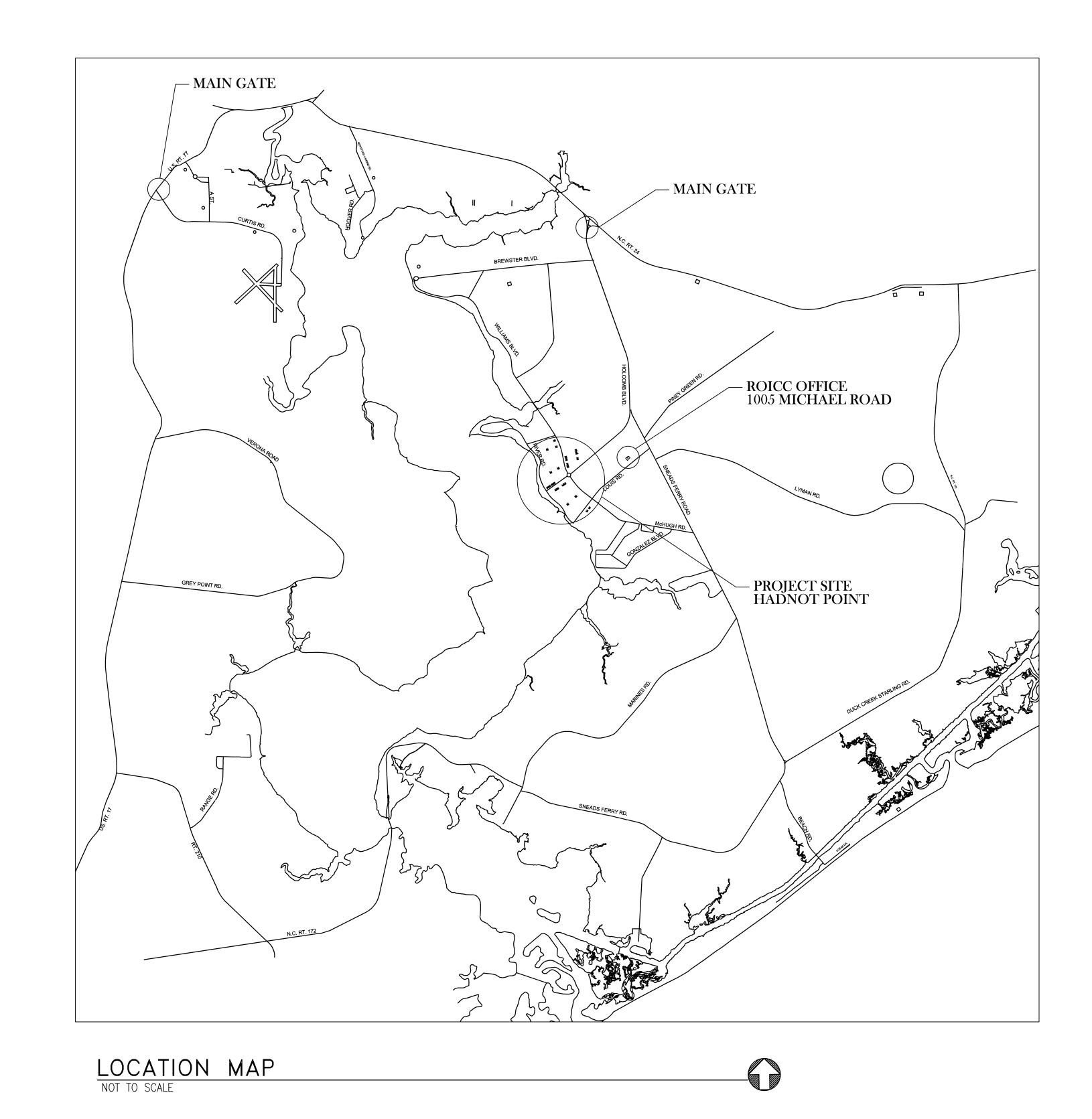
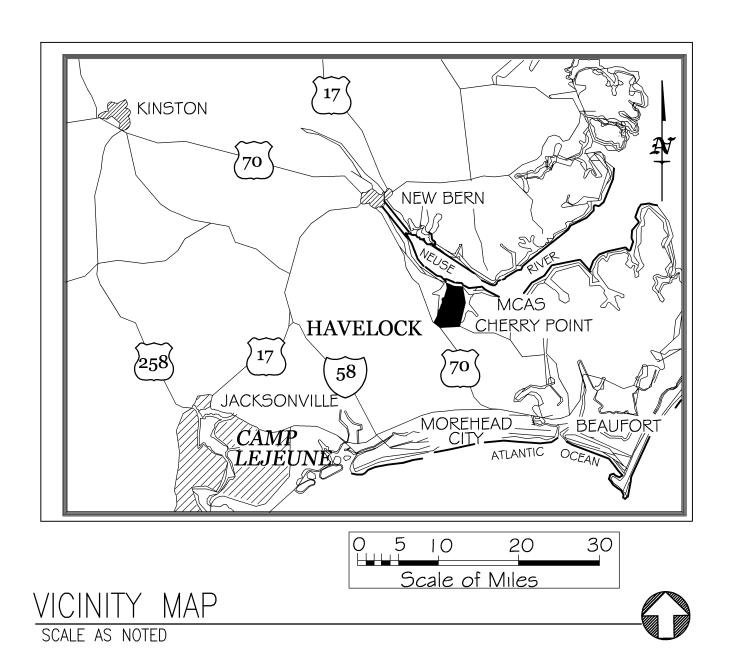


# BOILER MODIFICATIONS, VARIOUS FACILITIES, HADNOT POINT

MARINE CORPS BASE, CAMP LEJEUNE, N.C. PROJECT NO. CP 12-0104





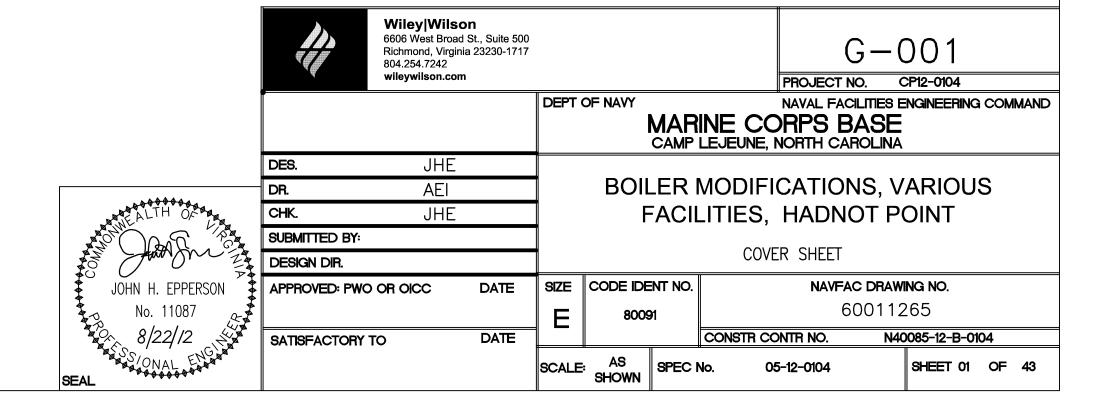
# DISCLOSURE OF INFORMATION

Contractor shall comply as follows:
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(1) The Contracting Officer has given prior written approval; or(2) The information is otherwise in the public domain before the date of release.

requests for authorization to release through the prime contractor to the Contracting Officer.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
 (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit



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C-102	60011268	SITE PLAN (1 OF 2)				
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Wiley|Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com G-002 PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND

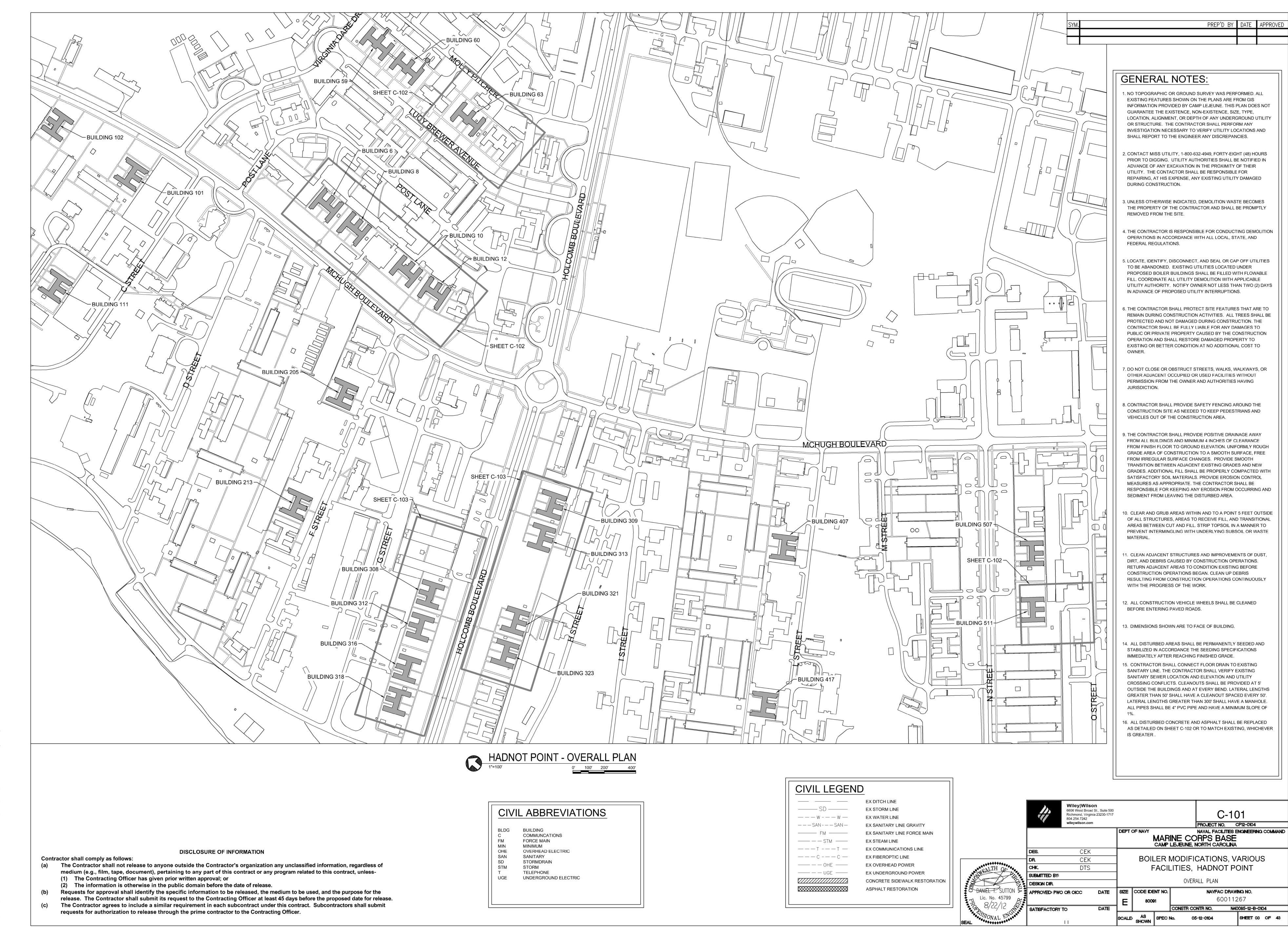
MARINE CORPS BASE

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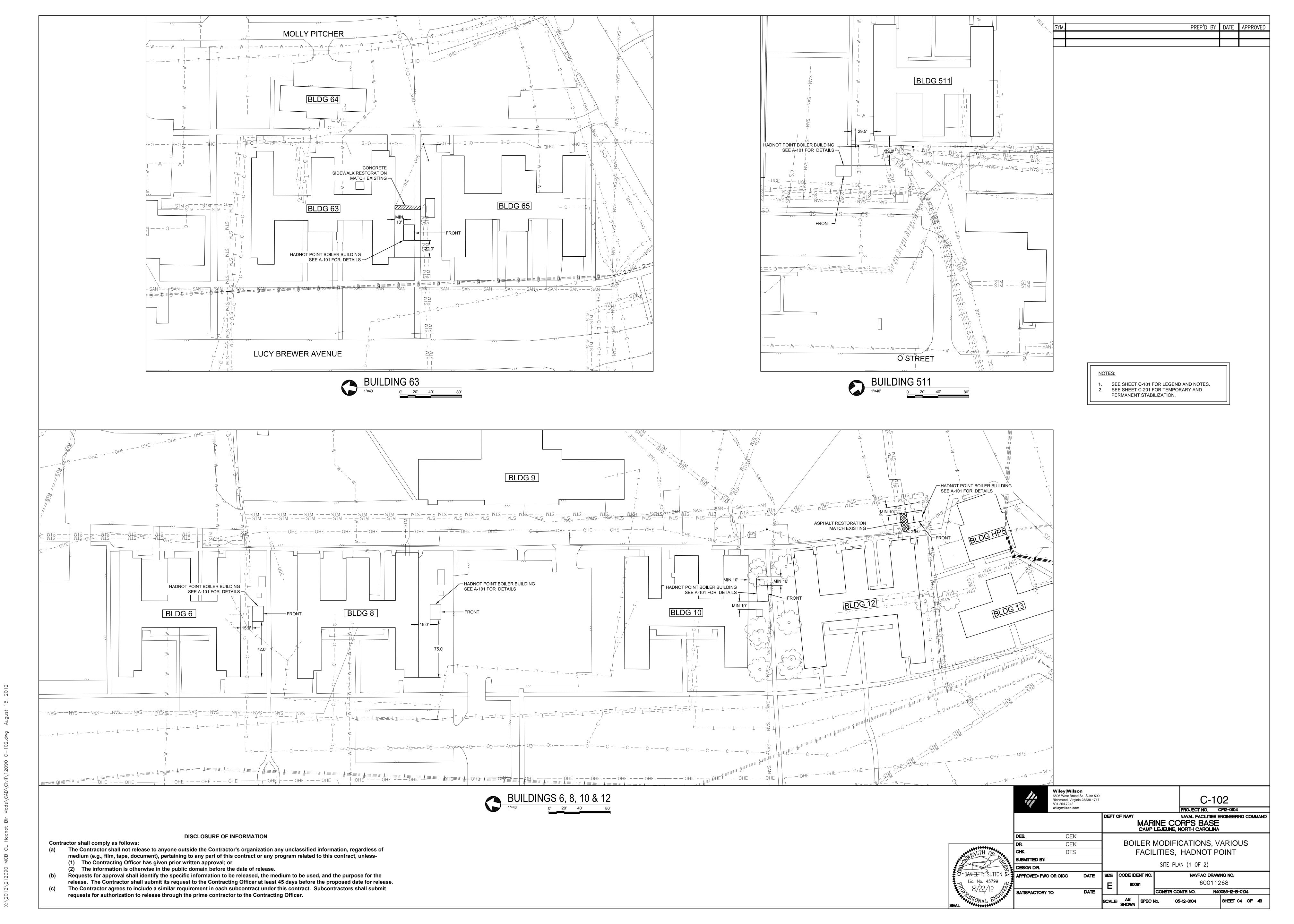
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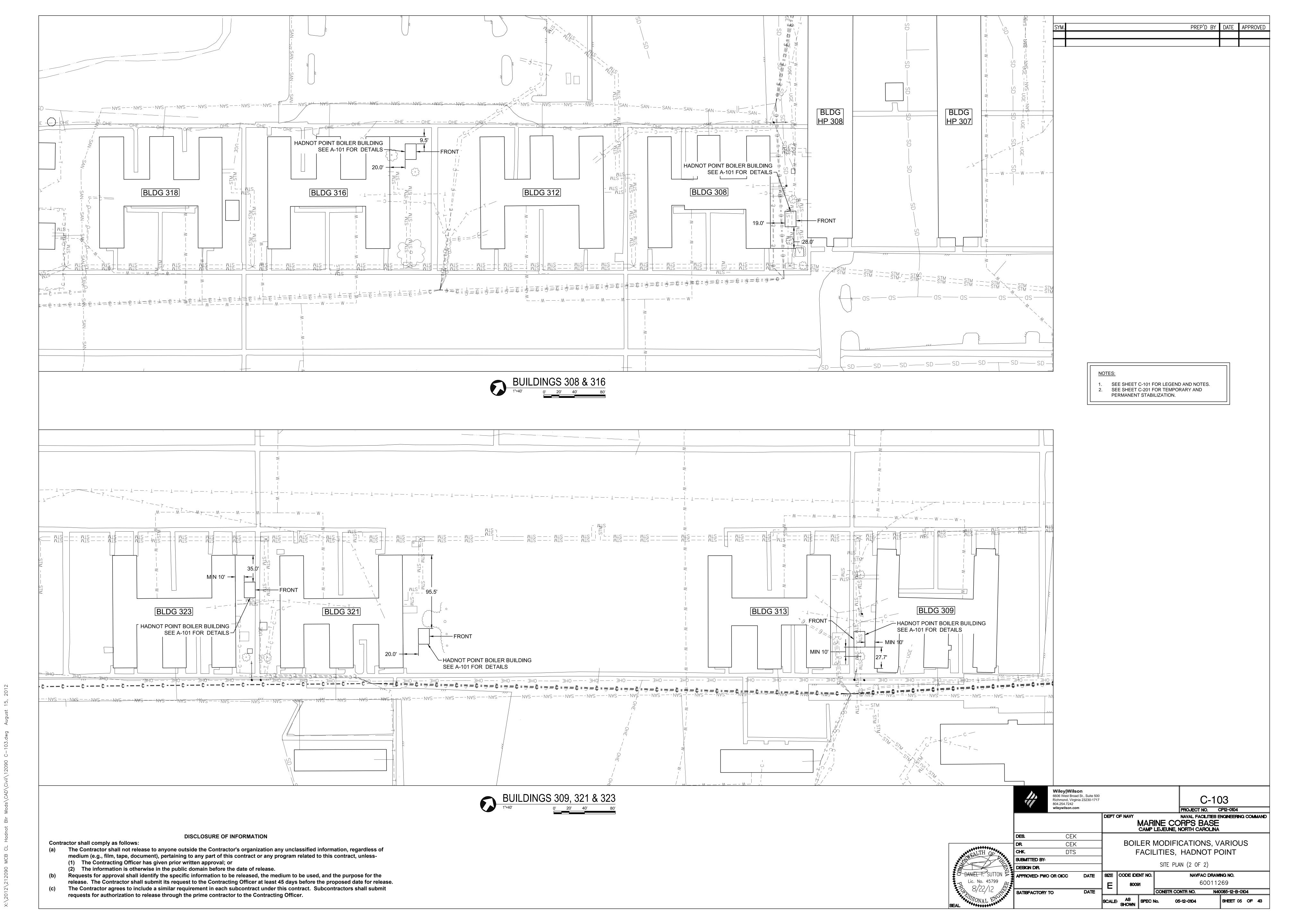
SHEET 02 OF 43

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BE LEFT WITH A MORE IRREGULAR SURFACE OF LARGE CLODS AND STONES.

4-6 INCHES OF SOIL. SOILS WITH A PH OF 6 OR HIGHER NEED NOT BE LIMED.

COMPLETE GRADING BEFORE PREPARING SEEDBEDS, AND INSTALL ALL NECESSARY EROSION CONTROL PRACTICES SUCH AS, DIKES, WATERWAYS, AND BASINS. MINIMIZE STEEP SLOPES BECAUSE THEY MAKE SEEDBED PREPARATION DIFFICULT AND INCREASE THE EROSION HAZARD. IF SOILS BECOME COMPACTED DURING GRADING, LOOSEN THEM TO A DEPTH OF 6-8 INCHES USING A RIPPER, HARROW, OR CHISEL PLOW.

GOOD SEEDBED PREPARATION IS ESSENTIAL TO SUCCESSFUL PLANT ESTABLISHMENT. A GOOD SEEDBED IS WELL-PULVERIZED, LOOSE, AND UNIFORM. WHERE HYDROSEEDING METHODS ARE USED, THE SURFACE MAY

LIMING--APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. IF THE PH (ACIDITY) OF THE SOIL IS NOT KNOWN, AN APPLICATION OF GROUND AGRICULTURAL LIMESTONE AT THE TEXTURED SOILS IS USUALLY SUFFICIENT. APPLY LIMESTONE UNIFORMLY AND INCORPORATE INTO THE TOP

FERTILIZER--BASE APPLICATION RATES ON SOIL TESTS. WHEN THESE ARE NOT POSSIBLE, APPLY A 10-10-10 GRADE FERTILIZER AT 700-1,000 LB/ACRE. BOTH FERTILIZER AND LIME SHOULD BE INCORPORATED INTO THE TOP 4-6 INCHES OF SOIL. IF A HYDRAULIC SEEDER IS USED, DO NOT MIX SEED AND FERTILIZER MORE THAN 30 MINUTES BEFORE APPLICATION.

SURFACE ROUGHENING--IF RECENT TILLAGE OPERATIONS HAVE RESULTED IN A LOOSE SURFACE. ADDITIONAL ROUGHENING MAY NOT BE REQUIRED, EXCEPT TO BREAK UP LARGE CLODS. IF RAINFALL CAUSES THE SURFACE TO BECOME SEALED OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING, OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING (PRACTICE 6.03, SURFACE ROUGHENING).

SELECT AN APPROPRIATE SPECIES OR SPECIES MIXTURE BASED ON TIME OF YEAR. IN THE MOUNTAINS, DECEMBER AND JANUARY SEEDINGS HAVE POOR CHANCES OF SUCCESS. WHEN IT IS NECESSARY TO PLANT AT THESE TIMES, USE RECOMMENDATIONS FOR FALL AND A SECURELY TACKED

EVENLY APPLY SEED USING A CYCLONE SEEDER (BROADCAST), DRILL, CULTIPACKER SEEDER, OR

HYDROSEEDER. USE SEEDING RATES GIVEN. BROADCAST SEEDING AND HYDROSEEDING ARE APPROPRIATE FOR STEEP SLOPES WHERE EQUIPMENT CANNOT BE DRIVEN. HAND BROADCASTING IS NOT RECOMMENDED BECAUSE OF THE DIFFICULTY IN ACHIEVING A UNIFORM DISTRIBUTION. SMALL GRAINS SHOULD BE PLANTED NO MORE THAN 1 INCH DEEP, AND GRASSES AND LEGUMES NO MORE THAN 1/2 INCH. BROADCAST SEED MUST BE COVERED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRMED WITH A ROLLER OR CULTIPACKER. HYDROSEEDED MIXTURES SHOULD INCLUDE A WOOD FIBER (CELLULOSE) MULCH.

THE USE OF AN APPROPRIATE MULCH WILL HELP ENSURE ESTABLISHMENT UNDER NORMAL CONDITIONS, AND IS ESSENTIAL TO SEEDING SUCCESS UNDER HARSH SITE CONDITIONS. HARSH SITE CONDITIONS INCLUDE: • SEEDING IN FALL FOR WINTER COVER (WOOD FIBER MULCHES ARE NOT CONSIDERED ADEQUATE FOR THIS

SLOPES STEEPER THAN 3:1,

 EXCESSIVELY HOT OR DRY WEATHER, • ADVERSE SOILS (SHALLOW, ROCKY, OR HIGH IN CLAY OR SAND), AND

 AREAS RECEIVING CONCENTRATED FLOW. IF THE AREA TO BE MULCHED IS SUBJECT TO CONCENTRATED WATERFLOW, AS IN CHANNELS, ANCHOR MULCH WITH NETTING (PRACTICE 6.14, MULCHING).

RESEED AND MULCH AREAS WHERE SEEDLING EMERGENCE IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.

# TEMPORARY SEEDING FOR SUMMER

SEEDING MIXTURE SPECIES RATE (LB/ACRE) GERMAN MILLET

IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 LB/ACRE.

SEEDING DATES MOUNTAINS--MAY 15 - AUG. 15 PIEDMONT--MAY 1 - AUG. 15

COASTAL PLAIN--APR. 15 - AUG. 15

SOIL AMENDMENTS FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

# TEMPORARY SEEDING FOR FALL

RATE (LB/ACRE) SEEDING MIXTURE SPECIES RYE (GRAIN)

SEEDING DATES

MOUNTAINS--AUG. 15 - DEC. 15 COASTAL PLAIN AND PIEDMONT--AUG. 15 - DEC. 30

FOLLOW SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000

LB/ACRE 10-10-10 FERTILIZER.

APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH

ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTENT TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/ACRE KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

# TEMPORARY SEEDING FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE SPECIES RATE (LB/ACRE)

RYE (GRAIN) ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND

SEEDING DATES

MOUNTAINS--ABOVE 2500 FEET: FEB. 15 - MAY 15 BELOW 2500 FEET: FEB. 1- MAY 1

PIEDMONT--JAN. 1 - MAY 1 COASTAL PLAIN--DEC. 1 - APR. 15

SOIL AMENDMENTS

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

-CI REMOVABLE

PLUG

SCREW - TYPE

INSTALLATION AT

END OF LINE 4" PVC PIPE

FLOW

6"x16"x16"

CONCRETE

BEND

PAD

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

# PERMANENT SEEDING SPECIFICATIONS

SEEDBED REQUIREMENTS

ESTABLISHMENT OF VEGETATION SHOULD NOT BE ATTEMPTED ON SITES THAT ARE UNSUITABLE DUE TO SLOPE UNTIL MEASURES HAVE BEEN TAKEN TO CORRECT THESE PROBLEMS.

TO MAINTAIN A GOOD STAND OF VEGETATION, THE SOIL MUST MEET CERTAIN MINIMUM REQUIREMENTS AS A GROWTH MEDIUM. THE EXISTING SOIL SHOULD HAVE THESE CRITERIA: • ENOUGH FINE-GRAINED (SILT AND CLAY) MATERIAL TO MAINTAIN ADEQUATE MOISTURE AND NUTRIENT SUPPLY (AVAILABLE WATER CAPACITY OF AT LEAST .05 INCHES OF WATER TO 1 INCH OF SOIL).

 SUFFICIENT PORE SPACE TO PERMIT ROOT PENETRATION. SUFFICIENT DEPTH OF SOIL TO PROVIDE AN ADEQUATE ROOT ZONE. THE DEPTH TO ROCK OR IMPERMEABLE LAYERS SUCH AS HARDPANS SHOULD BE 12 INCHES OR MORE, EXCEPT ON SLOPES STEEPER

 FREEDOM FROM LARGE ROOTS, BRANCHES, STONES, LARGE CLODS OF EARTH, OR TRASH OF ANY KIND. CLODS AND STONES MAY BE LEFT ON SLOPES STEEPER THAN 3:1 IF THEY ARE TO BE HYDROSEEDED. IF ANY OF THE ABOVE CRITERIA ARE NOT MET--I.E., IF THE EXISTING SOIL IS TOO COARSE, DENSE, SHALLOW, OR ACIDIC TO FOSTER VEGETATION--SPECIAL AMENDMENTS ARE REQUIRED. THE SOIL CONDITIONERS DESCRIBED BELOW MAY BE BENEFICIAL OR, PREFERABLY, TOPSOIL MAY BE APPLIED IN ACCORDANCE WITH

IN ORDER TO IMPROVE THE STRUCTURE OR DRAINAGE CHARACTERISTICS OF A SOIL. THE FOLLOWING MATERIALS MAY BE ADDED. THESE AMENDMENTS SHOULD ONLY BE NECESSARY WHERE SOILS HAVE LIMITATIONS THAT MAKE THEM POOR FOR PLANT GROWTH OR FOR FINE TURF ESTABLISHMENT (SEE CHAPTER 3, VEGETATIVE CONSIDERATIONS).

HUMUS, ALL FROM FRESH-WATER SOURCES. PEAT SHOULD BE SHREDDED AND CONDITIONED IN STORAGE PILES FOR AT LEAST 6 MONTHS AFTER EXCAVATION.

ROTTED MANURE--STABLE OR CATTLE MANURE NOT CONTAINING UNDUE AMOUNTS OF STRAW OR OTHER

SLUDGE--TREATED SEWAGE AND INDUSTRIAL SLUDGES ARE AVAILABLE IN VARIOUS FORMS: THESE SHOULD

AND COMPLETE GRADING ACCORDING TO THE APPROVED PLAN.

WHEN SOIL TESTS ARE NOT AVAILABLE, FOLLOW RATES SUGGESTED ON THE INDIVIDUAL SPECIFICATION SHEET FOR THE SEEDING MIX CHOSEN (TABLES 6.11C THROUGH 6.11V). APPLICATION RATES USUALLY FALL

• GROUND AGRICULTURAL LIMESTONE:LIGHT-TEXTURED, SANDY SOILS: 1- 1 1/2 TONS/ACRE HEAVY-TEXTURED, CLAYEY SOILS: 2-3 TONS/ACRE

GRASS-LEGUME MIXTURES: 800-1200 LB/ACRE OF 5-10-10 (OR THE EQUIVALENT) APPLY LIME AND FERTILIZER EVENLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL BY DISKING OR

OTHER SUITABLE MEANS. OPERATE MACHINERY ON THE CONTOUR. WHEN USING A HYDROSEEDER, APPLY LIME AND FERTILIZER TO A ROUGH, LOOSE SURFACE.

ROUGHEN SURFACES ACCORDING TO PRACTICE 6.03, SURFACE ROUGHENING.

COMPLETE SEEDBED PREPARATION BY BREAKING UP LARGE CLODS AND RAKING INTO A SMOOTH, UNIFORM SURFACE (SLOPES LESS THAN 3:1). FILL IN OR LEVEL DEPRESSIONS THAT CAN COLLECT WATER. BROADCAST SEED INTO A FRESHLY LOOSENED SEEDBED THAT HAS NOT BEEN SEALED BY RAINFALL.

SEEDING DATES GIVEN IN THE SEEDING MIXTURE SPECIFICATIONS (TABLE 6.11C THROUGH 6.11V) ARE DESIGNATED AS "BEST" OR "POSSIBLE". SEEDINGS PROPERLY CARRIED OUT WITHIN THE "BEST" DATES HAVE A HIGH PROBABILITY OF SUCCESS. IT IS ALSO POSSIBLE TO HAVE SATISFACTORY ESTABLISHMENT WHEN SEEDING OUTSIDE THESE DATES. HOWEVER, AS YOU DEVIATE FROM THEM, THE PROBABILITY OF FAILURE INCREASES RAPIDLY. SEEDING ON THE LAST DATE SHOWN UNDER "POSSIBLE" MAY REDUCE CHANCES OF SUCCESS BY 30-50%. ALWAYS TAKE THIS INTO ACCOUNT IN SCHEDULING LAND-DISTURBING ACTIVITIES.

GENERALLY, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL SOIL COVER HAS BEEN MAINTAINED FOR ONE FULL YEAR FROM PLANTING. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE

QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVER-SEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING (PRACTICE 6.10, TEMPORARY SEEDING).

INAPPROPRIATE SOIL TEXTURE, POOR DRAINAGE, CONCENTRATED OVERLAND FLOW, OR STEEPNESS OF

THAN 2:1 WHERE THE ADDITION OF SOIL IS NOT FEASIBLE. • A FAVORABLE PH RANGE FOR PLANT GROWTH, USUALLY 6.0-6.5.

NCDENR PRACTICE 6.04, TOPSOILING.

PEAT--APPROPRIATE TYPES ARE SPHAGNUM MOSS PEAT, HYPNUM MOSS PEAT, REED-SEDGE PEAT, OR PEAT

SAND--CLEAN AND FREE OF TOXIC MATERIALS.

VERMICULITE--HORTICULTURAL GRADE AND FREE OF TOXIC SUBSTANCES.

THOROUGHLY ROTTED SAWDUST--FREE OF STONES AND DEBRIS. ADD 6 LB OF NITROGEN TO EACH CUBIC

BE USED ONLY IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

INSTALL NECESSARY MECHANICAL EROSION AND SEDIMENTATION CONTROL PRACTICES BEFORE SEEDING,

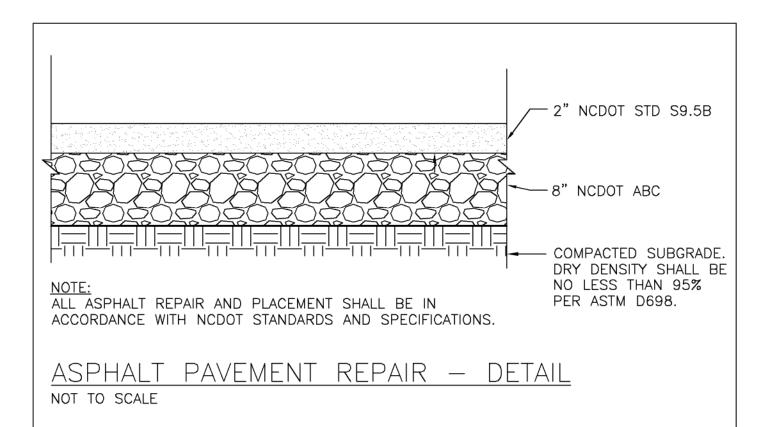
LIME AND FERTILIZER NEEDS SHOULD BE DETERMINED BY SOIL TESTS. SOIL TESTING IS PERFORMED FREE OF CHARGE BY THE NORTH CAROLINA DEPARTMENT OF AGRICULTURE SOIL TESTING LABORATORY. DIRECTIONS, SAMPLE CARTONS, AND INFORMATION SHEETS ARE AVAILABLE THROUGH COUNTY AGRICULTURAL EXTENSION OFFICES OR FROM NCDA. BECAUSE THE NCDA SOIL TESTING LAB REQUIRES 1-6 WEEKS FOR SAMPLE TURN-AROUND, SAMPLING MUST BE PLANNED WELL IN ADVANCE OF FINAL GRADING. TESTING IS ALSO DONE BY COMMERCIAL LABORATORIES.

INTO THE FOLLOWING RANGES:

FERTILIZER: GRASSES: 800-1200 LB/ACRE OF 10-10-10 (OR THE EQUIVALENT)

USE CERTIFIED SEED FOR PERMANENT SEEDING WHENEVER POSSIBLE. CERTIFIED SEED IS INSPECTED BY THE NORTH CAROLINA CROP IMPROVEMENT ASSOCIATION. IT MEETS PUBLISHED NORTH CAROLINA STANDARDS AND SHOULD BEAR AN OFFICIAL "CERTIFIED SEED" LABEL (FIGURE 6.11B).

RESEEDING--IF A STAND HAS INADEQUATE COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND



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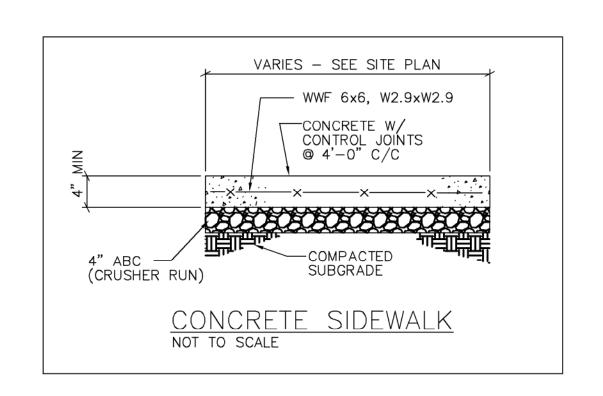
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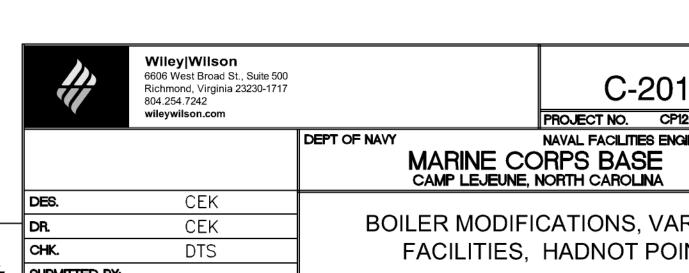
(2) The information is otherwise in the public domain before the date of release.

TYPICAL SANITARY SEWER CLEANOUT (GRAVITY LINE ONLY) NOT TO SCALE

"**y**"

**BRANCH** 





PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND BOILER MODIFICATIONS, VARIOUS FACILITIES, HADNOT POINT SUBMITTED BY: DETAILS DESIGN DIR. DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. APPROVED: PWO OR OICC 60011270 CONSTR CONTR NO. DATE N40085-12-B-0104 SATISFACTORY TO SHEET 06 OF 43

PREP'D BY DATE APPROVED

SEEDING NO 5CP FOR WELL-DRAINED

SANDY LOAMS; LOW MAINTENANCE

RATE (LB/ACRE)

2. USE A COMMON BERMUDAGRASS ONLY ON ISOLATED SITES WHERE IT CANNOT BECOME A PEST.

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 LB/ACRE GROUND

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH.

ANCHOR BY TACKING WITH ASPHALT, ROVING, NETTING, OR BY CRIMPING WITH A MULCH

ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH

REFERTILIZE THE FOLLOWING APR. WITH 50 LB/ACRE NITROGEN. REPEAT AS GROWTH REQUIRES.

SEEDING NO 7CP FOR GRASS LINED

AGRICULTURAL LIMESTONE AND 500 LB/ACRE 10-10-10 FERTILIZER

MAY BE MOWED ONLY ONCE A YEAR. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND

RATE (LB/ACRE)

40-80 (1-2 LB/1,000 FT2)

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 LB/ACRE GROUND

USE A ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF CHANNELS AND DITCHES.

THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL

APPLY 4,000 LB/ACRE GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

A MINIMUM OF 3 WEEKS IS REQUIRED FOR ESTABLISHMENT. INSPECT AND REPAIR MULCH

FREQUENTLY. REFERTILIZE THE FOLLOWING APR. WITH 50 LB/ACRE NITROGEN.

SIDE SLOPES ABOVE THIS HEIGHT AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS,

MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE

1. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA.

BERMUDAGRASS MAY BE REPLACED WITH 5 LB/ACRE CENTIPEDEGRASS.

AGRICULTURAL LIMESTONE AND 500 LB/ACRE 10-10-10 FERTILIZER.

SEEDING MIXTURE SPECIES

PENSACOLA BAHIAGRASS

COMMON BERMUDAGRASS

SERICEA LESPEDEZA

GERMAN MILLET

SEEDING NOTES

SEEDING DATES

APR.1 - JULY 15

ANCHORING TOOL.

MOW AS OFTEN AS NEEDED.

**CHANNELS** 

SEEDING MIXTURE SPECIES

COMMON BERMUDAGRASS

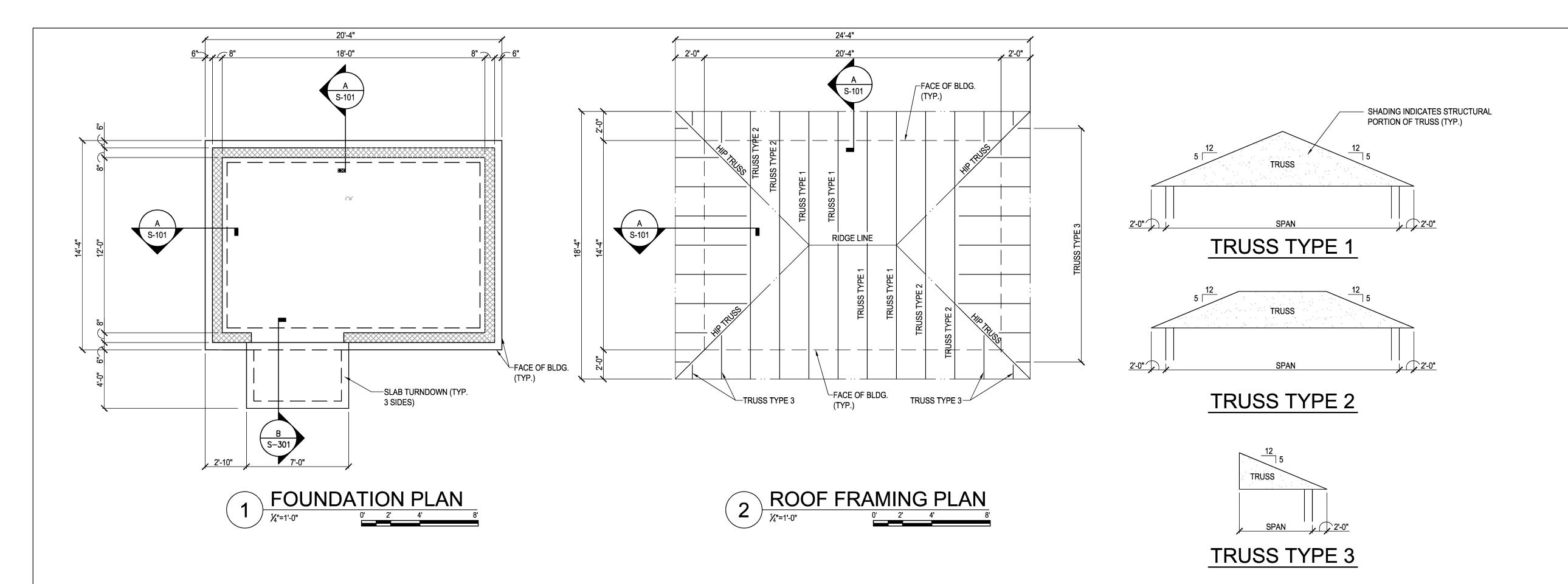
COASTAL PLAIN: APR. - JULY

PIEDMONT: APR. 15 - JUNE 30

THEY CAN CLOG DRAINAGE DEVICES.

SEEDING DATES

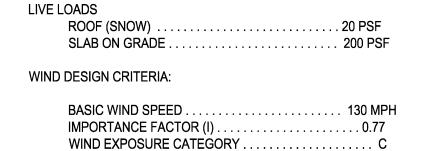
MAINTENANCE



# **GENERAL NOTES:**

- 1. THE STRUCTURAL DRAWING SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS, AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES, AND ADDITIONAL ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- 2. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE DESIGN CRITERIA OF THE TECHNICAL INSTRUCTIONS AS FOLLOWS:
  DESIGN CODES:
  - INTERNATIONAL BUILDING CODE (IBC 2009)
    ACI 318-08 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
    ACI 530-02 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
    MANUAL OF STEEL CONSTRUCTION, ASD AISC THIRTEENTH EDITION
    ASCE 7-06 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
- 3. THE LATERAL-LOAD-RESISTING SYSTEM FOR THIS STRUCTURE CONSISTS PRIMARILY OF THE FOLLOWING:
- CONCRETE MASONRY SHEAR WALLS
  THESE ELEMENTS PROVIDE FOR LATERAL STRENGTH AND STABILITY IN THE COMPLETED
- 4. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURAL IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.
- 5. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, AND OTHER REQUIREMENTS NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE BUILDING. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS NECESSARY FOR FABRICATION AND ERECTION OF STRUCTURAL MEMBERS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.
- 6. DESIGN LOADS:

STRUCTURE.



# SEISMIC DESIGN CRITERIA:

1 SECOND SPECTRAL RESPONSE (S1) 0.08g
0.2 SECOND SPECTRAL RESPONSE (Ss) 0.18g
SEISMIC USE GROUP
SITE CLASS D
SEISMIC IMPORTANCE FACTOR 1.00
SEISMIC DESIGN CATEGORY
RESPONSE MODIFICATION FACTOR (R)
ORDINARY REINFORCED MASONRY SHEAR WALLS 1.5
ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE

# **FOUNDATION NOTES:**

- 1. SHALLOW FOUNDATIONS FOR BUILDINGS HAVE BEEN DESIGNED FOR A NET BEARING PRESSURE OF 2000 PSF. REFER TO GEOTECHNICAL REPORT FOR DETAILED INFORMATION ON THE SUBSURFACE SOILS INVESTIGATION AND FOUNDATION RECOMMENDATIONS.
- 2. PRIOR TO PLACING FOUNDATION CONCRETE, ALL FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER TO EXPLORE THE EXTENT OF LOOSE, SOFT OR OTHERWISE UNSATISFACTORY SOIL MATERIAL (SUCH AS SHRINK-SWELL SOIL) AND TO VERIFY DESIGN BEARING PRESSURE. THE GEOTECHNICAL ENGINEER WILL PROVIDE DIRECTION FOR CORRECTIVE ACTION WHERE REQUIRED.
- 3. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO NON-BEARING WALLS AND DIMENSIONS OF MASONRY OPENINGS.
- 4. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF MASONRY CONTROL JOINTS.
- 5. REFER TO CIVIL DRAWINGS FOR EXTERIOR CONCRETE SLABS.

# CAST-IN-PLACE CONCRETE NOTES:

1. CONCRETE SHALL BE NORMAL WEIGHT AND SHALL OBTAIN 28 DAY COMPRESSIVE STRENGTHS AS FOLLOWS:

2. REINFORCING MATERIALS SHALL BE AS FOLLOWS:

REINFORCING BARS - ASTM A 615, GRADE 60 DEFORMED.
WELDED WIRE FABRIC - ASTM A 185, WELDED STEEL WIRE FABRIC,
PROVIDE SHEET TYPE, ROLL TYPE NOT ACCEPTABLE.

SYM.	PREP'D BY	DATE	APPROVED
	3. ALL REINFORCING STEEL AND EMBEDDED ITEMS SUCH AS ANCHOR BOL	TS AND WE	ELD

- PLATES SHALL BE ACCURATELY PLACED IN THE POSITIONS SHOWN AND ADEQUATELY TIED AND SUPPORTED BEFORE CONCRETE IS PLACED TO PREVENT DISPLACEMENT BEYOND PERMITTED TOLERANCES.
- 4. CONCRETE COVER TO REINFORCING STEEL SHALL CONFORM TO THE MINIMUM COVER RECOMMENDATIONS IN ACI 318-05 UNLESSOTHERWISE NOTED.
- 5. WHERE REINFORCEMENT SPLICES ARE INDICATED, SPLICE LENGTHS SHALL BE AS

BAR SIZE	TOP BARS	OTHER	BARS IN MASONRY
#3	18"	16"	18"
#4	24"	19"	24"
#5	30"	23"	30"
#6	36"	28"	36"
#7	42"	33"	42"

- 6. CONCRETE EXPOSED TO THE ELEMENTS SHALL BE AIR-ENTRAINED.
- 7. CHAMFER ALL EXPOSED EDGES OF CONCRETE ¾".

DAY COMPRESSIVE STRENGTH OF 3,000 PSI.

# **CONCRETE MASONRY NOTES:**

- CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C 90 AND BE MADE WITH NORMAL OR LIGHTWEIGHT AGGREGATE. THE COMPRESSIVE STRENGTH OF MASONRY, F'm, EXPRESSED AS FORCE PER UNIT OF NET CROSS-SECTIONAL AREA, SHALL BE 1,500 PSI AT 28 DAYS.
- 2. REINFORCING STEEL SHALL COMPLY WITH ASTM A 615, GRADE 60. SHOP FABRICATE REINFORCING BARS WHICH ARE SHOWN TO BE BENT OR HOOKED.
- 3. GROUT SHALL COMPLY WITH ASTM C 476, AND SHALL BE PROPORTIONED TO OBTAIN A 28
- 4. MORTAR SHALL COMPLY WITH ASTM C 270, TYPE S OR M. AGGREGATE FOR MORTAR SHALL COMPLY WITH ASTM C 144. AGGREGATE FAILING TO COMPLY WITH ASTM C 144 GRADATION REQUIREMENTS MAY BE USED PROVIDED THE MORTAR CAN BE PREPARED TO COMPLY WITH THE AGGREGATE RATIO, WATER RETENTION, AND COMPRESSIVE STRENGTH REQUIREMENTS OF THE PROPERTY SPECIFICATIONS OF ASTM C 270.
- PROVIDE VERTICAL REINFORCING BARS OF THE GIVEN SIZE AND SPACING SHOWN ON THE FOUNDATION PLANS. LAP ALL REINFORCING AT ALL SPLICES PER CAST-IN-PLACE CONCRETE NOTE 5.
- 6. PROVIDE REINFORCING STEEL DOWELS OF THE SAME SIZE AND SPACING AS VERTICAL REINFORCING FROM THE SUPPORTING STRUCTURE. DOWELS SHALL HAVE STANDARD ACI HOOKS.
- 7. PROVIDE STANDARD LADDER TYPE HORIZONTAL JOINT REINFORCING IN CMU WALLS AT 16" O.C. AND IN TWO JOINTS IMMEDIATELY ABOVE AND BELOW ALL OPENINGS, EXTENDING A MINIMUM OF 24" BEYOND THE JAMB OF EACH SIDE OF THE OPENING, EXCEPT AT CONTROL JOINTS.
- 8. PLACE CONTINUOUS BOND BEAMS AT THE TOP OF ALL WALLS.
- 9. CMU BOND BEAM LINTELS MAY BE USED FOR SPANS UP TO 8 FEET.

# STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:

# STRUCTURAL STEEL PLATES - ASTM A36, Fy=36 KSI.

2. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, "STRUCTURAL WELDING CODE - STEEL". WELD ELECTRODES SHALL BE E70XX. UNLESS OTHERWISE NOTED, PROVIDE CONTINUOUS FILLET WELDS WITH MINIMUM SIZE REQUIRED BY TABLE J2.4 OF THE "MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN".

# **ROOF FRAMING NOTES:**

- ROOF SHALL BE FRAMED USING COLD FORMED STEEL (CFS) TRUSSES (OR CFS REAFTERS WHERE NOTED).
- 2. TRUSSES SHALL BE DESIGNED FOR A SUPERIMPOSED DEAD LOAD OF 20 PSF FOR THE BOTTOM CHORD OF TRUSS AND FOR THE FRAMING. DESIGN TOP CHORD FOR A LIVE (SNOW) LOAD OF 20 PSF EXPOSED TO ROOF SURFACE, PLUS THE ADDITIONAL WEIGHT OF DRIFTING SNOW IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC). TRUSSES SHALL BE DESIGNED FOR WIND LOADS GIVEN IN THE IBC USING A 130 MPH WIND SPEED, EXPOSURE C.
- 3. PROVIDE SUFFICIENT BOTTOM CHORD BRIDGING FOR BOTH ERECTION AND PERMANENT STARILITY
- 4. MAXIMUN SPACING FOR CFS TRUSSES AND FRAMING IS 2'-0" O.C.

# SITE / GRADING NOTES:

OF AT LEAST 4'-0".

- 1. NO TOPOGRAPHIC SURVEY HAS BEEN DONE FOR THIS PROJECT.
- LOCATE EACH BUILDING ACCORDING TO THE CONTROLS GIVEN ON THE CIVIL-SITE DRAWINGS.
- 3. SET EACH BUILDING'S FLOOR ELEVATION 4" ABOVE THE HIGHEST GRADE THAT EXISTS AROUND ITS PERIMETER. SET THE FINISHED GRADE FROM 4" TO 5" BELOW THE FLOOR ELEVATION. PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING FOR A DISTANCE
- 4. IF SIDEWALKS OR OTHER SITE FEATURES DICTATE THAT THE FINISHED GRADE ADJOINING THE BUILDING IS MORE THAN 7" BELOW THE FLOOR LEVEL, NOTIFY THE DESIGNER OF RECORD SO THAT THE FOUNDATION MAY BE ADJUSTED TO ACCOMMODATE THE INTENT OF THE DESIGN.
- 5. REFER TO THE CIVIL-SITE DRAWINGS FOR OTHER NOTES AND REQUIREMENTS.

## **Wiley|Wilson** 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 S - 101PROJECT NO. CP12-0104 DEPT OF NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA WJB BOILER MODIFICATIONS, VARIOUS WJB FACILITIES, HADNOT POINT WMD SUBMITTED BY: FOUNDATION & ROOF FRAMING PLANS DESIGN DIR. AND GENERAL NOTES DATE SIZE CODE IDENT NO. APPROVED: PWO OR OICC NAVFAC DRAWING NO. 60011271 8/22/12 DATE CONSTR CONTR NO. N40085-12-B-0104 SATISFACTORY TO SHEET 07 OF 43

# DISCLOSURE OF INFORMATION

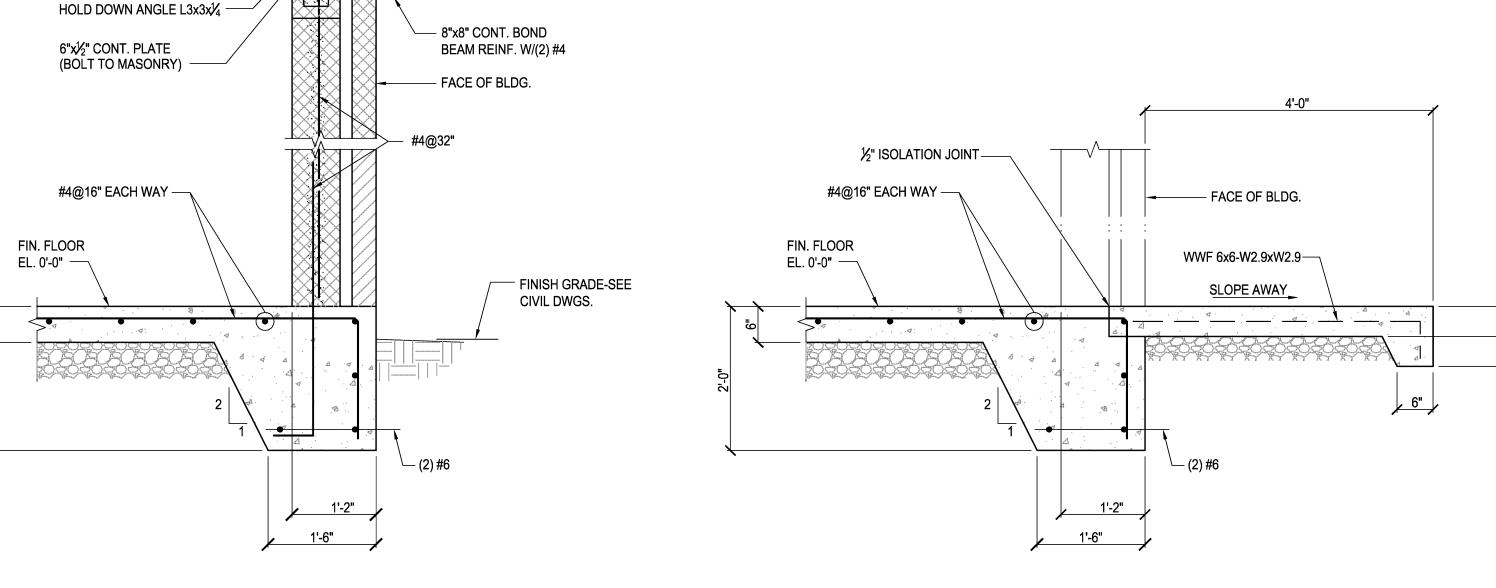
- Contractor shall comply as follows:

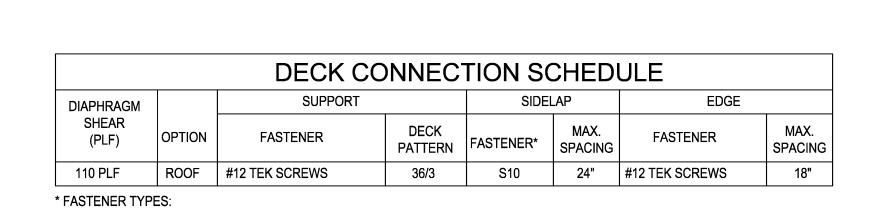
  (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless
  (1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release.

  (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

  (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

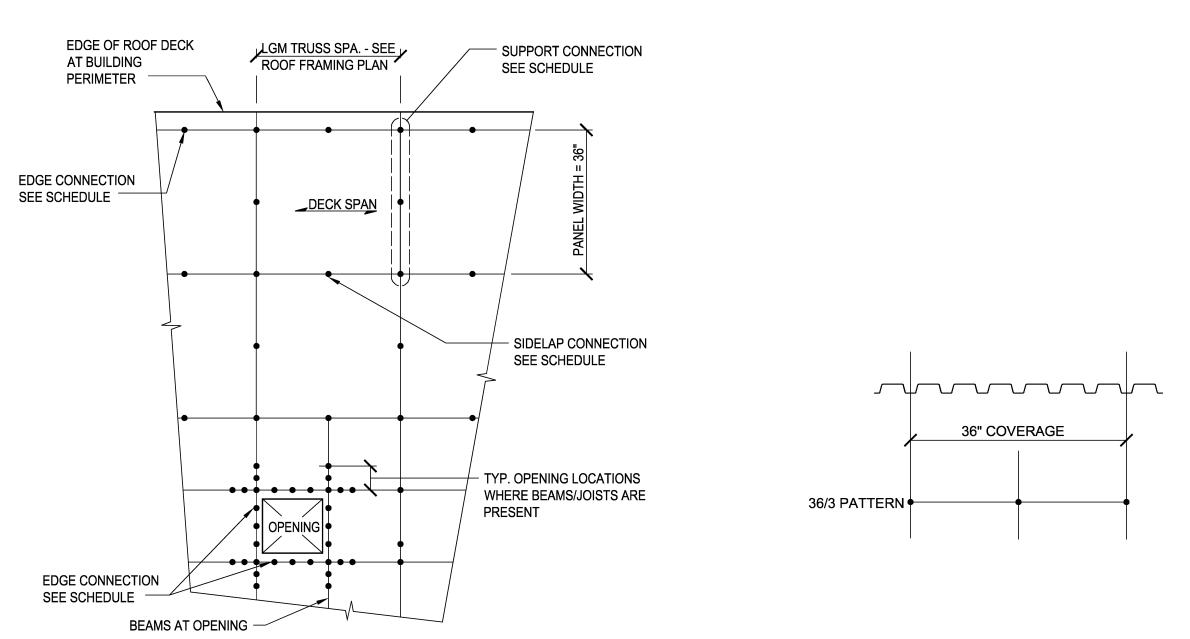






S10 = BUILDEX TEKS #10 SCREWS

FOR SUPPORT PATTERNS, SEE TYPICAL FASTENER LAYOUT



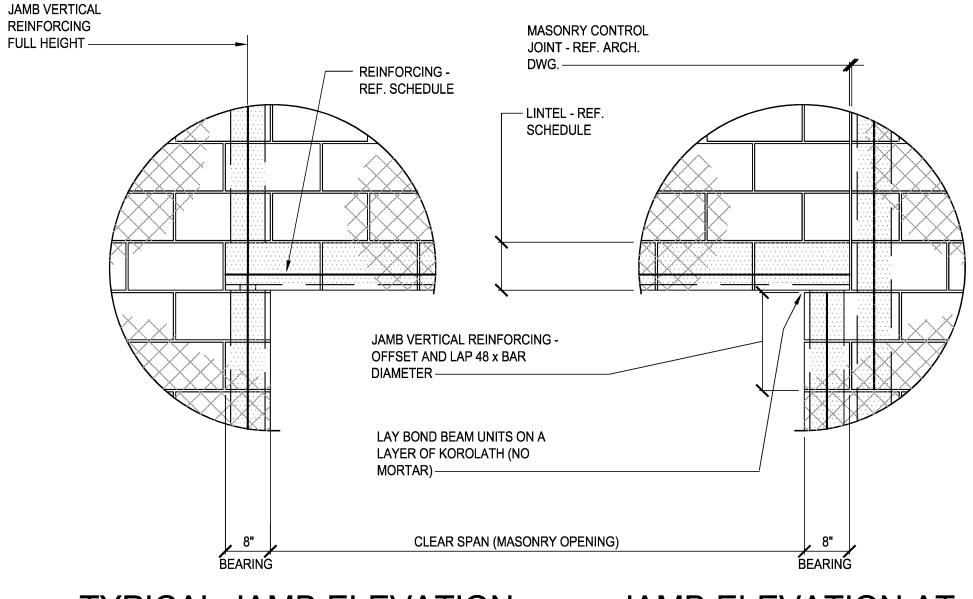
PART PLAN-ROOF DECK CONNECTION TYPICAL ROOF FASTENER LAYOUT (36/3) NO SCALE

# DISCLOSURE OF INFORMATION

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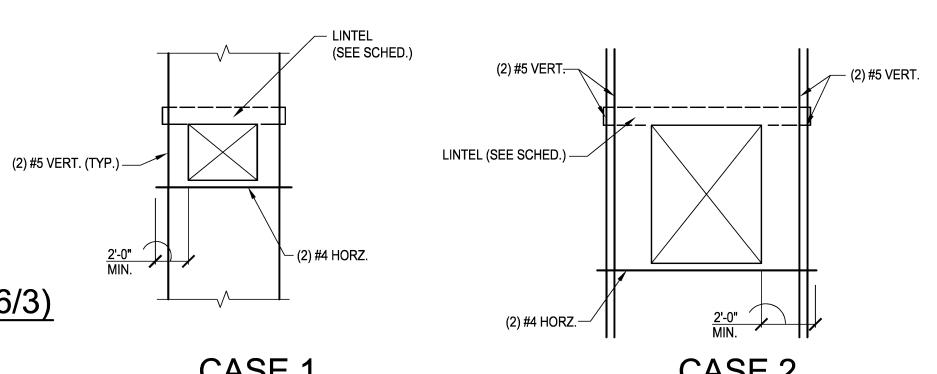
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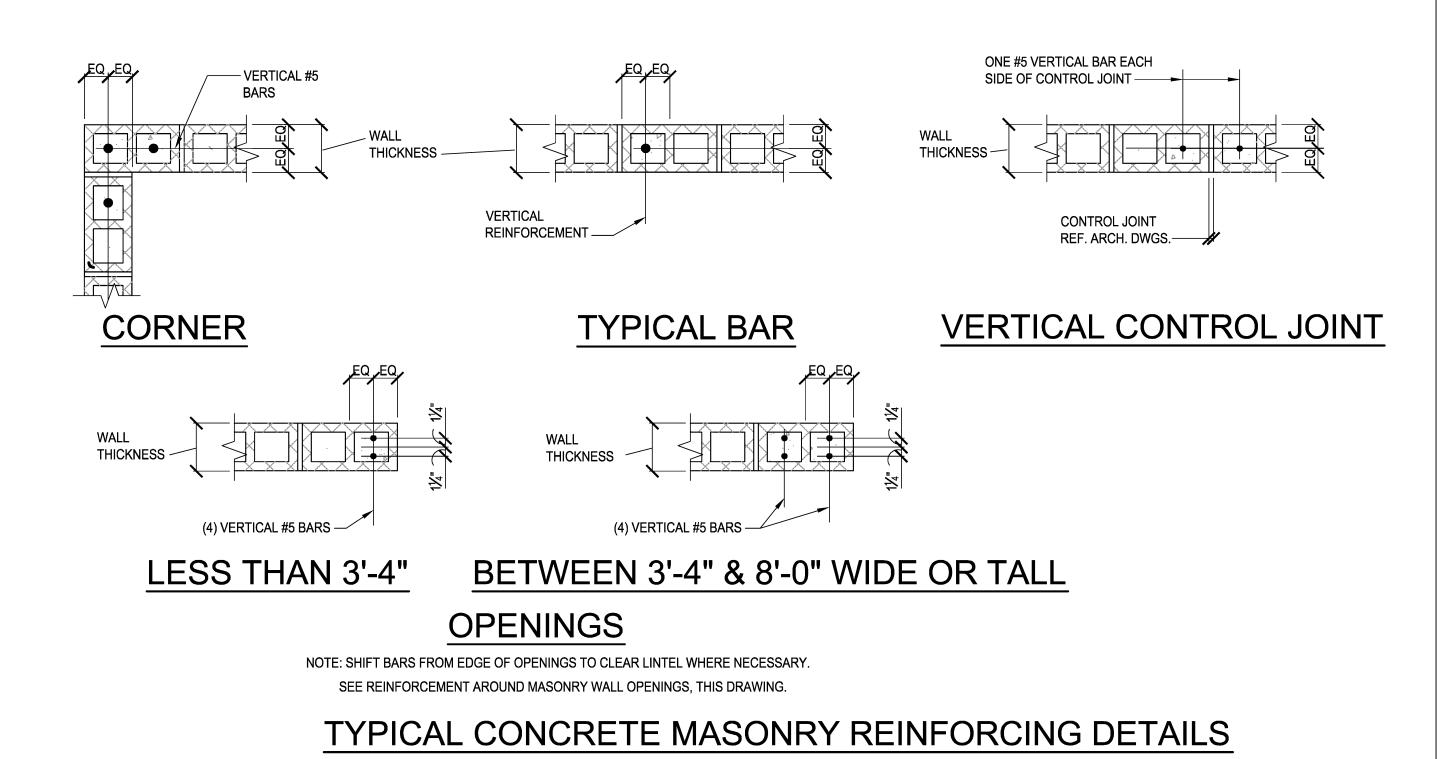
TYPICAL JAMB ELEVATION

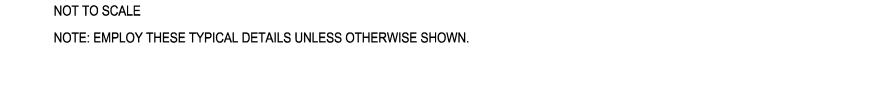
JAMB ELEVATION AT MASONRY CONTROL JOINT

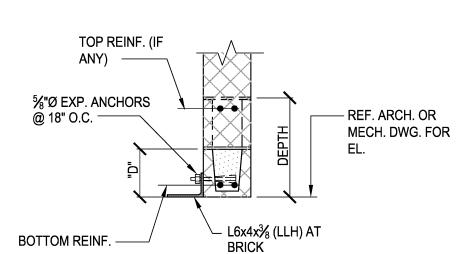


# REINFORCEMENT AROUND MASONRY WALL OPENINGS

- CASE 2 APPLIES TO OPENINGS IN WALLS WHICH EXCEED 4 FEET IN ANY DIRECTION.
- 2. REINFORCEMENT SHOWN ABOVE IS IN ADDITION TO THE TYPICAL WALL REINFORCEMENT.



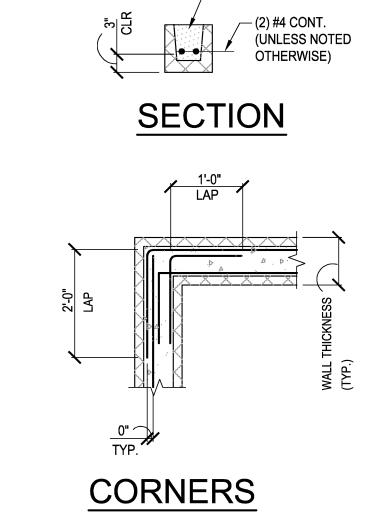




# TYPICAL SECTION

# BOND BEAM LINTEL DETAILS

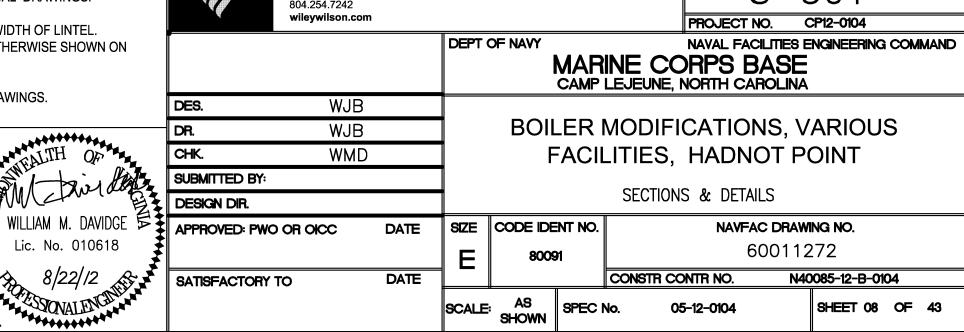
BOND	BEAM	LINTEL SCH	EDULE			
CLEAR SPAN	DEPTH	REINFORCING				
OLL/III OI / III	"D"	8" WIDE	12" WIDE			
0 TO 4'-0"	8	(2) #4 BOT.	(2) #4 BOT.			
4'-0" TO 8'-0"	16	(2) #4 TOP & BOT.	(2) #5 TOP & BOT.			



-GROUT SOLID

# TYPICAL BOND BEAM REINFORCING DETAIL

**BOND BEAM LINTEL NOTES:** NOT TO SCALE 1. PROVIDE 8" BEARING EACH END OF LINTEL. 2. REFER TO ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF **Wiley|Wilson** 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 S - 3013. FOR LOUVER OPENINGS REFER TO MECHANICAL DRAWINGS. 4. REFER TO ARCHITECTURAL DRAWINGS FOR WIDTH OF LINTEL. DEPT OF NAVY SCHEDULE APPLIES ONLY TO LINTELS NOT OTHERWISE SHOWN ON MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA THE DRAWINGS. 5. FOR HEAD DETAILS, SEE ARCHITECTURAL DRAWINGS. WJB

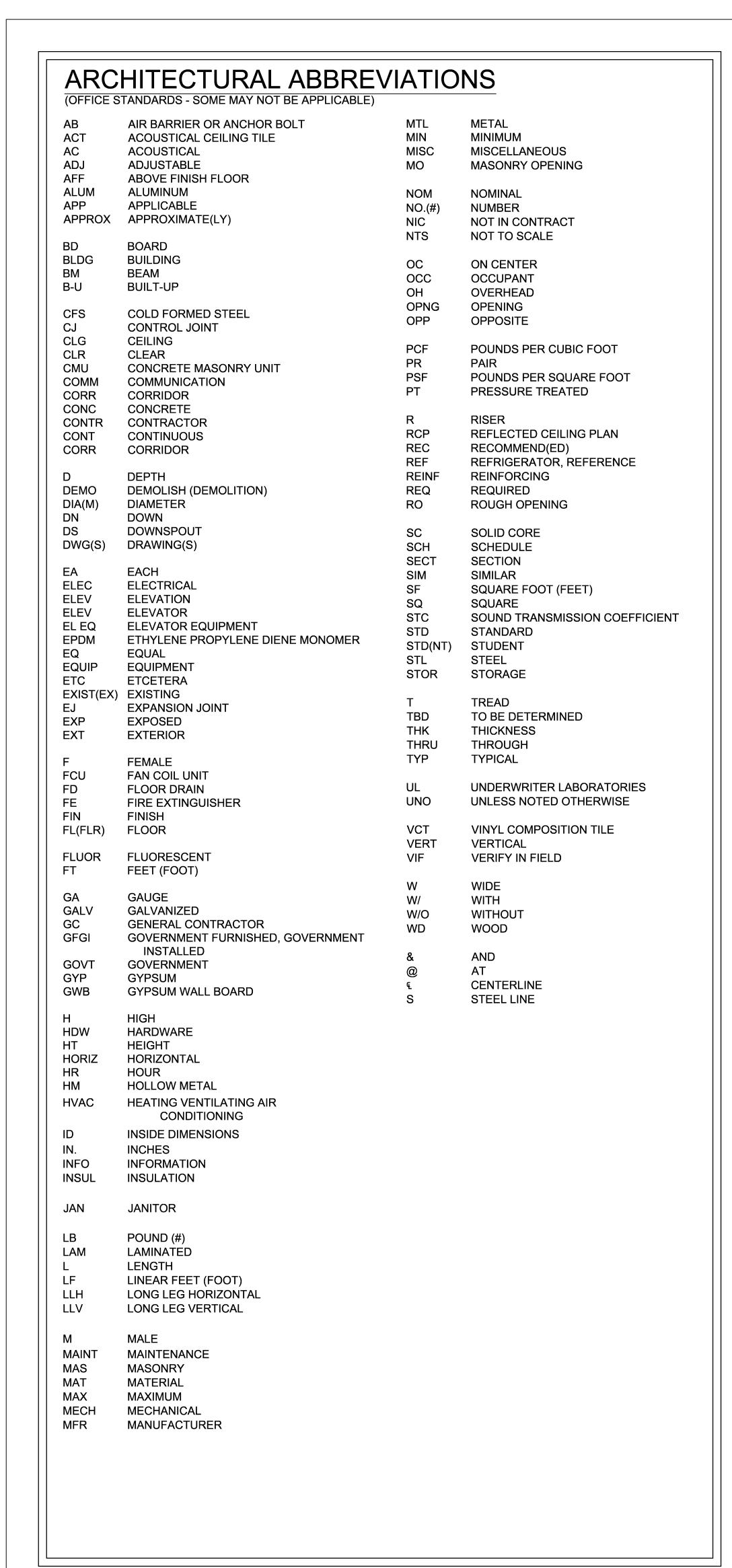


CASE 1

SCALE: NONE NOTES:

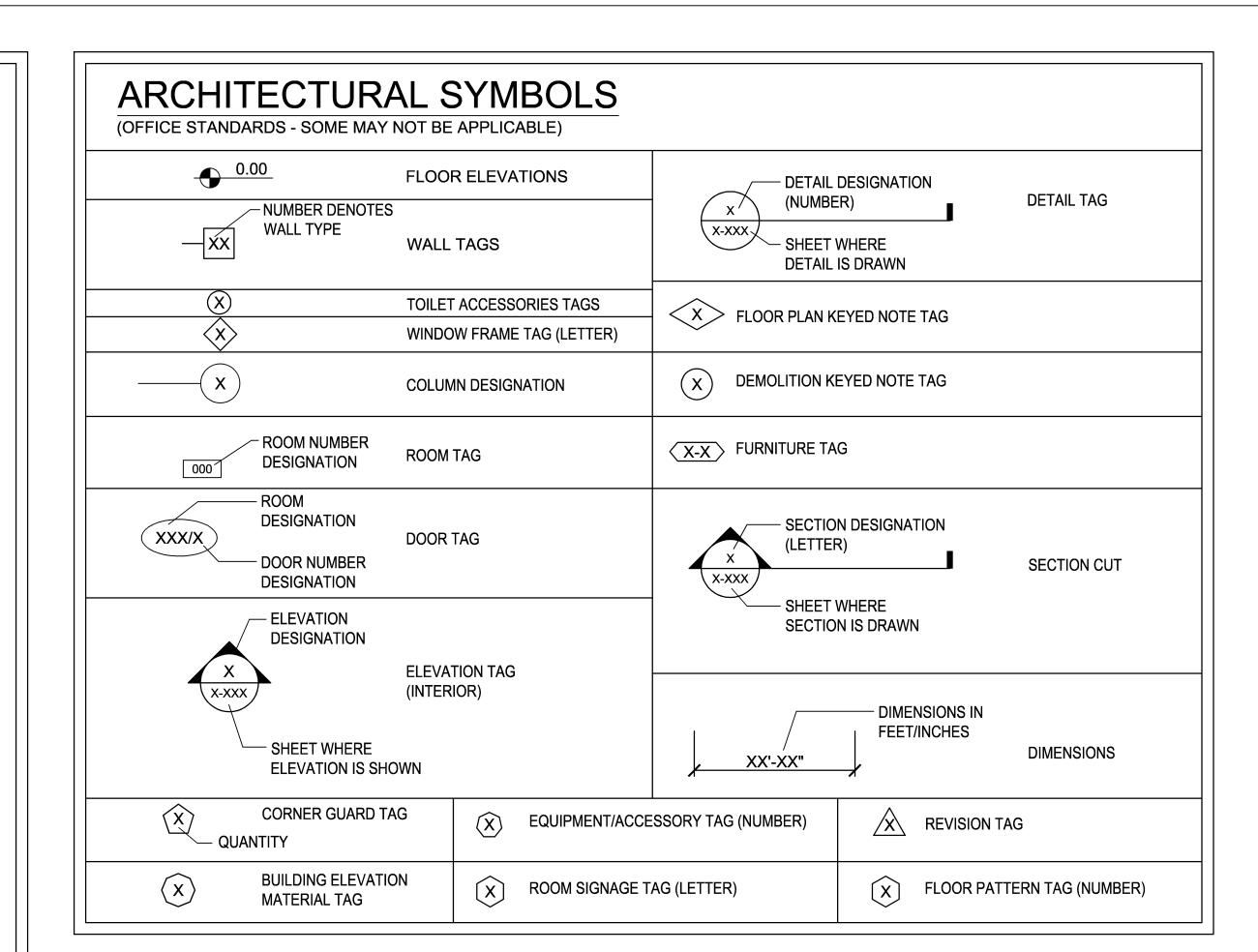
1. CASE 1 - APPLIES TO OPENINGS IN WALLS WHICH ARE 4 FEET OR LESS IN ANY DIRECTION.

3. ALL VERTICAL BARS TO BE FULL HEIGHT FROM FLOOR TO FLOOR.

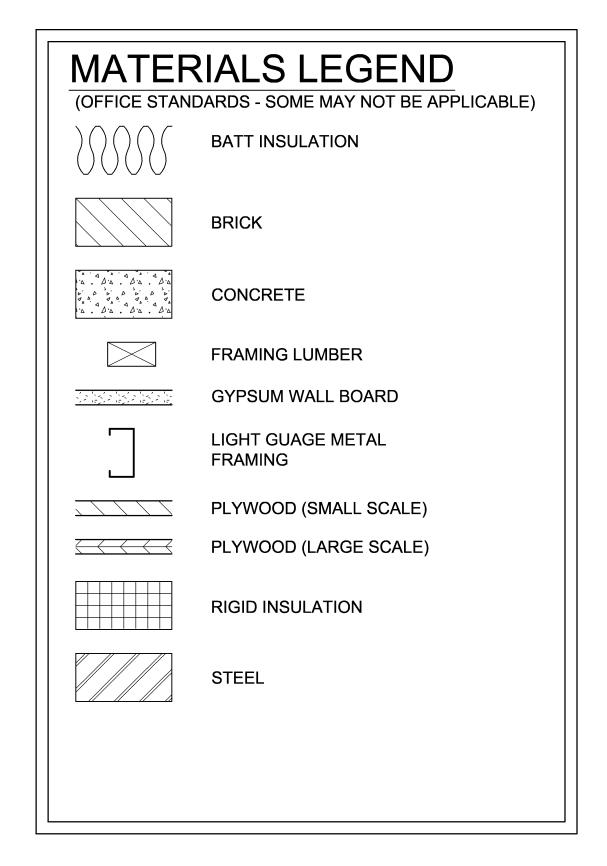


# GENERAL CONSTRUCTION NOTES:

- 1. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DRAWINGS FOR DISCREPANCIES OR OMISSIONS BEFORE ANY WORK IS BEGUN. ANY DISCREPANCIES OR OMISSIONS THAT WOULD AFFECT THE WORK, ITS COST, OR THE WELFARE OF THE GENERAL PUBLIC SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER BEFORE ANY WORK IS BEGUN.
- 2. THE CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH CONDITIONS BEFORE ANY WORK IS BEGUN. ANY UNUSUAL SITE CONDITIONS THAT COULD AFFECT THE WORK, ITS COST, OR THE WELFARE OF THE GENERAL PUBLIC SHALL BE BROUGHT TO THE ATTENTION OF THE ROICC BEFORE ANY WORK IS BEGUN.
- 3. THE CONTRACTOR SHALL SAFEGUARD THE OWNER'S PROPERTY AND ADJACENT PROPERTIES DURING CONSTRUCTION AND SHALL REPLACE ANY DAMAGED PROPERTY OR MATERIALS TO THE ORIGINAL CONDITION AT NO COST TO THE OWNER.
- 4. THE CONTRACTOR SHALL COMPLY WITH THE INTERNATIONAL BUILDING CODE (2009 EDITION) AND ALL APPLICABLE AND GOVERNING CODES AND REGULATIONS; AND SHALL COMPLY WITH ALL LIFE SAFETY REQUIREMENTS OF ALL GOVERNING AUTHORITIES. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
- 5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CLEARANCES PRIOR TO THE COMMENCEMENT OF WORK OR ORDERING OF MATERIALS. ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE CONTRACTING OFFICER IN WRITING PRIOR TO PROCEEDING WITH THAT PORTION OF WORK.
- 6. THE CONTRACTOR OR ANY OF HIS EMPLOYEES, OR SUB-CONTRACTORS SHALL NOT SCALE THESE DRAWINGS FOR DIMENSIONS. IF THERE IS ANY QUESTION CONCERNING THE DIMENSIONS THE CONTRACTOR SHALL CONTACT THE ARCHITECT TO CLARIFY THE DIMENSIONS.
- 7. DRAWING REFERENCES ARE FOR CONVENIENCE ONLY AND DO NOT LIMIT THE EXTENT OR APPLICATION OF THE DRAWING OR DETAIL. ALL DIMENSIONS, DESCRIPTIONS AND/OR SYMBOLS WITHIN A DRAWING ARE COMPLEMENTARY. DRAWINGS AND SPECIFICATIONS WHETHER TAKEN SEPARATELY OR TOGETHER ARE TO BE INTERPRETED ACCORDING TO THEIR FULL INTENT, MEANING AND SPIRIT, AND SHALL BE DEEMED TO EXPLAIN MUTUALLY EACH OTHER AND TO BE A DESCRIPTION OF THE WORK TO BE DONE UNDER THE CONTRACT.
- 8. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK THAT DEVIATES FROM WHAT IS INDICATED IN THE CONTRACT DOCUMENTS OR THAT MAY RESULT IN ADDITIONAL COST OR TIME TO THE PROJECT WITHOUT WRITTEN PERMISSION FROM THE CONTRACTING OFFICER.
- 9. REPAIR ANY DAMAGE TO EXISTING EXTERIOR OR INTERIOR WALLS, CEILINGS, FLOORS, OR FINISHES REMAINING IN PLACE, CAUSED BY CONSTRUCTION WORK.
- 10. HORIZONTAL DIMENSIONS FOR NEW CONSTRUCTION ARE FROM FACE OF STUD OR FACE MASONRY UNLESS OTHERWISE NOTED. HORIZONTAL DIMENSIONS FOR EXISTING CONSTRUCTION ARE FROM FACE OF EXISTING FINISHED SURFACE.
- 11. THE CONTRACTOR SHALL NOT REMOVE, ALTER, LOAD PENETRATE OR ADD TO ANY EXISTING BUILDING ASSEMBLY OR STRUCTURE WHICH MAY COMPROMISE IT'S INTEGRITY OR STRUCTURAL STABILITY OR THE INTEGRITY AND STRUCTURAL STABILITY OF ADJACENT BUILDING ASSEMBLIES OR STRUCTURE WITHOUT HIS PRIOR INVESTIGATION, REMEDY OR ACTION; AND WRITTEN PERMISSION FRO THE ARCHITECT.



CODE INFO	RMATION:
2009 IBC:	
BUILDING INFORMATION: GROSS BUILDING AREA: NET BUILDING AREA:	291 SF 216 SF
MEAN BUILDING HEIGHT: NUMBER OF STORIES: TOTAL PERIMETER:	±12'-2" ONE (1) 69'-4" LF
USE GROUP CLASSIFICATIONS:	"U" - UTILITY AND MISCELLANEOUS (312.1)
CONSTRUCTION TYPE:	II-B (NON-COMBUSTIBLE, UNPROTECTED)
TABLE 503: ALLOWABLE AREA: ALLOWABLE HEIGHT: ALLOWABLE # OF STORIES:	8,500 SF 55 FT 2 STORIES
TABLE 601 (RATINGS): STRUCTURAL FRAME: EXTERIOR WALLS: INTERIOR WALLS: ROOF CONSTRUCTION: FLOOR CONSTRUCTION:	0 HR 0 HR 0 HR 0 HR 0 HR
TABLE 602 (RATINGS): SEPARATION DISTANCE:	10 ≤ X ≤ 30 FT
NFPA LIFE SA	FETY CODE 101:
OCCUPANCY CLASSIFICATION:	N/A
COMMON PATH OF TRAVEL (SECTION 7.12.1):	X < 50 FT
EGRESS (SECTION 7.12.2):	STORIES USED EXCLUSIVELY FOR MECHANICAL EQUIPMENT, FURNACES, OR BOILERS SHALL BE PERMITTED TO HAVE A SINGLE MEANS OF EGRESS WHERE THE TRAVEL DISTANCE TO AN EXIT ON THAT STORY IS NOT IN EXCESS OF THE COMMON PATH OF TRAVEL LIMITATIONS OF 7.12.1
MINIMUM EGRESS WIDTH:	X ≥ 36 IN.; 72 IN. PROVIDED



			Wiley Wilso 6606 West Broad Richmond, Virginia 804.254.7242 wileywilson.com	St., Suite 500 a 23230-1717					A-(		
			wileywilson.com		DEPT (				FACILITIES E	  -  -	COMMA
	OTHE ALTH OF	DES. DR. CHK. SUBMITTED BY: DESIGN DIR.	LTC AEI JHE			F	ACIL	MODIFICAT LITIES, HAI IOTES, ABBREVIA	DNOT P	OINT	3
Lucinda Lucinda Luc. S	Lic. Jp. 9938	APPROVED: PWC	OR OICC	DATE	SIZE	CODE IDE 8009	n		<b>AVFAC DRAW</b> 600112		
	8/22//2 **CHITEC	SATISFACTORY	ТО	DATE	SCALE:	AS SHOWN	SPEC N	CONSTR CONTR No. 05-12-010		0085-12-B-010 SHEET 09	04 OF 43

PREP'D BY DATE APPROVED

# DISCLOSURE OF INFORMATION

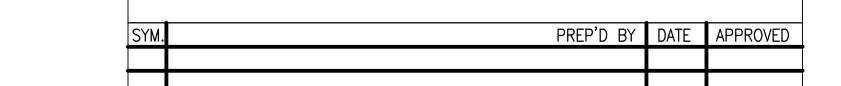
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**GENERAL DRAWING NOTES:** 

BUILDING 6 BUILDING 8 BUILDING 10

**BUILDING 12** 

**BUILDING 63** 

**BUILDING 511** 

STANDARDS.

BUILDINGS.

PLAN NOTES:

BOILER BUILDING SHALL BE REQUIRED ADJACENT

FOLLOW MANUFACTURER'S RECOMMENDATIONS

VIF AND COORDINATE PENETRATIONS WITH

HORIZONTAL DIMENSIONS ARE FROM FACE OF

ALL EXTERIOR MATERIALS FOR BOILER BUILDINGS

ARE TO CONFORM TO CAMP LEJEUNE BASE

COLORS AND TEXTURES TO MATCH ADJACENT

BUILDING ENUMERATION SIGNAGE TO BE

LOCATED ON THH FACE OF THE BUILDING CLOSEST TO THE ROAD. FINAL LOCATION AND ENUMERATION TEXT TO BE COORDINATED WITH CAMP LEJEUNE CULTURAL RESOURCES PROGRAM MANAGER AND CAMP LEJEUNE PUBLIC WORKS MANAGEMENT OFFICE.

MASONRY UNLESS OTHERWISE NOTED.

2. SEE SHEET A-301 FOR WALL SECTIONS AND

FOR INSTALLATION OF ARCHITECTURAL ASPHALT

TO AND SERVING EACH OF THE FOLLOWING

**BUILDINGS AT HADNOT POINT:** 

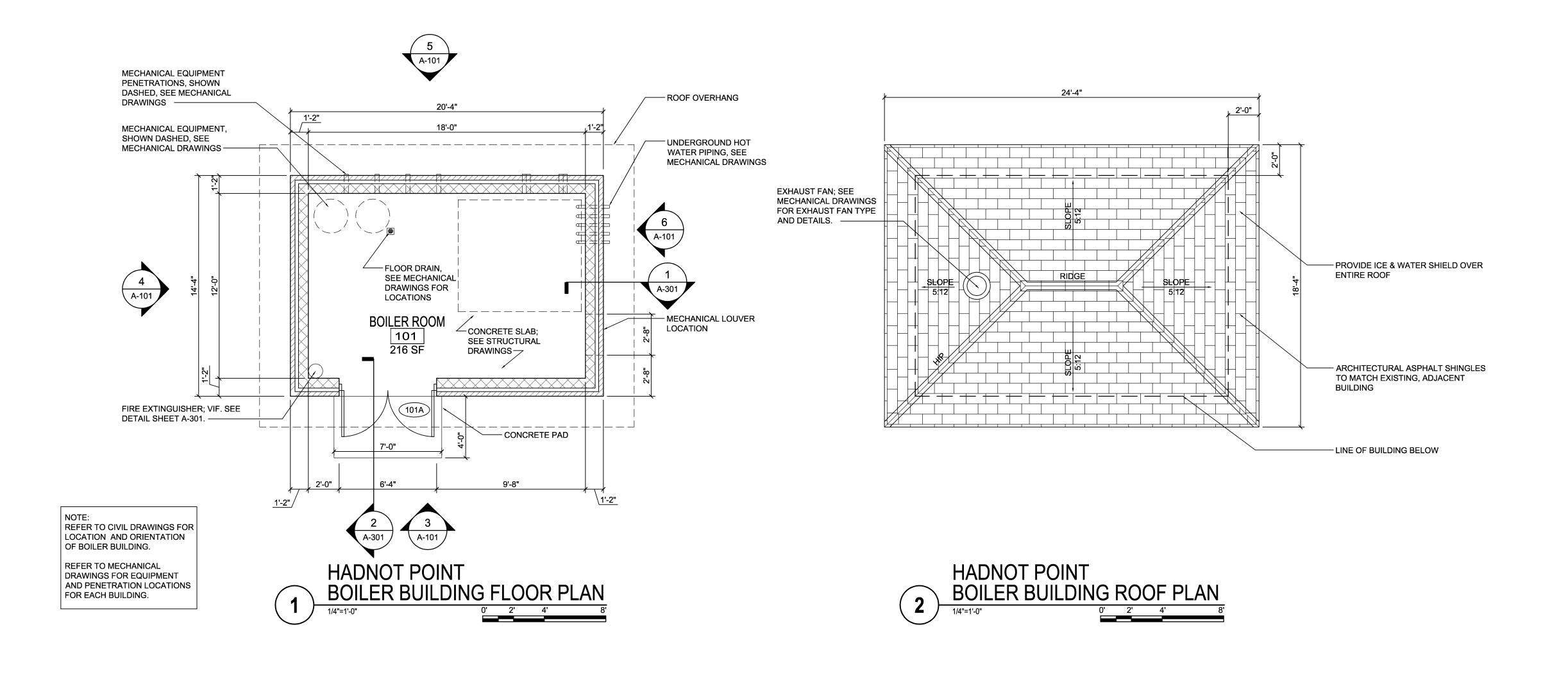
BUILDING 308 (HISTORIC)

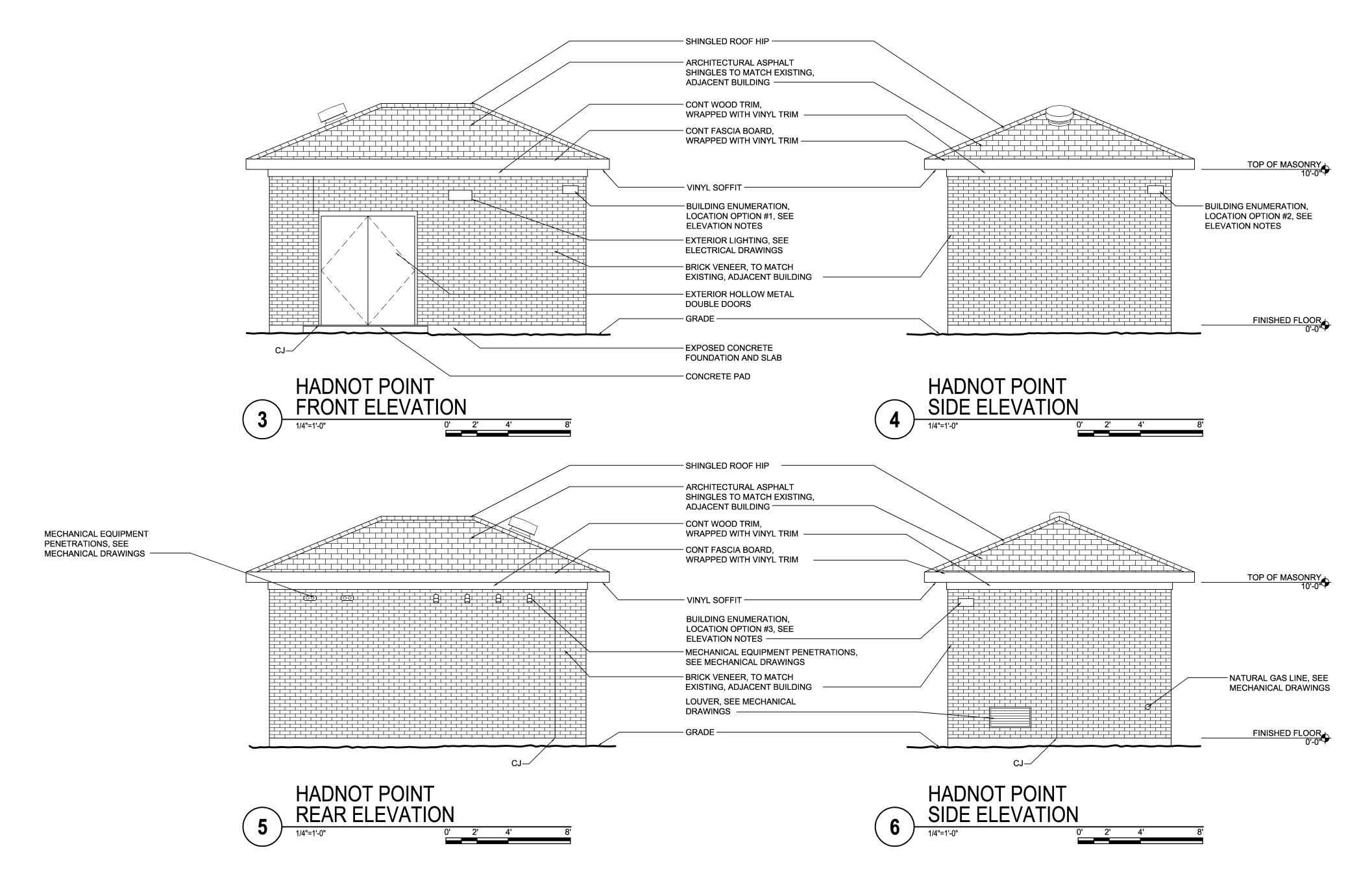
BUILDING 309 (HISTORIC) BUILDING 316 (HISTORIC)

BUILDING 321 (HISTORIC)

BUILDING 323 (HISTORIC)

MECHANICAL DRAWINGS.





# Wiley|Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com A - 101PROJECT NO. CP12-0104 DEPT OF NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA LTC BOILER MODIFICATIONS, VARIOUS ΑEΙ FACILITIES, HADNOT POINT JHE SUBMITTED BY: PLANS AND ELEVATIONS DESIGN DIR. APPROVED: PWO OR OICC DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. 60011274 CONSTR CONTR NO. N40085-12-B-0104 SATISFACTORY TO

SHEET 10 OF 43

05-12-0104

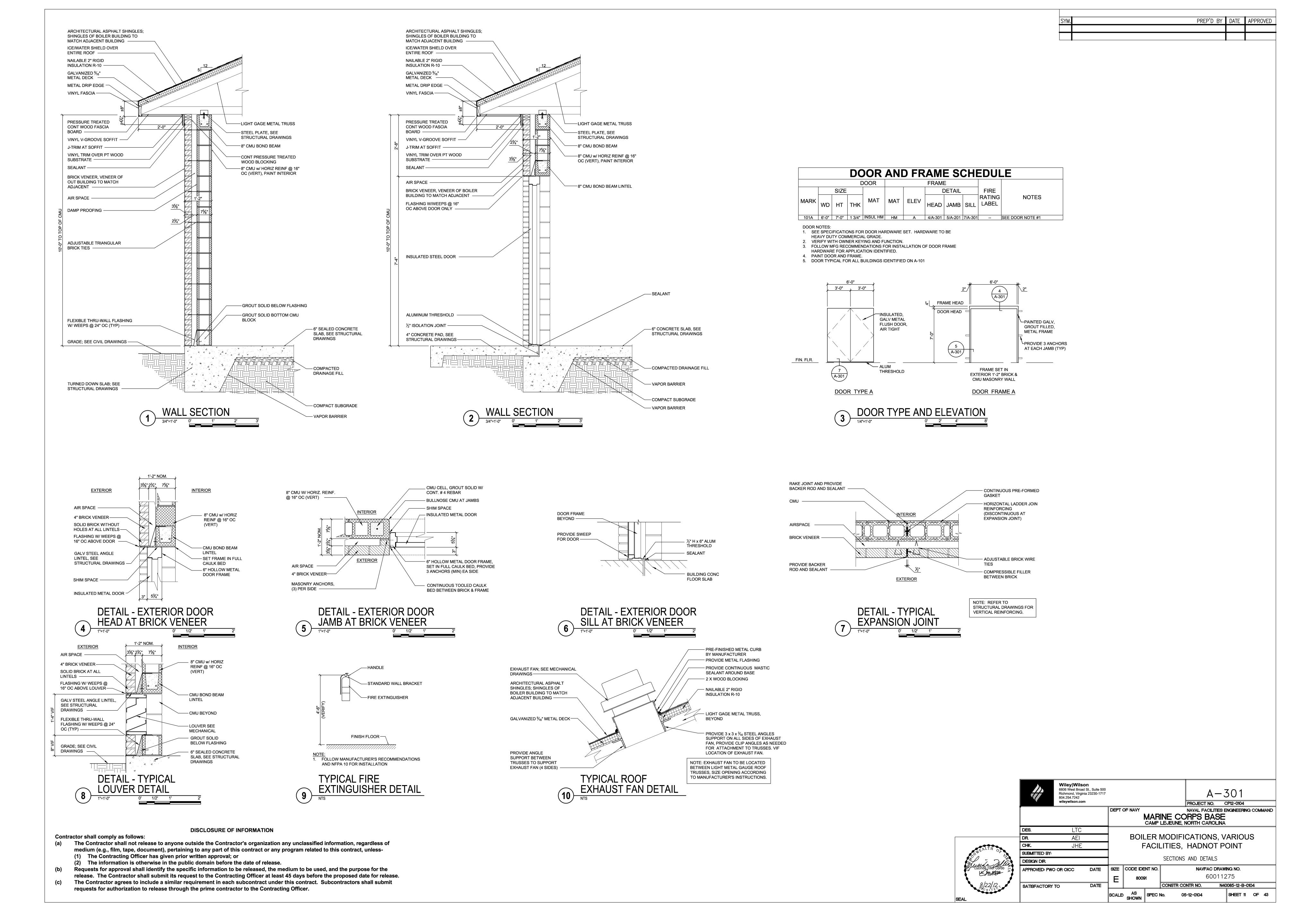
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SYM.	PREP'D BY	DATE	APPROVED

			ABBREV	/IATIONS			
(E)	EXISTING	DIFF	DIFFERENTIAL	HGR	HOODED GRAVITY RELIEF	RF	RADIO FREQUENCY
A	ANCHOR	DN	DOWN	HOR	HORIZONTAL	RH	RELATIVE HUMIDITY
AAV	AUTOMATIC AIR VENT	DO	DIGITAL OUTPUT	HP	HORSEPOWER	RHC	REHEAT COIL
ACC	AIR-COOLED CHILLER	DP	DIFFERENTIAL PRESSURE	HPR	HIGH PRESSURE STEAM RETURN	RL	REFRIGERATION LINE
ACU	AIR CONDITONING UNIT	DPR	DAMPER	HPS	HIGH PRESSURE STEAM SUPPLY	RLA	RATED LOAD AMPS
AD	ACCESS DOOR	DPS	DIFFERENTIAL PRESSURE SENSOR	HTG	HEATING	RLF	RELIEF
AF	AIRFOIL	DWDI	DOUBLE WIDTH, DOUBLE INLET	HTR	HEATER	RPM	REVOLUTIONS PER MINUTE
AFF	ABOVE FINISH FLOOR	DWG	DRAWING	HVAC	HEATING VENTILATING & AIR CONDITIONING	RTN	RETURN
AFMS	AIR FLOW MEASURING STATION	EA	EACH	HVU	HEATING AND VENTILATING UNIT	RV	RELIEF VALVE
AHU	AIR HANDLING UNIT	EAT	ENTERING AIR TEMPERATURE	HWR	HOT WATER HEATING RETURN OR HOUR	SA	SUPPLY AIR
Al	ANALOG INPUT	EC	ELECTRIC CONVECTOR	HWS	HOT WATER HEATING SUPPLY	SAF	SUPPLY AIR FAN
AL	ALUMINUM	ECC RED	ECCENTRIC REDUCER	HZ	HERTZ	SAT	SATURATION
AMB	AMBIENT	EDH	ELECTRIC DUCT HEATER	ID	INSIDE DIAMETER	SCR	SILICON CONTROLLED RECTIFIER
AMP	AMPERE	EF	EXHAUST FAN	IL	INTERNAL ACOUSTICAL DUCT LINING	SD	SPLITTER DAMPER
AO	ANALOG OUTPUT	EG	ETHYLENE GLYCOL	IN	INCH, INCHES	SDPR	SMOKE DAMPER
AP	ACCESS PANEL	EH	ELECTRIC HEATER	INSU	INSULATION	SEC	SECONDS
APD	AIR PRESSURE DROP	EI	EXTERNALLY INSULATED	JWR	JACKET WATER RETURN	SF	SQUARE FEET
APPROX	APPROXIMATE	EJ	EXPANSION JOINT	JWS	JACKET WATER SUPPLY	SL	SUCTION LINE
ARCH	ARCHITECT	EL	ELEVATION	KW	KILOWATT	SP	STATIC PRESSURE
ASJ	ALL SERVICE JACKET	ELEV	ELEVATION	KWH	KILOWATT HOUR	SPD	SPEED
ASJ	AUTOMATIC TEMPERATURE CONTROLS	EP	ELECTRIC-PNEUMATIC	LAT	LEAVING AIR TEMPERATURE	SPEC	SPECIFICATIONS
ATM	ATMOSPHERE	EQUI	EQUIPMENT	LB/HR	POUNDS PER HOUR	SQ	SQUARE
ATT		ERU	EQUIPMENT  ENERGY RECOVERY UNIT		POUNDS	+	
	ATTENUATOR			LBS		SS	STAINLESS STEEL
AUTO	AUTOMATIC	ESP	EXTERNAL STATIC PRESSURE	LF	LINEAR FEET	STD	STANDARD
AV	AIR VALVE	EWT	ENTERING WATER TEMPERATURE	LPR	LOW PRESSURE STEAM RETURN	STL	STEEL
В	BOILER	EXH	EXHAUST	LPS	LOW PRESSURE STEAM SUPPLY	STM	STEAM
BBD	BOILER BLOW DOWN	EXIST	EXISTING	LRA	LOCKED ROTOR AMPS	STR	STRAINER
BC	BALANCING COCK	EXP	EXPANSION	LVR	LOUVER	SYS	SYSTEM
BEL	BELLMOUTH FITTING	EXT	EXTERNAL	LWT	LEAVING WATER TEMPERATURE	TD	TRANSFER DUCT
BFW	BOILER FEED WATER	F&T	FLOAT AND THERMOSTATIC	MAV	MANUAL AIR VENT	TEMP	TEMPERATURE
BHP	BRAKE HORSEPOWER	F OR °F	DEGREE FAHRENHEIT	MAX	MAXIMUM	TONS	TONS OF REFRIGERATION
BLDG	BUILDING	F TO F	FACE TO FACE	МВН	THOUSAND BTU'S PER HOUR	TRANS	TRANSFER
BRAHU	BATTERY ROOM AIR HANDLING UNIT	FC	FORWARD CURVED	MBTUH	THOUSAND BTU'S PER HOUR	TSP	TOTAL STATIC PRESSURE
вти	BRITISH THERMAL UNIT	FCD	FLOW CONTROL DEVICE	MCA	MINIMUM CIRCUIT AMPS	TSTAT	THERMOSTAT
BTUH	BRITISH THERMAL UNITS PER HOUR	FCU	FAN COIL UNIT	MIN	MINIMUM	ТТ	TEMPERATURE TRANSMITTER
BY	BUTTERFLY VALVE	FCV	FUEL OIL VENT	MPR	MEDIUM PRESSURE STEAM RETURN	TU	TERMINAL UNIT
СТОС	CENTER TO CENTER	FD	FLOOR DRAIN	MPS	MEDIUM PRESSURE STEAM SUPPLY	TWR	TEMPERED WATER RETURN
CA	COMPRESSED AIR	FDPR	FIRE DAMPER	MTG HGT	MOUNTING HEIGHT	TWS	TEMPERED WATER SUPPLY
CC	COOLING COIL	FF	FINISH FLOOR	N	NORTH •	TYP	TYPICAL
CF	CHEMICAL FEED	FLA	FULL LOAD AMPS	N/A	NOT APPLICABLE	UC	UNDER CUT
CFH	CUBIC FEET PER HOUR	FLEX	FLEXIBLE	NC	NOISE CRITERA OR NORMALLY CLOSED	UH	UNIT HEATER
CFM	CUBIC FEET PER MINUTE	FLEX CONN	FLEXIBLE CONNECTOR	NIC	NOT IN CONTRACT	V	VOLT, VENT
CHR	CHILLED WATER RETURN	FLR	FLOOR	NO	NUMBER OR NORMALLY OPEN	VAG	VACUUM
CHS	CHILLED WATER SUPPLY	FOB	FLAT ON BOTTOM	NOM	NOMINAL	VAR	VARIABLE
CLG	COOLING OR CEILING	FOF	FUEL OIL FILL	NPSH	NET POSITIVE SUCTION HEAD	VAV	VARIABLE AIR VOLUME
CO	CLEANOUT	FOG	FUEL OIL GAUGE	NTS	NOT TO SCALE	VCD	VOLUME CONTROL DAMPER
COMB	COMBINATION	FOR	FUEL OIL RETURN	OA	OUTSIDE AIR	VE	VOLUME EXTRACTOR
COND	CONDENSER OR CONDENSATE	FOS	FUEL OIL SUPPLY	OAT	OUTSIDE AIR TEMPERATURE	VERT	VERTICAL
COND	CONNECT OR CONNECTION	FOT	FLAT ON TOP	OBD	OPPOSED BLADE DAMPER	VFD	VARIABLE FREQUENCY DRIVE
CPR	CONDENSATE PUMP RETURN	FPF	FINS PER FOOT	OD	OUTSIDE DIAMETER	VLV	VALVE
CRU		FPI	FINS PER FOOT	OSD	OPEN SITE DRAIN	VOL	VOLUME
	COMPUTER ROOM UNIT			l OOD			
CUET	COOLING TOWER	FPM	FEET PER SECOND	DD.	PUMP	W NAV	WATT
CU FT	CUBIC FEET	FPS	FEET PER SECOND	PD	PRESSURE DROP	W/	WITH
CU IN	CUBIC INCH	FRK	FOIL REINFORCED KRAFT	PE	PNEUMATIC-ELECTRIC	W/O	WITHOUT
CUH	CABINET UNIT HEATER	FRP	FIBERGLASS REINFORCED PLASTIC	PG	PRESSURE GAUGE	WB	WET BULB
Cv	COEFFICIENT, VALVE FLOW	FS	FLOW SWITCH	PH	PHASE	WG	WATER GAUGE
CW	COLD WATER (CITY)	FT	FEET OR FOOT	PLUM	PLUMBING	WP	WATERPROOF, WEATHERPROOF
CWR	CONDENSER WATER RETURN (FROM COND)	FTR	FIN TUBE RADIATION	PNL	PANEL	WT	WEIGHT
cws	CONDENSER WATER SUPPLY (TO COND)	FURN	FURNISH OR FURNACE	PP	TEMPERATURE/PRESSURE TEST PORT		
D	DRAIN	G	GAS	PR	PRESSURE REGULATOR		
DB	DRY BULB	G	GUIDE	PRESS	PRESSURE		
DBA	DECIBELS TO "A" REFERENCE	GA	GAUGE	PRV	PRESSURE REDUCING VALVE		
DBT	DRY BULB TEMPERATURE	GAL	GALLON	PS	PRESSURE SWITCH		
DC	DIRECT CURRENT	GALV	GALVANIZED	PSF	POUNDS PER SQUARE FOOT		
DC	ON CENTER	GPD	GALLONS PER DAY	PSI	POUNDS PER SQUARE INCH		
DCF	DRY-COOLER FAN	GPH	GALLONS PER HOUR	PVC	POLYVINYL CHLORIDE		
DCP	DATA CONTROL PANEL	GPM	GALLON PER MINUTE	QTY	QUANTITY		
DDC	DIRECT DIGITAL CONTROL	GR/LB	GRAINS OF MOISTURE PER LB OF DRY AIR	RA	RETURN AIR		
	DEGREE	H & V	HEATING AND VENTILATING	RAD	RADLATION		
DEG			WATER	RAF	RETURN AIR FANS		
	PRESSURE DROP	1H2O	**/ \	1177	I TE I OTA AII AI AIIO	1	
DEG DELTA P	PRESSURE DROP	H2O	HEATING COIL	BC.	RECEIVER CONTROLLER		l l
DELTA P DG	DOOR GRILLE	НС	HEATING COIL	RC	RECEIVER CONTROLLER		
DELTA P DG DHC	DOOR GRILLE DUCT HEATING COIL	HC HD	HUB DRAIN	RCVR	RECEIVER		
DELTA P DG	DOOR GRILLE	НС					

# GENERAL NOTES (APPLIES TO ALL SHEETS):

- 1. COORDINATE BUILDING DOWNTIME WITH CONTRACTING OFFICER. IF BUILDING HEATING SYSTEM IS DOWN FOR MORE THAN 8 HOURS, PROVIDE TEMPORARY HEATING FOR BOTH BUILDING HEAT
- AND DOMESTIC HOT WATER.
- 2. VERIFY BUILDING OPERATING TEMPERATURES AND ADAPT NEW SYSTEM TO EXISTING SYSTEM. 3. FOLLOW STEAM AND CONDENSATE BRANCHES BACK TO STEAM PIT WHERE BRANCHES CONNECT TO MAINS. REMOVE BRANCH PIPING TO ENTRANCE OF STEAM PIT AND PROVIDE CAP. PROVIDE BLIND FLANGE TO EXISTING BRANCH STEAM AND CONDENSATE ISOLATION VALVE AND TAG VALVES TO REMAIN CLOSED. ABANDON CAPPED BRANCH STEAM AND CONDENSATE LINES BETWEEN STEAM PIT AND BUILDING.
- 4. GAS REGULATORS FOR EACH BUILDING WILL BE PROVIDED BY THE OTHERS. SEE PLANS FOR REGULATOR CAPACITY REQUIREMENTS.

# DISCLOSURE OF INFORMATION

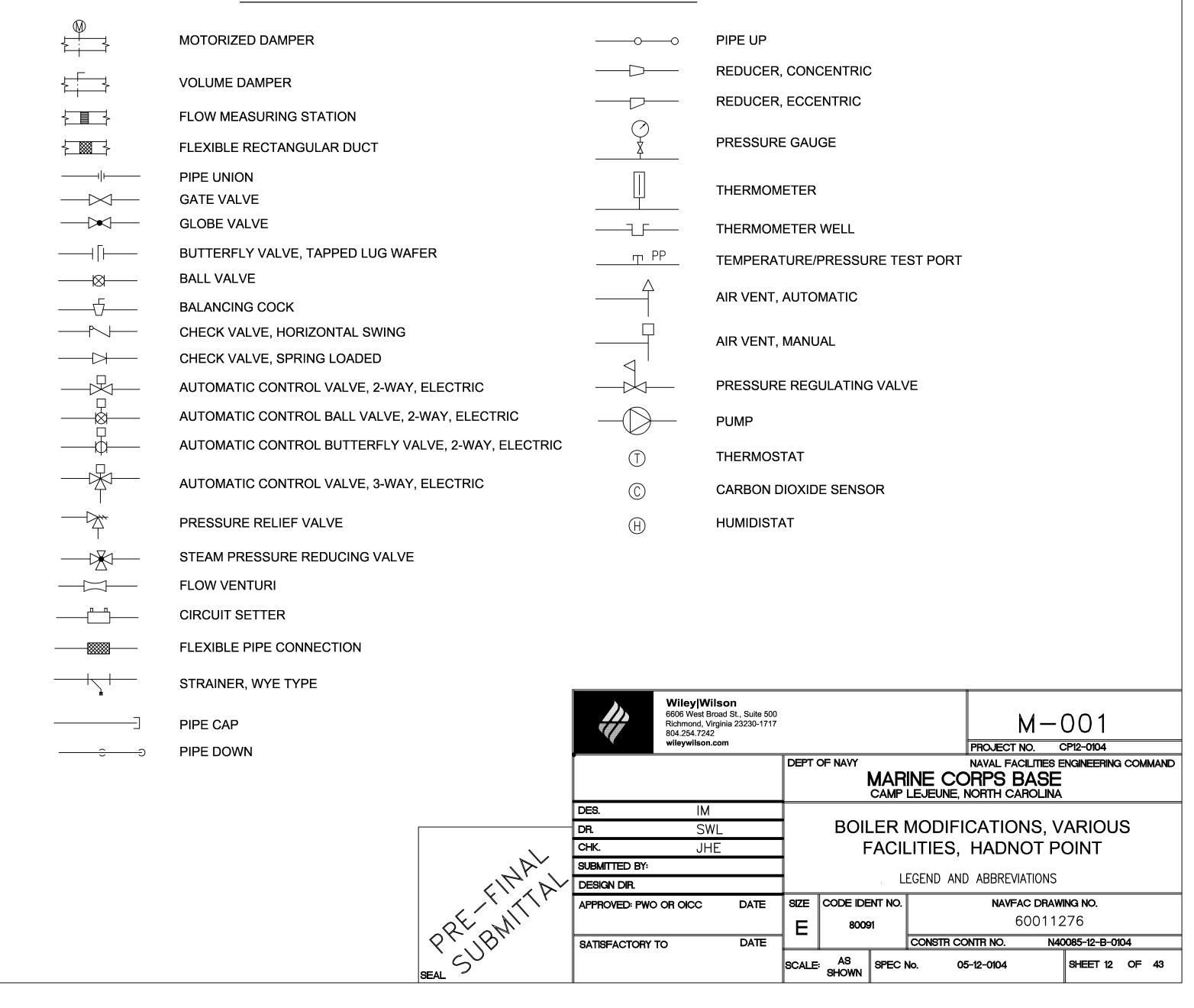
# Contractor shall comply as follows:

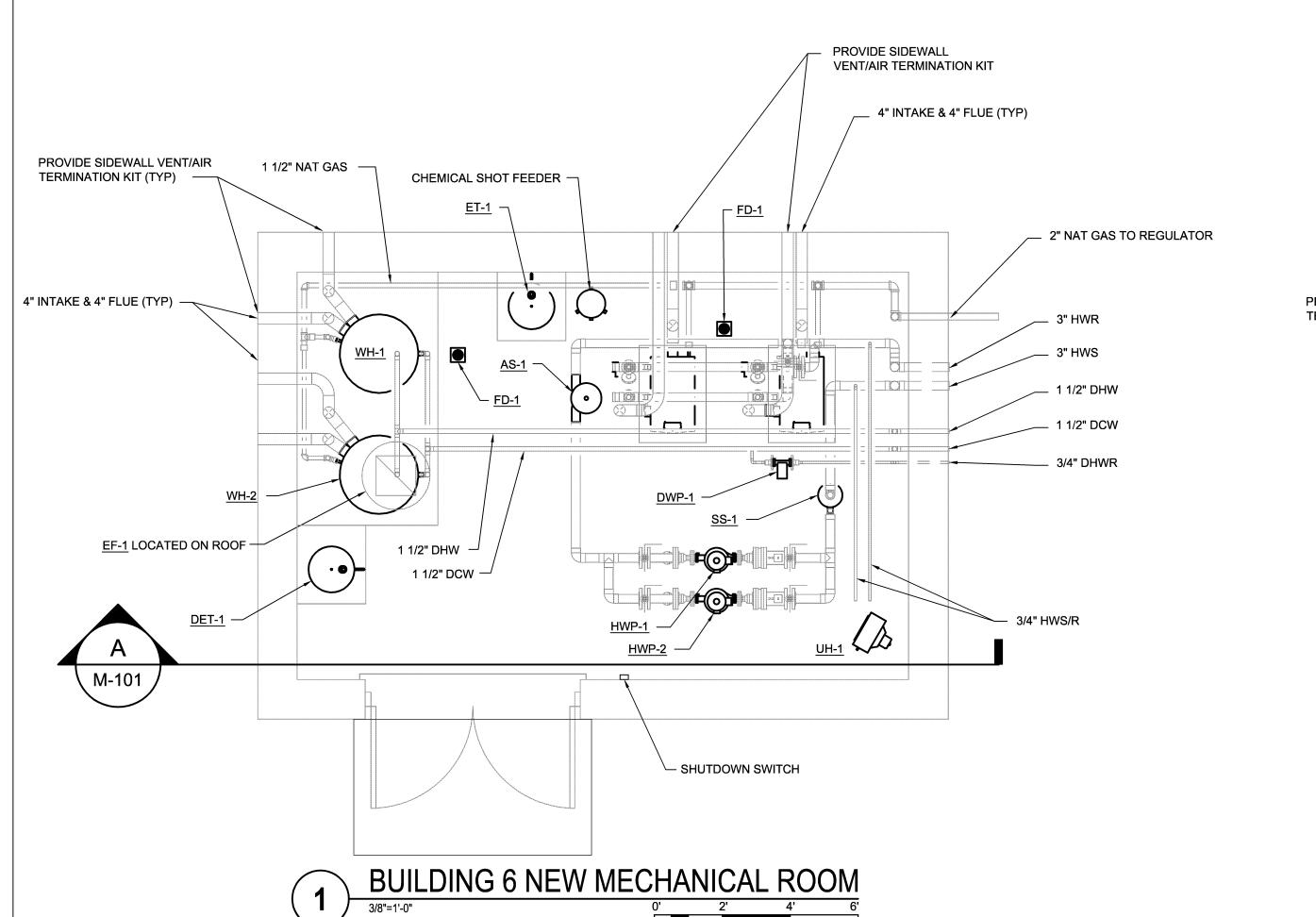
- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
- (1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

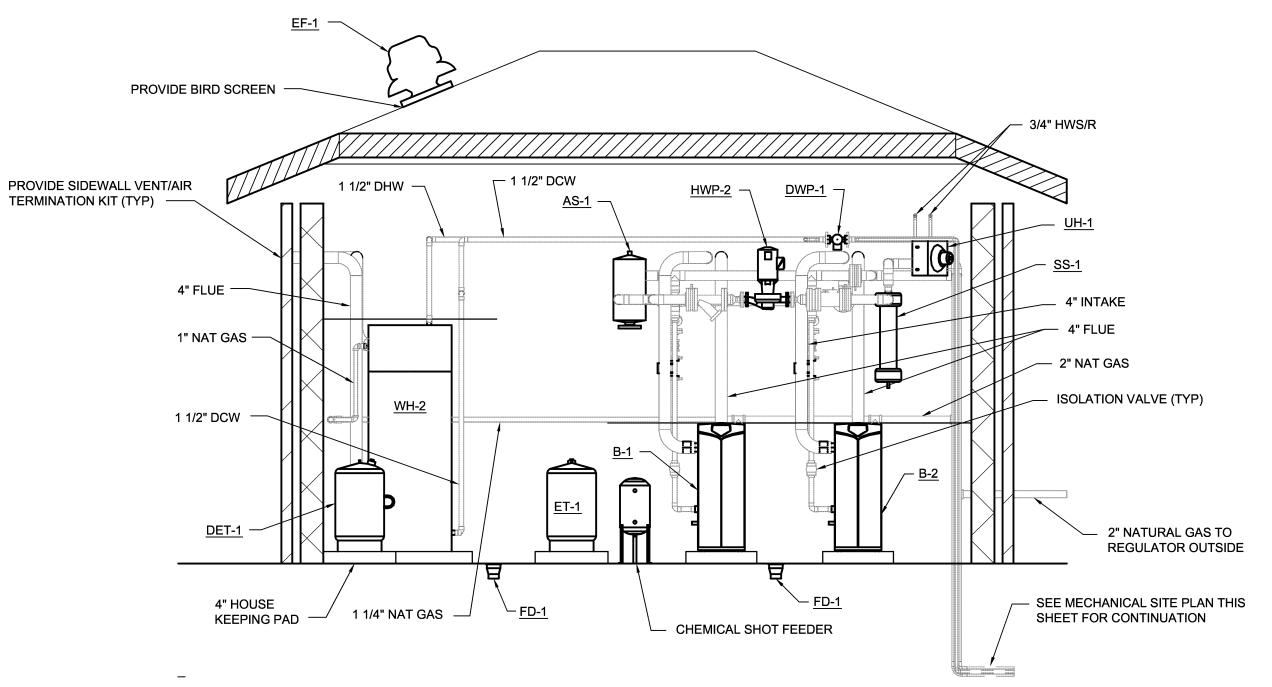
ME	MECHANICAL LEGEND					
(A	(APPLIES TO ALL MECHANICAL SHEETS)					
c—	PIPE TURN DOWN					
o—	PIPE TURN UP					
—— HWS ——	HEATING WATER SUPPLY					
	HEATING WATER RETURN					
—— CHS ——	CHILLED WATER SUPPLY					
—— CHR ——	CHILLED WATER RETURN					
— G —	NATURAL GAS					
T	DDC ROOM THERMOSTAT (MOUNT 60" AFF)					
	DIRECTION OF FLOW					
	FLEXIBLE PIPE CONNECTION					
<u> </u>	FLOW SWITCH					
	PIPE SENSOR					
<b>→</b>	CHECK VALVE					
	SOLENOID VALVE					
+_+	STRAINER					
	CIRCUIT SETTER					

<b>─</b> ⋈	GATE VALVE
	BUTTERFLY VALVE
—— <b>X</b> I——	BALL VALVE
<b>─</b>	CONCENTRIC REDUCER
	PUMP
	DUCT MANUAL VOLUME DAMPER
Z	DUCT ELBOW WITH TURNING VANES
	RETURN AIR DUCT
$\boxtimes$	SUPPLY AIR DUCT
	EXHAUST AIR DUCT

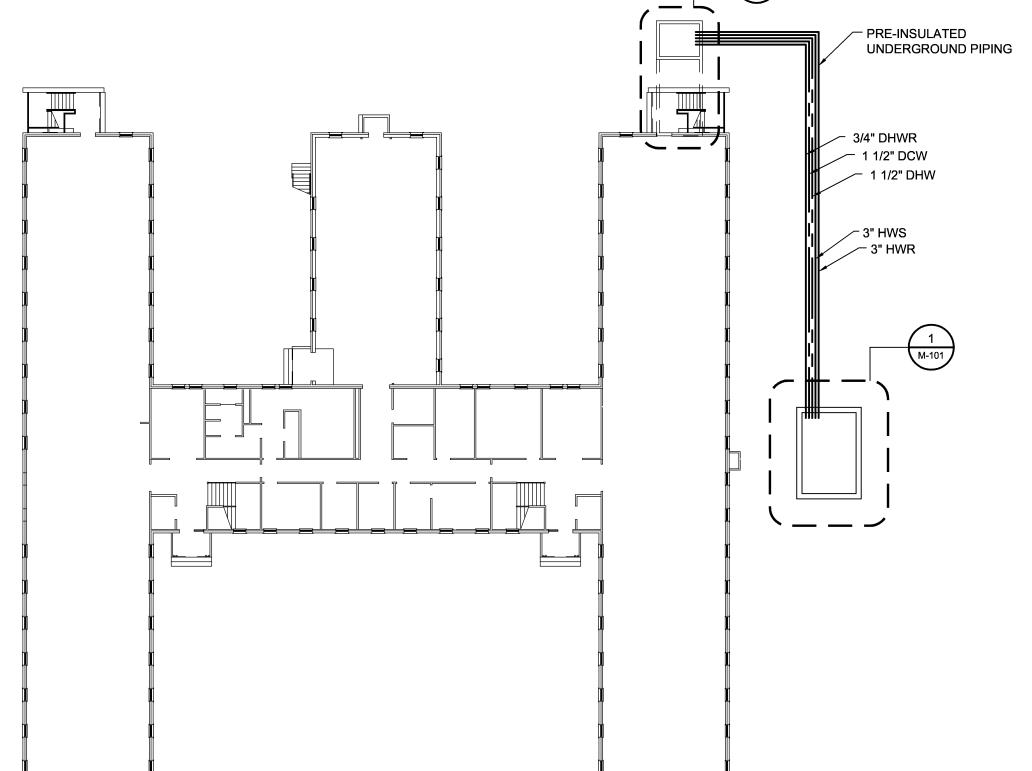
# CONTROL AND SCHEMATIC LEGEND











UNIT HEATER SCHEDULE			
DESIGNATION	UH-1		
LOCATION	MECH ROOM		
AIRFLOW (CFM)	340		
HEATING CAPACITY (MBH)	10		
ENTERING AIR TEMPERATURE (DEG F)	55		
LEAVING AIR TEMPERATURE (DEG F)	82		
ENTERING WATER TEMPERATURE (DEG F)	180		
FLOW RATE (GPM)	.5		
WATER PRESSURE DROP (FT W.G.)	.5		
MOTOR POWER (HP)	1/60		
VOLTAGE (V)	115		
DHV6E	1		

60

MODINE

HC-18 S 01

1

REMARKS LEGEND:
1 PROVIDE LINIT MOLINTED THERMOSTAT

FREQUENCY (Hz)

BASED ON

REMARKS

MODEL

DOMESTIC HOT WATER HEATER SCHEDULE				
DESIGNATION	WH-1	WH-2		
LOCATION	MECH ROOM	MECH ROC		
STORAGE (GALLONS)	100	100		
GPH AT 100 DEG F RISE	230	230		
FUEL TYPE	NATURAL GAS	NATURAL G		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5		
GAS INLET CONNECTION (IN)	3/4	3/4		
INPUT (MBH)	199	199		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	STATE	STATE		
MODEL	SUF 100 199 NE	SUF 100 199		
REMARKS	1 & 2	1 & 2		
REMARKS LEGEND:				

DESIGNATION

FLOOR DRAIN SCHEDULE

DESCRIPTION

ZURN MODEL 415B WITH 6" NICKEL BRONZE

STRAINER AND PROSET TRAPGUARD

DRAIN SIZE

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

# NATURAL GAS NOTE:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,200 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

- 1. SEE GENERAL NOTES ON SHEET M-001.
- MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.
- 3. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 6. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 7. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE

	MIXING VALVE.	
8.	PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1	, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY
	SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.	

DESIGNATION

DESCRIPTION

DRIVE TYPE

MOTOR DATA

HERTZ

REMARKS

SELECTION BASED ON

HORSEPOWER

FAN DATA

SERVES ROOM(S)

AIRFLOW (SCFM)

TOTAL SP (IN-H2O)

BOILER SCHEDULE				
DESIGNATION	B-1	B-2		
LOCATION	MECH ROOM	MECH ROOM		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10		
GAS INLET CONNECTION (IN)	1	1		
INPUT (MBH)	399	399		
OUTPUT (MBH)	375	375		
MINIMUM TURN DOWN RATIO	5:1	5:1		
FLOWRATE (GPM)	30	30		
MAXIMUM PRESSURE DROP (FT_H20)	8	8		
ENTERING WATER TEMPERATURE (DEG F)	160	160		
LEAVING WATER TEMPERATURE (DEG F)	185	185		
MINIMUM OPERATING PRESSURE (PSI)	30	30		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
TOTAL OPERATING AMPS	1.5	1.5		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	LOCHINVAR	LOCHINVAR		
MODEL REMARKS	KB-400	KB-400		
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4		

# REMARKS LEGEND:

CONDITIONS.

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

SATISFACTORY TO

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

# REMARKS LEGEND: 1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER, CONTINUOUS DUTY RATED.

2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.

3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL. WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO OPEN UPON FAN OPERATION.

**FAN SCHEDULE** 

EF-1

**EXHAUST** 

MECH ROOM

CENTRIFUGAL

--

550

1630

DIRECT

--

1/6

1725

115

GREENHECK

G-085-VG

1, 2 & 3

EXPANSION	EXPANSION TANK SCHEDULE				
DESIGNATION	ET-1	DET-1			
SERVICE	HEATING WATER	DOMESTIC HOT WATER			
LOCATION	MECH ROOM	MECH ROOM			
TYPE	BLADDER	BLADDER			
TANK VOLUME (GAL)	60	17.5			
FILL PRESSURE (PSI)	20	60*			
RELEIF VALVE PRESSURE SETTING (PSI)	100	100			
BASED ON	JOHN WOOD COMPANY	AMTROL			
MODEL	JAER-23-607	ST-C SERIES ST-42V-C			

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

SOLID SEPARATOR SCHEDULE

AIR SEPARATOR

SCHEDULE

SS-1

MECH ROOM

HOT WATER

8.0

LAKOS

ILB-0200

AS-1

MECH ROOM

**HOT WATER** 

**BELL & GOSSETT** 

ROLAIRTROL

DESIGNATION

FLOW RATE (GPM)

MAXIMUM PRESSURE DROP (FT-H20)

DESIGNATION

LOCATION

SERVICE

LINE SIZE (IN)

BASED ON

MODEL

**COLLECTION CHAMBER CAPACITY (GAL)** 

LOCATION

SERVICE

BASED ON

MODEL

LOUVER SCHEDULE				
DESIGNATION	L-1			
USAGE	INTAKE			
LOCATION	MECH ROOM			
DESCRIPTION	COMBINATION LOUVER/DAMPER			
DEPTH (IN)	8			
FRAME TYPE	CHANNEL			
WIDTH (IN)	32			
HEIGHT (IN)	16			
AIRFLOW (CFM)	550			
FREE AREA (SF)	.75			
FREE AREA VELOCITY (FPM)	734			
PRESSURE DROP (IN H20)	.067			
SELECTION BASE ON	GREENHECK			
ACTUATOR TYPE	120 VAC			
ACTUATOR FAIL POSITION	CLOSED			
MODEL	EAC-601			
REMARKS	1, 2 & 3			

REMARKS LEGEND: 1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

ARCHITECT. 2. SEE ARCHITECTURAL PLANS FOR LOCATION. 3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY

PUMP SCHEDULE				
DESIGNATION	HWP-1	HWP-2	DWP-1	
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT WATER	
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM	
TYPE	INLINE	INLINE	INLINE	
PUMP DATA	-	-	-	
FLOW (GPM)	69	69	5	
TOTAL HEAD (FT-H2O)	55	55	20	
MINIMUM EFFICIENCY (%)	45	45	-	
CONNECTION SIZE	-	-	-	
SUCTION (IN)	1.5	1.5	1.5	
DISCHARGE (IN)	1.5	1.5	1.5	
MOTOR DATA	-	-	-	
MOTOR FRAME	182JM	182JM	-	
HORSEPOWER	3	3	-	
RPM	1750	1750	2650	
VOLTS	208	208	115	
PHASE	1	1	1	
HERTZ	60	60	60	
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT	
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-30	
REMARKS	-	-	1	

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

		Wiley Wilso 6606 West Broad Richmond, Virginia 804.254.7242 wileywilson.com	St., Suite 500			=	M -	- 1 0 1 CP12-0104
				DEPT (	OF NAVY		NAVAL FACILITIE	S ENGINEERING COMMAND
						INE CO	RPS BAS	BE
	DES.	IM						
	DR.	SWL			BOILER I	MODIFIC	CATIONS,	VARIOUS
	CHK.	JHE			FACIL	LITIES,	HADNOT	POINT
(A)	SUBMITTED BY:				BUILDING 6	MECHANIC	AL DEMOLITION	N AND NEW
一覧	DESIGN DIR.						K PLAN	
RAS Б	APPROVED: PWO	OR OICC	DATE	SIZE	CODE IDENT NO.		NAVFAC DR	RAWING NO.

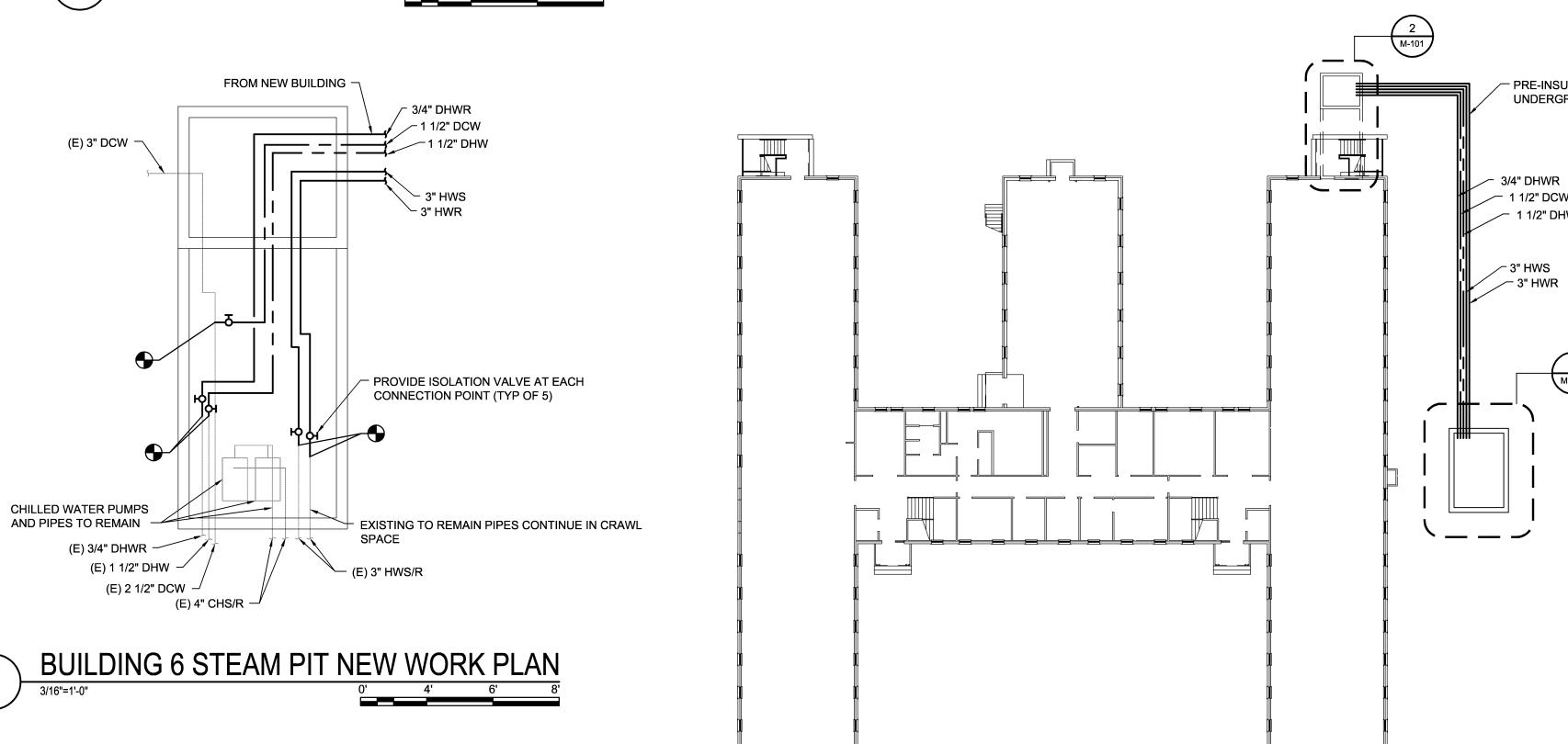
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60011277

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SHEET 13 OF 43

CONSTR CONTR NO.



# **BUILDING 6 STEAM PIT DEMOLITION PLAN**

# DISCLOSURE OF INFORMATION

REMOVE EXPANSION TANKS

PLATE HEAT EXCHANGER

EXISTING TO REMAIN PIPES

REMOVE STEAM TO HOT WATER

- REMOVE HOT WATER

- Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release.

REMOVE STEAM AND CONDENSATE LINES AND CAP AS CLOSE TO WALL AS POSSIBLE. FOLLOW UNDERGROUND STEAM AND CONDENSATE LINES

CONNECT TO MAINS. REMOVE BRANCH PIPING TO ENTRANCE OF STEAM PIT AND PROVIDE CAP. PROVIDE BLIND FLANGE TO EXISTING BRANCH STEAM AND CONDENSATE ISOLATION VALVE AND TAG VALVES TO REMAIN CLOSED. ABANDON

CAPPED BRANCH STEAM AND CONDENSATE LINE

(E) 3" DCW -

REMOVE STEAM AND CONDENSATE PIPES -

REMOVE DHW CIRCULATION PUMP

CHILLED WATER PUMPS

AND PIPES TO REMAIN

(E) 3/4" DHWR (E) 1 1/2" DHW

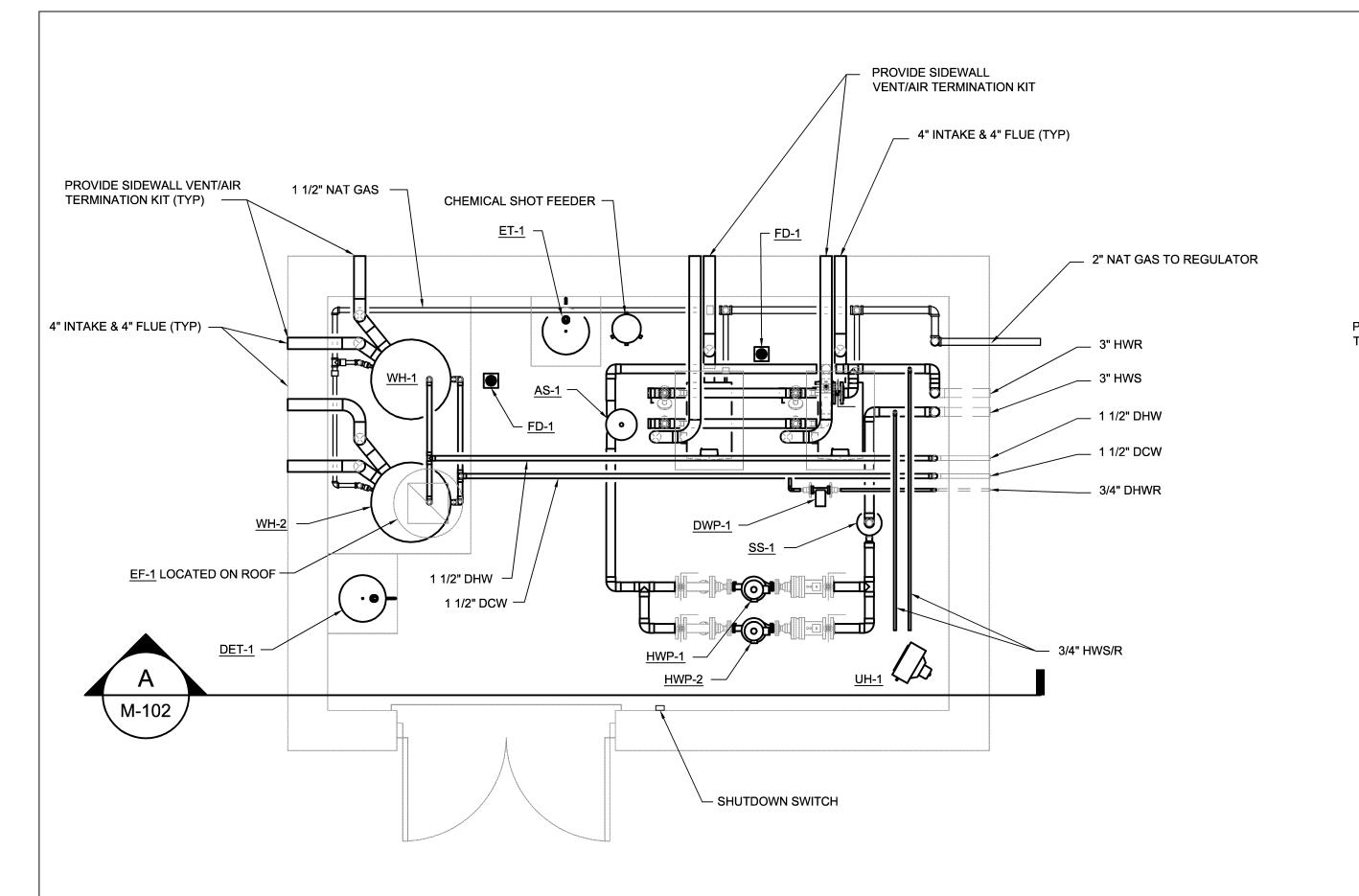
BACK TO STEAM PIT WHERE BRANCHES

BETWEEN STEAM PIT AND BUILDING.

Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit

requests for authorization to release through the prime contractor to the Contracting Officer.

1. PROVIDE UNIT MOUNTED THERMOSTAT.



FROM NEW BUILDING

(E) 3" DCW -

CHILLED WATER PUMPS

AND PIPES TO REMAIN -

(E) 3" DCW -

REMOVE STEAM AND CONDENSATE PIPES

REMOVE DHW CIRCULATION PUMP

REMOVE STEAM AND CONDENSATE LINES AND CAP AS CLOSE TO WALL AS POSSIBLE. FOLLOW

CONNECT TO MAINS. REMOVE BRANCH PIPING

TO ENTRANCE OF STEAM PIT AND PROVIDE CAP. PROVIDE BLIND FLANGE TO EXISTING BRANCH

STEAM AND CONDENSATE ISOLATION VALVE AND TAG VALVES TO REMAIN CLOSED. ABANDON

CAPPED BRANCH STEAM AND CONDENSATE LINE

BACK TO STEAM PIT WHERE BRANCHES

BETWEEN STEAM PIT AND BUILDING.

UNDERGROUND STEAM AND CONDENSATE LINES

(E) 3/4" DHWR -

(E) 1 1/2" DHW -

(E) 2 1/2" DCW -

(E) 4" CHS/R -

BUILDING 8 STEAM PIT NEW WORK PLAN

~ 1 1/2" DCW

(E) 3" HWS/R

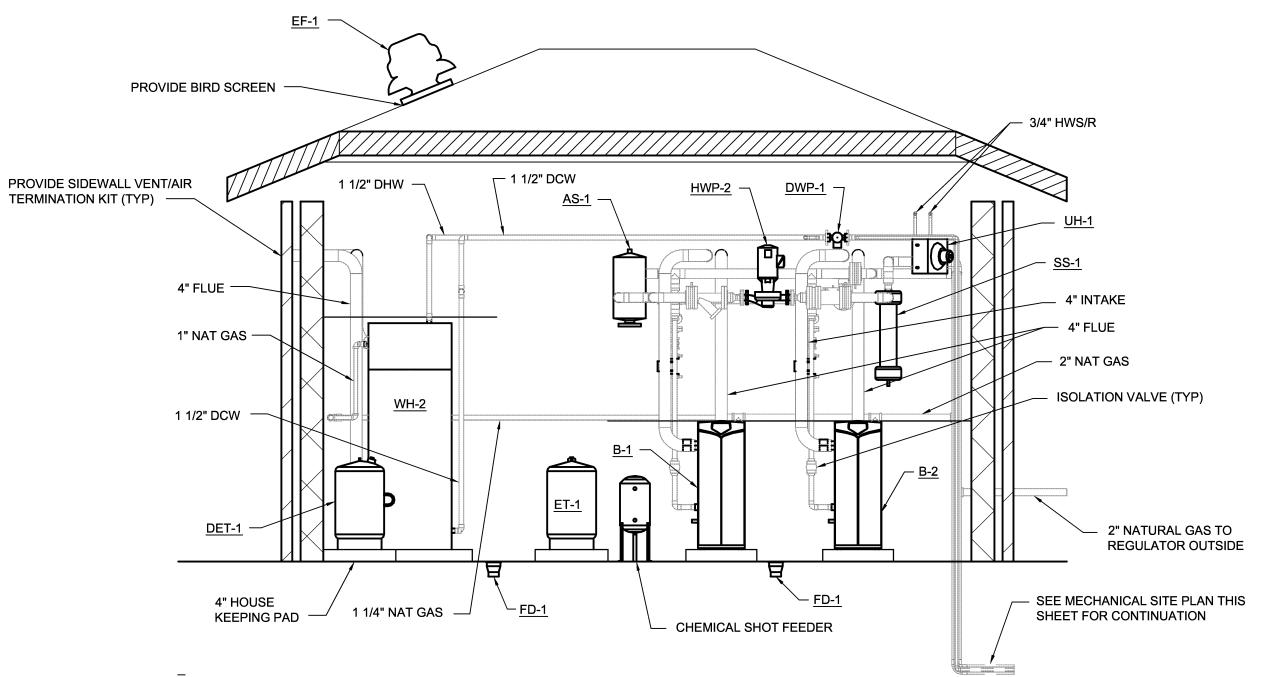
REMOVE EXPANSION TANKS

REMOVE STEAM TO HOT WATER

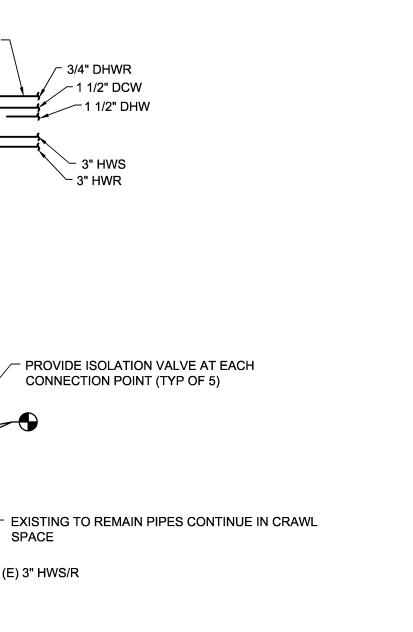
REMOVE HOT WATER

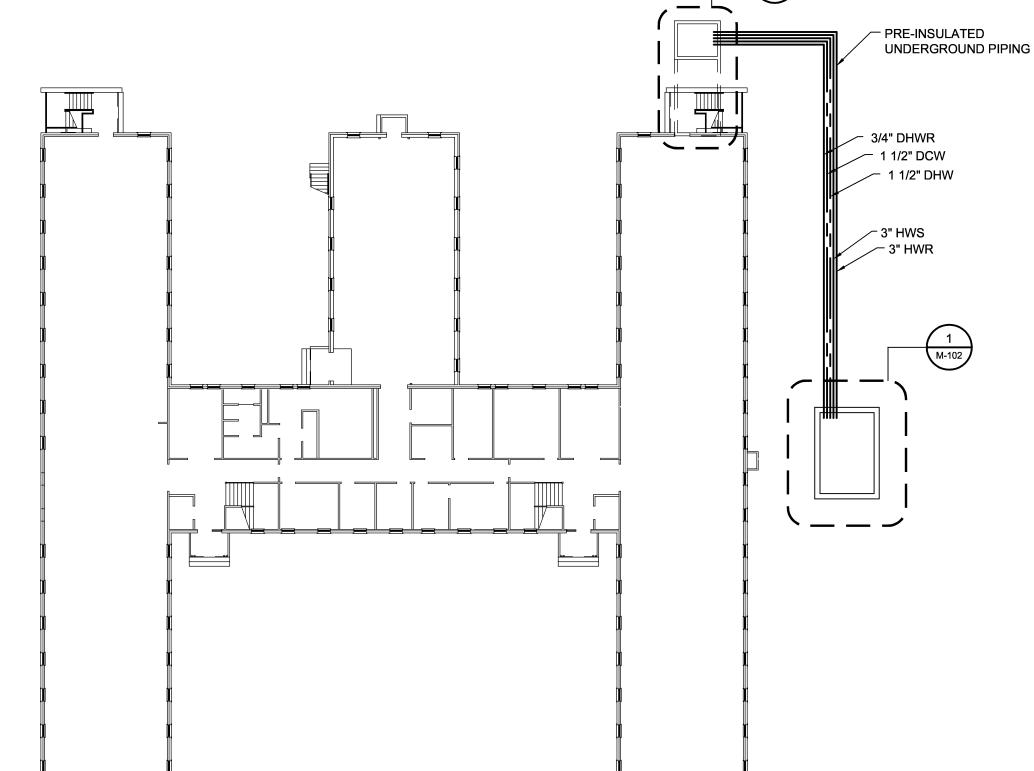
EXISTING TO REMAIN PIPES

PLATE HEAT EXCHANGER









UNIT HEATER SCHEDULE			
DESIGNATION	UH-1		
LOCATION	MECH ROOM		
AIRFLOW (CFM)	340		
HEATING CAPACITY (MBH)	10		
ENTERING AIR TEMPERATURE (DEG F)	55		
LEAVING AIR TEMPERATURE (DEG F)	82		
ENTERING WATER TEMPERATURE (DEG F)	180		
FLOW RATE (GPM)	.5		
WATER PRESSURE DROP (FT W.G.)	.5		
MOTOR POWER (HP)	1/60		
VOLTAGE (V)	115		
PHASE	1		
FREQUENCY (Hz)	60		

MODINE

HC-18 S 01

1

REMARKS LEGEND:
1. PROVIDE UNIT MOUNTED THERMOSTAT.

BASED ON

REMARKS

MODEL

DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	230	230
FUEL TYPE	NATURAL GAS	NATURAL GA
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	199	199
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 199 NE	SUF 100 199
REMARKS	1 & 2	1 & 2

DRAIN SIZE

DESIGNATION

FLOOR DRAIN SCHEDULE

DESCRIPTION

ZURN MODEL 415B WITH 6" NICKEL BRONZE

STRAINER AND PROSET TRAPGUARD

REMARKS LEGEND: 1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING

BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

# NATURAL GAS NOTE:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,200 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# GENERAL NOTES

- 1. SEE GENERAL NOTES ON SHEET M-001.
- MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- 3. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM. 6. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING
- PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.
- 7. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCHEDULE					
DESIGNATION	B-1	B-2			
LOCATION	MECH ROOM	MECH ROOM			
FUEL TYPE	NATURAL GAS	NATURAL GAS			
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4			
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10			
GAS INLET CONNECTION (IN)	1	1			
INPUT (MBH)	399	399			
OUTPUT (MBH)	375	375			
MINIMUM TURN DOWN RATIO	5:1	5:1			
FLOWRATE (GPM)	30	30			
MAXIMUM PRESSURE DROP (FT_H20)	8	8			
ENTERING WATER TEMPERATURE (DEG F)	160	160			
LEAVING WATER TEMPERATURE (DEG F)	185	185			
MINIMUM OPERATING PRESSURE (PSI)	30	30			
VOLTAGE (V)	120	120			
PHASE	1	1			
FREQUENCY (Hz)	60	60			
TOTAL OPERATING AMPS	1.5	1.5			
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4			
SELECTION BASED ON	LOCHINVAR	LOCHINVAR			
MODEL REMARKS	KB-400	KB-400			
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4			

FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4
REMARKS LEGEND:		

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED. 4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

SATISFACTORY TO

FAN SCHEDULE			
DESIGNATION	EF-1		
USAGE	EXHAUST		
SERVES ROOM(S)	MECH ROOM		
DESCRIPTION	CENTRIFUGAL		
FAN DATA			
AIRFLOW (SCFM)	550		
TOTAL SP (IN-H2O)	.15		
RPM	1630		
DRIVE TYPE	DIRECT		
MOTOR DATA			
HORSEPOWER	1/6		
RPM	1725		
VOLTS	115		
PHASE	1		
HERTZ	60		
SELECTION BASED ON	GREENHECK		
MODEL	G-085-VG		
REMARKS	1, 2 & 3		
REMARKS LEGEND:	•		

PREP'D BY DATE APPROVED

# REMARKS LEGEND:

1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER, CONTINUOUS DUTY RATED.

2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.

3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL. WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO OPEN UPON FAN OPERATION.

## EXPANSION TANK SCHEDULE DESIGNATION ET-1 DET-1 SERVICE **HEATING WATER** DOMESTIC HOT WATER LOCATION MECH ROOM MECH ROOM TYPE BLADDER BLADDER TANK VOLUME (GAL) 17.5 FILL PRESSURE (PSI) 60\* RELEIF VALVE PRESSURE SETTING (PSI) 100 100 BASED ON JOHN WOOD COMPANY AMTROL JAER-23-607 ST-C SERIES ST-42V-C

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

SOLID SEPARATOR SCHEDULE

AIR SEPARATOR

SCHEDULE

SS-1

MECH ROOM

HOT WATER

8.0

LAKOS

ILB-0200

AS-1

MECH ROOM

**HOT WATER** 

**BELL & GOSSETT** 

ROLAIRTROL

DESIGNATION

FLOW RATE (GPM)

MAXIMUM PRESSURE DROP (FT-H20)

DESIGNATION

LOCATION

SERVICE

LINE SIZE (IN)

BASED ON

MODEL

**COLLECTION CHAMBER CAPACITY (GAL)** 

LOCATION

SERVICE

BASED ON

MODEL

LOUVER SC	HEDULE
DESIGNATION	L-1
USAGE	INTAKE
LOCATION	MECH ROOM
DESCRIPTION	COMBINATION LOUVER/DAMPER
DEPTH (IN)	8
FRAME TYPE	CHANNEL
WIDTH (IN)	32
HEIGHT (IN)	16
AIRFLOW (CFM)	550
FREE AREA (SF)	.75
FREE AREA VELOCITY (FPM)	734
PRESSURE DROP (IN H20)	.067
SELECTION BASE ON	GREENHECK
ACTUATOR TYPE	120 VAC
ACTUATOR FAIL POSITION	CLOSED
MODEL	EAC-601
REMARKS	1, 2 & 3

REMARKS LEGEND: 1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

ARCHITECT. 2. SEE ARCHITECTURAL PLANS FOR LOCATION. 3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY

PUMP SCHEDULE				
DESIGNATION	HWP-1	HWP-2	DWP-1	
SERVICE	HOT WATER	HOT WATER	DOMESTIC H WATER	
LOCATION	MECH ROOM	MECH ROOM	MECH ROC	
TYPE	INLINE	INLINE	INLINE	
PUMP DATA	-	-	-	
FLOW (GPM)	69	69	5	
TOTAL HEAD (FT-H2O)	55	55	20	
MINIMUM EFFICIENCY (%)	45	45	-	
CONNECTION SIZE	-	-	-	
SUCTION (IN)	1.5	1.5	1.5	
DISCHARGE (IN)	1.5	1.5	1.5	
MOTOR DATA	-	-	-	
MOTOR FRAME	182JM	182JM	-	
HORSEPOWER	3	3	-	
RPM	1750	1750	2650	
VOLTS	208	208	115	
PHASE	1	1	1	
HERTZ	60	60	60	
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT	
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PI	
REMARKS	-	-	1	

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

		Wiley Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com				M — 1 (	<u>-0104</u>
			DEPT	OF NAVY MAR		NAVAL FACILITIES ENGI PRPS BASE	NEERING COMMAND
						NORTH CAROLINA	
	DES.	IM					
	DR.	SWL		BOILER I	MODIFIC	CATIONS, VAF	RIOUS
	CHK.	JHE		FACIL	ITIES,	<b>HADNOT POII</b>	NT
(2) A	SUBMITTED BY:			BUILDING 8	MECHANIC	CAL DEMOLITION AND	NEW
一包	DESIGN DIR.					RK PLAN	
IRAS ►	APPROVED: PWO	O OR OICC DATE	SIZE	CODE IDENT NO.		NAVFAC DRAWING	NO.

SCALE: AS SPEC No.

60011278

N40085-12-B-0104

SHEET 14 OF 43

CONSTR CONTR NO.

# DISCLOSURE OF INFORMATION Contractor shall comply as follows:

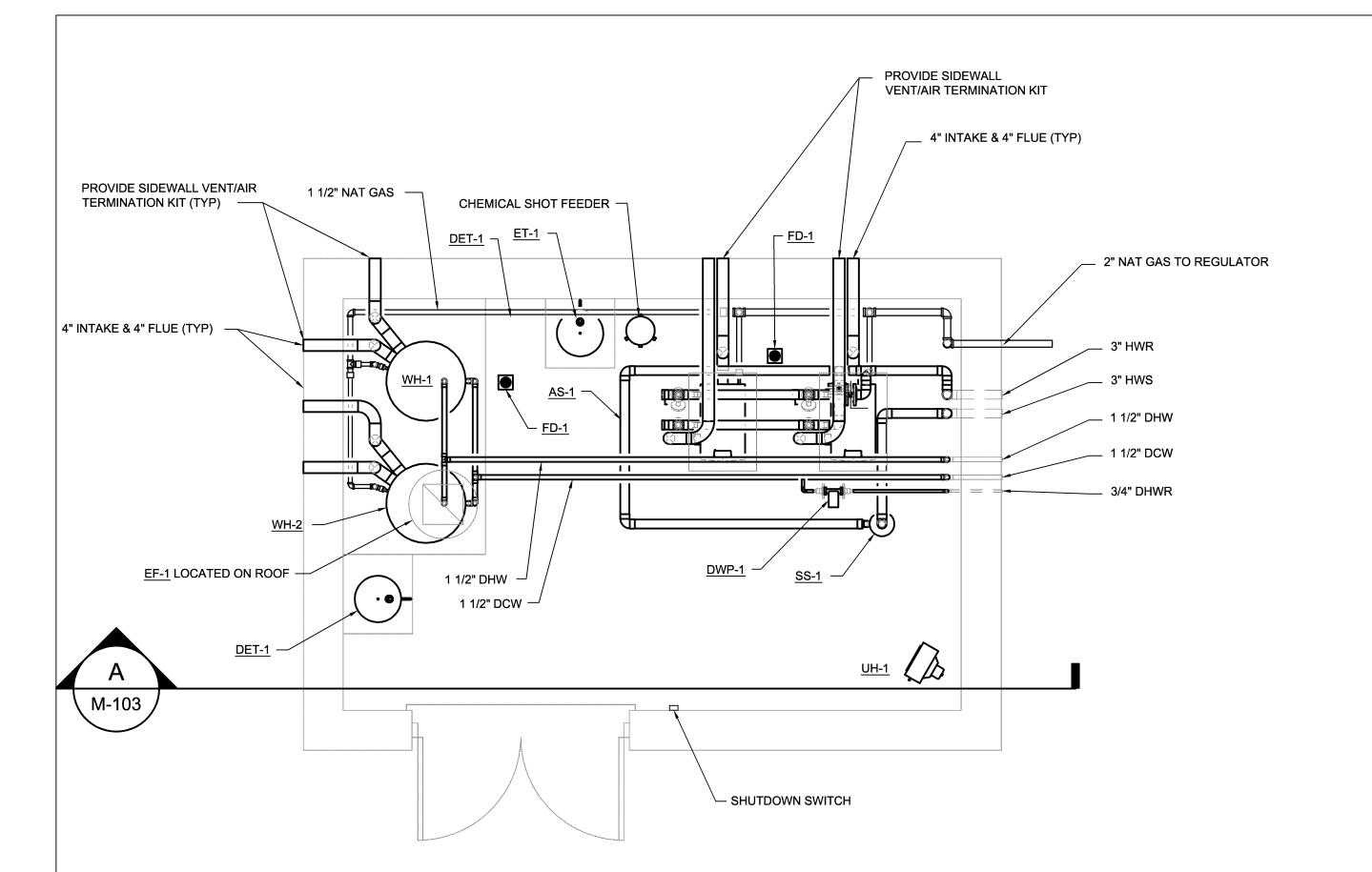
AND PIPES TO REMAIN

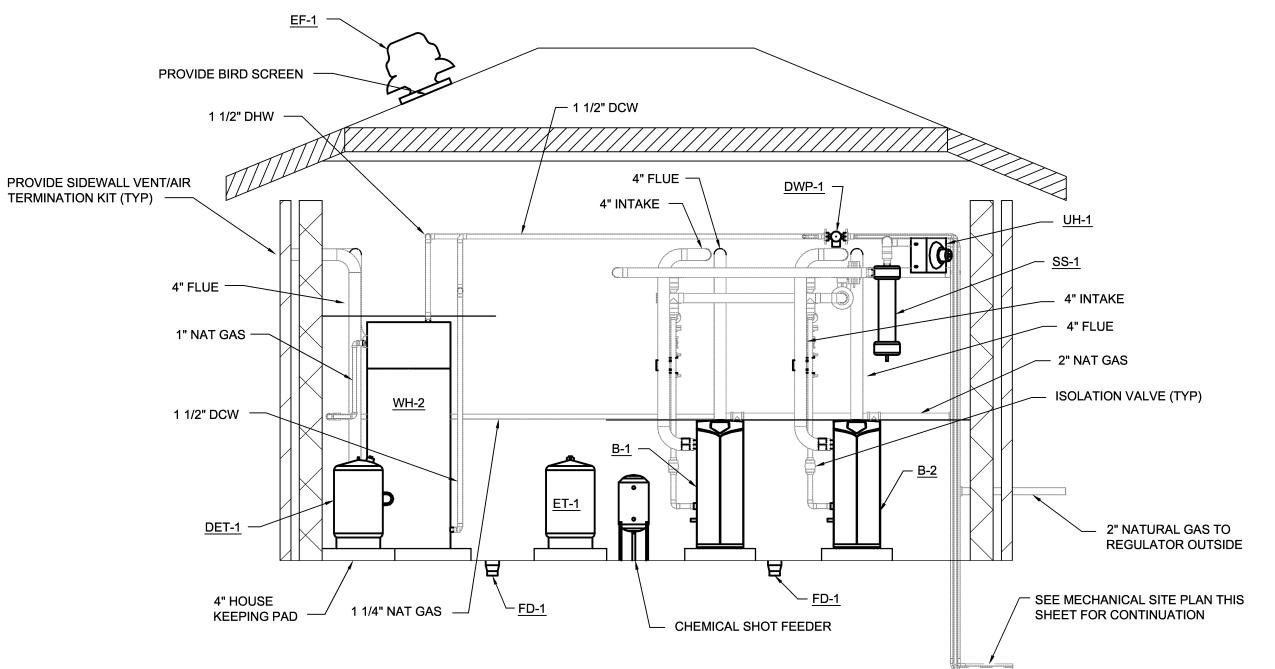
(E) 3/4" DHWR (E) 1 1/2" DHW —

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or

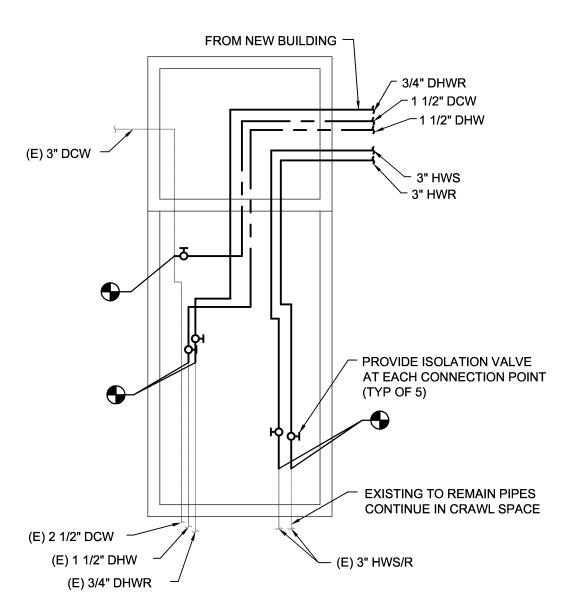
**BUILDING 8 STEAM PIT DEMOLITION PLAN** 

- (2) The information is otherwise in the public domain before the date of release. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

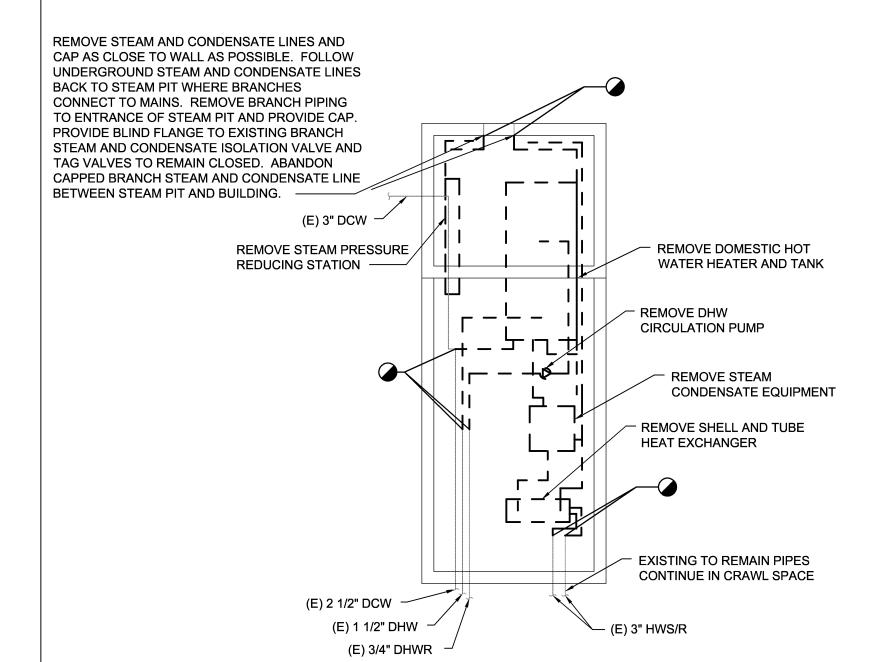








# BUILDING 10 STEAM PIT NEW WORK PLAN



# **BUILDING 10 STEAM PIT DEMOLITION PLAN**

# DISCLOSURE OF INFORMATION

- Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

# PRE-INSULATED UNDERGROUND PIPING \_\_\_\_1 1/2" DCW HOT WATER PUMP IS LOCATED IN THIS MECHANICAL ROOM. REMOVE PUMP, STRAINER, SUCTION DIFFUSER, VALVES AND OTHER APPURTENANCES. INSTALL <u>HWP-1</u> WITH NEW STRAINER, SUCTION DIFFUSER, VALVES AND OTHER APPURTENANCES

BUILDING	10 ME	CH	ANI	CAL	SITE	PLAN
3/64"=1'-0"		0'	10'	20'	40'	60'

UNIT HEATER SCHEDULE			
DESIGNATION	UH-1		
LOCATION	MECH ROOM		
AIRFLOW (CFM)	300		
HEATING CAPACITY (KW)	3		
ENTERING AIR TEMPERATURE (DEG F)	55		
LEAVING AIR TEMPERATURE (DEG F)	87		
MOTOR POWER (HP)	1/60		
VOLTAGE (V)	208		
PHASE	1		
FREQUENCY (Hz)	60		
BASED ON	INDEECO		
MODEL	ULI		
REMARKS	1 & 2		

REMARKS LEGEND 1. PROVIDE UNIT MOUNTED THERMOSTAT 2. PROVIDE INTEGRAL DISCONNECT.

FLOOR DRAIN SCHEDULE				
DESIGNATION	DRAIN SIZE	DESCRIPTION		
FD-1	3"	ZURN MODEL 415B WITH 6" NICKEL BRONZE STRAINER AND PROSET TRAPGUARD		

EXPANSION TANK SCHEDULE				
DESIGNATION	DET-1			
SERVICE	DOMESTIC HOT WATER			
LOCATION	MECH ROOM			
TYPE	BLADDER			
TANK VOLUME (GAL)	17.5			
FILL PRESSURE (PSI)	60*			
RELEIF VALVE PRESSURE SETTING (PSI)	100			
BASED ON	AMTROL			
MODEL	ST-C SERIES ST-42V-C			

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

SOLID SEPARATOR SCHEDULE				
DESIGNATION	SS-1			
LOCATION	MECH ROOM			
SERVICE	HOT WATER			
FLOW RATE (GPM)	72			
MAXIMUM PRESSURE DROP (FT-H20)	14			
COLLECTION CHAMBER CAPACITY (GAL)	0.8			
BASED ON	LAKOS			
MODEL	ILB-0200			

DOMESTIC HOT WATER HEATER SCHEDULE				
DESIGNATION	WH-1	WH-2		
LOCATION	MECH ROOM	MECH ROOM		
STORAGE (GALLONS)	100	100		
GPH AT 100 DEG F RISE	230	230		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5		
GAS INLET CONNECTION (IN)	3/4	3/4		
INPUT (MBH)	199	199		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	STATE	STATE		
MODEL	SUF 100 199 NE	SUF 100 199 NE		
REMARKS	1 & 2	1 & 2		

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER. 2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

# NATURAL GAS NOTE:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,200 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# GENERAL NOTES

- 1. SEE GENERAL NOTES ON SHEET M-001.
- MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- MINIMUM 30" IN THE FRONT. 3. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR
- ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 4. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- 5. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM. 6. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING
- PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.
- 7. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

**DESIGNATION** 

BOILER SCHEDULE			
DESIGNATION	B-1	B-2	
LOCATION	MECH ROOM	MECH ROOM	
FUEL TYPE	NATURAL GAS	NATURAL GAS	
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4	
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10	
GAS INLET CONNECTION (IN)	1	1	
INPUT (MBH)	399	399	
OUTPUT (MBH)	375	375	
MINIMUM TURN DOWN RATIO	5:1	5:1	
FLOWRATE (GPM)	30	30	
MAXIMUM PRESSURE DROP (FT_H20)	8	8	
ENTERING WATER TEMPERATURE (DEG F)	160	160	
LEAVING WATER TEMPERATURE (DEG F)	185	185	
MINIMUM OPERATING PRESSURE (PSI)	30	30	
VOLTAGE (V)	120	120	
PHASE	1	1	
FREQUENCY (Hz)	60	60	
TOTAL OPERATING AMPS	1.5	1.5	
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4	
SELECTION BASED ON	LOCHINVAR	LOCHINVAR	
MODEL REMARKS	KB-400	KB-400	
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4	

OCHINVAR	1. PR CONT
KB-400	2. PR
	4. 1.18

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T.

3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED. 4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

REMARKS LEGEND:

ACTUATOR.

3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY

Lic. No. 035863 ,

	USAGE	EXHAUST
	SERVES ROOM(S)	MECH ROOM
	DESCRIPTION	CENTRIFUGAL
	FAN DATA	
	AIRFLOW (SCFM)	550
	TOTAL SP (IN-H2O)	.15
	RPM	1630
	DRIVE TYPE	DIRECT
	MOTOR DATA	
	HORSEPOWER	1/6
	RPM	1725
	VOLTS	115
	PHASE	1
	HERTZ	60
	SELECTION BASED ON	GREENHECK
	MODEL	G-085-VG
	REMARKS	1, 2 & 3
REMARKS LEGEND:		
1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER, CONTINUOUS DUTY RATED.		
2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.		
A DROVIDE WALL MOUNTED THERMOOTAT CONTROL		

**FAN SCHEDULE** 

PREP'D BY DATE APPROVED

3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL. WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO OPEN UPON FAN OPERATION.

LOUVER SCH	IEDULE	PUMP SCH	EDULE	
DESIGNATION	L-1	DESIGNATION	HWP-1	DWP-1
USAGE	INTAKE	SERVICE	HOT WATER	DOMESTIC HOT WATER
LOCATION	MECH ROOM	LOCATION	MECH ROOM	MECH ROOM
DESCRIPTION	COMBINATION LOUVER/DAMPER	TYPE	BASE MOUNTED	INLINE
DEPTH (IN)	8	PUMP DATA	-	-
FRAME TYPE	CHANNEL	FLOW (GPM)	72	5
WIDTH (IN)	32	TOTAL HEAD (FT-H2O)	60	20
HEIGHT (IN)	16	MINIMUM EFFICIENCY (%)	50	-
AIRFLOW (CFM)	550	CONNECTION SIZE	-	-
FREE AREA (SF)	.75	SUCTION (IN)	1.5	1.5
FREE AREA VELOCITY (FPM)	734	DISCHARGE (IN)	1.25	1.5
PRESSURE DROP (IN H20)	.067	MOTOR DATA	-	-
SELECTION BASE ON	GREENHECK	MOTOR FRAME	182T	-
ACTUATOR TYPE	120 VAC	HORSEPOWER	3	-
ACTUATOR FAIL POSITION	CLOSED	RPM	1750	2650
MODEL	EAC-601	VOLTS	208	115
REMARKS	1, 2 & 3	PHASE	1	1
REMARKS LEGEND:		HERTZ	60	60
1. SUBMIT COLOR CHART. COLOR TO ARCHITECT.	BE APPROVED BY	SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT
2. SEE ARCHITECTURAL PLANS FOR	LOCATION.	MODEL	1510 1-1/4BC	BOOSTER PL-30

REMARKS

APPROVED: PWO OR OICC

SATISFACTORY TO

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT

Wiley|Wilson 6606 West Broad St., Suite 500 M - 103Richmond, Virginia 23230-1717 804.254.7242 PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA IM **BOILER MODIFICATIONS, VARIOUS** SWL FACILITIES, HADNOT POINT JHE SUBMITTED BY: BUILDING 10 MECHANICAL DEMOLITION AND DESIGN DIR. NEW WORK PLAN

DATE SIZE CODE IDENT NO.

SCALE: AS SPEC No.

DATE

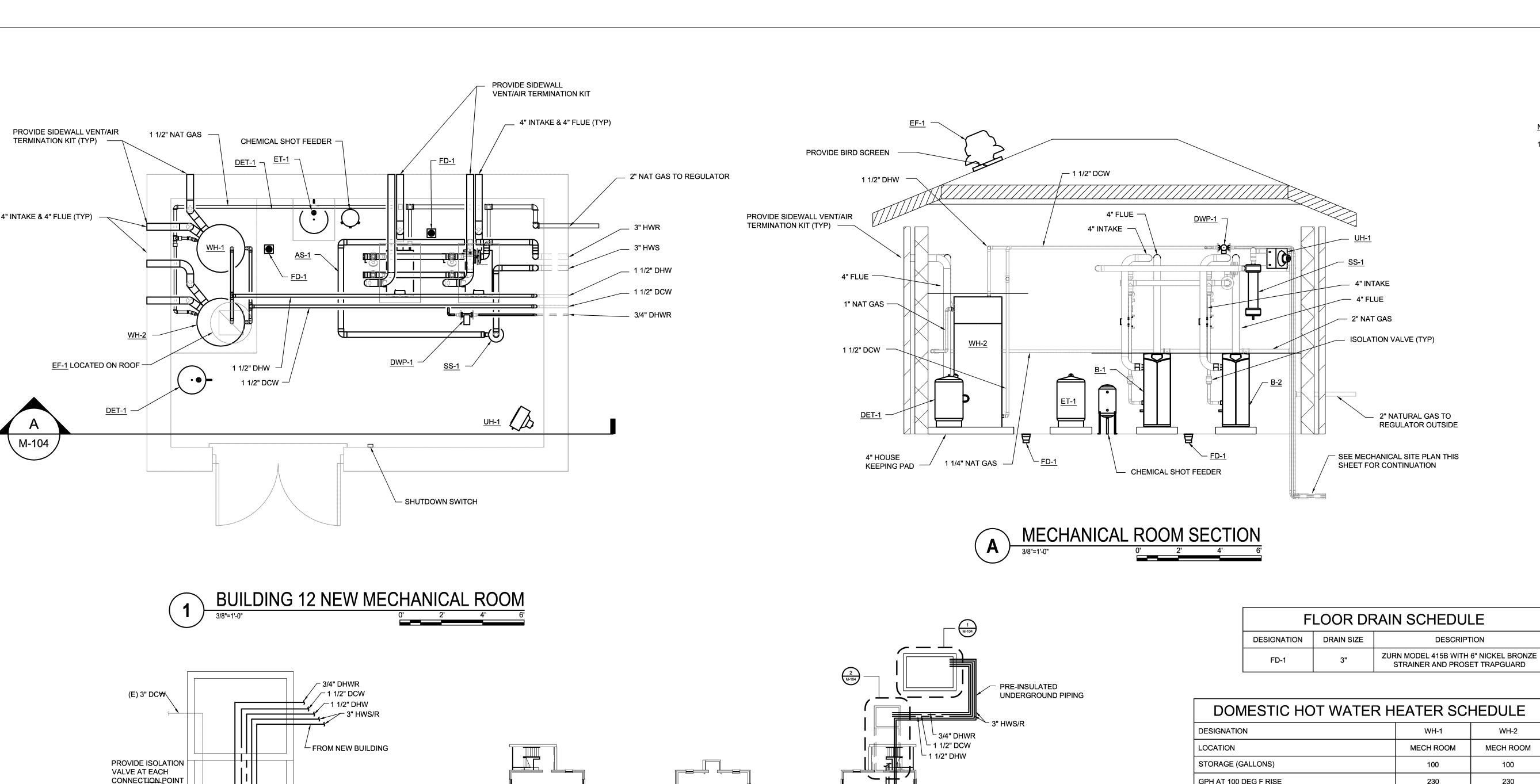
NAVFAC DRAWING NO.

CONSTR CONTR NO.

60011279

N40085-12-B-0104

SHEET 15 OF 43



- 3" HWS/R CONTINUE

REMOVE DOMESTIC HOT

REMOVE DHW CIRCULATION PUMP

EXISTING TO REMAIN PIPES CONTINUE IN CRAWL SPACE

DISCLOSURE OF INFORMATION

medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the

release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of

WATER HEATER AND TANK

REMOVE STEAM

CONDENSATE EQUIPMENT

REMOVE STEAM AND CONDENSATE

MECHANICAL SITE PLAN THIS SHEET

LINES IN BUILDING CRAWL SPACE BACK TO MECHANICAL ROOM. SEE

IN CRAWL SPACE

**EXISTING TO REMAIN PIPES** 

CONTINUE IN CRAWL SPACE

BUILDING 12 STEAM PIT NEW WORK PLAN

(E) 2 1/2" DCW

(E) 3" DCW

(E) 1 1/2" DHW -

(E) 3/4" DHWR

(1) The Contracting Officer has given prior written approval; or

**BUILDING 12 STEAM PIT DEMOLITION PLAN** 

(2) The information is otherwise in the public domain before the date of release.

requests for authorization to release through the prime contractor to the Contracting Officer.

REMOVE STEAM PRESSURE REDUCING STATION —

REMOVE STEAM AND CONDENSATE LINES AND

CAP AS CLOSE TO WALL AS POSSIBLE. FOLLOW UNDERGROUND STEAM AND CONDENSATE LINES BACK TO STEAM PIT WHERE BRANCHES CONNECT

TAG VALVES TO REMAIN CLOSED. ABANDON

CAPPED BRANCH STEAM AND CONDENSATE LINE

Contractor shall comply as follows:

TO MAINS. REMOVE BRANCH PIPING TO ENTRANCE OF STEAM PIT AND PROVIDE CAP PROVIDE BLIND FLANGE TO EXISTING BRANCH STEAM AND CONDENSATE ISOLATION VALVE AND

BETWEEN STEAM PIT AND BUILDING. -

(E) 1 1/2" DH₩

DOMESTIC HOT WATER HEATER SCHEDULE		
DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	230	230
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	199	199
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
	+	

# REMARKS LEGEND:

MODEL

REMARKS

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

SOLID SEPARATOR SCHEDULE		
DESIGNATION	SS-1	
LOCATION	MECH ROOM	
SERVICE	HOT WATER	
FLOW RATE (GPM) 72		
MAXIMUM PRESSURE DROP (FT-H20)	14	
COLLECTION CHAMBER CAPACITY (GAL)	0.8	
BASED ON	LAKOS	
MODEL	ILB-0200	

EXPANSION TANK SCHEDULE		
DESIGNATION	ET-1	DET-1
SERVICE	HEATING WATER	DOMESTIC HOT WATER
LOCATION	MECH ROOM	MECH ROOM
TYPE	BLADDER	BLADDER
TANK VOLUME (GAL)	60	17.5
FILL PRESSURE (PSI)	20	60*
RELEIF VALVE PRESSURE SETTING (PSI)	100	100
BASED ON	JOHN WOOD COMPANY	AMTROL
MODEL	JAER-23-607	ST-C SERIES ST-42V-C

SUF 100 199 NE SUF 100 199 NE

1 & 2

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

RE-USE EXISTING TO REMAIN HOT WATER PUMP	
EMOVE SHELL AND TUBE EAT EXCHANGER  (E) AHU  DEMO UP TO ISOLATION VALVES AT HEX. VALVES TO REMAIN  REMOVE STEAM AND CONDENSATE EQUIPMENT  REMOVE STEAM AND CONDENSATE EQUIPMENT  REMOVE STEAM PIT. RE-USE FLOOR PENETRATIONS FOR NEW HWS/R	TIE INTO EXISTING ISOLATION VALVES  3" HWR  3" HWS DN  3" HWR DN
BUILDING 12 FNLARGED INTERIOR	<b>BUILDING 12 ENLARGED INTERIOR</b>

REMOVE STEAM AND

CONDENSATE LINES IN

BUILDING CRAWL SPACE

- ROUTE NEW 3" HWS/R IN CRAWL SPACE

UNIT HEATER SCHEDULE	
DESIGNATION	UH-1
LOCATION	MECH ROOM
AIRFLOW (CFM)	300
HEATING CAPACITY (KW)	3
ENTERING AIR TEMPERATURE (DEG F)	55
LEAVING AIR TEMPERATURE (DEG F)	87
MOTOR POWER (HP)	1/60
VOLTAGE (V)	208
PHASE	1
FREQUENCY (Hz)	60
BASED ON	INDEECO
MODEL	ULI
REMARKS	1 & 2

- REMARKS LEGEND 1. PROVIDE UNIT MOUNTED THERMOSTAT.
- 2. PROVIDE INTEGRAL DISCONNECT.

NATURAL GAS NOTE:

TOTAL CONNECTED

NATURAL GAS DEMAND

1,200 MBH AT 10 IN-H20.

SELECTION BASED ON

MODEL REMARKS

REMARKS LEGEND:

FOR THIS BUILDING IS

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- HANGERS AND EQUIPMENT. 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# GENERAL NOTES

DEMOLITION NOTES

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- 3. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 4. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 5. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 6. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.
- 7. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY
- SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR. 9. EXISTING TO REMAIN HOT WATER PUMP MUST BE RE-BALANCED TO PROVIDE SAME AMOUNT OF FLOW AS BEFORE CONSTRUCTION. TEST FLOW OF PUMP BEFORE CONSTRUCTION AND ADJUST AFTER CONSTRUCTION TO MEET SAME FLOW.

BOILER SCHEDULE		
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA 1

3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

LOCHINVAR

KB-400

1, 2, 3 & 4

LOCHINVAR

KB-400

1, 2, 3 & 4

DESIGNATION	EF-1
USAGE	EXHAUST
SERVES ROOM(S)	MECH ROOM
DESCRIPTION	CENTRIFUGAL
FAN DATA	
AIRFLOW (SCFM)	550
TOTAL SP (IN-H2O)	.15
RPM	1630
DRIVE TYPE	DIRECT
MOTOR DATA	
HORSEPOWER	1/6
RPM	1725
VOLTS	115
PHASE	1
HERTZ	60
SELECTION BASED ON	GREENHECK
MODEL	G-085-VG
REMARKS	1, 2 & 3
REMARKS LEGEND:	•
1. PROVIDE FAN WITH INTEG CONTINUOUS DUTY RATED.	GRAL BACK-DRAFT DAMPER,
2 DDOVIDE EAN WITH LINIT	MOUNTED DISCONNECT

**FAN SCHEDULE** 

PREP'D BY DATE APPROVED

2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.

3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL. WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO OPEN UPON FAN OPERATION.

LOUVER SCHEDULE		
DESIGNATION	L-1	
USAGE	INTAKE	
LOCATION	MECH ROOM	
DESCRIPTION	COMBINATION LOUVER/DAMPER	
DEPTH (IN)	8	
FRAME TYPE	CHANNEL	
WIDTH (IN)	32	
HEIGHT (IN)	16	
AIRFLOW (CFM)	550	
FREE AREA (SF)	.75	
FREE AREA VELOCITY (FPM)	734	
PRESSURE DROP (IN H20)	.067	
SELECTION BASE ON	GREENHECK	
ACTUATOR TYPE	120 VAC	
ACTUATOR FAIL POSITION	CLOSED	
MODEL	EAC-601	
REMARKS	1, 2 & 3	

# REMARKS LEGEND: 1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

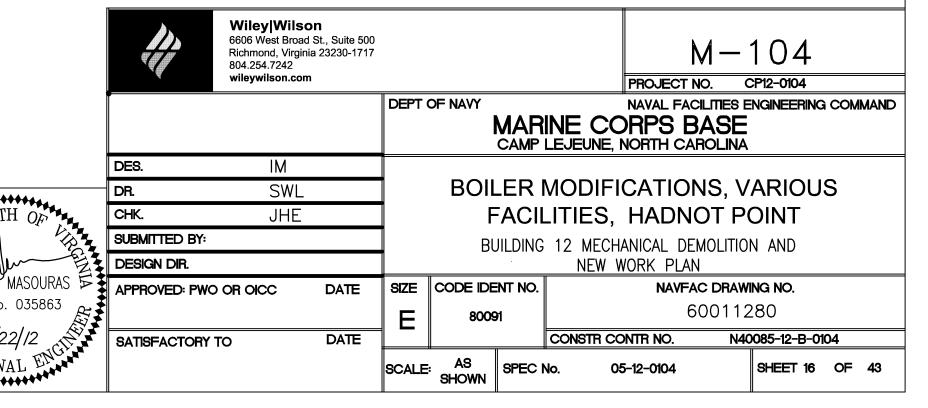
ARCHITECT.

2. SEE ARCHITECTURAL PLANS FOR LOCATION.

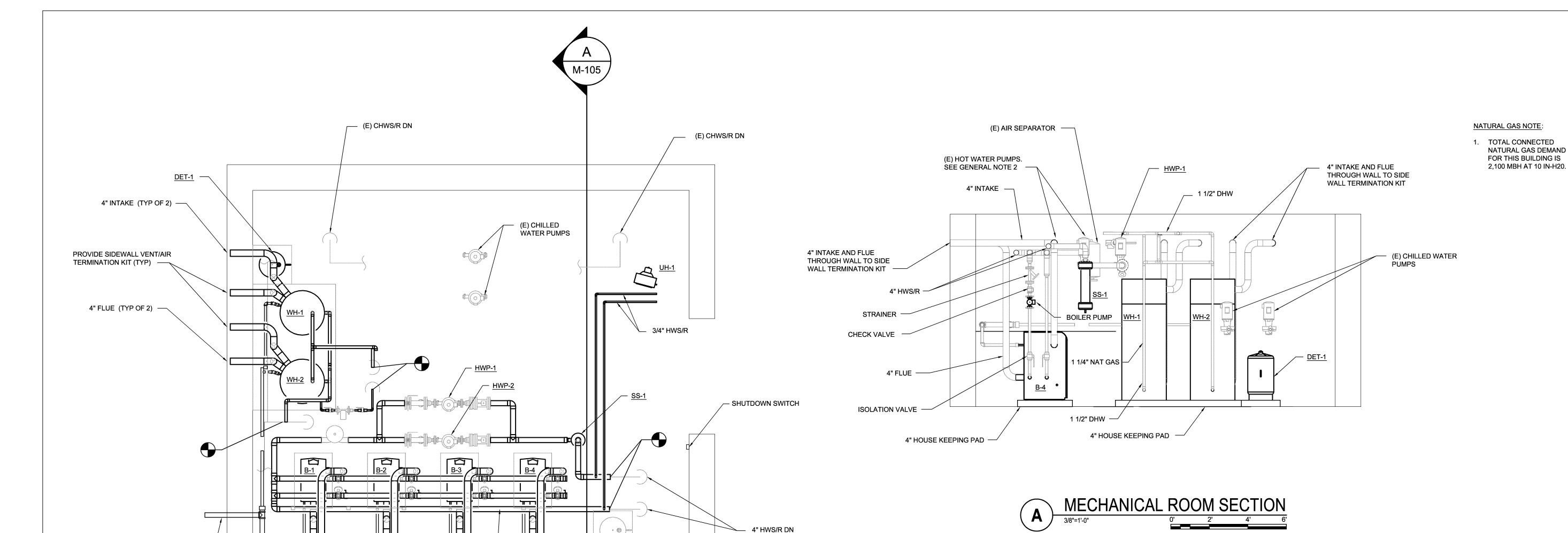
3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY ACTUATOR.

PUMP SCHE	DULE
DESIGNATION	DWP-1
SERVICE	DOMESTIC HOT WATER
LOCATION	MECH ROOM
TYPE	INLINE
PUMP DATA	-
FLOW (GPM)	5
TOTAL HEAD (FT-H2O)	20
MINIMUM EFFICIENCY (%)	-
CONNECTION SIZE	-
SUCTION (IN)	1.5
DISCHARGE (IN)	1.5
MOTOR DATA	-
MOTOR FRAME	-
HORSEPOWER	-
RPM	2650
VOLTS	115
PHASE	1
HERTZ	60
SELECTION BASED ON (MFGR)	BELL & GOSSETT
MODEL	BOOSTER PL-30
REMARKS	1

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.



# DUILDING 12 EINLANGED IN I ENION MECHANICAL NEW WORK PLAN



- (E) HEATING WATER

**EXPANSION TANK** 

TERMINATION KIT (TYP OF 4) — BUILDING 59 MECHANICAL ROOM NEW WORK PLAN

3/8"=1'-0"

0' 2' 4' 6'

└─ 4" HWR

└─ 1 1/4" NAT GAS

2 1/2" NAT GAS TO REGULATOR —

Contractor shall comply as follows:

(1) The Contracting Officer has given prior written approval; or

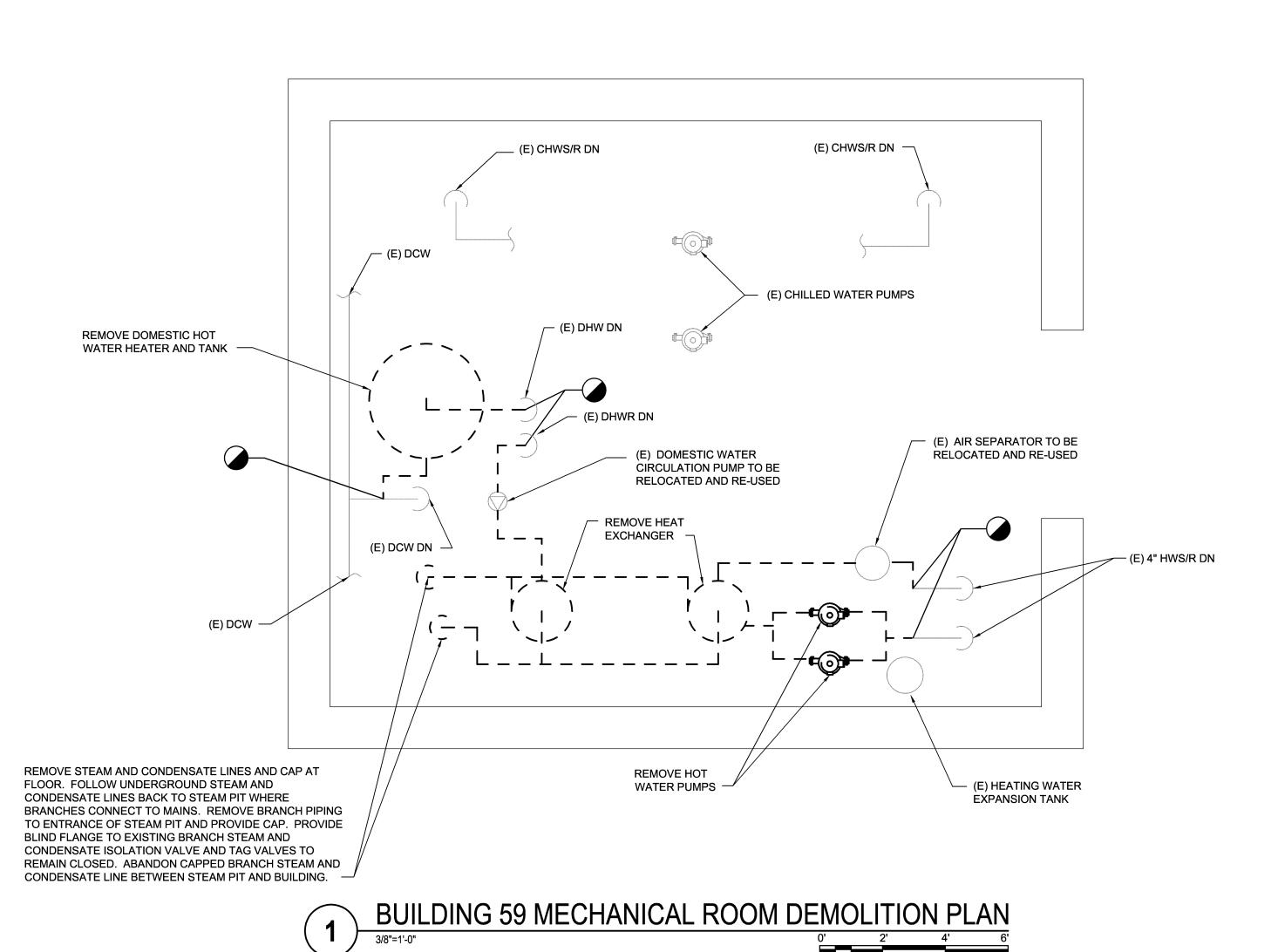
(2) The information is otherwise in the public domain before the date of release.

requests for authorization to release through the prime contractor to the Contracting Officer.

4" INTAKE & 4" FLUE

(TYP OF 4) ———

PROVIDE SIDEWALL VENT/AIR



DISCLOSURE OF INFORMATION

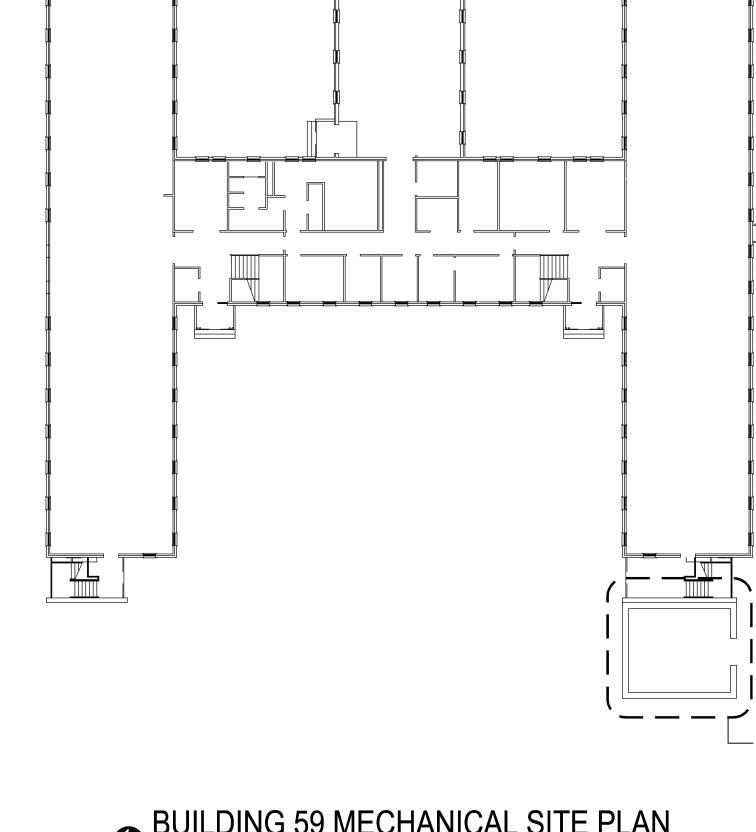
medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit

release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of



# SOLID SEPARATOR SCHEDULE

COLID CEI 7 (I V (I CI ( COI IEBCEE				
DESIGNATION	SS-1			
LOCATION	MECH ROOM			
SERVICE	HOT WATER			
FLOW RATE (GPM)	161			
MAXIMUM PRESSURE DROP (FT-H20)	14			
COLLECTION CHAMBER CAPACITY (GAL)	2.2			
BASED ON	LAKOS			
MODEL	ILB-0300			

EXPANSION TANK SCHEDULE			
DESIGNATION	DET-1		
SERVICE	DOMESTIC HOT WATER		
LOCATION	MECH ROOM		
TYPE	BLADDER		
TANK VOLUME (GAL)	17.5		
FILL PRESSURE (PSI)	60*		
RELEIF VALVE PRESSURE SETTING (PSI)	100		
BASED ON	AMTROL		
MODEL	ST-C SERIES ST-42V-C		

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

PREP'D BY DATE APPROVED

# **GENERAL NOTES**

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. HEATING EQUIPMENT IN MECHANICAL ROOM OF BUILDING 59 SERVES BOTH BUILDING 59 AND BUILDING 60. ALL WORK TO BE DONE IN MECHANICAL ROOM. 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30"
- PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM. 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING
- PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.
- 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.
- 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCHEDULE					
DESIGNATION	B-1	B-2	B-3	B-4	
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM	MECH ROOM	
FUEL TYPE	NATURAL GAS	NATURAL GAS	NATURAL GAS	NATURAL GAS	
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4	4	4	
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10	10	10	
GAS INLET CONNECTION (IN)	1	1	1	1	
INPUT (MBH)	399	399	399	399	
OUTPUT (MBH)	375	375	375	375	
MINIMUM TURN DOWN RATIO	5:1	5:1	5:1	5:1	
FLOWRATE (GPM)	30	30	30	30	
MAXIMUM PRESSURE DROP (FT_H20)	8	8	8	8	
ENTERING WATER TEMPERATURE (DEG F)	160	160	160	160	
LEAVING WATER TEMPERATURE (DEG F)	185	185	185	185	
MINIMUM OPERATING PRESSURE (PSI)	30	30	30	30	
VOLTAGE (V)	120	120	120	120	
PHASE	1	1	1	1	
FREQUENCY (Hz)	60	60	60	60	
TOTAL OPERATING AMPS	1.5	1.5	1.5	1.5	
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	10	10	10	10	
SELECTION BASED ON	LOCHINVAR	LOCHINVAR	LOCHINVAR	LOCHINVAR	
MODEL REMARKS	KB-400	KB-400	KB-400	KB-400	
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4	1, 2, 3 & 4	1, 2, 3 & 4	

# REMARKS LEGEND:

UNIT HEATER SCHEDULE

MECH ROOM

340

10

55

82

180

.5

1/60

115

60

MODINE

HC-18 S 01

1

288

NATURAL GAS

10.5

120

SUF 100 250 NE

1 & 2

MECH ROOM

100

288

NATURAL GAS

4.8

10.5

3/4

250

120

STATE

SUF 100 250 NE

1 & 2

DESIGNATION

AIRFLOW (CFM)

FLOW RATE (GPM)

MOTOR POWER (HP)

VOLTAGE (V)

FREQUENCY (Hz)

REMARKS LEGEND:

PHASE

BASED ON

MODEL

DESIGNATION

STORAGE (GALLONS)

GPH AT 100 DEG F RISE

GAS INLET CONNECTION (IN)

MINIMUM INLET GAS PRESSURE (IN. WG.)

MAXIMUM INLET GAS PRESSURE (IN. WG.)

FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)

LOCATION

INPUT (MBH)

VOLTAGE (V)

FREQUENCY (Hz)

SELECTION BASED ON

REMARKS LEGEND:

PHASE

REMARKS

REMARKS

HEATING CAPACITY (MBH)

ENTERING AIR TEMPERATURE (DEG F)

LEAVING AIR TEMPERATURE (DEG F)

WATER PRESSURE DROP (FT W.G.)

ENTERING WATER TEMPERATURE (DEG F)

1. PROVIDE UNIT MOUNTED THERMOSTAT.

DOMESTIC HOT WATER HEATER SCHEDULE

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME

BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.

LOCATION

- 1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.
- 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.
- 4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T.

PUMP SCHEDULE				
DESIGNATION	HWP-1	HWP-2	DWP-1	
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT WATER	
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM	
TYPE	INLINE	INLINE	INLINE	
PUMP DATA	-	-	-	
FLOW (GPM)	161	161	5	
TOTAL HEAD (FT-H2O)	65	65	20	
MINIMUM EFFICIENCY (%)	60	60	-	
CONNECTION SIZE	-	-	-	
SUCTION (IN)	2.5	2.5	1.5	
DISCHARGE (IN)	2.5	2.5	1.5	
MOTOR DATA	-	-	-	
MOTOR FRAME	184jm	184jm	-	
HORSEPOWER	5	5	-	
RPM	1750	1750	2650	
VOLTS	208	208	115	
PHASE	3	3	1	
HERTZ	60	60	60	
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT	
MODEL	80 2-1/2x2-1/2x9-1/2B	80 2-1/2x2-1/2x9-1/2B	BOOSTER PL-30	

# REMARKS REMARKS LEGEND:

SATISFACTORY TO

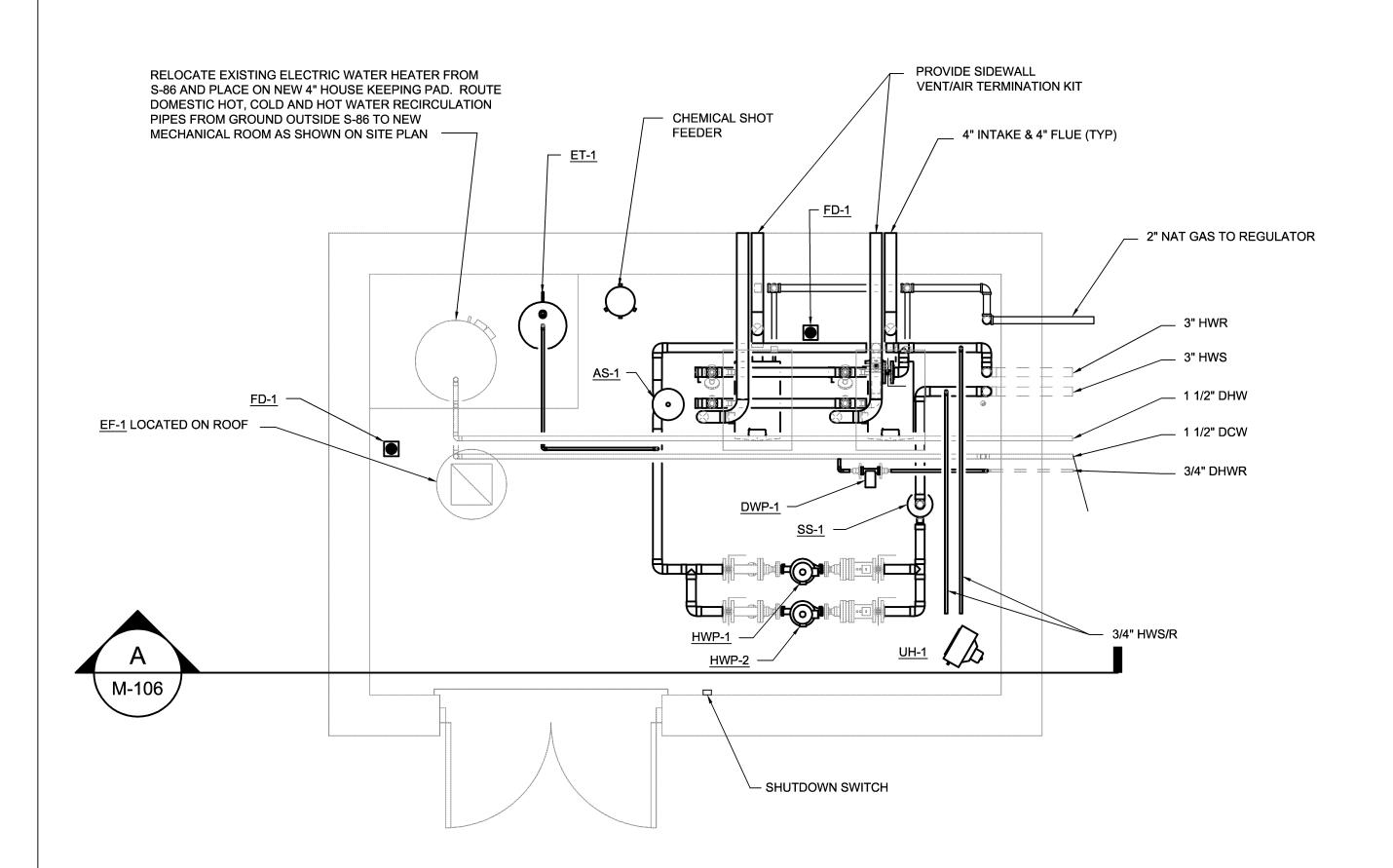
		Wiley Wilson 6606 West Broad S Richmond, Virginia 804.254.7242 wileywilson.com	t., Suite 500				M -	-105 CP12-0104
				DEPT (			NAVAL FACILITI ORPS BAS , NORTH CAROL	
	DES.	IM						
444.	DR.	SWL			BOILE	R MODIF	<b>FICATIONS</b>	, VARIOUS
OF.	CHK.	JHE			FA	<b>CILITIES</b>	, HADNOT	POINT
(A)	SUBMITTED BY:				BUII D	ING 59 & 60	D MECHANICAL I	OFMOLITION
	DESIGN DIR.						EW WORK PLAN	
ISOURAS Б	APPROVED: PWO	OR OICC	DATE	SIZE	CODE IDENT	NO.	NAVFAC DI	RAWING NO.

CONSTR CONTR NO.

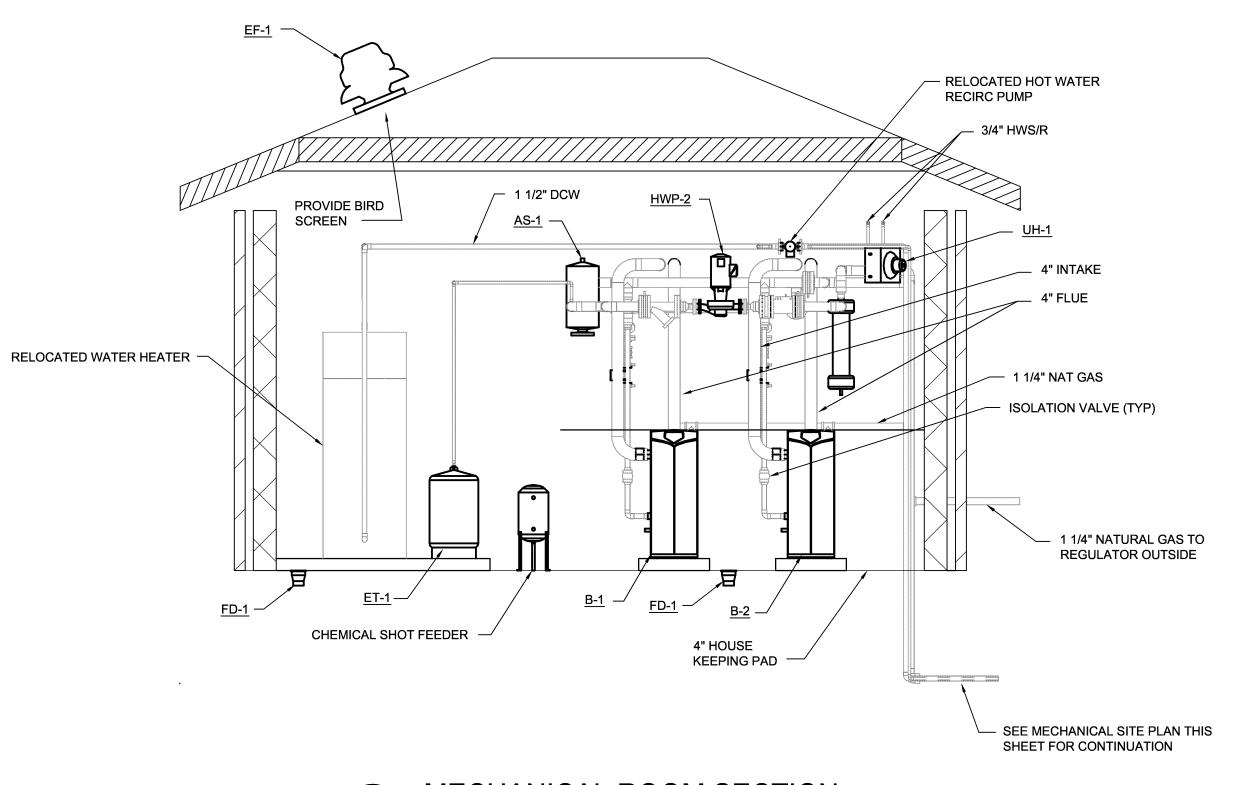
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SHEET 17 OF 43

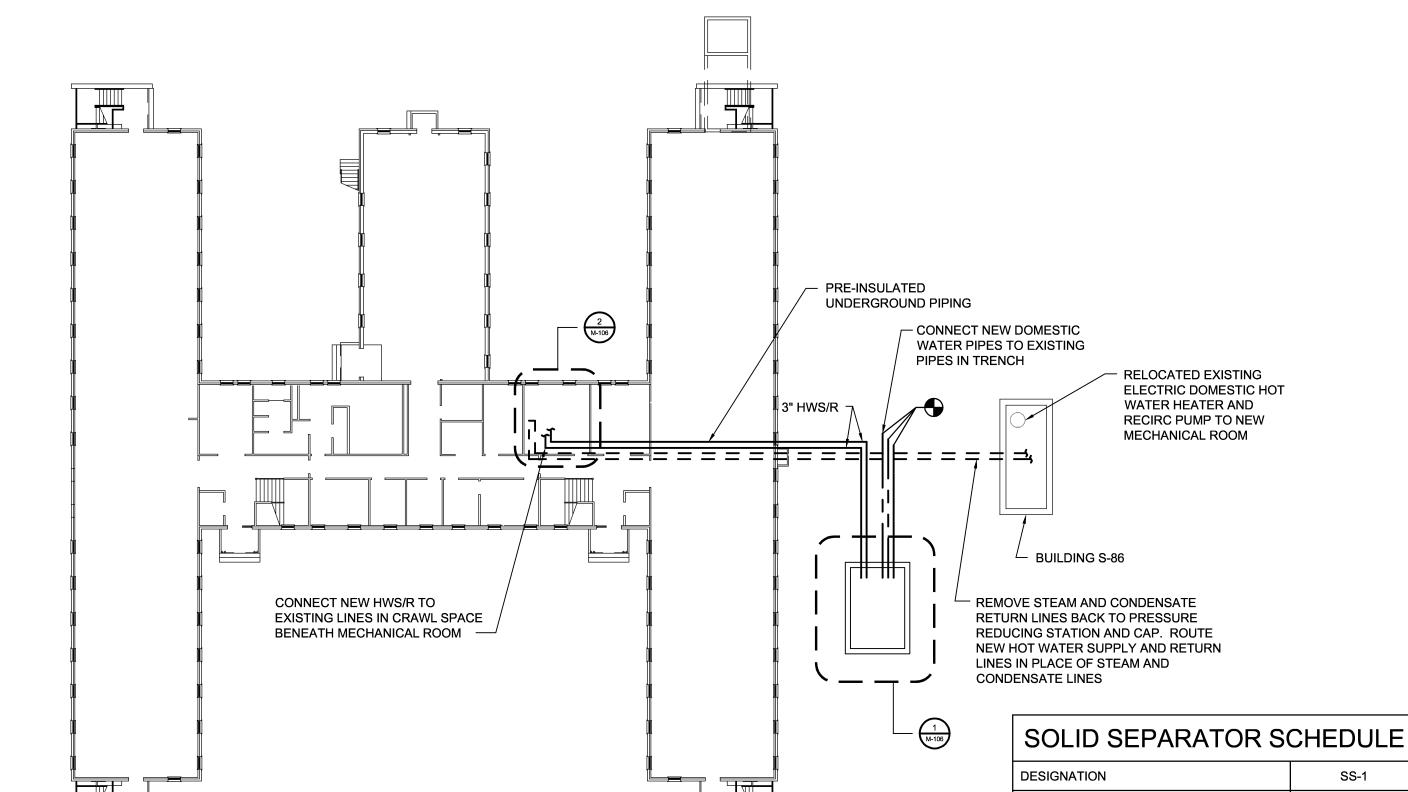
GNATION	SS-1		DESIGNATION	DET-1
ATION	MECH ROOM		SERVICE	DOMESTIC HOT W
VICE	HOT WATER		LOCATION	MECH ROOM
W RATE (GPM)	161		TYPE	BLADDER
IMUM PRESSURE DROP (FT-H20)	14		TANK VOLUME (GAL)	17.5
LECTION CHAMBER CAPACITY (GAL)	2.2		FILL PRESSURE (PSI)	60*
ED ON	LAKOS		RELEIF VALVE PRESSURE SETTING (PSI)	100
EL	ILB-0300		BASED ON	AMTROL
		J	MODEL	ST-C SERIES ST-4



**BUILDING 6 NEW MECHANICAL ROOM** 



# REMOVE SHELL AND TUBE HEAT EXCHANGER, PUMP, AIR SEPARATOR AND ALL STEAM AND CONDENSATE EQUIPMENT. REMOVE STRUCTURE FRAME FOR HEATING PUMP/HEX PACKAGE REMOVE HOT WATER SUPPLY AND RETURN TO BELOW FLOOR IN CRAWL SPACE. MAKE CONNECTION FROM NEW HOT WATER LINES IN CRAWL SPACE UNDER MECHANICAL ROOM. PROVIDE ISOLATION VALVE ON BOTH SUPPLY AND RETURN AT POINT OF (E) CHILLED WATER CONNECTION. SEAL FLOOR PENETRATION — PUMP PACKAGE 3" HWS DN \_\_\_\_ 3" HWR DN -STEAM AND CONDENSATE RETURN DOWN — REMOVE STEAM AND CONDENSATE LINES FROM MECHANICAL ROOM BACK TO S-86 BUILDING -



F	LOOR DF	RAIN SCHEDULE
DESIGNATION	DRAIN SIZE	DESCRIPTION
FD-1	3"	ZURN MODEL 415B WITH 6" NICKEL BRONZE STRAINER AND PROSET TRAPGUARD

AIR SEPARATOR SCHEDULE		
DESIGNATION	AS-1	
LOCATION	MECH ROOM	
SERVICE	HOT WATER	
LINE SIZE (IN)	3	
BASED ON	BELL & GOSSETT	
MODEL	ROLAIRTROL	

EXPANSION TANK SCHEDULE					
DESIGNATION	ET-1				
SERVICE	HEATING WATER				
LOCATION	MECH ROOM				
TYPE	BLADDER				
TANK VOLUME (GAL)	60				
FILL PRESSURE (PSI)	20				
RELEIF VALVE PRESSURE SETTING (PSI)	100				
BASED ON	JOHN WOOD COMPANY				
MODEL	JAER-23-607				

UNIT HEATER SCHEDULE				
DESIGNATION	UH-1			
LOCATION	MECH ROOM			
AIRFLOW (CFM)	340			
HEATING CAPACITY (MBH)	10			
ENTERING AIR TEMPERATURE (DEG F)	55			
LEAVING AIR TEMPERATURE (DEG F)	82			
ENTERING WATER TEMPERATURE (DEG F)	180			
FLOW RATE (GPM)	.5			
WATER PRESSURE DROP (FT W.G.)	.5			
MOTOR POWER (HP)	1/60			
VOLTAGE (V)	115			
PHASE	1			
FREQUENCY (Hz)	60			
BASED ON	MODINE			
MODEL	HC-18 S 01			
REMARKS	1			

1. PROVIDE UNIT MOUNTED THERMOSTAT.

LOCATION

SERVICE

BASED ON

MODEL

FLOW RATE (GPM)

MAXIMUM PRESSURE DROP (FT-H20)

COLLECTION CHAMBER CAPACITY (GAL)

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 800 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

HANGERS AND EQUIPMENT.

- MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.
- 3. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. 4. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 5. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.

SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

LOCHINVAR

KB-400

1, 2, 3 & 4

KB-400

1, 2, 3 & 4

- 6. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 7. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- MIXING VALVE. 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY

BOILER SCHEDULE				
DESIGNATION	B-1	B-2		
LOCATION	MECH ROOM	MECH ROOM		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10		
GAS INLET CONNECTION (IN)	1	1		
INPUT (MBH)	399	399		
OUTPUT (MBH)	375	375		
MINIMUM TURN DOWN RATIO	5:1	5:1		
FLOWRATE (GPM)	30	30		
MAXIMUM PRESSURE DROP (FT_H20)	8	8		
ENTERING WATER TEMPERATURE (DEG F)	160	160		
LEAVING WATER TEMPERATURE (DEG F)	185	185		
MINIMUM OPERATING PRESSURE (PSI)	30	30		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
TOTAL OPERATING AMPS	1.5	1.5		

120	HERTZ
1	SELECTION E
60	MODEL
1.5	REMARKS
4	REMARKS LE
LOCHINVAR	1. PROVIDE F

REMARKS REMARKS LEGEND:

MODEL REMARKS

SELECTION BASED ON

DESIGNATION

SERVICE

LOCATION

PUMP DATA

FLOW (GPM)

TOTAL HEAD (FT-H2O)

CONNECTION SIZE

SUCTION (IN)

MOTOR DATA

DISCHARGE (IN)

MOTOR FRAME

HORSEPOWER

SELECTION BASED ON (MFGR)

RPM

VOLTS

PHASE

HERTZ

MODEL

MINIMUM EFFICIENCY (%)

TYPE

SS-1

MECH ROOM

HOT WATER

8.0

LAKOS

ILB-0200

FLUE GAS STACK EXHAUST CONNECTION SIZE (IN

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

JMP SCHEDULE					
	HWP-1	HWP-2			
	HOT WATER	HOT WATER			
	MECH ROOM	MECH ROOM			
	INLINE	INLINE			
	-	-			
	74	74			
	65	65			
	50	50			
	-	-			
	1.5	1.5			
	1.5	1.5			
	-	-			
	182JM	182JM			
	3	3			
	1750	1750			
	208	208			
	1	1			
	60	60			
	BELL & GOSSETT	BELL & GOSSETT			
	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2			

DESIGNATION	EF-1	
JSAGE	EXHAUST	
SERVES ROOM(S)	MECH ROOM	
DESCRIPTION	CENTRIFUGAL	
AN DATA		
AIRFLOW (SCFM)	550	
TOTAL SP (IN-H2O)	.15	
RPM	1630	
DRIVE TYPE	DIRECT	
MOTOR DATA		
HORSEPOWER	1/6	
RPM	1725	
VOLTS	DLTS 115	
PHASE 1		
HERTZ	60	
SELECTION BASED ON	GREENHECK	
MODEL	G-085-VG	
REMARKS	1, 2 & 3	
REMARKS LEGEND:	•	

PREP'D BY DATE APPROVED

2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT. 3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL.

OPEN UPON FAN OPERATION.

WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO

LOUVER SCHEDULE			
DESIGNATION	L-1		
USAGE	INTAKE		
LOCATION	MECH ROOM		
DESCRIPTION	COMBINATION LOUVER/DAMPER		
DEPTH (IN)	8		
FRAME TYPE	CHANNEL		
WIDTH (IN)	32		
HEIGHT (IN)	16		
AIRFLOW (CFM)	550		
FREE AREA (SF)	.75		
FREE AREA VELOCITY (FPM)	734		
PRESSURE DROP (IN H20)	.067		
SELECTION BASE ON	GREENHECK		
ACTUATOR TYPE	120 VAC		
ACTUATOR FAIL POSITION	CLOSED		
MODEL	EAC-601		
REMARKS	1, 2 & 3		
REMARKS LEGEND:			
1. SUBMIT COLOR CHART. COLOR	TO BE APPROVED BY		

ARCHITECT. 2. SEE ARCHITECTURAL PLANS FOR LOCATION.

3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY ACTUATOR.

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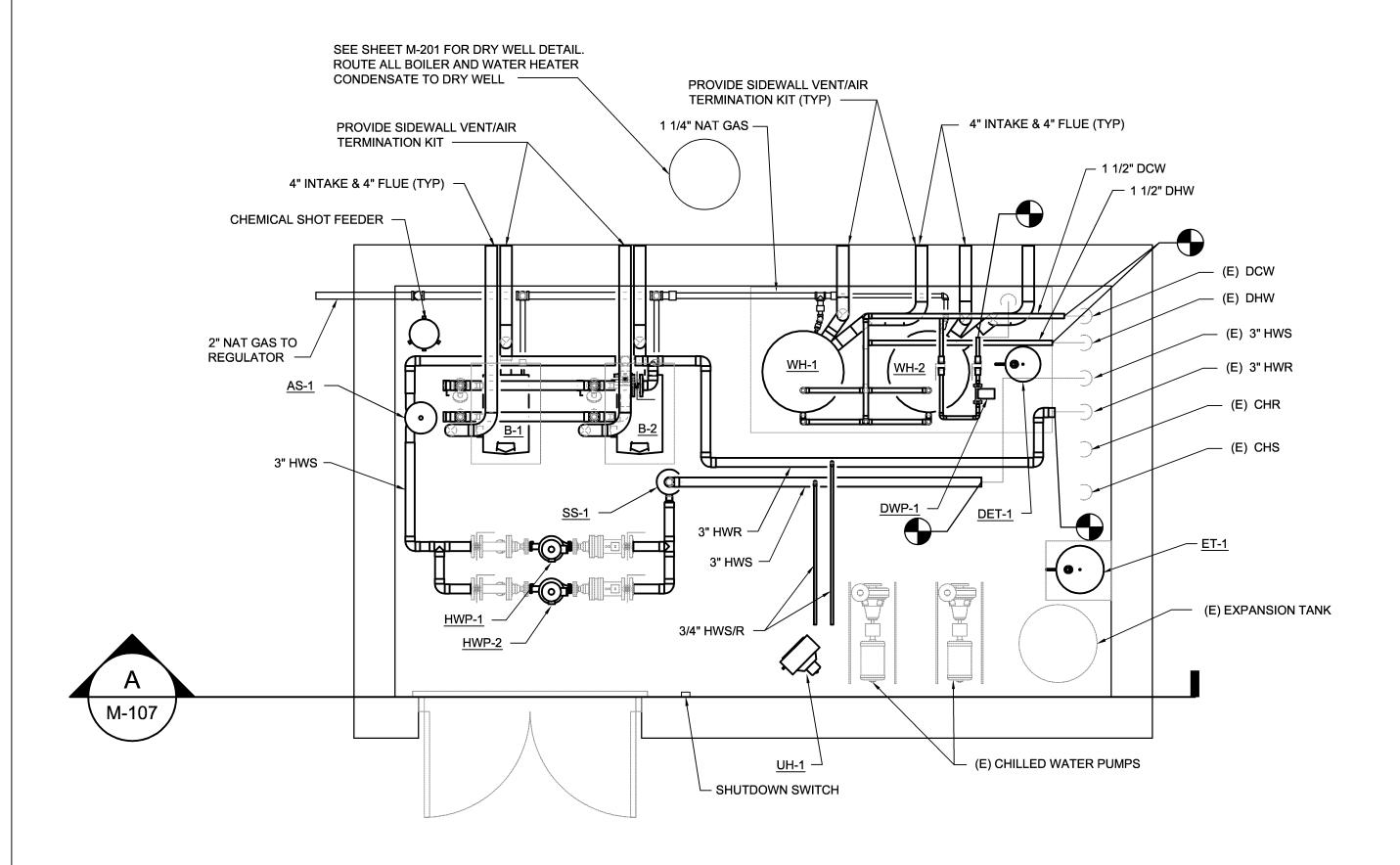
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		wileywilson.com					PROJECT NO.	CP12-0104	
				DEPT (	OF NAVY			S ENGINEERING CO	MMAND
					MAR	INE CO	RPS BAS	E	
					CAMP	LEJEUNE, N	IORTH CAROLI	NA	
	DES.	IM							
	DR.	SWL			BOILER I	MODIFIC	CATIONS,	<b>VARIOUS</b>	
TEATTH OF	CHK.	JHE			FACIL	LITIES,	HADNOT	POINT	
	SUBMITTED BY:				BUII DING	63 MFCHA	NICAL DEMOLI	TION AND	
ON THE OF	DESIGN DIR.				301251110		ORK PLAN		
J IOANNIS MASOURAS 🛱 🕻	APPROVED: PWO	OR OICC	DATE	SIZE	CODE IDENT NO.		NAVFAC DR	AWING NO.	
ہ Lic. No. 035863 🚓 🔾				_			6001	1282	

# DISCLOSURE OF INFORMATION

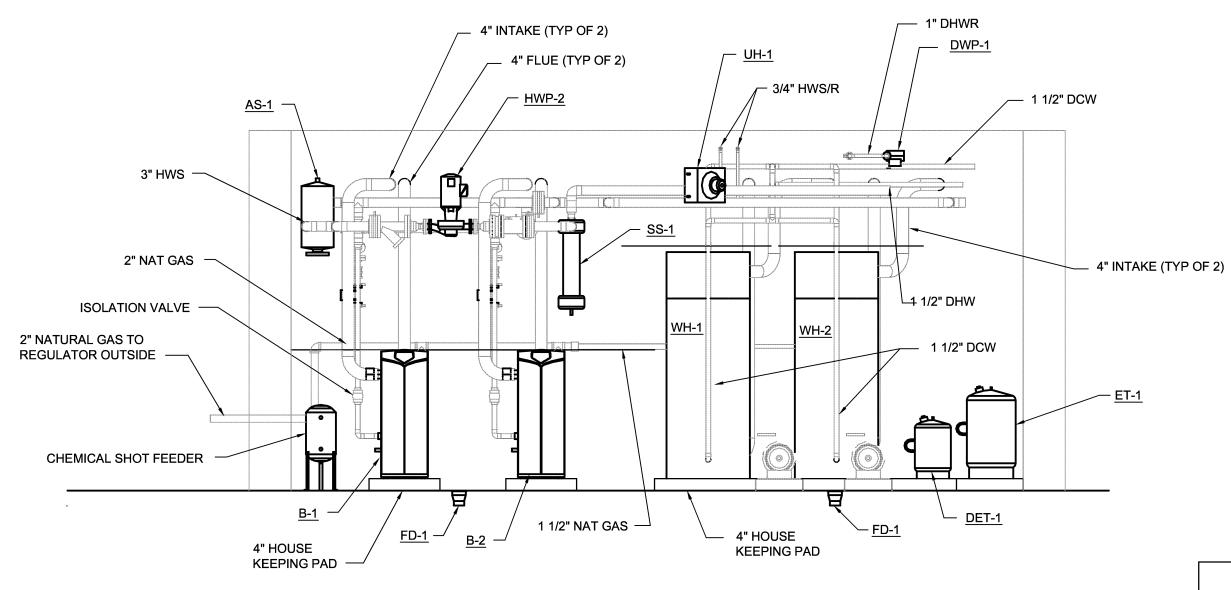
BUILDING 63 INTERIOR MECHANICAL ROOM DEMOLITION PLAN

# Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

- (1) The Contracting Officer has given prior written approval; or (2) The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

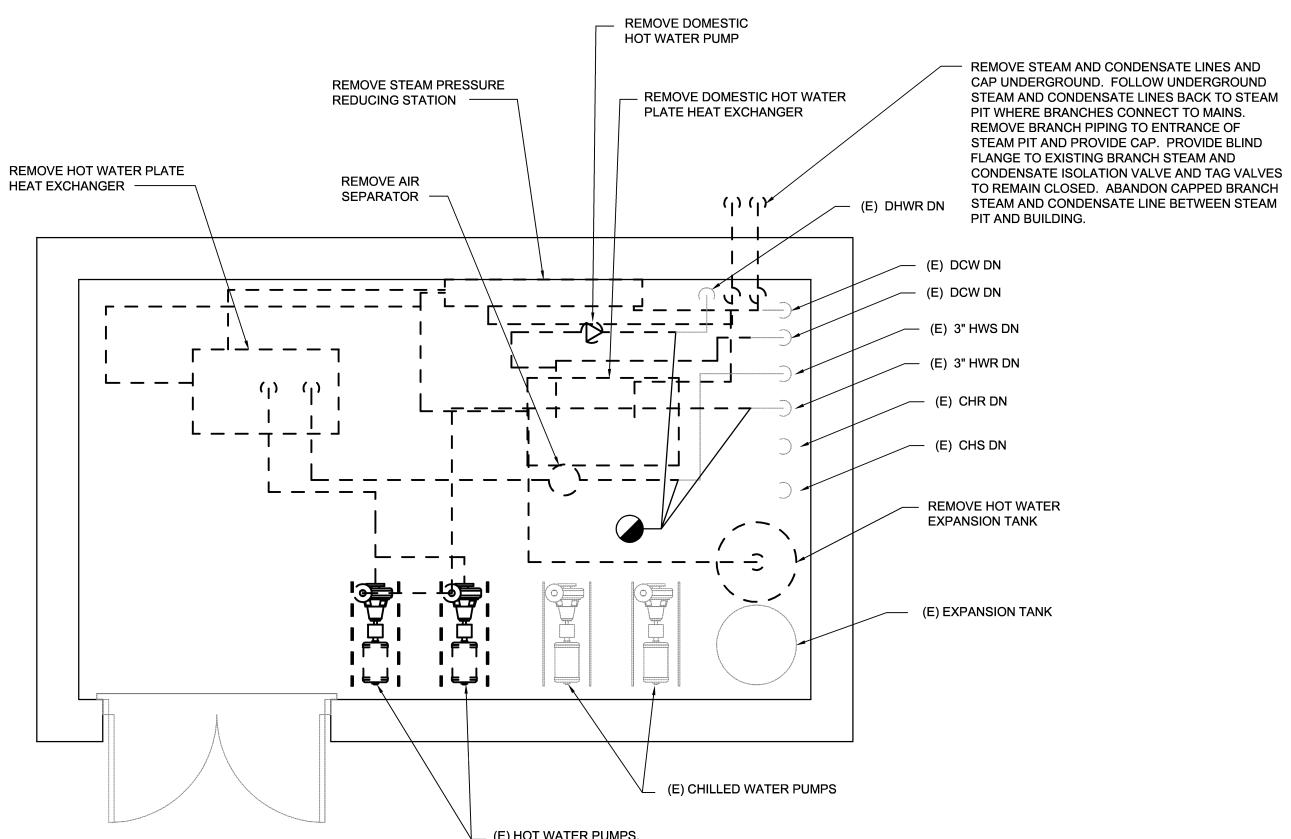


BUILDING 101A MECHANICAL NEW WORK PLAN





NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY





AIR SEPARATOR SCHEDULE DESIGNATION LOCATION MECH ROOM SERVICE **HOT WATER** LINE SIZE (IN) BASED ON **BELL & GOSSETT** MODEL ROLAIRTROL

# EXPANSION TANK SCHEDULE

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

LAI ANDION IANN OUTLOOLL			
DESIGNATION	ET-1	DET-1	
SERVICE	HEATING WATER	DOMESTIC HOT WATER	
LOCATION	MECH ROOM MECH ROOM		
TYPE	BLADDER	BLADDER	
TANK VOLUME (GAL)	60	14	
FILL PRESSURE (PSI)	20	60	
RELEIF VALVE PRESSURE SETTING (PSI)	100	100	
BASED ON	JOHN WOOD COMPANY	AMTROL	
MODEL	JAER-23-607	ST-C SERIES ST-42V-C	

DESIGNATION

SERVICE

LOCATION

PUMP DATA

FLOW (GPM)

TOTAL HEAD (FT-H2O)

MINIMUM EFFICIENCY (%)

CONNECTION SIZE

SUCTION (IN)

MOTOR DATA

DISCHARGE (IN)

MOTOR FRAME

HORSEPOWER

SELECTION BASED ON (MFGR)

VOLTS

PHASE

HERTZ

REMARKS

REMARKS LEGEND:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS

NATURAL GAS NOTE:

1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

MINIMUM 30" IN THE FRONT.

- 2. BUILDING 101A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 101. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.

6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.

- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- MIXING VALVE. 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

			_
BOILER SC	CHEDULE		UN
DESIGNATION	B-1	B-2	DESIGNATIO
LOCATION	MECH ROOM	MECH ROOM	LOCATION
FUEL TYPE	NATURAL GAS	NATURAL GAS	AIRFLOW (C
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4	HEATING CA
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10	ENTERING A
GAS INLET CONNECTION (IN)	1	1	LEAVING AIF
INPUT (MBH)	399	399	ENTERING V
OUTPUT (MBH)	375	375	FLOW RATE
MINIMUM TURN DOWN RATIO	5:1	5:1	WATER PRE
FLOWRATE (GPM)	30	30	MOTOR POV
MAXIMUM PRESSURE DROP (FT_H20)	8	8	VOLTAGE (V
ENTERING WATER TEMPERATURE (DEG F)	160	160	PHASE
LEAVING WATER TEMPERATURE (DEG F)	185	185	FREQUENCY
MINIMUM OPERATING PRESSURE (PSI)	30	30	BASED ON

KB-400

1, 2, 3 & 4

DWP-1

DOMESTIC HOT

WATER

MECH ROOM

INLINE

20

1.5

1.5

2650

115

60

BELL &

GOSSETT

**BOOSTER PL-30** 

KB-400

1, 2, 3 & 4

1. PROVIDE UNIT MOUNTED THERMOSTAT.

MINIMU MAXIMU GAS INLI INPUT ( OUTPU MINIMU FLOWR MAXIMU ENTERI LEAVIN MINIMU VOLTAGE (V) 120 120 PHASE FREQUENCY (Hz) 60 TOTAL OPERATING AMPS 1.5 1.5 FLUE GAS STACK EXHAUST CONNECTION SIZE (IN) **SELECTION BASED ON** LOCHINVAR LOCHINVAR

REMARKS LEGEND:

MODEL REMARKS

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

**HOT WATER** 

MECH ROOM

INLINE

1.5

1750

208

BELL & GOSSETT

80 1-1/2x1-1/2x9-1/2 | 80 1-1/2x1-1/2x9-1/2

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

PUMP SCHEDULE

HOT WATER

MECH ROOM

INLINE

72

50

1.5

1.5

1750

208

60

**BELL & GOSSETT** 

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

UNIT HEATER SCHEDULE		
DESIGNATION	UH-1	
LOCATION	MECH ROOM	
AIRFLOW (CFM)	340	
HEATING CAPACITY (MBH)	10	
ENTERING AIR TEMPERATURE (DEG F)	55	
LEAVING AIR TEMPERATURE (DEG F)	82	
ENTERING WATER TEMPERATURE (DEG F)	180	
FLOW RATE (GPM)	.5	
WATER PRESSURE DROP (FT W.G.)	.5	
MOTOR POWER (HP)	1/60	
VOLTAGE (V)	115	
PHASE	1	
FREQUENCY (Hz)	60	
BASED ON	MODINE	
MODEL	HC-18 S 01	
REMARKS	1	
REMARKS LEGEND:	•	

SOLID SEPARATOR SCHEDULE		
DESIGNATION	SS-1	
LOCATION	MECH ROOM	
SERVICE	HOT WATER	
FLOW RATE (GPM)	72	
MAXIMUM PRESSURE DROP (FT-H20)	14	
COLLECTION CHAMBER CAPACITY (GAL)	0.8	
BASED ON	LAKOS	
MODEL	ILB-0200	

DOMESTIC HOT WATER HEATER SCHEDULE				
DESIGNATION	WH-1	WH-2		
LOCATION	MECH ROOM	MECH ROOM		
STORAGE (GALLONS)	100	100		
GPH AT 100 DEG F RISE	173	173		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5		
GAS INLET CONNECTION (IN)	3/4	3/4		
INPUT (MBH)	150	150		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	STATE	STATE		
MODEL	SUF 100 150 NE	SUF 100 150 NE		
REMARKS	1 & 2	1 & 2		

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

Wiley|Wilson 6606 West Broad St., Suite 500 M - 107Richmond, Virginia 23230-1717 804.254.7242 PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA IM BOILER MODIFICATIONS, VARIOUS SWL FACILITIES, HADNOT POINT JHE SUBMITTED BY: BUILDING 101 MECHANICAL DEMOLITION AND DESIGN DIR. NEW WORK PLAN

SCALE: AS SPEC No.

SHEET 19 OF 43

DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. 60011283 DATE N40085-12-B-0104 CONSTR CONTR NO. SATISFACTORY TO

SEE GENERAL NOTE 2

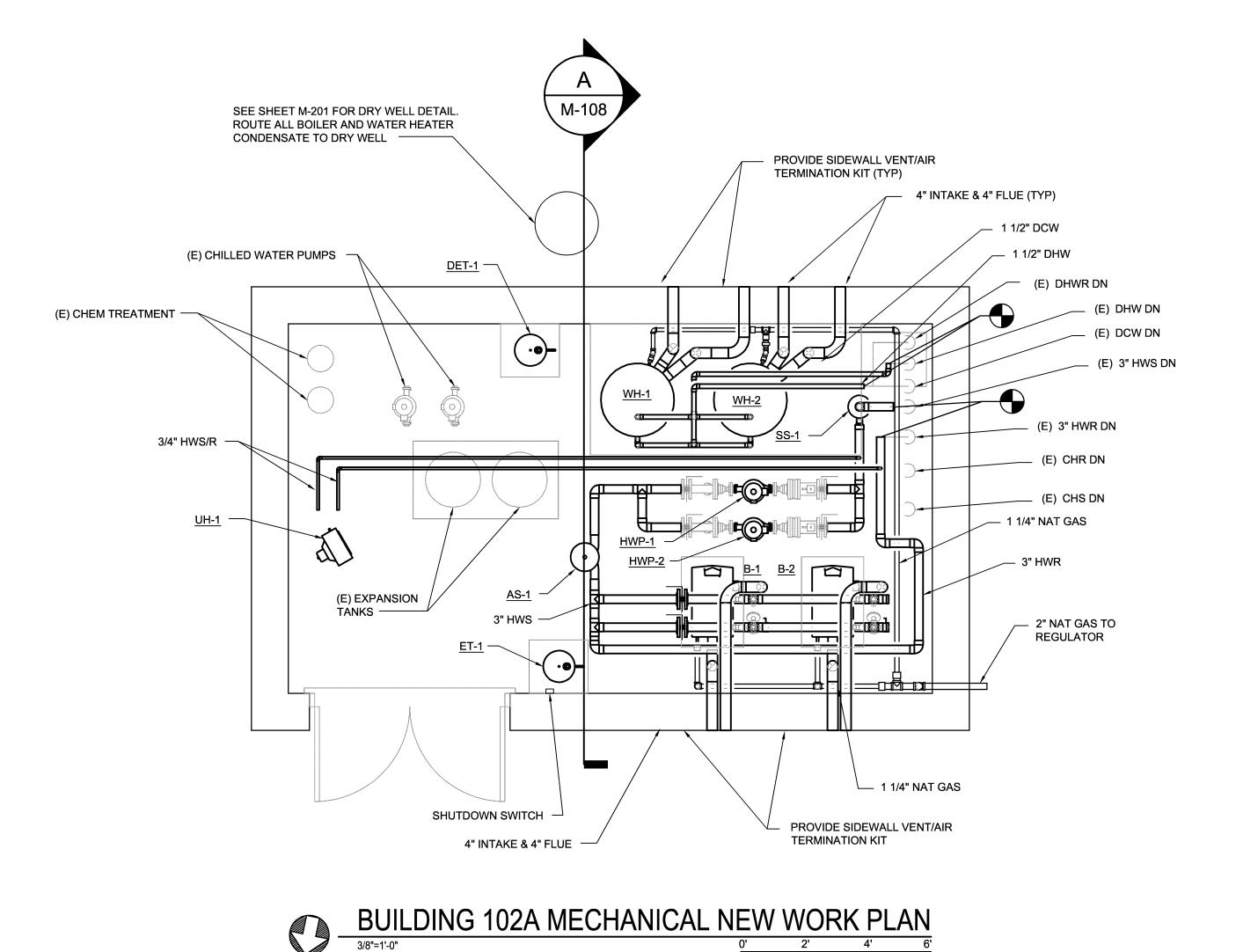
DISCLOSURE OF INFORMATION

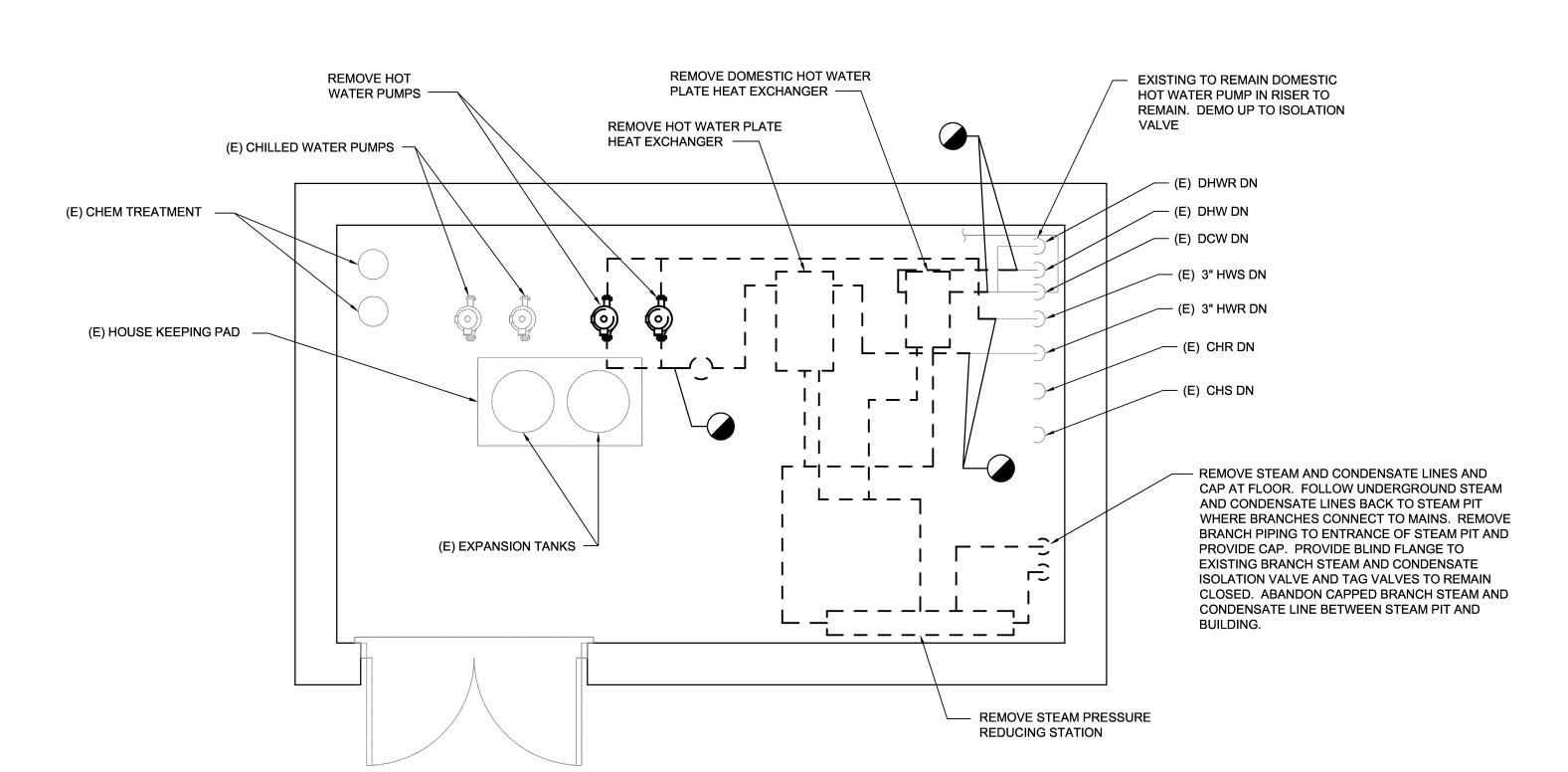
release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

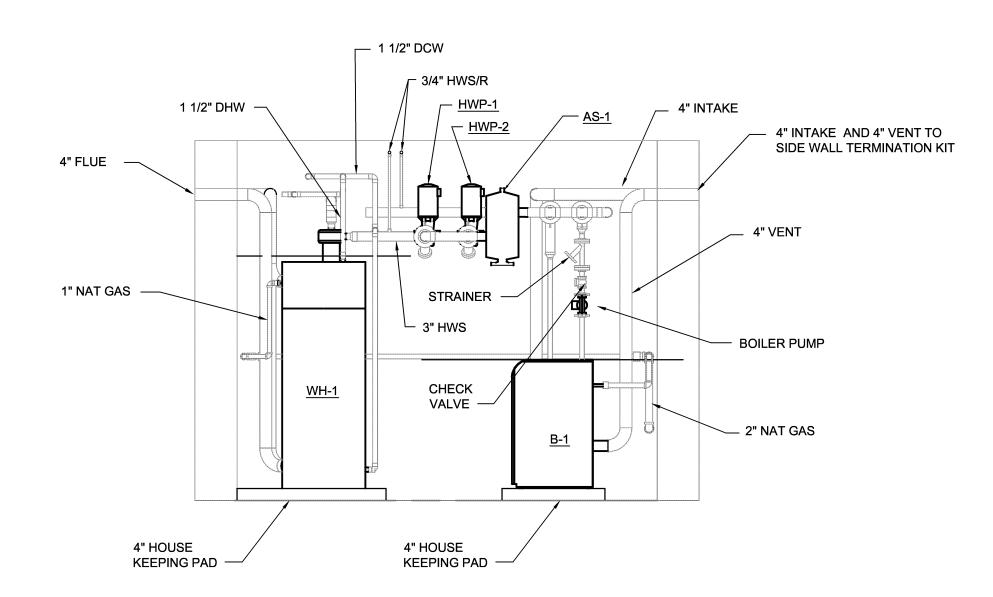
(1) The Contracting Officer has given prior written approval; or (2) The information is otherwise in the public domain before the date of release. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.











NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

# **DEMOLITION NOTES**

NATURAL GAS NOTE:

TOTAL CONNECTED

NATURAL GAS DEMAND

FOR THIS BUILDING IS

1,100 MBH AT 10 IN-H20.

# 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

- 2. BUILDING 102A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 102. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.
- 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCHEDULE				
DESIGNATION	B-1	B-2		
LOCATION	MECH ROOM	MECH ROOM		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10		
GAS INLET CONNECTION (IN)	1	1		
INPUT (MBH)	399	399		
OUTPUT (MBH)	375	375		
MINIMUM TURN DOWN RATIO	5:1	5:1		
FLOWRATE (GPM)	30	30		
MAXIMUM PRESSURE DROP (FT_H20)	8	8		
ENTERING WATER TEMPERATURE (DEG F)	160	160		
LEAVING WATER TEMPERATURE (DEG F)	185	185		
MINIMUM OPERATING PRESSURE (PSI)	30	30		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
TOTAL OPERATING AMPS	1.5	1.5		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	LOCHINVAR	LOCHINVAR		
MODEL REMARKS	KB-400	KB-400		
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4		

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

HWP-2

**HOT WATER** 

MECH ROOM

72

182JM

1750

BELL & GOSSETT

80 1-1/2x1-1/2x9-1/2 | BOOSTER PL-30

DWP-1

DOMESTIC HOT

WATER

MECH ROOM

INLINE

1.5

1.5

2650

115

BELL &

GOSSETT

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

PUMP SCHEDULE

HWP-1

**HOT WATER** 

MECH ROOM

72

1.5

182JM

1750

208

**BELL & GOSSETT** 

80 1-1/2x1-1/2x9-1/2

UNIT HEATER SCHEDULE				
DESIGNATION	UH-1			
LOCATION	MECH ROOM			
AIRFLOW (CFM)	340			
HEATING CAPACITY (MBH)	10			
ENTERING AIR TEMPERATURE (DEG F)	55			
LEAVING AIR TEMPERATURE (DEG F)	82			
ENTERING WATER TEMPERATURE (DEG F)	180			
FLOW RATE (GPM)	.5			
WATER PRESSURE DROP (FT W.G.)	.5			
MOTOR POWER (HP)	1/60			
VOLTAGE (V)	115			
PHASE	1			
FREQUENCY (Hz)	60			
BASED ON	MODINE			
MODEL	HC-18 S 01			
REMARKS	1			
	-			

1. PROVIDE UNIT MOUNTED THERMOSTAT.

REMARKS LEGEND:

SOLID SEPARATOR SCHEDULE

DESIGNATION LOCATION MECH ROOM SERVICE **HOT WATER** FLOW RATE (GPM) MAXIMUM PRESSURE DROP (FT-H20) COLLECTION CHAMBER CAPACITY (GAL) 8.0 BASED ON LAKOS MODEL ILB-0200

DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH RO
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL (
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 15
REMARKS	1 & 2	1 & 2

STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

SHEET 20 OF 43

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

AIR SEPARATOR SCHEDULE		
DESIGNATION	AS-1	
LOCATION	MECH ROOM	
SERVICE	HOT WATER	
LINE SIZE (IN)	3	
BASED ON	BELL & GOSSETT	
MODEL	ROLAIRTROL	

EXPANSION TANK SCHEDULE					
DESIGNATION	ET-1	DET-1			
SERVICE	HEATING WATER	DOMESTIC HOT WATER			
LOCATION	MECH ROOM	MECH ROOM			
TYPE	BLADDER	BLADDER			
TANK VOLUME (GAL)	60	14			
FILL PRESSURE (PSI)	20	60			
RELEIF VALVE PRESSURE SETTING (PSI)	100	100			
BASED ON	JOHN WOOD COMPANY	AMTROL			
MODEL	JAER-23-607	ST-C SERIES ST-42V-C			

DESIGNATION

SERVICE

LOCATION

PUMP DATA

FLOW (GPM)

TOTAL HEAD (FT-H2O)

MINIMUM EFFICIENCY (%)

CONNECTION SIZE

SUCTION (IN)

MOTOR DATA

DISCHARGE (IN)

MOTOR FRAME

HORSEPOWER

SELECTION BASED ON (MFGR)

**VOLTS** 

PHASE

HERTZ

MODEL

REMARKS

MODEL	JAER-23-007
* MATCH DOMESTIC WATER SUPPLY PRES	SURE AT THIS LOCATION.

	_	
DET-1		
STIC HOT WATER		
ECH ROOM		
BLADDER		
14		
60		
100		
AMTROL		*
ERIES ST-42V-C		*
	-	7

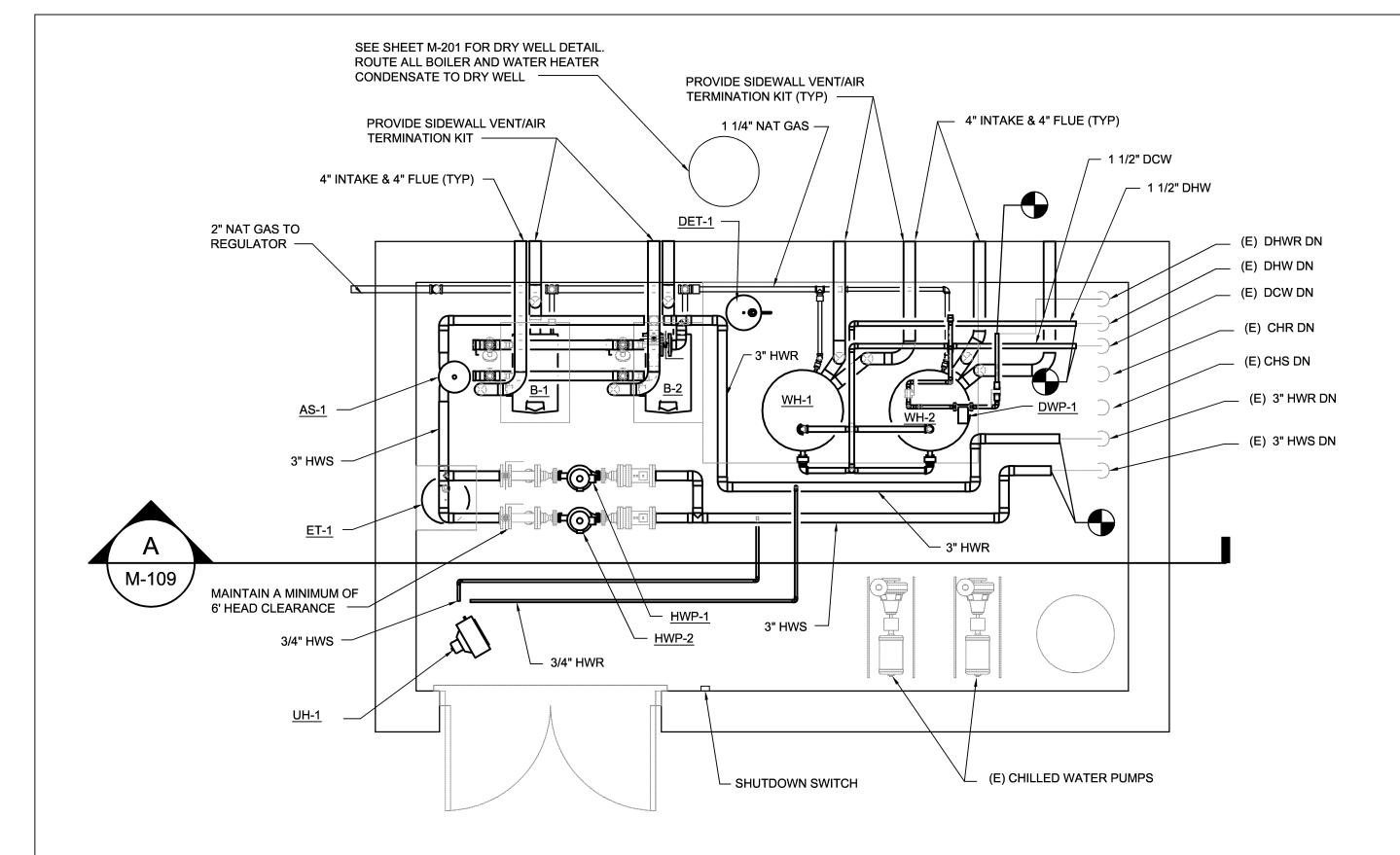
1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

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# DISCLOSURE OF INFORMATION

# Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

- (1) The Contracting Officer has given prior written approval; or (2) The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.



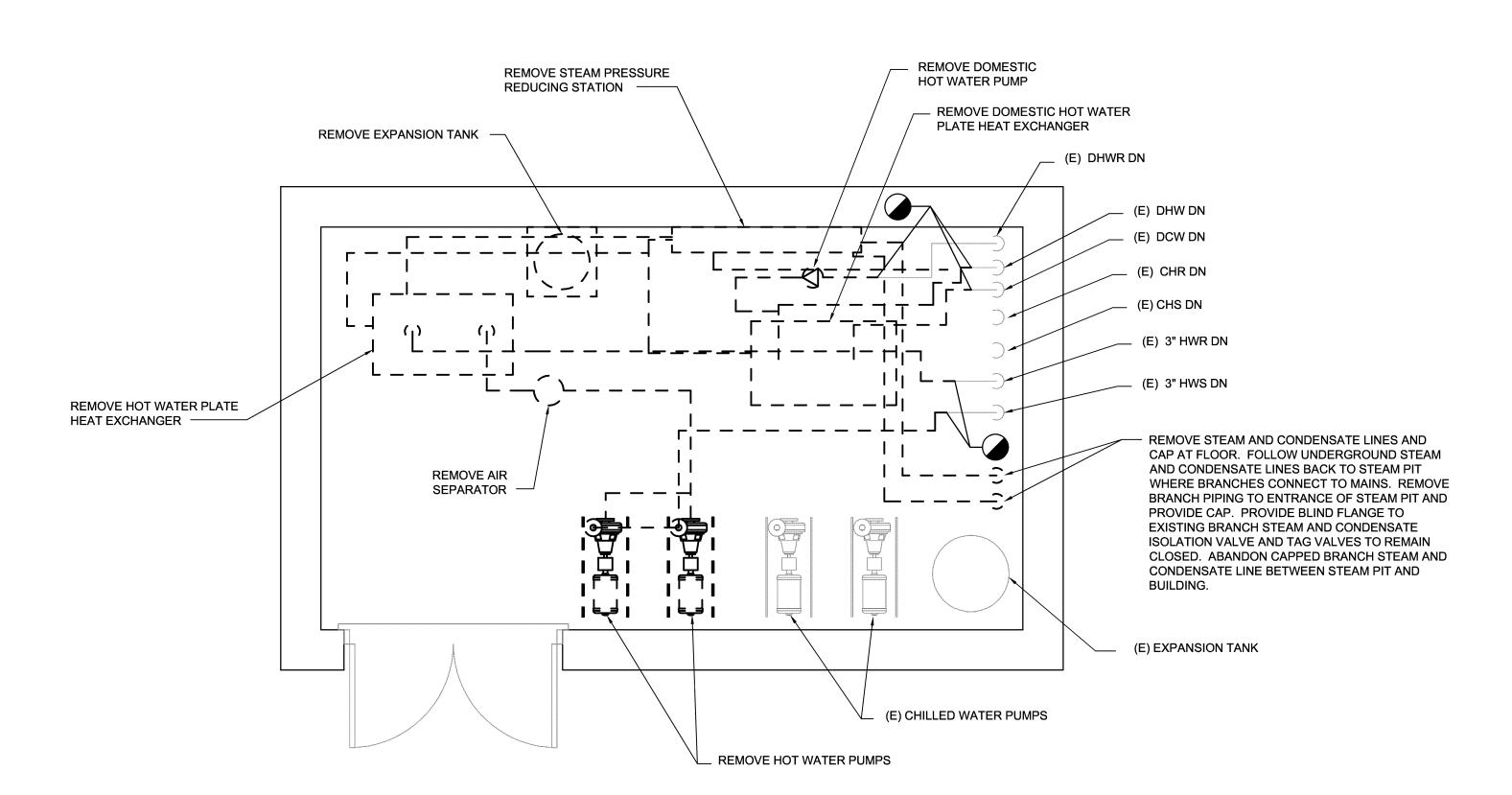
BUILDING 111A MECHANICAL NEW WORK PLAN
3/8"=1'-0"

O' 2' 4' 6"

\_\_\_ 1" DHWR 4" INTAKE (TYP OF 2) 4" FLUE (TYP OF 2) — 1 1/2" DCW 2" NAT GAS -\_\_\_ 4" INTAKE (TYP OF 2) └ 1 1/2" DHW 2" NATURAL GAS TO REGULATOR OUTSIDE — <u>WH-1</u> \_\_\_\_ 1 1/2" DCW ISOLATION VALVE 4" HOUSE **KEEPING PAD** 4" HOUSE KEEPING PAD



NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY





 TOTAL CONNECTED NATURAL GAS DEMAND

FOR THIS BUILDING IS

1,100 MBH AT 10 IN-H20.

NATURAL GAS NOTE:

**DEMOLITION NOTES** 

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.

4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

MINIMUM 30" IN THE FRONT.

- 2. BUILDING 111A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 111. 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- MIXING VALVE. 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

REMARKS LEGEND:

- 1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.
- 2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.
- 4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

UNIT HEATER SCHEDULE			
DESIGNATION	UH-1		
LOCATION	MECH ROOM		
AIRFLOW (CFM)	340		
HEATING CAPACITY (MBH)	10		
ENTERING AIR TEMPERATURE (DEG F)	55		
LEAVING AIR TEMPERATURE (DEG F)	82		
ENTERING WATER TEMPERATURE (DEG F)	180		
FLOW RATE (GPM)	.5		
WATER PRESSURE DROP (FT W.G.)	.5		
MOTOR POWER (HP)	1/60		
VOLTAGE (V)	115		
PHASE	1		
FREQUENCY (Hz)	60		
BASED ON	MODINE		
MODEL	HC-18 S 01		
REMARKS	1		
REMARKS LEGEND:	•		

1. PROVIDE UNIT MOUNTED THERMOSTAT.

SOLID SEPARATOR SCHEDULE DESIGNATION SS-1 LOCATION MECH ROOM SERVICE **HOT WATER** FLOW RATE (GPM) 72 MAXIMUM PRESSURE DROP (FT-H20) 14 COLLECTION CHAMBER CAPACITY (GAL) 8.0 BASED ON LAKOS MODEL ILB-0200

PUMP SCHEDULE					
DESIGNATION	HWP-1	HWP-2	DWP-1		
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT		
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM		
TYPE	INLINE	INLINE	INLINE		
PUMP DATA	-	-	-		
FLOW (GPM)	72	72	5		
TOTAL HEAD (FT-H2O)	65	65	20		
MINIMUM EFFICIENCY (%)	50	50	-		
CONNECTION SIZE	-	-	-		
SUCTION (IN)	1.5	1.5	1.5		
DISCHARGE (IN)	1.5	1.5	1.5		
MOTOR DATA	-	-	-		
MOTOR FRAME	182JM	182JM	-		
HORSEPOWER	3	3	-		
RPM	1750	1750	2650		
VOLTS	208	208	115		
PHASE	1	1	1		
HERTZ	60	60	60		
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT		
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-3		
REMARKS	-	-	1		

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROO
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL GA
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 150
REMARKS	1 & 2	1 & 2

Wiley|Wilson 6606 West Broad St., Suite 500

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

AIR SEPARATOR SCHEDULE				
DESIGNATION	AS-1			
LOCATION	MECH ROOM			
SERVICE HOT WATER				
LINE SIZE (IN)	3			
BASED ON BELL & GOSSETT				
MODEL ROLAIRTROL				

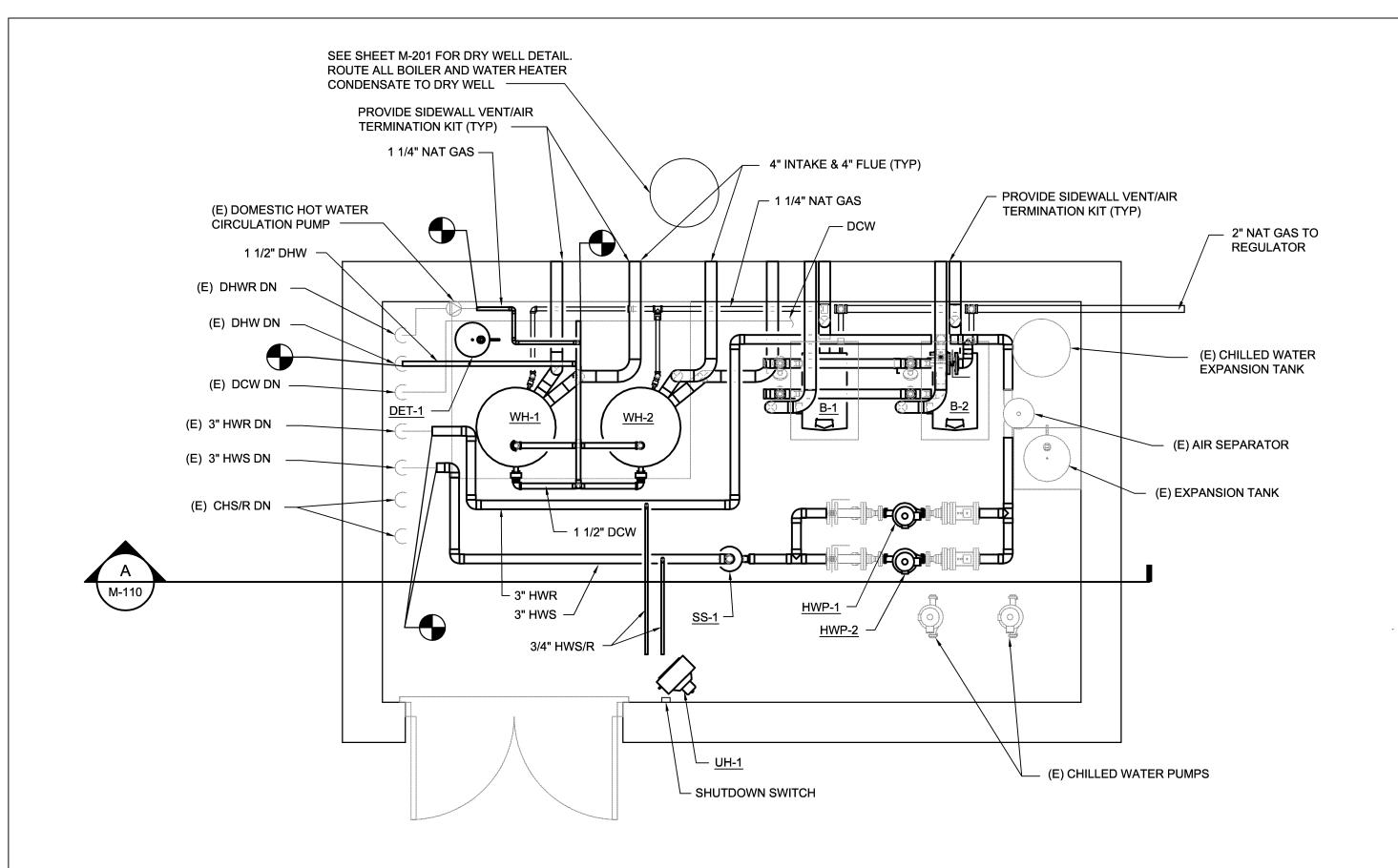
EXPANSION TANK SCHEDULE				
DESIGNATION	ET-1	DET-1		
SERVICE	HEATING WATER	DOMESTIC HOT WATER		
LOCATION	MECH ROOM	MECH ROOM		
TYPE	BLADDER	BLADDER		
TANK VOLUME (GAL)	60	14		
FILL PRESSURE (PSI)	20	60		
RELEIF VALVE PRESSURE SETTING (PSI)	100	100		
BASED ON	JOHN WOOD COMPANY	AMTROL		
MODEL	JAER-23-607	ST-C SERIES ST-42V-C		

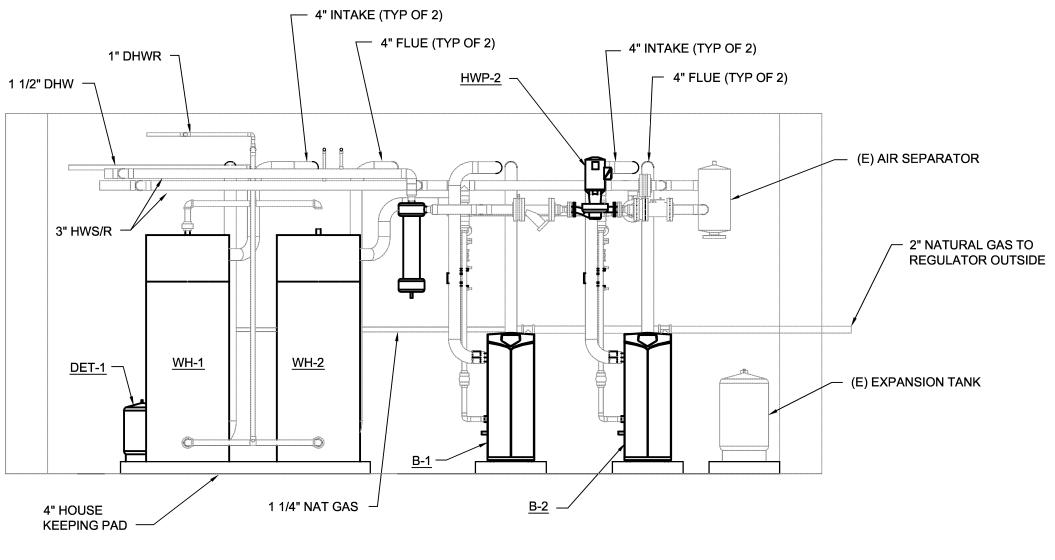
\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

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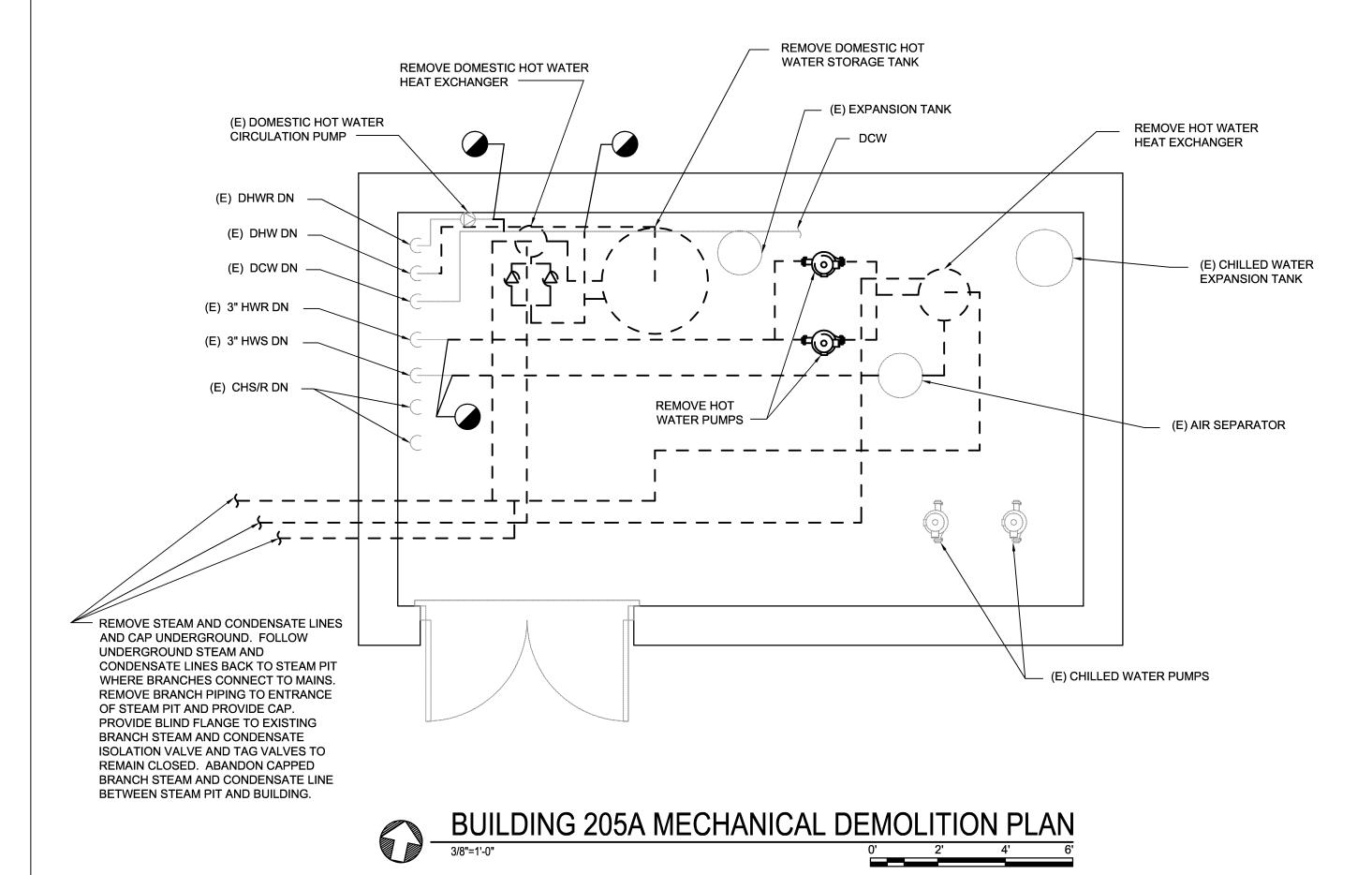
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- (2) The information is otherwise in the public domain before the date of release. (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.







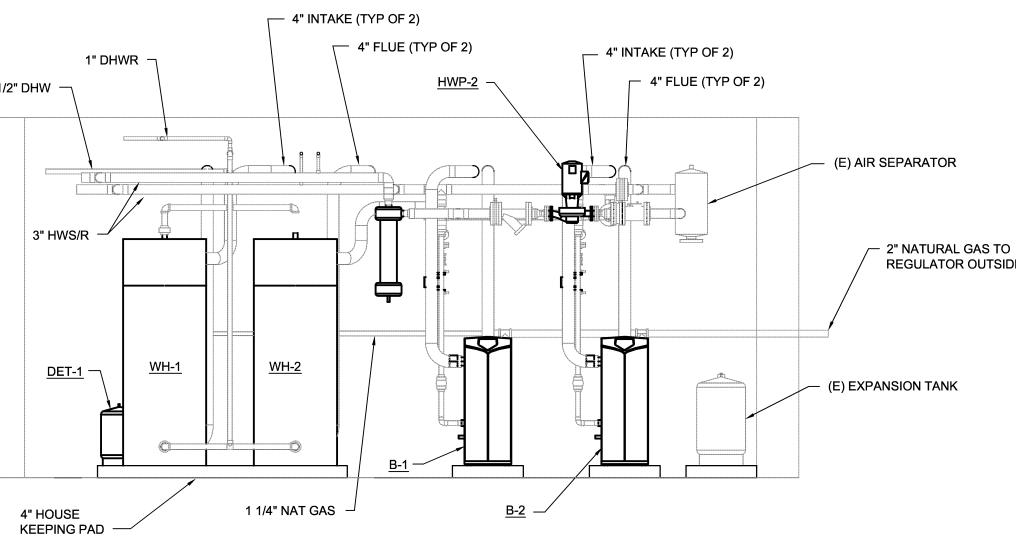




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- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit
- requests for authorization to release through the prime contractor to the Contracting Officer.





NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. BUILDING 205A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 205.
- 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- MIXING VALVE. 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
OCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
NPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
EAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
/OLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

DESIGNATION UH-1  LOCATION MECH ROOM  AIRFLOW (CFM) 340  HEATING CAPACITY (MBH) 10  ENTERING AIR TEMPERATURE (DEG F) 55  LEAVING AIR TEMPERATURE (DEG F) 82  ENTERING WATER TEMPERATURE (DEG F) 180  FLOW RATE (GPM) .5  WATER PRESSURE DROP (FT W.G.) .5  MOTOR POWER (HP) 1/60  VOLTAGE (V) 115  PHASE 1 1  FREQUENCY (Hz) 60  BASED ON MODINE					
LOCATION MECH ROOM  AIRFLOW (CFM) 340  HEATING CAPACITY (MBH) 10  ENTERING AIR TEMPERATURE (DEG F) 55  LEAVING AIR TEMPERATURE (DEG F) 82  ENTERING WATER TEMPERATURE (DEG F) 180  FLOW RATE (GPM) .5  WATER PRESSURE DROP (FT W.G.) .5  MOTOR POWER (HP) 1/60  VOLTAGE (V) 115  PHASE 1 1  FREQUENCY (Hz) 60  BASED ON MODINE	UNIT HEATER SCHEDULE				
AIRFLOW (CFM)       340         HEATING CAPACITY (MBH)       10         ENTERING AIR TEMPERATURE (DEG F)       55         LEAVING AIR TEMPERATURE (DEG F)       82         ENTERING WATER TEMPERATURE (DEG F)       180         FLOW RATE (GPM)       .5         WATER PRESSURE DROP (FT W.G.)       .5         MOTOR POWER (HP)       1/60         VOLTAGE (V)       115         PHASE       1         FREQUENCY (Hz)       60         BASED ON       MODINE	DESIGNATION	UH-1			
HEATING CAPACITY (MBH)  ENTERING AIR TEMPERATURE (DEG F)  LEAVING AIR TEMPERATURE (DEG F)  ENTERING WATER TEMPERATURE (DEG F)  FLOW RATE (GPM)  WATER PRESSURE DROP (FT W.G.)  MOTOR POWER (HP)  1/60  VOLTAGE (V)  115  PHASE  1  FREQUENCY (Hz)  BASED ON  MODINE	LOCATION	MECH ROOM			
ENTERING AIR TEMPERATURE (DEG F)         55           LEAVING AIR TEMPERATURE (DEG F)         82           ENTERING WATER TEMPERATURE (DEG F)         180           FLOW RATE (GPM)         .5           WATER PRESSURE DROP (FT W.G.)         .5           MOTOR POWER (HP)         1/60           VOLTAGE (V)         115           PHASE         1           FREQUENCY (Hz)         60           BASED ON         MODINE	AIRFLOW (CFM)	340			
LEAVING AIR TEMPERATURE (DEG F)       82         ENTERING WATER TEMPERATURE (DEG F)       180         FLOW RATE (GPM)       .5         WATER PRESSURE DROP (FT W.G.)       .5         MOTOR POWER (HP)       1/60         VOLTAGE (V)       115         PHASE       1         FREQUENCY (Hz)       60         BASED ON       MODINE	HEATING CAPACITY (MBH)	10			
ENTERING WATER TEMPERATURE (DEG F) 180  FLOW RATE (GPM) .5  WATER PRESSURE DROP (FT W.G.) .5  MOTOR POWER (HP) 1/60  VOLTAGE (V) 115  PHASE 1  FREQUENCY (Hz) 60  BASED ON MODINE	ENTERING AIR TEMPERATURE (DEG F)	55			
FLOW RATE (GPM)         .5           WATER PRESSURE DROP (FT W.G.)         .5           MOTOR POWER (HP)         1/60           VOLTAGE (V)         115           PHASE         1           FREQUENCY (Hz)         60           BASED ON         MODINE	LEAVING AIR TEMPERATURE (DEG F)	82			
WATER PRESSURE DROP (FT W.G.)       .5         MOTOR POWER (HP)       1/60         VOLTAGE (V)       115         PHASE       1         FREQUENCY (Hz)       60         BASED ON       MODINE	ENTERING WATER TEMPERATURE (DEG F)	180			
MOTOR POWER (HP)         1/60           VOLTAGE (V)         115           PHASE         1           FREQUENCY (Hz)         60           BASED ON         MODINE	FLOW RATE (GPM)	.5			
VOLTAGE (V)         115           PHASE         1           FREQUENCY (Hz)         60           BASED ON         MODINE	WATER PRESSURE DROP (FT W.G.)	.5			
PHASE 1 FREQUENCY (Hz) 60 BASED ON MODINE	MOTOR POWER (HP)	1/60			
FREQUENCY (Hz) 60  BASED ON MODINE	VOLTAGE (V)	115			
BASED ON MODINE	PHASE	1			
	FREQUENCY (Hz)	60			
MODEL HC 18 S 01	BASED ON	MODINE			
10-10-3-01	MODEL	HC-18 S 01			
REMARKS 1	REMARKS	1			

REMARKS LEGEND: 1. PROVIDE UNIT MOUNTED THERMOSTAT.

SOLID SEPARATOR SCHEDULE DESIGNATION SS-1 LOCATION MECH ROOM SERVICE HOT WATER FLOW RATE (GPM) 60 MAXIMUM PRESSURE DROP (FT-H20) 23 COLLECTION CHAMBER CAPACITY (GAL) BASED ON LAKOS

DOMESTIC HOT WATER HEATER SCHEDULE

ILB-0150

MECH ROOM

100

173

NATURAL GAS

4.8

10.5

150

120

MECH ROOM

100

173

NATURAL GAS

4.8

10.5

3/4

150

120

CONSTR CONTR NO.

SCALE: AS SPEC No. 05-12-0104

N40085-12-B-0104

SHEET 22 OF 43

NAVAL FACILITIES ENGINEERING COMMAND

P	UMP SCHEDULE		
DESIGNATION	HWP-1	HWP-2	DWP-1
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT WATER
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM
TYPE	INLINE	INLINE	INLINE
PUMP DATA	-	-	-
FLOW (GPM)	60	60	5
TOTAL HEAD (FT-H2O)	80	80	20
MINIMUM EFFICIENCY (%)	50	50	-
CONNECTION SIZE	-	-	-
SUCTION (IN)	1.5	1.5	1.5
DISCHARGE (IN)	1.5	1.5	1.5
MOTOR DATA	-	-	-
MOTOR FRAME	182JM	182JM	-
HORSEPOWER	5	5	-
RPM	1750	1750	2650
VOLTS	208	208	115
PHASE	1	1	1
HERTZ	60	60	60
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-30
REMARKS	-	-	1

REMARKS LEGEND:	
1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE.	PROVIDE AQUAS

		_						
AIR SEPARATOR		EXPANSION TANK	EXPANSION TANK SCHEDULE					
SCH	EDULE	DESIGNATION	DET-1					
ATION	AS-1	SERVICE	DOMESTIC HOT WATE					
NC	MECH ROOM	LOCATION	MECH ROOM					
E	HOT WATER	TYPE	BLADDER					
Œ (IN)	3	TANK VOLUME (GAL)	14					
NC	BELL & GOSSETT	FILL PRESSURE (PSI)	60					
	ROLAIRTROL	RELEIF VALVE PRESSURE SETTING (PSI)	100					
		BASED ON	AMTROL					
		MODEL	ST-C SERIES ST-42V-					

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

DESIGNATION

LOCATION

SERVICE

LINE SIZE (IN)

BASED ON

MODEL

	1.5	1.5	111/102	'	•			
	1.0	1.0	FREQUENCY (Hz)	60	60			
	-	-	FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4			
	182JM	-	SELECTION BASED ON	STATE	STATE			
	5	-	MODEL	SUF 100 150 NE	SUF 100 150 NE			
	1750	2650			1 & 2			
	208	115	REMARKS	1 & 2	1 & 2			
	1	1	REMARKS LEGEND:					
	60	60	1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF L STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HO					
•	BELL & GOSSETT	BELL & GOSSETT	BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT  2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT V	/ENT AND DUCTED CO				
2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-30	PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NO	I ALLOWED.				
	-	1						

MODEL

MINIMUM INLET GAS PRESSURE (IN. WG.)

MAXIMUM INLET GAS PRESSURE (IN. WG.)

DESIGNATION

STORAGE (GALLONS)

GPH AT 100 DEG F RISE

GAS INLET CONNECTION (IN)

LOCATION

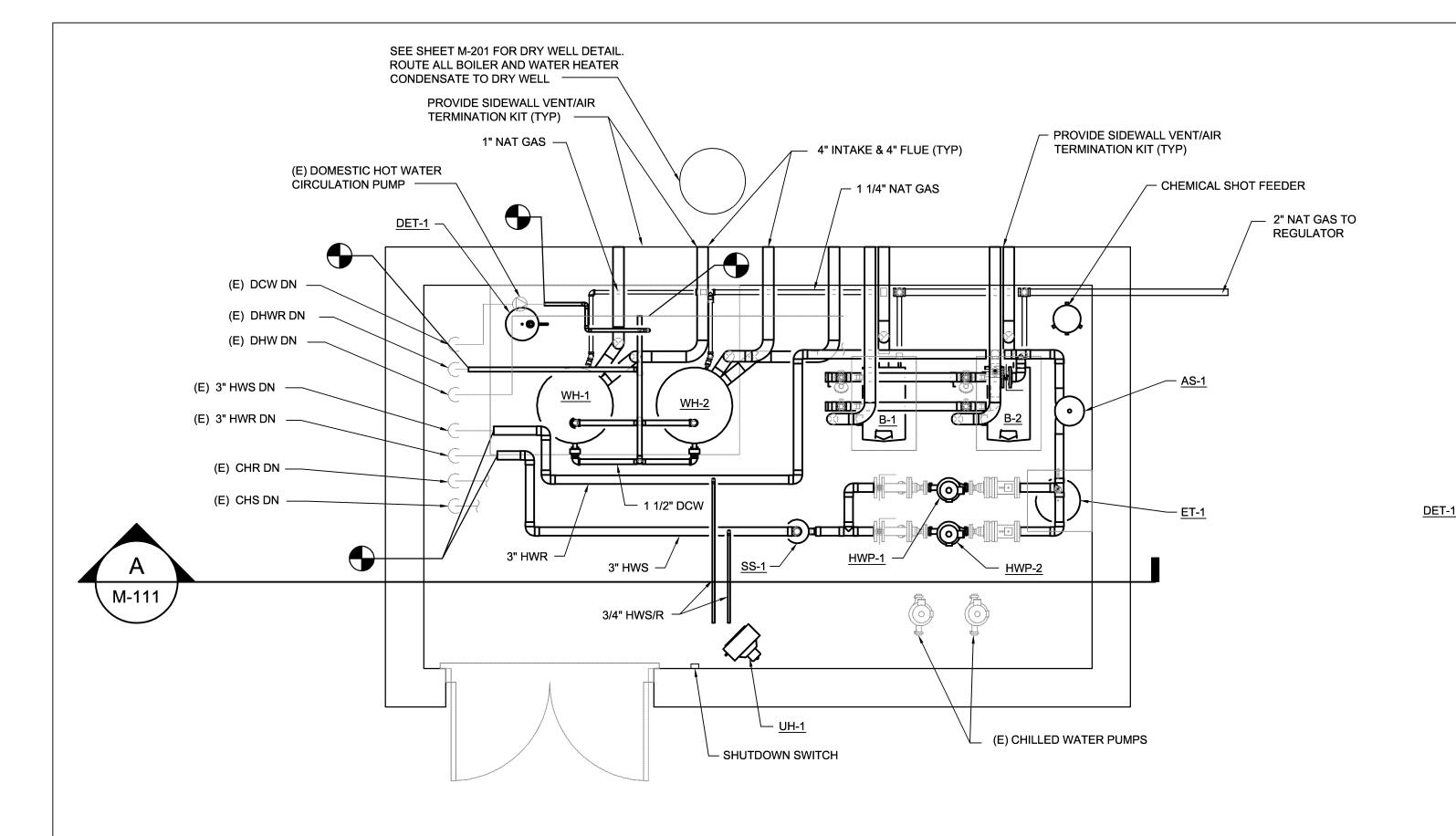
**FUEL TYPE** 

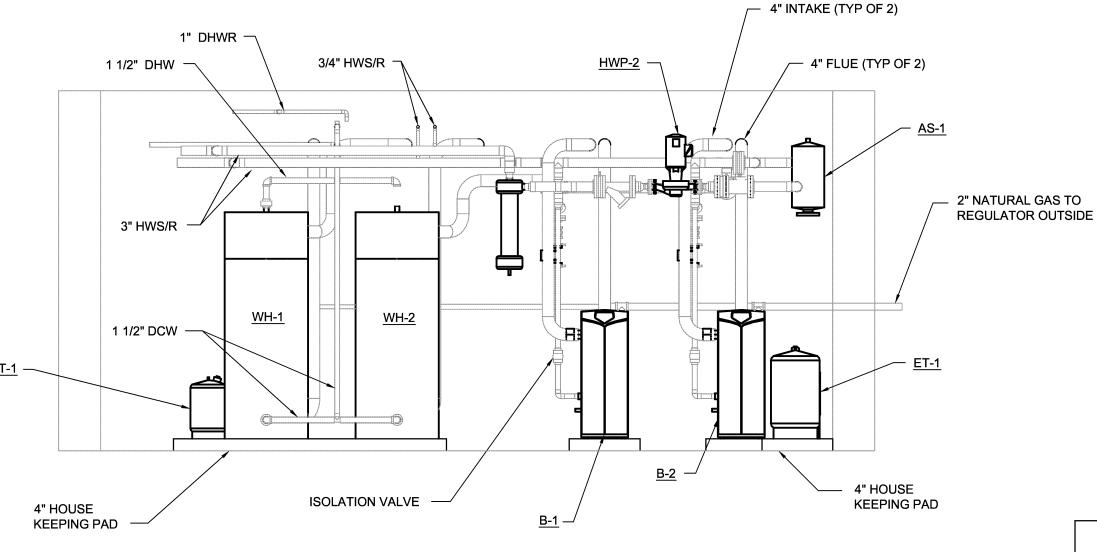
INPUT (MBH)

VOLTAGE (V)

FITTED PUMP FOI	R DOMESTIC WATER SERVIO	CE. PROVIDE AQUASTAT CONTROL.								
N TANK S	SCHEDULE			Wiley Wilson 6606 West Broad St., Suit Richmond, Virginia 23230- 804.254.7242					M –	-110
	DET-1			wileywilson.com					PROJECT NO.	CP12-0104
	DOMESTIC HOT WATER				D	DEPT C	DF NAVY			ENGINEERING CON
	MECH ROOM								PRPS BASE NORTH CAROLIN	
	BLADDER		DES.	IM				<u> </u>		
	14	<b></b>	DR.	SWL			BOILER I	MODIFI	CATIONS, '	VARIOUS
	60	WEATH OF	CHK.	JHE			FACIL	LITIES,	HADNOT F	POINT
E SETTING (PSI)	100		SUBMITTED BY:				BUILDING	205 MECH	ANICAL DEMOLIT	TION AND
L 3L111110 (1 31)	100	8 IOANING MASOLIRAS E	DESIGN DIR.					NEW W	ORK PLAN	
	AMTROL		APPROVED: PW	O OR OICC DAT	E S	SIZE	CODE IDENT NO.		NAVFAC DRA	WING NO.
	ST-C SERIES ST-42V-C	Lic. No. 035863				ΕI	80091		60011	1286

SATISFACTORY TO

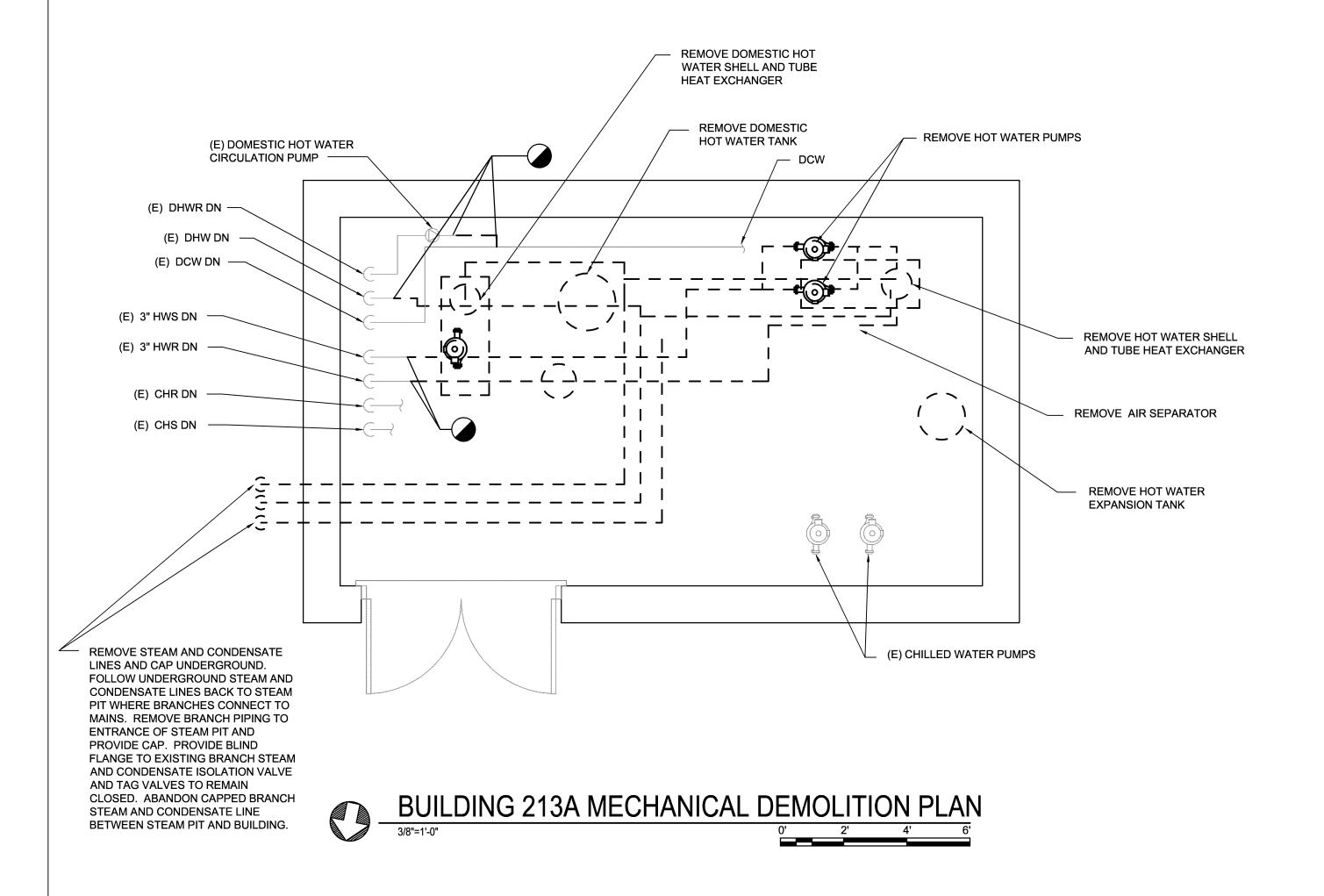






NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY





NATURAL GAS NOTE:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

MINIMUM 30" IN THE FRONT.

- 2. BUILDING 213A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 213. 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- MIXING VALVE. NCY

9.	PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENC
	SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

UNIT HEATER SCHE	DULE
DESIGNATION	UH-1
LOCATION	MECH ROOM
AIRFLOW (CFM)	340
HEATING CAPACITY (MBH)	10
ENTERING AIR TEMPERATURE (DEG F)	55
LEAVING AIR TEMPERATURE (DEG F)	82
ENTERING WATER TEMPERATURE (DEG F)	180
FLOW RATE (GPM)	.5
WATER PRESSURE DROP (FT W.G.)	.5
MOTOR POWER (HP)	1/60
VOLTAGE (V)	115
PHASE	1
FREQUENCY (Hz)	60
BASED ON	MODINE
MODEL	HC-18 S 01
REMARKS	1
REMARKS LEGEND:	

1. PROVIDE UNIT MOUNTED THERMOSTAT.

COLLECTION CHAMBER CAPACITY (GAL)

BASED ON

MODEL

SOLID SEPARATOR SCHEDULE DESIGNATION LOCATION MECH ROOM SERVICE **HOT WATER** FLOW RATE (GPM) 60 MAXIMUM PRESSURE DROP (FT-H20) 23

LAKOS

ILB-0150

M - 111

PROJECT NO. CP12-0104

Р	<b>UMP SCHEDULE</b>		
DESIGNATION	HWP-1	HWP-2	DWP-1
SERVICE	HOT WATER	HOT WATER	DOMESTIC HO
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM
TYPE	INLINE	INLINE	INLINE
PUMP DATA	-	-	-
FLOW (GPM)	60	60	5
TOTAL HEAD (FT-H2O)	80	80	20
MINIMUM EFFICIENCY (%)	50	50	-
CONNECTION SIZE	-	-	-
SUCTION (IN)	1.5	1.5	1.5
DISCHARGE (IN)	1.5	1.5	1.5
MOTOR DATA	-	-	-
MOTOR FRAME	182JM	182JM	-
HORSEPOWER	5	5	-
RPM	1750	1750	2650
VOLTS	208	208	115
PHASE	1	1	1
HERTZ	60	60	60
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-
REMARKS	-	-	1

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

7	EPARATOR HEDULE
DESIGNATION	AS-1
LOCATION	MECH ROOM
SERVICE	HOT WATER
LINE SIZE (IN)	3
BASED ON	BELL & GOSSETT
MODEL	ROLAIRTROL

EXPANSION TANK SCHEDULE				
DESIGNATION	ET-1	DET-1		
SERVICE	HEATING WATER	DOMESTIC HOT WATER		
LOCATION	MECH ROOM	MECH ROOM		
TYPE	BLADDER	BLADDER		
TANK VOLUME (GAL)	60	14		
FILL PRESSURE (PSI)	20	60		
RELEIF VALVE PRESSURE SETTING (PSI)	100	100		
BASED ON	JOHN WOOD COMPANY	AMTROL		
MODEL	JAER-23-607	ST-C SERIES ST-42V-C		

REMARKS LEGEND:

DECIONATION	1 14	14// 0
DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL GA
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 150 N
REMARKS	1 & 2	1 & 2

REMARKS LEGEND:

Wiley|Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER. 2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

I COLIED	
ET-1	DET-1
TING WATER	DOMESTIC HOT WATER
ECH ROOM	MECH ROOM
BLADDER	BLADDER
60	14
20	60

					PHODECT NO.	CF 12-0104	
		DEPT (	OF NAVY		NAVAL FACILITIES	S ENGINEERING COMMA	MD
					RPS BAS		
			CAMP	LEJEUNE, N	ORTH CAROLIN	<b>NA</b>	
ES. IM							
R SWL			BOILER I	MODIFIC	CATIONS,	VARIOUS	
<b>⊩K.</b> JHE		FACILITIES, HADNOT POINT					
JBMITTED BY:		BUILDING	213 MECHA	ANICAL DEMOLI	TION AND		
ESIGN DIR.					ORK PLAN		
PPROVED: PWO OR OICC	DATE	SIZE	CODE IDENT NO.		NAVFAC DRA	AWING NO.	

60011287 CONSTR CONTR NO. N40085-12-B-0104 SATISFACTORY TO SCALE: AS SPEC No. SHEET 23 OF 43

release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of

Contractor shall comply as follows:

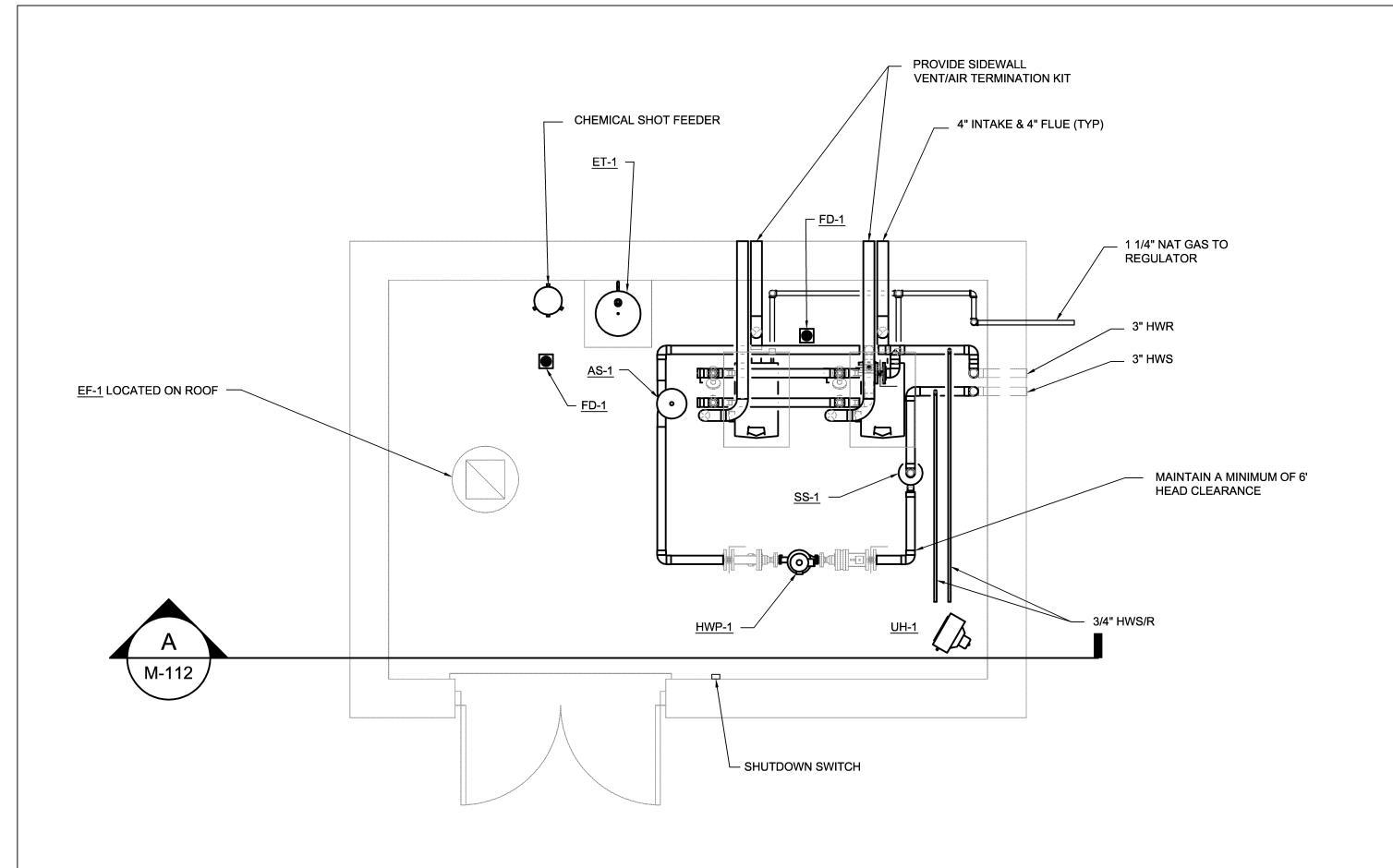
(1) The Contracting Officer has given prior written approval; or

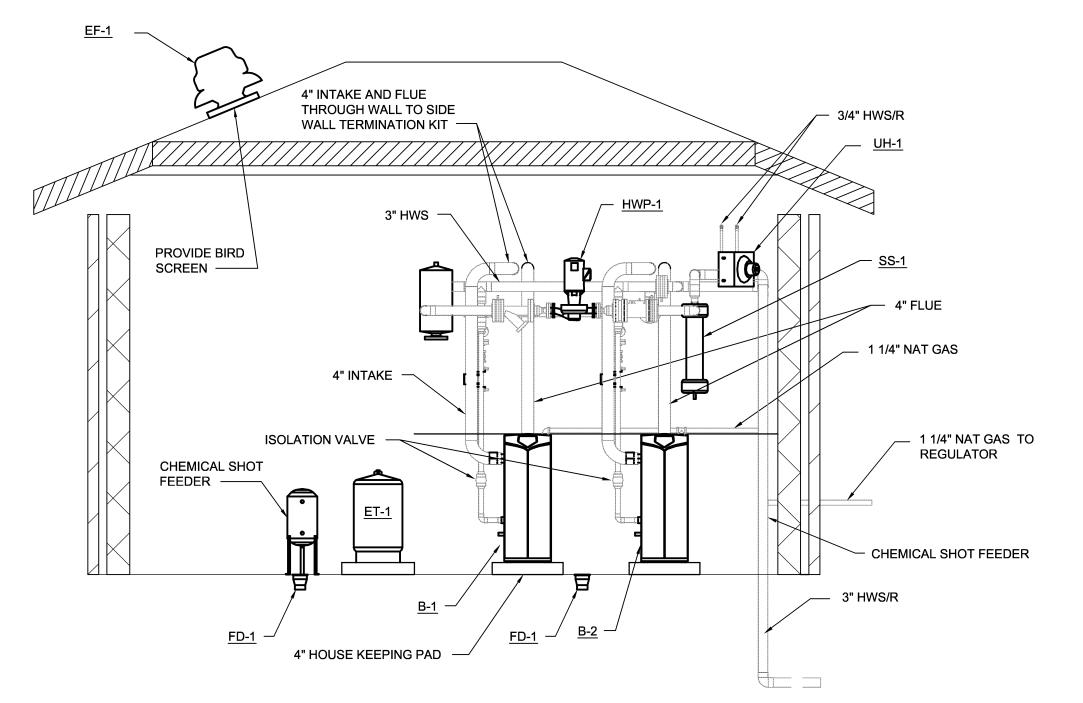
(2) The information is otherwise in the public domain before the date of release.

DISCLOSURE OF INFORMATION

medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.







# UNIT HEATER SCHEDULE DESIGNATION MECH ROOM LOCATION AIRFLOW (CFM) HEATING CAPACITY (MBH) ENTERING AIR TEMPERATURE (DEG F) LEAVING AIR TEMPERATURE (DEG F) ENTERING WATER TEMPERATURE (DEG F) FLOW RATE (GPM) WATER PRESSURE DROP (FT W.G.) 1/60 MOTOR POWER (HP) VOLTAGE (V) FREQUENCY (Hz) MODINE BASED ON MODEL HC-18 S 01

REMARKS LEGEND:

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 800 MBH AT 10 IN-H20.

# DEMOLITION NOTES

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION

REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# GENERAL NOTES

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. DOMESTIC HOT WATER SYSTEM FOR THIS BUILDING IS EXISTING TO REMAIN.
- 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- MINIMUM 30" IN THE FRONT. 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR
- ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE.
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.
- 9. EXISTING BUILDING HAS A DUAL TEMPERATURE SYSTEM CONTROLLED BY MANUAL HEATING/COOLING CHANGEOVER SWITCH. THE NEW SYSTEM SHALL BE INCORPORATED INTO THE CHANGEOVER CONTROL.

DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

# REMARKS LEGEND:

SS-1

MECH ROOM

**HOT WATER** 

69

14

8.0

LAKOS

ILB-0200

MECH ROOM

HOT WATER

BELL & GOSSETT

ROLAIRTROL

ET-1

**HEATING WATER** 

MECH ROOM

BLADDER

100

JOHN WOOD COMPANY

JAER-23-607

SOLID SEPARATOR SCHEDULE

AIR SEPARATOR

SCHEDULE

**EXPANSION TANK SCHEDULE** 

DESCRIPTION

ZURN MODEL 415B WITH 6" NICKEL BRONZE

STRAINER AND PROSET TRAPGUARD

DESIGNATION

FLOW RATE (GPM)

MAXIMUM PRESSURE DROP (FT-H20)

DESIGNATION

LINE SIZE (IN)

BASED ON

RELEIF VALVE PRESSURE SETTING (PSI)

LOCATION

COLLECTION CHAMBER CAPACITY (GAL)

LOCATION

SERVICE

BASED ON

MODEL

LOCATION

BASED ON

MODEL

DESIGNATION DRAIN SIZE

TANK VOLUME (GAL)

FILL PRESSURE (PSI)

FLOOR DRAIN SCHEDULE

TYPE

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

•	LOUVER SCH	HEDULE
	DESIGNATION	L-1
	USAGE	INTAKE
	LOCATION	MECH ROOM
	DESCRIPTION	COMBINATION LOUVER/DAMPER
	DEPTH (IN)	8
	FRAME TYPE	CHANNEL
	WIDTH (IN)	32
	HEIGHT (IN)	16
	AIRFLOW (CFM)	550
	FREE AREA (SF)	.75
	EDEE ADEA VELOCITY (EDA)	

FRAME TYPE	CHANNEL
WIDTH (IN)	32
HEIGHT (IN)	16
AIRFLOW (CFM)	550
FREE AREA (SF)	.75
FREE AREA VELOCITY (FPM)	734
PRESSURE DROP (IN H20)	.067
SELECTION BASE ON	GREENHECK
ACTUATOR TYPE	120 VAC
ACTUATOR FAIL POSITION	CLOSED
MODEL	EAC-601
REMARKS	1, 2 & 3

3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY

DESIGNATION	EF-1
USAGE	EXHAUST
SERVES ROOM(S)	MECH ROOM
DESCRIPTION	CENTRIFUGAL
FAN DATA	
AIRFLOW (SCFM)	550
TOTAL SP (IN-H2O)	.15
RPM	1630
DRIVE TYPE	DIRECT
MOTOR DATA	
HORSEPOWER	1/6
RPM	1725
VOLTS	115
PHASE	1
HERTZ	60
SELECTION BASED ON	GREENHECK
MODEL	G-085-VG
REMARKS	1, 2 & 3

PREP'D BY DATE APPROVED

- 1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER,
- CONTINUOUS DUTY RATED. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT. 3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL.

WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO

OPEN UPON FAN OPERATION.

PUMP SCHEDULE		
DESIGNATION	HWP-1	
SERVICE	HOT WATER	
LOCATION	MECH ROOM	
TYPE	INLINE	
PUMP DATA	-	
FLOW (GPM)	69	
TOTAL HEAD (FT-H2O)	55	
MINIMUM EFFICIENCY (%)	45	
CONNECTION SIZE	-	
SUCTION (IN)	1.5	
DISCHARGE (IN)	1.5	
MOTOR DATA	-	
MOTOR FRAME	182JM	
HORSEPOWER	3	
RPM	1750	
VOLTS	208	
PHASE	1	
HERTZ	60	
SELECTION BASED ON (MFGR)	BELL & GOSSETT	
MODEL	80 1-1/2x1-1/2x9-1/2	
REMARKS	-	

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

# REMARKS LEGEND:

1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY ARCHITECT.

2. SEE ARCHITECTURAL PLANS FOR LOCATION.

# Wiley|Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA DEPT OF NAVY IM SWL JHE SUBMITTED BY: DESIGN DIR. APPROVED: PWO OR OICC

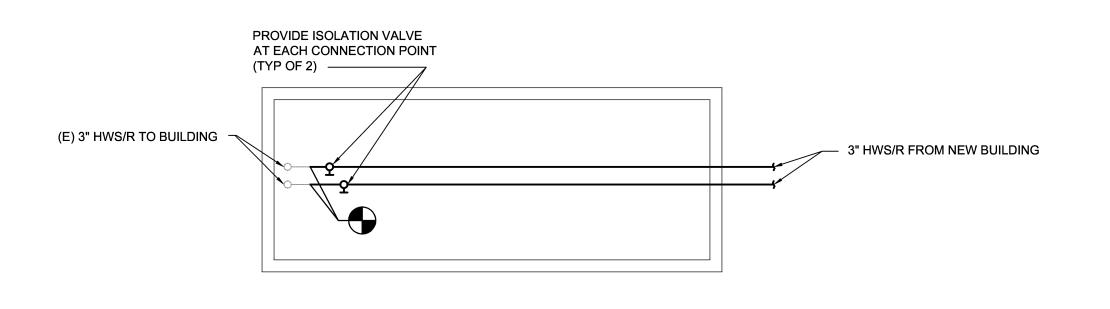
		MODIFICATIONS, VARIOUS LITIES, HADNOT POINT
	BUILDING	308 MECHANICAL DEMOLITION AND
		NEW WORK PLAN
ZE	CODE IDENT NO.	NAVFAC DRAWING NO.
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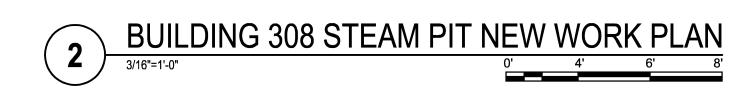
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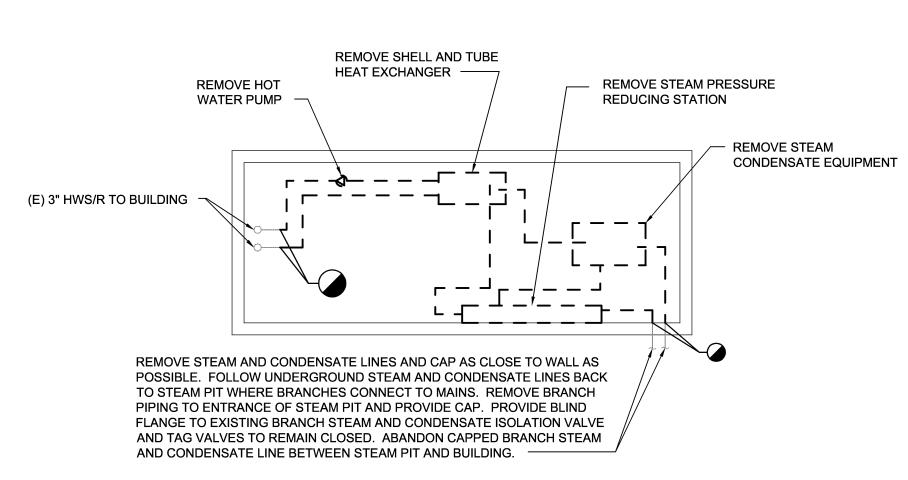
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SHEET 24 OF 43

Lic. No. 035863 DATE CONSTR CONTR NO. SATISFACTORY TO SCALE: AS SPEC No.





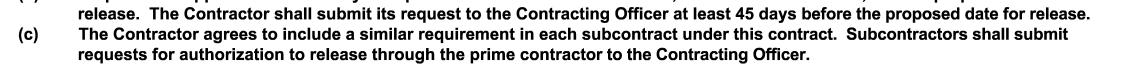


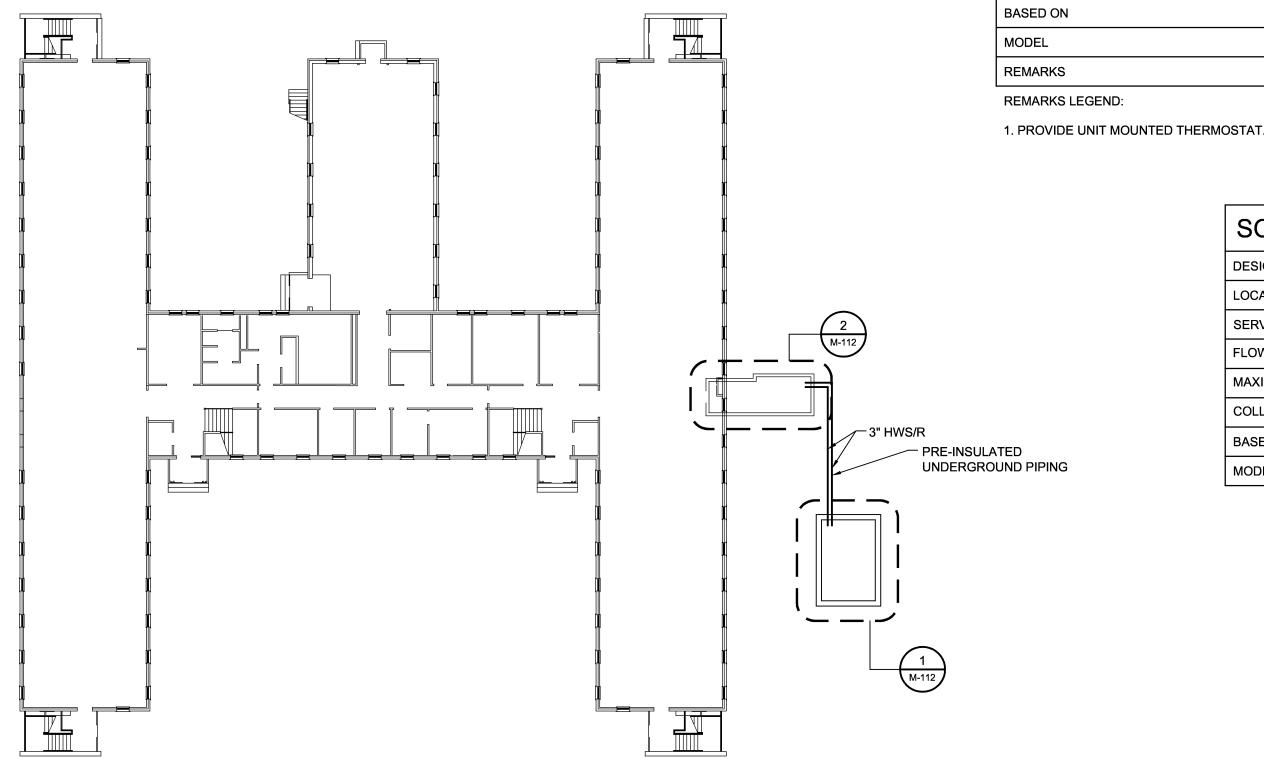


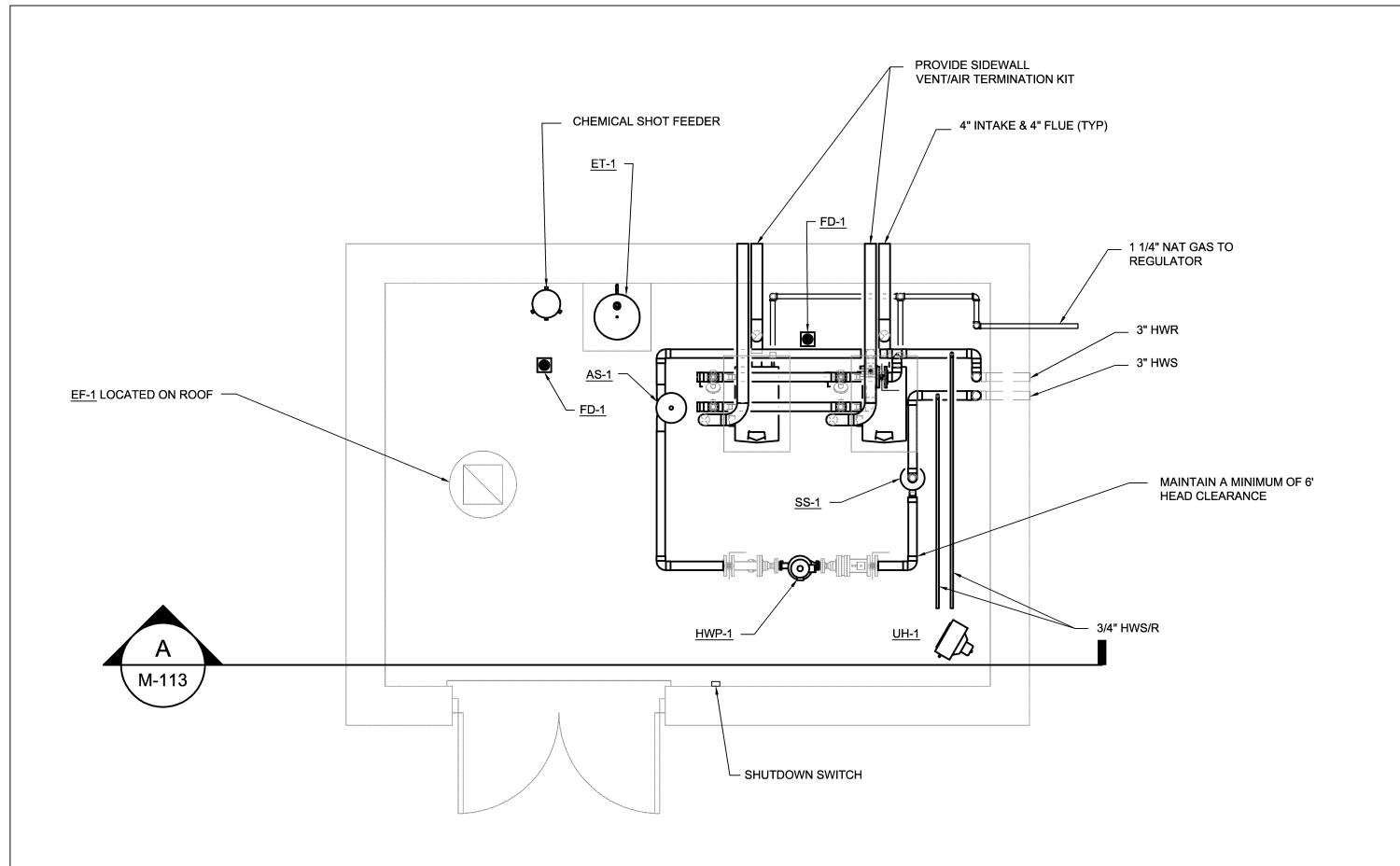
# DISCLOSURE OF INFORMATION

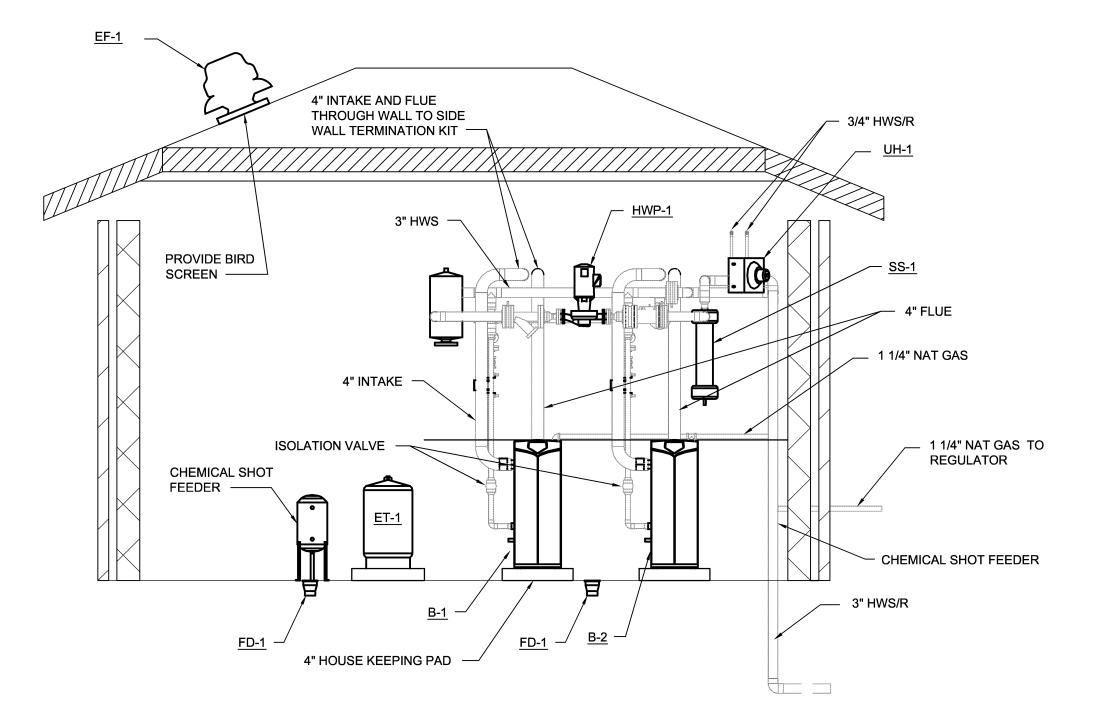
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- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

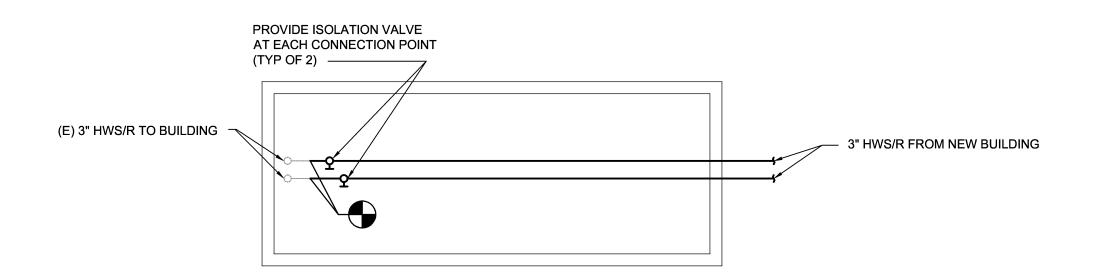




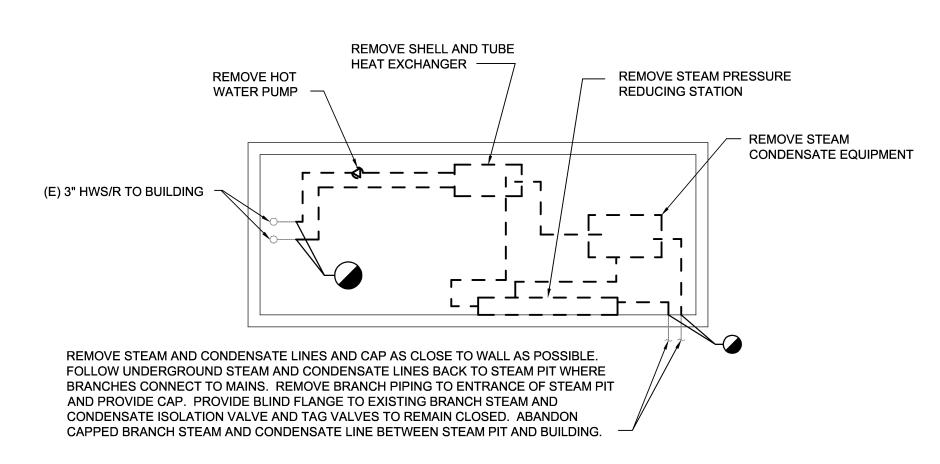














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- (1) The Contracting Officer has given prior written approval; or
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- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit
- requests for authorization to release through the prime contractor to the Contracting Officer.

REMARKS LEGEND:

UNIT HEATER SCHEDULE		
DESIGNATION	UH-1	
LOCATION	MECH ROOM	
AIRFLOW (CFM)	340	
HEATING CAPACITY (MBH)	10	
ENTERING AIR TEMPERATURE (DEG F)	55	
LEAVING AIR TEMPERATURE (DEG F)	82	
ENTERING WATER TEMPERATURE (DEG F)	180	
FLOW RATE (GPM)	.5	
WATER PRESSURE DROP (FT W.G.)	.5	
MOTOR POWER (HP)	1/60	
VOLTAGE (V)	115	
PHASE	1	
FREQUENCY (Hz)	60	
BASED ON	MODINE	
MODEL	HC-18 S 01	
REMARKS	1	
REMARKS LEGEND:	•	

1. PROVIDE UNIT MOUNTED THERMOSTAT.

PRE-INSULATED

UNDERGROUND PIPING

CHEDULE
SS-1
MECH ROOM
HOT WATER
69
14
0.8
LAKOS
ILB-0200

AIR SEPARATOR				
SCHEDULE				
DESIGNATION	AS-1			
LOCATION	MECH ROOM			
SERVICE	HOT WATER			
LINE SIZE (IN)	3			
BASED ON	BELL & GOSSETT			
MODEL	ROLAIRTROL			

EXPANSION TANK SCHEDULE				
DESIGNATION	ET-1			
SERVICE	HEATING WATER			
LOCATION	MECH ROOM			
TYPE	BLADDER			
TANK VOLUME (GAL)	60			
FILL PRESSURE (PSI)	20			
RELEIF VALVE PRESSURE SETTING (PSI)	100			
BASED ON	JOHN WOOD COMPANY			
MODEL	JAER-23-607			

FLOOR DRAIN SCHEDULE DESIGNATION DRAIN SIZE DESCRIPTION ZURN MODEL 415B WITH 6" NICKEL BRONZE STRAINER AND PROSET TRAPGUARD

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 800 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

PREP'D BY DATE APPROVED

# GENERAL NOTES

1. SEE GENERAL NOTES ON SHEET M-001.

WITH THE INTERNATIONAL PLUMBING CODE.

- 2. DOMESTIC HOT WATER SYSTEM FOR THIS BUILDING IS EXISTING TO REMAIN.
- 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- MINIMUM 30" IN THE FRONT. 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR
- ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND
- LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR. 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM. 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING
- PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.
- 9. EXISTING BUILDING HAS A DUAL TEMPERATURE SYSTEM CONTROLLED BY MANUAL HEATING/COOLING CHANGEOVER SWITCH.

DESIGNATION

SERVES ROOM(S)

AIRFLOW (SCFM)

TOTAL SP (IN-H2O)

DESCRIPTION

DRIVE TYPE

MOTOR DATA

VOLTS

PHASE

REMARKS

LOCATION

PUMP DATA

FLOW (GPM)

TOTAL HEAD (FT-H2O)

MINIMUM EFFICIENCY (%)

CONNECTION SIZE

DISCHARGE (IN)

HORSEPOWER

SELECTION BASED ON (MFGR)

PROVIDE AQUASTAT CONTROL.

PHASE

SUCTION (IN)

MOTOR DATA

HORSEPOWER

SELECTION BASED ON

REMARKS LEGEND:

CONTINUOUS DUTY RATED.

OPEN UPON FAN OPERATION.

1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER,

2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.

3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL.

WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO

PUMP SCHEDULE

FAN DATA

USAGE

**FAN SCHEDULE** 

**EXHAUST** 

MECH ROOM

CENTRIFUGAL

550

1630

DIRECT

1/6

1725

GREENHECK

G-085-VG

1, 2 & 3

**HOT WATER** 

MECH ROOM

INLINE

69

1.5

1.5

182JM

1750

208

**BELL & GOSSETT** 

80 1-1/2x1-1/2x9-1/2

THE NEW SYSTEM SHALL BE INCORPORATED INTO THE CHANGEOVER CONTROL.

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

# REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

LOUVER SC	HEDULE
DESIGNATION	L-1
USAGE	INTAKE
LOCATION	MECH ROOM
DESCRIPTION	COMBINATION LOUVER/DAMPER
DEPTH (IN)	8
FRAME TYPE	CHANNEL
WIDTH (IN)	32
HEIGHT (IN)	16
AIRFLOW (CFM)	550
FREE AREA (SF)	.75
FREE AREA VELOCITY (FPM)	734
PRESSURE DROP (IN H20)	.067
SELECTION BASE ON	GREENHECK
ACTUATOR TYPE	120 VAC
ACTUATOR FAIL POSITION	CLOSED
MODEL	EAC-601
REMARKS	1, 2 & 3

# 1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

ARCHITECT. 2. SEE ARCHITECTURAL PLANS FOR LOCATION.

DESIGN DIR.

SATISFACTORY TO

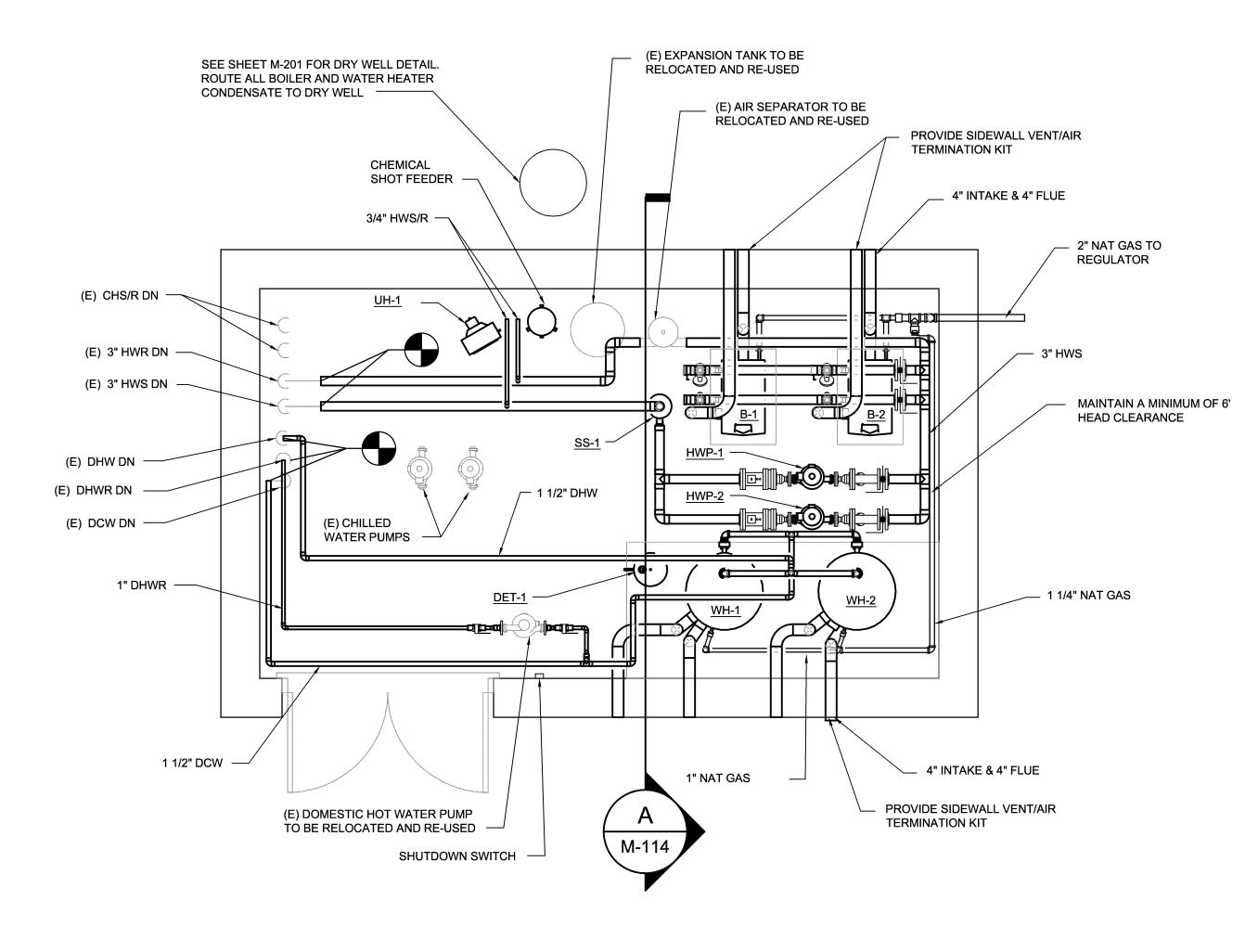
APPROVED: PWO OR OICC

3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY ACTUATOR.

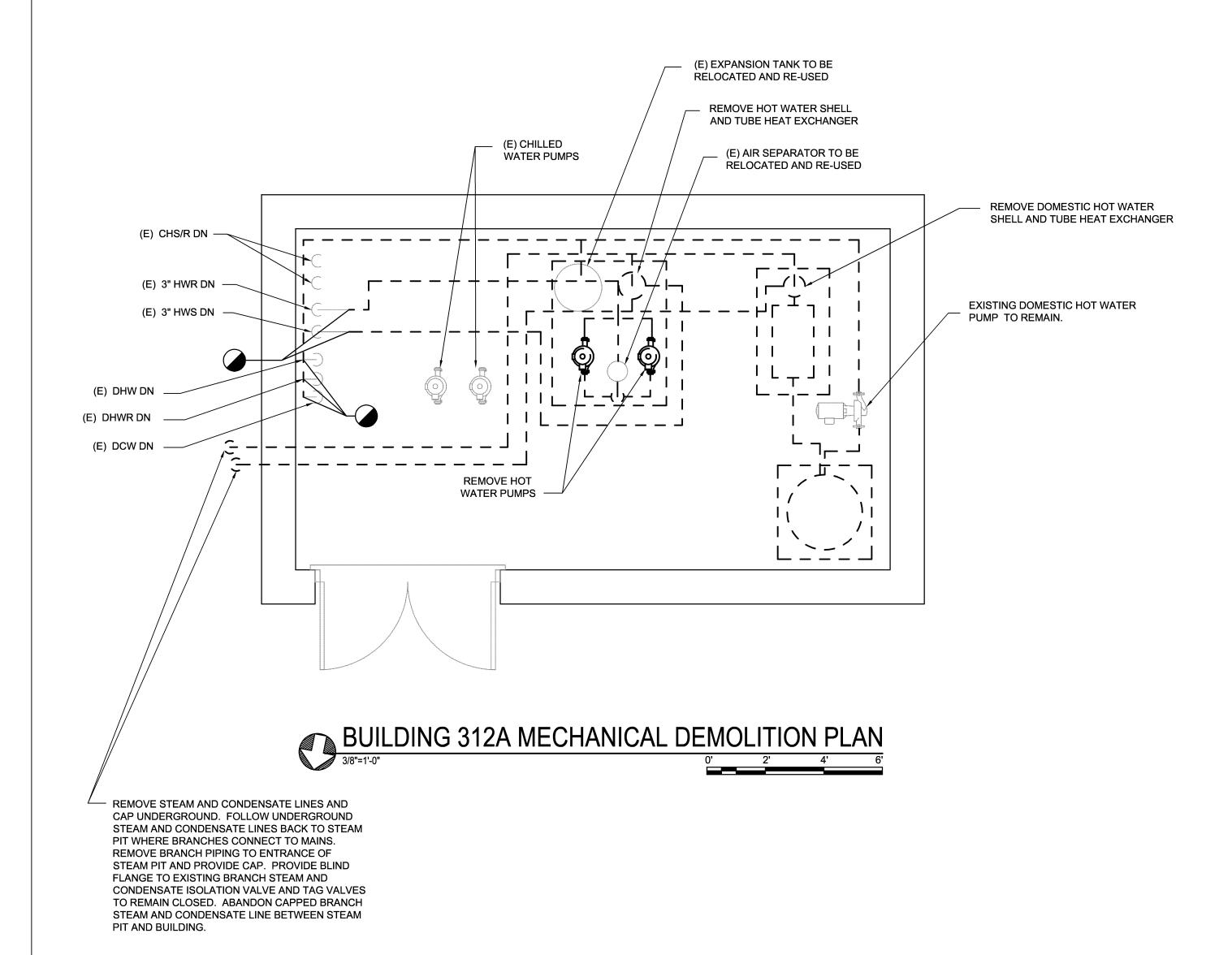
		<b>Wiley Wilson</b> 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242		М-	-113
	4	wileywilson.com		PROJECT NO.	CP12-0104
			DEPT OF NAVY	NAVAL FACILITIE	S ENGINEERING COMMA
			MARINE CO CAMP LEJEUNE, I		
	DES.	IM			
	DR.	SWL	BOILER MODIFI	CATIONS,	VARIOUS
	СНК.	JHE	FACILITIES,	<b>HADNOT</b>	POINT
<b>5</b>	SUBMITTED BY:		DIJII DINC 300 MECL	JANICAL DEMOL	ITIONI AND

		BU	ILDING	309 MEC	HANICAL D	EMOLITIO	N AND		
	NEW WORK PLAN								
DATE	SIZE	CODE IDE	NT NO.		NAVFA	AC DRAW	NG NO.		
	E	8009	71		6	500112	89		
DATE	_			CONSTR C	ONTR NO.	N40	085-12-B-010	<b>)4</b>	
	SCALE	AS SHOWN	SPEC I	No.	05-12-0104		SHEET 25	OF	43

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE.



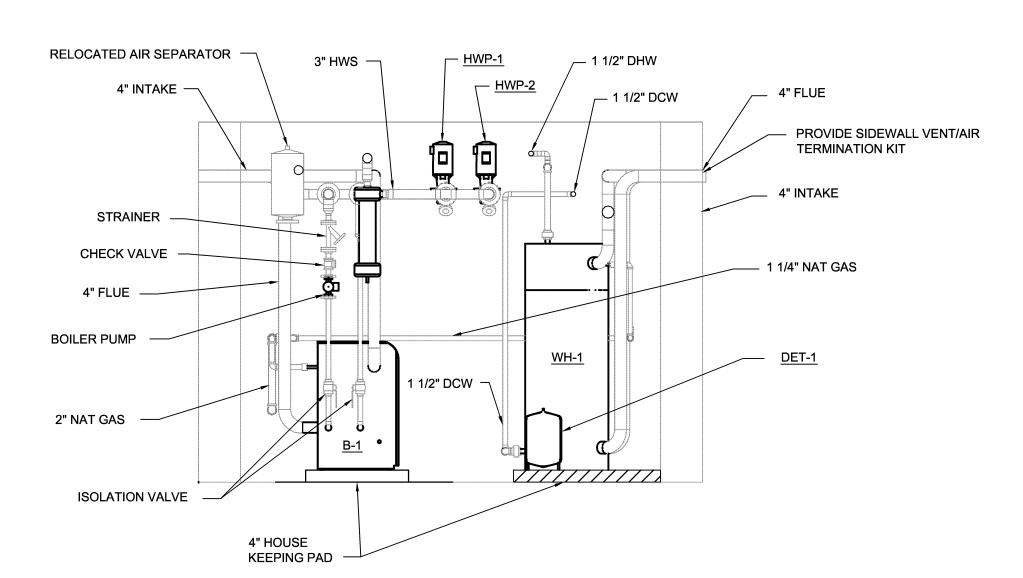




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- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.





NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

PREP'D BY DATE APPROVED

# NATURAL GAS NOTE:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

HANGERS AND EQUIPMENT. 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.

3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

2. BUILDING 312A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 312.

3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.

4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.

7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE

WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE

MIXING VALVE. 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCHEDULE				
DESIGNATION	B-1	B-2		
LOCATION	MECH ROOM	MECH ROOM		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10		
GAS INLET CONNECTION (IN)	1	1		
INPUT (MBH)	399	399		
OUTPUT (MBH)	375	375		
MINIMUM TURN DOWN RATIO	5:1	5:1		
FLOWRATE (GPM)	30	30		
MAXIMUM PRESSURE DROP (FT_H20)	8	8		
ENTERING WATER TEMPERATURE (DEG F)	160	160		
LEAVING WATER TEMPERATURE (DEG F)	185	185		
MINIMUM OPERATING PRESSURE (PSI)	30	30		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
TOTAL OPERATING AMPS	1.5	1.5		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	LOCHINVAR	LOCHINVAR		
MODEL REMARKS	KB-400	KB-400		
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4		

# REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

DESIGNATION	UH-1
LOCATION	MECH ROOM
AIRFLOW (CFM)	340
HEATING CAPACITY (MBH)	10
ENTERING AIR TEMPERATURE (DEG F)	55
LEAVING AIR TEMPERATURE (DEG F)	82
ENTERING WATER TEMPERATURE (DEG F)	180
FLOW RATE (GPM)	.5
WATER PRESSURE DROP (FT W.G.)	.5
MOTOR POWER (HP)	1/60
VOLTAGE (V)	115
PHASE	1
FREQUENCY (Hz)	60
BASED ON	MODINE
MODEL	HC-18 S 01
REMARKS	1

SOLID SEPARATOR SCHEDULE		
DESIGNATION	SS-1	
LOCATION	MECH ROOM	
SERVICE	HOT WATER	
FLOW RATE (GPM)	78	
MAXIMUM PRESSURE DROP (FT-H20)	16	
COLLECTION CHAMBER CAPACITY (GAL)	0.8	
BASED ON	LAKOS	
MODEL	ILB-0200	

PUMP SCHEDULE					
DESIGNATION	HWP-1	HWP-2			
SERVICE	HOT WATER	HOT WATER			
LOCATION	MECH ROOM	MECH ROOM			
TYPE	INLINE	INLINE			
PUMP DATA	-	-			
FLOW (GPM)	78	78			
TOTAL HEAD (FT-H2O)	80	80			
MINIMUM EFFICIENCY (%)	50	50			
CONNECTION SIZE	-	-			
SUCTION (IN)	1.5	1.5			
DISCHARGE (IN)	1.5	1.5			
MOTOR DATA	-	-			
MOTOR FRAME	184JM	184JM			
HORSEPOWER	5	5			
RPM	1750	1750			
VOLTS	208	208			
PHASE	1	1			
HERTZ	60	60			
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT			
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2			
REMARKS	-	-			

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL GA
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 150 N
REMARKS	1 & 2	1 & 2

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

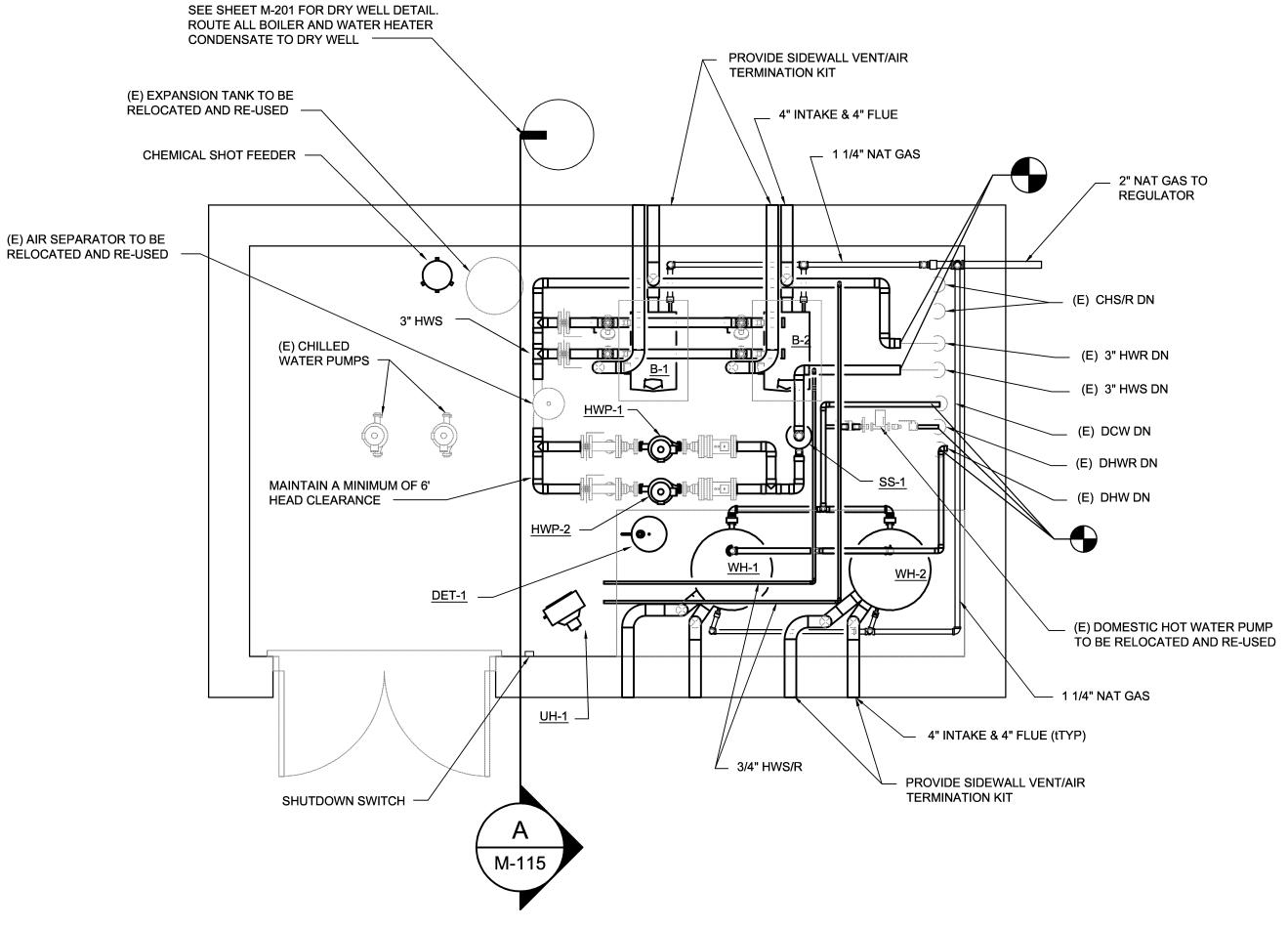
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SHEET 26 OF 43

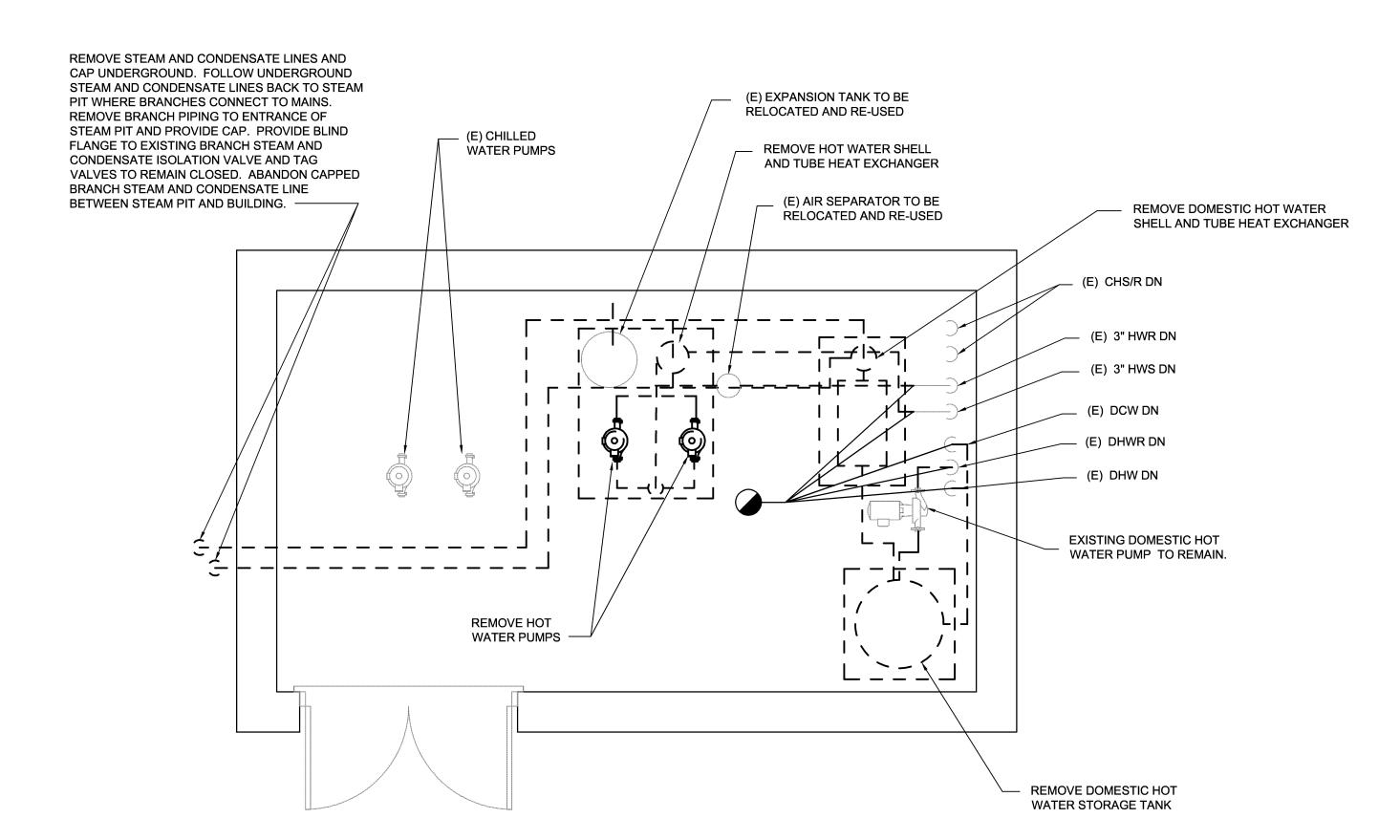
2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

EXPANSION TANK SCHEDULE					
DESIGNATION	DET-1				
SERVICE	DOMESTIC HOT WATER				
LOCATION	MECH ROOM				
TYPE	BLADDER				
TANK VOLUME (GAL)	14				
FILL PRESSURE (PSI)	60				
RELEIF VALVE PRESSURE SETTING (PSI)	100				
BASED ON	AMTROL				
MODEL	ST-C SERIES ST-42V-C				
* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.					

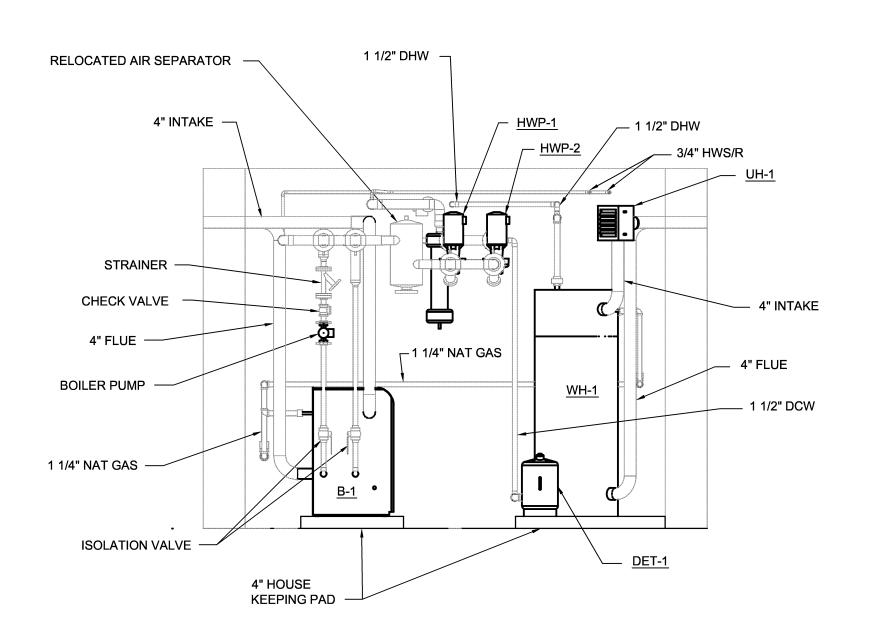
		Wiley Wilson 6606 West Broad St., Su Richmond, Virginia 2323 804.254.7242						М	-114	<b>L</b>
	`	wileywilson.com						PROJECT NO.	CP12-0104	<u> </u>
				DEPT (	OF NAVY				TIES ENGINEER	ING COMMAND
			MARINE CORPS BASE							
			CAMP LEJEUNE, NORTH CAROLINA							
	DES.	IM								
	DR.	SWL			BOIL	ER N	MODIFI	CATIONS	S, VARIO	US
CAATH OF	TH OF CHK. JHE		FACILITIES, HADNOT POINT							
	SUBMITTED BY:			BUILDING 312 MECHANICAL DEMOLITION AND						
S IOANNIS MASOURAS	DESIGN DIR.				5011			VORK PLAN		
IOANNIS MASOURAS F	APPROVED: PWO	OR OICC DA	ATE	SIZE	CODE IDE	NT NO.		NAVFAC I	ORAWING NO.	













NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

PREP'D BY DATE APPROVED

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.

3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

2. BUILDING 313A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 313.

3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.

4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.

7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE

WITH THE INTERNATIONAL PLUMBING CODE.

8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.

9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

# REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

UNIT HEATER SCHEDULE					
DESIGNATION	UH-1				
LOCATION	MECH ROOM				
AIRFLOW (CFM)	340				
HEATING CAPACITY (MBH)	10				
ENTERING AIR TEMPERATURE (DEG F)	55				
LEAVING AIR TEMPERATURE (DEG F)	82				
ENTERING WATER TEMPERATURE (DEG F)	180				
FLOW RATE (GPM)	.5				
WATER PRESSURE DROP (FT W.G.)	.5				
MOTOR POWER (HP)	1/60				
VOLTAGE (V)	115				
PHASE	1				
FREQUENCY (Hz)	60				
BASED ON	MODINE				
MODEL	HC-18 S 01				
REMARKS	1				
REMARKS LEGEND:	•				

1. PROVIDE UNIT MOUNTED THERMOSTAT.

SOLID SEPARATOR SCHEDULE						
DESIGNATION SS-1						
LOCATION	MECH ROOM					
SERVICE	HOT WATER					
FLOW RATE (GPM)	67					
MAXIMUM PRESSURE DROP (FT-H20)	14					
COLLECTION CHAMBER CAPACITY (GAL)	0.8					
BASED ON	LAKOS					
MODEL	ILB-0200					

PUMP SCHEDULE					
DESIGNATION	HWP-1	HWP-2			
SERVICE	HOT WATER	HOT WATER			
LOCATION	MECH ROOM	MECH ROOM			
TYPE	INLINE	INLINE			
PUMP DATA	-	-			
FLOW (GPM)	67	67			
TOTAL HEAD (FT-H2O)	80	80			
MINIMUM EFFICIENCY (%)	50	50			
CONNECTION SIZE	-	-			
SUCTION (IN)	1.5	1.5			
DISCHARGE (IN)	1.5	1.5			
MOTOR DATA	-	-			
MOTOR FRAME	184JM	184JM			
HORSEPOWER	3	3			
RPM	1750	1750			
VOLTS	208	208			
PHASE	1	1			
HERTZ	60	60			
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT			
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/			
REMARKS	-	-			

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

DOMESTIC HOT WATER H	HEATER SCI	HEDULE
DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 150 NE
REMARKS	1 & 2	1 & 2

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

EXPANSION TANK SCHEDULE					
DESIGNATION	DET-1				
SERVICE	DOMESTIC HOT WATER				
LOCATION	MECH ROOM				
TYPE	BLADDER				
TANK VOLUME (GAL)	14				
FILL PRESSURE (PSI)	60				
RELEIF VALVE PRESSURE SETTING (PSI)	100				
BASED ON	AMTROL				
MODEL	ST C SERIES ST 42V C				

ST-C SERIES ST-42V-C \* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

		Wiley Wilso 6606 West Broad Richmond, Virgini 804.254.7242 wileywilson.com	St., Suite 500 ia 23230-1717				M - PROJECT NO.	- 1 1 5 CP12-0104
				DEPT (	OF NAVY		NAVAL FACILITIE PRPS BAS	ES ENGINEERING COMMAND
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	DES.	IM						
	DR.	SWL			BOILER I	MODIFIC	CATIONS,	VARIOUS
EAATH OF	CHK.	JHE		FACILITIES			, HADNOT POINT	
	SUBMITTED BY:				BUILDING	313 MECH	ANICAL DEMOL	ITION AND
SUBMITTED BY:  DESIGN DIR.  APPROVED BY:  DESIGN DIR.				NEW WORK PLAN				
10/11/10/07/10/10	APPROVED: PWO	O OR OICC	DATE	SIZE	CODE IDENT NO.		NAVFAC DE	RAWING NO.
Lic. No. 035863				E	80091		6001	1291

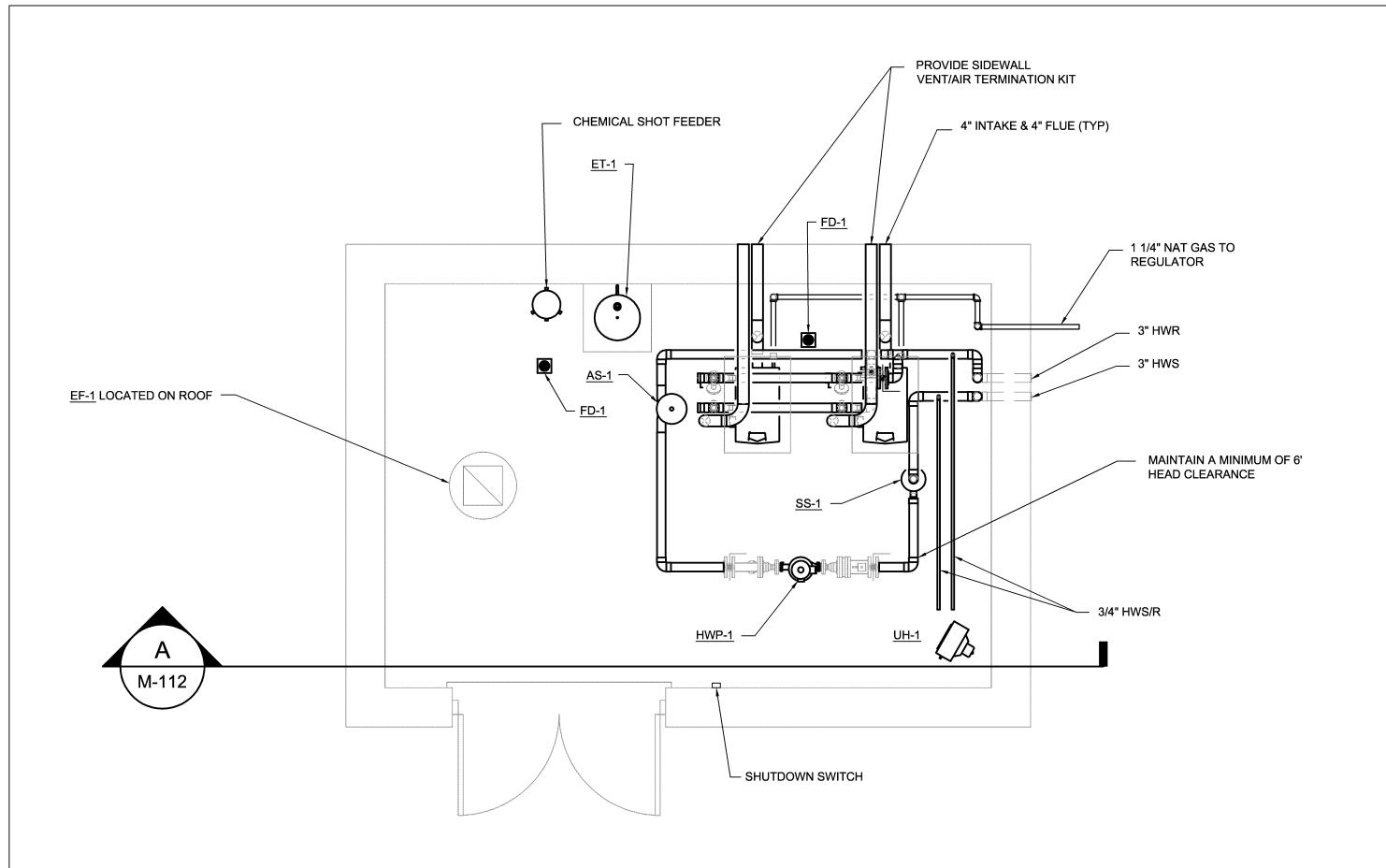
# DISCLOSURE OF INFORMATION

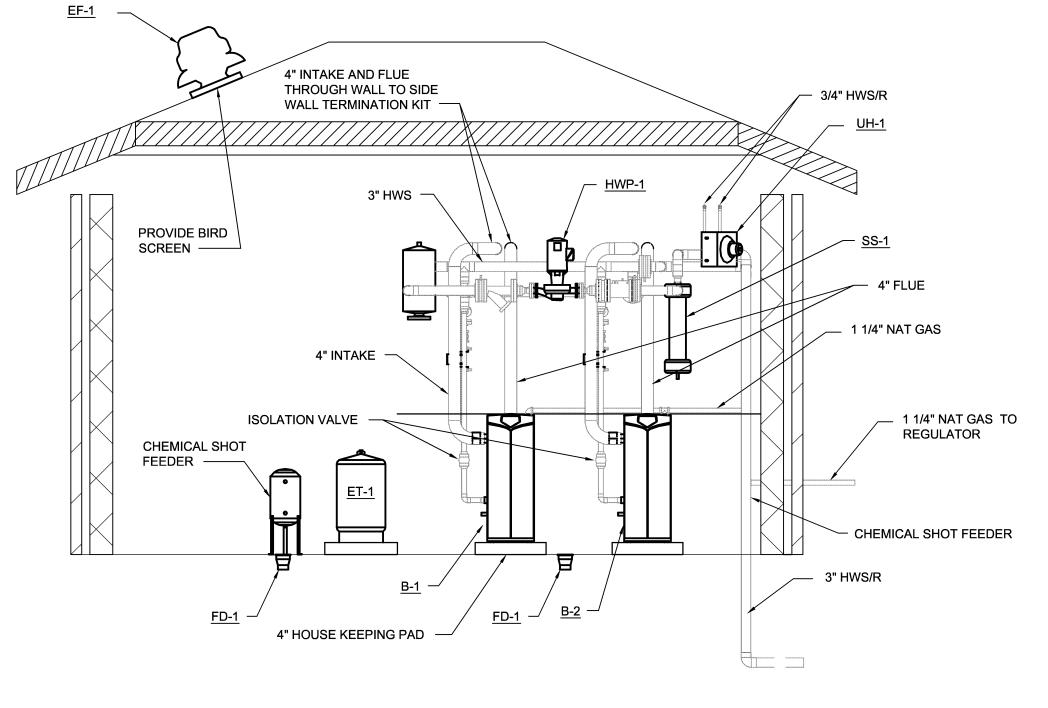
Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

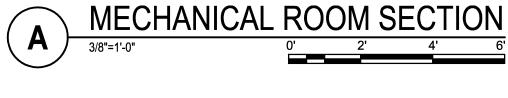
(1) The Contracting Officer has given prior written approval; or (2) The information is otherwise in the public domain before the date of release.

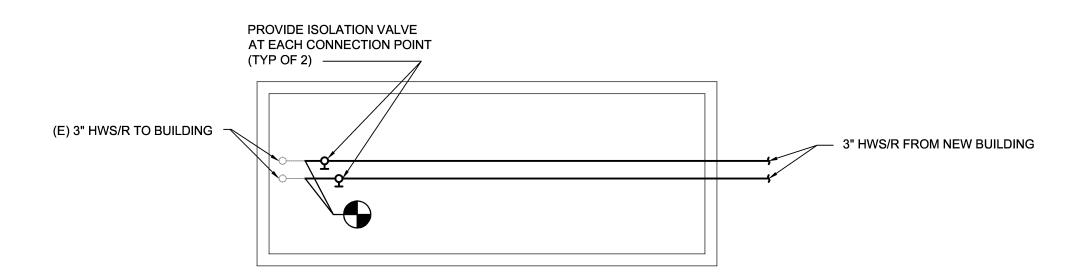
Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit

requests for authorization to release through the prime contractor to the Contracting Officer.

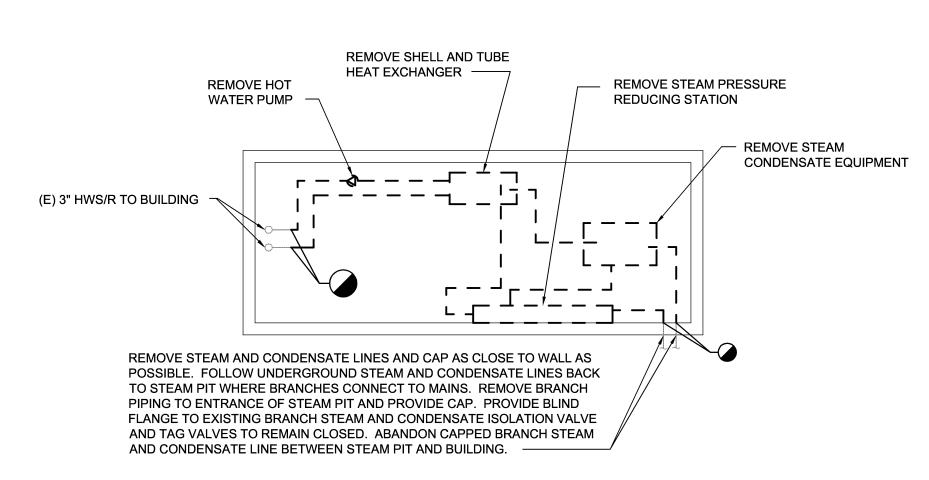














# DISCLOSURE OF INFORMATION

# Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release.
- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

# LOCATION MECH ROOM AIRFLOW (CFM) 340 HEATING CAPACITY (MBH) ENTERING AIR TEMPERATURE (DEG F) LEAVING AIR TEMPERATURE (DEG F) 82 ENTERING WATER TEMPERATURE (DEG F) FLOW RATE (GPM) WATER PRESSURE DROP (FT W.G.) MOTOR POWER (HP) 1/60 VOLTAGE (V) 115 PHASE FREQUENCY (Hz) 60 BASED ON MODINE MODEL HC-18 S 01 REMARKS REMARKS LEGEND: 1. PROVIDE UNIT MOUNTED THERMOSTAT.

PRE-INSULATED UNDERGROUND PIPING

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED. CONDITIONS. SOLID SEPARATOR SCHEDULE DESIGNATION LOCATION MECH ROOM SERVICE HOT WATER FLOW RATE (GPM) 100 MAXIMUM PRESSURE DROP (FT-H20) | COLLECTION CHAMBER CAPACITY (GAL) 8.0 BASED ON LAKOS

UNIT HEATER SCHEDULE

MODEL	ILB-0200
	PARATOR
SCF	HEDULE
DESIGNATION	AS-1
LOCATION	MECH ROOM
SERVICE	HOT WATER
LINE SIZE (IN)	3
BASED ON	BELL & GOSSETT
MODEL	ROLAIRTROL

JAER-23-607

EXPANSION TANK	EXPANSION TANK SCHEDULE			
DESIGNATION	ET-1			
SERVICE	HEATING WATER			
LOCATION	MECH ROOM			
TYPE	BLADDER			
TANK VOLUME (GAL)	60			
FILL PRESSURE (PSI)	20			
RELEIF VALVE PRESSURE SETTING (PSI)	100			
BASED ON	JOHN WOOD COMPANY			

FLOOR DRAIN SCHEDULE DRAIN SIZE DESCRIPTION DESIGNATION ZURN MODEL 415B WITH 6" NICKEL BRONZE FD-1 STRAINER AND PROSET TRAPGUARD

MODEL

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 800 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

PREP'D BY DATE APPROVED

# GENERAL NOTES

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. DOMESTIC HOT WATER SYSTEM FOR THIS BUILDING IS EXISTING TO REMAIN.
- 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- MINIMUM 30" IN THE FRONT. 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR
- ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY
- 9. EXISTING BUILDING HAS A DUAL TEMPERATURE SYSTEM CONTROLLED BY MANUAL HEATING/COOLING CHANGEOVER SWITCH.

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400

# REMARKS LEGEND:

REMARKS

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

1, 2, 3 & 4

1, 2, 3 & 4

- 2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.
- 4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

LOUVER SCHEDULE				
DESIGNATION L-1				
USAGE	INTAKE			
LOCATION	MECH ROOM			
DESCRIPTION	COMBINATION LOUVER/DAMPER			
DEPTH (IN)	8			
FRAME TYPE	CHANNEL			
WIDTH (IN)	32			
HEIGHT (IN)	16			
AIRFLOW (CFM)	550			
FREE AREA (SF)	.75			
FREE AREA VELOCITY (FPM)	734			
PRESSURE DROP (IN H20)	.067			
SELECTION BASE ON	GREENHECK			
ACTUATOR TYPE	120 VAC			
ACTUATOR FAIL POSITION	CLOSED			
MODEL	EAC-601			
REMARKS	1, 2 & 3			

MARKS LEGEND:	

1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

2. SEE ARCHITECTURAL PLANS FOR LOCATION.

SATISFACTORY TO

- 3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY ACTUATOR.

		Wiley Wilson 6606 West Broad St., Suite 5 Richmond, Virginia 23230-17 804.254.7242				М-	-116	
		wileywilson.com	<b>II</b>			PROJECT NO.	CP12-0104	
			DEPT			NAVAL FACILITIE PRPS BAS NORTH CAROLI	SE .	GOMMAND
	DES.	IM						
<b></b>	DR.	SWL		BOILER I	MODIFI	CATIONS,	VARIOU	S
$)_{F}$	CHK.	JHE		FACIL	_ITIES,	<b>HADNOT</b>	POINT	
E L	SUBMITTED BY:			BUILDING	316 MECH	ANICAL DEMOL	ITION AND	
一隻	DESIGN DIR.					ORK PLAN		
DURAS Б	APPROVED: PWO	OR OICC DATE	SIZE	CODE IDENT NO.		NAVFAC DR	RAWING NO.	
5863			I⊨	80091		6001	1292	

SCALE: AS SPEC No.

SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR. THE NEW SYSTEM SHALL BE INCORPORATED INTO THE CHANGEOVER CONTROL.

WITH THE INTERNATIONAL PLUMBING CODE.

	SERVES ROOM(S)
	DESCRIPTION
	FAN DATA
	AIRFLOW (SCFM)
	TOTAL SP (IN-H2O)
	RPM
	DRIVE TYPE
	MOTOR DATA
	HORSEPOWER
	RPM
	VOLTS
	PHASE
	HERTZ
	SELECTION BASED ON
	MODEL
	REMARKS
	REMARKS LEGEND:
	<ol> <li>PROVIDE FAN WITH INTEGRAL E CONTINUOUS DUTY RATED.</li> </ol>
_	2. PROVIDE FAN WITH UNIT MOUN
	3. PROVIDE WALL MOUNTED THEF WIRE INTAKE LOUVER DAMPER IN OPEN UPON FAN OPERATION.

SERVICE

LOCATION

PUMP DATA

FLOW (GPM)

TOTAL HEAD (FT-H2O)

**CONNECTION SIZE** 

SUCTION (IN)

MOTOR DATA

DISCHARGE (IN)

MOTOR FRAME

HORSEPOWER

SELECTION BASED ON (MFGR)

PROVIDE AQUASTAT CONTROL.

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE.

CONSTR CONTR NO.

REMARKS LEGEND:

MINIMUM EFFICIENCY (%)

**DESIGNATION** 

USAGE

BACK-DRAFT DAMPER,

ITED DISCONNECT. RMOSTAT CONTROL. SERIES WITH FAN TO

PUMP SCHEDULE

FAN SCHEDULE

EXHAUST

MECH ROOM

CENTRIFUGAL

550

1630

DIRECT

--

1/6

1725

115

60

GREENHECK

G-085-VG

1, 2 & 3

**HOT WATER** 

MECH ROOM

INLINE

100

50

182JM

1750

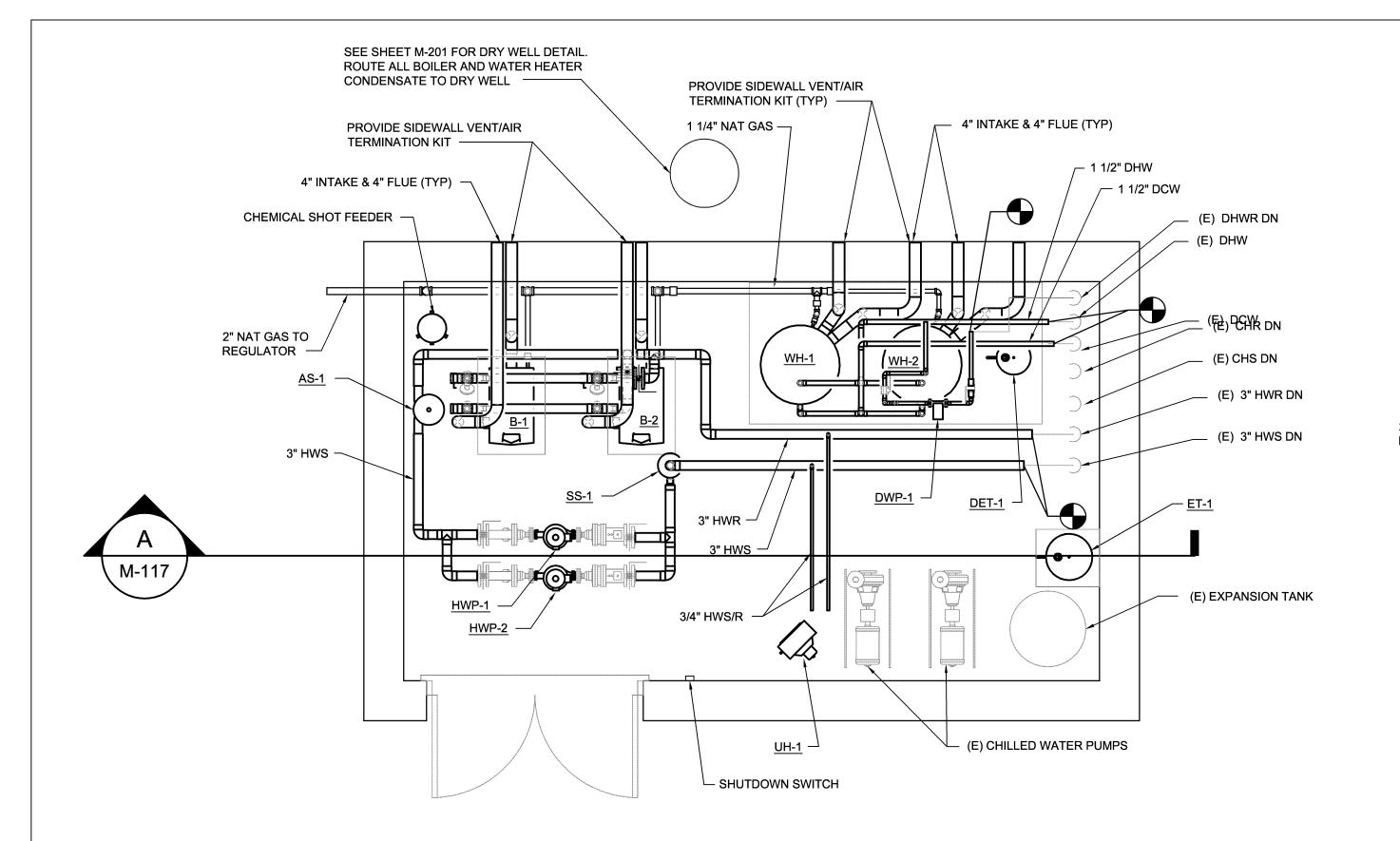
208

**BELL & GOSSETT** 

80 2x2x9-1/2B

N40085-12-B-0104

SHEET 28 OF 43

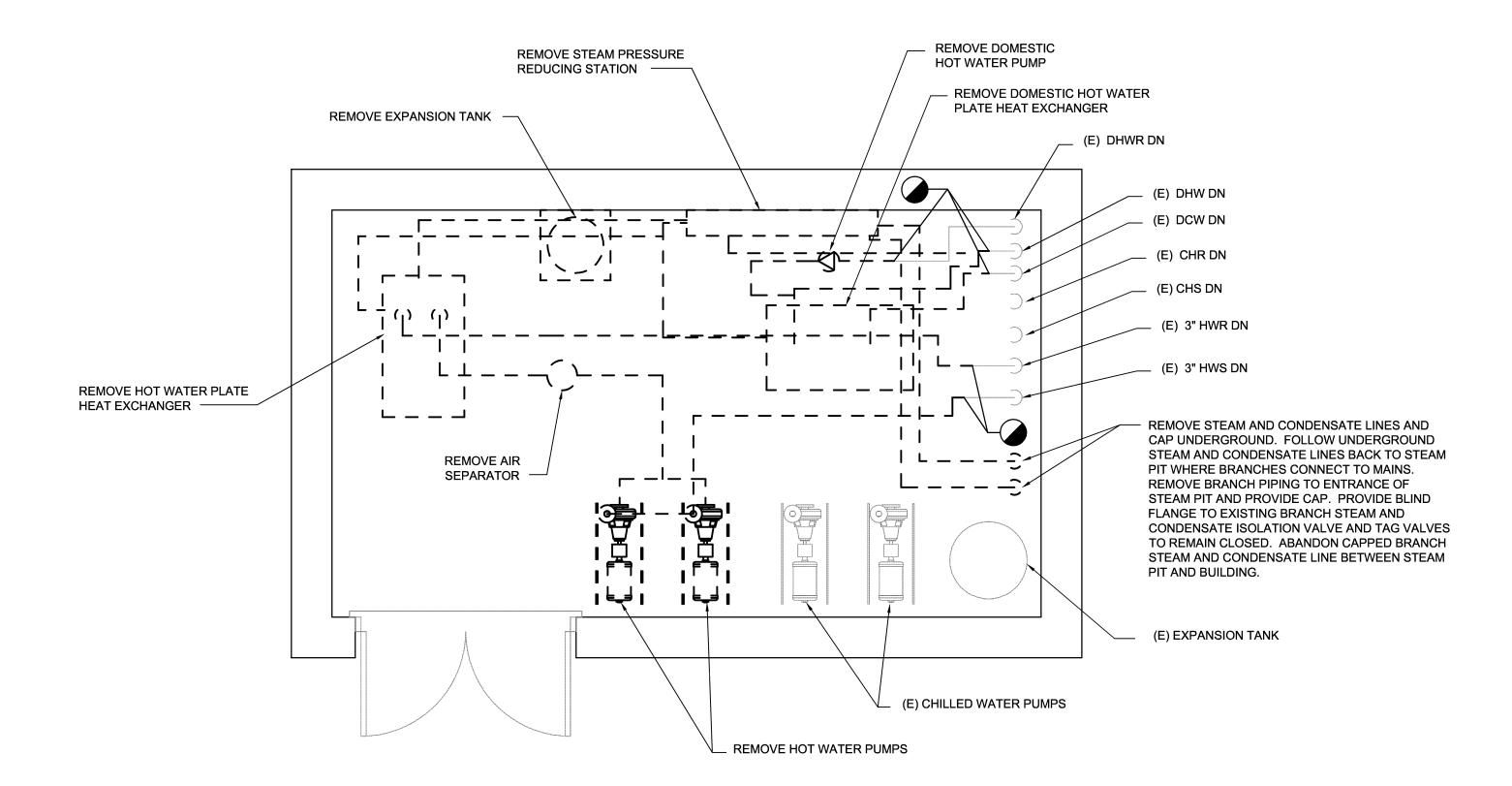


4" INTAKE (TYP OF 2) 4" FLUE (TYP OF 2) - 3/4" HWS/R 1 1/2" DCW 2" NAT GAS — 4" INTAKE (TYP OF 2) └-1 1/2" DHW ISOLATION VALVE -2" NATURAL GAS TO — 1 1/2" DCW REGULATOR OUTSIDE — CHEMICAL SHOT FEEDER 1 1/2" NAT GAS -4" HOUSE **KEEPING PAD** KEEPING PAD -



NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY







# AIR SEPARATOR SCHEDULE DESIGNATION LOCATION MECH ROOM SERVICE HOT WATER LINE SIZE (IN) BASED ON BELL & GOSSETT

ROLAIRTROL

MODEL

EXPANSION TANK SCHEDULE				
DESIGNATION	ET-1	DET-1		
SERVICE	HEATING WATER	DOMESTIC HOT WATER		
LOCATION	MECH ROOM	MECH ROOM		
TYPE	BLADDER	BLADDER		
TANK VOLUME (GAL)	60	14		
FILL PRESSURE (PSI)	20	60		
RELEIF VALVE PRESSURE SETTING (PSI)	100	100		
BASED ON	JOHN WOOD COMPANY	AMTROL		
MODEL	JAER-23-607	ST-C SERIES ST-42V-C		

DESIGNATION

SERVICE

LOCATION

**PUMP DATA** 

FLOW (GPM)

TOTAL HEAD (FT-H2O)

MINIMUM EFFICIENCY (%)

**CONNECTION SIZE** 

DISCHARGE (IN)

SUCTION (IN)

MOTOR DATA

MOTOR FRAME

HORSEPOWER

VOLTS

PHASE

HERTZ

MODEL

REMARKS

REMARKS LEGEND:

SELECTION BASED ON (MFGR)

TYPE

* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.	

**DEMOLITION NOTES** NATURAL GAS NOTE:

1. TOTAL CONNECTED

NATURAL GAS DEMAND

FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20. 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED

PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

PREP'D BY DATE APPROVED

MECH ROOM

MODINE

2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.

4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

**GENERAL NOTES** 

1. SEE GENERAL NOTES ON SHEET M-001.

2. BUILDING 318A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 318. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE

FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.

4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.

7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE

WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE

MIXING VALVE. 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY

SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

ESIGNATION	B-1	B-2
OCATION	MECH ROOM	MECH ROOM
UEL TYPE	NATURAL GAS	NATURAL GAS
IINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
IAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
AS INLET CONNECTION (IN)	1	1
NPUT (MBH)	399	399
OUTPUT (MBH)	375	375
IINIMUM TURN DOWN RATIO	5:1	5:1
LOWRATE (GPM)	30	30
IAXIMUM PRESSURE DROP (FT_H20)	8	8
NTERING WATER TEMPERATURE (DEG F)	160	160
EAVING WATER TEMPERATURE (DEG F)	185	185
IINIMUM OPERATING PRESSURE (PSI)	30	30
OLTAGE (V)	120	120
HASE	1	1
REQUENCY (Hz)	60	60
OTAL OPERATING AMPS	1.5	1.5
LUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
ELECTION BASED ON	LOCHINVAR	LOCHINVAR
IODEL REMARKS	KB-400	KB-400
EMARKS	1, 2, 3 & 4	1, 2, 3 & 4

PUMP SCHEDULE

HWP-1

**HOT WATER** 

MECH ROOM

INLINE

72

65

1.5

1.5

182JM

1750

208

BELL & GOSSETT

80 1-1/2x1-1/2x9-1/2

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

HWP-2

**HOT WATER** 

MECH ROOM

INLINE

72

1.5

182JM

1750

208

**BELL & GOSSETT** 

80 1-1/2x1-1/2x9-1/2 | BOOSTER PL-30

DWP-1

DOMESTIC HOT

WATER

MECH ROOM

INLINE

20

1.5

1.5

2650

115

60

BELL &

GOSSETT

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

JLE		UNIT HEATER SCHE	DULE
B-1	B-2	DESIGNATION	UH-1
ECH ROOM	MECH ROOM	LOCATION	MECH ROO
TURAL GAS	NATURAL GAS	AIRFLOW (CFM)	340
4	4	HEATING CAPACITY (MBH)	10
10	10	ENTERING AIR TEMPERATURE (DEG F)	55
1	1	LEAVING AIR TEMPERATURE (DEG F)	82
399	399	ENTERING WATER TEMPERATURE (DEG F)	180
375	375	FLOW RATE (GPM)	.5
5:1	5:1	WATER PRESSURE DROP (FT W.G.)	.5
30	30	MOTOR POWER (HP)	1/60
8	8	VOLTAGE (V)	115
160	160	PHASE	1
185	185	FREQUENCY (Hz)	60
30	30	BASED ON	MODINE
120	120	MODEL	HC-18 S (
1	1	REMARKS	1
60	60	REMARKS LEGEND:	
1.5	1.5	1. PROVIDE UNIT MOUNTED THERMOSTAT.	
4	4		
OCHINVAR	LOCHINVAR		
KB-400	KB-400	SOLID SEPARATOR SO	CHEDUL
1, 2, 3 & 4	1, 2, 3 & 4	DESIGNATION	SS-1

SOLID SEPARATOR SCHEDULE			
DESIGNATION	SS-1		
LOCATION	MECH ROOM		
SERVICE	HOT WATER		
FLOW RATE (GPM)	72		
MAXIMUM PRESSURE DROP (FT-H20)	14		
COLLECTION CHAMBER CAPACITY (GAL)	0.8		
BASED ON	LAKOS		
MODEL	ILB-0200		

DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROO
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL G
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 150
REMARKS	1 & 2	1 & 2

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

R		
		DES.
		DR.
	S IOANNIS MASOURAS A	CHK.
		SUBMITTED BY:
		DESIGN DIR.
	1 to No 035863	APPROVED: PW
c	Z   Lic. No. 055005	

Wiley|Wilson 6606 West Broad St., Suite 500 M - 117Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND DEPT OF NAVY MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA BOILER MODIFICATIONS, VARIOUS FACILITIES, HADNOT POINT JHE

BUILDING 318 MECHANICAL DEMOLITION AND NEW WORK PLAN DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. 60011293

CONSTR CONTR NO.

N40085-12-B-0104

SHEET 29 OF 43

DATE SCALE: AS SPEC No.

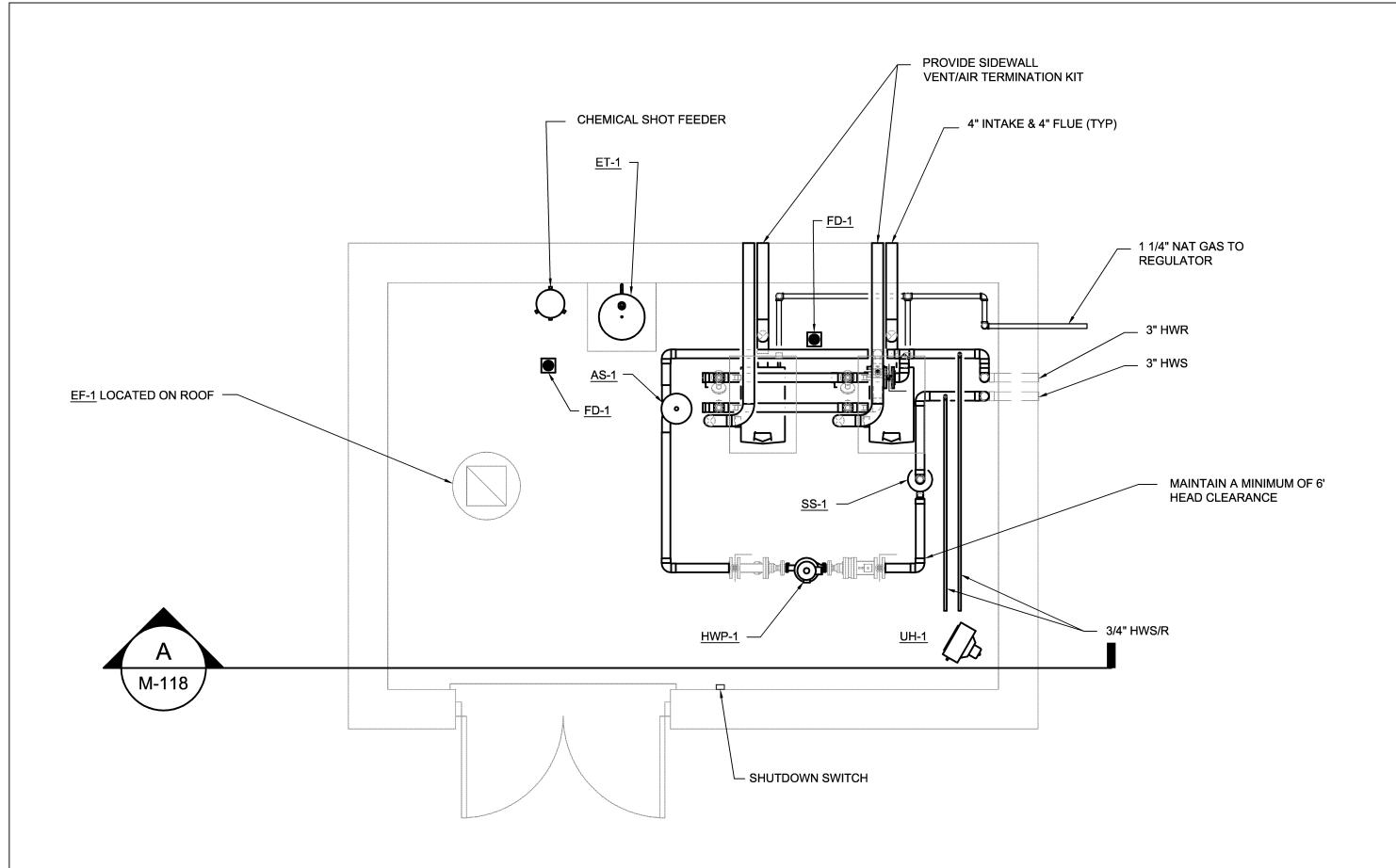
# Contractor shall comply as follows:

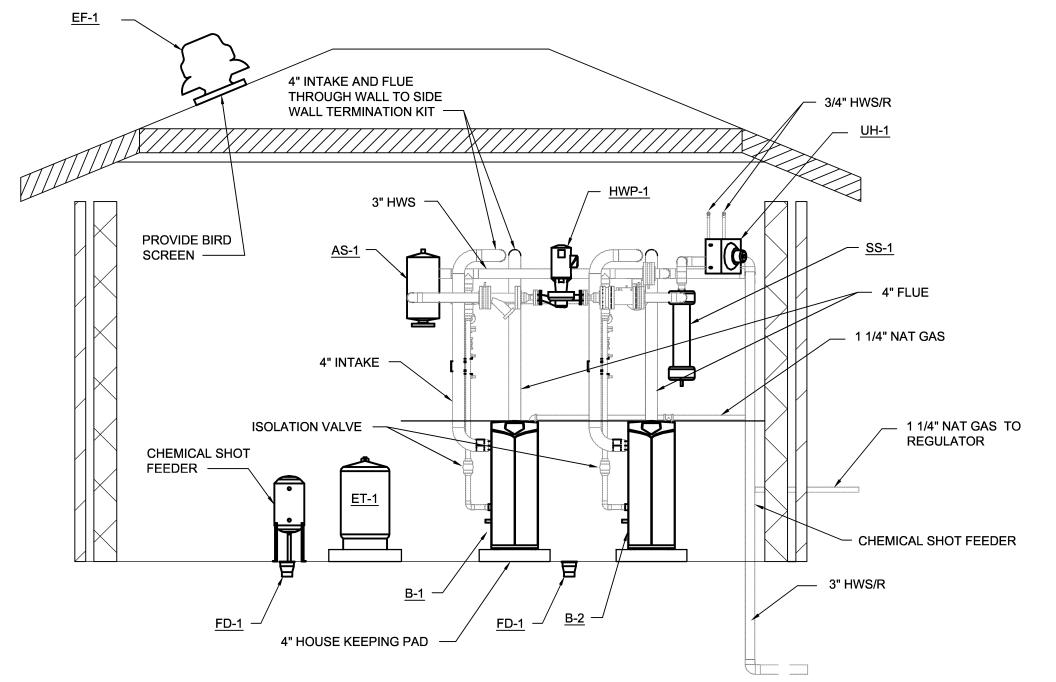
(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or

DISCLOSURE OF INFORMATION

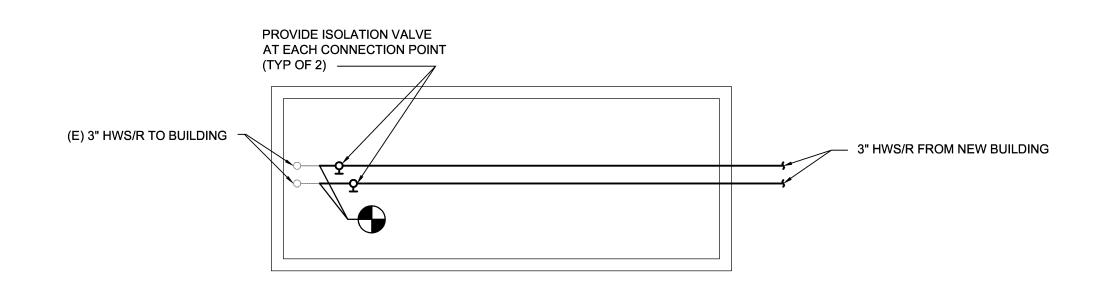
(2) The information is otherwise in the public domain before the date of release. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

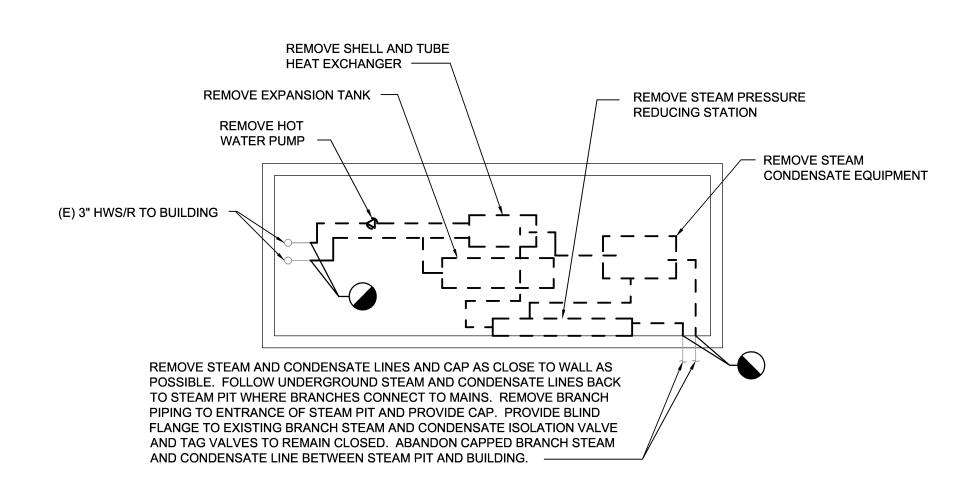


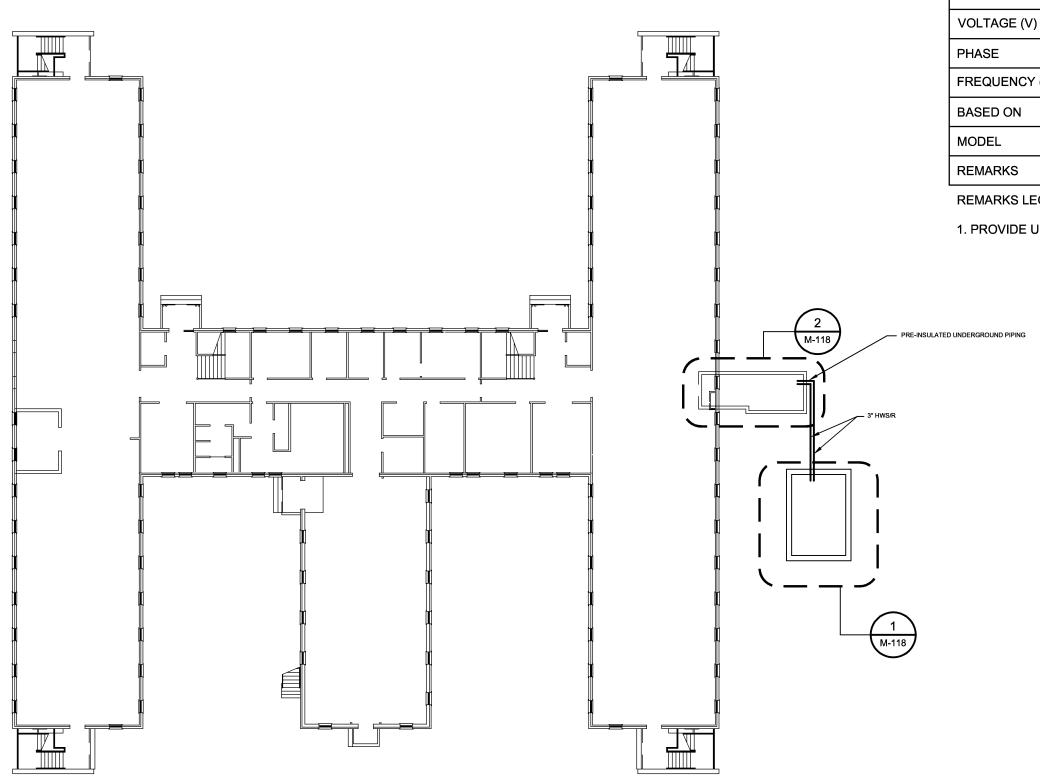


# **BUILDING 321 NEW MECHANICAL ROOM**



# BUILDING 321 STEAM PIT NEW WORK PLAN





UNIT HEATER SCHEDULE		
DESIGNATION UH-1		
LOCATION	MECH ROOM	
AIRFLOW (CFM)	340	
HEATING CAPACITY (MBH)	10	
ENTERING AIR TEMPERATURE (DEG F)	55	
LEAVING AIR TEMPERATURE (DEG F)	82	
ENTERING WATER TEMPERATURE (DEG F)	180	
FLOW RATE (GPM)	.5	
WATER PRESSURE DROP (FT W.G.)	.5	
MOTOR POWER (HP)	1/60	
VOLTAGE (V)	115	
PHASE	1	
FREQUENCY (Hz)	60	
BASED ON	MODINE	
MODEL	HC-18 S 01	
REMARKS	1	

REMARKS LEGEND:

1. PROVIDE UNIT MOUNTED THERMOSTAT.

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 800 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

- 2. DOMESTIC HOT WATER SYSTEM FOR THIS BUILDING IS EXISTING TO REMAIN. 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- MINIMUM 30" IN THE FRONT. 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR
- ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY
- SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR. 9. EXISTING BUILDING HAS A DUAL TEMPERATURE SYSTEM CONTROLLED BY MANUAL HEATING/COOLING CHANGEOVER SWITCH.

EXISTING BUILDING HAS A DUAL TEMPERATURE STSTEM CONTROLLED BY N	///
THE NEW SYSTEM SHALL BE INCORPORATED INTO THE CHANGEOVER CONT	ſR

BOILER SCHEDULE			
DESIGNATION	B-1	B-2	
LOCATION	MECH ROOM	MECH ROOM	
FUEL TYPE	NATURAL GAS	NATURAL GAS	
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4	
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10	
GAS INLET CONNECTION (IN)	1	1	
INPUT (MBH)	399	399	
OUTPUT (MBH)	375	375	
MINIMUM TURN DOWN RATIO	5:1	5:1	
FLOWRATE (GPM)	30	30	
MAXIMUM PRESSURE DROP (FT_H20)	8	8	
ENTERING WATER TEMPERATURE (DEG F)	160	160	
LEAVING WATER TEMPERATURE (DEG F)	185	185	
MINIMUM OPERATING PRESSURE (PSI)	30	30	
VOLTAGE (V)	120	120	
PHASE	1	1	
FREQUENCY (Hz)	60	60	
TOTAL OPERATING AMPS	1.5	1.5	
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4	
SELECTION BASED ON	LOCHINVAR	LOCHINVAR	
MODEL REMARKS	KB-400	KB-400	
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4	

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT CONDITIONS.

SOLID SEPARATOR SCHEDULE		_	
30LID SEPARATOR 5	CUEDOFE		LOUVER S
DESIGNATION	SS-1	  -	
LOCATION	MECH ROOM	<u> </u>	DESIGNATION
SERVICE	HOT WATER		JSAGE 
FLOW RATE (GPM)	69	L	OCATION
MAXIMUM PRESSURE DROP (FT-H20)	14		DESCRIPTION
COLLECTION CHAMBER CAPACITY (GAL)	0.8		DEPTH (IN)
BASED ON	LAKOS	F	RAME TYPE
MODEL	ILB-0200	V	VIDTH (IN)
	-	' <b>-</b>	IEIGHT (IN)
AID SEDADATOD		A	AIRFLOW (CFM)
AIR SEPARATOR			

AIR SEPARATOR SCHEDULE		
DESIGNATION	AS-1	
LOCATION	MECH ROOM	
SERVICE	HOT WATER	
LINE SIZE (IN)	3	
BASED ON	BELL & GOSSETT	
MODEL	ROLAIRTROL	

EXPANSION TANK SCHEDULE			
DESIGNATION	ET-1		
SERVICE	HEATING WATER		
LOCATION	MECH ROOM		
TYPE	BLADDER		
TANK VOLUME (GAL)	60		
FILL PRESSURE (PSI)	20		
RELEIF VALVE PRESSURE SETTING (PSI)	100		
BASED ON	JOHN WOOD COMPANY		
MODEL	JAER-23-607		

T LEAST 94% EFFICIENT BASED ON B	TS-2000 REV 06.07	
TI LEMOT 0470 ETT TOILINT BAGEB ON B	10 2000, INEV 00.07	
	EDITE	
LOUVER SCH	EDULE	
DESIGNATION	L-1	-
USAGE	INTAKE	_
LOCATION	MECH ROOM	_
DESCRIPTION	COMBINATION LOUVER/DAMPER	
DEPTH (IN)	8	
FRAME TYPE	CHANNEL	
WIDTH (IN)	32	
HEIGHT (IN)	16	
AIRFLOW (CFM)	550	
FREE AREA (SF)	.75	
FREE AREA VELOCITY (FPM)	734	
PRESSURE DROP (IN H20)	.067	
SELECTION BASE ON	GREENHECK	
ACTUATOR TYPE	120 VAC	
ACTUATOR FAIL POSITION	CLOSED	
MODEL	EAC-601	
REMARKS	1, 2 & 3	
		•

REMARKS LEGEND: 1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

ARCHITECT.

2. SEE ARCHITECTURAL PLANS FOR LOCATION.

SATISFACTORY TO

3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY

FAN SCHEDULE		
DESIGNATION	EF-1	
USAGE	EXHAUST	
SERVES ROOM(S)	MECH ROOM	
DESCRIPTION	CENTRIFUGAL	
FAN DATA		
AIRFLOW (SCFM)	550	
TOTAL SP (IN-H2O)	.15	
RPM	1630	
DRIVE TYPE	DIRECT	
MOTOR DATA		
HORSEPOWER	1/6	
RPM	1725	
VOLTS	115	
PHASE	1	
HERTZ	60	
SELECTION BASED ON	GREENHECK	
MODEL	G-085-VG	
REMARKS	1, 2 & 3	

PREP'D BY DATE APPROVED

1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER,

CONTINUOUS DUTY RATED. 2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT. 3. PROVIDE WALL MOUNTED THERMOSTAT CONTROL.

OPEN UPON FAN OPERATION.

WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO

PUMP SCHEDULE DESIGNATION SERVICE **HOT WATER** MECH ROOM LOCATION INLINE PUMP DATA FLOW (GPM) 69 TOTAL HEAD (FT-H2O) MINIMUM EFFICIENCY (%) CONNECTION SIZE SUCTION (IN) 1.5 DISCHARGE (IN) 1.5 MOTOR DATA 182JM MOTOR FRAME HORSEPOWER 1750 208 PHASE SELECTION BASED ON (MFGR) **BELL & GOSSETT** MODEL 80 1-1/2x1-1/2x9-1/2

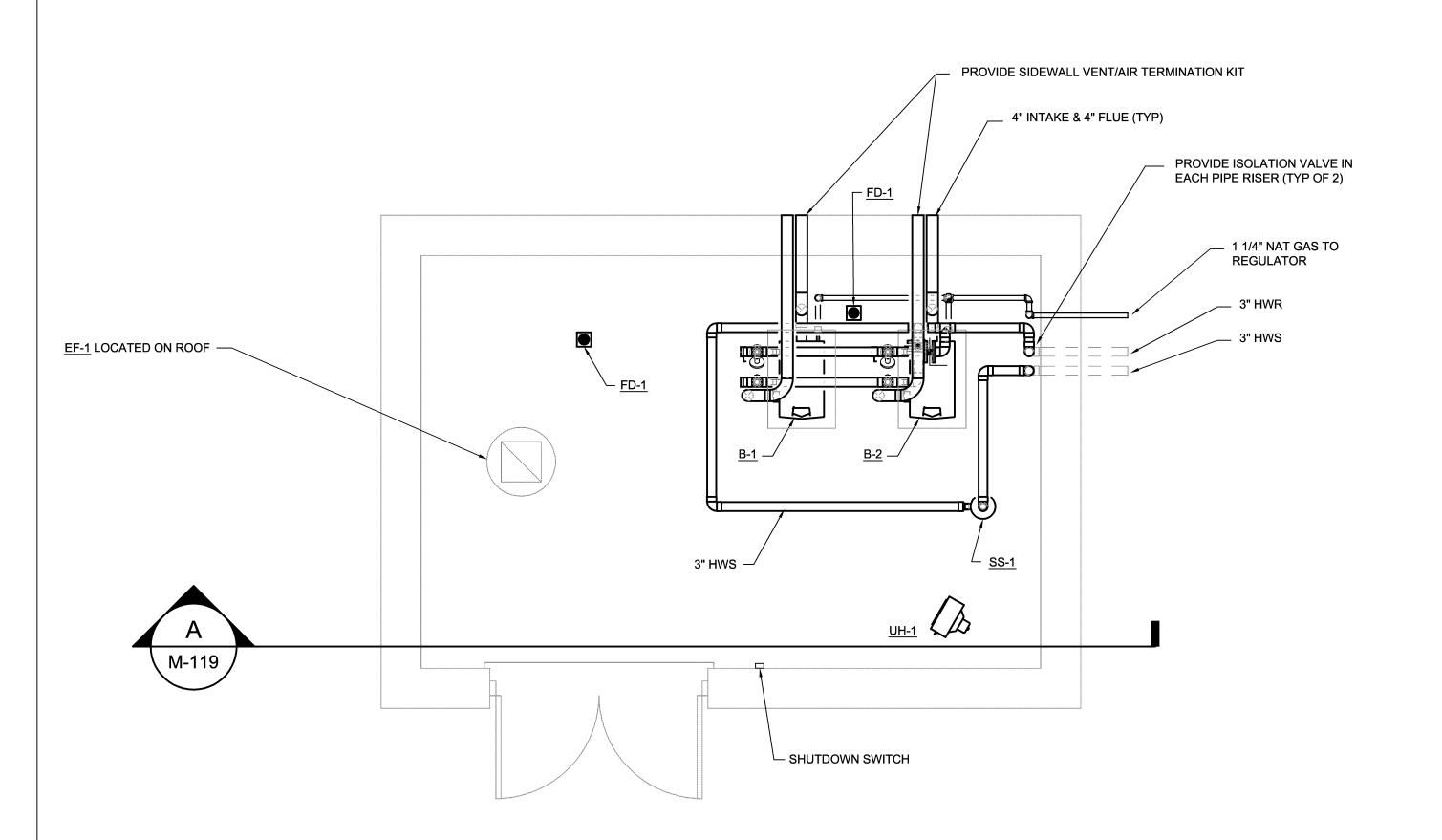
REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

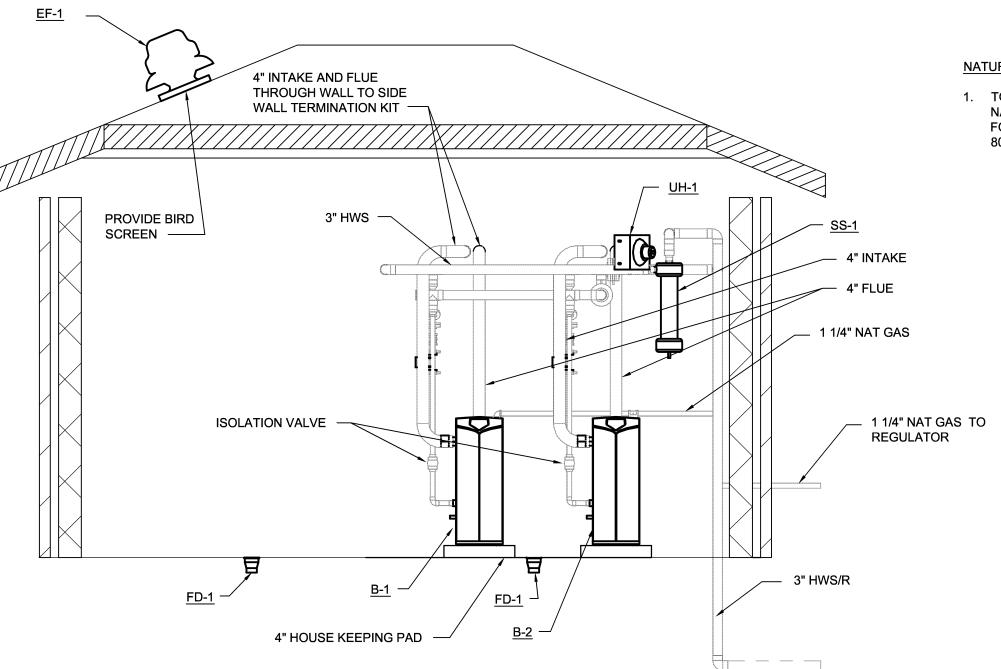
	Wiley Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254,7242		М-	-118
4	wileywilson.com		PROJECT NO.	CP12-0104
		DEPT OF NAVY	NAVAL FACILITIE	ES ENGINEERING COMMAN
		MARINE	CORPS BAS	SE .
			UNE, NORTH CAROLI	
DES.	IM			
DR.	SWL	BOILER MOI	DIFICATIONS,	VARIOUS
CHK.	JHE	FACILITIE	ES, HADNOT	POINT
SUBMITTED BY:		BUILDING 321	MECHANICAL DEMOL	ITION AND

NEW WORK PLAN DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. 60011294 DATE CONSTR CONTR NO. N40085-12-B-0104 SCALE: AS SPEC No. 05-12-0104 SHEET 30 OF 43

# DISCLOSURE OF INFORMATION Contractor shall comply as follows:

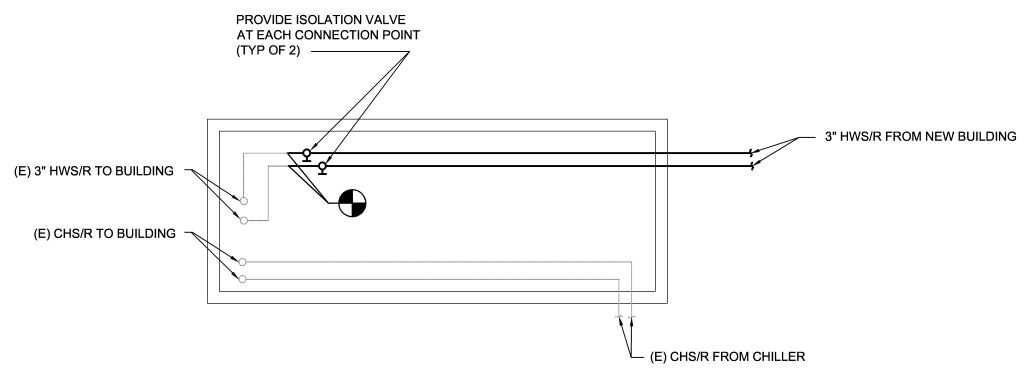
- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release. (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.



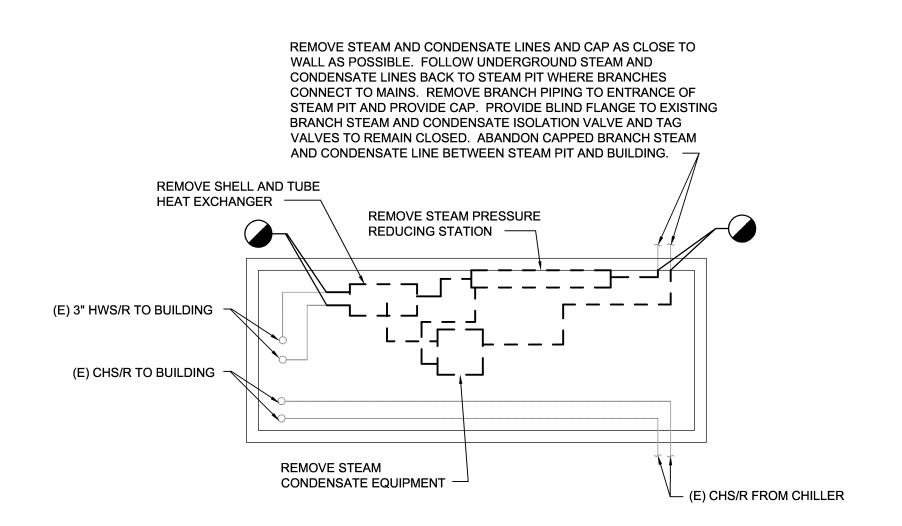


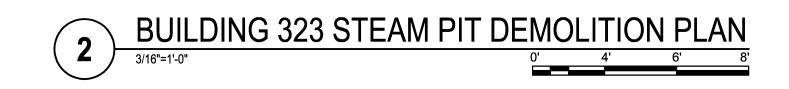


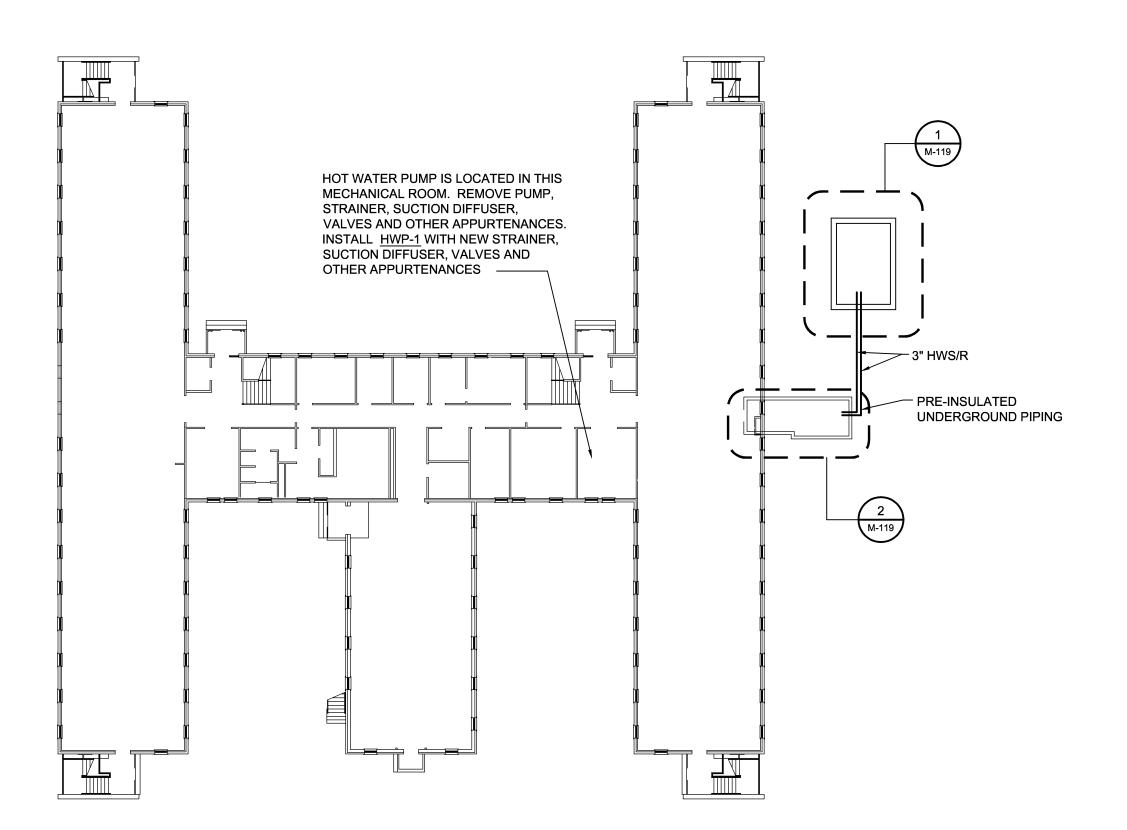
# BUILDING 323 NEW MECHANICAL ROOM 3/8"=1'-0" 0' 2' 4' 6'



# BUILDING 323 STEAM PIT NEW WORK PLAN 3/16"=1'-0" 0' 4' 6' 8'









# 3/64"=1'-0" 0' 10' 20' 40' 60'

# NATURAL GAS NOTE:

1. TOTAL CONNECTED

NATURAL GAS DEMAND
FOR THIS BUILDING IS
800 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.

  3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

PREP'D BY DATE APPROVED

# **GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET M-001.

- DOMESTIC HOT WATER SYSTEM FOR THIS BUILDING IS EXISTING TO REMAIN.
   MAINTAIN MANUFACTURER RECOMMENDED OF FARANCE AROUND ALL FOLLIPMENT
- 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- MINIMUM 30" IN THE FRONT.

  4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR
- ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
   PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE.

  8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

DESIGNATION

SERVES ROOM(S)

AIRFLOW (SCFM)

TOTAL SP (IN-H2O)

DESCRIPTION

DRIVE TYPE

MOTOR DATA

VOLTS

HORSEPOWER

FAN DATA

BOILER SCH	EDULE	
DESIGNATION	B-1	B-2
LOCATION	MECH ROOM	MECH ROOM
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10
GAS INLET CONNECTION (IN)	1	1
INPUT (MBH)	399	399
OUTPUT (MBH)	375	375
MINIMUM TURN DOWN RATIO	5:1	5:1
FLOWRATE (GPM)	30	30
MAXIMUM PRESSURE DROP (FT_H20)	8	8
ENTERING WATER TEMPERATURE (DEG F)	160	160
LEAVING WATER TEMPERATURE (DEG F)	185	185
MINIMUM OPERATING PRESSURE (PSI)	30	30
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
TOTAL OPERATING AMPS	1.5	1.5
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	LOCHINVAR	LOCHINVAR
MODEL REMARKS	KB-400	KB-400
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T.
 PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.
 PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

UNIT HEATER SCHEDULE

MECH ROOM

300

1/60

208

INDEECO

ULI

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

LOCATION

AIRFLOW (CFM)

HEATING CAPACITY (KW)

MOTOR POWER (HP)

VOLTAGE (V)

FREQUENCY (Hz)

REMARKS LEGEND

PHASE

MODEL

REMARKS

BASED ON

ENTERING AIR TEMPERATURE (DEG F)

LEAVING AIR TEMPERATURE (DEG F)

1. PROVIDE UNIT MOUNTED THERMOSTAT.

APPROVED: PWO OR OICC

SATISFACTORY TO

PROVIDE INTEGRAL DISCONNECT.

PUMP SCHEDULE			
DESIGNATION	HWP-1		
SERVICE	HOT WATER		
LOCATION	MECH ROOM		
TYPE	INLINE		
PUMP DATA	-		
FLOW (GPM)	35		
TOTAL HEAD (FT-H2O)	90		
MINIMUM EFFICIENCY (%)	45		
CONNECTION SIZE	-		
SUCTION (IN)	1.5		
DISCHARGE (IN)	1.5		
MOTOR DATA	-		
MOTOR FRAME	184JM		
HORSEPOWER	5		
RPM	1750		
VOLTS	208		
PHASE	1		
HERTZ	60		
SELECTION BASED ON (MFGR)	BELL & GOSSETT		
MODEL	80 1-1/2x1-1/2x9-1/2		
REMARKS	-		

REN	MARKS	-		
REN	MARKS LEGEND:			
	RONZE FITTED PUMP FOR DOMESTIC OVIDE AQUASTAT CONTROL.	WATER SERVICE.		
				Wiley Wilson 6606 West Broad S Richmond, Virginia 804.254.7242
RAT	OR SCHEDULE		4	wileywilson.com

SOLID SEPARATOR SO	CHEDULE
DESIGNATION	SS-1
LOCATION	MECH ROOM
SERVICE	HOT WATER
FLOW RATE (GPM)	35
MAXIMUM PRESSURE DROP (FT-H20)	19
COLLECTION CHAMBER CAPACITY (GAL)	0.8

BASED ON

MODEL

LAKOS

ILB-0125

VOLIS	110		
PHASE	1		
HERTZ	60		
SELECTION BASED ON	GREENHECK		
MODEL	G-085-VG		
REMARKS	1, 2 & 3		
REMARKS LEGEND:  1. PROVIDE FAN WITH INTEGRATION CONTINUOUS DUTY RATED.  2. PROVIDE FAN WITH UNIT MOUNTED TO THE WALL MOUNTED TO WIRE INTAKE LOUVER DAMPER OPEN UPON FAN OPERATION.	DUNTED DISCONNECT. HERMOSTAT CONTROL.		
LOUVER S	CHEDULE		
DESIGNATION	L-1		
USAGE	INTAKE		
LOCATION	MECH ROOM		
DESCRIPTION	COMBINATION LOUVER/DAMPER		
DEPTH (IN)	8		
FRAME TYPE	CHANNEL		
MIDTH (IN)	00		

FAN SCHEDULE

**EXHAUST** 

MECH ROOM

CENTRIFUGAL

- -

550

1630

DIRECT

1/6

1725

115

DESIGNATION	L-1
USAGE	INTAKE
LOCATION	MECH ROOM
DESCRIPTION	COMBINATION LOUVER/DAMPER
DEPTH (IN)	8
FRAME TYPE	CHANNEL
WIDTH (IN)	32
HEIGHT (IN)	16
AIRFLOW (CFM)	550
FREE AREA (SF)	.75
FREE AREA VELOCITY (FPM)	734
PRESSURE DROP (IN H20)	.067
SELECTION BASE ON	GREENHECK
ACTUATOR TYPE	120 VAC
ACTUATOR FAIL POSITION	CLOSED
MODEL	EAC-601
REMARKS	1, 2 & 3

1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

2. SEE ARCHITECTURAL PLANS FOR LOCATION.3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY ACTUATOR.

FLOOR DRAIN SCHEDULE			
DESIGNATION	DRAIN SIZE	DESCRIPTION	
FD-1	3"	ZURN MODEL 415B WITH 6" NICKEL BRONZE STRAINER AND PROSET TRAPGUARD	

NAVFAC DRAWING NO.

CONSTR CONTR NO. N40085-12-B-0104

60011295

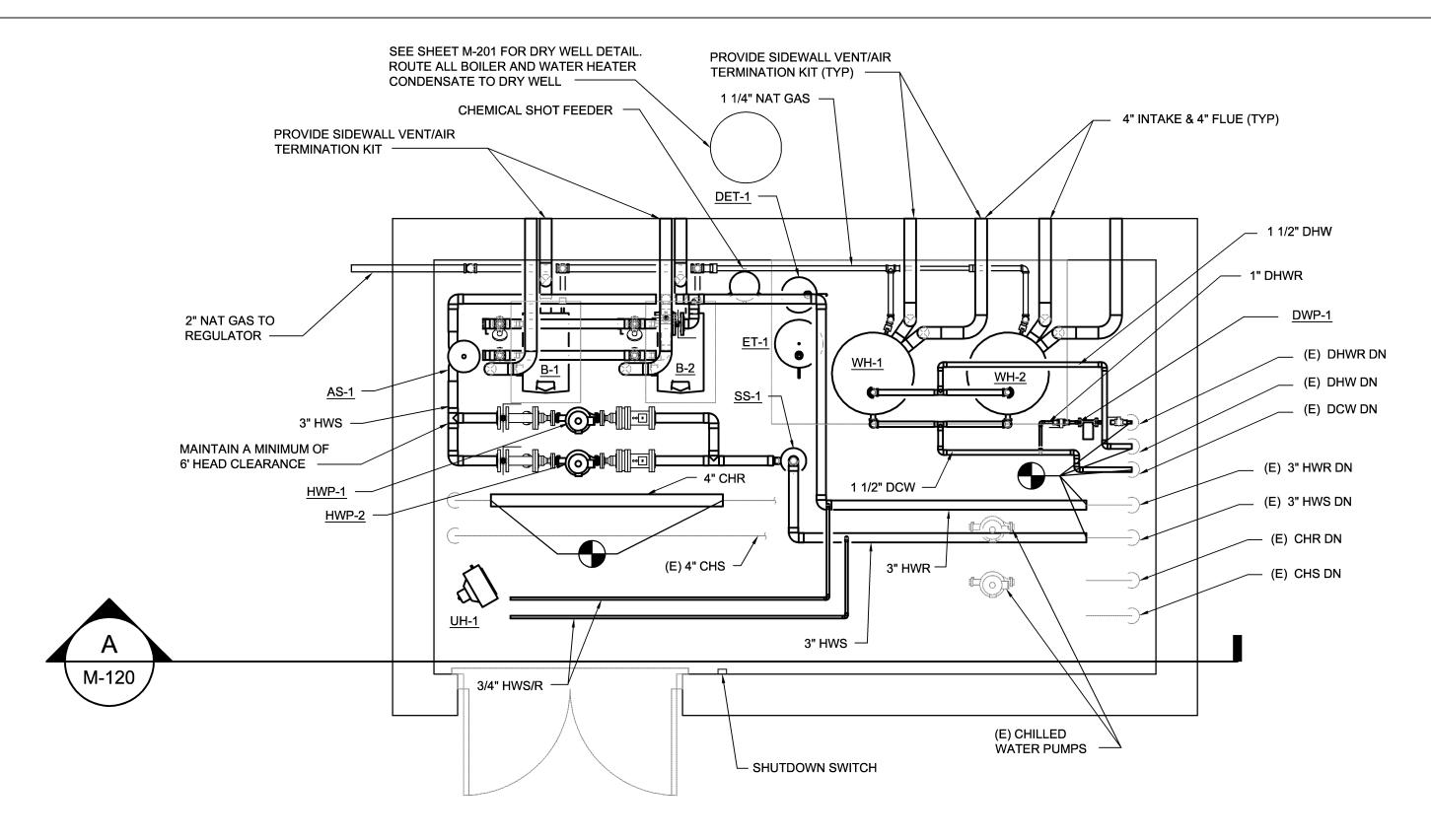
SHEET 31 OF 43

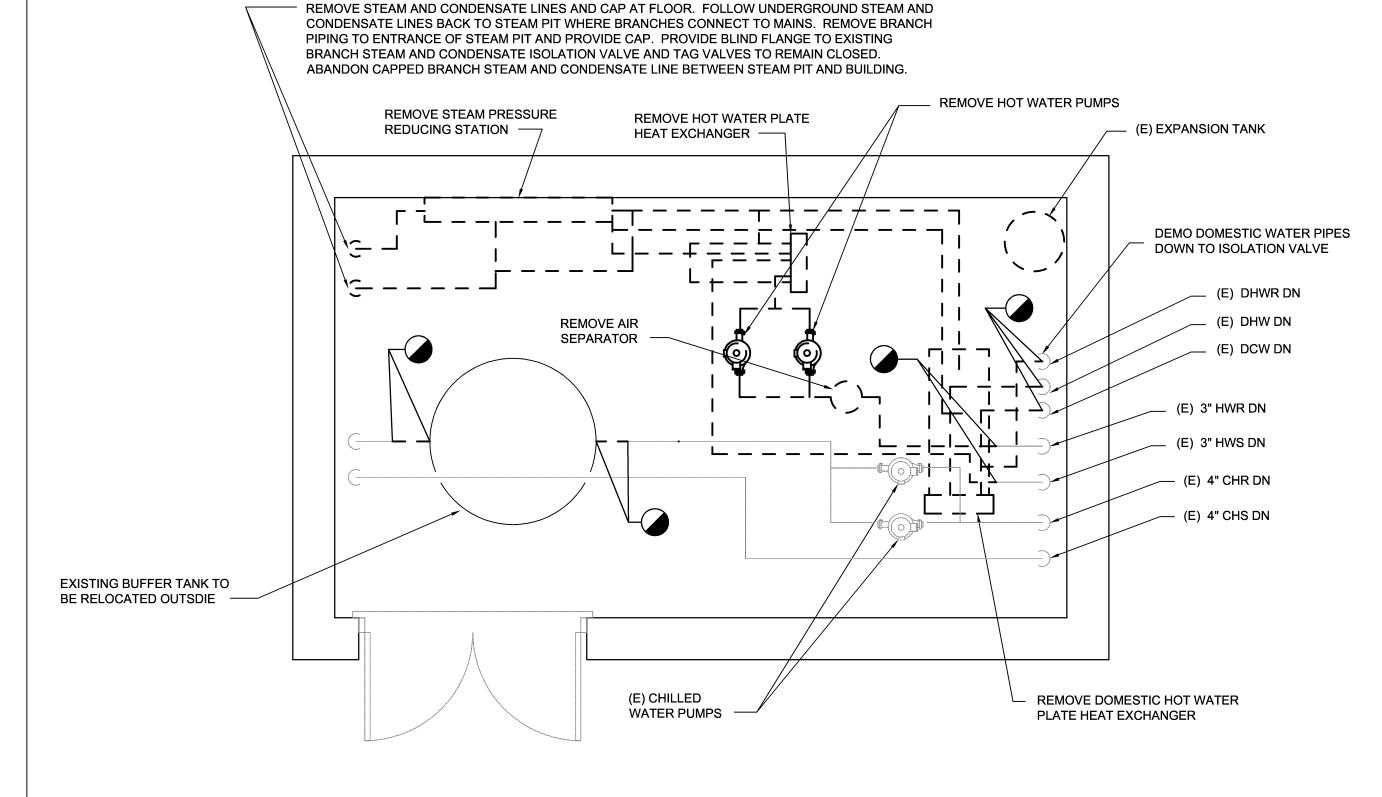
		<b>Wiley Wilson</b> 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242			М	-119
	4	wileywilson.com			PROJECT NO.	CP12-0104
			DEPT OF NAVY		NAVAL FACILI	TES ENGINEERING COMMAN
				MARINE CO	RPS BA	SE
				CAMP LEJEUNE, N		
	DES.	IM				
	DR.	SWL	ВО	ILER MODIFIC	CATIONS	S, VARIOUS
	CHK.	JHE		FACILITIES,	<b>HADNO</b>	ΓPOINT
So to	SUBMITTED BY:		В	UILDING 323 MECH	ANICAL DEMO	OLITION AND
一包	DESIGN DIR.			NEW W	ORK PLAN	

SCALE: AS SPEC No. 05-12-0104

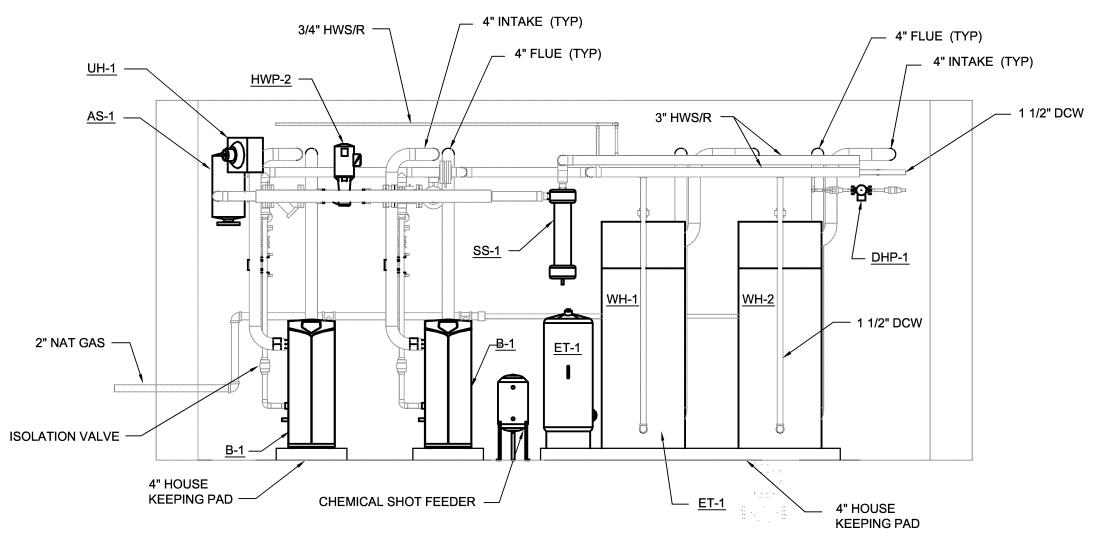
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  (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless(1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release.
   (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.







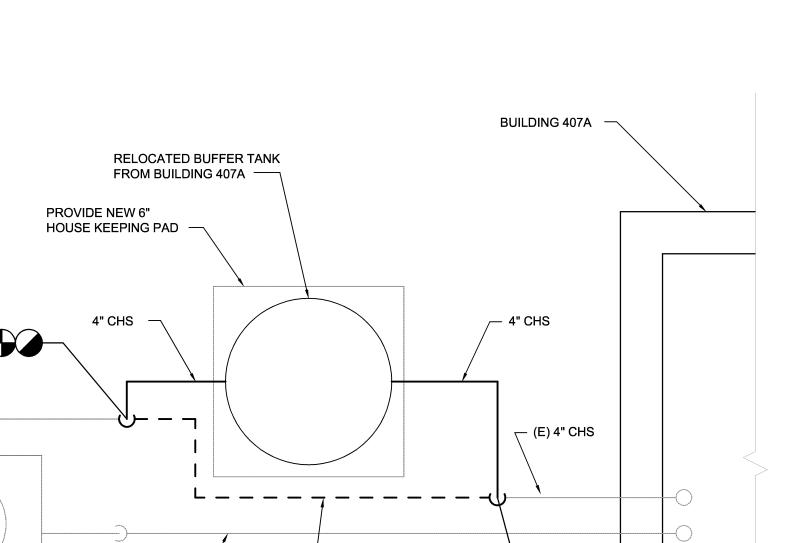


# NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

EXPANSION TANK SCHEDULE				
DESIGNATION	ET-1	DET-1		
SERVICE	HEATING WATER	DOMESTIC HOT WATER		
LOCATION	MECH ROOM	MECH ROOM		
TYPE	BLADDER	BLADDER		
TANK VOLUME (GAL)	60	14		
FILL PRESSURE (PSI)	20	60		
RELEIF VALVE PRESSURE SETTING (PSI)	100	100		
BASED ON	JOHN WOOD COMPANY	AMTROL		
MODEL	JAER-23-607	ST-C SERIES ST-42V-C		

\* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

AIR SEPARATOR SCHEDULE			
DESIGNATION	AS-1		
LOCATION	MECH ROOM		
SERVICE HOT WATER			
LINE SIZE (IN)	3		
BASED ON	BELL & GOSSETT		
MODEL	ROLAIRTROL		



BUILDING 407A BUFFER TANK RELOCATION PLAN

3/8"=1'-0"

Diagram 2' 4' 6'

(E) 4" CHR -

REMOVE THIS SECTION OF

UNDERGROUND PIPING —

(E) 4" CHS

(E) CHILLER

PUMP SCHEDULE					
DESIGNATION	HWP-1	HWP-2	DWP-1		
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT WATER		
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM		
TYPE	INLINE	INLINE	INLINE		
PUMP DATA	-	-	-		
FLOW (GPM)	72	72	5		
TOTAL HEAD (FT-H2O)	65	65	20		
MINIMUM EFFICIENCY (%)	50	50	-		
CONNECTION SIZE	-	-	-		
SUCTION (IN)	1.5	1.5	1.5		
DISCHARGE (IN)	1.5	1.5	1.5		
MOTOR DATA	-	-	-		
MOTOR FRAME	182JM	182JM	-		
HORSEPOWER	3	3	-		
RPM	1750	1750	2650		
VOLTS	208	208	115		
PHASE	1	1	1		
HERTZ	60	60	60		
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT		
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-30		
REMARKS	-	-	1		

# REMARKS LEGEND:

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

SYM.	PREP'D BY	DATE	APPROVED

MECH ROOM

NATURAL GAS

LOCHINVAR

1, 2, 3 & 4

B-2

MECH ROOM

NATURAL GAS

10

399

375

5:1

160

120

1.5

LOCHINVAR

KB-400

1, 2, 3 & 4

N40085-12-B-0104

SHEET 32 OF 43

# **DEMOLITION NOTES**

NATURAL GAS NOTE:

TOTAL CONNECTED

NATURAL GAS DEMAND

FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20.

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION
- REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. BUILDING 407A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 407.
- MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- MIXING VALVE. 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY
- SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

	BOILER SCH	EDULE
1	DESIGNATION	B-1
HOT	LOCATION	MECH ROO
OM	FUEL TYPE	NATURAL G
	MINIMUM INLET GAS PRESSURE (IN. WG.)	4
$\dashv$	MAXIMUM INLET GAS PRESSURE (IN. WG.)	10
-	GAS INLET CONNECTION (IN)	1
_	INPUT (MBH)	399
_	OUTPUT (MBH)	375
	MINIMUM TURN DOWN RATIO	5:1
	FLOWRATE (GPM)	30
_	MAXIMUM PRESSURE DROP (FT_H20)	8
_	ENTERING WATER TEMPERATURE (DEG F)	160
4	LEAVING WATER TEMPERATURE (DEG F)	185
4	MINIMUM OPERATING PRESSURE (PSI)	30
	VOLTAGE (V)	120
	PHASE	1
	FREQUENCY (Hz)	60
_	TOTAL OPERATING AMPS	1.5
	FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4
	SELECTION BASED ON	LOCHINVA
-30	MODEL REMARKS	KB-400
	REMARKS	1, 2, 3 & 4

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07

DOMESTIC HOT WATER HEATER SCHEDULE						
DESIGNATION	WH-1	WH-2				
LOCATION	MECH ROOM	MECH ROOM				
STORAGE (GALLONS)	100	100				
GPH AT 100 DEG F RISE	173	173				
FUEL TYPE	NATURAL GAS	NATURAL GAS				
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8				
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5				
GAS INLET CONNECTION (IN)	3/4	3/4				
INPUT (MBH)	150	150				
VOLTAGE (V)	120	120				
PHASE	1	1				
FREQUENCY (Hz)	60	60				
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4				
SELECTION BASED ON	STATE	STATE				
MODEL	SUF 100 150 NE	SUF 100 150 NE				
REMARKS	1 & 2	1 & 2				

REMARKS LEGEND:

ILB-0200

- 1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING
- BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.
- 2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

UNIT HEATER SCHEI	DULE
DESIGNATION	UH-1
LOCATION	MECH ROOM
AIRFLOW (CFM)	340
HEATING CAPACITY (MBH)	10
ENTERING AIR TEMPERATURE (DEG F)	55
LEAVING AIR TEMPERATURE (DEG F)	82
ENTERING WATER TEMPERATURE (DEG F)	180
FLOW RATE (GPM)	.5
WATER PRESSURE DROP (FT W.G.)	.5
MOTOR POWER (HP)	1/60
VOLTAGE (V)	115
PHASE	1
FREQUENCY (Hz)	60
BASED ON	MODINE
MODEL	HC-18 S 01
REMARKS	1

REMARKS LEGEND:

1. PROVIDE UNIT MOUNTED THERMOSTAT.

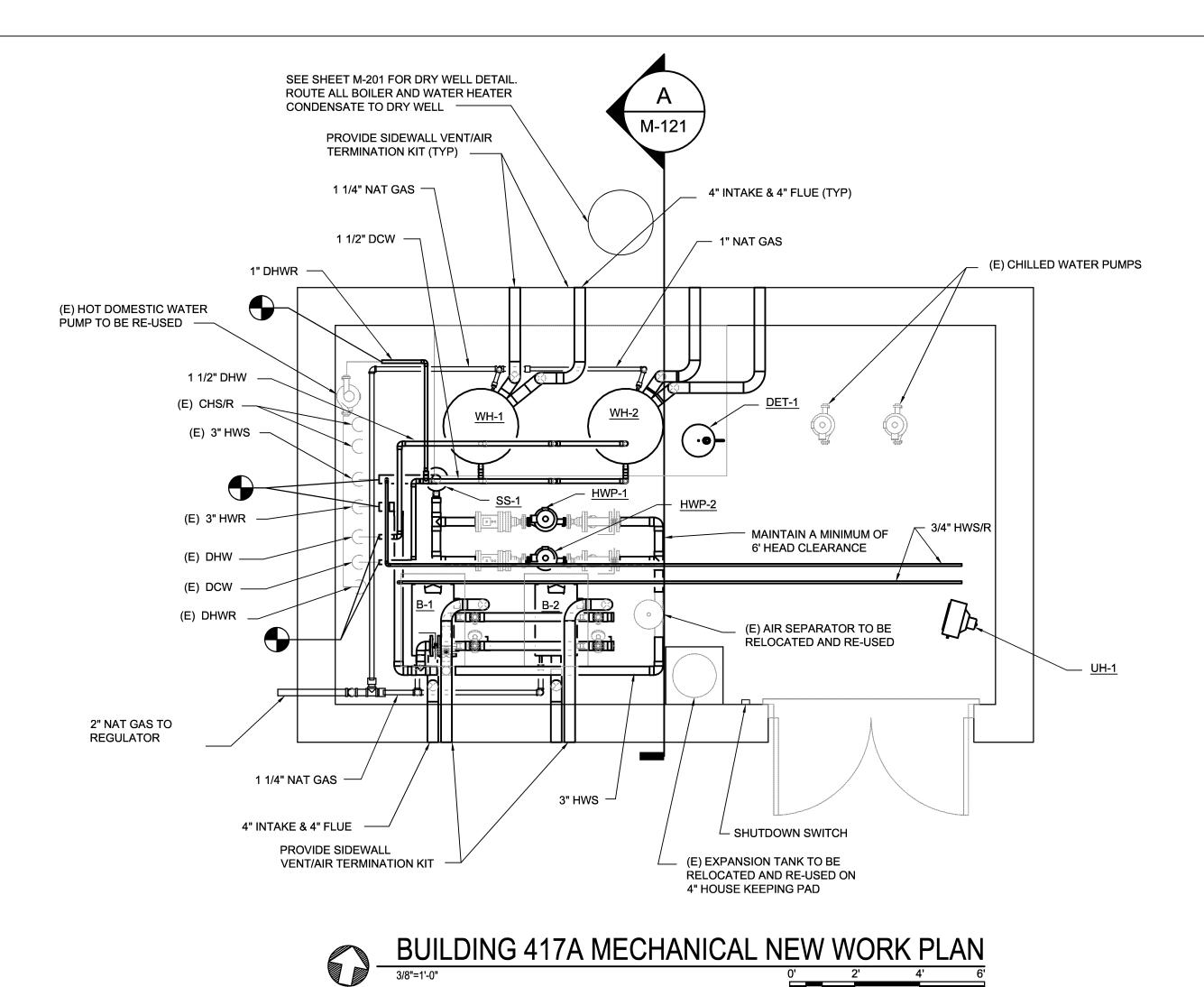
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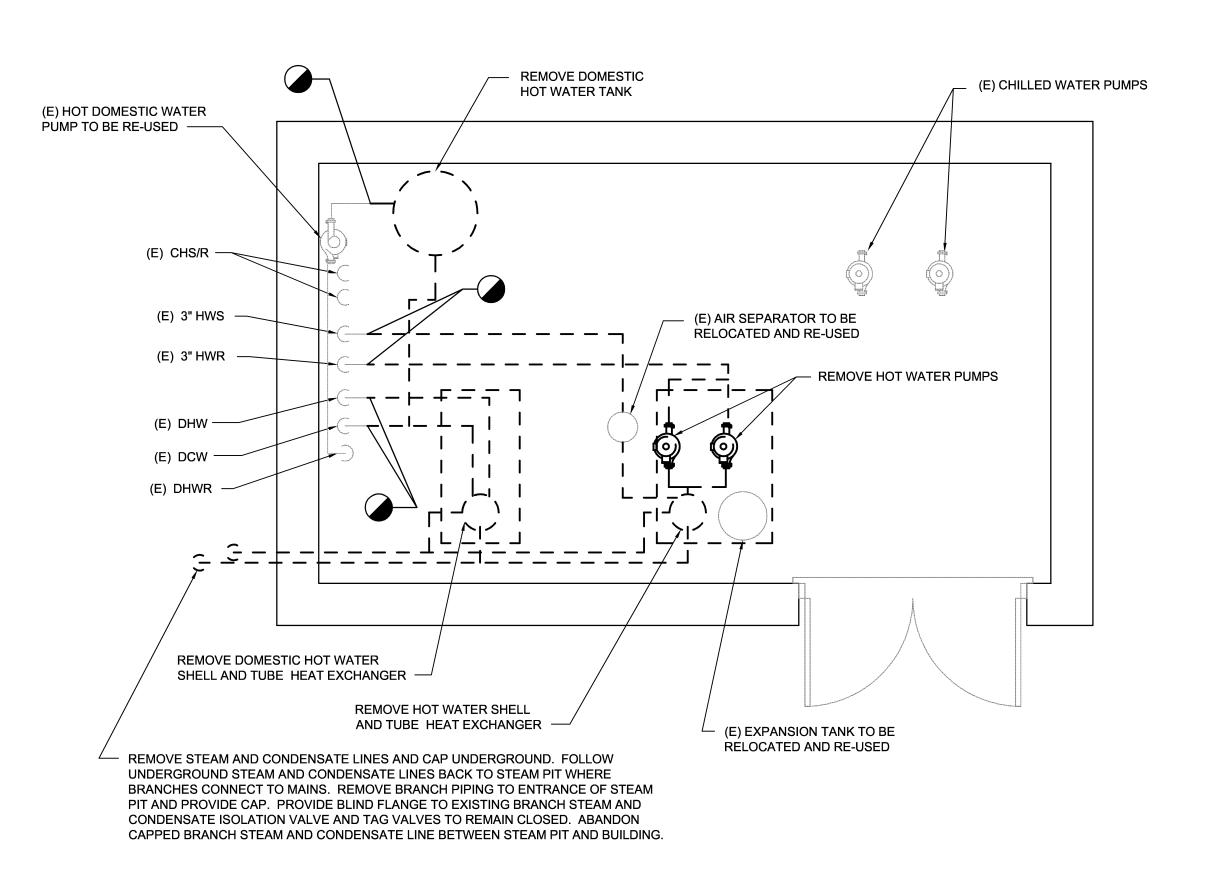
SOLID SEPARATOR SO	CHEDULE
DESIGNATION	SS-1
LOCATION	MECH ROOM
SERVICE	HOT WATER
FLOW RATE (GPM)	72
MAXIMUM PRESSURE DROP (FT-H20)	14
COLLECTION CHAMBER CAPACITY (GAL)	0.8
BASED ON	LAKOS
	LOCATION  SERVICE  FLOW RATE (GPM)  MAXIMUM PRESSURE DROP (FT-H20)  COLLECTION CHAMBER CAPACITY (GAL)

	6606 West Broad Richmond, Virginia 804.254.7242	St., Suite 500 a 23230-1717				М-	-120
4	wileywilson.com		<del></del>			PROJECT NO.	CP12-0104
			DEPT (				S ENGINEERING COMMAND
				MAR	INE CO	RPS BAS	SE
				CAMP	LEJEUNE, N	ORTH CAROLI	NA
DES.	IM						
OR.	SWL			BOILER I	MODIFIC	CATIONS,	VARIOUS
CHK.	JHE			FACIL	LITIES,	<b>HADNOT</b>	POINT
SUBMITTED BY:				BUII DING	407 MFCHA	ANICAL DEMOL	ITION AND
DESIGN DIR.							
APPROVED: PWO	OR OICC	DATE	SIZE	CODE IDENT NO.		NAVFAC DR	AWING NO.
			F	80091		6001	1296
	DR. CHK. CUBMITTED BY: DESIGN DIR.	6606 West Broad a Richmond, Virginia 804.254.7242 wileywilson.com	wileywilson.com  DES. IM  DR. SWL  CHK. JHE  BUBMITTED BY:  DESIGN DIR.	6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com  DEPT C	6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com  DEPT OF NAVY  MAR CAMP  DES. IM  DR. SWL  DHK. JHE  SUBMITTED BY:  BUILDING  DESIGN DIR.  APPROVED: PWO OR OICC DATE  SIZE CODE IDENT NO.	6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com  DEPT OF NAVY  MARINE CO CAMP LEJEUNE, N DES.  IM DR. SWL DES. SWL DES. SWL DES. BUILDING 407 MECH NEW WILEY APPROVED: PWO OR OICC DATE  SIZE CODE IDENT NO.	6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com  DEPT OF NAVY  NAVAL FACILITIE  MARINE CORPS BAS  CAMP LEJEUNE, NORTH CAROLI  DES.  DES.  DES.  DEPT OF NAVY  NAVAL FACILITIES  MARINE CORPS BAS  CAMP LEJEUNE, NORTH CAROLI  DES.  DES.  BOILER MODIFICATIONS,  FACILITIES, HADNOT  BUILDING 407 MECHANICAL DEMOLI  NEW WORK PLAN  DESIGN DIR.  RPPROVED: PWO OR OICC DATE  SIZE CODE IDENT NO.  NAVFAC DR

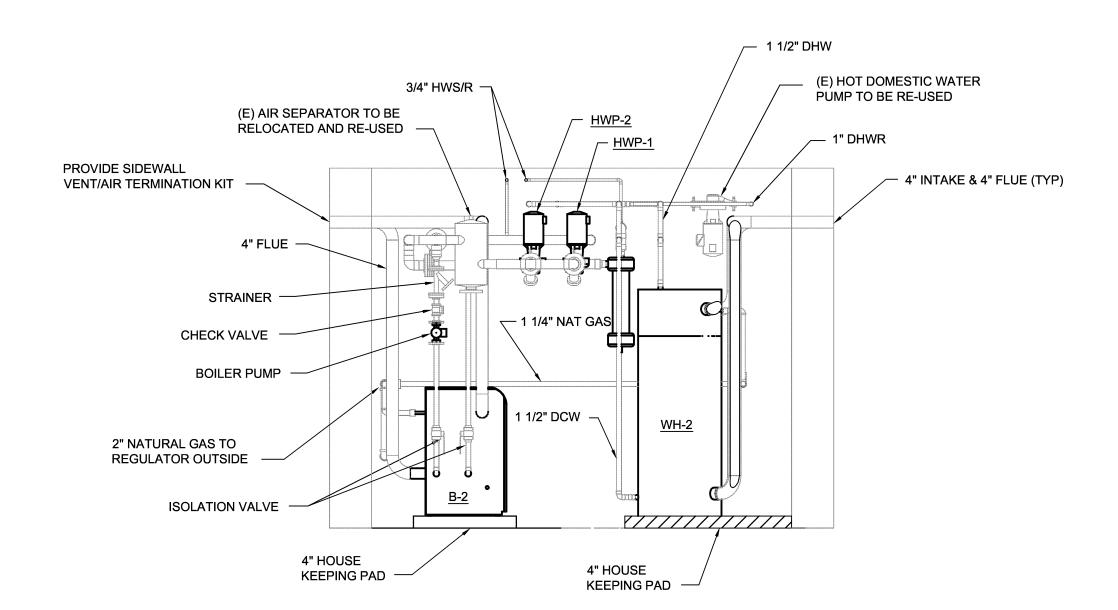
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- requests for authorization to release through the prime contractor to the Contracting Officer.











NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

# EXPANSION TANK SCHEDULE

DESIGNATION	DET-1
SERVICE	DOMESTIC HOT WATER
LOCATION	MECH ROOM
TYPE	BLADDER
TANK VOLUME (GAL)	14
FILL PRESSURE (PSI)	60
RELEIF VALVE PRESSURE SETTING (PSI)	100
BASED ON	AMTROL
MODEL	ST-C SERIES ST-42V-C

S1-C SERIES S1-42V-C \* MATCH DOMESTIC WATER SUPPLY PRESSURE AT THIS LOCATION.

			_
SYM.	PREP'D BY	DATE	APPROVED

# NATURAL GAS NOTE:

 TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS 1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.
- 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

MINIMUM 30" IN THE FRONT.

- 1. SEE GENERAL NOTES ON SHEET M-001. 2. BUILDING 417A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 417.
- 3. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A
- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE.
- 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM. 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING
- PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.
- 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE
- 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCHEDULE					
DESIGNATION	B-1	B-2			
LOCATION	MECH ROOM	MECH ROOM			
FUEL TYPE	NATURAL GAS	NATURAL GAS			
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4			
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10			
GAS INLET CONNECTION (IN)	1	1			
INPUT (MBH)	399	399			
OUTPUT (MBH)	375	375			
MINIMUM TURN DOWN RATIO	5:1	5:1			
FLOWRATE (GPM)	30	30			
MAXIMUM PRESSURE DROP (FT_H20)	8	8			
ENTERING WATER TEMPERATURE (DEG F)	160	160			
LEAVING WATER TEMPERATURE (DEG F)	185	185			
MINIMUM OPERATING PRESSURE (PSI)	30	30			
VOLTAGE (V)	120	120			
PHASE	1	1			
FREQUENCY (Hz)	60	60			
TOTAL OPERATING AMPS	1.5	1.5			
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4			
SELECTION BASED ON	LOCHINVAR	LOCHINVAR			
MODEL REMARKS	KB-400	KB-400			
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4			

# REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

UNIT HEATER SCHEDULE					
DESIGNATION	UH-1				
LOCATION	MECH ROOM				
AIRFLOW (CFM)	340				
HEATING CAPACITY (MBH)	10				
ENTERING AIR TEMPERATURE (DEG F)	55				
LEAVING AIR TEMPERATURE (DEG F)	82				
ENTERING WATER TEMPERATURE (DEG F)	180				
FLOW RATE (GPM)	.5				
WATER PRESSURE DROP (FT W.G.)	.5				
MOTOR POWER (HP)	1/60				
VOLTAGE (V)	115				
PHASE	1				
FREQUENCY (Hz)	60				
BASED ON	MODINE				
MODEL	HC-18 S 01				
REMARKS	1				
REMARKS LEGEND:	REMARKS LEGEND:				

1. PROVIDE UNIT MOUNTED THERMOSTAT.

SOLID SEPARATOR SCHEDULE					
DESIGNATION	SS-1				
LOCATION	MECH ROOM				
SERVICE	HOT WATER				
FLOW RATE (GPM)	60				
MAXIMUM PRESSURE DROP (FT-H20)	23				
COLLECTION CHAMBER CAPACITY (GAL)	.3				
BASED ON	LAKOS				
MODEL	ILB-0150				

DOMESTIC HOT WATER HEATER SCHEDULE						
DESIGNATION	WH-1	WH-2				
LOCATION	MECH ROOM	MECH ROOM				
STORAGE (GALLONS)	100	100				
GPH AT 100 DEG F RISE	173	173				
FUEL TYPE	NATURAL GAS	NATURAL GAS				
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8				
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5				
GAS INLET CONNECTION (IN)	3/4	3/4				
INPUT (MBH)	150	150				
VOLTAGE (V)	120	120				
PHASE	1	1				
FREQUENCY (Hz)	60	60				
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4				
SELECTION BASED ON	STATE	STATE				
MODEL	SUF 100 150 NE	SUF 100 150 NE				
REMARKS	1 & 2	1 & 2				

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

PUMP SCHEDULE						
DESIGNATION	HWP-1	HWP-2	DWP-1			
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT WATER			
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM			
TYPE	INLINE	INLINE	INLINE			
PUMP DATA	-	-	-			
FLOW (GPM)	60	60	5			
TOTAL HEAD (FT-H2O)	80	80	20			
MINIMUM EFFICIENCY (%)	50	50	-			
CONNECTION SIZE	-	-	-			
SUCTION (IN)	1.5	1.5	1.5			
DISCHARGE (IN)	1.5	1.5	1.5			
MOTOR DATA	-	-	-			
MOTOR FRAME	184JM	184JM	-			
HORSEPOWER	5	5	-			
RPM	1750	1750	2650			
VOLTS	208	208	115			
PHASE	1	1	1			
HERTZ	60	60	60			
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT			
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-30			
REMARKS	-	-	1			

REMARKS LEGEND: 1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL

# DESIGN DIR. APPROVED: PWO OR OICC SATISFACTORY TO

		<b>Wiley Wilson</b> 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242			M -	-121
	4	wileywilson.com			PROJECT NO.	CP12-0104
			DEPT OF NAVY		NAVAL FACILITIE	S ENGINEERING COMMAND
				MARINE CO CAMP LEJEUNE, N		
	DES.	IM				
	DR.	SWL	BOI	ILER MODIFIC	CATIONS,	VARIOUS
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	SUBMITTED BY:			LIII DINO 447 MEGLI	ANIIOAL DEMOLI	ITIONI AND

BUILDING 417 MECHANICAL DEMOLITION AND

NEW WORK PLAN DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. 60011297 DATE CONSTR CONTR NO. N40085-12-B-0104 SCALE: AS SPEC No. 05-12-0104 SHEET 33 OF 43

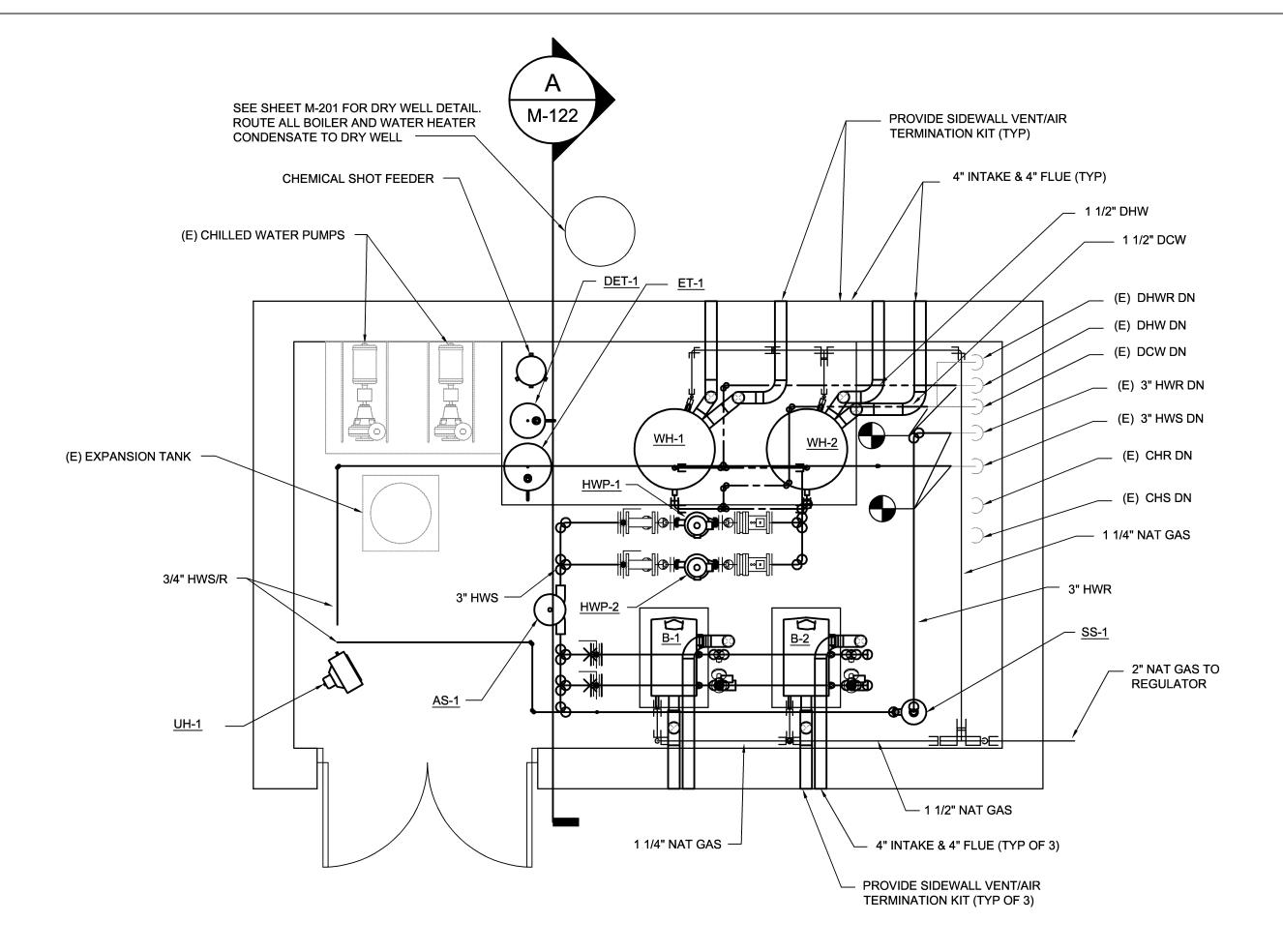
# DISCLOSURE OF INFORMATION

Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or

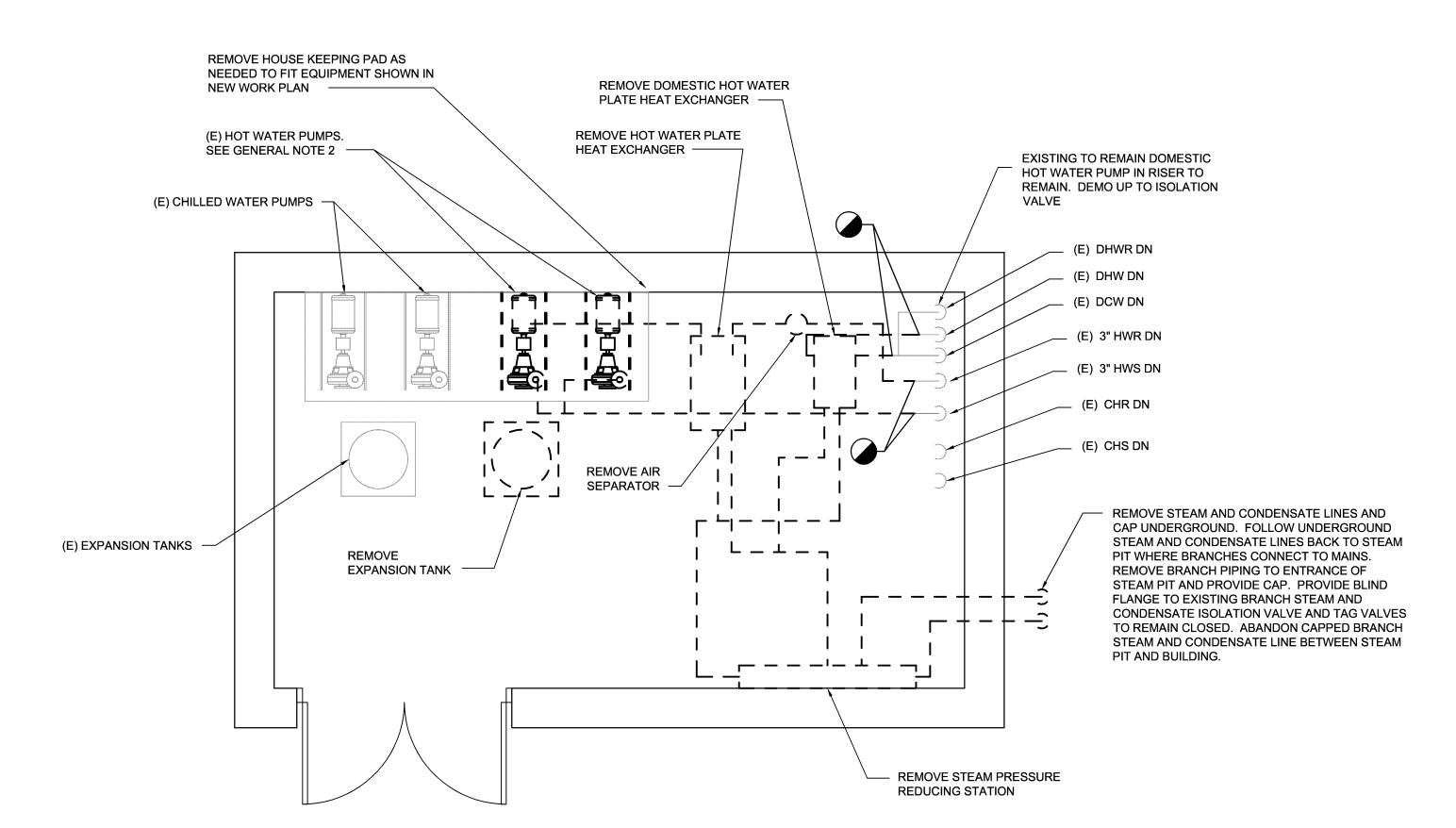
(2) The information is otherwise in the public domain before the date of release. (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.





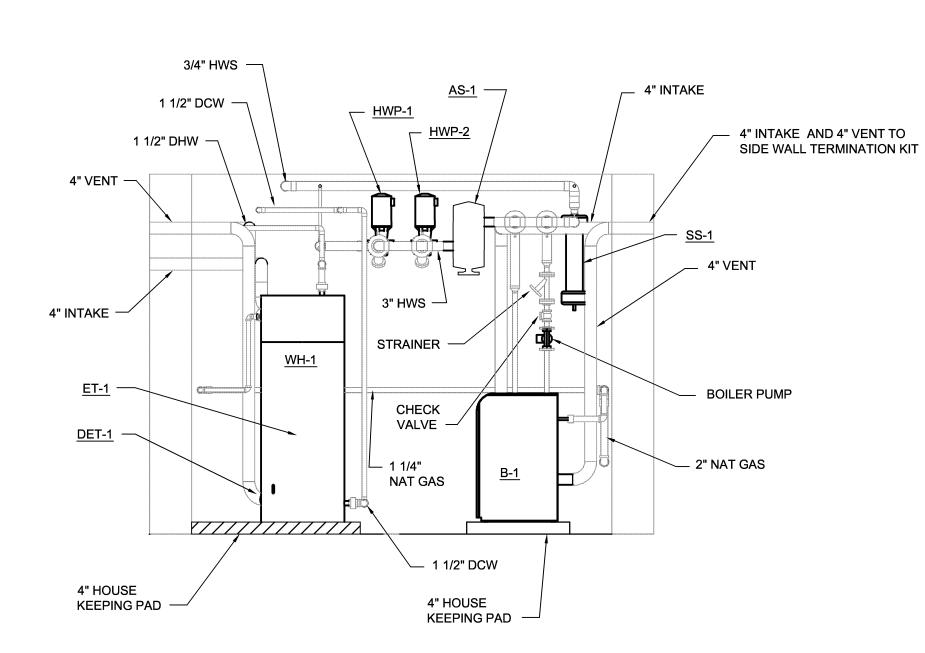




# DISCLOSURE OF INFORMATION

# Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
- (1) The Contracting Officer has given prior written approval; or
- (2) The information is otherwise in the public domain before the date of release.
- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit
- requests for authorization to release through the prime contractor to the Contracting Officer.





NOTE: EXISTING PIPING NOT SHOWN FOR CLARITY

NATURAL GAS NOTE:

1. TOTAL CONNECTED NATURAL GAS DEMAND FOR THIS BUILDING IS

1,100 MBH AT 10 IN-H20.

# **DEMOLITION NOTES**

- 1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,
- HANGERS AND EQUIPMENT. 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.
- 3. EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM. 4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# **GENERAL NOTES**

- 1. SEE GENERAL NOTES ON SHEET M-001.
- 2. BUILDING 507A IS THE EXISTING MECHANICAL ROOM THAT SERVES BUILDING 507.
- MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.

PREP'D BY DATE APPROVED

- 4. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. 6. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM.
- 7. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE
- WITH THE INTERNATIONAL PLUMBING CODE. 8. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING.
- 9. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.

BOILER SCHEDULE				
DESIGNATION	B-1	B-2		
LOCATION	MECH ROOM	MECH ROOM		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10		
GAS INLET CONNECTION (IN)	1	1		
INPUT (MBH)	399	399		
OUTPUT (MBH)	375	375		
MINIMUM TURN DOWN RATIO	5:1	5:1		
FLOWRATE (GPM)	30	30		
MAXIMUM PRESSURE DROP (FT_H20)	8	8		
ENTERING WATER TEMPERATURE (DEG F)	160	160		
LEAVING WATER TEMPERATURE (DEG F)	185	185		
MINIMUM OPERATING PRESSURE (PSI)	30	30		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
TOTAL OPERATING AMPS	1.5	1.5		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	LOCHINVAR	LOCHINVAR		
MODEL REMARKS	KB-400	KB-400		
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4		

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

PUMP SCHEDULE					
DESIGNATION	HWP-1	HWP-2	DWP-1		
SERVICE	HOT WATER	HOT WATER	DOMESTIC HOT WATER		
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM		
TYPE	INLINE	INLINE	INLINE		
PUMP DATA	-	-	-		
FLOW (GPM)	72	72	5		
TOTAL HEAD (FT-H2O)	65	65	20		
MINIMUM EFFICIENCY (%)	50	50	-		
CONNECTION SIZE	-	-	-		
SUCTION (IN)	1.5	1.5	1.5		
DISCHARGE (IN)	1.5	1.5	1.5		
MOTOR DATA	-	-	-		
MOTOR FRAME	182JM	182JM	-		
HORSEPOWER	3	3	-		
RPM	1750	1750	2650		
VOLTS	208	208	115		
PHASE	1	1	1		
HERTZ	60	60	60		
SELECTION BASED ON (MFGR)	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT		
MODEL	80 1-1/2x1-1/2x9-1/2	80 1-1/2x1-1/2x9-1/2	BOOSTER PL-30		
REMARKS	-	-	1		

REMARKS LEGEND:

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.

"""	PARATOR	EXPANSION TANK SCHEDULE		
SCF	IEDULE	DESIGNATION	DET-1	
DESIGNATION	AS-1	SERVICE	HEATING WATER	DOMESTIC HOT WATER
LOCATION	MECH ROOM	LOCATION	MECH ROOM	MECH ROOM
SERVICE	HOT WATER	TYPE	BLADDER	BLADDER
LINE SIZE (IN)	3	TANK VOLUME (GAL)	60	14
BASED ON	BELL & GOSSETT	FILL PRESSURE (PSI)	20	60
MODEL	ROLAIRTROL	RELEIF VALVE PRESSURE SETTING (PSI)	100	100
		BASED ON	JOHN WOOD COMPANY	AMTROL
		MODEL	JAER-23-607	ST-C SERIES ST-42V-C

* MATCH DOMESTIC WATER SUPPLY PRES	SURE AT THIS LOCATION
MATCH DOMESTIC WATER SUFFET FIXES	SUNL AT THIS LOCATION

UNIT HEATER SCHEDULE		
DESIGNATION	UH-1	
LOCATION	MECH ROOM	
AIRFLOW (CFM)	340	
HEATING CAPACITY (MBH)	10	
ENTERING AIR TEMPERATURE (DEG F)	55	
LEAVING AIR TEMPERATURE (DEG F)	82	
ENTERING WATER TEMPERATURE (DEG F)	180	
FLOW RATE (GPM)	.5	
WATER PRESSURE DROP (FT W.G.)	.5	
MOTOR POWER (HP)	1/60	
VOLTAGE (V)	115	
PHASE	1	
FREQUENCY (Hz)	60	
BASED ON	MODINE	
MODEL	HC-18 S 01	
REMARKS	1	
REMARKS LEGEND:		

1. PROVIDE UNIT MOUNTED THERMOSTAT.

MODEL

SOLID SEPARATOR SCHEDULE **DESIGNATION** LOCATION MECH ROOM SERVICE **HOT WATER** FLOW RATE (GPM) 72 MAXIMUM PRESSURE DROP (FT-H20) 14 COLLECTION CHAMBER CAPACITY (GAL) 8.0 BASED ON LAKOS

ILB-0200

DOMESTIC HOT WATER H	HEATER SCI	HEDULE
DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	173	173
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	150	150
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 150 NE	SUF 100 150 NE
REMARKS	1 & 2	1 & 2
REMARKS LEGEND:	•	

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER WATER HEATER.

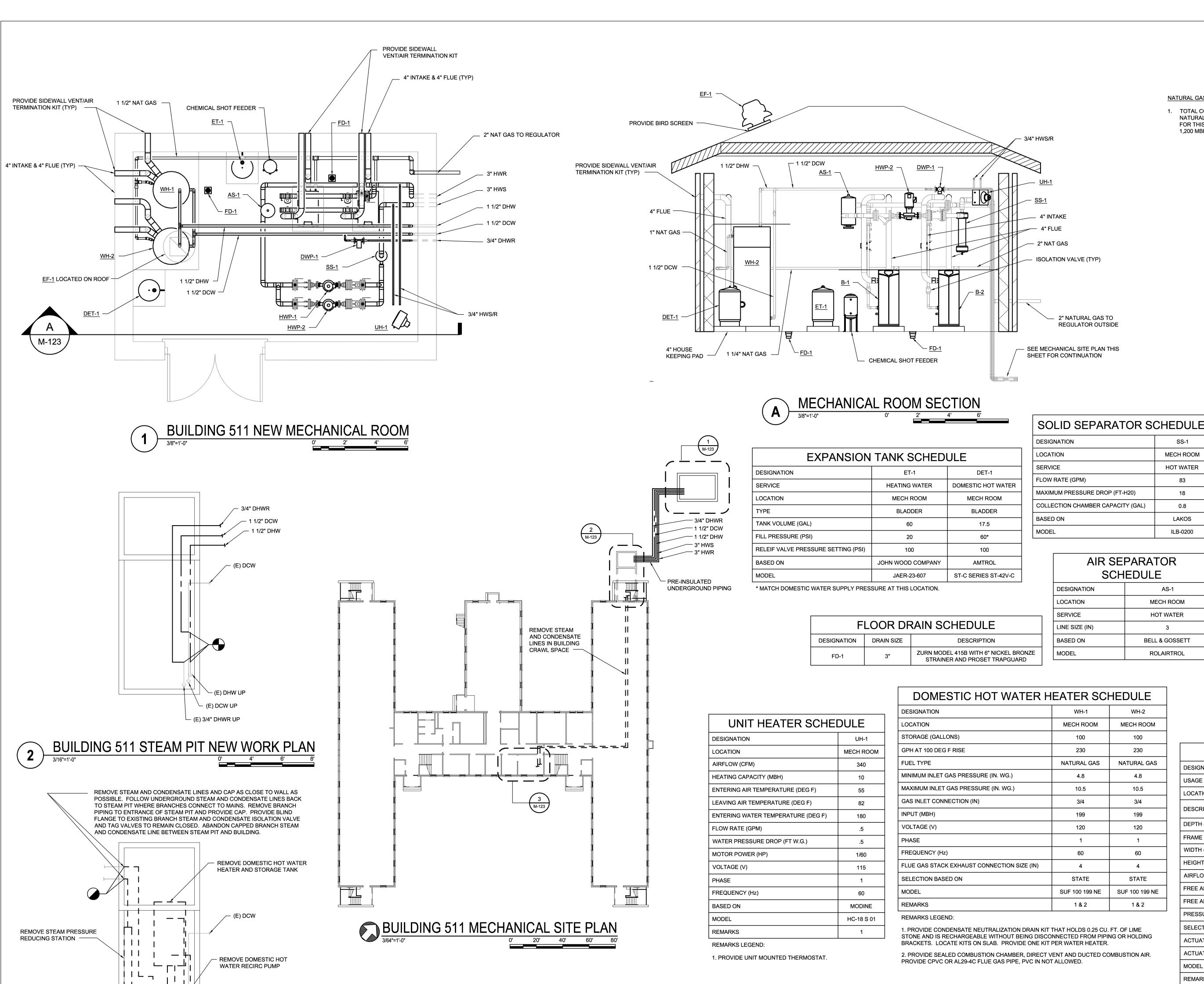
2. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR.

PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

		Wiley Wilsor 6606 West Broad S Richmond, Virginia 804.254.7242 wileywilson.com	St., Suite 500			PRO
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	DR.	SWL			BOILER I	MODIFICA <sup>-</sup>
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	SUBMITTED BY:				BUILDING	507 MECHANIC
S IOANNIS MASOURAS A	DESIGN DIR.					NEW WORK
1	APPROVED: PWO	OR OICC	DATE	SIZE	CODE IDENT NO.	
Lic. No. 035863				E	80091	
8/22/12	SATISFACTORY	ТО	DATE			CONSTR CONTR I

M - 122OJECT NO. CP12-0104 VAL FACILITIES ENGINEERING COMMAND RPS BASE RTH CAROLINA ATIONS, VARIOUS ADNOT POINT IICAL DEMOLITION AND

K PLAN NAVFAC DRAWING NO. 60011298 CONSTR CONTR NO. N40085-12-B-0104 SCALE: AS SPEC No. 05-12-0104 SHEET 34 OF 43



REMOVE STEAM AND CONDENSATE

RE-USE FLOOR PENETRATIONS FOR

3

RETURN PIPING DOWN THROUGH

FLOOR AND BACK TO STEAM PIT

NEW HOT WATER PIPING

REMOVE SHELL AND TUBE

**EXISTING TO REMAINC CHILLED** 

AND HOT WATER PIPING

REMOVE HOT WATER PUMP

**EXISTING TO REMAIN** 

CHILLED WATER PUMP

HEAT EXCHANGER

**BUILDING 511 ENLARGED INTERIOR** 

MECHANICAL DEMOLITION PLAN

REMOVE CONDENSATE PUMP

Contractor shall comply as follows:

└─ (E) DCW UP

DISCLOSURE OF INFORMATION

medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the

release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of

— (E) 3/4" DHWR UP

**BUILDING 511 STEAM PIT DEMOLITION PLAN** 

(2) The information is otherwise in the public domain before the date of release.

requests for authorization to release through the prime contractor to the Contracting Officer.

(1) The Contracting Officer has given prior written approval; or

DOMESTIC HOT WATER F	IEATER SCI	HEDULE
DESIGNATION	WH-1	WH-2
LOCATION	MECH ROOM	MECH ROOM
STORAGE (GALLONS)	100	100
GPH AT 100 DEG F RISE	230	230
FUEL TYPE	NATURAL GAS	NATURAL GAS
MINIMUM INLET GAS PRESSURE (IN. WG.)	4.8	4.8
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10.5	10.5
GAS INLET CONNECTION (IN)	3/4	3/4
INPUT (MBH)	199	199
VOLTAGE (V)	120	120
PHASE	1	1
FREQUENCY (Hz)	60	60
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4
SELECTION BASED ON	STATE	STATE
MODEL	SUF 100 199 NE	SUF 100 199 NE
REMARKS	1 & 2	1 & 2
REMARKS LEGEND:		

I. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING

**DEMOLITION NOTES** 

NATURAL GAS NOTE:

SS-1

MECH ROOM

HOT WATER

8.0

ILB-0200

AS-1

MECH ROOM

HOT WATER

**BELL & GOSSETT** 

ROLAIRTROL

1. TOTAL CONNECTED

NATURAL GAS DEMAND

FOR THIS BUILDING IS

1,200 MBH AT 10 IN-H20.

1. REMOVE HOT WATER PIPING, PUMPS, HEAT EXCHANGERS AND EXPANSION TANKS AS SHOWN. REMOVE ALL ASSOCIATED PIPING, SUPPORTS AND HANGERS. REMOVE ALL STEAM SUPPLY AND CONDENSATE RETURN PIPING, COMPONENTS,

HANGERS AND EQUIPMENT. 2. CHILLED WATER SYSTEM IS EXISTING TO REMAIN AND SHALL NOT BE INTERRUPTED DURING CONSTRUCTION.

EXISTING CONTROLS TO REMAIN FOR MODIFICATION AND INTEGRATION WITH NEW BACNET EMCS SYSTEM.

4. THE EQUIPMENT AND BUILDING LAYOUT IS BASED ON THE BASIS OF DESIGN EQUIPMENT CLEARANCES. ANY MODIFICATION REQUIRED FOR ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE PROVIDED BY THE CONTRACTOR IF NECESSARY.

# GENERAL NOTES

1. SEE GENERAL NOTES ON SHEET M-001.

2. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT. FOR BOILERS, PROVIDE A MINIMUM 30" PIPING AND MAINTENANCE CLEARANCE ON ALL SIDES. AT LEAST EVERY OTHER SIDE SHALL HAVE 30" CLEAR FLOOR SPACE FOR PERSONNEL ACCESS. FOR WATER HEATERS, PROVIDE MINIMUM 15" CLEARANCE TO THE SIDES AND REAR AND A MINIMUM 30" IN THE FRONT.

ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. ALL PIPING OFFSETS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

- INSTALL GAS PIPE IN ACCORDANCE WITH 2012 NORTH CAROLINA FUEL GAS CODE. PROVIDE HOSE BIB AND 1/2" CONNECTION FOR FILLING IN NEW MECHANICAL ROOM. 6. PROVIDE FLOOR DRAINS AS SHOWN ON FLOOR PLAN. CONTRACTOR TO VERIFY NEAREST SEWER MAIN. FOR PRICING
- PURPOSES, ASSUME 200 YARDS OF SANITARY PIPING. PROVIDE VENT THROUGH ROOF FOR FLOOR DRAINS IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.

3. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR

- 7. STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.
- 8. PROVIDE APPURTENANCES TO COMPLY WITH ASME CSD-1, INCLUDING BUT NOT LIMITED TO MUSHROOM TYPE EMERGENCY SHUTDOWN SWITCH LOCATED ADJACENT TO EXIT DOOR.
- 9. NEW HOT WATER PIPES TO BE ROUTED IN CRAWL SPACE FROM NEW MECHANICAL ROOM TO EXISTING INTERIOR BUILDING MECHANICAL ROOM.

DESIGNATION

USAGE

MECHANICAL ROOM.				
BOILER SCHEDULE				
DESIGNATION	B-1	B-2		
LOCATION	MECH ROOM	MECH ROOM		
FUEL TYPE	NATURAL GAS	NATURAL GAS		
MINIMUM INLET GAS PRESSURE (IN. WG.)	4	4		
MAXIMUM INLET GAS PRESSURE (IN. WG.)	10	10		
GAS INLET CONNECTION (IN)	1	1		
INPUT (MBH)	399	399		
OUTPUT (MBH)	375	375		
MINIMUM TURN DOWN RATIO	5:1	5:1		
FLOWRATE (GPM)	30	30		
MAXIMUM PRESSURE DROP (FT_H20)	8	8		
ENTERING WATER TEMPERATURE (DEG F)	160	160		
LEAVING WATER TEMPERATURE (DEG F)	185	185		
MINIMUM OPERATING PRESSURE (PSI)	30	30		
VOLTAGE (V)	120	120		
PHASE	1	1		
FREQUENCY (Hz)	60	60		
TOTAL OPERATING AMPS	1.5	1.5		
FLUE GAS STACK EXHAUST CONNECTION SIZE (IN)	4	4		
SELECTION BASED ON	LOCHINVAR	LOCHINVAR		
MODEL REMARKS	KB-400	KB-400		
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4		

OUNCE	EXIIAGGI
SERVES ROOM(S)	MECH ROOM
DESCRIPTION	CENTRIFUGAL
FAN DATA	
AIRFLOW (SCFM)	550
TOTAL SP (IN-H2O)	.15
RPM	1630
DRIVE TYPE	DIRECT
MOTOR DATA	
HORSEPOWER	1/6
RPM	1725
VOLTS	115
PHASE	1
HERTZ	60
SELECTION BASED ON	GREENHECK
MODEL	G-085-VG
REMARKS	1, 2 & 3

2. PROVIDE FAN WITH UNIT MOUNTED DISCONNECT.

**HOT WATER** 

MECH ROOM

83

182JM

1750

208

**BELL & GOSSETT** 

80 2x2x7

60011299

N40085-12-B-0104

SHEET 35 OF 43

**FAN SCHEDULE** 

**EXHAUST** 

DWP-1

DOMESTIC HOT

WATER

MECH ROOM

INLINE

20

1.5

1.5

2650

115

60

BELL &

GOSSETT

BOOSTER PL-30

PREP'D BY DATE APPROVED

REMARKS LEGEND:

1. PROVIDE CONDENSATE NEUTRALIZATION DRAIN KIT THAT HOLDS 0.25 CU. FT. OF LIME STONE AND IS RECHARGEABLE WITHOUT BEING DISCONNECTED FROM PIPING OR HOLDING BRACKETS. LOCATE KITS ON SLAB. PROVIDE ONE KIT PER BOILER.

MODEL

REMARKS

SELECTION BASED ON (MFGR)

2. BOILER CIRCULATION PUMP TO BE PROVIDED BY MANUFACTURER AT 30 GPM AT 25 DELTA T. 3. PROVIDE SEALED COMBUSTION CHAMBER, DIRECT VENT AND DUCTED COMBUSTION AIR. PROVIDE CPVC OR AL29-4C FLUE GAS PIPE, PVC IN NOT ALLOWED.

4. PROVIDE BOILERS WHICH ARE AT LEAST 94% EFFICIENT BASED ON BTS-2000, REV 06.07 CONDITIONS.

## PROVIDE WALL MOUNTED THERMOSTAT CONTROL. WIRE INTAKE LOUVER DAMPER IN SERIES WITH FAN TO OPEN UPON FAN OPERATION.

PUMP SCHEDULE

**HOT WATER** 

MECH ROOM

INLINE

83

50

50

2

182JM

1750

208

**BELL & GOSSETT** 

80 2x2x7

LOUVER SCH	DESIGNATION	
LOUVER SCH	IEDOLE	SERVICE
ESIGNATION	L-1	
SAGE	INTAKE	LOCATION
DCATION	MECH ROOM	TYPE
CODIDITION	COMBINATION	PUMP DATA
ESCRIPTION	LOUVER/DAMPER	FLOW (GPM)
EPTH (IN)	8	TOTAL HEAD (FT-H2O)
RAME TYPE	CHANNEL	MINIMUM EFFICIENCY (%)
IDTH (IN)	32	CONNECTION SIZE
EIGHT (IN)	16	SUCTION (IN)
RFLOW (CFM)	550	DISCHARGE (IN)
REE AREA (SF)	.75	MOTOR DATA
REE AREA VELOCITY (FPM)	734	MOTOR FRAME
RESSURE DROP (IN H20)	.067	HORSEPOWER
ELECTION BASE ON	GREENHECK	RPM
CTUATOR TYPE	120 VAC	VOLTS
CTUATOR FAIL POSITION	CLOSED	PHASE
ODEL	EAC-601	HERTZ

REMARKS LEGEND:

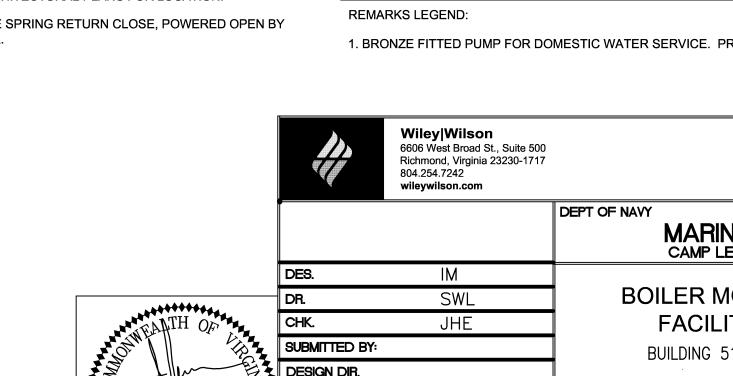
REMARKS

1. SUBMIT COLOR CHART. COLOR TO BE APPROVED BY

2. SEE ARCHITECTURAL PLANS FOR LOCATION. 3. PROVIDE SPRING RETURN CLOSE, POWERED OPEN BY

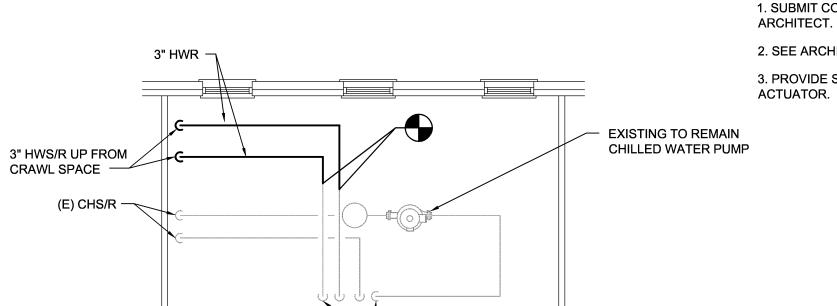
1, 2 & 3

1. BRONZE FITTED PUMP FOR DOMESTIC WATER SERVICE. PROVIDE AQUASTAT CONTROL.



M - 123PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA **BOILER MODIFICATIONS, VARIOUS** FACILITIES, HADNOT POINT BUILDING 511 MECHANICAL DEMOLITION AND DESIGN DIR. NEW WORK PLAN

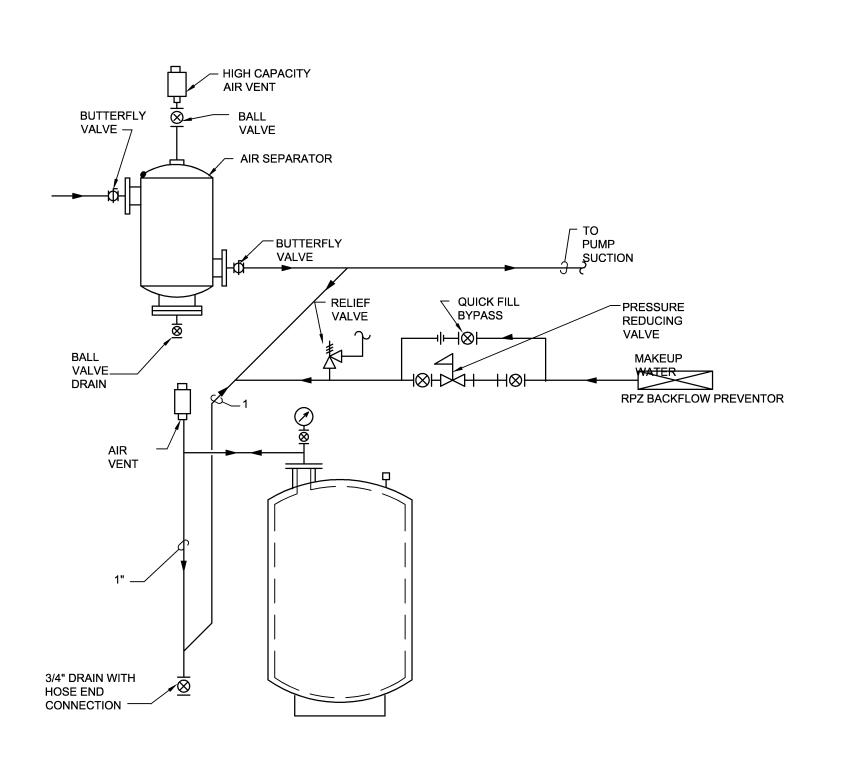
DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. APPROVED: PWO OR OICC Lic. No. 035863 DATE CONSTR CONTR NO. SATISFACTORY TO SCALE: AS SPEC No. 05-12-0104



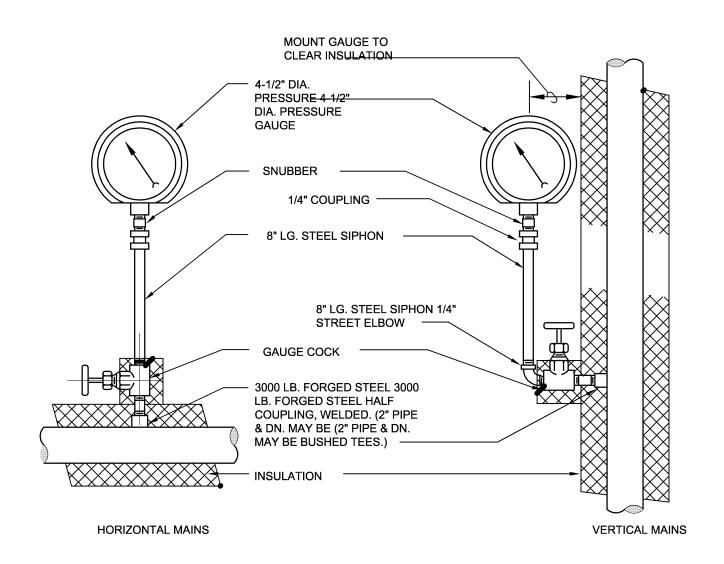
**EXISTING TO REMAINC CHILLED** 

AND HOT WATER PIPING

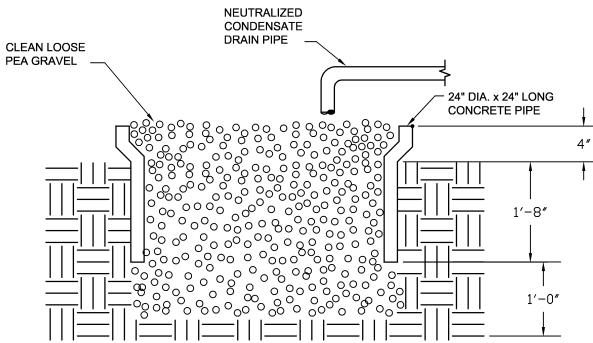
**BUILDING 311 ENLARGED INTERIOR** MECHANICAL NEW WORK PLAN

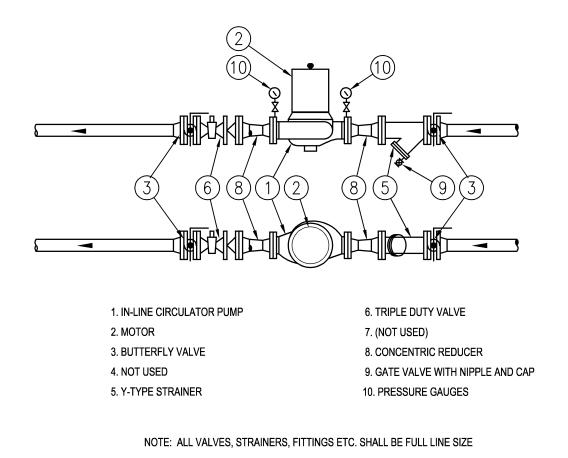


# PRE-PRESSURIZED BLADDER TYPE **EXPANSION TANK** SCALE: NONE

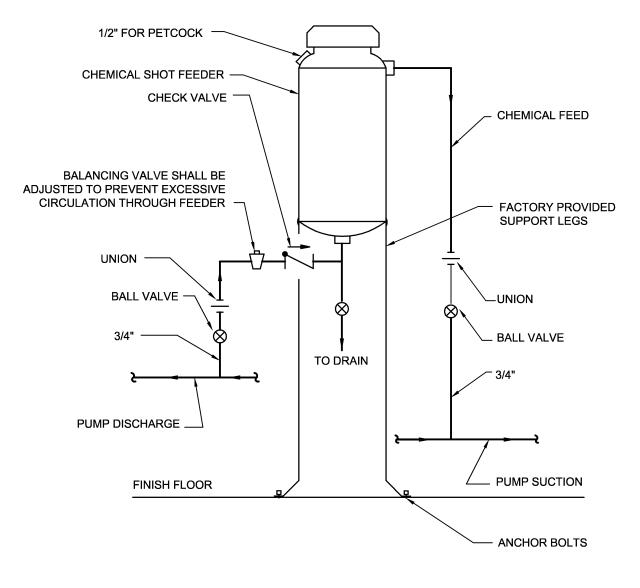


CHILLED, CONDENSER, AND HOT WATER GAUGE ASSEMBLY SCALE: NONE

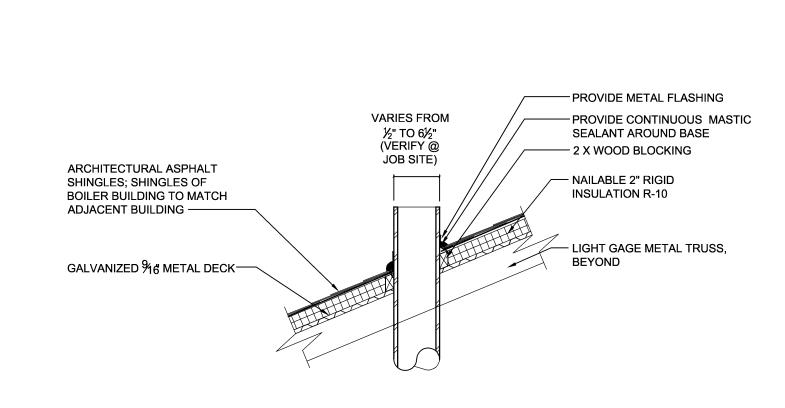




IN-LINE CIRCULATOR PUMP SCALE: NONE

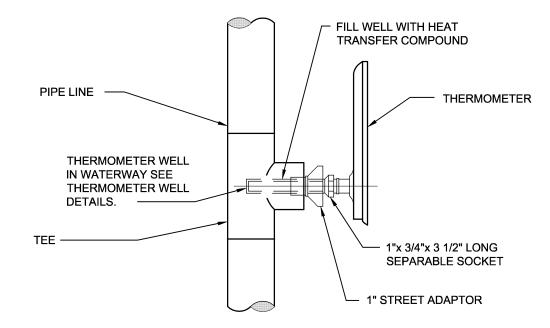


CHEMICAL SHOT FEEDER DETAIL NOT TO SCALE

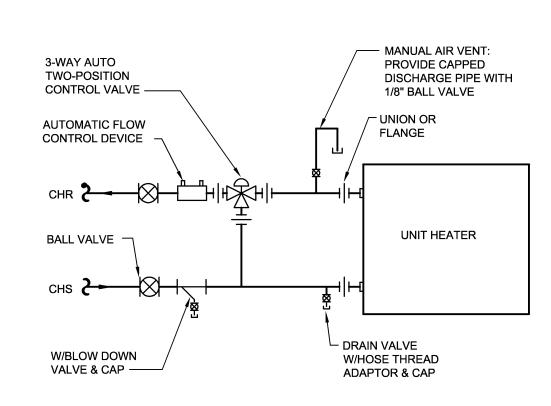


PREP'D BY DATE APPROVED

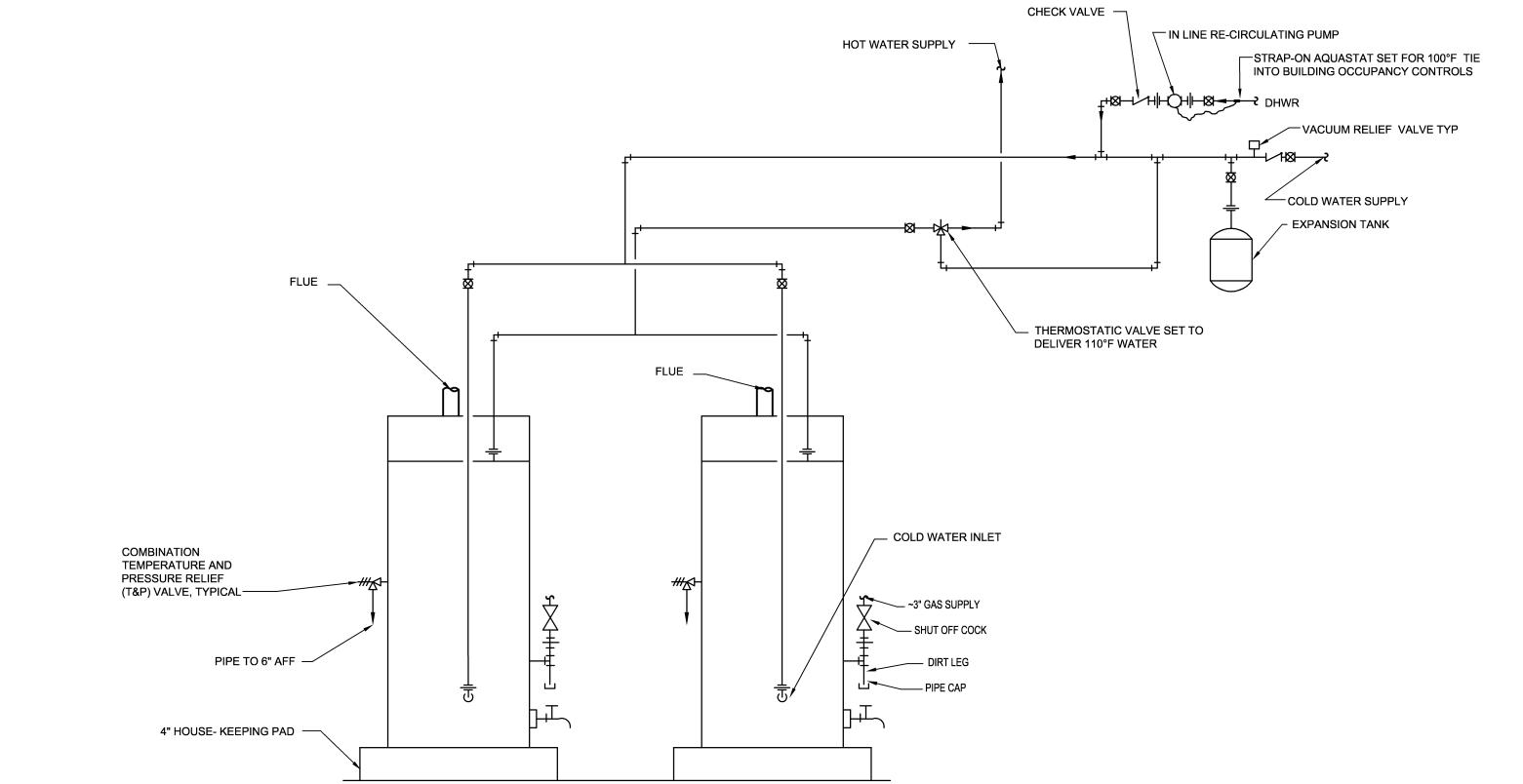
ROOF PENETRATION DETAIL



TYPICAL THERMOMETER INSTALLATION SCALE: NONE



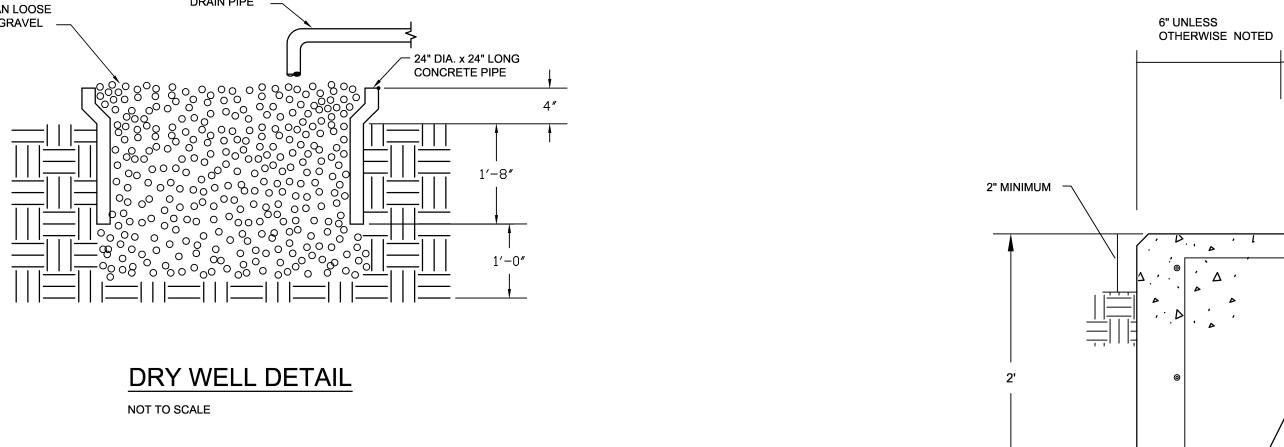
3-WAY UNIT HEATER PIPING DETAIL SCALE: NONE



GAS WATER HEATER DETAIL

SCALE: NONE

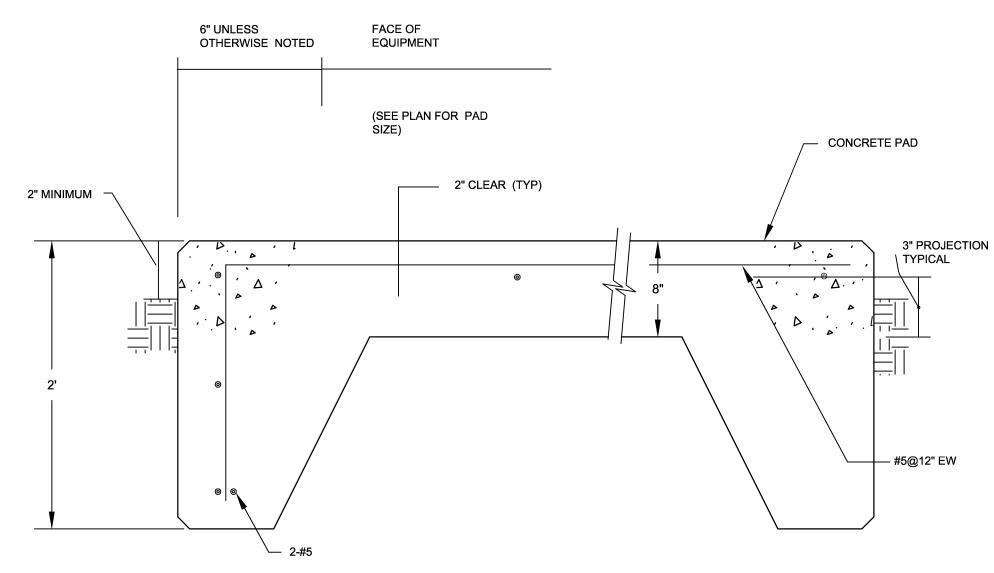
NOTE: DETAILS SHOWN AS TYPICAL. PROVIDE ALL ADDITIONAL COMPONENTS AS REQUIRED BY MANUFACTURERS INSTALLATION AND OPERATION MANUAL. INSTALL GAS PIPING AND APPURTENANCES IN ACCORDANCE WITH NORTH CAROLINA FUEL GAS CODE, LATEST EDITION.



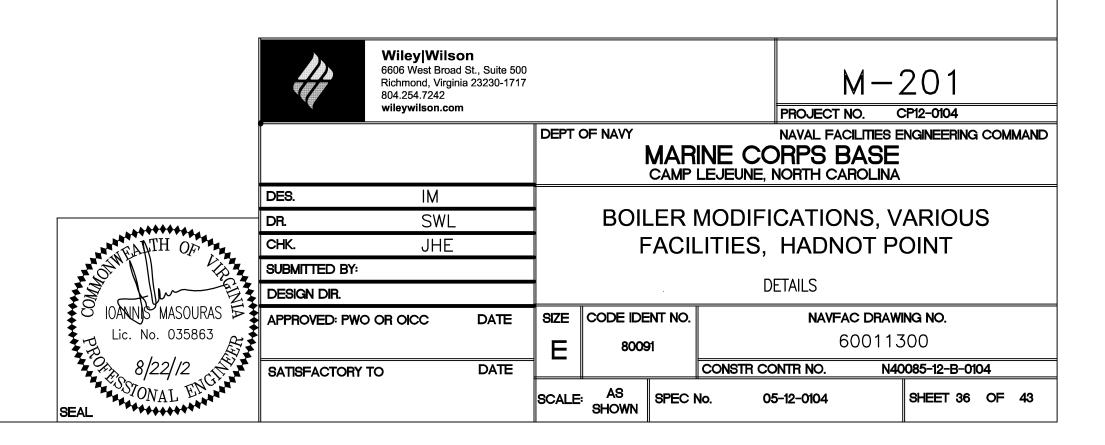
# DISCLOSURE OF INFORMATION

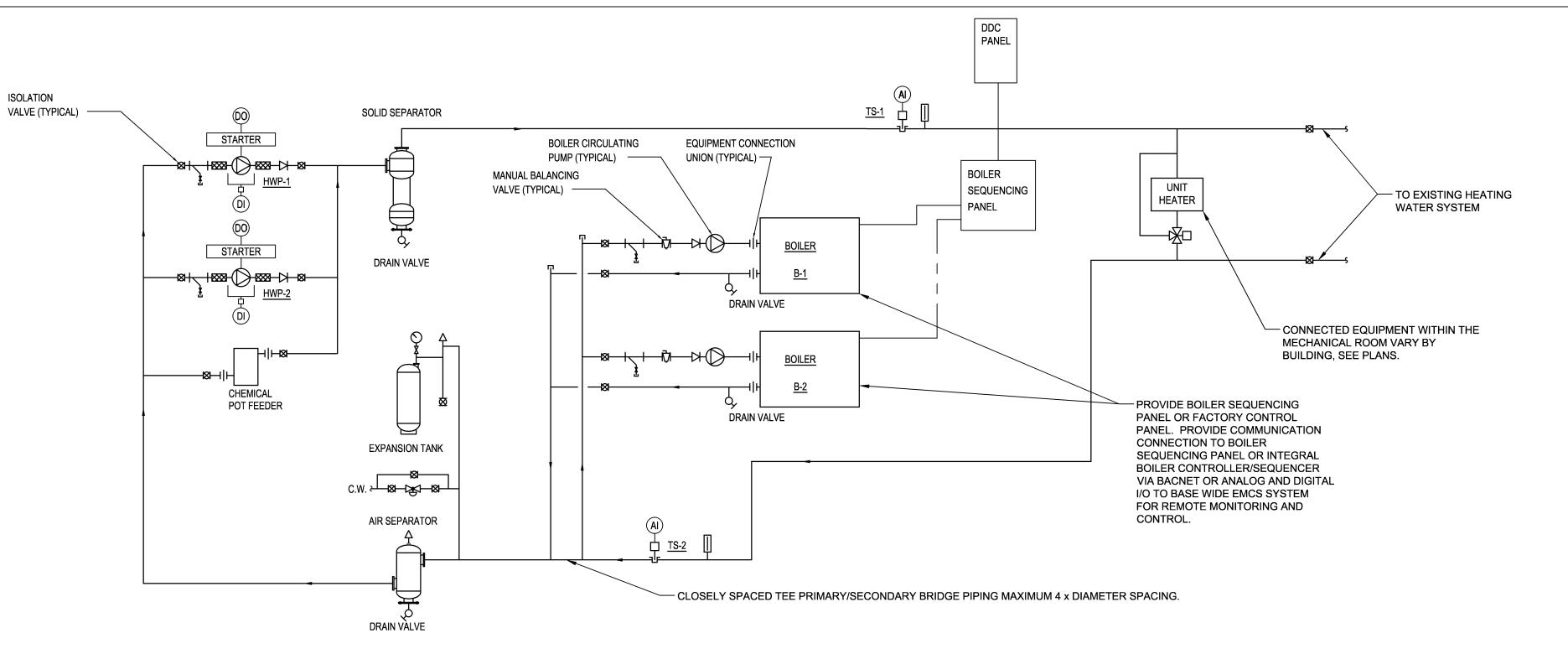
# Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
  - (1) The Contracting Officer has given prior written approval; or (2) The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.



EXTERIOR EQUIPMENT PAD DETAIL





# HEATING WATER SYSETM CONTROL DIAGRAM

SCALE: NONE (SYSTEM TYPICAL FOR ALL BUILDINGS)

PROVIDE A COMPLETE PACKAGED BOILER CONTROL SYSTEM, EITHER A SEPARATE SEQUENCING PANEL OR INTEGRAL BOILER CONTROLLER.

ON A CALL FOR HEAT THE DIGITAL CONTROLLER SHALL ENABLE THE LEAD HEATING WATER PUMP AND SEND A SIGNAL TO THE BOILER SEQUENCING CONTROLLER TO ENABLE THE BOILERS. THE BOILERS CIRCULATING PUMPS SHALL BE HARD-WIRED TO THE BOILER CONTROL PANEL AND CONTROLLED DIRECTLY BY THE FACTORY BOILER CONTROLLER TO ENERGIZE WHEN THE BOILER IS ENABLED.

THE BOILER SEQUENCING PANEL SHALL CONTROL THE HOURS OF OPERATION AND THE STANDBY OR DUTY STATUS OF THE BOILERS, THE DIGITAL CONTROLLER SHALL ONLY BE ALLOWED TO ADJUST THE DISCHARGE SET-POINT FOR THE SYSTEM AND ENABLE OR DISABLE TO BOILER SYSTEM. THE BOILERS SHALL BE SEQUENCED PER THE MANUFACTURER'S STANDARD SEQUENCE OF OPERATION TO MAXIMIZE SYSTEM EFFICIENCY TO DELIVER A MAXIMUM HEATING WATER SUPPLY TEMPERATURE OF 180°F (REMOTELY ADJUSTABLE) AS SENSED BY TEMPERATURE SENSOR <u>TS-1</u>. PROVIDE OUTSIDE AIR TEMPERATURE RESET CONTROL OF HEATING WATER SYSTEM TEMPERATURE FROM 180°F (ADJUSTABLE) AT 23°F (ADJUSTABLE) OUTSIDE AIR TEMPERATURE, TO 140°F (ADJUSTABLE) AT 55°F (ADJUSTABLE) OUTSIDE AIR TEMPERATURE.

THE LEAD BOILER SHALL ALTERNATE POSITION. IF THE LEAD PUMP FAILS TO OPERATE, THE STANDBY PUMP SHALL BE STARTED, THE LEAD PUMP SHALL BE STOPPED AND AN ALARM SIGNAL SHALL BE SENT TO THE DIGITAL CONTROLLER.

WHERE PUMPS OPERATE IN LEAD-STANDBY OPERATION, THE PUMPS PUMPS SHALL AUTOMATICALLY SWITCH FROM LEAD TO STANDBY AND STANDBY TO LEAD AFTER EVERY 250 HOURS OPERATION AT THE NEXT AVAILABLE TIME.

A DIFFERENTIAL PRESSURE SWITCH INSTALLED ACROSS THE FACTORY PROVIDED PRESSURE TAPS OF THE PUMPS SHALL SERVE OF PROOF OF PUMP OPERATION. IF PUMP FAILS TO OPERATE WITHIN 2 MINUTES OF AN ENABLE COMMAND, THE DIGITAL CONTROLLER SHALL SEND AN ALARM.

TEMPERATURE SENSORS SHALL BE INSTALLED AS SHOWN ON THE FLOW SCHEMATIC FOR THE PURPOSE OF MONITORING AND CONTROLLING THE SYSTEM. IF THE TEMPERATURE SENSED IS 20°F MORE OR LESS THAN COMMANDED OR EXPECTED, AN ALARM SIGNAL SHALL BE SENT TO THE DIGITAL CONTROLLER.

ALL OF THE POINTS INDICATED SHALL BE VIEWABLE FROM THE BASE WIDE EMCS. IN ADDITION, FOR EACH BOILER, FOLLOWING POINTS SHALL BE VIEWABLE ON THE EMCS:

1. BOILER LEAVING WATER TEMPERATURE

2. BOILER LEAVING WATER TEMPERATURE SETPOINT

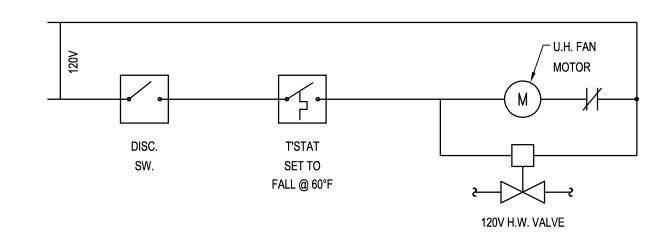
3. BOILER FIRING STATUS
4. BOILER ALARM STATUS

5. BOILER STATUS (ENABLE/DISABLE).

NOTE: DEPENDING ON THE CONFIGURATION OF THE INDIVIDUAL BUILDING, THE HEATING WATER SUPPLY PUMPS MAY BE REMOTELY LOCATED INSIDE THE BUILDING SERVED.

IF THE BUILDING HAS AN EXISTING DUAL TEMPERATURE SYSTEM CONTROLLED BY A MANUAL HEATING/COOLING CHANGEOVER SWITCH, THE NEW SYSTEM SHALL BE INCORPORATED INTO THE EXISTING CHANGEOVER CONTROL.

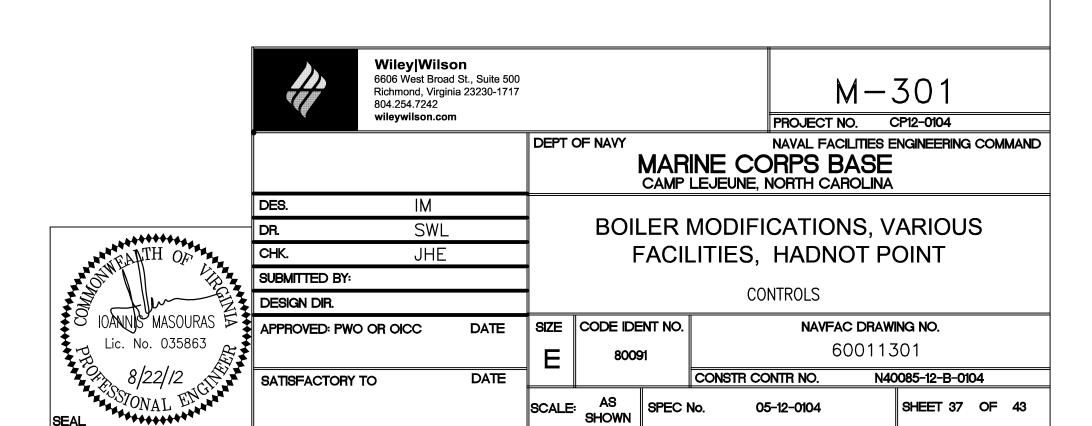
IF NEW BOILER CONTROLLER DOES NOT INCLUDE BACNET MS/TP BUS, PROVIDE GATEWAY TO CONVERT BOILER CONTROL PROTOCOL TO APPROPRIATE PROTOCOL.



PREP'D BY DATE APPROVED

# TYPICAL HOT WATER UNIT HEATER CONTROL DIAGRAM

SCALE: NONE



# DISCLOSURE OF INFORMATION

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- medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
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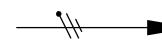
  c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit
- requests for authorization to release through the prime contractor to the Contracting Officer.

TYPE B

# ELECTRICAL LEGEND



RACEWAY RUN SURFACE MOUNTED, WITH PHASE, NEUTRAL AND GROUND CONDUCTOR UNLESS NOTED OTHERWISE. PROVIDE 2,3 OR 4 WAY SWITCH LEG CONDUCTORS PER SWITCH TYPE INDICATED ON PLAN. TIC MARKS INDICATE MORE THEN 3 WIRES IN RACEWAY.



HOMERUN RACEWAY RUN SURFACE MOUNTED,

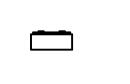
BRANCH CIRCUIT PANELBOARD. SIZE AND DESCRIPTION AS SCHEDULED. TOP: +6'-0" AFF.



DRY TYPE SECONDARY TRANSFORMER. SIZE AS INDICATED.



DISCONNECT SWITCH. POLES, AMPS, VOLTS, FUSED AND ENCLOSURE TYPE AND SIZED PER NEC FOR THE EQUIPMENT SUPPLIED. UNO. TOP: +5'-0" AFF.



FUSED COMBINATION MAGNETIC STARTER, SIZE AND POLES INDICATED IN NEMA 12 ENCLOSURE WITH ON AND OFF DOOR MOUNTED PUSHBUTTON CONTROLS. SIZE THERMAL UNIT PER NEC FOR MOTOR SUPPLIED. TOP: +5'-0" AFF.



120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX RECEPTACLE. MOUNTING HEIGHT: CENTER +36" AFF UNO.



MOUNTING HEIGHT: CENTER +136" AFF UNO.

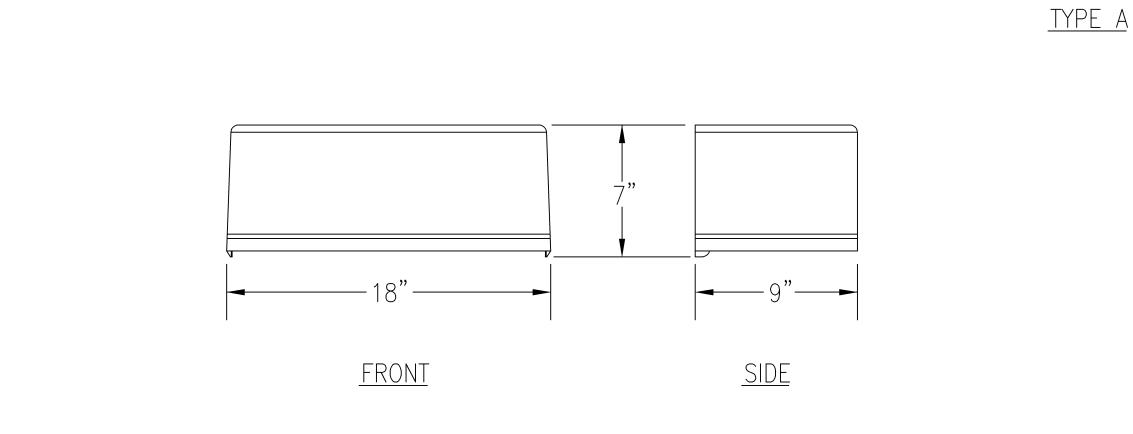
120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX GROUND FAULT CIRCUIT

INTERRUPTING RECEPTACLE. MOUNTING HEIGHT: CENTER +18" AFF UNO.

120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DOUBLE DUPLEX RECEPTACLE.



120 VOLT, 20 AMP, 3-WIRE, NEMA 5-20 DUPLEX GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE WITH DUAL HINGED WEATHERPROOF GASKETED COVER. MOUNTING HEIGHT: CENTER +18" AFF UNO.



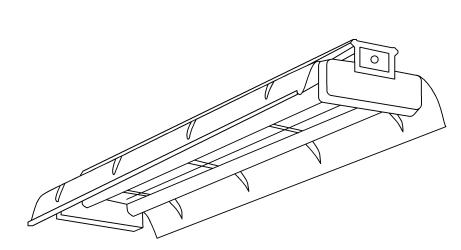
# LUMINAIRE REQUIREMENTS:

- 1. HOUSING —TWO—PIECE, NEMA 3R, DIE—CAST ALUMINUM WITH A RIGID STEEL MOUNTING ATTACHMENT FITS DIRECTLY TO A 4" J-BOX OR WALL WITH A "HOOK-N-LOCK" MECHANISM HOUSING AND DOOR FRAME CONCEALED WHEN FIXTURE IS CLOSED. CONCEALED INTEGRAL CAST SLIP HINGES WITH STAINLESS STEEL HINGES.
- 2. FINISH POLYESTER POWDER COAT IN BRONZE FINISH.
- 3. DOOR DIE-CAST WITH TEMPERED GLASS LENS. HINGED DOOR SECURED IN PLACE VIA TWO CAPTIVE FASTENERS.
- 4. LENS 1/8" THICK HEAT— AND IMPACT—RESISTANT CLEAR TEMPERED GLASS
- 5. LAMPS 100 WATT METAL HALIDE
- 6. BALLAST HIGH POWER FACTOR BALLAST RATED FOR  $-20^{\circ}$ F FOR MH LAMP MODES.
- 7. CONTROL INTEGRAL PHOTOCELL
- 8. MOUNTING MOUNT 8' AFF
- 9. CERTIFICATION UL LISTED AND LABELED. CSA CERTIFIED FOR WET LOCATION.

ARCHITECTURAL FLOODLIGHT

LIGHTING PLATE:

NL-64



# LUMINAIRE REQUIREMENTS

- 1. HOUSING DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER.
- 2. FINISH MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH.
- 3. LAMPHOLDERS- PRESSURE-LOCKED TYPE ENCLOSED IN TURRET HOUSING.
- 4. REFLECTOR DIE-FORMED, COLD-ROLLED STEEL WITH TRANSVERSE RIBS FOR RIGIDITY. SOLID, 10% UPLIGHT APERATURE OR 20% UPLIGHT APERATURE AS INDICATED IN LIGHTING FIXTURE SCHEDULE.
- 5. LAMPS LINEAR FLUORESCENT T8, TYPICALLY WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- 6. BALLAST CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR ( $\geq$  .95), ELECTRONIC TYPE WITH SOUND RATING A. SEE SPECIFICATION OR LIGHTING FIXTURE SCHEDULE FOR BALLAST OPTIONS AND SPECIFICS.
- 7. MOUNTING SURFACE MOUNT
- 8. PROVIDE OPTION PLATED STEEL WIRE GUARD.
- 9. CERTIFICATION UL LISTED AND LABELED.

INDUSTRIAL FLUORESCENT

UE

**XFMR** 

LIGHTING PLATE:

NL-13

# **ELECTRICAL ABBREVIATIONS**

		M
A	AMPERES	MB
AF	AMPERE FRAME OR AMPERE FUSE	MCCB
AFD	ADJUSTABLE FREQUENCY MOTOR DRIVE UNIT	MCP
AFF	ABOVE FINISHED FLOOR	МН
AFG	ABOVE FINISHED GRADE	
AHU	AIR HANDLING UNIT	MLO
AWG	AMERICAN WIRE GUAGE	MS
BAS	BUILDING AUTOMATION SYSTEM	MSB
C	CONDUIT	MTD
CHWP	CHILLED WATER PUMP	MV
CKT CKT BKR	CIRCUIT CIRCUIT BREAKER	N
COMM	COMMUNICATIONS	NC
CT	CURRENT TRANSFORMER OR CABLE TRAY	NEC
	DISCONNECT SWITCH	NETA
DN DISC SV	DOWN	NF
E OR EXIST.	EXISTING	NIC
EA	EACH	NL
EF	EXHAUST FAN	NO
EM	EMERGENCY	NPZ
ENCL	ENCLOSURE	O.C.
ERU	ENERGY RECOVERY UNIT	os
EUEP	EXISTING UNDERGROUND ELECTRIC POWER	Р
EUTC	EXISTING UNDERGROUND COMMUNICATIONS	PBX
EWC	ELECTRIC WATER COOLER	PC
F	FLUSH MOUNTED IN WALL	PH
FTL	FEED THRU LUGS	PNL
FUS	FUSE	PWR
FVNR	FULL VOLTAGE NON-REVERSING	R
G	GROUND	RCPT
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED	S
GFI	GROUND FAULT INTERRUPTING	SCC
HP	HORSE POWER	STCB
HT	HEAT TRACE	SW
HWP	HOT WATER PUMP	SYM
JB	JUNCTION BOX	TC
KV	KILOVOLTS	TVSS
KVA	KILOVOLT AMPERES	1 400
KW	KILOWATTS	TYP
LAN LED	LOCAL AREA NETWORK LIGHT EMITTING DIODE	<del>-</del>
LLU		

MAIN OR METER MAIN CIRCUIT BREAKER MOLDED CASE CIRCUIT BREAKER MOTOR CIRCUIT PROTECTOR METAL HALIDE, MANHOLE, OR MOUNTING HEIGHT TO CENTER OF DEVICE **MAIN LUGS ONLY MAGNETIC STARTER** MAIN SWITCHBOARD **MOUNTED MEDIUM VOLTAGE NEUTRAL** NORMALLY CLOSED NATIONAL ELECTRICAL CODE NATIONAL ELECTRICAL TESTING ASSOCIATION **NON-FUSED NOT IN CONTRACT NON LINEAR** NORMALLY OPEN NAME PLATE IMPEDANCE **ON CENTER OCCUPANCY SENSOR POLE OR PRIMARY PULLBOX** PHOTOELECTRIC CELL **PHASE PANEL POWER RAINTIGHT** RECEPTACLE SINGLE POLE SINGLE THROW SHORT CIRCUIT CURRENT SHUNT TRIP CIRCUIT BREAKER **SWITCH** 

JOHN H. EPPERSON

No. 11087

8/22/12

SATISFACTORY TO

SYMMETRICAL

TRANSIENT VOLTAGE

**SURGE SUPPRESSOR** 

TIME CLOCK

**TYPICAL** 

**UNDERGROUND ELECTRIC UNIT HEATER UNLESS NOTED OTHERWISE VOLTS WATER HEATER WEATHERPROOF TRANSFORMER** WYE CONNECTED

6606 West Broad St., Suite 500 E - 001Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com PROJECT NO. CP12-0104 NAVAL FACILITIES ENGINEERING COMMAND DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA CDH **BOILER MODIFICATIONS, VARIOUS** 

CDH FACILITIES, HADNOT POINT JHE ELECTRICAL LEGEND. ABBREVIATION AND LIGHTING DETAILS DATE SIZE CODE IDENT NO.

SUBMITTED BY: DESIGN DIR. APPROVED: PWO OR OICC

NAVFAC DRAWING NO. 60011302 CONSTR CONTR NO. N40085-12-B-0104

05-12-0104

SHEET 38 OF 43

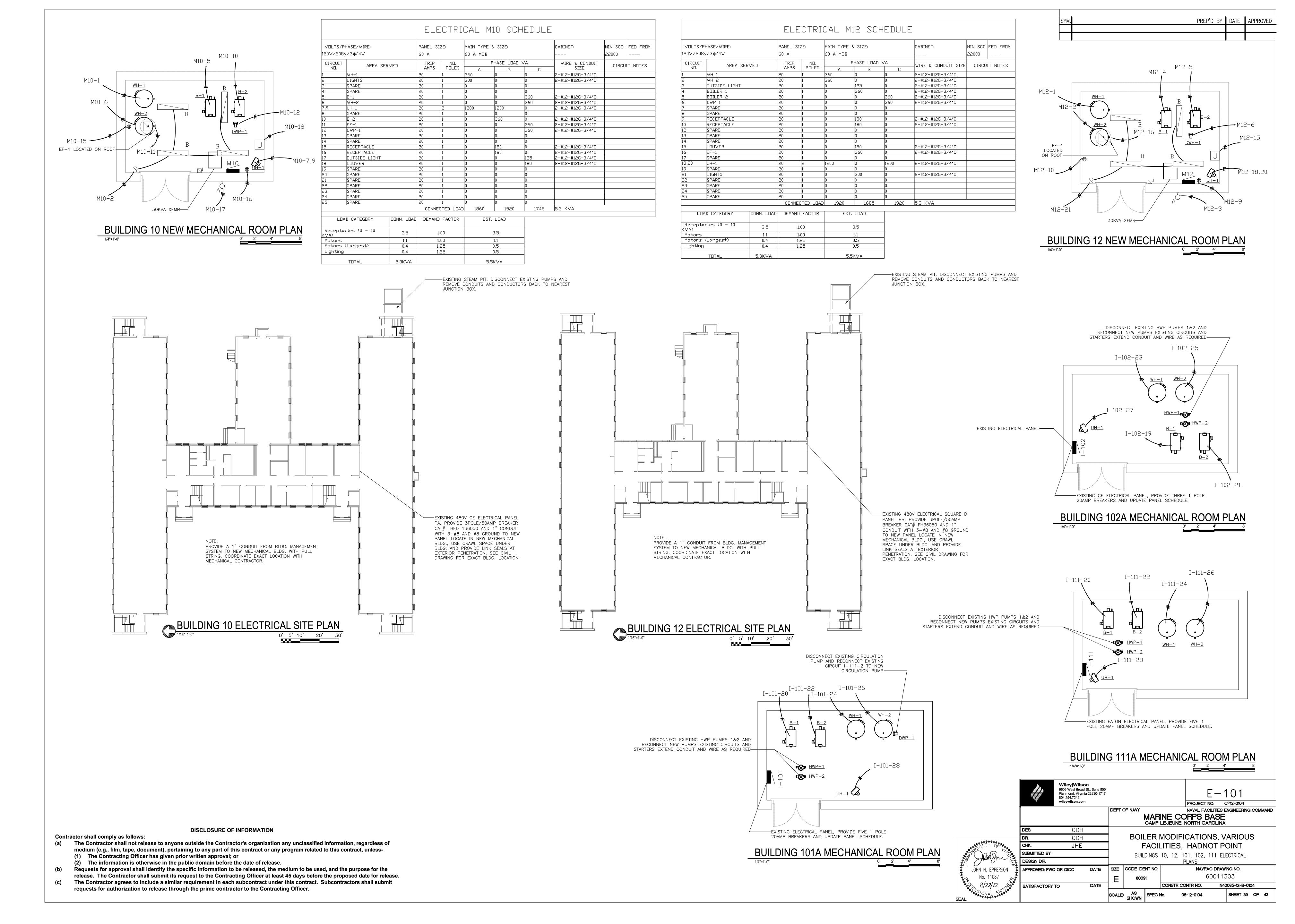
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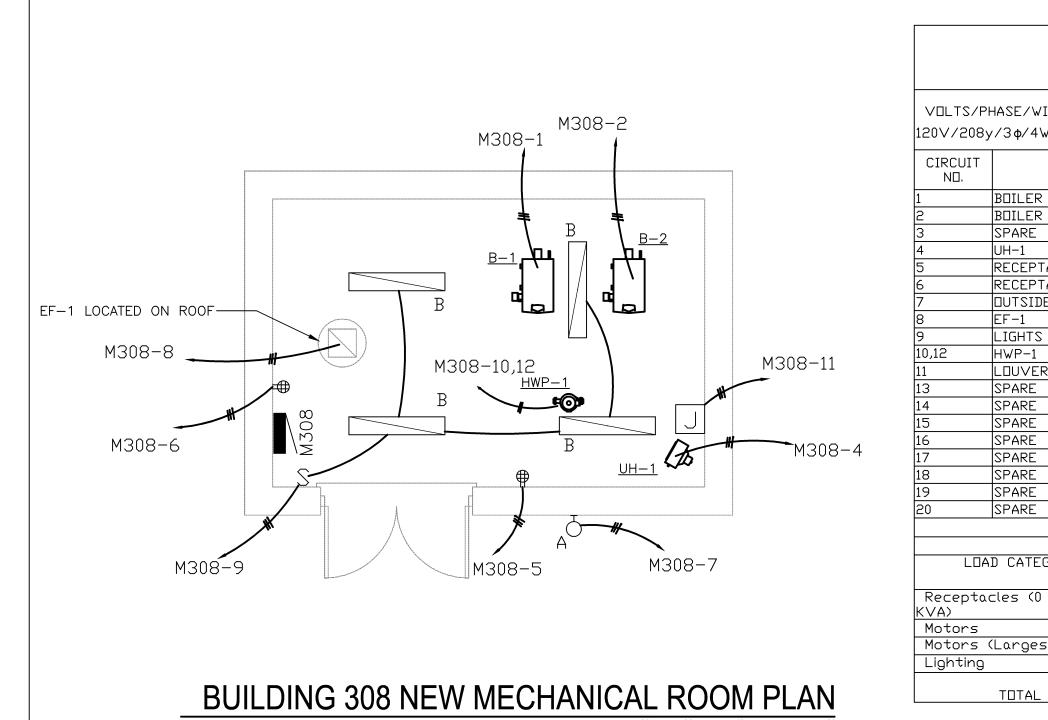
DISCLOSURE OF INFORMATION

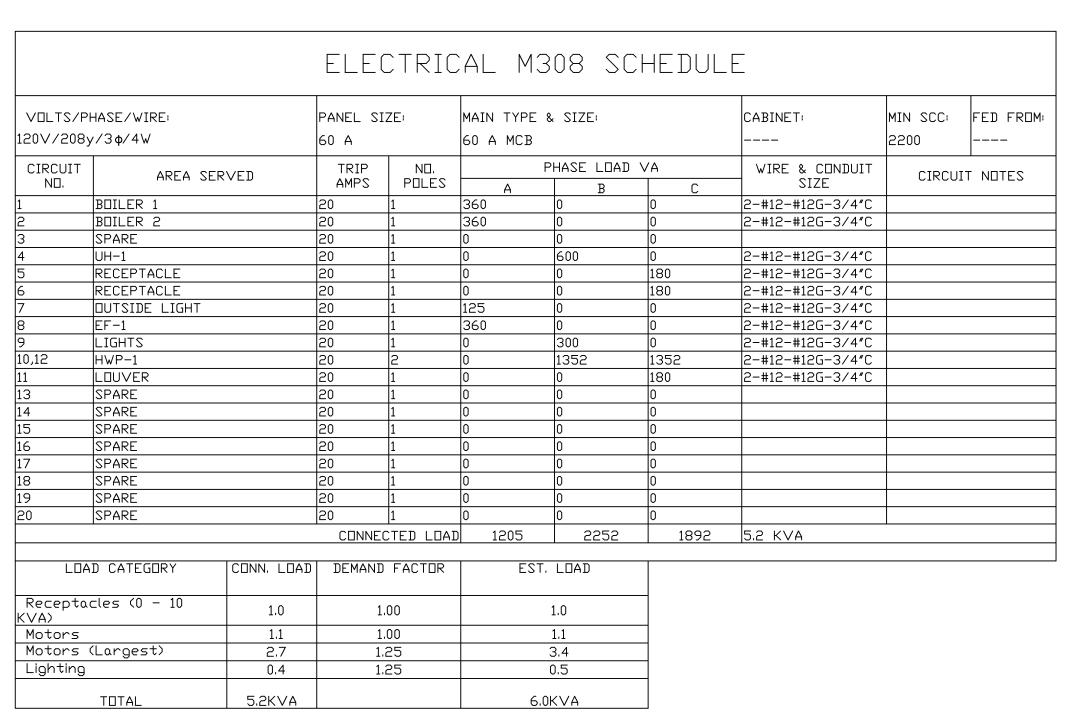
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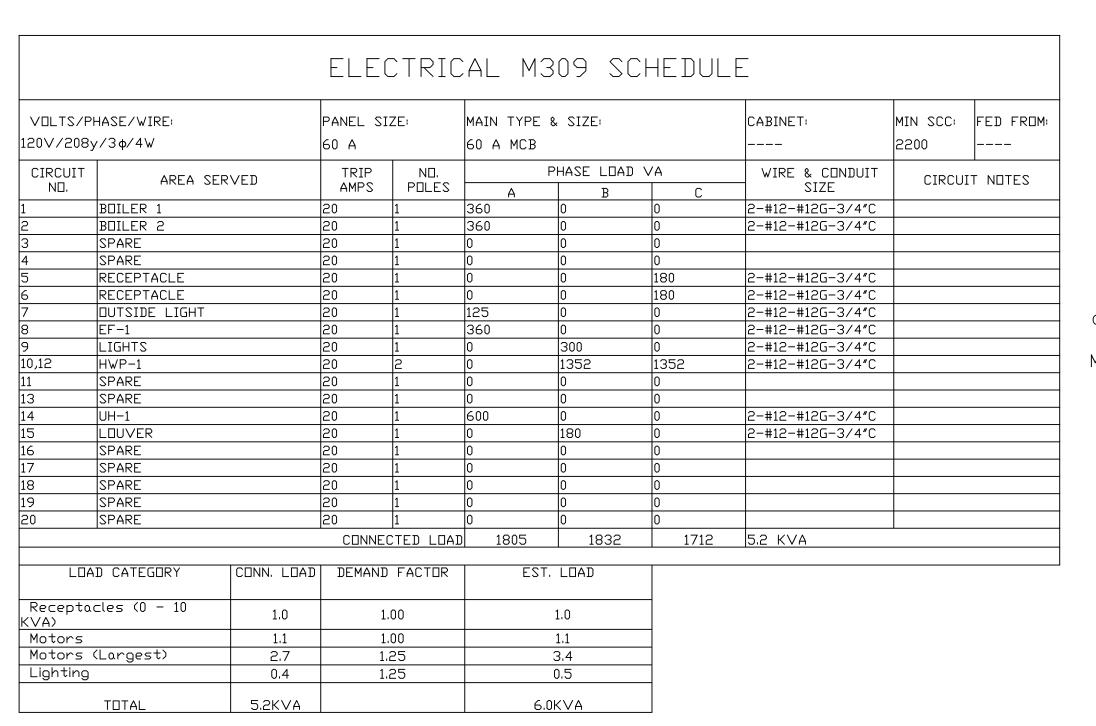
(2) The information is otherwise in the public domain before the date of release. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

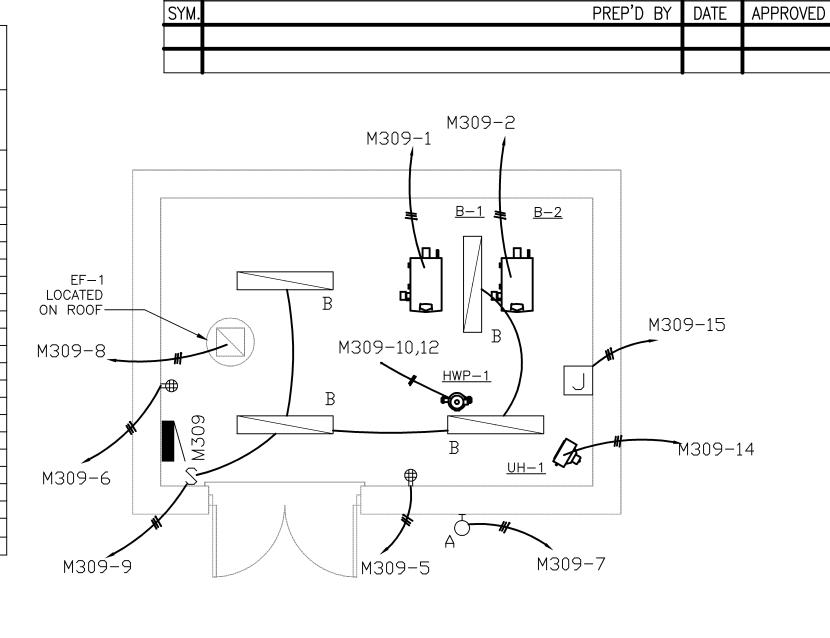
requests for authorization to release through the prime contractor to the Contracting Officer.



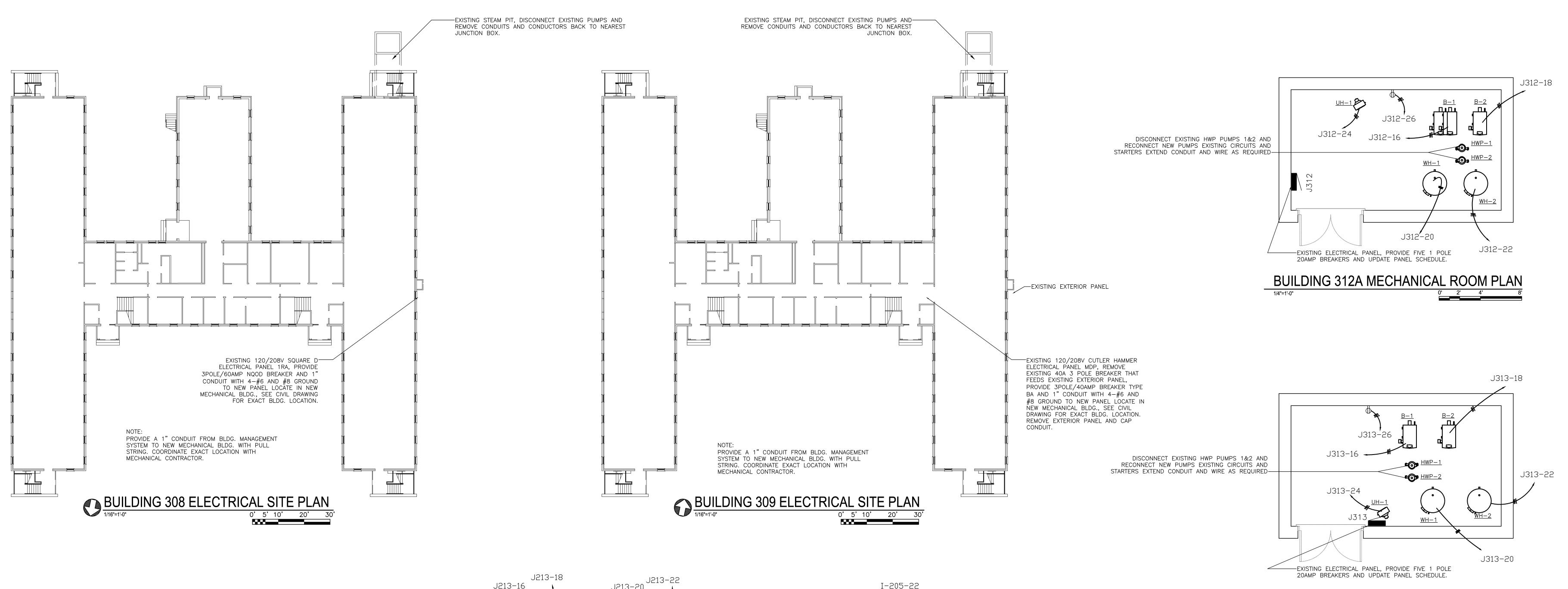


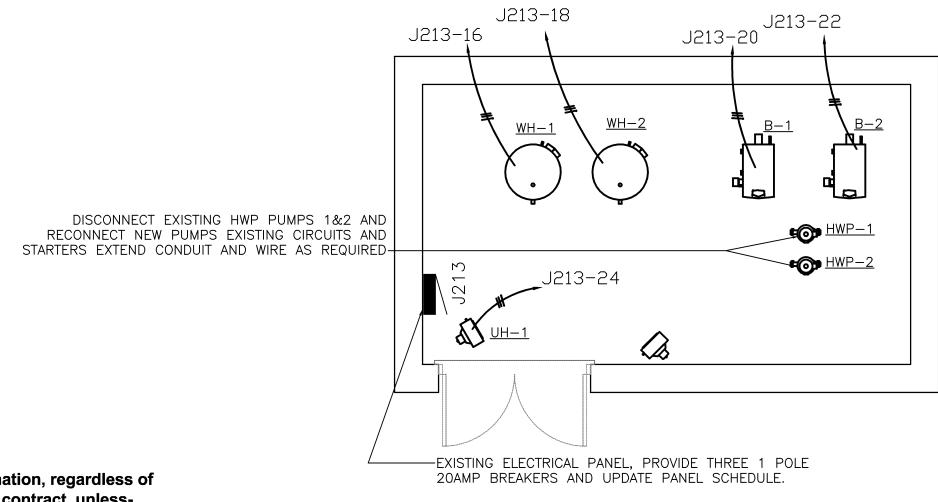






**BUILDING 309 NEW MECHANICAL ROOM PLAN** 

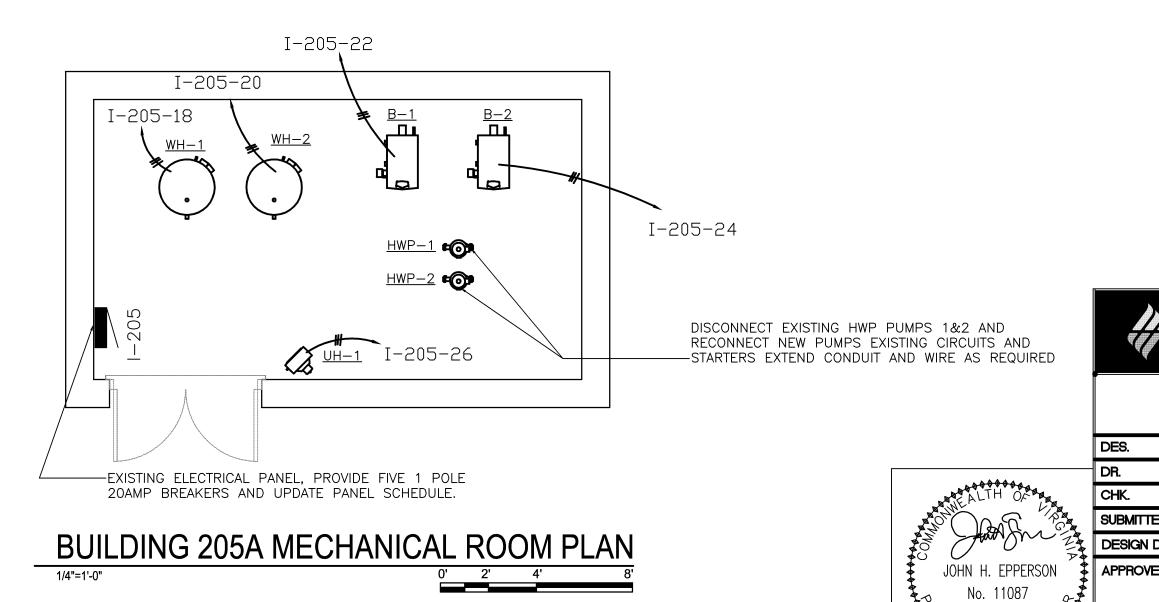




BUILDING 213A MECHANICAL ROOM PLAN

DISCLOSURE OF INFORMATION Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-(1) The Contracting Officer has given prior written approval; or

- (2) The information is otherwise in the public domain before the date of release. (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the
- release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.



E - 102Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com PROJECT NO. CP12-0104 DEPT OF NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA CDH BOILER MODIFICATIONS, VARIOUS CDH FACILITIES, HADNOT POINT JHE SUBMITTED BY: BUILDINGS 205,213, 308, 309, 312, 313 DESIGN DIR. DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. APPROVED: PWO OR OICC 60011304 CONSTR CONTR NO. N40085-12-B-0104

SHEET 40 OF 43

05-12-0104

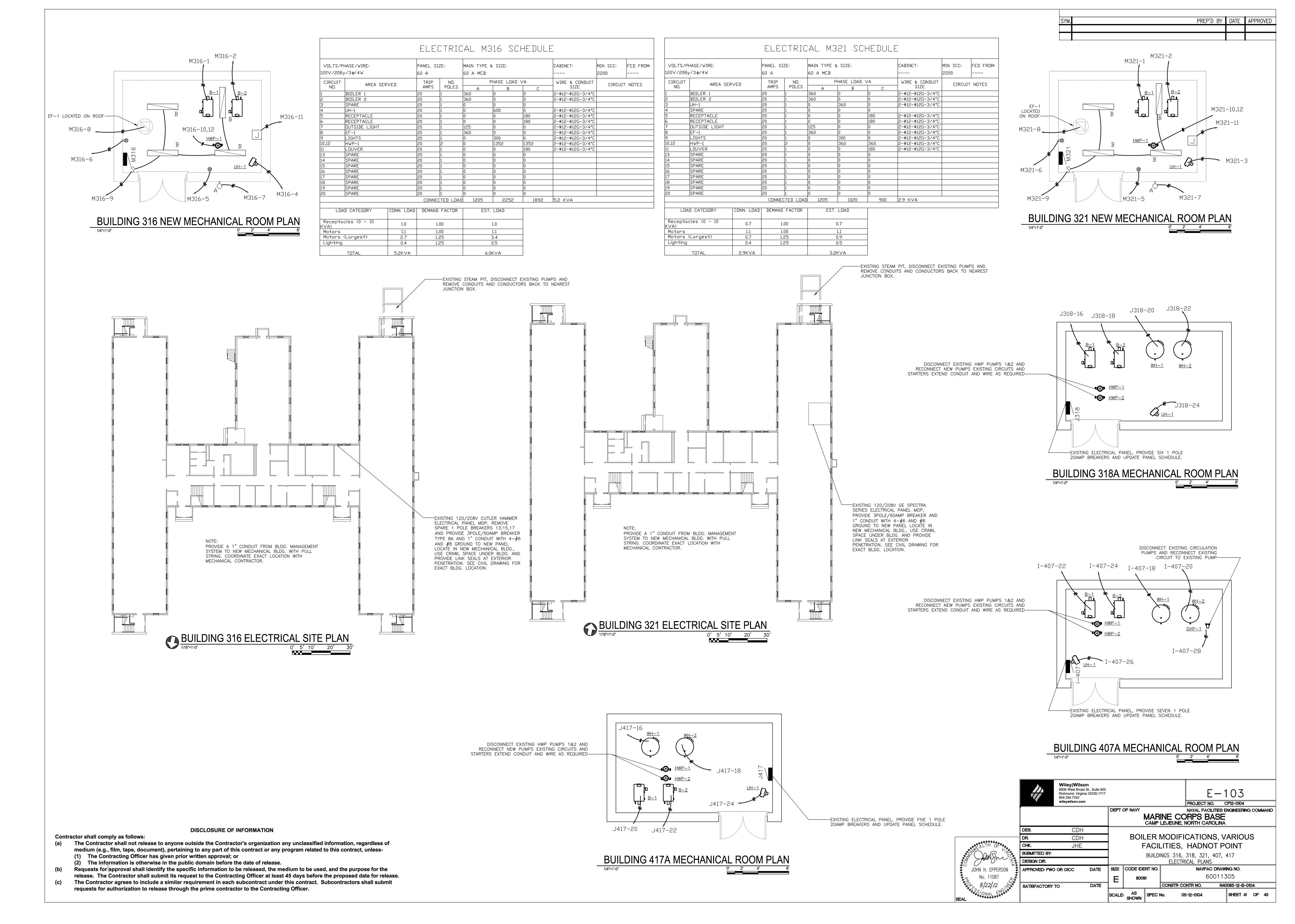
SCALE: AS SHOWN

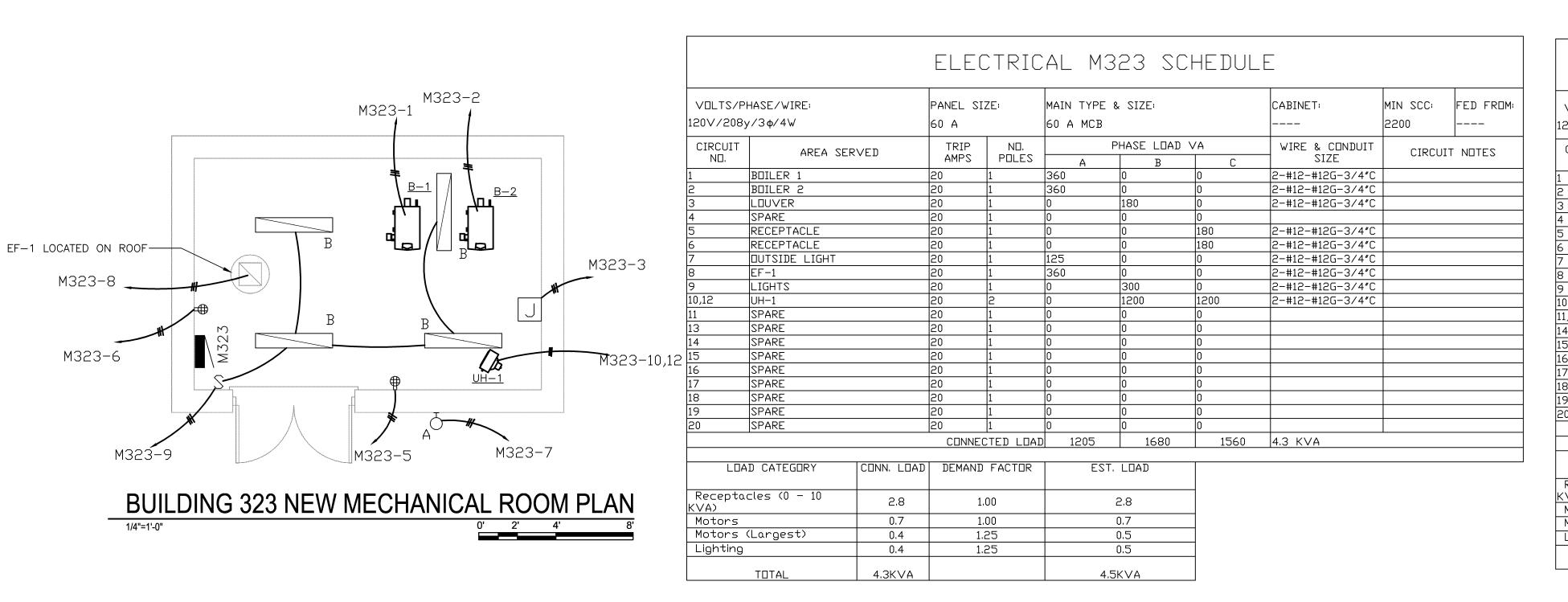
Wiley|Wilson 6606 West Broad St., Suite 500

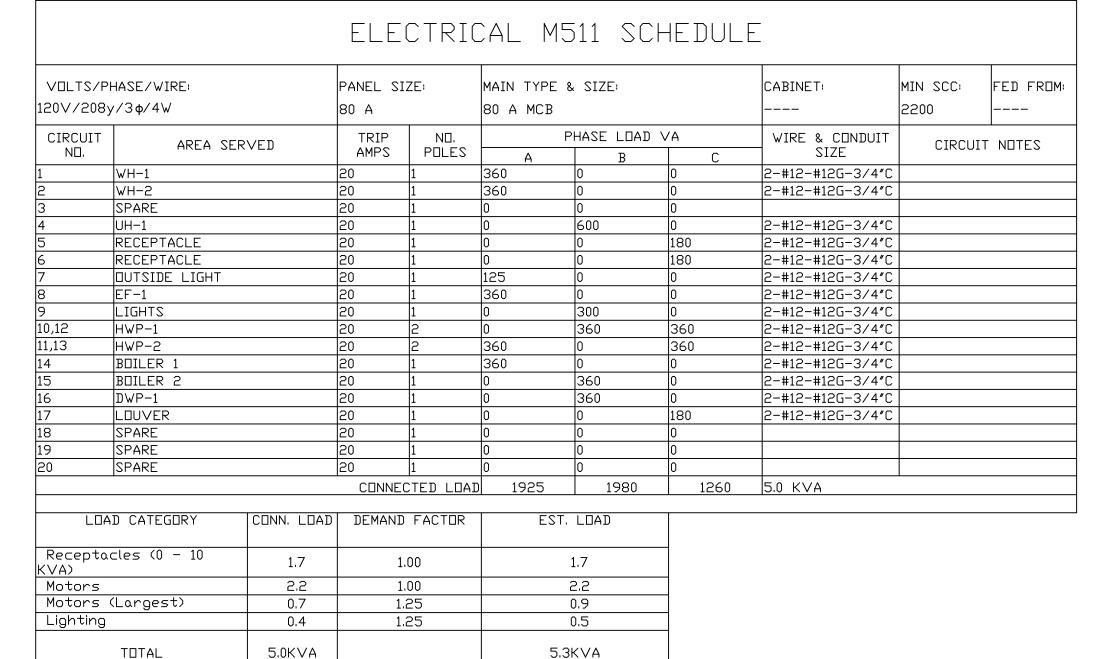
8/22/12

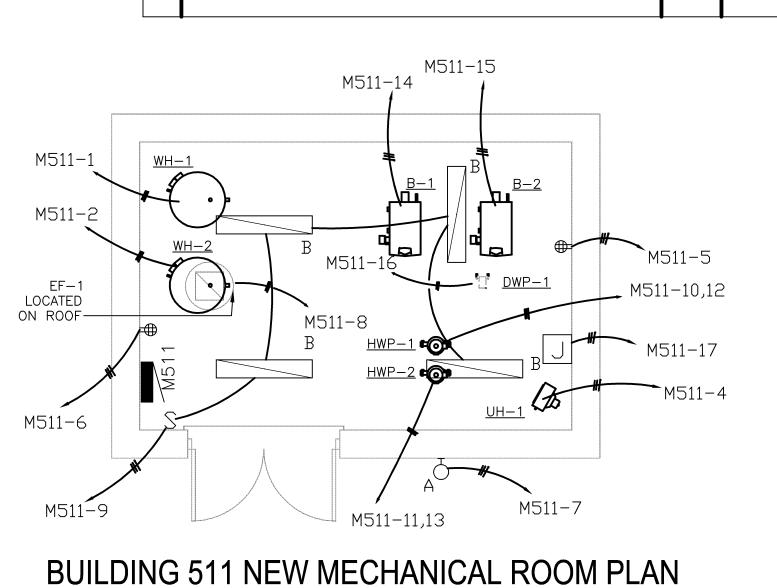
SATISFACTORY TO

**BUILDING 313A MECHANICAL ROOM PLAN** 

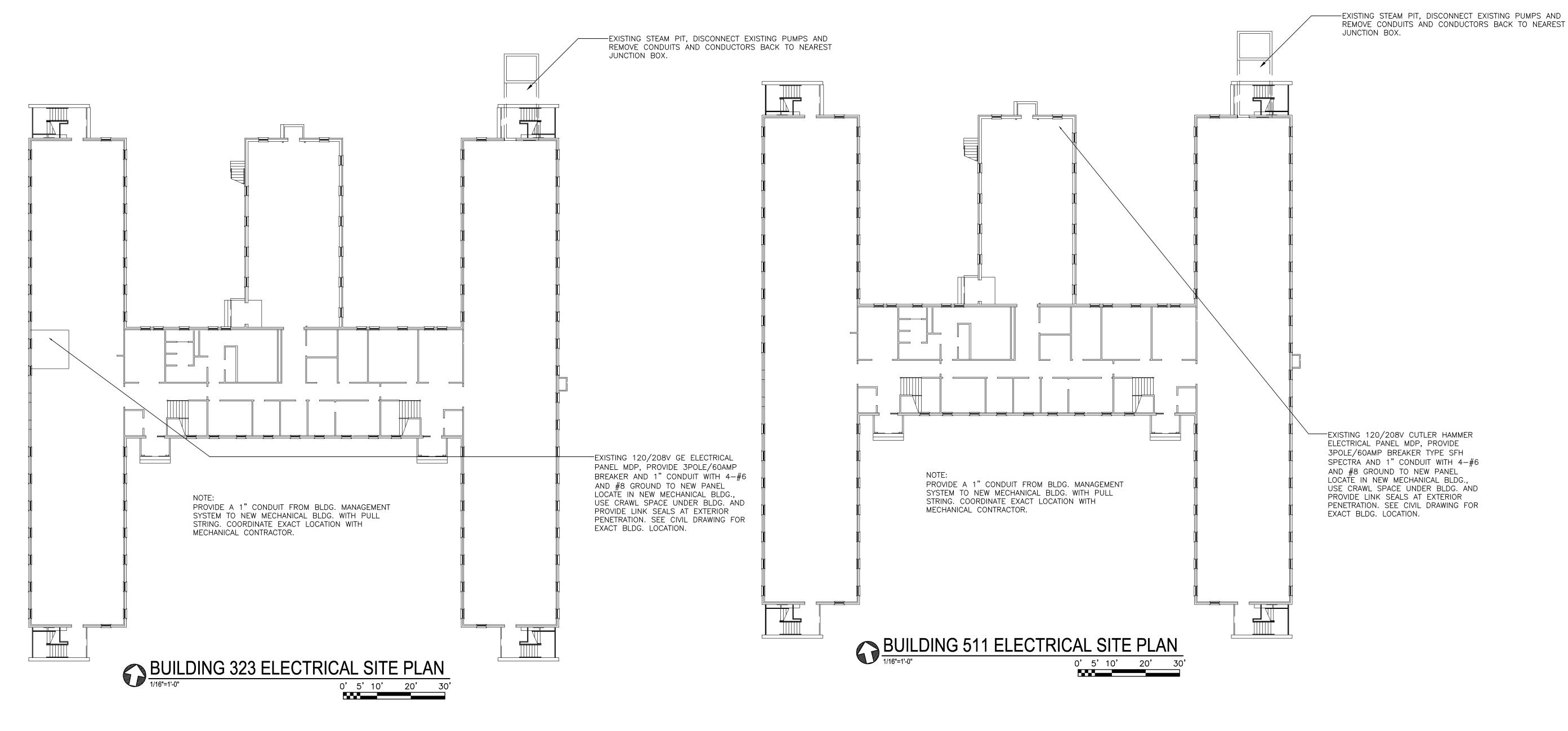


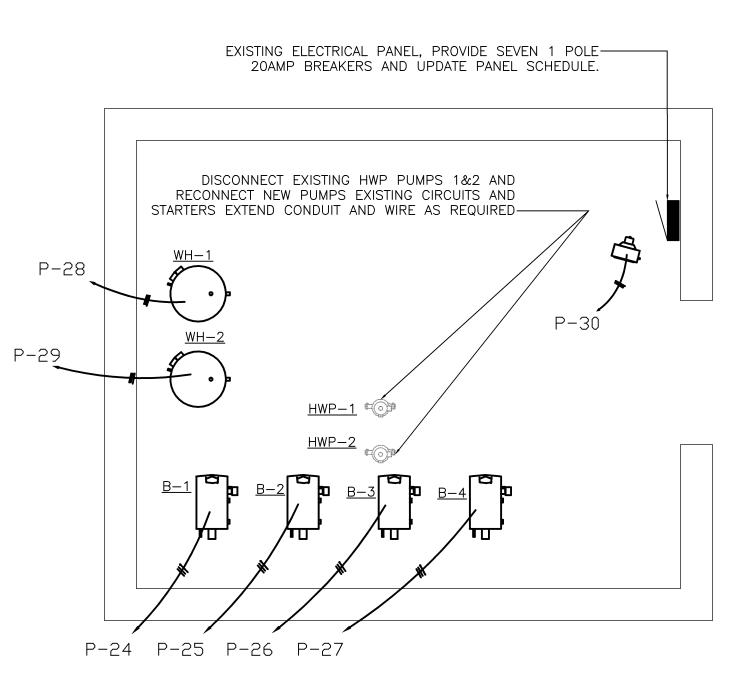




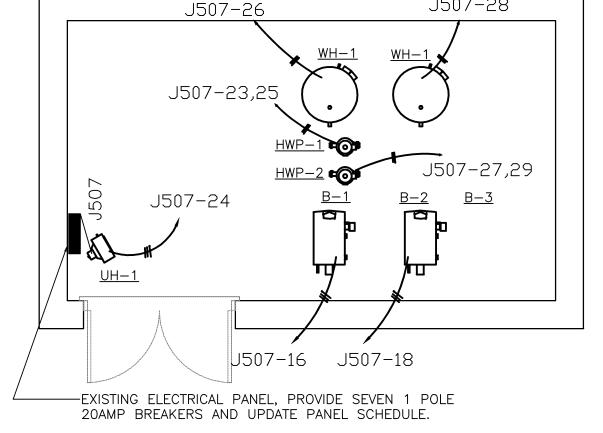


PREP'D BY DATE APPROVED





BUILDING 59 MECHANICAL ROOM NEW WORK PLAN



BUILDING 507A MECHANICAL ROOM PLAN

# J507-28

Wiley|Wilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com E - 104PROJECT NO. CP12-0104 DEPT OF NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA CDH BOILER MODIFICATIONS, VARIOUS CDH FACILITIES, HADNOT POINT JHE SUBMITTED BY: BUILDINGS 59, 323, 507, 511 DESIGN DIR. DATE SIZE CODE IDENT NO. NAVFAC DRAWING NO. APPROVED: PWO OR OICC 60011306 No. 11087 8/22/12 CONSTR CONTR NO. N40085-12-B-0104 SATISFACTORY TO SCALE: AS SHOWN SHEET 42 OF 43 05-12-0104

# DISCLOSURE OF INFORMATION

Contractor shall comply as follows: (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-

(1) The Contracting Officer has given prior written approval; or

(2) The information is otherwise in the public domain before the date of release. (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

