PART 1 - GENERAL

1.01 Locate outside air intakes as far above ground as possible to avoid dust and drifting snow and try to locate them on the cool side of building. Avoid locations near service entries or parking lots where they can pick up vehicle fumes or garbage container odors. Avoid air intake locations near fume hood exhausts, boiler and incinerator stacks, or other building exhausts. Avoid air intakes directly above black roofs.

1.02 No piping containing water or steam is to be located in fresh air intake. This includes drains.

1.03 Velocities:
   A. Size outside air intakes for maximum 350 feet per minute air velocity in order to prevent hoar frost on outside air intakes.
   B. Consult with UAF FS on filter bank velocities during initial design.

1.04 Provide adequate ventilation in mechanical spaces to maintain temperature less than 80° F.

1.05 Locate floor drains adjacent to air handling units, especially with heating & cooling coils, for condensate drainage and coil pressure cleanup.

1.06 Utilize internal vibration control and flex connectors.

1.07 Provide adequate space to service and maintain AHUs (air handling units) and adequate provisions for equipment removal and replacement. Indicate minimum coil pull space required.

1.08 AHU: Select for 70% capacity to allow for future additions. (CONFIRM this design criteria with FS/DDC for each project.)

1.09 Minimize the entrainment of snow and rain in the outside air intake structures. In high wind areas, use exterior hoods designed to prevent entry of wind-blown snow. Accommodate the melt water that will discharge inside the building by designing water tight plenums & ducts pitched toward low point drains/floor drains. Provide capped drains where drains are required for snow melt plenums and coils other than cooling coils.

1.10 Provide heating, cooling and DX coils that have integral drip pans with trapped drains permanently piped to floor drains. Tailpiece and trap must be sized to overcome fan static/suction and include provision for a deep seal trap. Provide drain/drip pans downstream of coils, designed to operate against fan static.

1.11 Provide for cleaning of AHU interiors and coils. Space coils appropriately with wash down pans and drains or design coils to "roll out" for cleaning. Locate coil cleaning drain pans upstream from coil for counter-flow pressure wash. Provide all cleaning drain pans with capped drain fittings suitable for hose connection. Do not connect with waste drainage from
other coils.

1.12 Indicate maintenance access areas to be kept clear for maintenance and servicing. Do not design systems, specifically coils, motors, sheaves, and impellers, that will require significant building modification to remove.

1.13 For air handlers with width or height dimensions greater than 4 feet, provide interior lighting with compartmentalized switching. Coordinate with electrical engineer. Lights in cold plenums shall be suitable for cold areas.

1.14 Design exhaust air and relief air outlets in humidified buildings to minimize buildup of ice on discharge structures and adjacent building structures.

1.15 Review filtration strategies to ensure they meet UAF requirements and when indicated, requirements of other funding agencies or accreditation agencies.

1.16 Heat Recovery is a requirement of the University, even on fume hood exhaust. Discuss design of recovery system with UAF for best application. Run-around loop, Q-Dot, air to air, heat pump, and plate exchanger are all acceptable applications.

1.17 Provide dual rack summer and winter outside air filters adjacent to outside air preheat coil, winter rack downstream, summer rack upstream.

1.18 Provide filtration upstream of heat recovery coils on the warm (building) side of the coil.

PART 2 - PRODUCTS

2.01 Use bag type hi-efficiency filters and 2-inch medium efficiency pre-filters for all new buildings. Pleated pre-filters. Properly analyze use of bag filters with VAV systems to ensure bag inflation and to prevent sagging. Some projects may have strict filter requirements (i.e. 85% filtration or better for NIH funded projects) that will need to be coordinated with the end user.

2.02 Construct air handlers with dual steel wall construction with acoustical/thermal insulation between walls. Inner wall may be perforated for acoustical control as required.

2.03 Consultant shall identify three manufacturers that meet the project requirements and UAF standards and may require Alternate Brand or Substitution Requests.

PART 3 - EXECUTION

3.01 Provide properly sized and positioned access doors at deflector dampers, adjustable dampers and fire dampers. Provide access doors in ceilings and walls, where ducts are concealed, in accordance with Division 8 Access Doors.