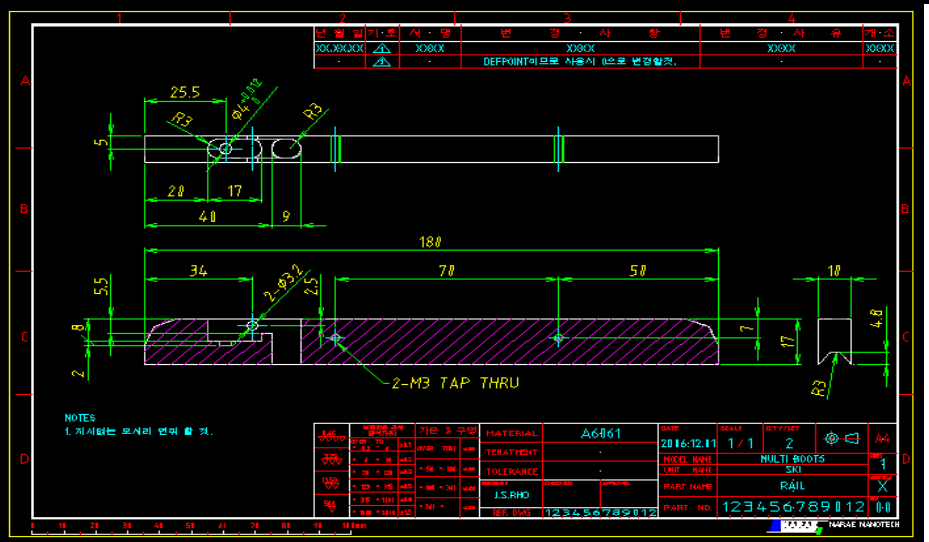
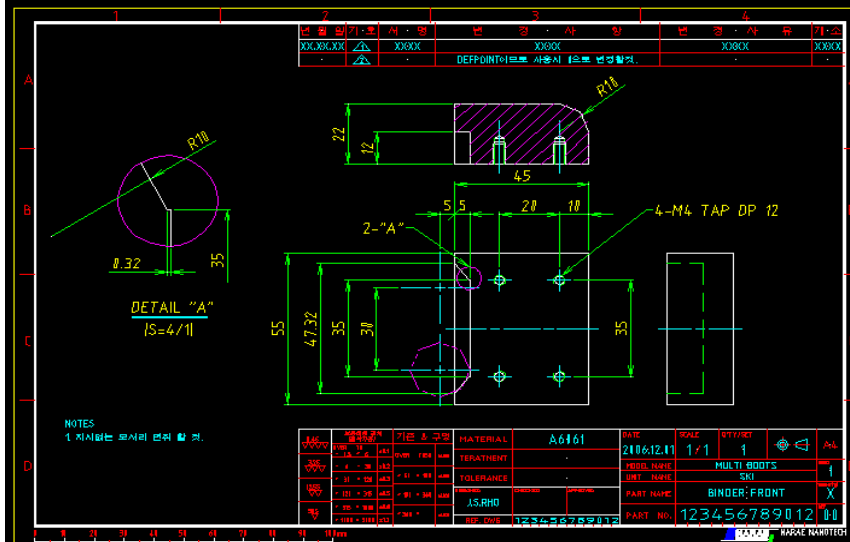
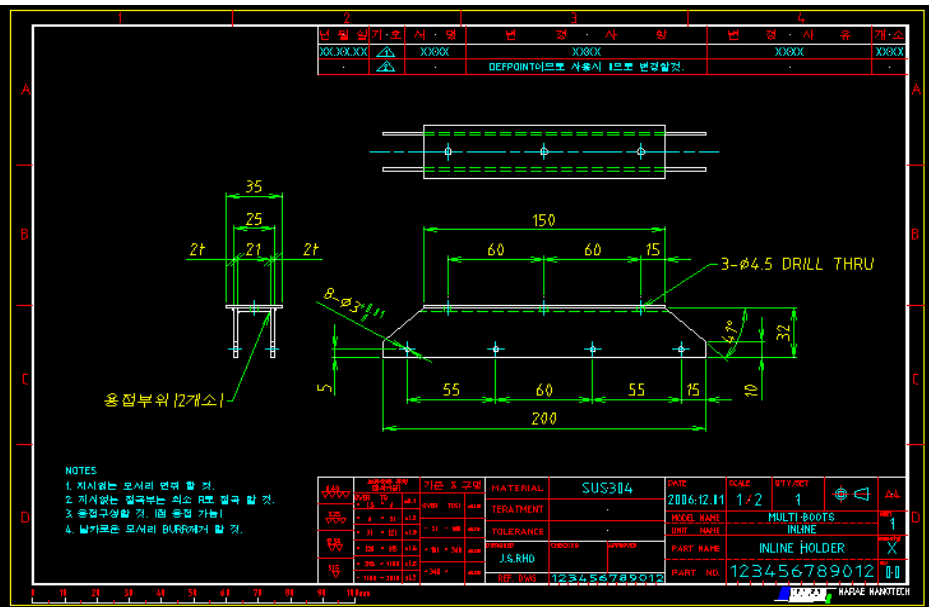
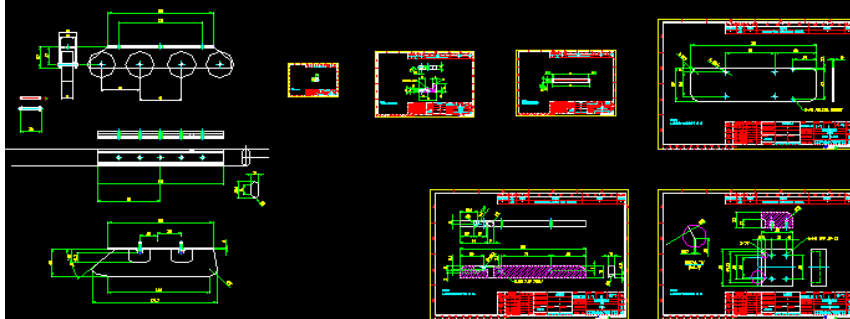
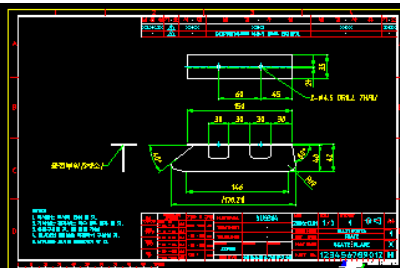
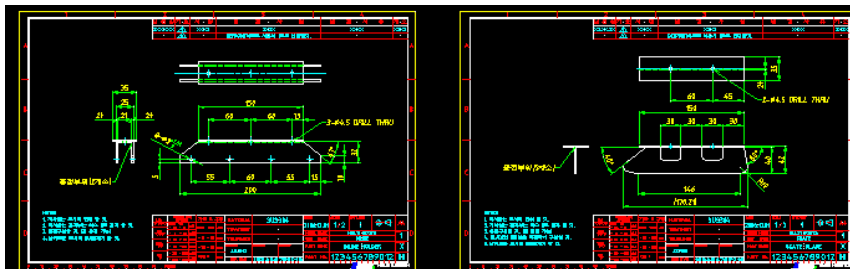
Manufacturing Plan



(1:2 Prototype Product)

	Process	Material
Boots	Rapid Prototyping	Plaster
Slide	Injection Molding	ABS polymer
Slide Guide	Machining	AL 6061
Latch / Block	Machining	AL 6061
Wheel	Purchasing	Sponge + ABS
Wheel Guide	Machining + Welding	SUS304
Skate Blade	Machining + Welding	SUS304
Ski Binder	Rapid Prototyping	Polymer
Ski Plate	Machining	AL 6061

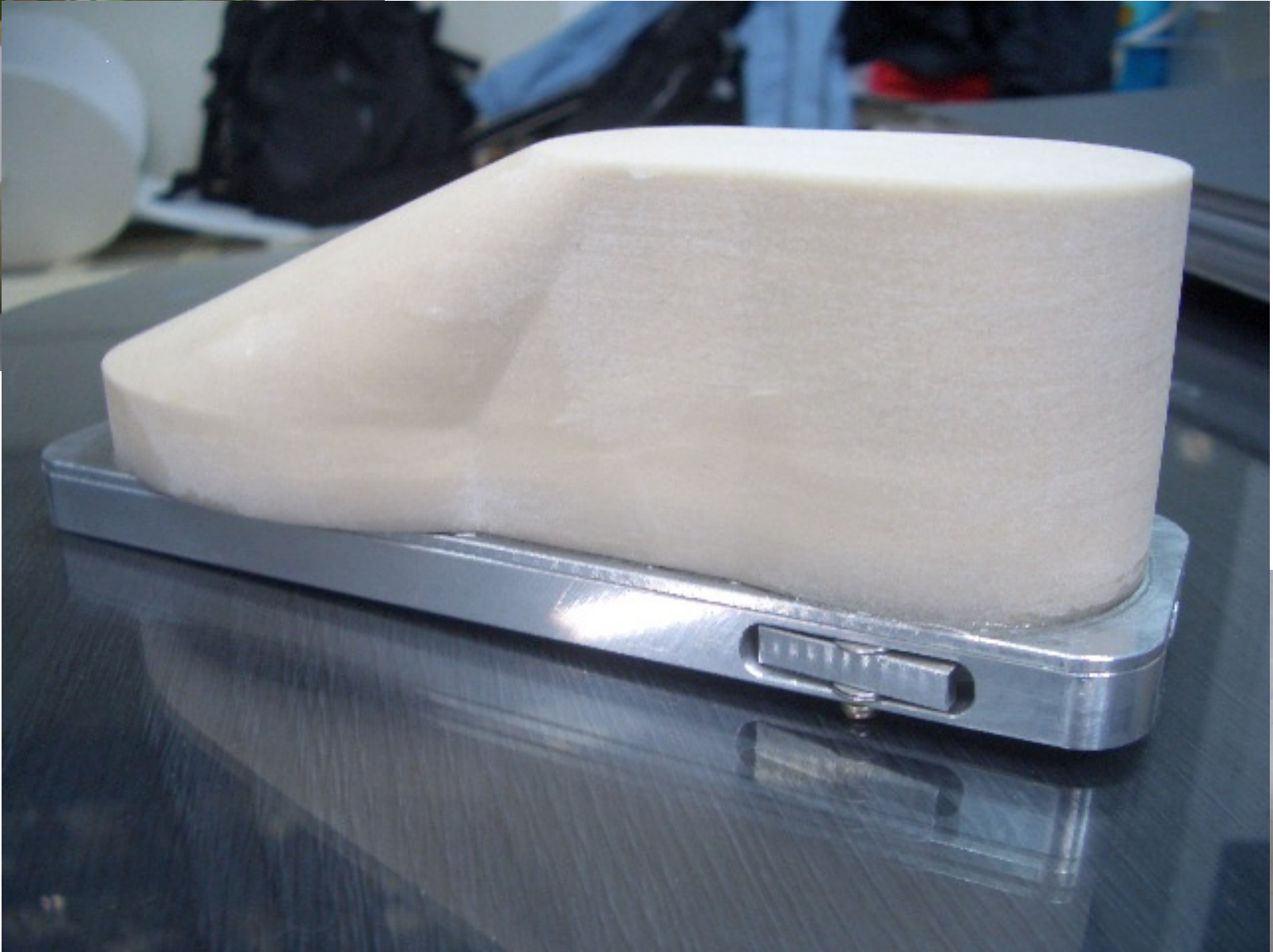
Manufacturing Preparation (AUTO CAD)



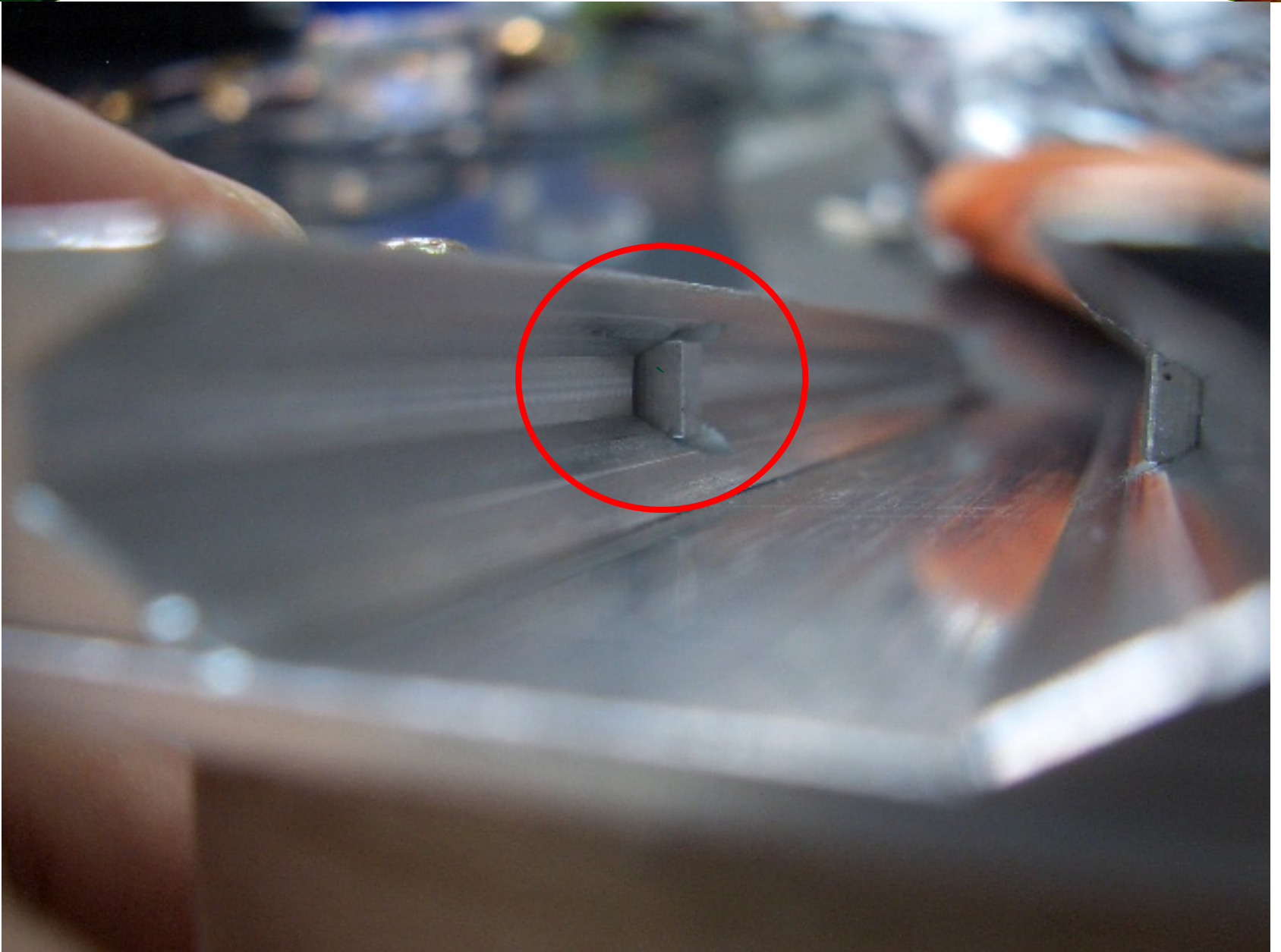
Assembling Preparation



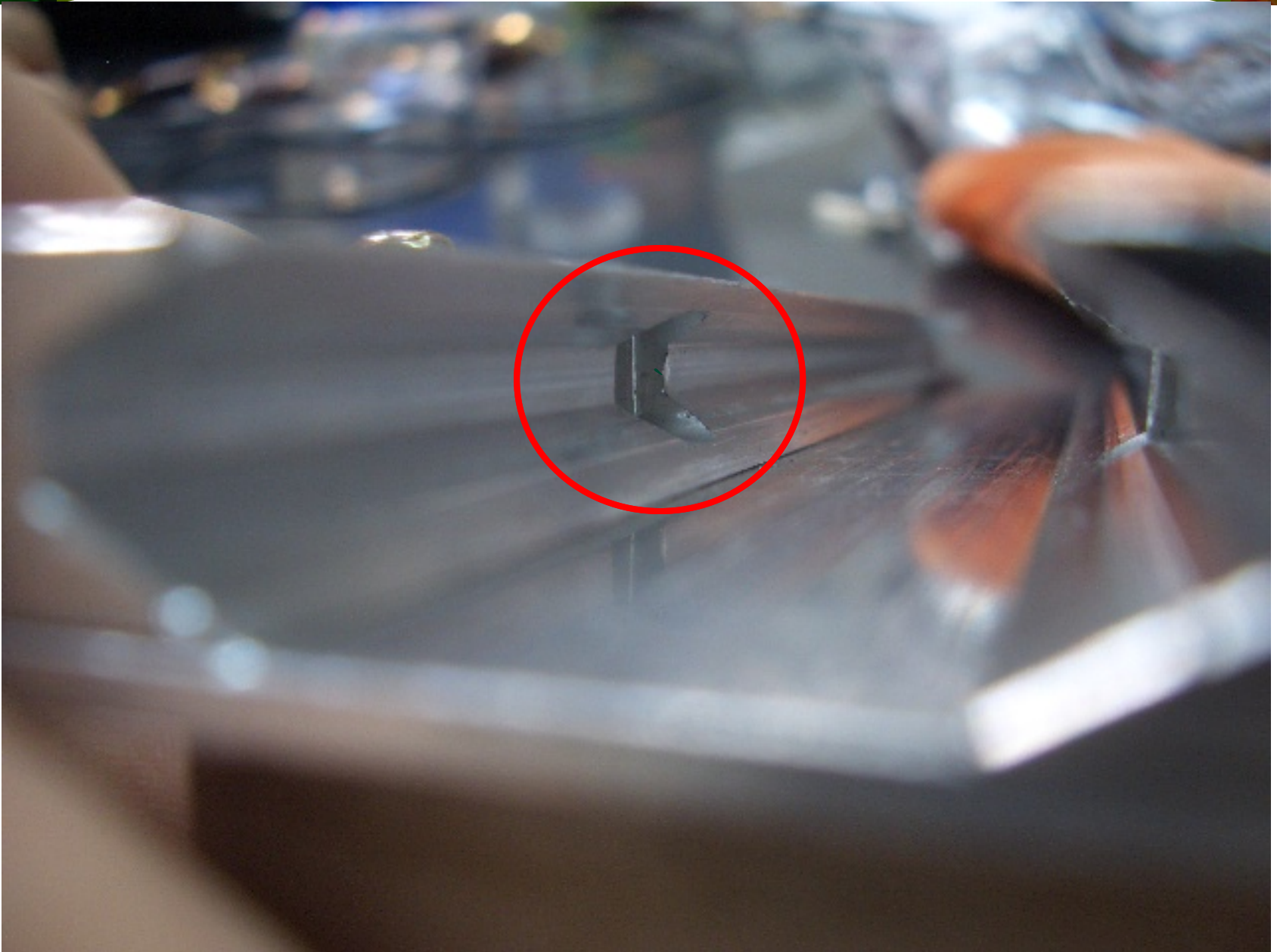
Boot & Rail Guide Module Assembly



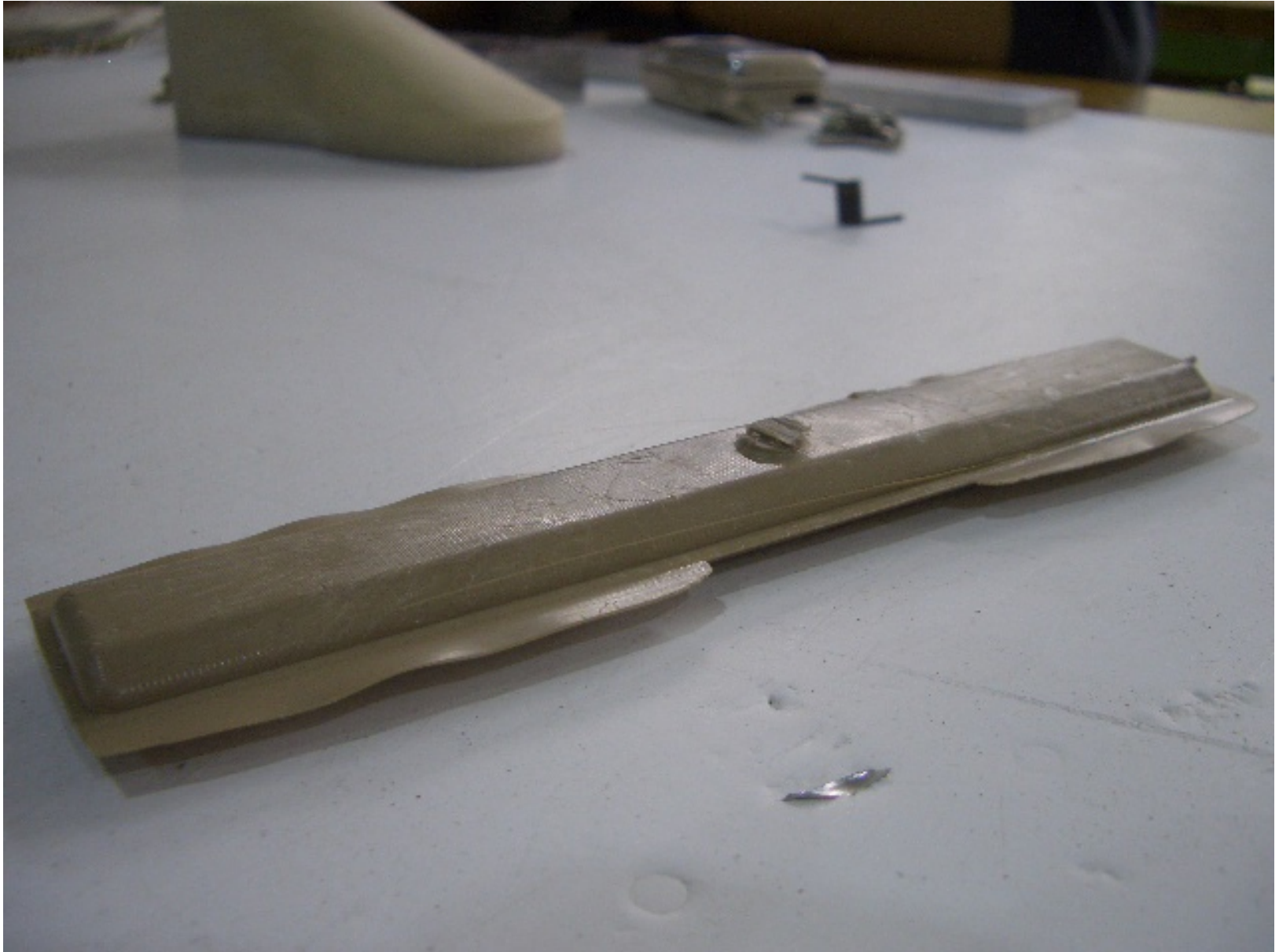
Latch Function in Rail Guide



Latch Function in Rail Guide



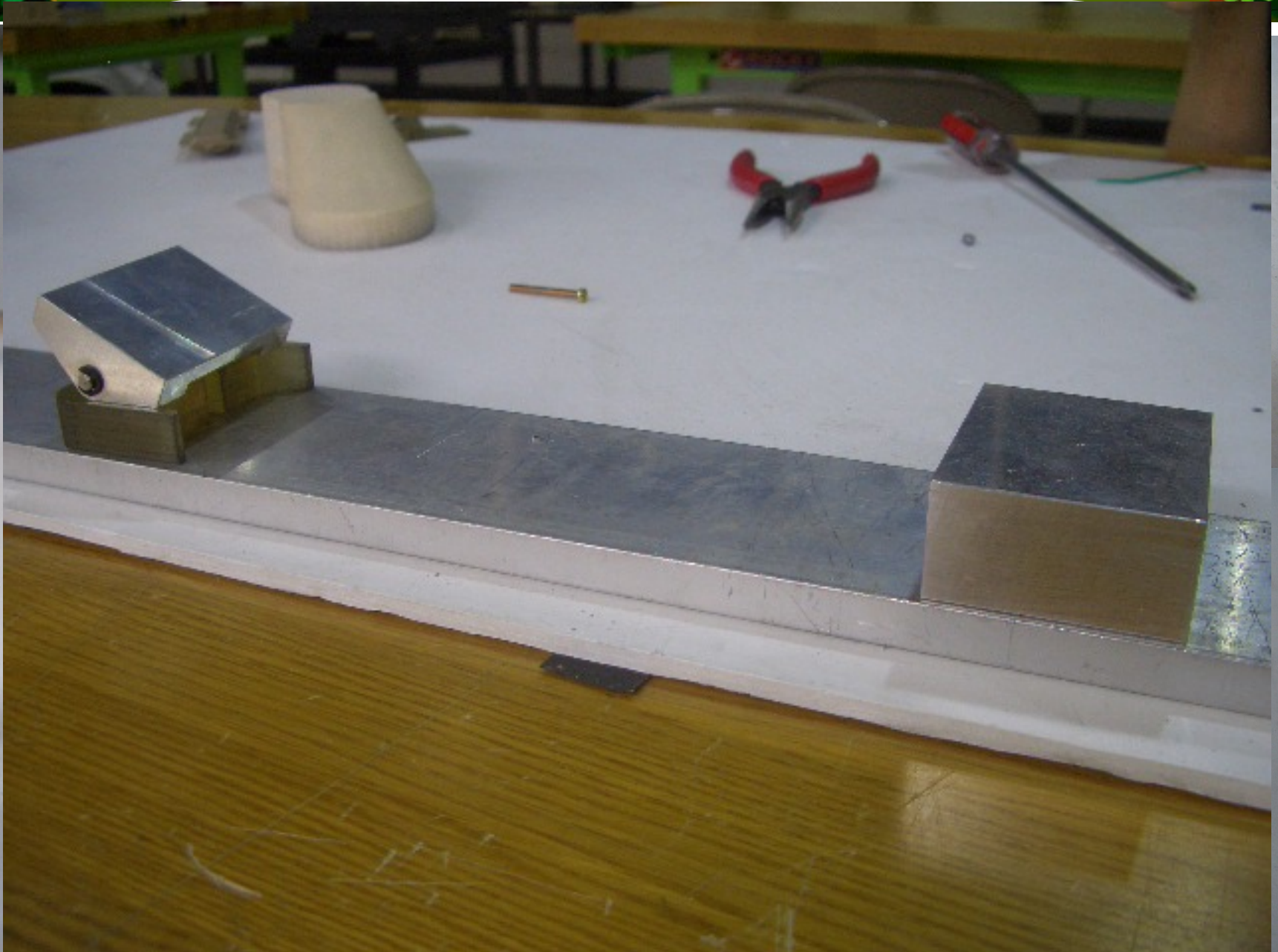
Slide Module Molding for Skate and Ski



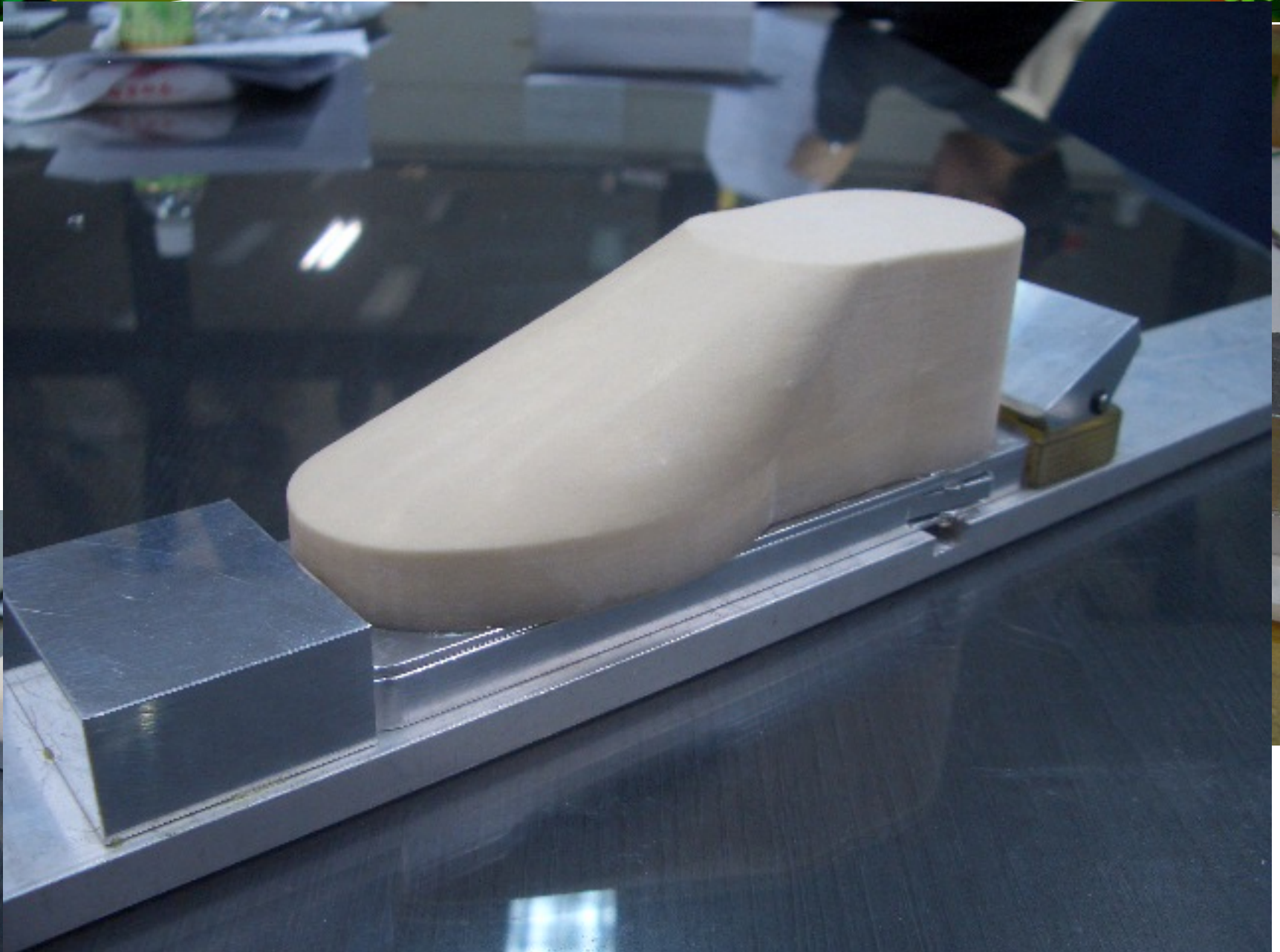
Inline Skate Module Assembly



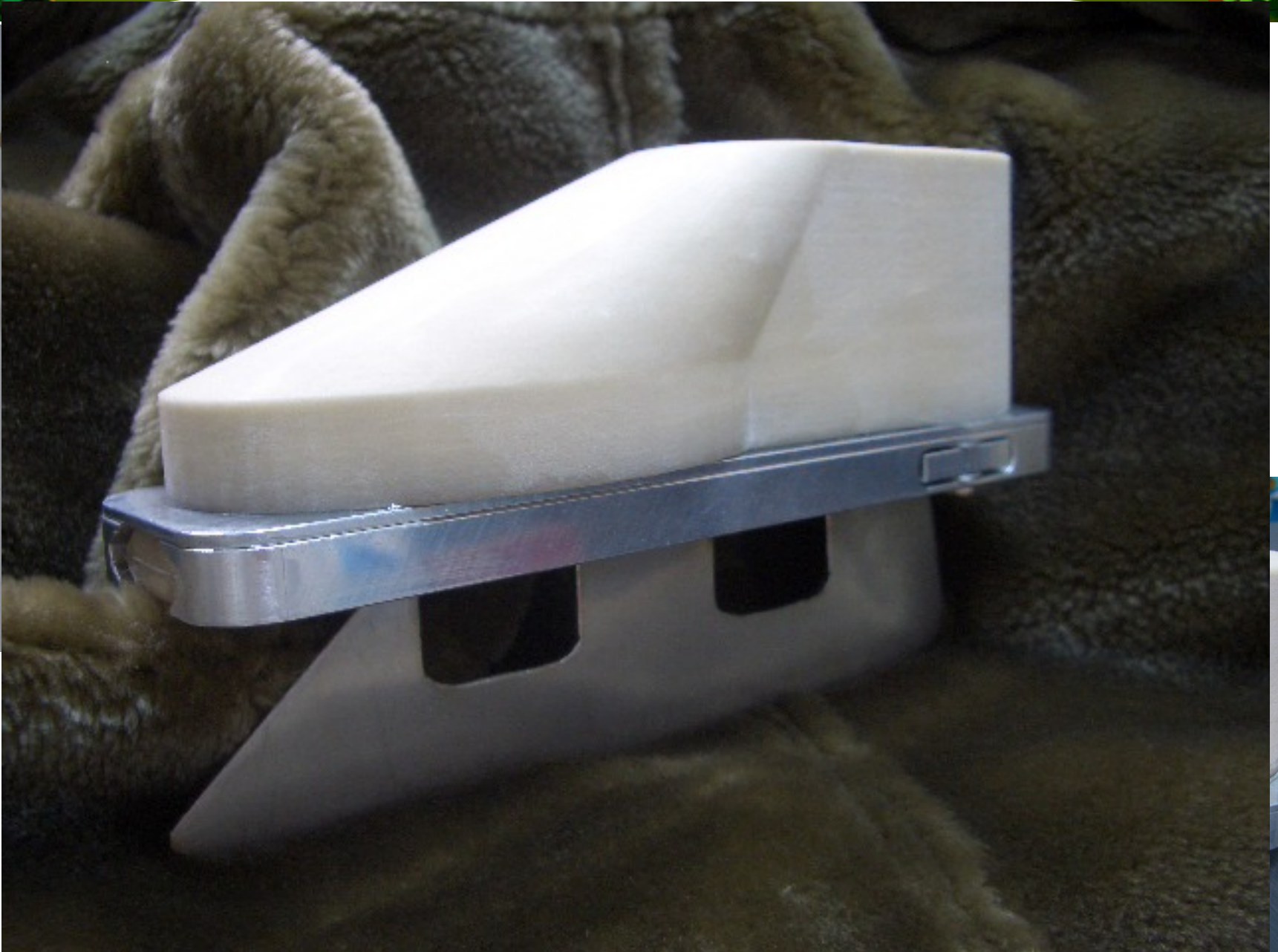
Ski Module Assembly



Performance - Ski



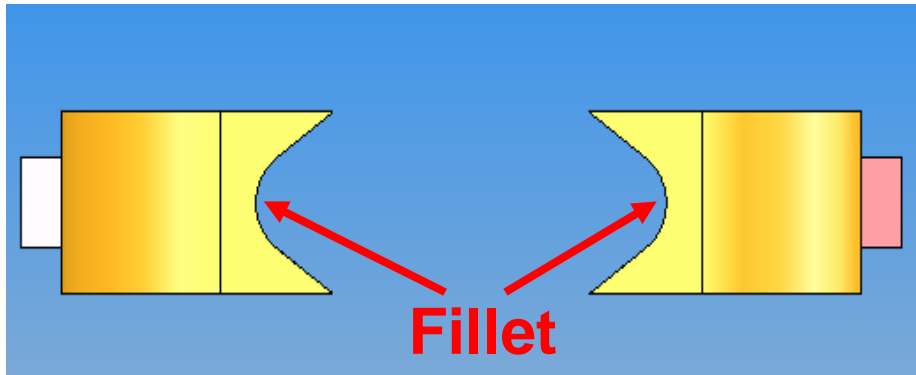
Performance - Skate



Performance – Inline Skate

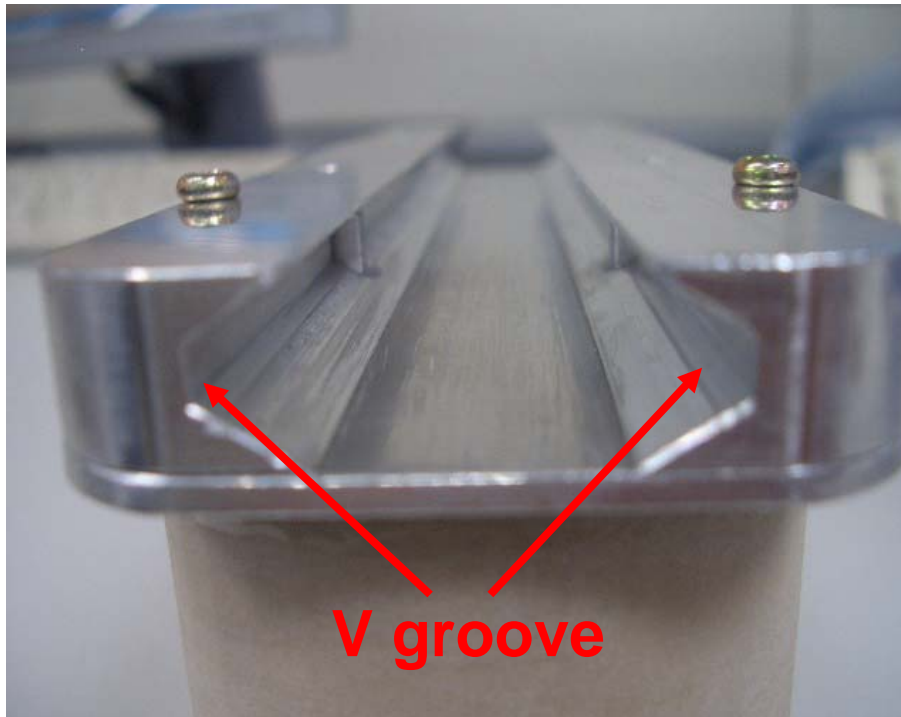


Design for Manufacturing (DFM)



Design

**Overlooking
Manufacturability**



Manufacturing

**Impossible to
accomplish the fillet
by CNC**



**Redesign
V groove cutting**

Design for Assembling (DFA) 1

Design

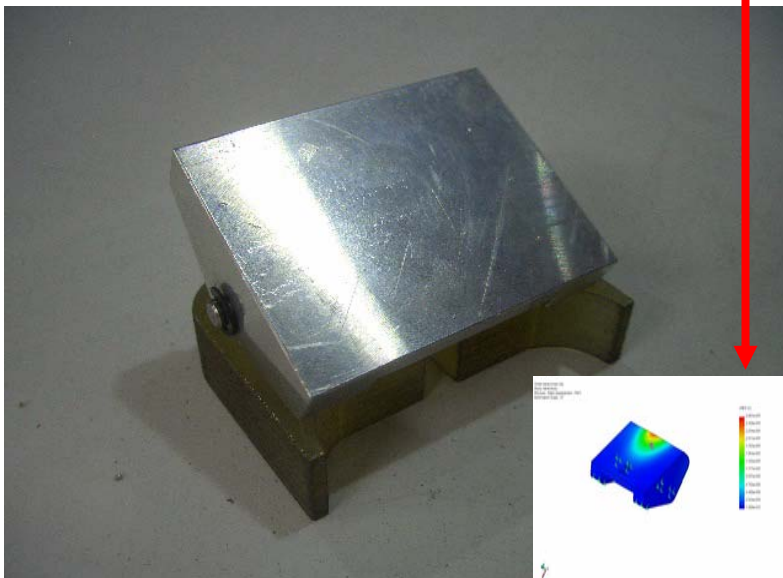
**Overlooking
Material strength & FEM**

Manufacturing

**Breakdown during
assembling by spring force**



**FEM again for new material
Polymer ⇒ Aluminum**



Design for Assembling (DFA) 2



Design

**Overlooking
Mold design analysis
(Mold Flow Simulation)**

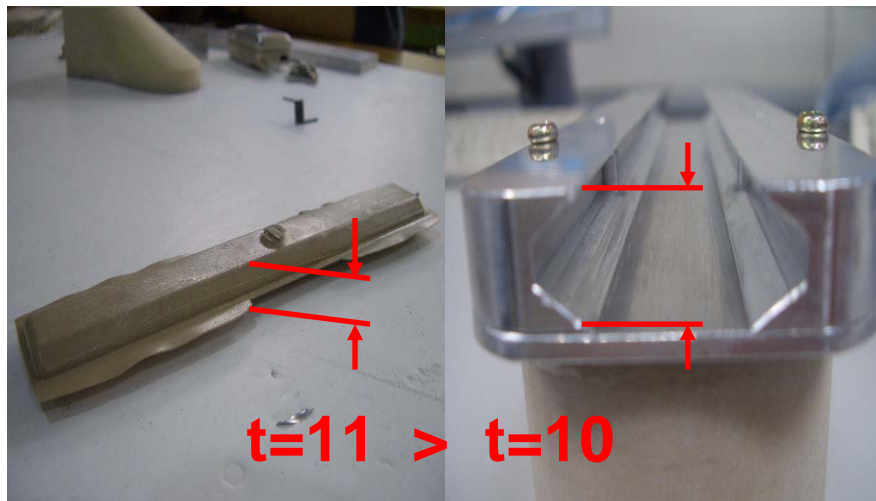
Manufacturing

**Impossible to assemble
by inaccurate thickness**



Additional Milling

$t=11 \Rightarrow t=10$



Design for X - Conclusion

☆ Importance of DFX ☆

**Designs not considering
manufacturing, assembling and analysis**

Time & Money consuming



Never repeat these mistakes again !!

Let's remind of "DFX"

Manufacturing Cost

	Process	Cost (won)
Boots	Rapid Prototype	20,000
Slide	Injection Molding	Free (IDIM Lab)
Slide Guide	CNC Machining	30,000
Latch / block	Machining	Free (#39 bldg.)
Wheel	OEM	10,000
Wheel Guide	Welding (Ar)	Free (BSEDM)
Skate Blade	Welding (Ar)	Free (BSEDM)
Ski Binder	Rapid Prototype	70,000
Ski Plate & Etc	Get scrap metal	Free (#39 bldg.)
TOTAL		130,000(< budget)

Market Price Inspection (Reference)

스키세트 Ski – 435,000 (Mean Price)

상품명	가격(원)
[로시놀] CARVE TPC+AXIUM 스키폴세트(05/06)	287,120
[로시놀] actys 200	584,970
[살로몬] 스트리트레이서 05 스키폴세트	390,510
[head] W/C SC Team CP 14	550,000
[로시놀] Axiom X+Axiom 남녀 스키폴세트	338,500
[피코] EQUIPE10T 3V	514,100
[로시놀] 고급 T-Power Pro	329,800
[로시놀] VIPER XPS	584,970
[로시놀] Cobra SX	387,030
[로시놀] 중급 SAPHIR 3(공용)	391,150
	435,815

야후쇼핑참고

If you buy
Ski, Inline and Skate
each...

인라인세트 Inline skate – 105,000

상품명	가격(원)
[스타] 인라인스케이트 시그마 TR5	45,881
[나이키] 엔도르핀 울트라 6	55,900
[롤러브레이드] 2003 에어로 5	49,900
[롤러브레이드] Twister Plus	136,770
[롤러브레이드] Crossfire LE	189,140
[롤러브레이드] 2005 Lightning 6	178,000
[롤러브레이드] 라이트닝 07	155,820
[롤러브레이드] Core 7	96,030
[롤러브레이드] EVO 1.1	66,930
[롤러브레이드] 2006 Micro Combo	88,110
	106,248

스케이트 Skate – 80,000

상품명	가격(원)
[서광] 펑귄 피겨스케이트	85,029
[나이키] 아이스하키, 스피드, 피겨스케이트	69,900
[세이버] 스피드스케이트	82,568
	79,143

Total Price
620,000 won

Source from Yahoo shopping

Cost Comparison (Reference)

	Parts	Cost (won)
Common Parts	Boot (OEM-Fiber) Joint (Die Casting-Mg alloy)	90,000
Ski	Binding (Injection Molding) Plate (RTM - CFP)	100,000
Inline Skate	Wheel (Injection Molding) Wheel Body (Die Casting)	60,000
Skate	Blade (Pressing - SUS)	30,000
TOTAL		280,000

If our product,

**Total Price
280,000 won**



Save 55%

This cost is derived from consulting with an eng. company "BSEDM" .

Conclusion

IPO
Infinity Plus One

Thank You !

