

**Appalachian State University: Department of Technology**  
**Course Syllabus -- TEC 4708**

**Course Number and Title: TEC 4708, Building Science, Fall, 1999**

**Course Description:** This course introduces students to complex issues concerning how buildings actually interact with their environment. Particular issues include how moisture problems occur, how to protect building occupants from poor health due to indoor air quality problems, how to prevent building durability problems, and how to provide a more energy efficient and comfortable building for your client. The course will investigate the use of diagnostic equipment, such as blower doors, duct leakage testing devices, indoor air quality measurement devices and air flow detection equipment.

**Credits:** 3

Meeting Times and Place: M, W 10:00 - 11:30, Room 167 Kerr-Scott Building

**Instructor:** Jeff Tiller, PE

**Office Hours:** posted on office door

**Phone Number:** 262-6355 (office), 264-9542 (home)

**Email:** [tillerjs@appstate.edu](mailto:tillerjs@appstate.edu)

**Course Goals:**

1. Discover the scientific principles behind moisture movement, air leakage, heat transfer, indoor air quality problems, and other building science phenomena.
2. Learn calculational procedures that describe the above problems.
3. Master the use of diagnostic tools to evaluate potential building science-related problems in homes.
4. Conduct a thorough evaluation of a home as a course project.
5. Find out how to size heating and cooling systems.

**Topical Content Outline:**

1. Modes of Moisture Transfer
2. Psychometric Charts
3. Heat Loss and Gain Fundamentals
4. Measurement Techniques
5. Air Leakage Estimating
6. Using Blower Doors and Ductblasters
7. Pressure Imbalances
8. Indoor Air Quality
9. Carbon Monoxide Testing/ Other Air Quality Tests

**Methods of Teaching:** Lectures, discussions, experiments, projects, field visits with diagnostic testing devices, homework problems.

**Textbooks:** Text book available for \$20 from instructor.

**Requirements:**

Attend class -- three unexcused absences or six tardies will reduce overall average 5 points.

Complete class readings.

Submit frequent homework assignments and project write-ups.

Turn in class project -- report on a comprehensive diagnostic evaluation of building; science

problems.

Perform well on 2 to 3 tests and final exam.

**Basis of class grade:**

Classroom participation (based on attendance and participation in classroom discussions and activities)	10 points
Homework/ Experiment Write-ups	20 to 30 points
Project	15 to 30 points
Tests	20 to 30 points
Final Exam	15 to 25 points
<b>TOTAL BASIS</b>	<b>100 points</b>

**Consumables Charge:**

There will be a charge of \$15 to 30 for expenses used during the semester for nonreusable items,

such as ductwork, masking tape, duct sealing mastic, foam sealant, caulk, etc.