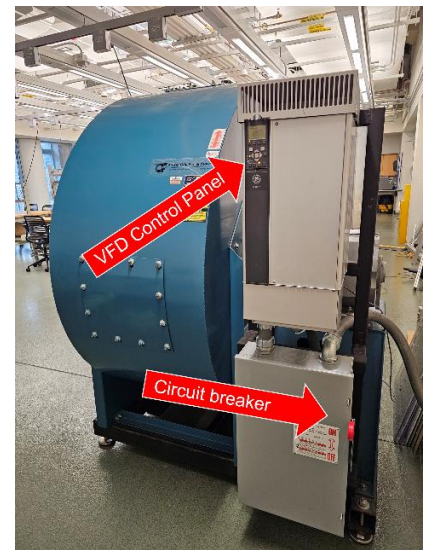


PROCEDURES FOR OPERATING AND WORKING WITH THE 0.7m OPEN JET WIND TUNNEL

1. Use caution working in, on, or around the open jet wind tunnel.
2. Under no circumstances may the open jet tunnel be run without the jet catcher in place.
3. No item may be mounted in the flow path that would cause significant blockage (more than 25%) of the flow without prior approval from the lab director.
4. No user may be in, or may enter the flow path when the wind tunnel fan is rotating.
5. **Training is required before running the wind tunnel** and all users are required to be trained.
6. The speed should be increased gradually at the start and during wind tunnel operations.
7. **Under no circumstances may the fan be running unless at least 2 approved users are present in the lab.**
8. While the fan is in operation listen for any rattling sounds that could indicate problems with its blades. Immediately shut down the system (follow the procedures below) and report the problem to the lab director if you feel there may be a problem.
9. The speed of the flow in the wind tunnel can be operated in 2 different ways:
 - a. **MANUAL OPERATION:** The wind tunnel operates at a variable fan speed using the control panel located on the General Electric AF-600 FP variable frequency drive adjacent to the fan at the upstream end of the wind tunnel as shown on the right.



- **EMERGENCY SHUTDOWN FOR MANUAL OPERATION:** All tunnel users must be aware of the location of the circuit breaker (located behind the centrifugal fan, and shown on the photo on the right) before operating the facility. The circuit breaker is used to **energize the fan (pushing the lever up)** and can be used to **kill power to the fan (pull the lever down) to stop the wind tunnel** in case of emergency.

- b. **REMOTE OPERATION:** In remote operation, the tunnel speed is controlled by a DC voltage signal provided by the grey DC power supply located on the bench next to the tunnel test-section (see photo on the left below). A Matlab code on the computer located on the same bench controls the level of the DC voltage which in turns sets the fan RPM. Users can enter the RPM value they want the fan to operate at, thus setting the flow speed in the test-section.

- **EMERGENCY SHUTDOWN FOR REMOTE OPERATION:** In case of emergency, or if the Matlab control code does not respond, **the tunnel fan can be shut down by powering down the grey DC power supply (the power switch is located on the top left on the back of the power supply) shown in the photo on the bottom left below.** Reducing the supply voltage to 0 will bring the fan speed down to 0. If there is a need to de-energize the fan, users should proceed calmly to the back of the facility, near the centrifugal fan, and locate the circuit breaker. The circuit breaker is used to **energize the fan (pushing the lever up)** and can be used to **kill power to the fan (pull the lever down) to stop the wind tunnel** in case of emergency.
- **Additionally, an emergency stop button is placed on the wall next to the centrifugal fan and can be used to kill power to the variable frequency drive in case of electrical emergency (see photo at the bottom right below). Notify your TA or Dr. Borgoltz as soon as this button is pressed.**

