



UNC CHARLOTTE

Department of Engineering Technology

# LABORATORY SAFETY ANALYSIS

## OPERATING THE HVAC TRAINER


Location: Smith 129

Required Training: The Brodhead-Garrett HVAC Trainer is designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of this apparatus, do not use until proper training and knowledge have been obtained.

Required Personal

Protective Equipment (PPE): Safety glasses.

Reference Materials: Manufacturer's safety rules and operating instructions

PHOTOS	TASK	HAZARDS	CONTROLS
	Wear clear safety glasses with side shields and if necessary use a dust mask.	Airborne dust from fans.	<ul style="list-style-type: none"> <li>Students are required to provide their own safety glasses.</li> <li>See laboratory instructor or laboratory manager if you do not have safety glasses before proceeding to use equipment.</li> </ul>
	Inspect safety glasses for cracks, scratches or other defects. Ensure the ANSI standard Z87.1 is stamped into the side of glasses. If necessary inspect leather gloves and face shield.	Airborne dust from fans.	<ul style="list-style-type: none"> <li>If defects are found report to your laboratory instructor before using.</li> </ul>
	Put on PPE	Airborne dust from fans.	<ul style="list-style-type: none"> <li>Always wear safety glasses.</li> <li>Wear non-slip shoes due to potential water on floor.</li> </ul>
	Inspect work area, walk around area looking for water, oil, or other foreign objects	Slips, trips & falls	<ul style="list-style-type: none"> <li>Clean area around apparatus as needed prior to beginning experiment</li> <li>Empty condensate container as needed.</li> </ul>
	Visually inspect the electrical power cord for the trainer, thermocouple display and watt meter.	Electrical shock	<ul style="list-style-type: none"> <li>If any of the electrical cords are damaged or worn they should be unplugged and tagged "Out of Service-Do Not Use".</li> <li>This should be reported to the laboratory manager immediately.</li> <li>Electrical cord replacement should only be conducted by a factory authorized technician or electrician.</li> </ul>

	Ensure the electrical cords are connected to electrical outlets.	Electrical shock, Injuries	<ul style="list-style-type: none"> <li>• Caution: Apparatus is moveable. Always disconnect electrical cord before moving.</li> </ul>
	Run experiment	Injuries, thermal hazards.	<ul style="list-style-type: none"> <li>• This is a complex multi-modal trainer with numerous valves and compressed refrigerant; follow <b>ALL laboratory</b> instructions explicitly to avoid injury or damage to equipment.</li> <li>• Ensure that condensate is directed to a collection container.</li> <li>• Caution: Pressurized refrigerant can be <b>HOT</b> in various parts of the pipe network; temperature readings should only be taken using the thermocouples.</li> </ul>
	Apparatus shut-down	Injuries, thermal hazards	<ul style="list-style-type: none"> <li>• Follow <b>ALL laboratory</b> instructions regarding shut-down procedures explicitly.</li> <li>• Allow any frost to thaw and to drain into the collection container before emptying container.</li> <li>• Correct shut-down procedures minimize the potential for refrigerant leaks.</li> </ul>
	Clean work area and return all PPE to clean, dry storage area.	Injury	<ul style="list-style-type: none"> <li>• To ensure adequate housekeeping measures to prevent accidents.</li> <li>• Clean up any areas where condensate may have collected on the floor around the apparatus.</li> <li>• Empty condensate container into the laboratory sink then replace on apparatus.</li> </ul>

For more information about this LSA, contact the *Department of Engineering Technology* at UNC Charlotte (704) 687-2305

Please visit our website at: <http://www.et.uncc.edu>

***The development of Laboratory Safety Analyses is a very effective means of helping reduce incidents, accidents, and injuries in the workplace. It is an excellent tool to use for training purposes and can also be used to investigate "near misses" and accidents.***