

IPRO 336

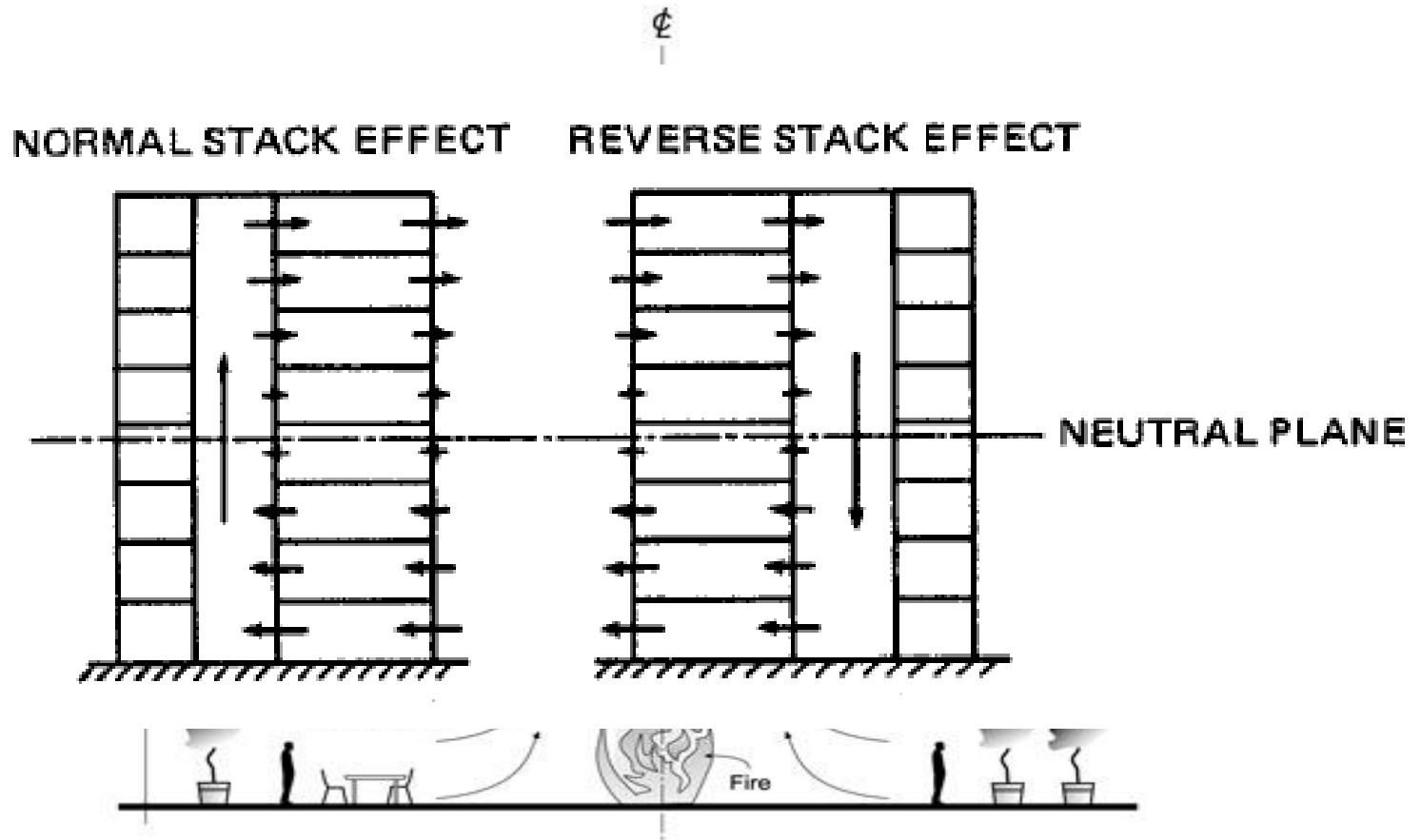
Spring 2007



Developing Innovative Design
Concepts for Airflow, Energy
Sustainability & Fire Protection
Safety in Buildings

Concepts Explored

- Smoke Control

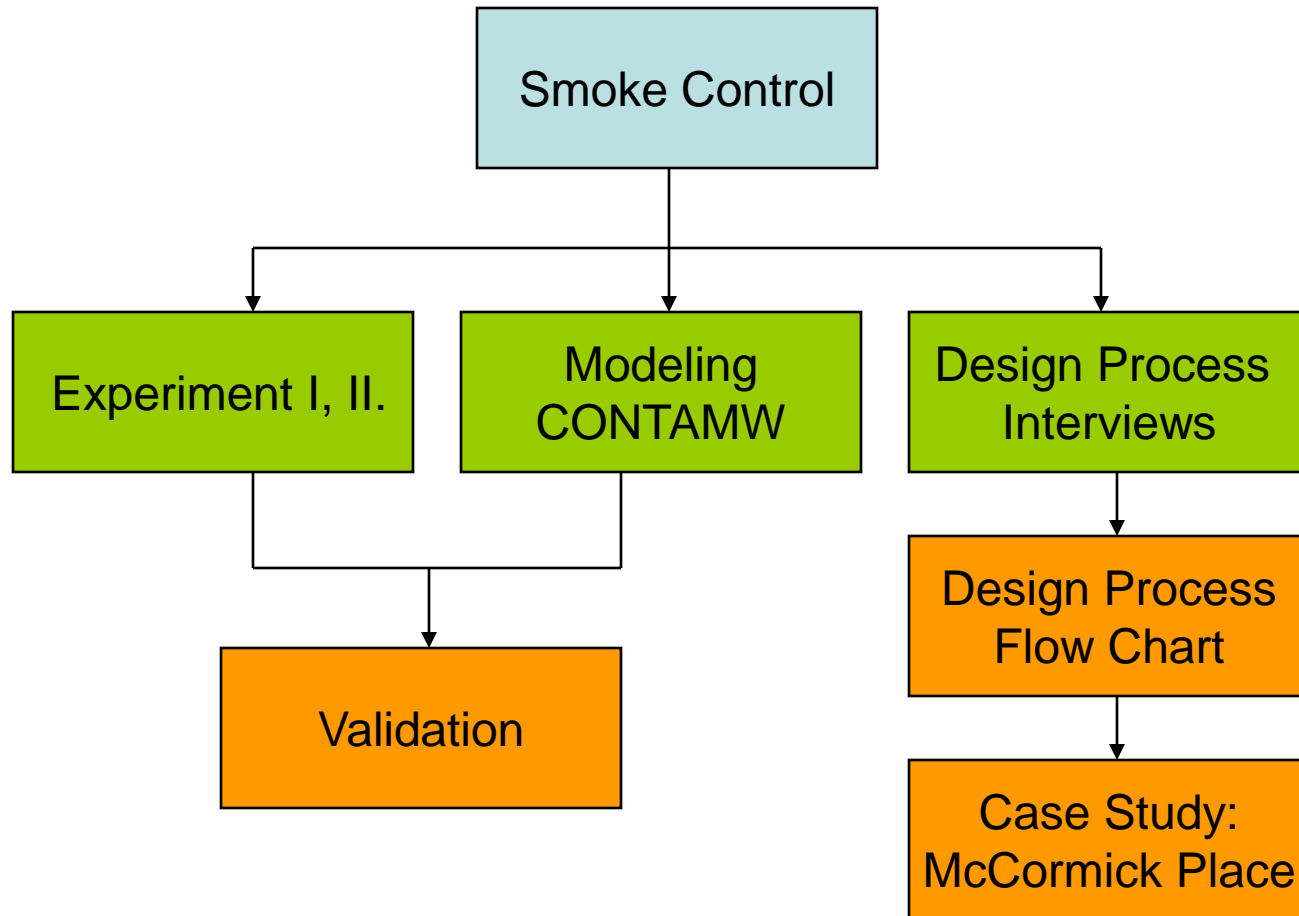


Project Overview

- Understanding smoke control and stack effect concepts
- Define design process for smoke management
- Measure airflow and pressure difference with software validation
- Explore case study of real world application of smoke control

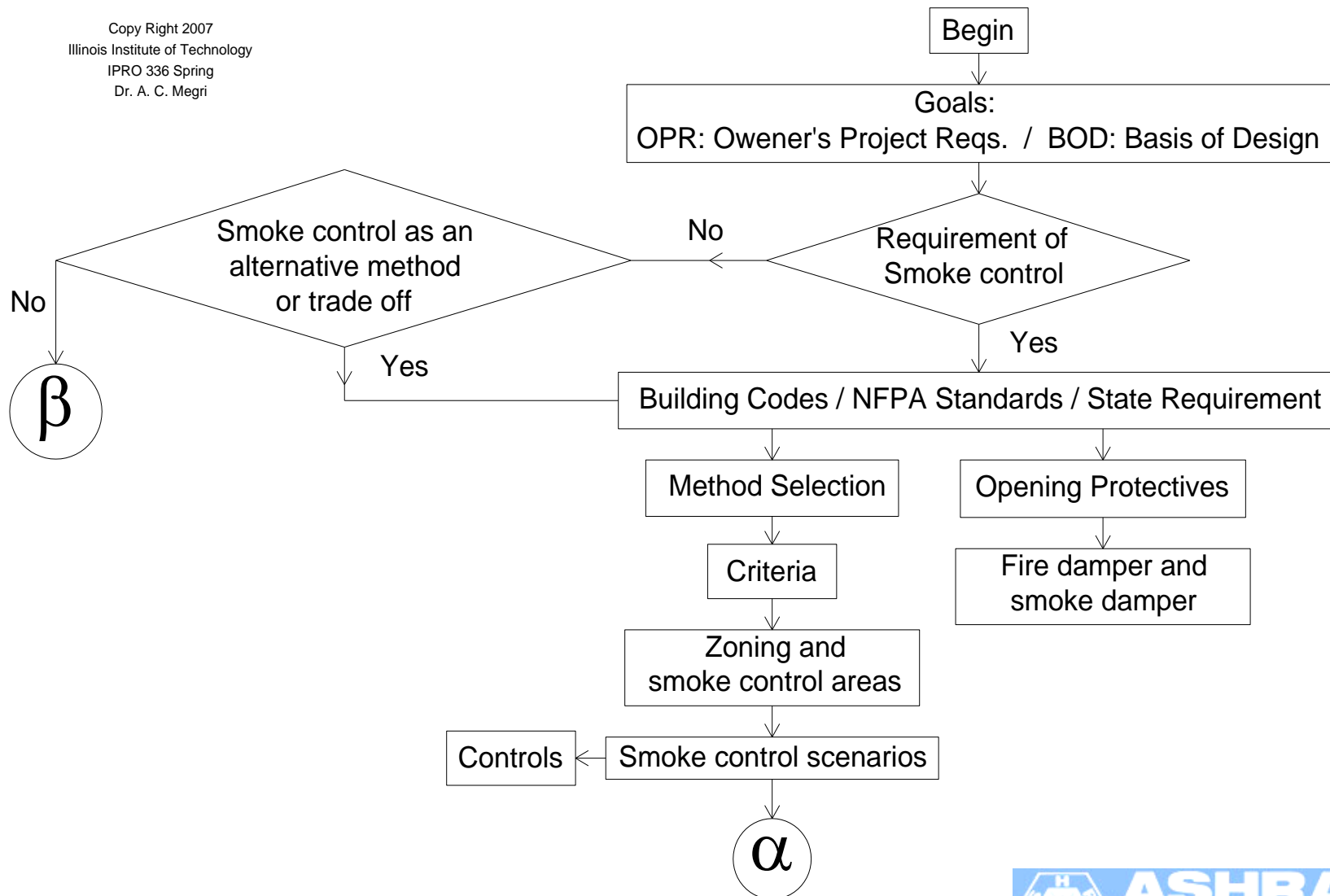


Project Approach



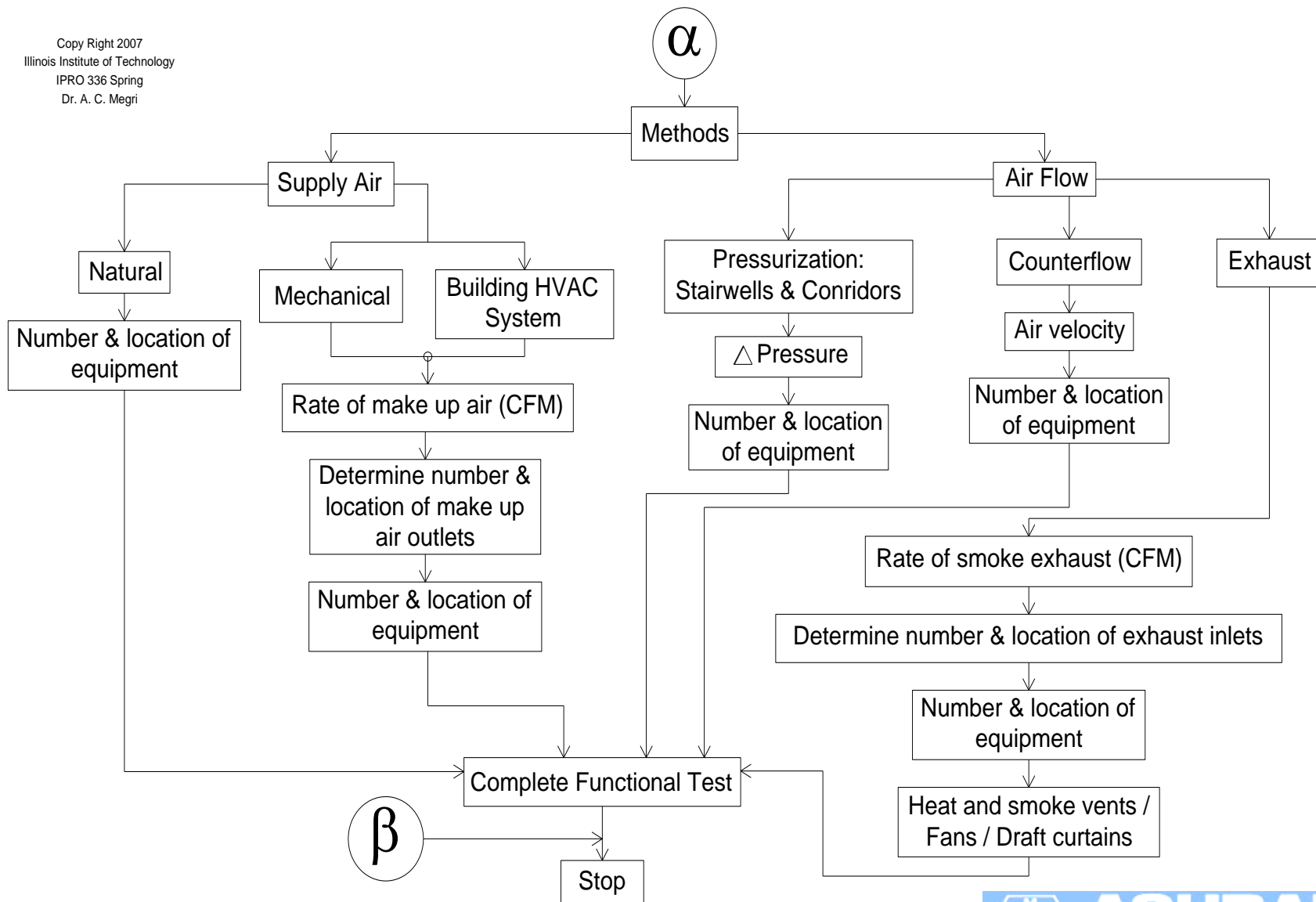
Design Process Interviews

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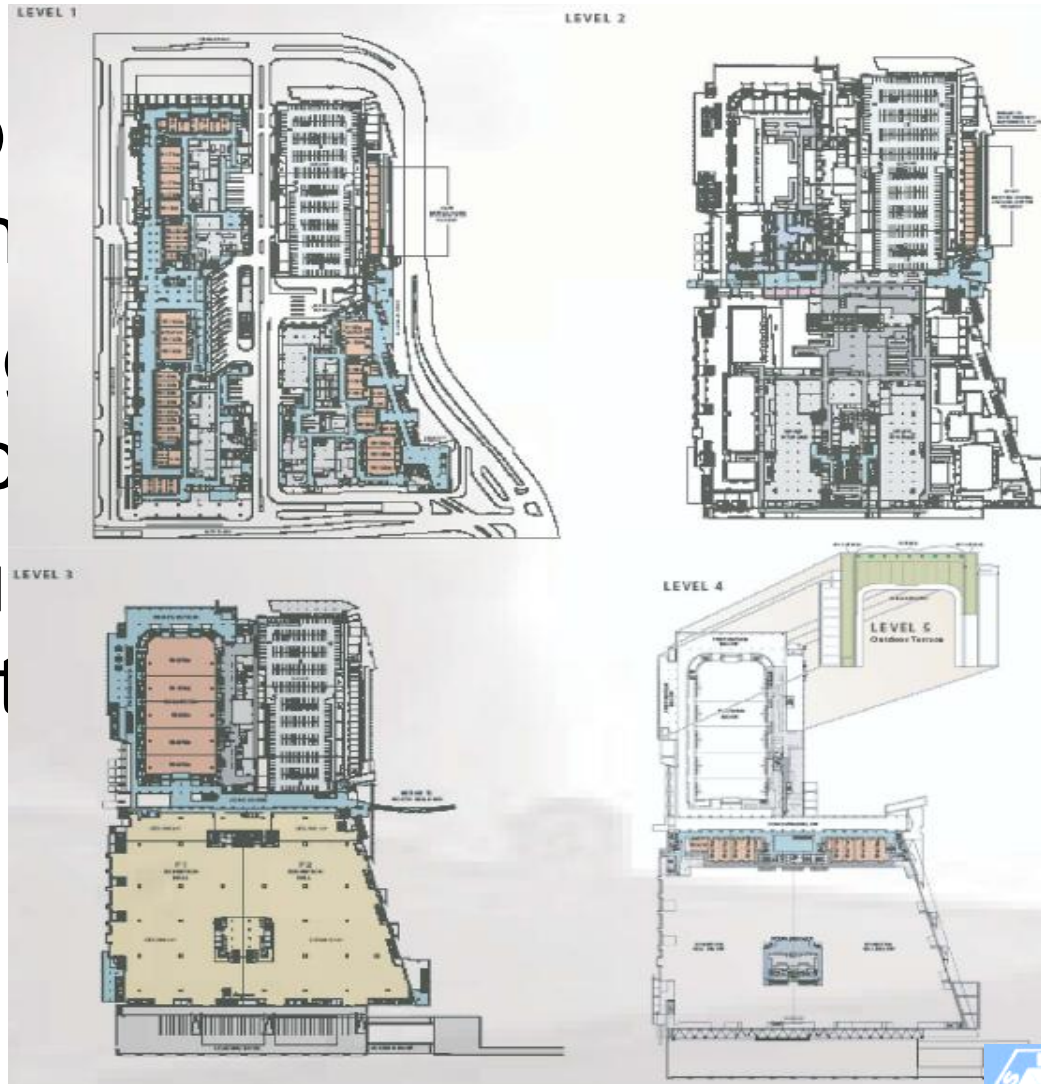
Design Process Interviews

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Case Study: McCormick Place

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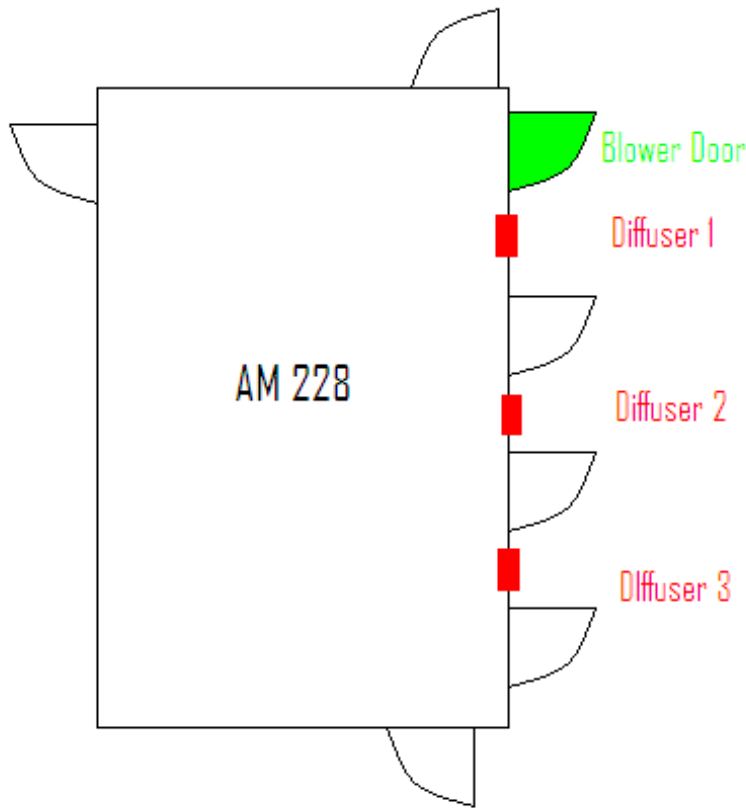


Picture of McCormick Place



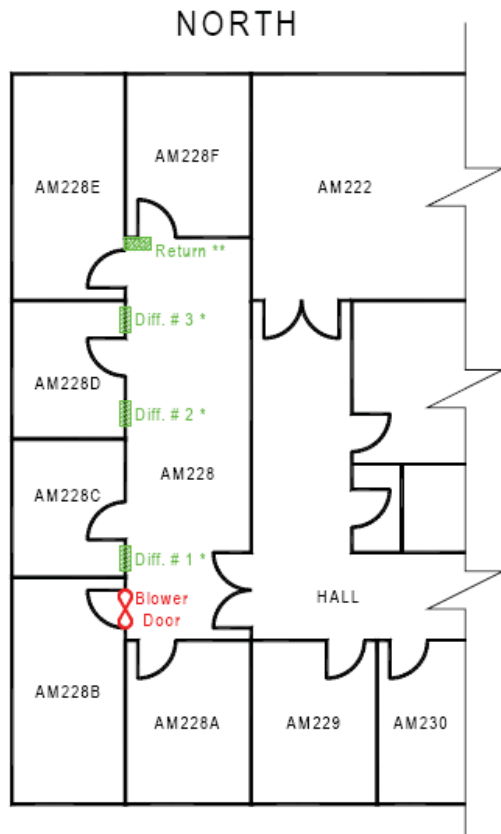
Experiments

Experiment 1: evaluate the influence of stack effect on the diffuser's airflow



Experiments

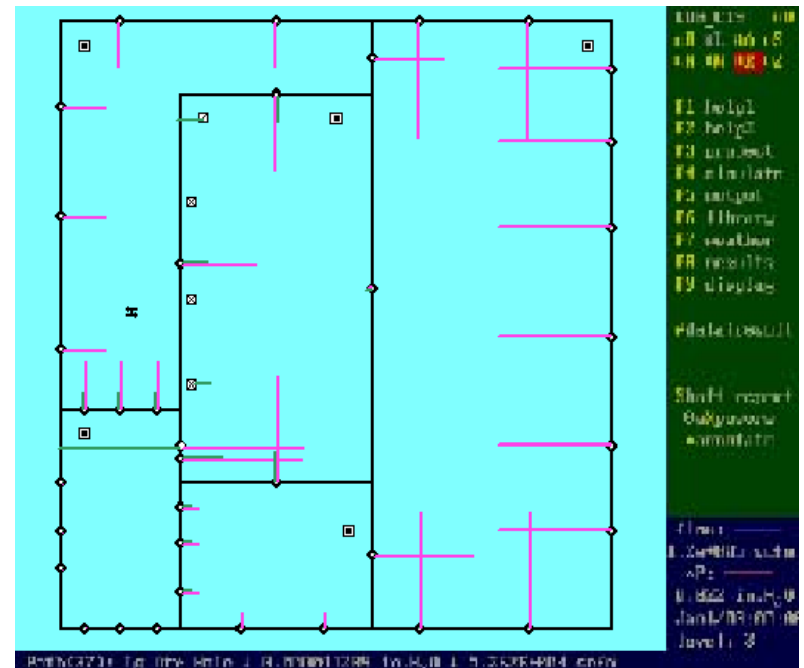
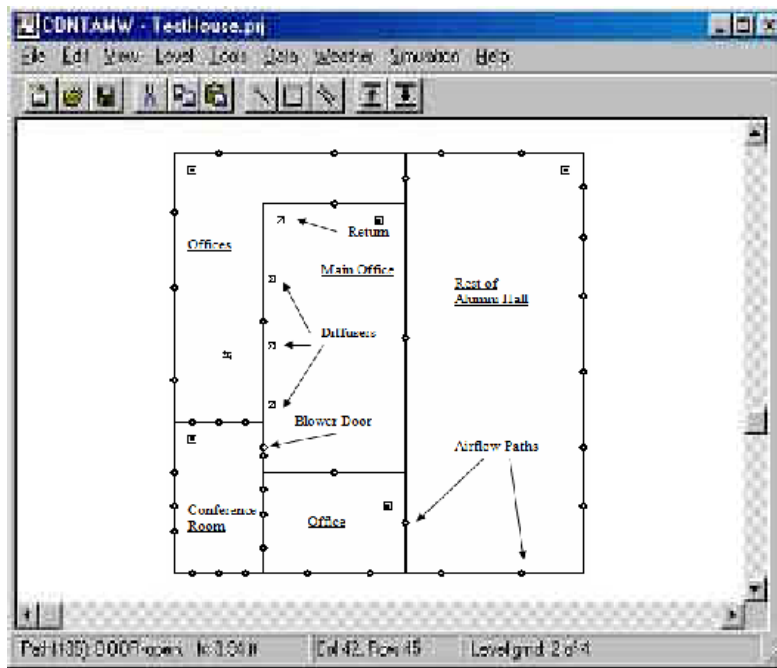
Experiment 2: validate the first experiment values using CONTAMW software



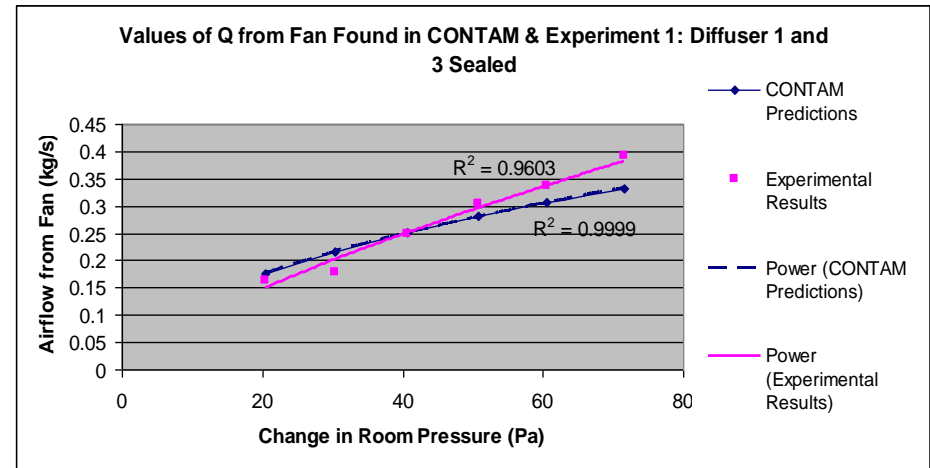
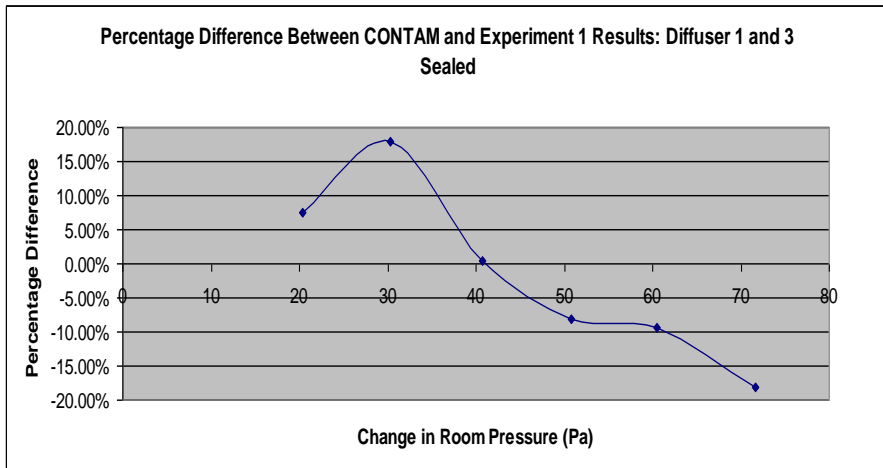
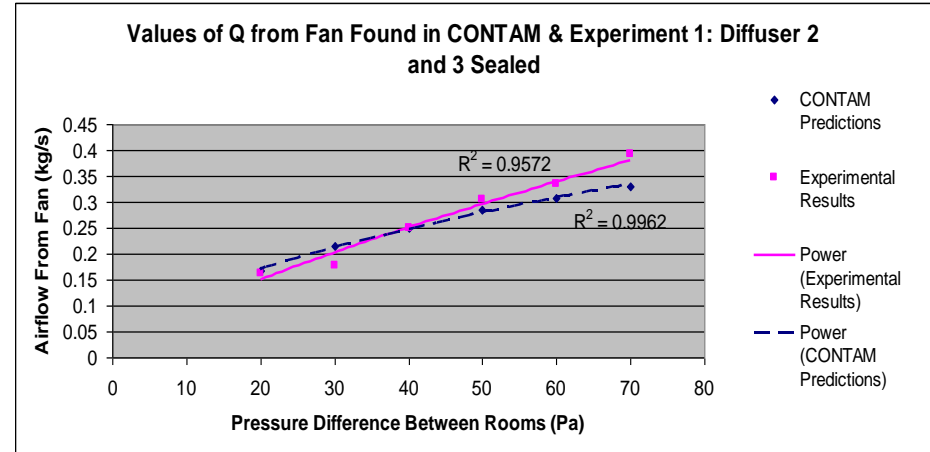
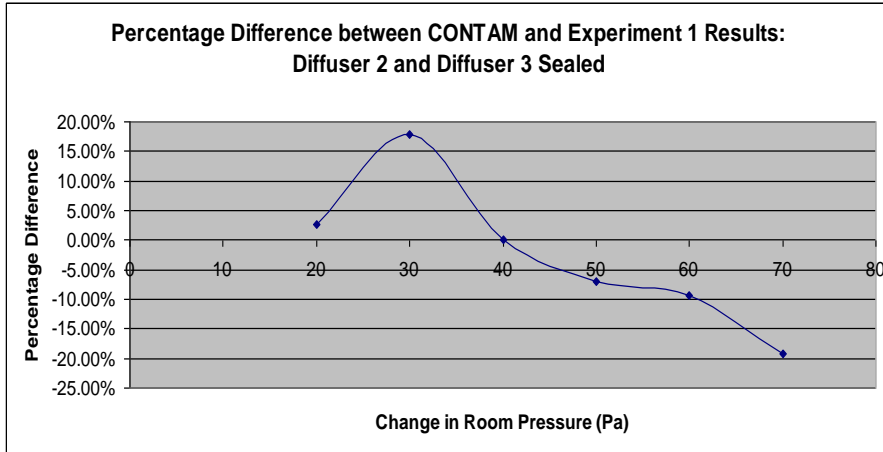
Software Validation

CONTAMW

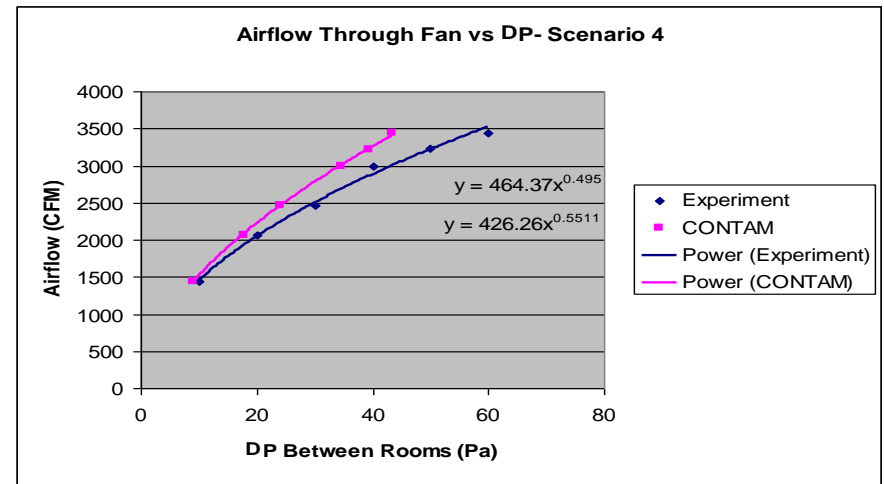
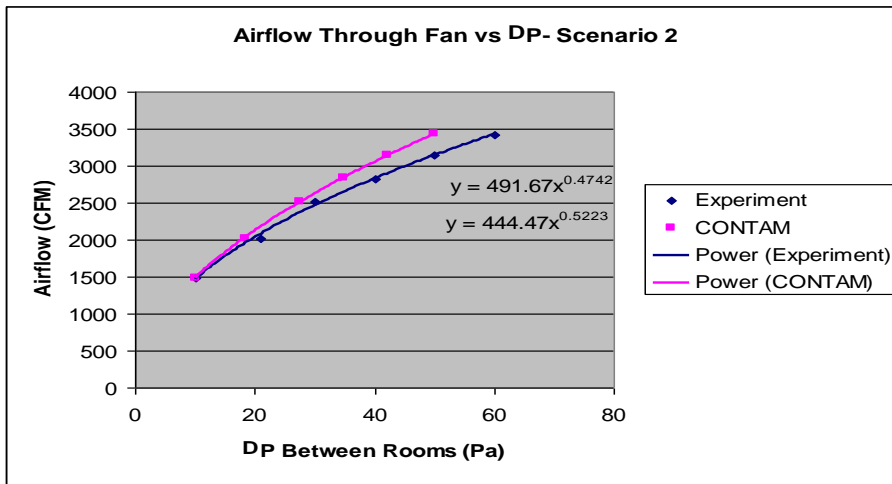
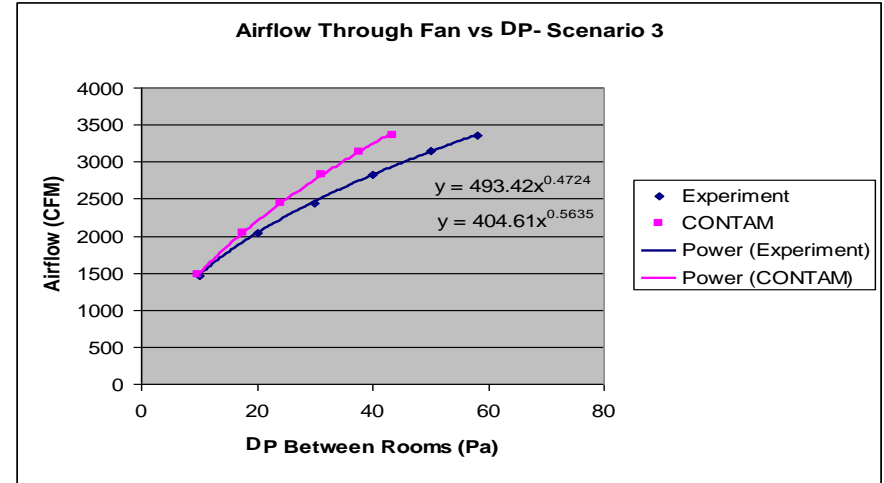
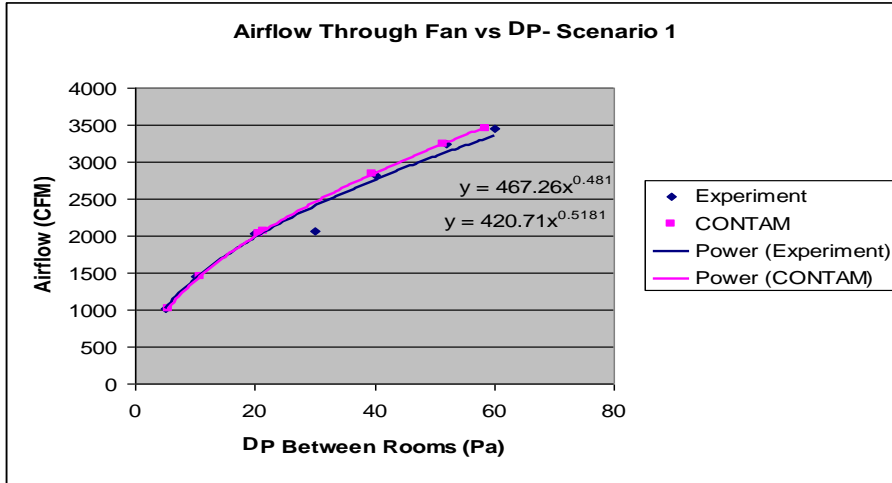
Airflow and Contaminant simulation Software



Experiment 1 Validation



Experiment 2 Validation



Credit

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and promote a sustainable world

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