VI. Individual Building Survey Forms

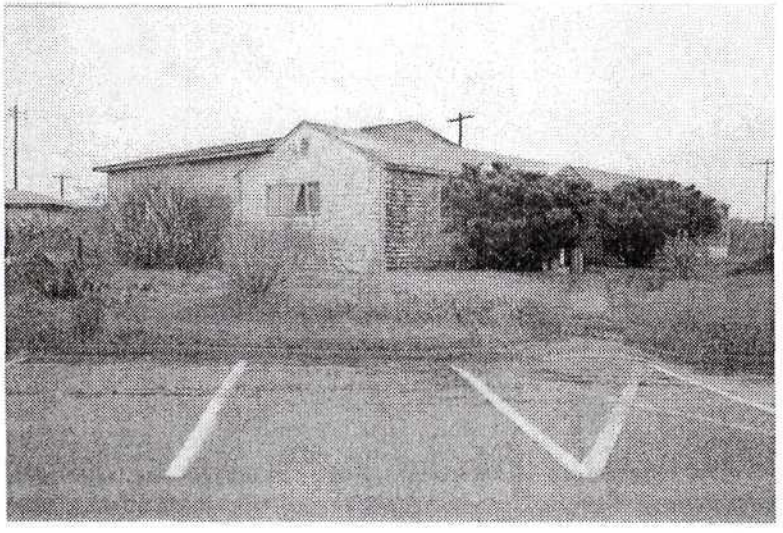
Building Number: T5

Original Name: **NCO Club / Mess**

Est. Year of Construction: **ca. 1951**

General Data

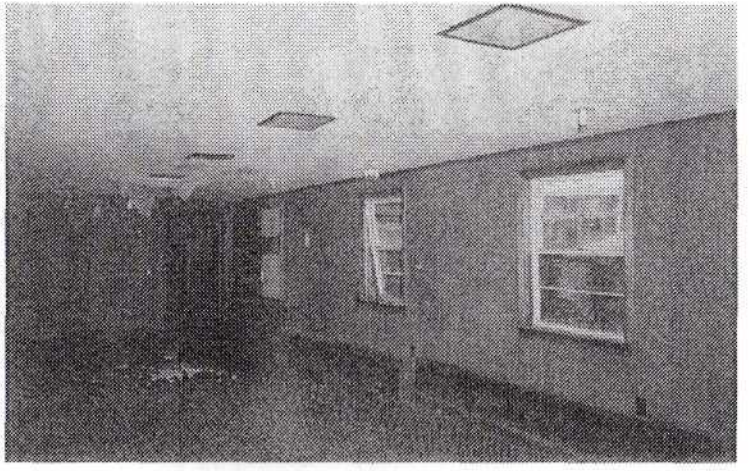
• Square Footage:	3,625
• # of Floors:	1
• # of Rooms:	12
• # of Bedrooms:	0
• # of Bathrooms:	2
• # of Kitchens:	0
• # of Laundry Rooms:	0
• # of Shower Rooms:	0
• Basement or Crawl Space?	Crawl space & slab-on-grade
• Ceiling Heights:	7'-5" throughout most 8'-6" in bar 10'-0" in main club space



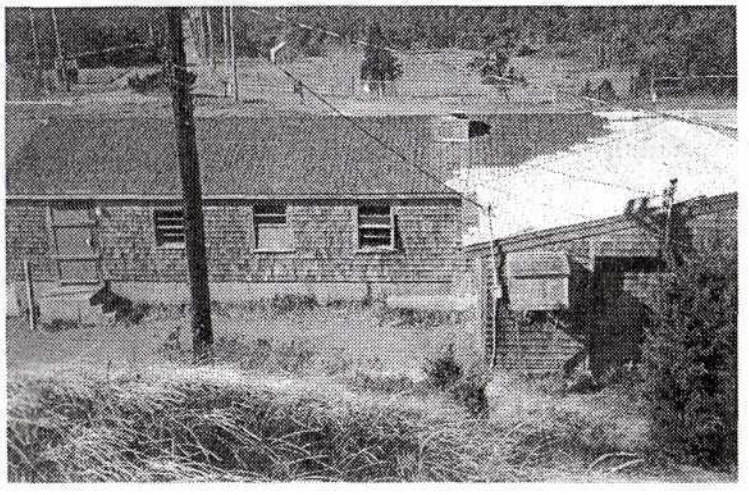
View from north.

History and Future Plans

Located on the southwest corner of the North Truro Air Force Station, Building #T5 was originally used as an NCO Club for officers. NPS anticipates use of this onetime "hot spot" as a community building, primarily housing exhibition, office and meeting spaces.



Interior – southwest wing.



View from southeast.

Exterior Conditions

- *Roof*

  Asphalt shingle roof is in **poor condition**. Several leaks have damaged interior finishes in the southwest wing. Recommend replacing entire roof over southwest wing and patching the north side to prevent further damage.

- *Wall*

  Exterior is sheathed in white cedar shingles that have suffered extensive water damage. "Cupped shingles", typ. Advise replacement of +/- 40% (+/- 1,000 SF) minimum to stabilize exterior wall condition. However, replacing all shingles is highly recommended. **Overall condition is fair/poor**.

- *Trim*

  Existing wood trim is in **poor condition**. Fascia, corner, door, and window trim, and sill trim adjacent to north entrance, is rotted and needs to be replaced (minimum 600 LF).

- *Foundation*

  The concrete masonry unit (CMU) foundation has cracks needing repointing and is in **poor condition**. All piers sit on sand; sand has been eroded around piers – condition is aggravated by "crowded" roof configuration at southeast elevation and location by dune. All CMU piers must be rebuilt or replaced with another foundation system (e.g., fill and new slab-on-grade to match adjacent S.O.G. wings). Several cracks and overall structural problems appear to be the cause of settlement and lack of control joints. Cracks need repointing. Concrete stair is in fair/ good condition.

Framing

Gable Roof: Wood 2 x 6 rafters @ 24" O.C. in **fair / good condition**. 2 x 6 top and bottom trusses at 22" O.C. at east wing; 2 x 4 top and bottom trusses at ell.
Wall: Wood 2 x 4 in **fair condition**. Wood sills are OK.
Floor: Wood 2 x 6 @ 24" O.C. spanning 5'-0", in **good condition**. 2 – 2 x 6 and 7½" x 5½" beams spanning 7'-0" on CMU piers. Slab on grade at southwest wing only.

Life Safety

The four means of egress from Building #T5 are well-distributed but are in **fair/ poor condition**. Advise that all doors be replaced. Two steps up to main entrance, i.e., not handicap accessible.

Interior Conditions

- *Ceiling*

  Interior ceiling is in **fair/poor condition**. Roof leaks have damaged the southwest wing and the main club space. Repair advised. Painted finish on the rest is peeling and needs refinishing.

- *Wall*

  Interior walls are primarily covered with wood paneling and wallpaper over drywall. Overall, the **condition is fair to good**. A hole in the southwest wall is the most critical damage aside from mildew.

- *Trim*

  All baseboard, door, and window trim is in **fair/good condition**. The paint is peeling in all cases. Refinishing of all is recommended.

- *Floor*

  Vinyl-asbestos tile (VAT) is the primary floor covering in this building. In some cases, carpeting is glued on top of it. Both the carpet and tile are in **fair/poor condition;** replacement of both is necessary.

Windows

Building #T5 has 10 windows, casement and double hung, in **poor condition**. Moisture has damaged the frames and sills, and most are missing hardware. The glazing is in fair condition for the short term, but full replacement is recommended.

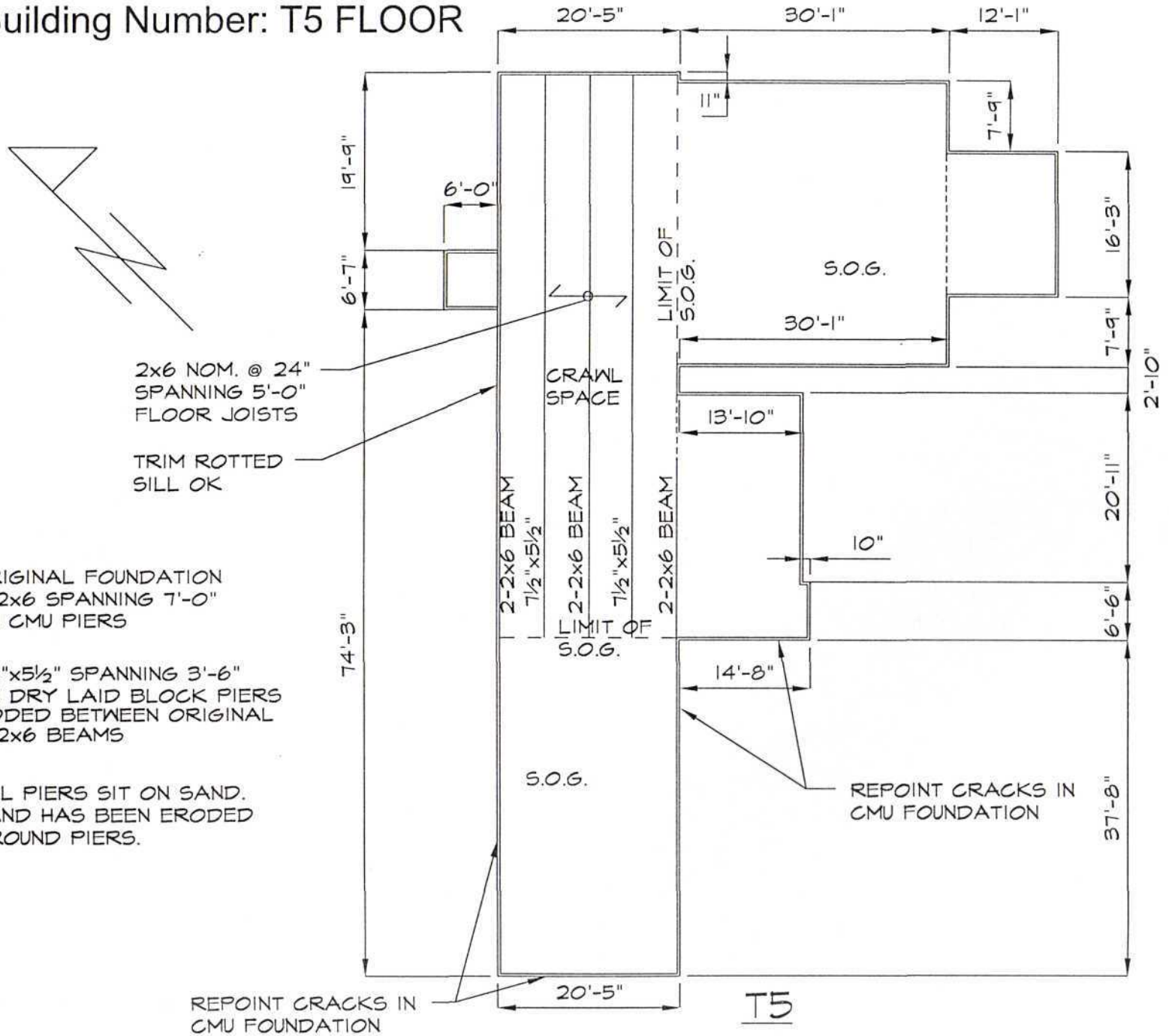
Doors

Interior doors are hollow core and wood panel in **fair condition**. Refinishing recommended. Exterior solid wood door does not fit opening and three metal doors are rusted. Replacement of all exterior doors recommended.

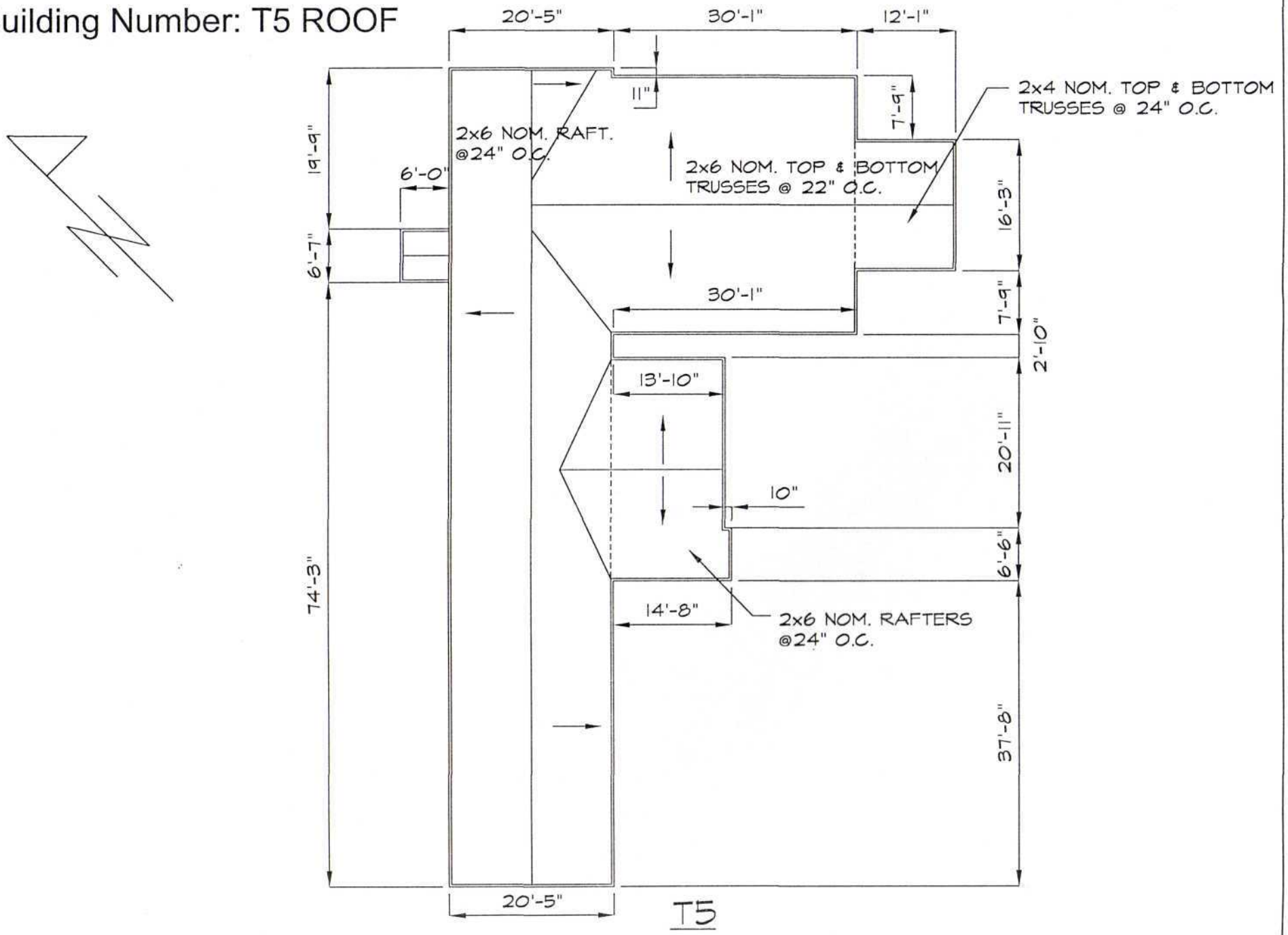
Reusable Fixtures

Plumbing fixtures are in poor to failed condition. Valves must be replaced and fixtures do not meet current codes.

Building Number: T5 FLOOR



Building Number: T5 ROOF



Building T-5

A. Building Classification
Existing NCO Club/Mess is assumed to be A-2 assembly use, a category including dance halls and nightclubs (and all rooms and lobbies connected thereto with a common means of egress and entrance). Proposed A-3 use anticipates "concentrated" assembly with chairs only, for meetings, lectures, entertainment or recreation purposes.

B. Occupancy and Fire Separations
Per 302.1.1, boiler and furnace rooms require 1-hour separation or an automatic fire suppression system. For A and B use groups, storage rooms > 50 sf and < 100 sf in area require 1-hour separation or automatic fire suppression system with smoke partitions; storage rooms > 100 sf require automatic fire suppression system with smoke partitions.

C. Type of Construction
Type 5B, wood-framed building without fire resistant wall construction (i.e., not "protected construction" per 702.1).

D. Floor Area
3,625 sf < 4,200 sf max. allowed for 5B construction, per Table 503.

E. Height and Number of Stories
1story; conforms to 1-story/20' max. for A-2 use (Table 503).

F. Occupancy
Proposed continuation of A assembly use with probable B office as accessory use. Change from current A-3 to A-2 use in 5B building results in change in Hazard Index of –1; Chapter 34 provisions are applicable.

Maximum floor area allowance for "concentrated" assembly is 7 nsf per occupant; 100 gsf per occupant for other areas. 318 + 14 = 332 occupants.

G. Exiting Requirements
Existing one-story building has four single-leaf exits. Per Table 1009.2, for A & B uses, egress width of doors, ramps and corridors per occupant is .2" without sprinkler system, .15" with sprinkler system. 332 occupants requires width increase of each means of egress component to 66.4" min. without sprinkler system or 49.8" min. with sprinkler system.

H. Loading Requirements
Partial slab-on-grade. Refer to plan diagrams for structural information.

I. Accessibility
Main entrance is two steps up; must be refurbished or adapted for universal accessibility. New accessible toilets, water fountain, etc. required.

BUILDING T5: REQUIRED ARCHITECTURAL AND STRUCTURAL REPAIRS

1. Demolish portion of north wing, including foundations	1,292	sf
2. New slab-on-grade foundation, including excavation, backfill	1,292	sf
3. New 1-story infill wing, complete (shell)	1,292	sf
4. Repair/replace framing and sheathing	150	sf
5. Remove and replace rotted trim	600	lf
6. Remove and replace cedar shingles	1,000	sf
7. Prepare and paint wood trim, soffits	1	job
8. Remove and replace exterior doors, hardware	4	ea
9. Remove windows and replace with metal-clad wood windows	10	ea
10. Repair and recondition window sills; paint	10	ea
11. Remove and replace asphalt shingle roof	44	sq
12. Install blown-in cellulose insulation at attic, R22	3,625	sf
13. Install blown-in cellulose insulation at walls, cut & patch	1,000	sf
14. General interior cleanout, mildew treatment	2,333	sf
15. Patching and floor, wall and ceiling finishes (gfa)	2,333	sf
16. Repair/replace/paint interior doors & trim	1	job
17. New toilet and mechanical room enclosures, toilet accessories	1	job
18. Refurbish main entrance for universal accessibility (path, ramp)	1	job

IV MECHANICAL, ELECTRICAL, FIRE PROTECTION AND PLUMBING REPORTS – BUILDING NUMBER T5

A. HEATING, VENTILATING AND AIR CONDITIONING

1. Existing Conditions

a. Heating Media
   1) Heating system media provided from aboveground, low steam distribution systems that have been disconnected from inactive boiler plant.

b. Heating Distribution
   1) Fin-tube radiation elements (steel 4"x4" fins and 1" or 1½") and steel tube piping throughout the building.

c. Bar Cooling
   1) Bar area provided with wall air conditioning unit Electric (Sears Coldspot)

d. Heating Return
   1) Heating condensate return piping is piped within the crawlspace and piped to inactive condensate return pump.

e. Large Club
   1) Large club area provided with two wall types air conditioning units (electric) and heated by a "Modine" steam propeller unit heater with wall louvered for supply and return air louvers.

f. Dining
   1) Dining wall air conditioning unit (Electric) and wall steam radiation.

g. Office
   1) Office wall air conditioning unit (Electric) and wall steam radiation.

h. Toilet
   1) Toilet provided with exhaust fan and no heating.

i. Return Pump
   1) Condensate return pump in bulkhead inactive.

j. Ventilation
   1) No central ventilation provided.

2. Recommended Systems (without air conditioning)

a. Heating Media
   1) Hot water heating plant provided with propane gas-fired boilers with propane tanks located outside. Additional space within building will be required for heating plant, boilers, pumps, et cetera

b. Heating Distribution
   1) Forced hot water heating distribution piping systems, provided with fin-tube radiation and individual space controls.

c. Ventilation
   1) Due to the high ventilation air volume requirements (concentrated occupancy of 332) a heating and ventilating unit and associated exhaust fan will be needed.

d. Air Handling Unit
   1) An estimated 5,000 cubic feet per minute air-handling unit (ventilation) located within the attic space with ventilated air distribution ductwork throughout the facility.

e. Exhaust
   1) New toilet exhaust air system.

f. Miscellaneous Heating
   1) Heating of vestibules provided with cabinet unit heaters.

g. Domestic Hot Water
   1) Refer to plumbing for domestic hot water services.

3. Recommended Systems (with Central Air Conditioning)

a. Miscellaneous Items
   1) Same recommendations as without air conditioning, items a and c.

b. Forced Hot Water Heating
   1) Distribution to fin-tube radiation and space reheat controls.

c. Air Conditions
   1) Heating and ventilation air-handling unit will be substituted with an 8000 cubic feet per minute central air conditioning unit, with individual space hot water reheat coils.

d. Cooling Media
   1) The cooling media will be chilled water from an outside, air-cooled, electric water chiller and associated pumps and pumping system.
e. Automatic Temperature Controls
   1) Space control (electric/direct digital) shall be provided for hot water reheat coils interlocked with exterior fin tube radiation.
f. Economizer
   1) Systems shall be provided with 100% economizer with Enthalpy controls, exhaust fan for free cooling with all outside air.
g. Exhaust Air
   1) New toilet exhaust
h. Kitchen Exhaust
   1) New kitchen fan.
i. Domestic Hot Water
   1) Refer to plumbing for domestic hot water services.

4. Miscellaneous Heating

a. Building heating with ventilation systems is estimated at 680 MBH and estimated cooling requirements of 46 tons of cooling.
b. Gallery, central museum-type environmental conditions not provided.
c. Refer to supplement section: Sustainable Passive Solar and Wind Energy Technologies

B. PLUMBING

1. Existing Conditions:

a. Plumbing Fixtures
   1) Mens
      a) (1) lavatory (missing), wall hung
      b) (2) urinals (no flush valves)
      c) (1) water closet, floor mounted with flush valve
   2) Womens
      a) (2) lavatories (one missing), wall hung
      b) (2) water closets, floor mounted with flush valve
      3) Bar
         a) Abandoned connections for missing sink and dishwasher
b. Water service
   1) Not found. Assume below floor in crawlspace.
c. Water Heating
   1) MORE FLOW – Model EFR52DB, 52-gallon electric (9 kW, 1 phase) storage water heater (±1983).
d. Domestic Water Distribution
   1) Runs primarily in crawlspace below.
e. Sanitary Distribution
   1) Not found. Assume the piping runs below floor in crawlspace. Vent piping runs in accessible attic space.
f. Miscellaneous (beyond assumptions)
   1) All plumbing fixtures were in poor to failed condition.
   2) Water heater, domestic piping, et cetera have all exceeded their intended service life.
   3) No floor drains were present in toilet rooms or water heater room.
   4) Exterior wall hydrants were not present on this building.

2. Recommendations (Social Center with Meeting Space, Gallery, and Office Space):

a. Plumbing Fixtures
   1) 159 Men (Assembly)
      a) (1) water closet
      b) (1) urinal
      c) (1) lavatory
      d) (1) floor drain
      e) (1) hose bibb
   2) 159 Women (Assembly)
      a) (4) water closets
      b) (1) lavatory
      c) (1) floor drain
      d) (1) hose bibb
   3) 7 Men (Office)
      a) (1) water closet
      b) (1) lavatory
   4) 7 Women (Office)
      a) (1) water closet
      b) (1) lavatory

5) General building
   a) (1) drinking fountain
   b) (1) janitor's sink
   c) (3) exterior wall hydrants
   d) (2) mechanical room floor drains
   e) (2) mechanical room hose bibbs

b. Water Service
   1) A new 2-inch service would be required to accommodate the proposed fixtures. The service would enter into the crawlspace below the floor in an accessible location.

c. Water Heating
   1) The hot water load for the lavatories and janitor's sink would be very low. A small, 10-gallon electric storage heater with low recovery electric input would be recommended. The heater would be located on a shelf within the janitor's closet. (Assume close to toilet rooms).
   2) Although not recommended, the domestic hot water could also be supplied from the building heating system boiler.

d. Domestic Water Distribution
   1) New cold water piping would run either below the floor in the crawlspace (not buried in new slab/filled-in crawlspace) with freeze protection cable or above the ceiling (below the insulation) in the attic space. Hot water piping would be limited to toilet room area only and within the partitions between the heater and fixtures.

e. Sanitary Distribution
   1) A new, 4-inch sanitary service would be required to accommodate the proposed fixtures. Piping would run below the floor within the crawlspace and buried in the new slab (filled-in crawlspace). A new, 4-inch vent would extend through the roof above the toilet area.

f. Propane System
   1) A single bottle point-of-use system would be installed by a supplier to accommodate the building heating system.
   2) A new gas main will follow the domestic water route to the boiler room.

g. Miscellaneous
   1) Other than typical notes on water conservation, additional sustainability options are not available.

C. FIRE PROTECTION

1. Recommendations:

a. None required by code. However, the policy of the National park service is to maximize life safety. An automatic sprinkler system installation will also help to reduce code requirements such as fire separations, exiting, etcetera Therefore, an automatic sprinkler system would be recommended for this building due to the proposed use (i.e., social center).
b. A dry automatic fire suppression system would be installed due to extensive unheated areas.
c. A new, 4-inch service with double check valve assembly would be necessary.
d. A new dry alarm check valve with related trim would be necessary.
e. Piping would be schedule 40 steel with screwed fittings and mechanical fittings and be sized for light hazard occupancy per NFPA 13 Standards.
f. Sprinklers would be installed throughout the crawlspace, first floor and attic space all as one zone.

D. ELECTRICAL

1. Existing Conditions:

a. Building Electric Service:
   1) 200 ampere, 120/240 volt, single phase, 3-wire overhead service drop to a Square D, 200 ampere, 40 pole, main panel with main fuse plug missing. Panel contains branch circuit breakers. Panel is in poor condition. Service has been disconnected.

b. Electric Sub-Panel:
   1) Square D, 150 ampere, 30 poles, with branch circuit breakers. Panel is in poor condition.

c. Fire Alarm System:
   1) Thomas security system panel, hard wired, 1 zone with local alarm at panel location in lobby and horn located outside on building. There are ProtectoWire pull stations located at the main entries at the front and rear of the building. There are heat detector buttons in all areas. The system is not operational and in poor condition.

d. Lighting:
   1) Fixtures are square, recessed, and incandescent with lenses, which are in poor condition.
   2) Fixtures in the main hall have been removed.

e. Emergency Lighting:
   1) Central batteries with remote lighting heads. The system is not operational. Batteries are dead.
   2) Exit signs are incandescent and are in poor condition.

f. Exterior Lighting:
   1) Incandescent type 120 volts, switch controlled. Fixtures are in poor condition.

g. Wiring Devices:
   1) Grounding type receptacles, color: brown. Devices and coverplates are in fair to poor condition.

h. Telephone System:
   1) System has been disconnected. Interior wiring is in poor condition.

2. Recommendations:

a. All systems are in fair to poor condition and must be replaced for the building to be habitable for any use. See Part III. Typical Mechanical, Electrical, Fire Protection and Plumbing Items.
b. Refer to "Sustainability Supplement" section.

We have listed in Table 1 the location and estimated quantity, by square foot (sf), linear foot (lf), or other appropriate unit, of each type of ACBM identified at the site. We have also provided asbestos location drawings in Appendix B.

TABLE 1. • List Of Materials Testing Positive For Asbestos

Building T- 5, Truro Air Base, North Truro, Massachusetts

Type of Material	Location	Quantity
Dark brown 9"x 9" floor tile	Function room	840 sf
Brown 9"x 9" floor tile and associated mastic adhesive (two layers)	Bar area, front foyer, corridor, room 1, room 2, room 3, room 4, room 5 and hot water heater room.	1,518 sf
Green 12"x12" floor tile overlying brown 9"x 9" floor tile and associated mastic adhesive	Men's and Ladies' bathrooms	160 sf

In Table 2, all materials that tested negative for asbestos are listed, including the locations where these materials were observed and the corresponding bulk sample reference number(s).

TABLE 2. • List Of Materials Testing Negative For Asbestos

Building T- 5, Truro Air Base, North Truro, Massachusetts

Type of material	Location(s) observed	Sample number(s)
Black mastic adhesive underlying dark brown 9"x 9" floor tile	Function room	T-5-02A
Black mastic adhesive underlying 9"x 9" green floor tile (top layer)	Front foyer	T-5-04A
Black mastic adhesive underlying 9"x 9" brown floor tile	Front foyer	T-5-06A
White gypsum wallboard	Throughout	T-5-11A, T-5-11B, T-5-11C
White joint compound associated with gypsum wallboard	Throughout	T-5-12A, T-5-12B, T-5-12C
Black baseboard and associated brown mastic adhesive	Men's and Ladies' room	T-5-12A, T-5-13A
Black mastic adhesive underlying green 12"x12" floor tile	Men's and Ladies' room	T-5-16A
Tan vapor barrier floor paper	Room 1	T-5-17A
Black 3-tab roof shingle	Main roof	T-5-18A
Black tar paper under 3-tab roof shingle	Main roof	T-5-19A
Black tar paper	Under exterior wood shingles throughout	T-5-20A
Black tar paper behind wall	Freezer area	T-5-21A

2.0 Conclusions and Recommendations

On the basis of our findings, we offer the following conclusions and recommendations:

1. Only nonfriable ACBM were identified at the site. Should the building be renovated or demolished, removal of the ACBM will be necessary. Abatement of all nonfriable ACBM that will be made friable by demolition activities must be performed before building demolition. This work should be conducted by a licensed Asbestos Abatement Contractor in accordance with a project design prepared by a certified Abatement Project Designer.
2. If any suspect ACBM are identified at a later date that are not addressed in this inspection report, they should be assumed to be ACBM unless appropriate sampling and analysis demonstrates otherwise.
3. Develop a site-specific operations and maintenance (O&M) program for properly maintaining ACBM that will remain in place. Such a program would include a site-specific O&M plan, training of workers who may impact ACBM, periodic inspection of locations where ACM is present, and other applicable guidelines and procedures.

VHB XRF Field Testing Results

Site Access: Yes
Demo Permitted?: Yes
Project# 06780
Location: Building #T-5

Date 11/4/99
Page 1 of 1
Project Name: N. Truro AFS
Inspector: TMD

Location	Surface Tested	Substrate	Concentration (mg/cm^2)	Estimated Quantity
Function Room	Tan and white papered wall	SR	< 0.1	
Foyer	White ceiling	SR	< 0.1	
Women's Room	Green stall divider	Metal	< 0.1	
Men's Room	White stall divider	Metal	< 0.1	
Rear Office	White window sash	Wood	< 0.1	
	White ceiling	SR	< 0.1	
Rear Storage Room	Green wall	SR	< 0.1	
Vestibule	Brown wall	Wood	< 0.1	
Exterior	Brown window casing	Wood	< 0.1	
	Brown window sash	Wood	< 0.1	
	Brown trim	Wood	< 0.1	
	Brown upper trim	**Wood**	**2.0**	**300 SF**
	Brown eve	Wood	< 0.1	
	Brown bulkhead door	Wood	< 0.1	
	Brown door (rear)	Metal	< 0.1	
Walk-In Freezer	Brown wall (exterior)	Wood	< 0.1	

*LBP components only. Limit of detection of NITON XRF is **< 0.1 mg/cm²**) SR=Sheet Rock Block=Cinder Block SF=Square Feet

VHB **Oil and Hazardous Materials (OHM) Inventory**

Project: Former Air Force Station
Location: North Truro, MA

Project # 06780

Location	Waste Type	Container Type	Volume of Contents	Quantity	Comments
Building #T-5					
	CFCs	Window Air Conditioner		5	All in-place - 3 are industrial size
	CFCs	Walk-in freezer compressors		3	
	6-volt batteries	Plastic		9	3 Emergency lights