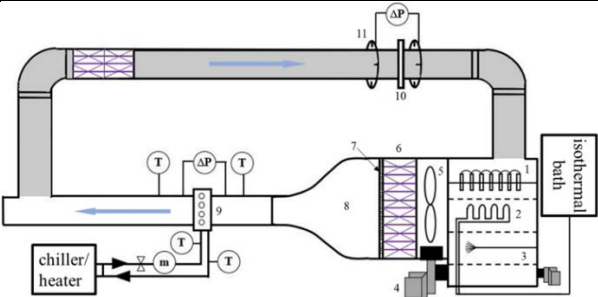
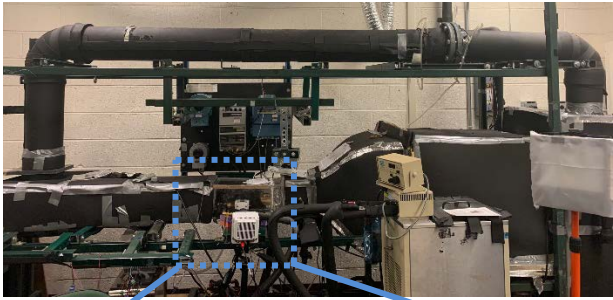


1. Wind Tunnel for Frost Growth (MEL2421)

<ul style="list-style-type: none"> • Purpose: This wind tunnel provides the desired air temperature, air velocity and humidity for the frost growing test. Through transparent test section, videos for the frosting growing on a cold plate can be obtained by a high-speed camera. Frost was also recorded by a capacitive sensor sitting beside the cold plate. 	
<ul style="list-style-type: none"> • Imaging: High speed camera Phantom VEO410L, Sigma 105mm f/2.8 EX DG Macro Lens 	<p>1. heater; 2. cooling coil; 3. cold mist humidifier; 4. blower; 5. mixer; 6. honey comb; 7. screen; 8. contraction; 9. test section; 10. orifice plate; 11. D & D/2 pressure taps</p>
<ul style="list-style-type: none"> • Data acquisition: Nation Instruments cDAQ-9178 	
<ul style="list-style-type: none"> • Feedthroughs: T-type thermocouples, Setra Pressure Transducer 239, hot/cold liquid lines 	
<ul style="list-style-type: none"> • NESLAB RTE-210 isothermal bath provides the cold working fluid to the heat exchanger inside the wind tunnel, the lowest air temperature is ~11°C 	
<ul style="list-style-type: none"> • PolyScience LS51M11A110C Chiller enables a lowest inside fluid temperature of -20°C, used for cooling the cold plate 	
<ul style="list-style-type: none"> • Experiments were often performed with an ambient temperature of 16°C or lower, which required a pre-cooling time of 3~4 hours; the air humidity can reach to 70% with humidifier. 	