

APPLICABLE BUILDING CODES

- | | |
|-----------------|--|
| 1. IBC | INTERNATIONAL BUILDING CODE 2012 |
| 2. UFC 3-600-01 | FIRE PROTECTION ENGINEERING FOR FACILITIES, 1 MAR 2013 |
| 3. UFC 1-200-01 | GENERAL BUILDING REQUIREMENTS, 1 JULY 2013 |
| 4. NFPA 13 | INSTALLATION OF SPRINKLER SYSTEMS 2013 |
| 5. NFPA 72 | NATIONAL FIRE ALARM CODE 2013 |
| 6. NFPA 101 | LIFESAFETY CODE 2015 (LSC) |

USE GROUP/OCCUPANCY

H-2 HIGH-HAZARD (IBC 307.1)
 F-1 MODERATE HAZARD FACTORY INDUSTRIAL (IBC 306.1)
 GENERAL HAZARD INDUSTRIAL OCCUPANCY (LSC 6.1.2.1 & 40.1.4.1)

FIRE PROTECTION SYSTEMS

WET PIPE SPRINKLER SYSTEM
 FIRE ALARM SYSTEM.

CONSTRUCTION TYPE: TYPE II-B

ALLOWABLE AREA & HEIGHT

BUILDING IS SEPARATED, MIXED USE GROUPS H-2 AND F-1
 HEIGHT AND AREA LIMITS BASED ON H-2 USE GROUP
 BASIC AREA (IBC TABLE 503) 650.0 SQ. M
 BASIC ALLOWABLE STORIES/HEIGHT: 1 / 16.75 M

ACTUAL AREA & HEIGHT

TOTAL FOOTPRINT FLOOR AREA 302.8 SQ. FT
 TOTAL BUILDING HEIGHT 1 STOREY / 6.0 M

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS

(IBC TABLE 601, TYPE II-B CONSTRUCTION)

STRUCTURAL FRAME,	
INCL. COLUMNS, GIRDERS & TRUSSES	0 HR
BEARING WALLS, INTERIOR & EXTERIOR	0 HR
NON-BEARING WALLS, INTERIOR & EXTERIOR	0 HR
FLOOR CONSTRUCTION	0 HR
ROOF CONSTRUCTION	0 HR

EXTERIOR WALLS

EXTERIOR FIRE EXPOSURE BASED ON SEPARATION DISTANCE (TYPE II-B)

SEPARATION DISTANCE	GROUP H-2
< 1.5 M	3 HOUR
> 1.5 M AND < 3.0M	2 HOUR
> 3.0 M AND < 9.1 M	1 HOUR
> 9.1 M	0 HOUR

THE BUILDING IS LOCATED MORE THAN 15.25M FEET FROM ANY SURROUNDING STRUCTURES THEREFORE NO EXTERIOR WALL RATINGS BASED ON SEPARATION DISTANCE ARE REQUIRED.

INTERIOR FIRE RESISTANCE RATING REQUIREMENTS

H-2 OCCUPANCIES SHALL BE SEPARATED FROM ALL OTHER OCCUPANCIES. 2-HOUR SEPARATION IN SPRINKLERED BUILDING (IBC 508.4)

INTERIOR FINISH CLASSIFICATION LIMITS (BASED ON INDUSTRIAL OCCUPANCY WITH PERMITTED REDUCTION FOR SPRINKLERS):

OTHER SPACES (TABLE A10.2.2)	MINIMUM CLASS C
FLOOR FINISH	NO MINIMUM REQUIREMENT

MEANS OF EGRESS

MEANS OF EGRESS AND OTHER SAFEGUARDS SHALL COMPLY WITH THE INDUSTRIAL OCCUPANCY REQUIREMENTS.

OCCUPANT LOADS (LSC TABLE 7.3.1.2)
 INDUSTRIAL (GENERAL AND HIGH HAZARD) 9.3 SQ. M/PERSON

AREA	OCCUPANCY USE	APPROX. AREA (SQ. M)	OCCUPANT LOAD FACTOR (SQ. M/PERSON)	OCCUPANT LOAD (PERSONS)
FILTRATION ROOM	GROUP H-2, INDUSTRIAL	250	9.3	27
CONTROL ROOM AND ACCESSORY AREAS	GROUPS F-1, INDUSTRIAL	50.8	9.3	5
TOTAL		300.8	-	32

TRAVEL DISTANCES (SPRINKLERED FACILITY):
 COMMON PATH OF TRAVEL (LSC TABLE A.7.6): (INDUSTRIAL GENERAL HAZARD): 30 / 0 M
 TOTAL TRAVEL DISTANCE (LSC TABLE A.7.6): (INDUSTRIAL GENERAL HAZARD): 75 / 23 M
 DEAD END CORRIDOR (LSC TABLE A.7.6): (INDUSTRIAL GENERAL HAZARD): 15 / 0 M

CAPACITY OF EXITS (LSC TABLE 7.3.3.1):
 LEVEL COMPONENTS (WIDTH/PERSON) GENERAL INDUSTRIAL: 5 MM/PERSON
 LEVEL COMPONENTS (WIDTH/PERSON) HIGH HAZARD INDUSTRIAL: 10 MM/PERSON

NUMBER OF EXITS (LSC 7.4)
 2 FOR OCCUPANT LOAD ≤ 500
 SINGLE MEANS OF EGRESS FOR INDUSTRIAL OCCUPANCIES WITH ACCESS TO AN EXIT OF LESS THAN 15 M.

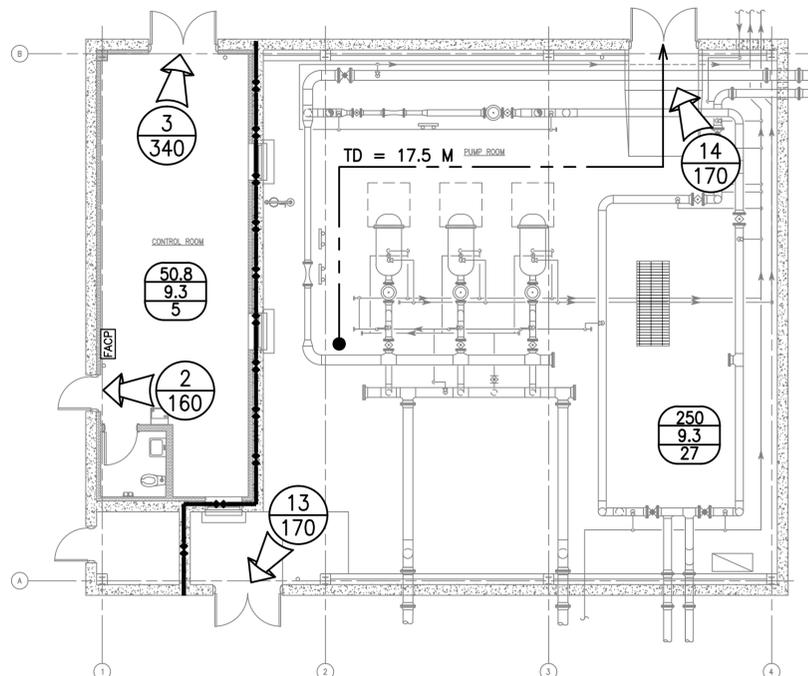
FLOOR AREA	REQUIRED EXIT CAPACITY	AVAILABLE EXIT CAPACITY	NUMBER OF EXITS REQUIRED	NUMBER OF EXITS PROVIDED
FILTRATION ROOM	27	340 2-1.70 M WIDE DOORS	2	2
CONTROL ROOM AND ACCESSORY AREAS	6	500 1-1.70 M & 1-0.85 M WIDE DOORS	1	2

ADDITIONAL LIFESAFETY CRITERIA

MEANS OF EGRESS SHALL BE ILLUMINATED.
 EMERGENCY LIGHTING SYSTEMS SHALL BE PROVIDED WITH BATTERY PACK AT FIXTURE IN EVENT OF LOSS OF POWER.

LIFE SAFETY LEGEND

- X=REQUIRED EGRESS CAPACITY
- Y=PROVIDED EGRESS CAPACITY
- AREA (SQ. M.)
- OCCUPANT LOAD (SQ. M/PERSON)
- OCCUPANTS (PERSONS)
- TRAVEL PATH AND DISTANCE
- 2-HOUR FIRE RATED PARTITION WITH 90-MIN RATED OPENING PROTECTION

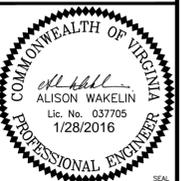


FILTER BUILDING LIFE SAFETY PLAN 1
 SCALE: 1:100

GRAPHIC SCALE(S):



SYN	DESCRIPTION	DATE	APPR



Austin
Brockenbrough
 ENGINEERING • CONSULTING

A/E INFO

APPROVED FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: **AJW** | DRW: **HS** | CHK: **MW**

<<PM/DR>>

BRANCH MANAGER

CHIEF ENG/ARCH

<<CR>>

DEPARTMENT OF THE NAVY
 ATLANTIC DIVISION
 CAMP LEMONNIER
 NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK, VIRGINIA
 DUBOUTI AFRICA
DESC 1701/P-1701
CONSTRUCT FUEL STORAGE FACILITIES
 FILTER BUILDING LIFE SAFETY PLAN

SCALE: AS NOTED
 PROJECT NO.:
 WORK ORDER NO.:
 NAVFAC DRAWING NO. 14046971
 SHEET 7 OF 186
LS102

DRAWFORM REVISION: 10 MARCH 2009

APPLICABLE BUILDING CODES

- | | |
|-----------------|---|
| 1. IBC | INTERNATIONAL BUILDING CODE 2012 |
| 2. UFC 3-600-01 | FIRE PROTECTION ENGINEERING FOR FACILITIES, 1 MAR 2013 |
| 3. UFC 1-200-01 | GENERAL BUILDING REQUIREMENTS, 1 JULY 2013 |
| 4. UFC 4-021-01 | DESIGN AND O&M: MASS NOTIFICATION SYSTEMS, JAN 2010 |
| 5. NFPA 10 | PORTABLE FIRE EXTINGUISHERS 2013 |
| 6. NFPA 13 | INSTALLATION OF SPRINKLER SYSTEMS 2013 |
| 7. NFPA 45 | FIRE PROTECTION FOR LABORATORIES USING CHEMICALS 2011 |
| 8. NFPA 72 | NATIONAL FIRE ALARM CODE 2013 |
| 9. NFPA 90A | INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS 2012 |
| 10. NFPA 101 | LIFESAFETY CODE 2015 (LSC) |

USE GROUP/OCCUPANCY

B BUSINESS (IBC 304.1, LSC 6.1.11)
 BUSINESS WITH INDUSTRIAL OCCUPANCY FOR FUELS LAB (NFPA 45 5.3.1, LSC 6.1.11.1)

FIRE PROTECTION SYSTEMS

WET PIPE SPRINKLER SYSTEM - REQUIRED FOR CLASS B LABORATORY
 EMERGENCY VOICE/MASS NOTIFICATION FIRE ALARM SYSTEM - REQUIRED FOR INHABITED BUILDING

CONSTRUCTION TYPE: TYPE II-B

ALLOWABLE AREA & HEIGHT

BASED ON B USE GROUP:
 BASIC AREA (IBC TABLE 503)B 2,135 SQ. M
 BASIC ALLOWABLE STORIES/HEIGHT: 3 / 16.75 M

ACTUAL AREA & HEIGHT

TOTAL FIRST FLOOR FOOTPRINT AREA 318.0 SQ. M
 TOTAL BUILDING HEIGHT 1 STOREY / 6.0 M

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS

(IBC TABLE 601, TYPE II-B CONSTRUCTION)

STRUCTURAL FRAME,	
INCL. COLUMNS, GIRDERS & TRUSSES	0 HR
BEARING WALLS, INTERIOR & EXTERIOR	0 HR
NON-BEARING WALLS, INTERIOR & EXTERIOR	0 HR
FLOOR CONSTRUCTION	0 HR
ROOF CONSTRUCTION	0 HR

EXTERIOR WALLS

EXTERIOR FIRE EXPOSURE BASED ON SEPARATION DISTANCE (TYPE II-B)

SEPARATION DISTANCE	GROUP B
< 3.0 M	1 HOUR
> 3.0 M	0 HOUR

THE BUILDING IS LOCATED MORE THAN 15.25M FROM ANY SURROUNDING STRUCTURES THEREFORE NO EXTERIOR WALL RATINGS BASED ON SEPARATION DISTANCE ARE REQUIRED.

INTERIOR FIRE RESISTANCE RATING REQUIREMENTS

THE LABORATORY AREA WILL BE SEPARATED BY 1-HOUR RATED FIRE BARRIERS (NFPA 45 TABLE 5.1.1)

INTERIOR FINISH CLASSIFICATION LIMITS (BASED ON BUSINESS OCCUPANCY WITH REDUCTION FOR SPRINKLERS):
 OTHER SPACES (TABLE A10.2.2) MINIMUM CLASS C
 FLOOR FINISH NO MINIMUM REQUIREMENT

MEANS OF EGRESS

OCCUPANT LOADS (LSC TABLE 7.3.1.2)
 BUSINESS/KITCHENS 9.3 SQ. M/PERSON
 ASSEMBLY LESS CONCENTRATED 1.4 SQ. M/PERSON

AREA	OCCUPANCY USE	APPROX. AREA (SQ. M)	OCCUPANT LOAD FACTOR (SQ. M/PERSON)	OCCUPANT LOAD (PERSONS)
BUSINESS AREAS	BUSINESS	227.6	9.3	25
BUSINESS & CONFERENCE ROOMS	BUSINESS	67.5	1.4	48
LABORATORY	BUSINESS	22.9	9.3	3
TOTAL		318.0	-	76

TRAVEL DISTANCES (SPRINKLERED FACILITY):
 COMMON PATH OF TRAVEL (BUSINESS): 30 M
 TOTAL TRAVEL DISTANCE (BUSINESS): 91 M
 DEAD END CORRIDOR (BUSINESS): 15 M

CAPACITY OF EXITS (LSC TABLE 7.3.3.1):
 LEVEL COMPONENTS (WIDTH/PERSON): 5 MM/PERSON

NUMBER OF EXITS (LSC 7.4)
 2 FOR OCCUPANT LOAD ≤ 500
 SINGLE MEANS OF EGRESS FOR THE LABORATORY (NFPA 45 5.4.1(3))

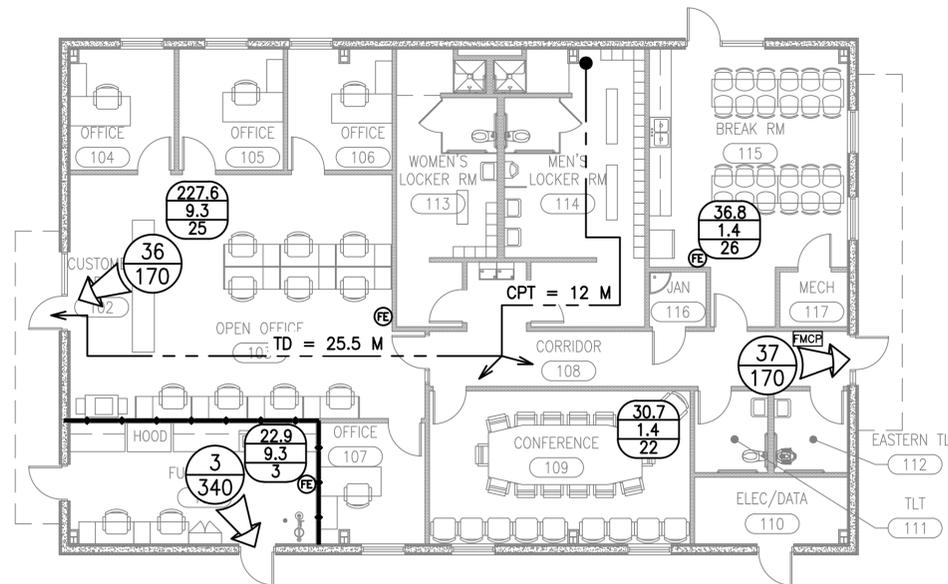
FLOOR AREA	REQUIRED EXIT CAPACITY	AVAILABLE EXIT CAPACITY	NUMBER OF EXITS REQUIRED	NUMBER OF EXITS PROVIDED
BUSINESS AREA	27	340 2-0.85 M WIDE DOORS	2	2
LABORATORY	3	340 1-1.70 M WIDE DOORS	1	1

ADDITIONAL LIFESAFETY CRITERIA

ILLUMINATION OF AND SIGNAGE FOR MEANS OF EGRESS SHALL BE PROVIDED.
 EMERGENCY LIGHTING SYSTEMS SHALL BE PROVIDED WITH BATTERY PACK AT FIXTURE IN EVENT OF LOSS OF POWER.
 PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED IN THE BUSINESS OCCUPANCY, LOCATED AND INSTALLED PER NFPA 10 WITH 22.5 M MINIMUM TRAVEL DISTANCE TO AN EXTINGUISHER.

LIFE SAFETY LEGEND

- X=REQUIRED EGRESS CAPACITY
Y=PROVIDED EGRESS CAPACITY
- XXX AREA (SQ. M.)
XXX OCCUPANT LOAD (SQ. M./PERSON)
XXX OCCUPANTS (PERSONS)
- TD = XX M TRAVEL PATH AND DISTANCE
- CPT = XX M COMMON PATH OF TRAVEL
- 1-HOUR FIRE RATED PARTITION WITH 60-MIN RATED OPENING PROTECTION
- FE 4A:80B:C FIRE EXTINGUISHER LOCATION



PLAN NORTH
OPS BUILDING LIFE SAFETY PLAN
 SCALE: 1:100
 1 LS103

GRAPHIC SCALE(S):



	DATE
	SYN
APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES: AJW DRW: HS CHK: MW	
BRANCH MANAGER	
CHIEF ENG/ARCH	
<<CDD>>	
DEPARTMENT OF THE NAVY ATLANTIC DIVISION CAMP LEMONNIER NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA DUBOULT AFRICA	DESC 1701/P-1701 CONSTRUCT FUEL STORAGE FACILITIES OPS BUILDING LIFE SAFETY PLAN
SCALE: AS NOTED	
PROJECT NO.:	
WORK ORDER NO.:	
NAVFAC DRAWING NO. 14046972	
SHEET 8 OF 186	
LS103	
DRAWFORM REVISION: 10 MARCH 2009	