

Emil,

A historical summary of CDF HVAC is attached. A few additional specific comments:

1. Relative humidity was specified by the experiment, but we are controlling the dew point.
2. There is a floor-to-ceiling temperature difference in the collision hall.
3. In case of ODH or flammable gas alarm the fans purge the hall.
4. The CHW heat load varies depending on time of day, time of year, detector operations.

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CDF Collision Hall HVAC

Control

- Air temperature stability +/- 1 C
- Air temperature range of 16-27 C everywhere except the exhaust plume of crates or other heat sources
- Relative humidity between 40-50%
- Pressure difference to outdoors less than 0.05"

Operating modes

- High HVAC
- Low HVAC
- Low purge
- High purge

ODH and Flammable Gas

- Low beta quads
- Solenoid
- Nitrogen purge gas
- Argon-ethane mixture
- Small continuous purge fan
- Dual large purge fans
- Automatic louvers

- Backup generator

Major equipment

- one, 700 CFM exhaust fan
- two, 34000 CFM circulation fans in series
- two parallel air handlers with heat exchangers in series with the circulation fans
- automatic louvers for fresh air, exhaust and circulation
- one 500kw electric duct heater
- two circulation fans inside the hall
- two steam generators
- four chillers, 160 tons each

CDF Assembly Hall HVAC

Control

- Building cooling and heating
- About nine different areas

ODH and Flammable Gas

- Solenoid
- High pressure helium
- Nitrogen purge gas
- Argon-ethane mixture
- Small continuous purge fan
- large purge fans
- Pit exhaust fan
- Automatic louvers
- Backup generator