HARPS-NEF
Thermal Enclosure Design

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Thermal Enclosure Design Requirements

- Maintain outer enclosure temperature of 18 ±1.5 °C
- Maintain intermediate enclosure temperature is 15 ± 0.2 °C
- Limit heat dissipation into WHT dome
- Provide adequate access to instrument during assembly and maintenance
- Provide clean environment
- Fit within space allocated by WHT
WHT HARPS-NEF Floor Plan

- HTE 1
- HTE 2
- HTE 3
- Spectrograph
- Mezzanine

Water cooling lines for air handling

LIRIS Room
WHT HARPS-NEF Floor Plan
WHT HARPS-NEF Floor Plan

HTE 1 [18 ±1.5 °C]

HTE 2 [15 ±0.2 °C]

HTE 3 [17 ±0.01 °C]
HTE 1 Definition

- Standard 2” x 6” metal framing wall construction
- 152mm thick encapsulated Aspen Aerogel insulation (~ R60)
- ¼” thick Aluminum honeycomb panels on inside
- Sheet metal exhaust plenum on outside
- Ceiling grid with 152mm thick Aerogel insulated panels
- Industrial vinyl tile flooring
- 3 meter height fits below existing WHT mezzanine
HTE 1 Definition

Metal Studs

Exhaust Plenum

Aerogel insulation

Honeycomb furring

See Detail A

Detail A

HARPS-NEF PDR and TIM
December 6 & 7, 2007
HTE 2 Definition

- Modular wall & ceiling panels
- 100mm thick polyurethane insulated wall panels with aluminum skin
HVAC Systems

- HTE 1 Heat pump
- Heat pump air discharge
- Heat pump air return
- HTE 2 Heat exchangers fed by chiller in auxiliary room
Assembly & Integration

- Assemble HTE-1 & HTE-2 at WHT prior to spectrograph arrival
- Test thermal performance over winter/summer
- Spectrograph assembly
  - Provide 912 mm access around spectrograph
  - 4-ton hoist provided for use inside of HTE 2
  - WHT crane available outside of HTE 1
Spectrograph Access
Hoist Location

4-Ton Hoist
WHT Facilities Impact

• Floor penetrations
  – Spectrograph slide rails & pedestal mounts
  – HTE 1 & HTE 2 wall anchors

• Wall penetrations
• Cable and pipe runs required
• Coolant supply
• Potential modifications to air extraction system