Supersonic Wind Tunnel Facility Safety Overview

CONTENT:

- Facility Overview
- Facility Layout
- Hazards Overview
- Safety Features
- References

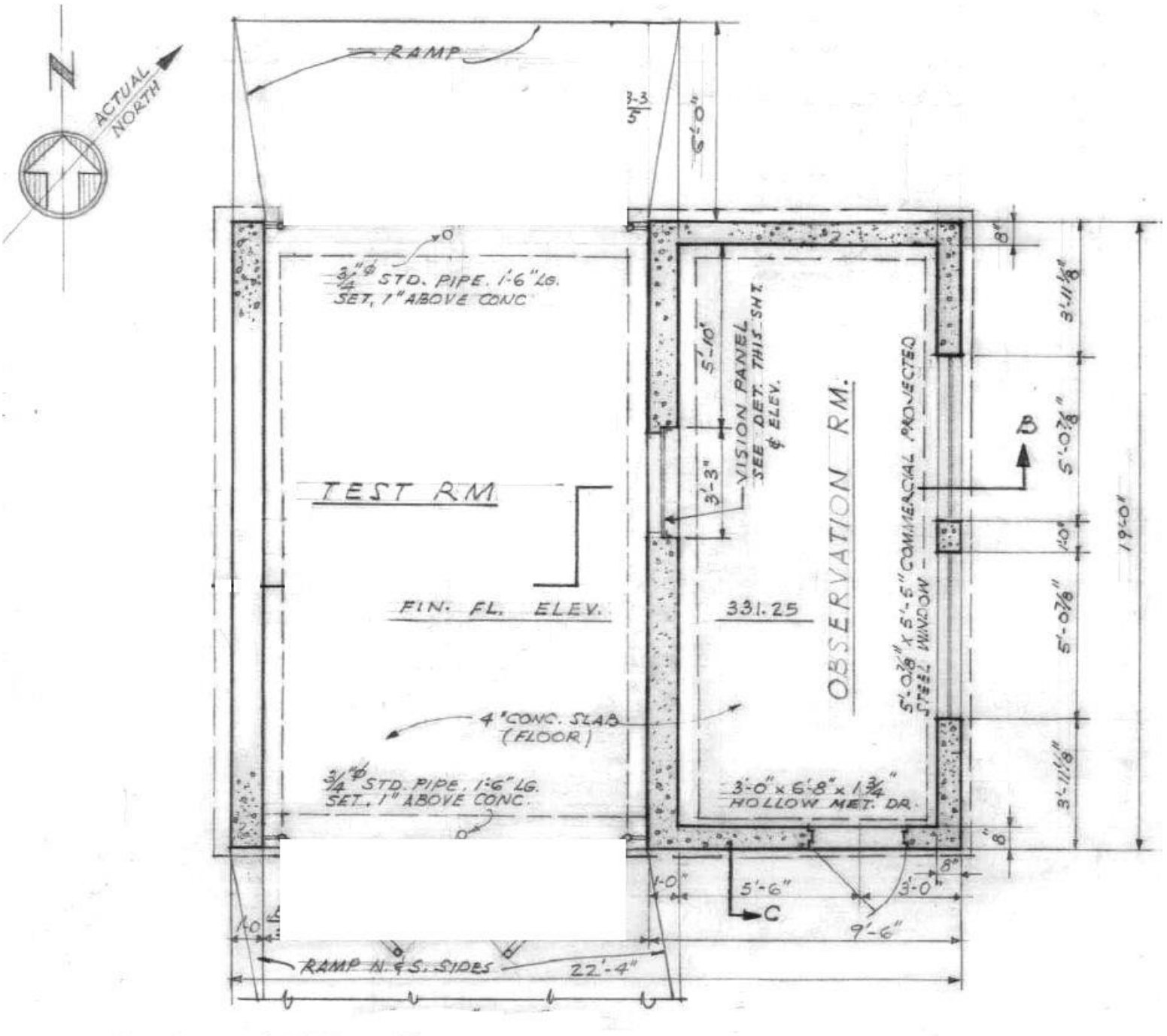
FACILITY OVERVIEW:

The Supersonic Wind Tunnel Lab (SSWT) is the former propulsions lab. As such, the SSWT facility shares many of the features of the Prop Lab:

- Thick, non-flammable walls
- Blast & flame resistant windows
- High ceilings
- Large roll-up doors on both ends of the test cell

If an activity will nominally produce/release enough power to be hazardous, or if there is some risk that an activity will produce/release a harmful amount of power in an off-nominal case, then that activity could be run in the SSWT lab. As currently configured, the SSWT facility only houses the Supersonic Wind Tunnel, through from time to time other activities are operated in the SSWT facility.

FACILITY LAYOUT



Eye & ear protection cabinet

HAZARDS OVERVIEW:

The following overview is intended to inform users of the SSWT facility about the always/usually present hazards in the SSWT facility. This section is not intended to review hazards for execution of a particular lab activity, but rather the environment that those lab activities take place within. That is to say, this document covers hazards present and safety information for people just walking into the prop lab.

For the specifics on hazards and safety measures for a given lab activity, please refer to the safety sheet for that activity.

Personnel hazards:

Hazard Item	Nominally Present	Off-nominally Present	Activity Related Only	Mitigation
Eye (flash blinding)				
Eye (debris blinding)	X		X	Safety glasses
Ear (hearing)			X	Ear protection
Inhalation (fumes)				
Inhalation (particles)				
Skin (irritant)				
Skin (burn)				

Notes:

Eye hazards: Debris blinding: facility compressed air can accelerate particles up to speeds that can cause eye injury.

Skin hazards: The prop lab usually has some number of materials that can be skin irritant. All materials that may be skin irritant will be contained and marked so that personnel do not come into casual contact with those materials.

Inhalation hazards: The prop lab usually has some number of materials that can be inhalation hazards. All materials that may be inhalation hazards will be contained and marked so that personnel do not come into casual contact with those materials.

Energy hazards:

Hazard Item	Nominally Present	Off-nominally Present	Activity Related Only	Mitigation
Flammable				
Combustible				
Pressure/ Explosion		X		
Electrical		X		
Kinetic			X	

Notes:

Pressure/Explosive hazard items:

The facility compressed air is under pressure. In addition, there are frequently pressurized gas cylinders in the test cell. All the sources of compressed gas can present a projectile hazard if the gas is released in an uncontrolled manner.

The SSWT lab includes use of the pressure tank to the west side of the building; various safety features ensure that the tank will not be pressurized to burst or be accidentally vented.

Electrical hazard items:

The prop lab has two phase 120V AC power and three phase 240V AC power. All facility electrical power can present a hazard if unsafe electrical interfaces are used.

Mechanical hazards:

Hazard Item	Nominally Present	Off-nominally Present	Activity Related Only	Mitigation
Moving machinery (linear)	X			
Moving machinery (rotating)				
Suspended loads				

Moving machinery (linear):

The SSWT facility roll-up doors present a moving hazard; once in motion, the doors tend to remain in motion, and will close and crush things below them if not operated slowly. In addition, the chain used to move the doors will move as fast as the door, and can present a snag hazard to loose clothing or hair.

SAFETY FEATURES:

Eye protection

Ear protection

Gloves (latex, leather)

REFERENCES:

Cal Poly Aero Lab Safety Sign-off Sheet

Cal Poly Aero Safety Policies