

NATIONAL RADIO ASTRONOMY OBSERVATORY
Charlottesville, Virginia
February 7, 1986

TO: VLBA Electronics Group
FROM: Harry Dill
SUBJECT: Vertex Room Register Duct Placement

UAI has proposed a design for placement of ventilation ducts in the vertex equipment room floor. Their plan is comprised of eight vents spaced about the room perimeter. Attached is a copy of UAI's layout marked with changes that would better suit NRAO's needs.

We require a stable environment for temperature sensitive equipment in our IF rack, around critical cables and around receiving equipment. These critical areas exist at several points in the room. For some of these critical areas additional reheat on the duct exhaust may be required to maintain a stable environment for varying elevation positions. In order to maintain a stable environment the air flow rate through and air temperature out of the rack should remain constant. The air flow through the racks and around the equipment should be such that natural convection temperature gradients, that vary with elevation angle, are minimized.

NRAO's vent placement proposal is as follows. Vent 1 is under the power supply rack. This rack is not a critical temperature area, but forced air flow will increase the convective heat transfer. Vent 2 is to be ducted to the base of the IF rack. This rack may need additional reheat at the rack base controlled by a thermostat placed at the top of the rack. This would allow better regulation of the air temperature flowing through the rack.

Vents 3 and 4 are moved from UAI's original placement because they will be used to duct air up into the upper equipment room area. Here again additional reheat may need to be added at the output. UAI's placement could have caused conflict between ducts to the upper area and cables coming through the side bulkheads.

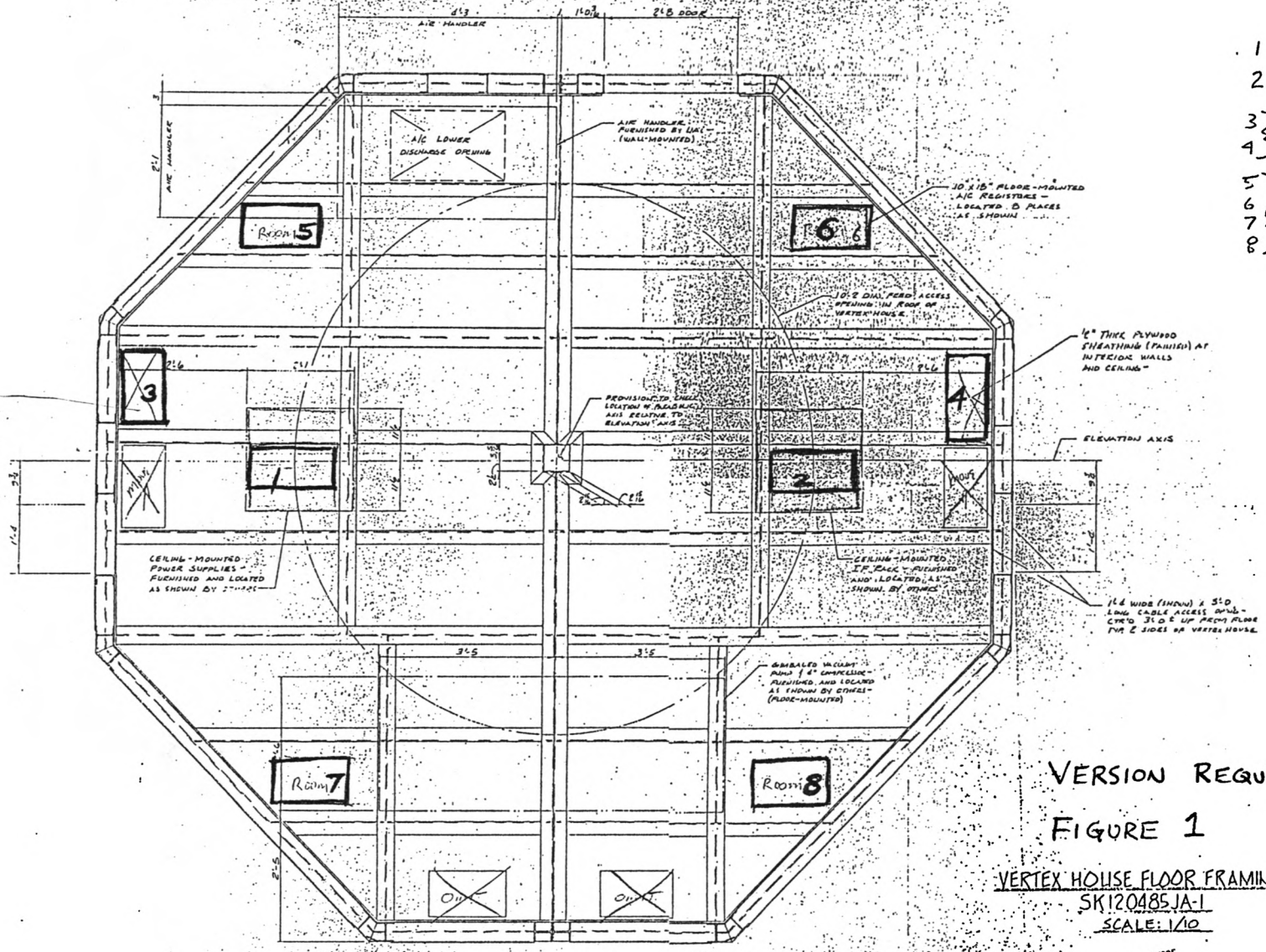
Vents 5-8 are in UAI's original placement and will be used to duct air into the lower equipment room. They should be a louvered type of register that would allow some flow reduction through the registers.

There is still a lot of design to do in determining what air flows are required, determine use of reheat and where ducting should be placed in the upper vertex area. These will be done at a later date when more information is available on module power dissipation and operating conditions.

Any comments or other requirements that have been missed should be passed along to Lee King or myself.

Form L King
2-5-86

AIR FLOW
2600 CFM



- 1 - POWER SUPPLY RACK
- 2 - IT RACK
- 3 } POSSIBLE DISTING TO
- 4 } UPPER USE/EX AREA
- 5 } LOWER VERTIX
- 6 } ROOM VENTS
- 7 }
- 8 }

VERSION REQUESTED BY NRAO 2-6-86

FIGURE 1

VERTEX HOUSE FLOOR FRAMING
SK120485 JA-1
SCALE: 1/10

DEC 4 1985