

Building Number: 16

Original Name: Recreation/ Multi-Purpose

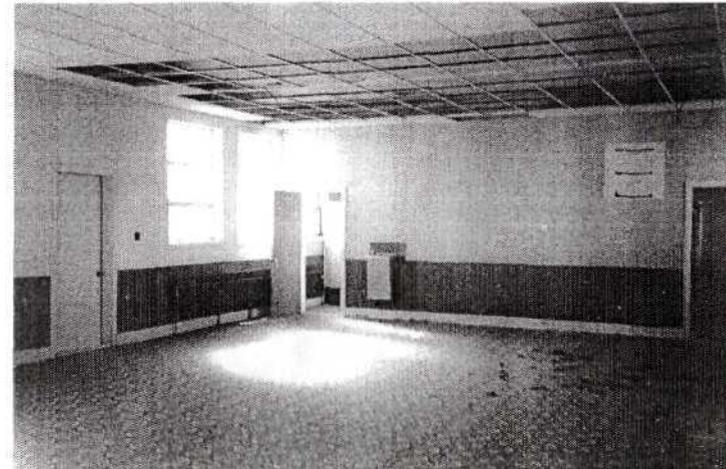
Est. Year of Construction: 1951

General Data

- Square Footage: 1,960
- # of Floors: 1
- # of Rooms: 3
- # of Bedrooms: 0
- # of Bathrooms: 1
- # of Kitchens: 0
- # of Laundry Rooms: 0
- # of Shower Rooms: 0
- Basement or Crawl Space? Crawl space
- Ceiling Heights: 11'-0"
10'-0" to acoustic tile (ACT)

History and Future Plans

Building #16 was originally used as a recreation/ multi-purpose space. This open-plan building, located on the center quadrangle of the base, receives abundant natural light. NPS anticipates use of this building as classroom/meeting, office or studio space.



Interior.



View from northeast.



View from southwest.

Exterior Conditions

- *Roof*
Asphalt shingle roof is in **fair condition**. Advise to keep and maintain as is.
- *Wall*
Exterior is sheathed in white cedar shingles that have been weathered. **Condition is poor**. Recommend that south and east elevations be replaced (+/- 1,100 SF).
- *Trim*
Wood trim in **fair condition**. Advise replacement of rotted eave and corner trim (+/- 125 LF).
- *Foundation*
The foundation is concrete masonry unit (CMU) with poured concrete steps. 16" sq. CMU piers.

Framing

Hip Roof: 15-degree slope; wood 2 x 8 rafters @ 24" O.C.; 2 x 8 C.J. and 3½" x 11¼" hips in **good condition**. Insulation above ceiling.

Wall: Wood 2 x 4 @ 16" O.C. in **good condition**.

Floor: 2 x 8 @ 24" O.C. over 7¼" x 9½" beams spanning between 16" x 16" CMU piers.

Life Safety

The four means of egress from Building # 16 are in **fair/ poor condition**. Advise that all doors be replaced. Two steps up to main entrance - not handicap accessible.

Interior Conditions

- *Ceiling*
Interior ceiling is in **fair condition**. Cracks and holes exist where electrical fixtures were removed. Acoustic ceiling tile (ACT) missing. Advise repair on existing ceiling.
- *Wall*
Interior finishes, including paint, wallpaper and wood paneling, are in **fair condition**. Water damage to interior wall needs to be repaired.
- *Trim*
All baseboard, door, and window trim is in **fair/good condition**. Advise that all pieces be refinished.
- *Floor*
Vinyl tile in bathroom is in **good condition**, **poor condition** in utility room. Carpet covers a plywood subfloor in the two main spaces. **Condition is fair**; advise replacement of carpet and tile.

Windows

Building #16 has 20 windows, all awnings with the bottom panel operable. Aluminum is in **fair condition** and glazing in **poor condition**. Replacement of all is recommended.

Doors

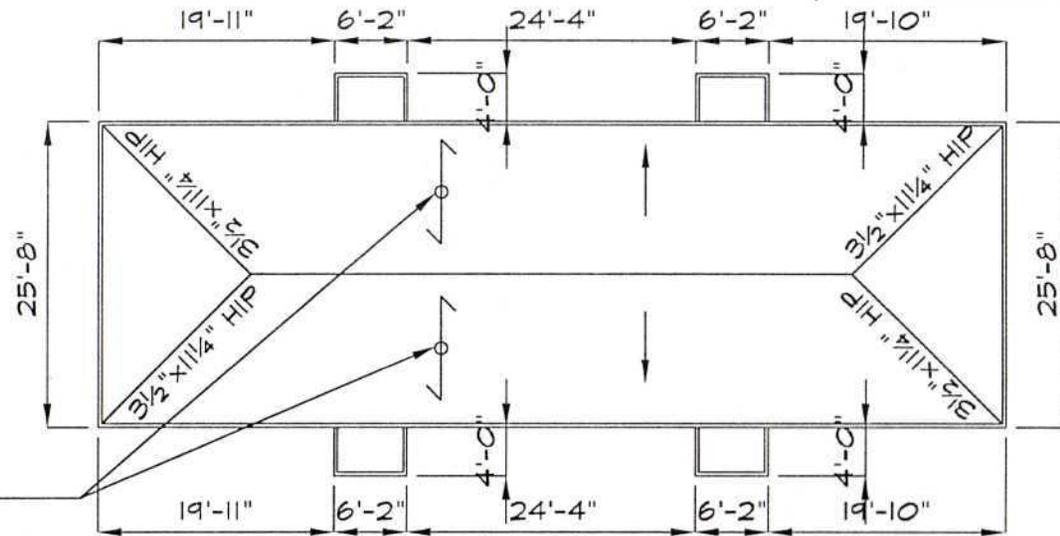
Interior doors are hollow core wood with bottom louvers in **fair/ good condition**. Refinishing advised. Four wood flush doors to exterior in **poor condition**. All have mildew/ moisture damage and rusted hardware. Replacement is advised.

Reusable Fixtures

All bathroom fixtures are in fair to good condition, but code requirements (e.g., low-flow requirements) may dictate replacement. Lavatory may be refurbished with new hardware, etc. Refer to Mechanical/Electrical/Plumbing section.

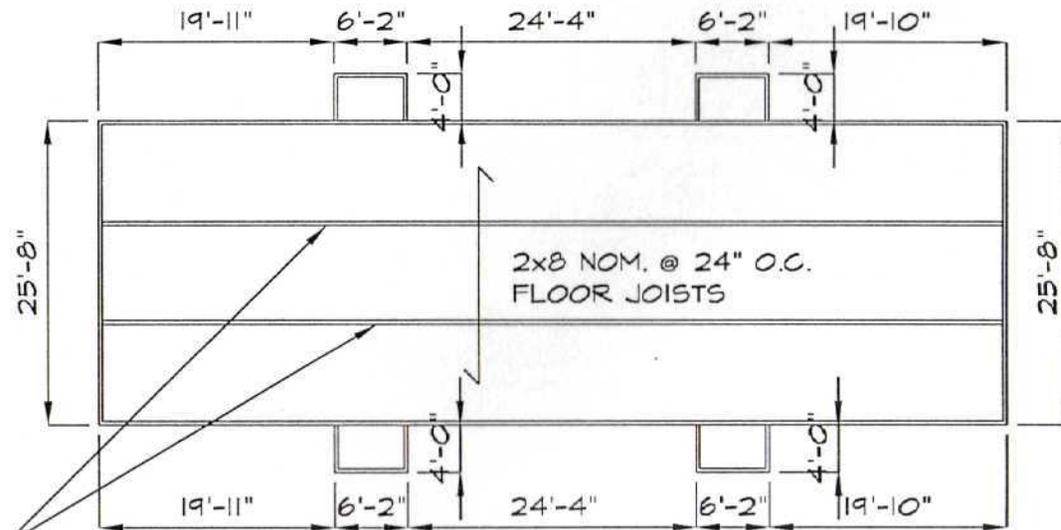
Building Number: 16

ROOF
15° ROOF SLOPE



2x8 NOM.
RAFTERS
2x8 NOM. C.J.
VERTICAL 2x4 NOM.
TO CENTER OF C.J.
BOLTED TO RAFTERS

16 ROOF



7/4"x9 1/2" BEAM
SPANNING 10'-0" BETWEEN
16"x16" CMU PIERS

16 FIRST FLOOR

Building 16

A. Building Classification

Existing Recreation/Multi-Purpose Building is assumed to be A-3 assembly use, a category including galleries, museums, lecture halls without fixed seats, libraries and recreation centers. Proposed A-3 meeting use anticipates "unconcentrated" assembly with chairs and tables. Proposed alternative uses are for office or studio space.

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

1,960 sf < 4,200 sf max. allowed for 5B construction, per Table 503.

E. Height and Number of Stories

1 story; conforms to 1 story/20' max. for A-3 use (Table 503).

F. Occupancy

Proposed continuation of A-3 assembly use, or conversion to B office use results in change in Hazard Index of +1 or -1, respectively. Chapter 34 provisions are applicable for business use but limited for assembly use; any alteration or change in occupancy within an assembly use group shall

comply with the requirements of the State Code for new construction.

Maximum floor area allowance for "unconcentrated" assembly is 15 nsf per occupant; 100 gsf per occupant for business areas: 131 max. occupants for meeting space; 20 for shop or office space.

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. Existing egress widths are adequate for 20-131 occupants.

H. Loading Requirements

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 #16: REQUIRED ARCHITECTURAL AND STRUCTURAL REPAIRS

1. Repair/replace framing and sheathing	150	sf
2. Remove and replace rotted trim	125	lf
3. Remove and replace cedar shingles	1,100	sf
4. Prepare and paint wood trim, soffits	1	job
5. Remove and replace exterior doors, hardware	4	ea
6. Remove windows and replace with metal-clad wood windows	20	ea
7. Repair and recondition window sills; paint	20	ea
8. Remove and replace asphalt shingle roof	1	sq
9. Install blown-in cellulose insulation at attic, R22	1,960	sf
10. Install blown-in cellulose insulation at walls, cut & patch	1,740	sf
11. General interior cleanout, mildew treatment	1,960	sf
12. Patching and floor, wall and ceiling finishes (gfa)	1,960	sf
13. Repair/replace/paint interior doors & trim	1	job
14. New toilet and mechanical room enclosures, toilet accessories	1	job
15. Refurbish main entrance for universal accessibility (path, ramp)	1	job

IV MECHANICAL, ELECTRICAL, FIRE PROTECTION AND PLUMBING REPORTS – BUILDING NUMBER 16

A. HEATING, VENTILATING AND AIR CONDITIONING

1. Existing Conditions

- a. Heating Media
 - 1) Heating systems provided from aboveground, low-pressure steam distribution system that has been disconnected from inactive boiler plant.
- b. Heating Distribution
 - 1) (6) 6'-0" fin-tube radiation elements (steel 4"x4" fins and 1" or 1½" steel tube) piping throughout the building at exterior walls.
- c. Controls
 - 1) One existing controls valve.
- d. Heating Return
 - 1) Heating condensate return piping is piped within the building crawlspace and piped to condensate pump located in a pit.
- e. Domestic Hot Water
 - 1) Domestic hot water requirement provided via electric.
- f. Toilet Exhaust
 - 1) No toilet exhaust fan.

2. Recommendations

- a. Heating Media
 - 1) Hot water heating plant, provided with propane gas-fired boiler 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 heater with distribution piping systems, provided with fin-tube radiation and individual space controls.
- c. Ventilation

- 1) Estimated 1,000 cubic feet per minute heating and ventilating air unit provided for ventilation air requirement, and associated distribution ductwork.
- d. Toilet Exhaust
 - 1) New toilet exhaust systems.
- e. Miscellaneous Heating
 - 1) Heating of vestibules and exits provided with wall mounted cabinet unit heaters.
- f. Domestic Hot Water
 - 1) Refer to plumbing for domestic hot water services.

3. Miscellaneous

- a. No central air conditioning is scheduled for this building. However, window (electric) type units may be considered for office areas.
- b. Estimated building heating requirements with ventilation is 175 MBH.
- c. Studio space: central museum-type environmental conditions are not provided.
- d. Refer to supplemental section Sustainable Passive Solar and Wind Energy Techniques.

B. PLUMBING

1. Existing Conditions

- a. Plumbing Fixtures
 - 1) One single toilet room area
 - a) (1) Water closet, floor mounted, flush valve
 - b) (1) Urinal
 - c) (1) Lavatory, counter mounted with cabinet
 - d) (1) Shower stall, free standing residential unit
 - e) (1) Electric water cooler
- b. Water Service
 - 1) A 1½-inch water service rises into the water heater room from the crawlspace below.
- c. Water Heating
 - 1) Rheem, Model 661G-52D, 66-gallon electric (1500 W, 1 phase, 240 V) storage water heater. (1981)

- d. Domestic Water Distribution
 - 1) The water service runs in the crawlspace below the first floor. Hot and cold water distribution runs in the crawlspace and rises in the partitions of the toilet room and is exposed in the water heater room.
- e. Sanitary Distribution
 - 1) None found. Assume the piping runs below floor within the crawlspace. Vent piping runs in the attic space above the toilet room and rises up through roof.
- f. Miscellaneous (beyond assumptions)
 - 1) All fixtures were in fair to good condition. However, the water closet and urinal exceed low flow requirements. The shower could not be moved without damaging the unit due to age. The water cooler does not comply with CFC, water and lead regulations and has exceeded its intended service life. Pending results of careful demolition, the lavatory may be refurbished and re-used at another location with new waste, trim, and faucet.
 - 2) The water heater has exceeded its intended service life.
 - 3) No floor drains were present in the toilet room or the water heater room.
 - 4) Exterior wall hydrants were not present on this building.

2. Recommendations (Meeting/Office or Studio Space)

- a. Plumbing Fixtures
 - 1) 65 Men (Assembly)
 - a) (1) water closet
 - b) (1) lavatory
 - 2) 65 Women (Assembly)
 - a) (2) water closets
 - b) (1) lavatory
 - c) (1) floor drain
 - d) (1) hose bibb
 - 3) 10 Men (Office)
 - a) (1) water closet
 - b) (1) lavatory

- 4) 10 Women (Office)
 - a) (1) water closet
 - b) (1) lavatory
- 5) 10 Men (Studio)
 - a) (1) water closet
 - b) (1) lavatory
 - c) (1) shower (optional per tenant)
- 6) 10 Women (Studio)
 - a) (1) water closet
 - b) (1) lavatory
 - c) (1) shower (optional per tenant)
- 7) General Building (for either use)
 - a) (1) drinking fountain
 - b) (1) janitor's closet
 - c) (2) exterior wall hydrants
 - d) (1) Mechanical room floor drain
 - e) (1) Mechanical room hose bibb
- b. Water Service
 - 1) A new 1½-inch service would be required to accommodate the proposed fixtures for meeting/office space. Only a 1¼-inch service would be required if this space were used as a studio. A 1½-inch will be carried in the cost. The oversized main for the studio would allow tenant to connect wet equipment. The service would enter the crawlspace below the first floor in an accessible location.
- c. Water Heating
 - 1) Meeting/Office Space
 - a) 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 the toilet rooms).
 - 2) Studio Space
 - a) If we assume that the optional showers **would be installed** as a tenant fit-up, the base building water heater **would be the same** as meeting/office space. The showers along with a gas fired storage water heater **would all be provided by the tenant**.
 - 3) Although not recommended, 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 with freeze protection cable or above the ceiling (below the insulation) in the attic space. Hot water piping would be limited to the toilet room area only and within partitions between the heater and fixtures.
- e. Sanitary Distribution
 - 1) A new 4-inch sanitary service would be required to accommodate the proposed fixtures for either proposed use. Piping would run below the floor within the 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 and if provided by the tenant, a storage type water heater.
 - 2) A new gas main will follow the domestic water route to the boiler room.
 - 3) Review building 9 propane section for possible gas source via a bulk tank.
- g. Miscellaneous
 - 1) Other than typical notes on water conservation or combining gas storage, additional sustainability options are not available.

C. FIRE PROTECTION

1. Recommendations

- a. None required by code. However, pending the tenant, or building occupancy, an automatic sprinkler system could be installed by the tenant during the fit-up. An automatic sprinkler system installation will also help to reduce code requirements such as fire separations, exiting, et cetera

D. ELECTRICAL

1. Existing Conditions:

- a. Building Electric Service:
 - 1) 100 ampere, 120/240 volts, single phase, 3-wire, overhead service drop from pole A-20/2 to a Square D, 100 ampere load center with 20 branch circuit breakers. Load center is in poor condition with rusted interior. Service has been disconnected.
- b. Fire Alarm System:
 - 1) None.
- c. Lighting
 - 1) East Side: Pendant, fluorescent, 4-lamp with louvers
 - 2) West Side: All fixtures have been removed.
- d. Emergency Lighting:
 - 1) None.
- e. Exterior Lighting:
 - 1) Incandescent porcelain sockets located at building entries, 120 volt, switch controlled. Fixtures are in poor condition.
- f. Wiring Devices:
 - 1) Grounding type receptacles, color: brown. Devices and coverplates are in fair to poor condition.
- g. Telephone System:
 - 1) System enters the building underground. 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 16, Truro Air Base, North Truro, Massachusetts

Type of Material	Location	Quantity
Tan 12"x12" floor tile and associated mastic adhesive overlying two layers of brown 9"x 9" floor tile (3 layers separated by plywood)	Bathroom and water heater room	170 sf
Brown 9"x 9" floor tile and associated mastic adhesive overlying two layers of brown 9"x 9" floor tile (3 layers separated by plywood)	West and east side main office areas	1,460 sf
Pipe insulation debris	Crawl space under west office area	1 lf
Gray window caulking	Between window and wood frame opening	21 total

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 16, Truro Air Base, North Truro, Massachusetts		
Type of material	Location(s) observed	Sample number(s)
Tan 12"x12" floor tile	Bathroom, hot water heater room	16-01A
Black mastic underlying middle layer of brown floor tile	Throughout	16-06A
Black tar paper under bottom layer of floor tile	Throughout	16-08A
Tan mastic behind wood paneling	west main office area	16-09A
White gypsum wallboard	Throughout	16-10A, 16-10B, 16-10C
White joint compound associated with gypsum wallboard	Throughout	16-11A, 16-11B, 16-11C
Tan carpet mastic adhesive	Office area	16-12A
Gray pipe fitting insulation	Hot water heater room	16-14A
Black tar paper	Underlying exterior wood siding shingled	16-16A
Gray window glazing	Throughout	16-17A

2.0 Conclusions and Recommendations

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

1. Both friable and nonfriable ACBM were identified at the sites. Should the buildings will be renovated or demolished, removal of the ACBM will be necessary. Abatement of all friable as well as 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. The two layers of ACM floor tile are separated by plywood flooring and would require removal of the plywood to access all layers of flooring. The associated plywood must be treated as ACM due to cross-contamination from the floor tile mastic adhesive.
3. 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.
4. 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 #16

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
West Side				
Main Room	White window casing	Wood	< 0.1	
	White door to exterior	Wood	< 0.1	
	White wall	SR	< 0.1	
Bathroom	White baseboard	Wood	< 0.1	
	White window casing	Wood	< 0.1	
	White door	Wood	< 0.1	
Hot Water Heater Room	White window casing	Wood	< 0.1	
East Side				
	Green wall	Wood	0.3	
	Light green window casing	Wood	0.1	
	Light green baseboard	Wood	< 0.1	
	Light green door	Wood	0.8	
	Light green door casing	Wood	< 0.1	
Exterior	Brown trim	Wood	8.0	30 SF
	Brown exterior door	Wood	10.9	2
	Brown eave	Wood	10.2	50 SF
	Brown upper trim	Wood	6.1	50 SF

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

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 Content	Quantity	Comments
Building #16					
	Mercury	Fluorescent bulbs		24	4 foot
	PCBs	Light ballasts		12	