

## Roman W. Morse

Engineering Research

Building

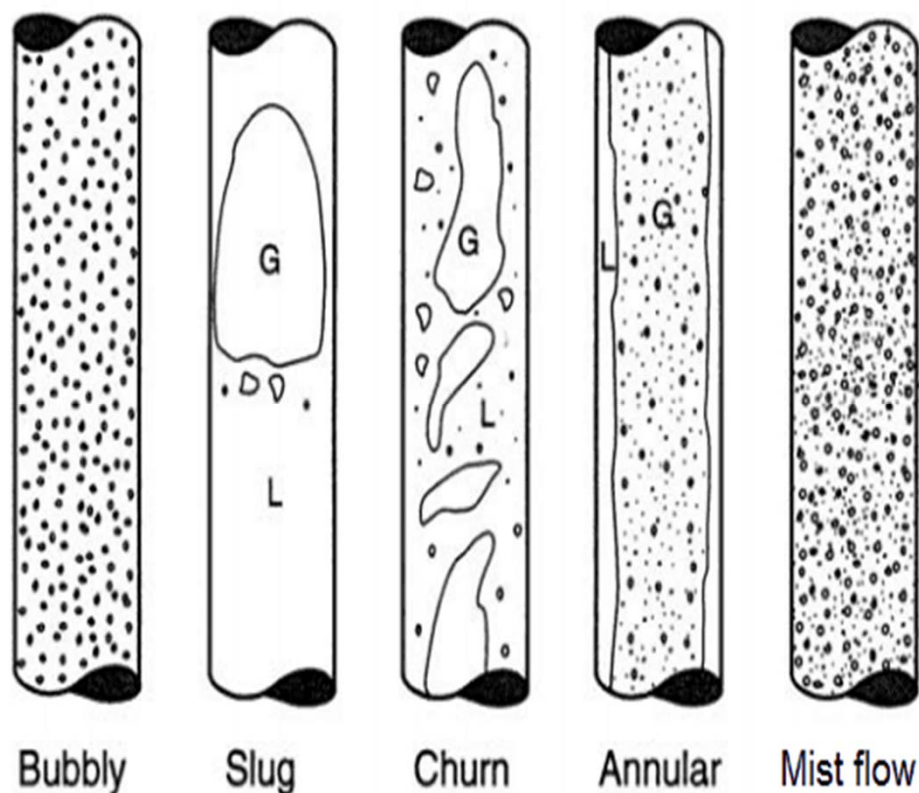
Room 138

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## Two-Phase Flow

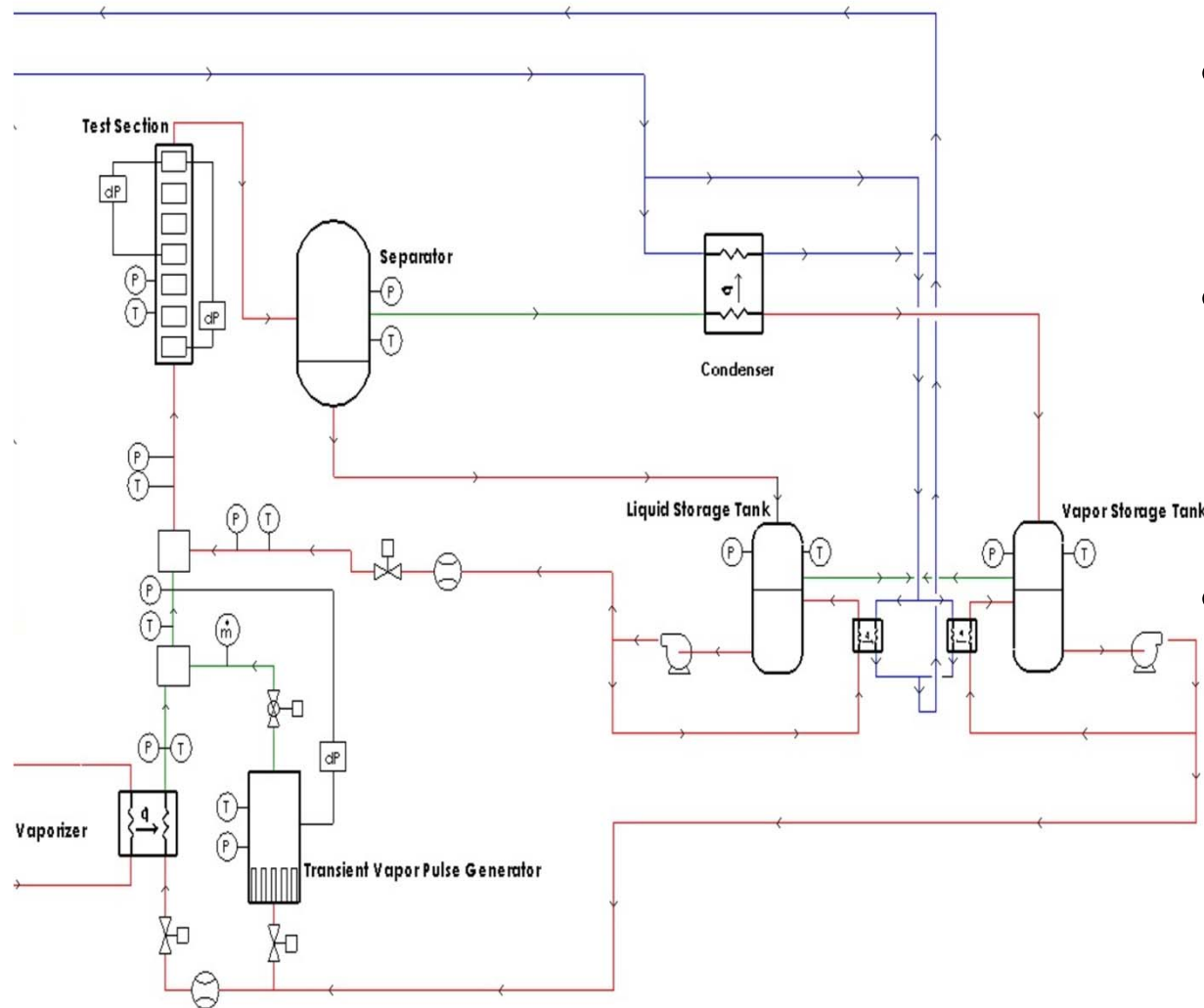
## Flow Boiling & Annular Flow



Increased vapor mass flux

- Saturated vaporizing/condensing systems will progress through multiple flow boiling regimes
- Heat transfer from the wall is maximized in the annular flow regime, characterized by a vapor core and thin liquid film on the wall
- In general the heat transfer at the wall and film thickness are inversely correlated
- However, heat transfer is significantly reduced with loss of liquid film

# MFVAL Annular Flow Facility



- Single-species annular flow loop with R-245fa as working fluid
- MFVAL takes simultaneous film thickness and temperature measurements using non-invasive techniques
- Capable of adding transient vapor pulses at varying frequencies in order to study effects downstream