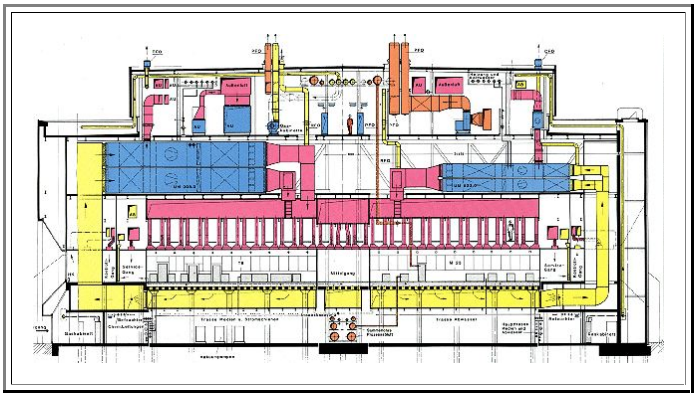
Cleanrooms

Advanced

- First. let's look at the cross-section of a typical "class **1**" cleanroom. Class **1** means roughly that there will be at most **1** particle per **foot^3** (about **30** liters) larger than **0,2** µm or so in the air.



  - Even in the small illustration you can see that the "actual" cleanroom where people make chips, is a small part of the building (the whitish portion just above the lower yellow part).
  - Everything colored is just for moving air around, keeping its temperature and humidity constant, add some fresh air from the outside and to get rid of "spent" air.
- A particular interesting place in a cleanroom building is the "basement" right under the actual cleanroom. It houses a large part of the "equipment", e.g. pumps, liquid and gas inlets, outlets, and cleaning parts, transformers, power equipment, heaters etc. It also houses miles of tubing for delivering away and taking gases and liquids. Some pictures:

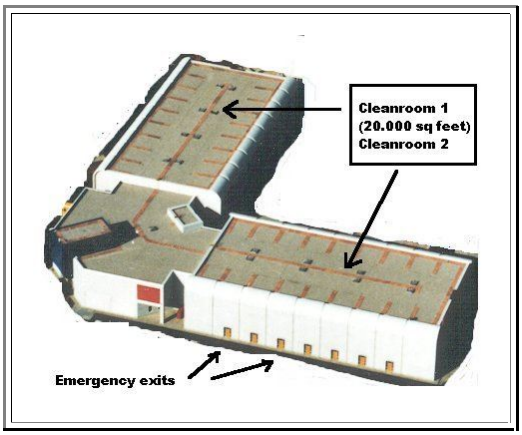
Water treatment

Pumps and piping

- Real cleanrooms are shown in the next two pictures (from the Siemens compound in München-Perlach)

- The building on the lower left are cleanrooms; the "little" one (**1000 m^2**) to the left (with the blue topping) was the **1 µm** research line, the two bigger ones (at right angles; **2000 m^2** each) were used for the development of the **4Mbit** and **16 Mbit DRAM** and for the pilot production.

Below an enlargement



- The yellow emergency exits indicate the actual cleanroom. There are several stories above, and two stories - not visible of course - below.
- The connecting building houses parts of the common infrastructure:
  - Air intake and initial processing
  - Water plant
  - Recycling and cleaning of liquids
  - Cleanroom control
  - Main entrance for heavy equipment
  - Shipping and receiving