Plumbing Design Narrative

1. Applicable Codes:
   - 2021 Uniform Plumbing Code, as amended by City & County of Honolulu
   - 2018 International Building Code, as amended by City & County of Honolulu

2. Demolition Work:

   a) Remove all plumbing fixtures and rough-in piping in the building.

   b) Remove all water distribution piping within the building and up to the water meter. The existing water service meter shall remain for re-use.

   c) Remove all sewer and vent distribution piping within the building. The existing underground sewer piping shall remain for re-use. The existing vent through roof shall remain for reuse.

3. New Plumbing Fixtures and Equipment:

   a) Water Closet: Vitreous china, floor mounted, with elongated bowl, 1.28 gpf flush valve, commercial open front toilet seat with anti-microbial agent and check hinge. ADA water closet shall have 16-1/2" rim height.

   b) Urinal: Vitreous china, wall mounted, siphon jet with 1.0 gpf flush valve. Provide floor-mounted wall support.

   c) Lavatory: 15"x11"x5" bowl, single hole, vitreous china, wall mounted, with overflow drain. Provide floor-mounted wall support. Touchless hot and cold water faucet with DC powered sensor, 0.5 gpm, metered on-demand usage with 30 second maximum continuous cycle, single hole mounting.

   d) Shower: 1.75 gpm low-flow shower head and pressure-balancing hot and cold water rough-in valve. For ADA shower, provide with 60" flexible hose and hand sprayer, on/off lever, 24" slide bar for height adjustment

   e) Shower Drain: Cast iron body with flashing collar, 2" pipe outlet, adjustable stainless steel strainer head.

   f) Janitor Sink: 22" floor-mount service sink, enameled cast iron with stainless steel rim guard. Provide with strainer, hot and cold water faucet with wall mounted lever handles, 1.0 gpm, 8" centers, vacuum breaker assembly.

   g) Laundry Room Sink: ADA compliant drop-in, single bowl, 18 GA stainless steel sink, 9" depth, with single faucet hole, and single handle hot and cold water faucet with aerator limited to 1.5 gpm.

   h) Kitchen Sink: ADA compliant drop-in, double bowl, 18 GA stainless steel sink, 9" depth, with single faucet hole, and single handle hot and cold water kitchen faucet with aerator limited to 1.5 gpm. Provide with 3/4 HP garbage disposal.

   i) Washer Box: Washing machine box with integral water supply and drain connections. Cold water and hot water connections shall have water hammer arresters. Provide at each clothes washer.

   j) Floor Sink: 12"x12"x8" cast iron sanitary floor sink, white porcelain enamel coated received a/c condensate and water heater T&P relief discharge. Provide at each water heater.

   k) Floor Drain: Cast iron body with flashing collar, 2" pipe outlet, adjustable nickel steel strainer head, 1/2" trap primer connection. Provide in each bathroom and laundry room.

l) Hose Bib: Cast brass, removable key, hose thread outlet and non-removable atmospheric vacuum breaker. Provide in each bathroom.

m) Drinking Fountain: Stainless steel bottle filling station with bi-level ADA water cooler, hands free activation, 8 gph.

n) Electric Water Heaters: Provide electric tank type water heaters with expansion tank, T&P relief valve, recirculating pump, seismic restraint straps, vacuum breaker, thermostatic mixing valve, heat traps, thermometers, drain pan.

1) Ground floor laundry/bathrooms/showers/janitor/patrol/kitchenette: 80 gallons, 9 kW

2) Second floor laundry/bathrooms/showers/resident kitchen: 80 Gallons, 9 kW

3) Third floor laundry/bathrooms/showers/resident kitchen: 80 Gallons, 9 kW

4. New Distribution Piping:

a) Install a new 2-1/2” water supply and backflow preventer between the existing meter and the building.

b) Below ground copper water piping shall be Type ‘K’ hard drawn with wrought copper fittings. Joints shall be brazed.

c) Above ground copper water piping shall be Type ‘L’ hard drawn with wrought copper fittings. Joints shall be soldered with 95-5 or lead-free solder.

d) Waste and vent piping: PVC piping shall be schedule 40 solid wall iron pipe size (IPS) conforming to ASTM F-628.

e) Hot water piping insulation: Insulate all hot water piping with insulation having and average thermal conductivity of 0.21-0.28 BTU in./(h ft2 F) at mean temperature of 100 F. Insulation thickness shall have a minimum thickness of 1” and not less than the diameter of the pipe up to 2”.

Mechanical Design Narrative

1. Applicable Codes:
   - Hawaii Administrative Rules, Title 11, Chapter 39 Air Conditioning and Ventilating
   - 2018 International Building Code, as amended by City & County of Honolulu

2. Demolition Work:

   a) Remove all existing air conditioning equipment, piping, refrigerant, ductwork and air devices in the building.

   b) Remove all existing fans and related ductwork in the building.

3. Natural Ventilation:

   a) The bedrooms will be naturally ventilated. Each will have an operable window and a ceiling fan.

   b) The residential kitchenettes will be naturally ventilated. Each will have an operable window and a ceiling fan.

4. Mechanical Exhaust Ventilation: Provide exhaust fans with backdraft dampers for each space that requires exhaust ventilation. Exhaust ductwork shall be 24-gauge galvanized steel with aluminum air devices that have integral balancing dampers. Use aluminum ductwork for the shower room exhaust systems. Install per SMACNA standards. Provide a weather hood and bird screen for each exhaust discharge location.

   a) First Floor Women's Restroom [84.88 sf]: Provide 340 cfm exhaust.

   b) First Floor Men's Restroom [106.13 sf]: Provide 425 cfm exhaust.

   c) First Floor Showers [110 sf]: Provide 275 cfm exhaust for each shower stall.

   d) First Floor Patrol Women's Restroom [55 sf]: Provide 110 cfm exhaust.

   e) First Floor Patrol Men's Restroom [100 sf]: Provide 200 cfm exhaust.

   f) First Floor Patrol Showers [272.07 sf]: Provide 275 cfm exhaust for each shower stall.

   g) Second Floor Restroom [170 sf]: Provide 340 cfm exhaust.

   h) Second Floor Showers [240 sf]: Provide 275 cfm exhaust for each shower stall.

   i) Third Floor Restroom [170 sf]: Provide 340 cfm exhaust.

   j) Third Floor Showers [240 sf]: Provide 275 cfm exhaust for each shower stall.

5. Mechanical Supply Air Ventilation: Provide supply fans with backdraft damper and filter boxes for each space that requires supply air ventilation. Supply air ductwork shall be 24-gauge galvanized steel with aluminum air devices that have integral balancing dampers. Install per SMACNA standards. Provide a weather hood and insect bird screen

   a) First Floor Corridor [345 sf]: Provide 820 cfm supply air.

   b) First Floor Laundry Room [66.64 sf]: Provide 250 cfm supply air.

   c) Second Floor Corridor [820 sf]: Provide 1,950 cfm supply air.

   d) Second Floor Laundry Room [160.8 sf]: Provide 600 cfm supply air.

   e) Third Floor Corridor [820 sf]: Provide 1,950 cfm supply air.

   f) Third Floor Laundry Room [160.8 sf]: Provide 600 cfm air supply.

6. New Air Conditioning: Provide galvanized steel ductwork, not less than 24-gauge. Install per SMACNA standards. Wrap with 1-1/2" thick insulation. New air devices shall be aluminum with integral balancing dampers. New condensing unit shall be mounted on the building rooftop with insulated refrigerant piping extending to the fan coil unit. Exterior mounted refrigerant piping insulation shall have aluminum jacket. Provide insulated copper condensate drain pipe sloped down from the fan coil unit to a floor sink connected to sewer.

    a) Lobby and Stairs [1,285 sf]: Install new 66,000 BTUH VRF split ducted air conditioning system with fresh air per HAR Chapter 39.

    b) Sergeant/Patrol/Disptach [565 sf]: Install new 30,000 BTUH VRF split ducted air conditioning system with fresh air per HAR Chapter 39.

    c) Resident Area, Case Manager and Resident Manager Offices [1,055 sf]: Install a new 54,000 BTUH VRF split ducted air conditioning system with fresh air per HAR Chapter 39.

7. Dryer Exhaust: Provide 4" diameter aluminum dryer exhaust duct and wall discharge cap for each laundry dryer.

8. Range Hood: Range hood shall be of the recirculating type. Provide one hood at each range.

Electrical Design Narrative

1. Applicable Codes:
   - 2020 NFPA 70 National Electrical Code, as amended by City & County of Honolulu
   - 2018 International Building Code, as amended by City & County of Honolulu

2. Demolition Work:

   a) Remove all electrical devices, lights, conduit and wiring throughout the building up to the 400-amp main service breaker in the electric room. The existing breaker and service meter shall remain for re-use.

3. New Power Distribution:

   a) Install a 400-amp, 42-pole main distribution panel in the electric room for the elevator, fire alarm panel, and the electric panels on each floor.

   b) Install a 200-amp, 42-pole electric panel for the ground floor electrical loads in the electric room.

      1) Install a dedicated 20-amp circuit for each bedroom.
      2) Install a dedicated 20-amp circuit for each microwave in the resident area.
      3) Install one 50-amp circuit for each range in the resident area.
      4) Install four 20-amp circuits for receptacles in the resident area.
      5) Install one 20-amp circuit for receptacles at the reception desk.
      6) Install one 20-amp circuit for receptacles in the case and resident manager offices.
      7) Install one 20-amp circuit for receptacles in the sergeant office and dispatch office.
      8) Install two 20-amp circuit for receptacles in the patrol office.
      9) Install one 20-amp circuit for each restroom receptacle.
      10) Install one 50-amp circuit for the first-floor water heater.
      11) Install a dedicated 20-amp circuit for each washer.
      12) Install a dedicated 30-amp circuit for each dryer.
      13) Install a dedicated 20-amp circuit for a convenience receptacle in each laundry room.
      14) Install one 20-amp circuit for common area convenience receptacles.
      15) Install 20-amp circuits for common area lighting as required.
      16) Install circuits for the lobby and stairway air conditioning.
      17) Install circuits for the sergeant office, patrol and dispatch air conditioning.
      18) Install circuits for the resident area, case office and resident manager office air conditioning.
      19) Install circuits for the lobby and stairs air conditioning.
      20) Install circuits for the common area ventilation systems.

   c) Install a 200-amp, 42-pole electric panel for the second-floor electrical loads in the second-floor electrical closet.

1) Install a dedicated 20-amp circuit for each bedroom.
2) Install a dedicated 20-amp circuit for each washer.
3) Install a dedicated 30-amp circuit for each dryer.
4) Install a dedicated 20-amp circuit for a convenience receptacle in each laundry room.
5) Install a dedicated 20-amp circuit for each microwave in the residential kitchenette.
6) Install two 20-amp circuits receptacles in the residential kitchenette.
7) Install one 20-amp circuit for each restroom receptacle.
8) Install one 50-amp circuit for the second-floor water heater.
9) Install one 20-amp circuit for common area convenience receptacles.
10) Install 20-amp circuits for common area lighting as required.
11) Install circuits for the common area ventilation systems.

d) Install a 200-amp, 42-pole electric panel for the third-floor electrical loads in the third-floor electrical closet.

1) Install a dedicated 20-amp circuit for each bedroom.
2) Install a dedicated 20-amp circuit for each washer.
3) Install a dedicated 30-amp circuit for each dryer.
4) Install a dedicated 20-amp circuit for a convenience receptacle in each laundry room.
5) Install a dedicated 20-amp circuit for each microwave in the residential kitchenette.
6) Install two 20-amp circuits receptacles in the residential kitchenette.
7) Install one 20-amp circuit for each restroom receptacle.
8) Install one 50-amp circuit for the third-floor water heater.
9) Install one 20-amp circuit for common area convenience receptacles.
10) Install 20-amp circuits for common area lighting as required.
11) Install circuits for the common area ventilation systems.
12) Install one 20-amp circuit for a rooftop receptacle near the HVAC equipment.

4. New devices:

a) Electric Panels: Industrial/commercial use, bolted circuit breakers, copper busses and harnesses, NEMA 1 enclosure. Enclosure shall be galvanized sheet steel with hinged door, latch, lock and two keys. Circuit breakers shall be molded plastic case with toggle operated mechanism, thermal-magnetic overload trips.

b) Conduit: Electrical metallic tubing shall be galvanized round bore with compression connectors, 3/4” minimum diameter.

c) Conductor: Copper conductor with 600-Volt insulation. Conductor shall be not less than No. 12 AWG. Conductors No. 10 and smaller shall be solid and round.

d) Disconnect Switch: Horsepower rated fusible or non-fusible safety switch. Enclosed in NEMA-1 enclosure for interior locations and NEMA 3R enclosure for exterior locations. Enclosures shall have provisions for padlocking.

e) Receptacles: Duplex receptacles shall be tamper-resistant UL 498 NEMA 5-20. Provide with ground fault interrupt protection in the restrooms, kitchen, laundry, utility rooms. Provide arc-fault interrupt protection for the bedrooms.

f) Range Outlet: 120/250-Volt NEMA 14-50R four prong flush mount receptacle.

g) Dryer Outlet: 120/250-Volt NEMA14-30R four prong flush mount receptacle.

h) Light Switches: Single pole or 3-way as required, 20 amperes, 120 volts, UL labeled AC type, silvered contacts, plastic body paddle switch. For dimming switches, provide adjustable slider.

i) Automatic Lighting Controls: Dimming switches with occupancy sensor, ceiling mounted occupancy sensor, wall mounted occupancy sensor, ceiling mounted photocell and room controller shall be by the same manufacturer. Use dual technology occupancy sensor switches.

j) Timeclock: 7-day electronic time switch. 2-circuit model with independent outputs. Timeclock shall have bypass button/switch to manually override programmed events. Provide with battery back-up. 120-Volts, 30-Amps. UL listed.

5. New Light Fixtures:

a) Exterior Parking: Surface mounted, 4’ linear strip with motion sensor. 32 watt LED. UL listed for damp locations.

b) Exterior Stair Landing: Surface mounted 15” diameter round light. 24 watt LED. UL listed for wet locations.

c) Entry Canopy: Surface mounted 18” diameter round light. 32 watt LED. UL listed for wet locations. Provide with remote photocell switch.

d) Reception Lobby: Surface mounted 6” cylinder lights. 15 watt LED. UL listed for damp locations.

e) Interior Stair Landing: Surface mounted 15” diameter round light. 24 watt LED. UL listed for dry locations.

f) Kitchenette/Resident Area/Corridor/Offices: Pendant mounted, 4’ decorative linear. 32 watt LED. UL listed for dry locations.

g) Restroom Ceiling: Surface mounted 12” diameter round light. 24 watt LED. UL listed for damp locations.

h) Restroom Vanity: Surface mounted 18” decorative linear light. 18 watt LED. UL listed for damp locations.

i) Restroom/Shower Vestibule: Surface mounted 6” cylinder lights. 15 watt LED. UL listed for damp locations.

j) Storage/Utility/Laundry Rooms: Pendant mounted, 4’ linear strip. 32 watt LED. UL listed for dry locations.

k) Corridor: Surface mounted, 4’ decorative linear. 32 watt LED. UL listed for dry locations.

l) Shower Compartment: Recessed 6” diameter downlight. 18 watt LED. UL listed for wet locations.

m) Bedroom Microwave Counter Ceiling: Surface mounted 4” cylinder light. 15 watt LED. UL listed for dry locations.

n) Emergency Lighting: Surface mount emergency light with 90-minute battery backup. Self-testing/self-diagnostic electronics.

o) Exit Sign: Surface mount combination exit and emergency light with 90-minute battery backup. Self-testing/self diagnostic electronics. White housing, green letters with arrows as required.

6. New Lighting Controls:

a) Exterior lighting shall be controlled by a photocell

b) Interior stairway and corridor lighting shall be on 24/7.

c) Offices, Laundry Rooms, Kitchens, Resident Areas, Restrooms, Storage Rooms shall be controlled by occupancy sensors.

k) Bedrooms shall be controlled by wall mounted switches with vacancy sensors.

7. New Ceiling Fans:

a) Ceiling fans for Bedrooms, Resident Areas, Kitchenette: Surface mounted 52” ceiling fan with integral LED light. UL listed for dry locations

8. New Telecommunications Distribution:

a) Install a telecommunications backboard in the electric room.

b) Install data outlets in the offices, resident space television and the reception desk. Outlets shall be provided with 1” conduit and pullstring to a telecommunications backboard in the electric room.

c) Install a CATV outlet at the resident space television. Outlets shall be provided with 1” conduit and pullstring to a telecommunications backboard in the electric room.

Fire Protection Design Narrative

1. Applicable Codes:
   - 2018 International Building Code, as amended by City & County of Honolulu
   - 2021 NFPA 1 Uniform Fire Code, as amended by City & County of Honolulu
   - 2019 NFPA 13 Standard for Installation of Sprinkler Systems
   - 2019 NFPA 72 National Fire Alarm and Signaling Code
   - 2018 NFPA 10 Standard for Portable Fire Extinguishers
2. The existing dry standpipe with hose connections on each floor level and the roof level shall remain in place.
3. Demolition Work:
   a) Remove the existing fire hose stations in the building.
   b) Remove the existing fire alarm system and devices in the building.
4. New Fire Sprinkler Work:
   a) Install a new fire sprinkler system alarm riser and connect to a new fire sprinkler water supply to the building near the Halekauwila Street side of the building.
   b) Install a new fire department connection fronting Halekauwila Street.
   c) Install complete light hazard automatic fire sprinkler system coverage throughout the Group R2 occupancies throughout the building in accordance with NFPA 13.
   d) Install complete ordinary group 1 hazard automatic fire sprinkler system coverage throughout the rest of the building.
   e) Provide spare sprinkler heads and wrench in new sprinkler cabinet.
5. New Fire Alarm Work:
   a) Install a new fire alarm control panel on the ground floor by the reception desk.
   b) Install a new addressable fire alarm system coverage throughout the entire building in accordance with NFPA 72.
   c) Install manual pull stations at each ground floor building exit.
   d) Install wall and ceiling mounted fire alarm notification devices throughout the building.
   e) Install smoke detectors in each sleeping room, storage room, elevator lobby and the corridors. Install a smoke detector above the fire alarm control panel.
   f) Install tamper and flow switches at each fire sprinkler system control valve.
6. New Fire Extinguisher Work
   a) Install fire extinguishers throughout the building in accordance with NFPA 10. Provide semi-recessed cabinets.
   b) Fire extinguishers for light hazard occupancies shall be ABC multi-purpose dry chemical type 2A:10B:C, 5 lbs capacity. Fire extinguishers for ordinary hazard occupancies shall be ABC multi-purpose dry chemical type 3A:40B:C, 6 lbs capacity.

Structural Design Narrative

Pursuant to your request, JPB Engineering, Inc. (JPB) conducted a visual observation of existing building structure for the above referenced property on March 16, 2026. The purpose of the observation was to define the anticipated structural scope of work at schematic design level to assist with contractor pricing.

The building was built in 1963 and was designed for office use (occupancy category: business) and it will be repurposed to residential use. (occupancy category: residential)

1. Applicable Codes
   - 2018 International Existing Building Code (IEBC)
   - 2018 International Building Code (IBC)
   - Building Code Requirement for Structural Concrete (ACI 318)
2. Live Load change meets current code.
   - office load was 50psf with corridor load 100psf in Uniform Building Code (UBC) 1961
   - residential load in 2018 IBC is 40psf with corridor load 100psf.
3. Wind Load change meets current code.
   - Chapter 1006.2 Snow and wind load in 2018 IEBC are not applicable due to no change to risk category of the building.
4. Seismic Load change meets current code.
   - Chapter 1006.3 Seismic loads in 2018 IEBC are not applicable due to no change to risk category of the building
5. Recommendations for Spalls based on the observation
   - Sound and identify delaminated/loose concrete and remove spalled concrete throughout the property since it will be falling hazard in next 5 years.
   - Spalling under of the concrete slab at each level can be sanded and painted for short-term maintenance. (See photo #1)
   - Spalling at concrete stair landing/steps shall be repaired so that structural integrity is restored. Contractor is to follow “concrete repair manual”, “ACI 318” and “ICRI guidelines”. Loose or damaged railing post and rail post connection to the concrete should be repaired. (See photo #2)
6. Recommendations for structural demo work
   - Slab penetrations for plumbing work and Slab tie-in at trenching: trenching path /extent needs to be reviewed. Contractor to submit proposed path for approval prior to commencing work. Depending on the location of them, rebar scanning will be needed.
   - CMU wall demo for new door openings: New or modified openings in existing CMU walls shall be reinforced to maintain structural integrity. Reinforcements and lintels shall be coordinated with structural engineer prior to commencing work.
   - CMU wall demo at ground level: Removal of ground floor CMU walls require further investigation to determine structural implications. For pricing, contractor should assume removal will require supplemental framing.

PHOTOS

LOCATION	PHOTO
Photo #1	 

Photo #2