

Concept Proposal for a **Pilot Project**
Implementing the **F1 IN SCHOOLS**
Program in **Newfoundland and Labrador Schools**
Managed by **Faculty of Engineering, MUN**



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Prepared for
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<http://www.f1inschools.com/page--online-executive-summary.html>

BACKGROUND INFO FROM F1 IN SCHOOLS WEBSITE



FORMULA ONE™
TECHNOLOGY
CHALLENGE
2009
CHAMPIONSHIP
SEASON

Team Registration | Newsletter Subscription | Login: | [Contact Us](#)

THE F1 IN SCHOOLS CHALLENGE

VISION

F1 in Schools Ltd is a not-for-profit company established with committed partners to provide an exciting yet challenging educational experience through the magnetic appeal of Formula One. F1 in Schools is rapidly realising its potential of becoming the only truly global educational programme that raises awareness of Formula One among students and school children in every region, in every country, on every continent. Spanning age ranges of 9 to 19 its main objective is to help change perceptions of engineering, science and technology by creating a fun and exciting learning environment for young people to develop an informed view about careers in engineering, Formula One, science, marketing and technology.

30 countries.... 9 million students.... 1 experience of a lifetime !



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INTRODUCTION

- F1 in Schools is a multi-disciplinary challenge in which teams of students aged 9 to 19 deploy CAD/CAM software to collaborate, design, analyse, manufacture, test, and then race miniature gas powered balsa wood F1 cars.
- F1 in Schools is the only global multi-disciplinary challenge for students aged 9 to 19.
- It is a unique global platform for the promotion of Formula One and partners to a youth market.
- Teams must raise sponsorship and manage budgets to fund research, travel and accommodation.
- The challenge inspires students to use IT to learn about physics, aerodynamics, design, manufacture, branding, graphics, sponsorship, marketing, leadership/teamwork, media skills and financial strategy, and apply them in a practical, imaginative, competitive and exciting way.
- The founding constitution of F1 in Schools stipulates that it is, and shall remain, a not-for-profit organisation. Funds raised through sponsorship are invested in administering, developing and expanding the challenge. All income is deployed in accordance with guidelines laid down by Formula One Management.

THE CHALLENGE

- Working in teams of between 3 and 6, each student is assigned roles. The team prepares a business plan, develops a **budget** and raises sponsorship. Teams are encouraged to collaborate with Industry and forge business links.
- Using 3D CAD (Computer Aided Design) software, the team **designs** a Formula One car of the future.
- Aerodynamics are **analysed** for drag coefficient in a virtual reality wind tunnel using Computational Fluid Dynamics Software (CFD).
- Using 3D CAM (Computer Aided Manufacture) software, the team evaluates the most efficient machining strategy to **make** the car.
- Aerodynamics are **tested** in wind and smoke tunnels.
- The **Race** is on, at more than 60kph. Cars race side-by-side along 20-metre straights. Teams are judged on car speed, as well as supporting evidence of their design, verbal presentation and marketing display stand in "the pits". Teams compete regionally, nationally and internationally for the Bernie Ecclestone F1 in Schools World Championship trophy.

REFERENCE MATERIAL:

<http://www.f1inschools.co.uk/page--the-f1-in-schools-challenge.html>

Speculation: Cost

Cost of Getting Ready:

F1 Challenge		<i>SEB, Feb 2010</i>
Development of Test Area on Mezzanine in Fluids Lab		
Cost Considerations/Assessment (not including implementation of F1 program)		
Remove 3 sections of wind tunnel	in kind	
Remove potential flow section	in kind	
Removal of all light materials	in kind	
Removal of unused heavy equip		
<i>Fan, Pump, Motor, Diffuser sections (2)</i>		
cut roof, crane removal	\$	7,500.00
cut up equip., fork removal	\$	3,000.00
maneuver equip, window removal	\$	5,000.00
Resale of Equip	\$	-
Furniture	in kind	
Display supplies, Consumables	\$	2,000.00
Repair roof	\$	5,000.00
Mend lighting and install new	\$	5,000.00
Repair Counters	\$	2,000.00
Startup Capital	\$	20,000.00
Work Term Student	\$	10,000.00
Startup Total		\$ 30,000.00
<i>Program Implementation</i>		<i>Not Included</i>

Costs of Implementation:

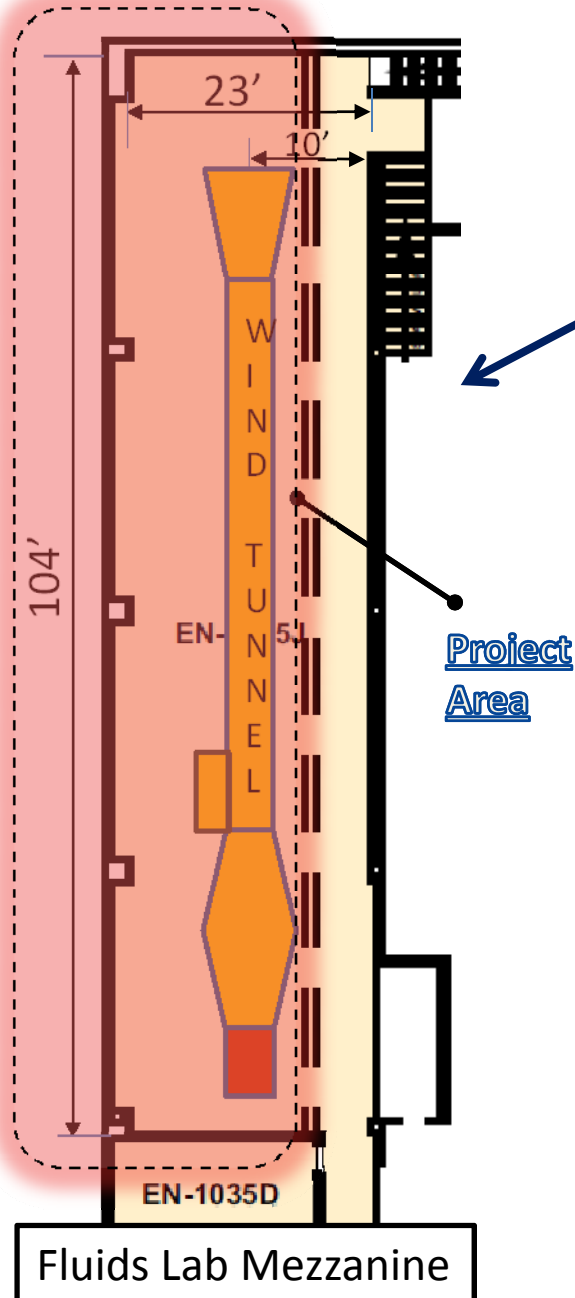
Personnel	35k
Travel	5k
Materials	5k
<u>Misc</u>	<u>5k</u>
	50k

Total Cost of 1 year pilot program:

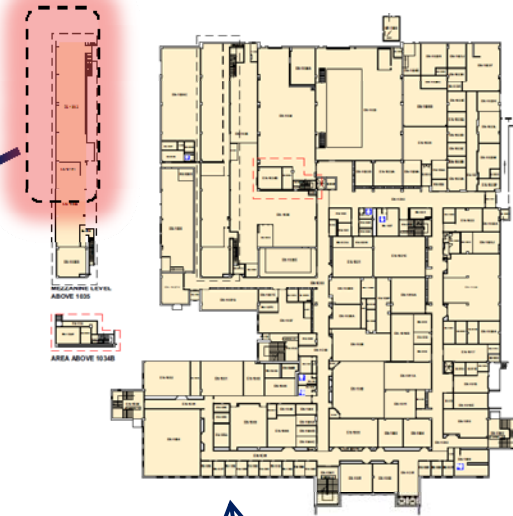
80k (plus/minus 20k)

Pilot Project Location

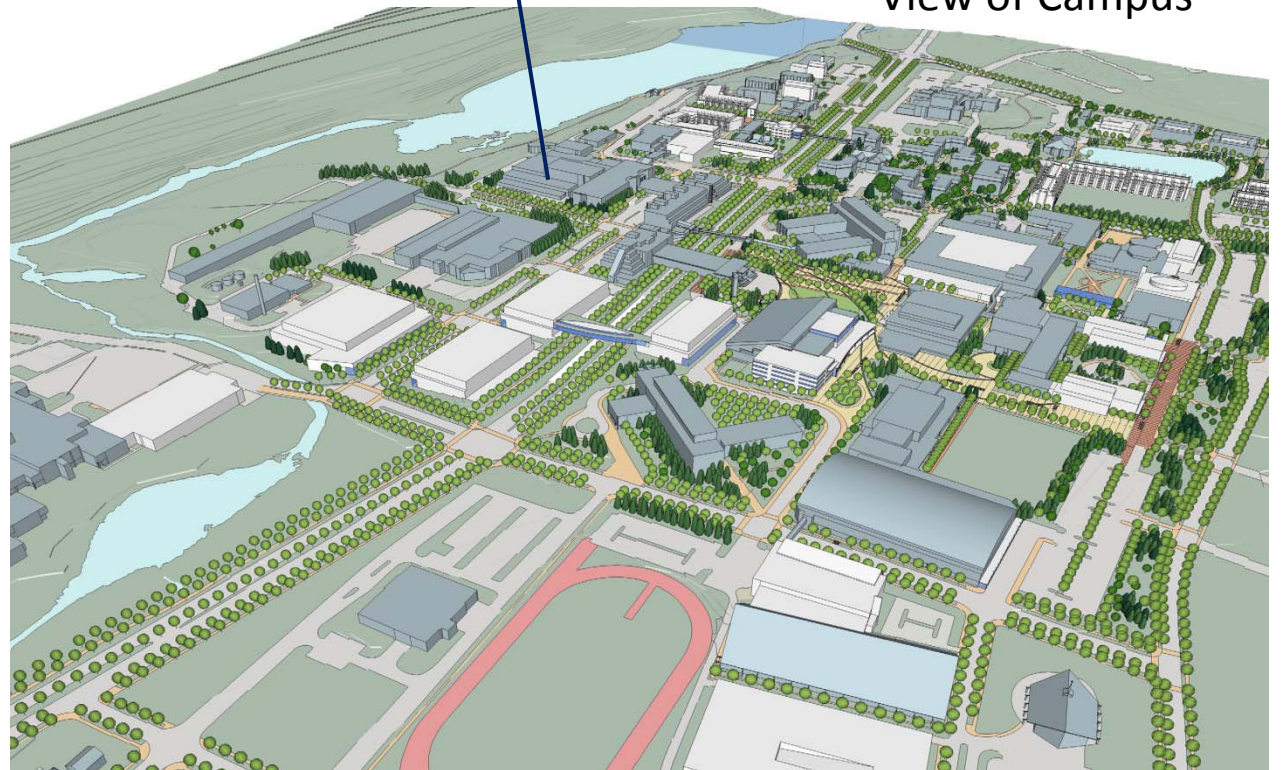
The Engineering Building Level 1



Project Area

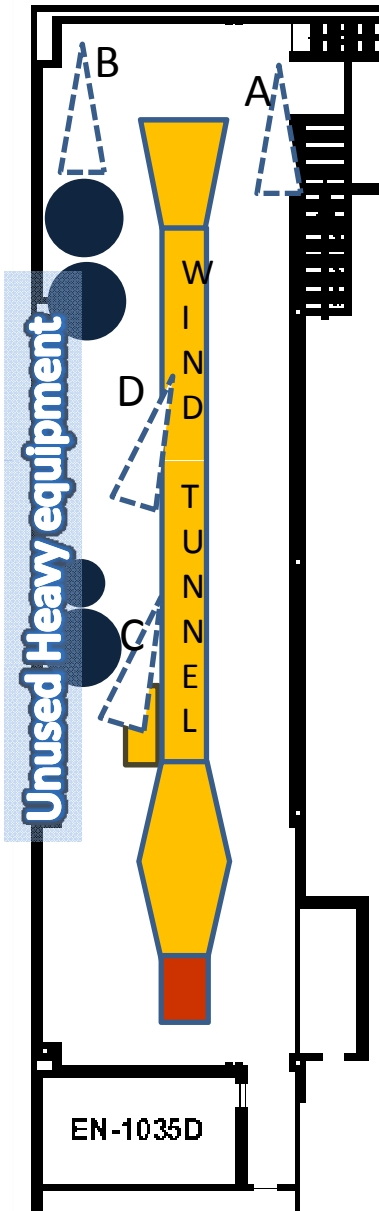


View of Campus

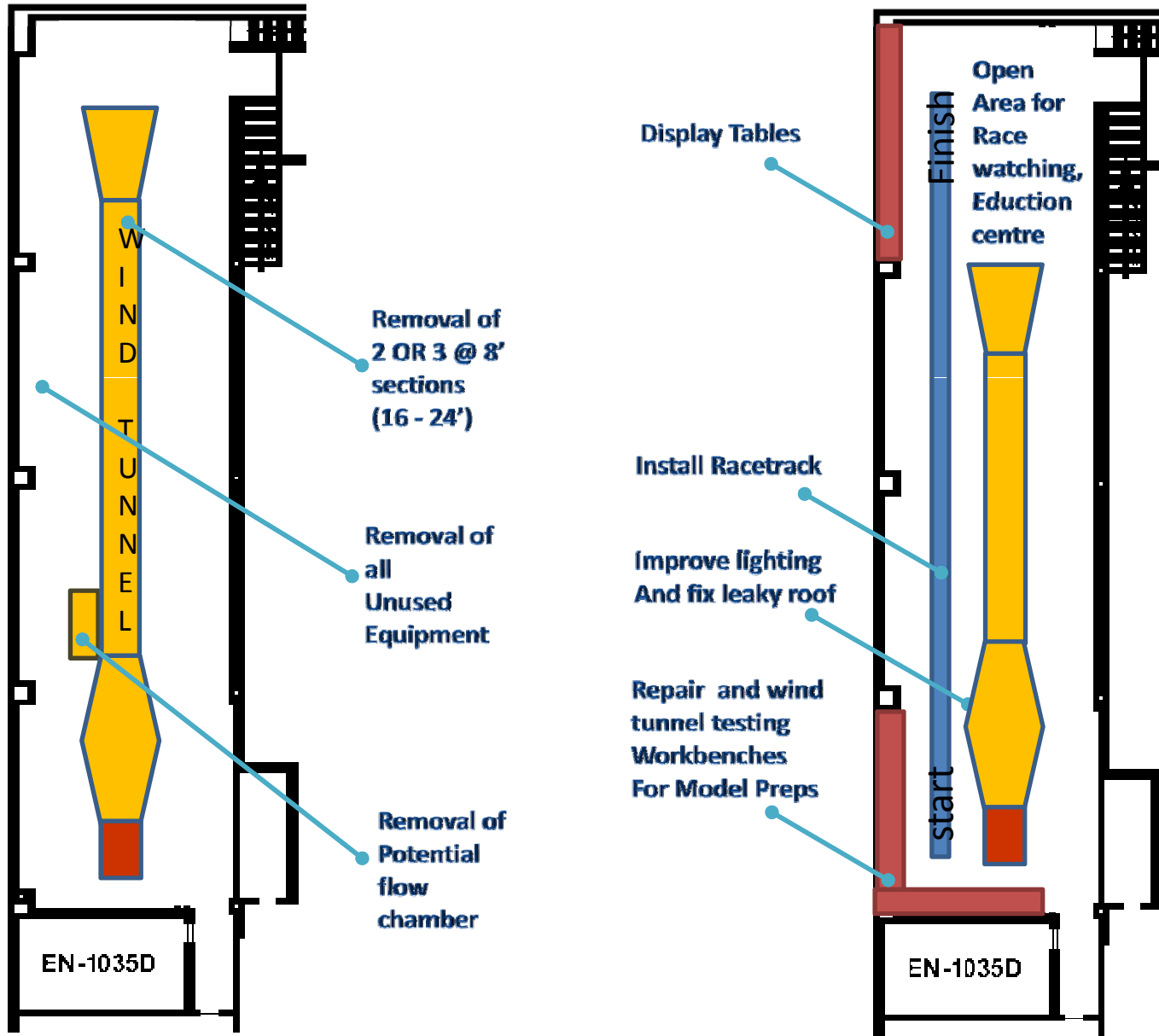


Present Condition

Views indicated on plan

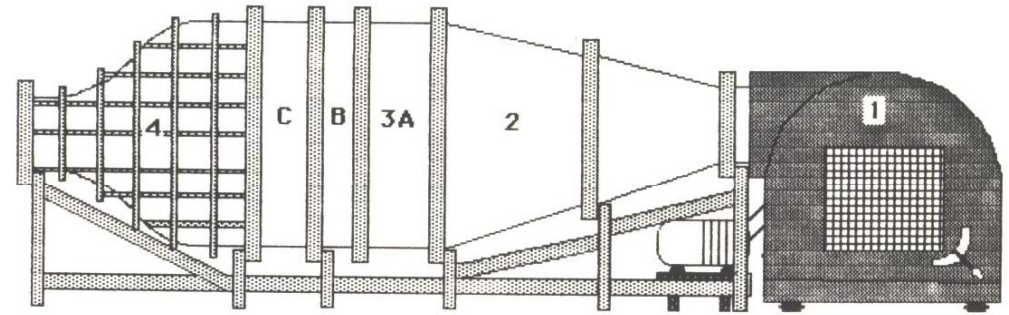


Proposed Actions

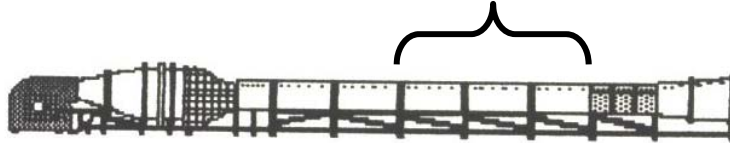


Proposed Wind Tunnel Mods

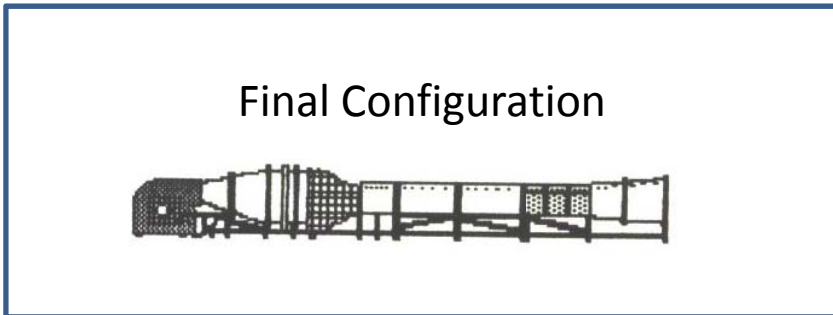
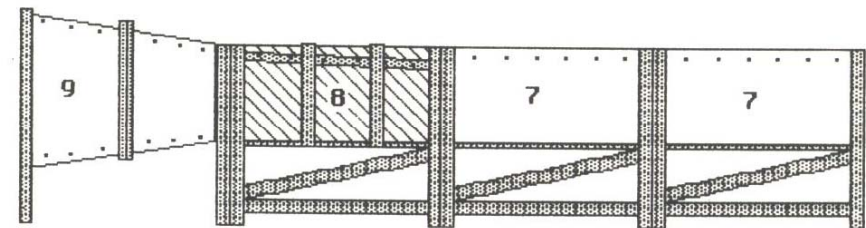
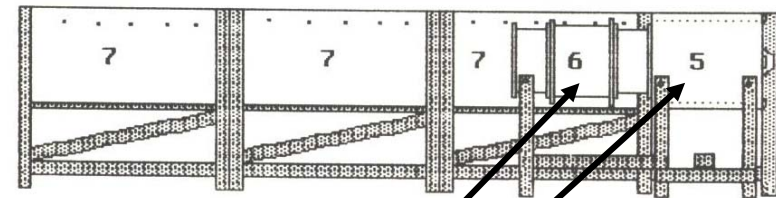
BOUNDARY LAYER WIND TUNNEL
COMPONENTS



Remove 2 or 3
of the working
sections

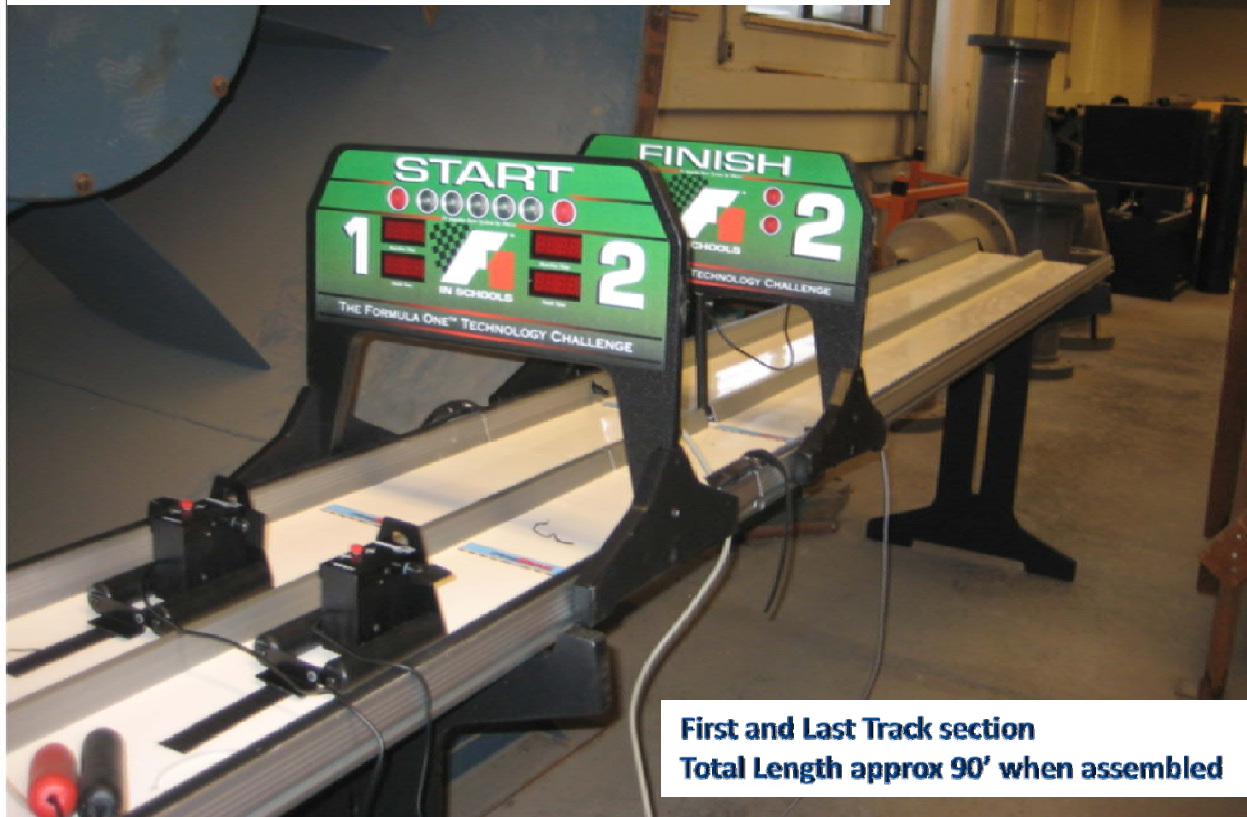


Remove Settling
Chamber and Potential
Flow side chamber



- | | |
|-----------------------|------------------------------|
| 1 Fan | 4 Contraction |
| 2 Wide angle diffuser | 5 Side chamber |
| 3 Settling chamber | 6 Secondary settling chamber |
| A- Honeycomb | 7 Working section components |
| B- Screen section | 8 Downstream test section |
| C- Settling section | 9 Zero screen exit diffuser |

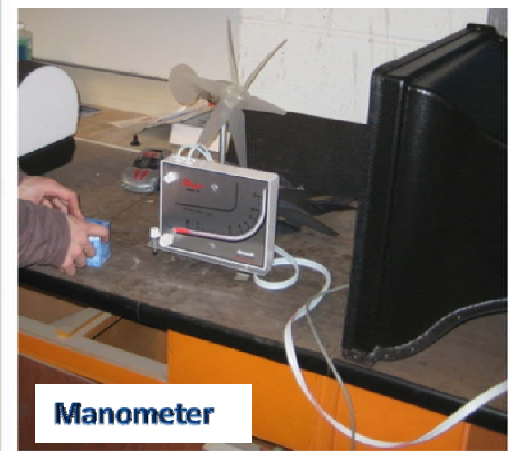
F1 Tracks and Wind Tunnels



First and Last Track section
Total Length approx 90' when assembled



Track Construction



Manometer



Aero Drag Measuring
Wind Tunnel



Flow Vis. Wind Tunnel



Smoke
generator
Comb