

**GENERAL NOTES**

- THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, PLUMBING, MECHANICAL, 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.
- THE CONTRACTOR SHALL PROVIDE THE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.
- THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, AND OTHER REQUIREMENTS NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW PORTIONS OF THE STRUCTURE TO THE EXISTING. 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 PRIOR TO ORDERING MATERIALS OR BEGINNING WORK (CONSTRUCTION OR DEMOLITION).
- SHOP DRAWING REVIEW BY THE GOVERNMENT IS FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR WILL REMAIN RESPONSIBLE FOR ALL ERRORS OF DETAILING, FABRICATION, AND FOR CORRECT FITTING OF ALL STRUCTURAL MEMBERS INCLUDING COORDINATION WITH OTHER TRADES WHERE APPLICABLE. SHOP DRAWING SUBMITTALS PROCESSED BY THE GOVERNMENT DO NOT CONSTITUTE CHANGE ORDERS. ANY PROPOSED CHANGES MUST BE SUBMITTED IN A LETTER OR DETAIL

**DESIGN CRITERIA CONT.D**

- THE EXISTING FACILITIES WERE ORIGINALLY DESIGNED UNDER NAVFAC LANTDIV PROJECT "20 UNITS FAMILY HOUSING" DATED 1997 BASED ON THE FOLLOWING DESIGN CRITERIA:
  - UNIFORM BUILDING CODE, 1994
  - NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, 1991
  - AMERICAN CONCRETE INSTITUTE, 1985
- DESIGN LOADS (ORIGINAL):
  - ROOF DEAD LOAD - TOP CHORD LOAD .....10 PSF
  - BOTTOM CHORD LOAD: .....3 PSF
  - ROOF LIVE LOAD - TOP CHORD LOAD: .....16 PSF
  - ATTIC LIVE LOAD (FOR TRUSSES OVER GARAGE): .....10 PSF
  - SNOW LOAD: .....12 PSF
  - WIND LOAD: EXPOSURE C.....90 MPH
  - A. TOP CHORD LOAD - .....± 30 PSF
  - B. OVERHANG LOAD - .....- 73 PSF
  - SEISMIC ZONE 1
  - ALLOWABLE SOIL BEARING PRESSURE: .....2,000 PSF

**CAST-IN-PLACE CONCRETE NOTES**

- CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 "STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318-11 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". CONCRETE SHALL BE NORMAL WEIGHT AND SHALL OBTAIN A 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:
  - A. SLAB ON GRADE..... 4,000 PSI
  - B. EXTERIOR CONCRETE, EXPOSED TO THE WEATHER AIR-ENTRAINED PER IRC TABLE R402.2 ..... 4,000 PSI
  - C. CONCRETE NOT OTHERWISE NOTED..... 3,000 PSI
- AGGREGATE USED IN CONCRETE SHALL CONFORM TO ASTM C 33 AND SHALL MEET THE FOLLOWING:
  - A. SLAB ON GRADE: MAXIMUM NOMINAL AGGREGATE SIZE OF NOT MORE THAN 3/4 INCH (TYPE 67 STONE). A COMBINED SIEVE ANALYSIS MUST INDICATE A WELL GRADED AGGREGATE FROM COARSEST TO FINEST WITH NOT MORE THAN 18 PERCENT AND NOT LESS THAN 8 PERCENT RETAINED ON ANY INDIVIDUAL SIEVE, EXCEPT THAT LESS THAN 8 PERCENT MAY BE RETAINED ON THE COARSEST AND NO. 50 SIEVES, AND LESS THAN 8 PERCENT MAY BE RETAINED ON SIEVES FINER THAN NO. 50. PROVIDE SAND THAT IS AT LEAST 50 PERCENT NATURAL SAND.
  - B. ALL OTHER: MAXIMUM NOMINAL AGGREGATE SIZE OF NOT MORE THAN 3/4 INCH (TYPE 67 STONE).
- THE RANGE OF SLUMP OF THE CONCRETE MIX SHALL MEET THE FOLLOWING (PRIOR TO ADDING SUPERPLASTICIZERS):
  - A. SLAB ON GRADE..... 1 - 4 INCHES
  - B. ALL OTHER..... 1 - 3 INCHES

**CAST-IN-PLACE CONCRETE NOTES, CONT'D**

- JOINT SEALANT SHALL CONFORM TO ASTM D 1190 OR ASTM C 920, TYPE M, CLASS 25, USE T.
- AD MIXTURES SHALL CONFORM TO THE FOLLOWING: HIGH RANGE WATER REDUCERS (SUPERPLASTICIZERS) TO ASTM C 494, TYPE F, AND ASTM C 1017; RETARDING ADMIXTURES TO ASTM C 494, TYPE B; ACCELERATING ADMIXTURES TO ASTM C 494, TYPE C; WATER-REDUCING AND RETARDING TO ASTM C494, TYPE D; WATER-REDUCING AND ACCELERATING TO ASTM C494, TYPE E.
- REINFORCING BARS SHALL CONFORM TO ASTM 615, GRADE 60, DEFORMED. WELDED WIRE FABRIC (WWF) SHALL BE 6X6XW1.4XW1.4 OR 6X6X2.9X2.9 IN ACCORDANCE W/ASTM A 185, FLAT SHEETS ONLY.
- CONCRETE COVER TO REINFORCING STEEL SHALL CONFORM TO THE MINIMUM COVER RECOMMENDATIONS IN ACI 318-05 UNLESS THE DRAWINGS SHOW GREATER COVER REQUIREMENTS. MINIMUM CONCRETE COVER UNLESS NOTED OTHERWISE:
  - A. CONCRETE CAST AGAINST AND EXPOSED TO EARTH = 3 INCHES
  - B. CONCRETE EXPOSED TO EARTH OR WEATHER = 2 INCHES
- LAP CONTINUOUS REINFORCING STEEL A MINIMUM LENGTH OF 48 X BAR DIAMETERS OF THE SMALLER BAR BEING LAPPED.
- PROVIDE REINFORCEMENT THAT IS SUPPORTED BY SPACERS, CHAIRS OR OTHER APPROVED, NON-CORRODIBLE SUPPORTS TO PREVENT DISPLACEMENT BY CONSTRUCTION LOADS OR BY PLACING OF WET CONCRETE, IN ACCORDANCE WITH ACI REQUIREMENTS. ALL EMBEDDED ITEMS, SUCH AS WELDED PLATES AND ANCHOR BOLTS, SHALL BE ACCURATELY PLACED AND SECURELY TIED PRIOR TO POURING CONCRETE. SECURE REINFORCING TO SUPPORTS BY MEANS OF BLACK, SOFT IRON WIRE OF NOT LESS THAN 16 GAGE. SECURE BARS TO ONE ANOTHER AT INTERSECTIONS USING 18 GAGE ANNEALED WIRE. POINT WIRE TIE ENDS AWAY FROM FORMS.
- BENDING OF REINFORCING BARS PARTIALLY EMBEDDED IN CONCRETE IS NOT PERMITTED.
- CONCRETE SHALL BE MACHINE MIXED IN ACCORDANCE WITH ASTM C94. BEGIN MIXING WITHIN 30 MINIMUM AFTER THE CEMENT HAS BEEN ADDED TO THE AGGREGATES. PLACE CONCRETE WITHIN 90 MINUTES OF EITHER: ADDITION OF MIXING WATER TO CEMENT AND AGGREGATES, OR ADDITION OF CEMENT TO AGGREGATES, IF THE AIR TEMPERATURE IS LESS THAN 84 DEGREES FAHRENHEIT, EXCEPT AS FOLLOWS: IF SET RETARDING ADMIXTURE IS USED AND SLUMP REQUIREMENTS CAN BE MET, THE TIME LIMIT FOR PLACING CONCRETE MAY REMAIN AT 90 MINUTES. ADDITIONAL WATER MAY BE ADDED, PROVIDED THAT BOTH THE SPECIFIED MAXIMUM SLUMP AND WATER/CEMENT RATIO ARE NOT EXCEEDED. WHEN ADDITIONAL WATER IS ADDED, AN ADDITIONAL 30 REVOLUTIONS OF THE MIXER AT MIXING SPEED IS REQUIRED TO DISSOLVE ADMIXTURES IN THE MIXING WATER AND MIX IN THE DRUM TO UNIFORMLY DISTRIBUTE THE ADMIXTURE THROUGHOUT THE BATCH.
- PLACE CONCRETE AS SOON AS PRACTICABLE AFTER THE FORMS AND REINFORCING HAVE BEEN INSPECTED AND APPROVED. WHEN SUBGRADE IS SEMIPOROUS AND DRY, SPRINKLE SUBGRADE SURFACE WITH WATER AS REQUIRED TO ELIMINATE SUCTION OF WATER FROM FRESH CONCRETE. DO NOT PLACE CONCRETE WHEN WEATHER CONDITIONS PREVENT PROPER PLACEMENT AND CONSOLIDATION. PRIOR TO PLACEMENT, REMOVE DIRT, DEBRIS, WATER, SNOW AND ICE FROM THE FORMS. DO NOT EXCEED A FREE VERTICAL DROP OF 3 FEET FROM THE POINT OF DISCHARGE. PLACE CONCRETE CONTINUOUSLY FROM ONE END OF THE STRUCTURE TO THE OTHER, AND IN LAYERS OF SUCH THICKNESS THAT NO CONCRETE IS PLACED ON PREVIOUSLY PLACED CONCRETE WHICH HAS HARDENED SUFFICIENTLY TO CAUSE THE FORMATION OF PLANES OR SEAMS OF WEAKNESS.
- TEST BOTH THE CONCRETE DELIVERED AND THE CONCRETE IN THE FORMS FOR TEMPERATURE. PERFORM TESTS IN HOT OR COLD WEATHER CONDITIONS (BELOW 50 DEGREES FAHRENHEIT AND ABOVE 80 DEGREES FAHRENHEIT) FOR EACH BATCH, OR AT EVERY 20 CUBIC YARDS OF CONCRETE, AND WHENEVER TEST CYLINDERS AND SLUMP TESTS ARE PERFORMED.
- CONCRETE PLACED IN COLD WEATHER SHALL CONFORM TO ACI REQUIREMENTS AND TO THE FOLLOWING: DO NOT ALLOW CONCRETE TEMPERATURE TO DECREASE BELOW 50 DEGREES FAHRENHEIT. OBTAIN APPROVAL OF THE CONTRACTING OFFICER PRIOR TO PLACING CONCRETE WHEN THE AMBIENT TEMPERATURE IS BELOW 40 DEGREES FAHRENHEIT OR WHEN CONCRETE IS LIKELY TO BE SUBJECTED TO FREEZING TEMPERATURES WITHIN 24 HOURS. COVER CONCRETE AND PROVIDE SUFFICIENT HEAT TO MAINTAIN 50 DEGREES FAHRENHEIT ADJACENT TO BOTH THE FORMWORK AND THE STRUCTURE WHILE CURING. LIMIT THE RATE OF COOLING TO 37 DEGREES FAHRENHEIT IN ANY 1 HOUR AND 50 DEGREES FAHRENHEIT PER 24 HOURS AFTER HEAT APPLICATION.

**CAST-IN-PLACE CONCRETE NOTES, CONT'D**

- WHEN PLACING CONCRETE IN HOT WEATHER, PREVENT THE EVAPORATION RATE FROM EXCEEDING 0.2 POUNDS OF WATER PER SQUARE FOOT OF EXPOSED CONCRETE PER HOUR. COOL INGREDIENTS BEFORE MIXING OR USE OTHER SUITABLE MEANS TO CONTROL TEMPERATURE AND PREVENT RAPID DRYING OF NEWLY PLACED CONCRETE. START CURING WHEN THE SURFACE OF THE FRESH CONCRETE IS SUFFICIENTLY HARD TO PERMIT CURING WITHOUT DAMAGE.
- PRIOR TO FLOATING SLABS-ON-GRADE, BRING SURFACE OF CONCRETE TO THE CORRECT LEVEL WITH A STRAIGHTEDGE AND STRIKE OFF. SPRINKLING OF WATER ON THE PLASTIC SURFACE IS NOT PERMITTED.
- FLOATING OF SLABS-ON-GRADE MAY BE PERFORMED WITH A WOOD, MAGNESIUM OR COMPOSITE HAND FLOAT, A BLADED POWER TROWEL EQUIPPED WITH FLOAT SHOES, OR WITH A POWERED DISC. FLOATING MAY BEGIN WHEN THE SURFACE HAS STIFFENED SUFFICIENTLY TO PERMIT THE OPERATION. DURING OR AFTER THE FIRST FLOATING, CHECK SURFACE WITH A 10-FOOT STRAIGHTEDGE APPLIED AT NO LESS THAN (2) DIFFERENT ANGLES, ONE OF WHICH IS PERPENDICULAR TO THE DIRECTION OF STRIKE-OFF. CUT DOWN HIGH SPOTS AND FILL LOW SPOTS DURING THIS PROCEDURE TO PRODUCE A SURFACE FLAT WITHIN 1/4 INCH IN 0 FEET. FOR EXTERIOR SLABS PROVIDE A MINIMUM SLOPE OF 1/8 INCH PER FOOT TO DRAIN.
- PROVIDE WATER HOSES, PIPES AND SPRAYING EQUIPMENT TO MAINTAIN A MOIST CONCRETE SURFACE THROUGHOUT THE CURING PERIOD. PROVIDE BURLAP COVER OR OTHER SUITABLE, PERMEABLE MATERIAL WITH FOG SPRAY OR CONTINUOUS WETTING OF THE CONCRETE, WHEN WEATHER CONDITIONS PREVENT THE USE OF IMPERVIOUS MOISTURE RETAINING SHEETS. FOG SPRAY/CURING WATER SHALL NOT BE MORE THAN 50 DEGREES FAHRENHEIT COOLER THAN THE TEMPERATURE OF THE CONCRETE ITSELF.
- CONCRETE CURING MATERIALS SHALL COMPLY WITH THE FOLLOWING:
  - A. ABSORPTIVE COVER: PROVIDE BURLAP CLOTH COVER MADE FROM JUTE OR KENAF, WEIGHING 10 OUNCES PLUS OR MINUS 5 PERCENT PER SQUARE YARD WHEN CLEAN AND DRY, CONFORMING TO ASTM C171, CLASS 3, OR COTTON MATS AS PROVIDED BY THE CONTRACTING OFFICER.
  - B. MOISTURE-RETAINING COVER: PROVIDE WATERPROOF PAPER COVER CONFORMING TO ASTM C 171, REGULAR OR WHITE, OR POLYETHYLENE SHEETING CONFORMING TO ASTM C 171, OR POLYETHYLENE COATED BURLAP CONSISTING OF A LAMINATE OF BURLAP AND A WHITE OPAQUE POLYETHYLENE FILM PERMANENTLY BONDED TO THE BURLAP; BURLAP MUST CONFORM TO ASTM C 171, CLASS 3, AND POLYETHYLENE FILM MUST CONFORM TO ASTM C 171. WHEN TESTED FOR WATER RETENTION IN ACCORDANCE WITH ASTM C 156, WEIGHT OF WATER LOST 72 HOURS AFTER APPLICATION OF MOISTURE RETAINING COVERING MATERIAL MUST NOT EXCEED 0.039 GRAM PER SQUARE CENTIMETER OF THE MORTAR SPECIMEN SURFACE.
- IN CONFORMANCE WITH ACI 302.1R. PROVIDE A STEEL TROWELLED FINISH FOR ALL SLABS. FIRST PROVIDE A FLOATED FINISH, THEN POWER-TROWELLING TWO TO THREE TIMES. AFTER COMPLETION OF FLOATING, THE SURFACE OF ALL SLABS-ON-GRADE MUST BE POWER TROWELLED (2) ADDITIONAL TIMES, AND FINALLY HAND TROWELLED. THE FIRST TROWELLING AFTER FLOATING NEEDS TO PRODUCE A SMOOTH SURFACE WHICH IS RELATIVELY FREE OF DEFECTS BUT WHICH MAY STILL SHOW SOME TROWEL MARKS. PERFORM ADDITIONAL TROWELLINGS BY HAND AFTER THE SURFACE HAS HARDENED SUFFICIENTLY. THE FINAL TROWELLING IS COMPLETE WHEN A RINGING SOUND IS PRODUCED AS THE TROWEL IS MOVED OVER THE SURFACE.
- ACCEPTANCE OF THE CONCRETE SHALL BE BASED ON COMPRESSIVE STRENGTH TESTS. COMPRESSIVE STRENGTH TESTS SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C 39. MAKE (5) TEST CYLINDERS FOR EACH SET OF TESTS IN ACCORDANCE AND LOSS OF WATER FROM THE SPECIMENS. TEST (2) CYLINDERS AT 7 DAYS, (2) CYLINDERS AT 28 DAYS, AND HOLD (1) CYLINDER IN RESERVE. TAKE SAMPLES FOR EACH MIX DESIGN USED IN A DAY, NOT LESS THAN ONE DAY, NOR LESS THAN ONCE EVERY 1600 CUBIC YARDS OF CONCRETE, NOR LESS THAN ONCE EVERY 5400 SQUARE FEET OF SURFACE AREA FOR SLABS. TAKE NO LESS THAN (5) SETS OF SAMPLES FOR THE ENTIRE PROJECT. AS-TESTED STRENGTH RESULT MUST BE THE AVERAGE OF (2) CYLINDERS TAKEN FROM THE SAME SAMPLE AT 28 DAYS.

**DESIGN CRITERIA NOTES**

- THE APPLICABLE DESIGN STANDARDS AND/OR DESIGN CRITERIA ARE AS FOLLOWS:
  - UNIFIED FACILITIES CRITERIA (UFC) 1-200-01, GENERAL BUILDING REQUIREMENTS, WITH CHANGE 2, NOV. 2014
  - UNIFIED FACILITIES CRITERIA (UFC) 3-301-01, STRUCTURAL ENGINEERING, WITH CHANGE 1, MAY 2014
  - UNIFIED FACILITIES CRITERIA (UFC) 4-711-01, FAMILY HOUSING, JULY 2006
  - INTERNATIONAL RESIDENTIAL CODE (IBC) 2012 EDITION
  - AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) 7-10, MINIMUM DEIGN LOADS FOR BUILDINGS & OTHER STRUCTURES, 3RD EDITION
- LIVE LOADS USED IN THE DESIGN ARE AS FOLLOWS:
  - SLAB-ON-GRADE..... 100 PSF
  - ROOF..... 20 PSF
  - ATTIC (UNINHABITED WITH STORAGE)..... 20 PSF
- SNOW LOADS
  - GROUND SNOW LOAD, (Pg)..... 20 PSF
  - FLAT ROOF SNOW LOAD, (Pr).....12.6 PSF
  - SNOW EXPOSURE FACTOR, (Ce)..... 0.90
  - SNOW LOAD IMPORTANCE FACTOR, (Is)..... 1.00
  - THERMAL FACTOR, (Ct).....1.00
- WIND DESIGN CRITERIA - BASED ON UFC 3-301-01, ASCE 7 AND THE INTERNATIONAL RESIDENTIAL CODE (DESIGN WIND SPEED)
  - ULTIMATE DESIGN WIND SPEED, Vult (3-SECOND GUST), ...98.8 MPH [BASED ON INTERNATIONAL RESIDENTIAL CODE 2012, FIG. R301.2(4)A]
  - NOMINAL DESIGN WIND SPEED, Vossd, .....76.5 MPH
  - RISK CATEGORY..... II
  - WIND EXPOSURE CATEGORY..... C
- SEISMIC DESIGN CRITERIA
  - 1 SECOND SPECTRAL RESPONSE (S1)..... 0.04
  - 0.2 SECOND SPECTRAL RESPONSE (SS)..... 0.08
  - SEISMIC DESIGN CATEGORY..... A
  - SITE CLASS..... D

BASIC STRUCTURAL AND SEISMIC RESISTING SYSTEM NOT REQUIRED BASED ON INTERNATIONAL RESIDENTIAL CODE (IRC) 2012 AND SEISMIC DESIGN CATEGORY A CLASSIFICATION.

**FOUNDATION NOTES**

- THE FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT PREPARED BY NAVFAC MIDLANT AND DATED MAY 11, 2015. BASED ON THE GEOTECHNICAL REPORT, THE MAXIMUM ALLOWABLE SOIL BEARING PRESSURE SHALL BE 2,000 PSF.
- ALL FOUNDATION BEARING SURFACES SHALL BE INSPECTED BY A QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT TO ENSURE BEARING PRESSURE NOTED ABOVE IS ATTAINABLE.
- FOOTINGS SHALL BEAR, AT A MINIMUM, 18 INCHES BELOW BELOW GRADE, BUT NOT LESS THAN WOULD BE REQUIRED FOR FROST PENETRATION OR TO REACH REQUIRED BEARING PRESSURES.
- CONCRETE FOOTINGS SHALL NOT BE PLACED OVER FROZEN SOIL OR IN EXCAVATIONS SUBJECT TO WATER.
- UTILITY LINES SHALL NOT BE PLACED THROUGH OR BENEATH FOUNDATIONS WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER. SHOULD SUCH A CONDITION BE REQUIRED, PRIOR TO CONSTRUCTION, CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF EACH CONDITION.
- PRIOR TO BACK FILLING ANY WALLS INTENDED TO RETAIN SOIL, TEMPORARILY BRACE WALL UNTIL ALL SUPPORTING SOIL AND/OR SLABS ARE IN PLACE AND HAVE REACHED DESIGN STRENGTH.
- MINIMUM SUBGRADE PREPARATION SHALL CONSIST OF COMPACTING SOILS UNDER BUILDINGS TO 98 PERCENT MAXIMUM DENSITY CONFORMING TO ASTM D-698. SEE SOILS REPORT AND SPECIFICATIONS FOR ANY ADDITIONAL PREPARATION OR TESTING REQUIREMENTS.
- CONSTRUCTION JOINTS AND SAWCUT JOINTS IN FLOOR SLABS SHALL OCCUR WHERE INDICATED ON PLANS AND DETAILS. CONSTRUCTION JOINTS SHALL HAVE FORMED POUR STOPS. CONSTRUCTION JOINTS IN WALLS AND FOOTINGS NEED NOT OCCUR AT THE SAME LOCATION.
- FOOTING SPREADS ARE CENTERED UNDER WALLS AND COLUMNS, UNLESS NOTED OTHERWISE.
- DIMENSIONS, UNLESS NOTED OTHERWISE ARE TO THE FACE OF STUDS, AND TO CENTERLINE OF COLUMN, SEE FOUNDATION DETAILS.
- BOTTOM OF FOOTING ELEVATION IS NOTED ON FOUNDATION PLAN AND SHALL BE USED FOR BIDDING. IN ANY CASE, FOOTINGS SHALL BEAR ON FIRM UNDISTURBED SOIL OR ENGINEERED FILL.
- PRESUMPTIVE LOAD BEARING VALUES PER IRC 2012):
  - A. DEAD LOAD + LIVE LOAD ..... 2,000 PSF
  - B. DEAD LOAD + LIVE LOAD + LATERAL LOAD..... 2,150 PSF

**FOUNDATION NOTES**

MAXIMUM SLUMP SHOWN MAY BE INCREASED BY 1 INCH FOR METHODS OF CONSOLIDATION OTHER THAN VIBRATION. SLUMP MAY BE INCREASED TO 8 INCHES WHEN SUPERPLASTICIZERS ARE USED. SLUMP TESTS SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C 143. PERFORM TESTS AT START OF CONCRETE PLACEMENT, WHEN TEST CYLINDERS ARE MADE, AND FOR EACH BATCH OR EVERY 20 CUBIC YARDS OF CONCRETE.

- THE MAXIMUM WATER/CEMENT RATIO OF THE CONCRETE MIX, AS MEASURED BY WEIGHT, SHALL NOT EXCEED THE FOLLOWING:
  - A. SLAB ON GRADE..... 0.46
  - B. ALL OTHER..... 0.54
- WATER SHALL BE FRESH, CLEAN AND POTABLE; FREE FROM INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALIS, SALTS, ORGANIC MATERIALS OR OTHER SUBSTANCES DELETERIOUS TO CONCRETE.
- THE MINIMUM CEMENT CONTENT OF THE CONCRETE MIX SHALL NOT BE LESS THAN 6.0 SACKS PER CUBIC YARD OF CONCRETE
- CEMENT SHALL CONFORM TO ASTM C 150, TYPE I OR II, OR ASTM C 595, TYPE IP (MS) OR IS (MS) BLENDED CEMENT EXCEPT AS MODIFIED HEREIN. PROVIDE BLENDED CEMENT THAT CONSISTS OF A MIXTURE OF ASTM C 150, TYPE II CEMENT AND ONE OF THE FOLLOWING MATERIALS: ASTM C 618 POZZOLAN/FLY ASH; ASTM C 989 GROUND GRANULATED BLAST FURNACE SLAG.
- FLY ASH AND POZZOLAN SHALL CONFORM TO ASTM C 618, TYPE N, F OR C, EXCEPT THAT THE MAXIMUM ALLOWABLE LOSS ON IGNITION MUST BE 6 PERCENT FOR TYPES N AND F. ADD WITH CEMENT. FLY ASH CONTENT MUST BE A MINIMUM OF 15 PERCENT BY WEIGHT OF CEMENTITIOUS MATERIAL PROVIDED THE FLY ASH DOES NOT REDUCE THE AMOUNT OF CEMENT IN THE CONCRETE MIX BELOW THE MINIMUM REQUIREMENTS OF LOCAL BUILDING CODES. WHERE THE USE OF FLY ASH CANNOT MEET THE MINIMUM LEVEL, PROVIDE THE MAXIMUM AMOUNT OF FLY ASH PERMISSIBLE THAT MEETS THE CODE REQUIREMENT FOR CEMENT CONTENT. REPORT THE CHEMICAL ANALYSIS OF THE FLY ASH IN ACCORDANCE WITH ASTM C 311. EVALUATE AND CLASSIFY FLY ASH IN ACCORDANCE WITH ASTM D 5759. THE RECOMMENDED MAXIMUM CONTENT FOR FLY ASH OR NATURAL POZZOLAN, BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL IS 40 PERCENT.
- GROUND, GRANULATED BLAST FURNACE SLAG SHALL CONFORM TO ASTM C 989, GRADE 120. SLAG CONTENT MUST BE A MINIMUM OF 25 PERCENT BY WEIGHT OF CEMENTITIOUS MATERIAL. THE RECOMMENDED MAXIMUM CONTENT FOR GROUND, GRANULATED BLAST FURNACE SLAG, BY WEIGHT OF THE TOTAL CEMENTITIOUS MATERIAL, IS 50 PERCENT.
- VAPOR RETARDER BENEATH CONCRETE SLAB ON GRADE SHALL CONFORM TO ASTM D 4397 POLYETHYLENE SHEETING, MINIMUM 10 MIL THICKNESS. RETARDER SHALL BE INSTALLED WITH GREATEST WIDTHS AND LENGTHS PRACTICABLE SO AS TO MINIMIZE JOINTS. LAP JOINTS A MINIMUM OF 12 INCHES AND TAPE OR SEAL CLOSED. REPLACE DAMAGED, TORN OR PUNCTURED VAPOR RETARDER. CONCRETE PLACEMENT MUST NOT DAMAGE RETARDER.

**FOUNDATION NOTES**

- CONCRETE CAST AGAINST AND EXPOSED TO EARTH = 3 INCHES
- CONCRETE EXPOSED TO EARTH OR WEATHER = 2 INCHES

**FOUNDATION NOTES**

- CONCRETE CURING MATERIALS SHALL COMPLY WITH THE FOLLOWING:
  - A. ABSORPTIVE COVER: PROVIDE BURLAP CLOTH COVER MADE FROM JUTE OR KENAF, WEIGHING 10 OUNCES PLUS OR MINUS 5 PERCENT PER SQUARE YARD WHEN CLEAN AND DRY, CONFORMING TO ASTM C171, CLASS 3, OR COTTON MATS AS PROVIDED BY THE CONTRACTING OFFICER.
  - B. MOISTURE-RETAINING COVER: PROVIDE WATERPROOF PAPER COVER CONFORMING TO ASTM C 171, REGULAR OR WHITE, OR POLYETHYLENE SHEETING CONFORMING TO ASTM C 171, OR POLYETHYLENE COATED BURLAP CONSISTING OF A LAMINATE OF BURLAP AND A WHITE OPAQUE POLYETHYLENE FILM PERMANENTLY BONDED TO THE BURLAP; BURLAP MUST CONFORM TO ASTM C 171, CLASS 3, AND POLYETHYLENE FILM MUST CONFORM TO ASTM C 171. WHEN TESTED FOR WATER RETENTION IN ACCORDANCE WITH ASTM C 156, WEIGHT OF WATER LOST 72 HOURS AFTER APPLICATION OF MOISTURE RETAINING COVERING MATERIAL MUST NOT EXCEED 0.039 GRAM PER SQUARE CENTIMETER OF THE MORTAR SPECIMEN SURFACE.
- IN CONFORMANCE WITH ACI 302.1R. PROVIDE A STEEL TROWELLED FINISH FOR ALL SLABS. FIRST PROVIDE A FLOATED FINISH, THEN POWER-TROWELLING TWO TO THREE TIMES. AFTER COMPLETION OF FLOATING, THE SURFACE OF ALL SLABS-ON-GRADE MUST BE POWER TROWELLED (2) ADDITIONAL TIMES, AND FINALLY HAND TROWELLED. THE FIRST TROWELLING AFTER FLOATING NEEDS TO PRODUCE A SMOOTH SURFACE WHICH IS RELATIVELY FREE OF DEFECTS BUT WHICH MAY STILL SHOW SOME TROWEL MARKS. PERFORM ADDITIONAL TROWELLINGS BY HAND AFTER THE SURFACE HAS HARDENED SUFFICIENTLY. THE FINAL TROWELLING IS COMPLETE WHEN A RINGING SOUND IS PRODUCED AS THE TROWEL IS MOVED OVER THE SURFACE.
- ACCEPTANCE OF THE CONCRETE SHALL BE BASED ON COMPRESSIVE STRENGTH TESTS. COMPRESSIVE STRENGTH TESTS SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C 39. MAKE (5) TEST CYLINDERS FOR EACH SET OF TESTS IN ACCORDANCE AND LOSS OF WATER FROM THE SPECIMENS. TEST (2) CYLINDERS AT 7 DAYS, (2) CYLINDERS AT 28 DAYS, AND HOLD (1) CYLINDER IN RESERVE. TAKE SAMPLES FOR EACH MIX DESIGN USED IN A DAY, NOT LESS THAN ONE DAY, NOR LESS THAN ONCE EVERY 1600 CUBIC YARDS OF CONCRETE, NOR LESS THAN ONCE EVERY 5400 SQUARE FEET OF SURFACE AREA FOR SLABS. TAKE NO LESS THAN (5) SETS OF SAMPLES FOR THE ENTIRE PROJECT. AS-TESTED STRENGTH RESULT MUST BE THE AVERAGE OF (2) CYLINDERS TAKEN FROM THE SAME SAMPLE AT 28 DAYS.

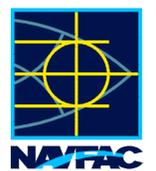
01/21/16

GENERAL REVISIONS 01

DATE

DESCRIPTION

SYN



APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES VAA [DRW VAA] [CHK NBY]

JTL/APK JTL/APK

BRANCH MANAGER

CHEF ENG/ARCH R/LW

FIRE PROTECTION DPS

NAVFACILITIES ENGINEERING COMMAND

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK NAVAL STATION

WALLOPS ISLAND, VA

SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

GENERAL NOTES AND ABBREVIATIONS

SCALE: AS NOTED

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708277

SHEET 25 OF 120

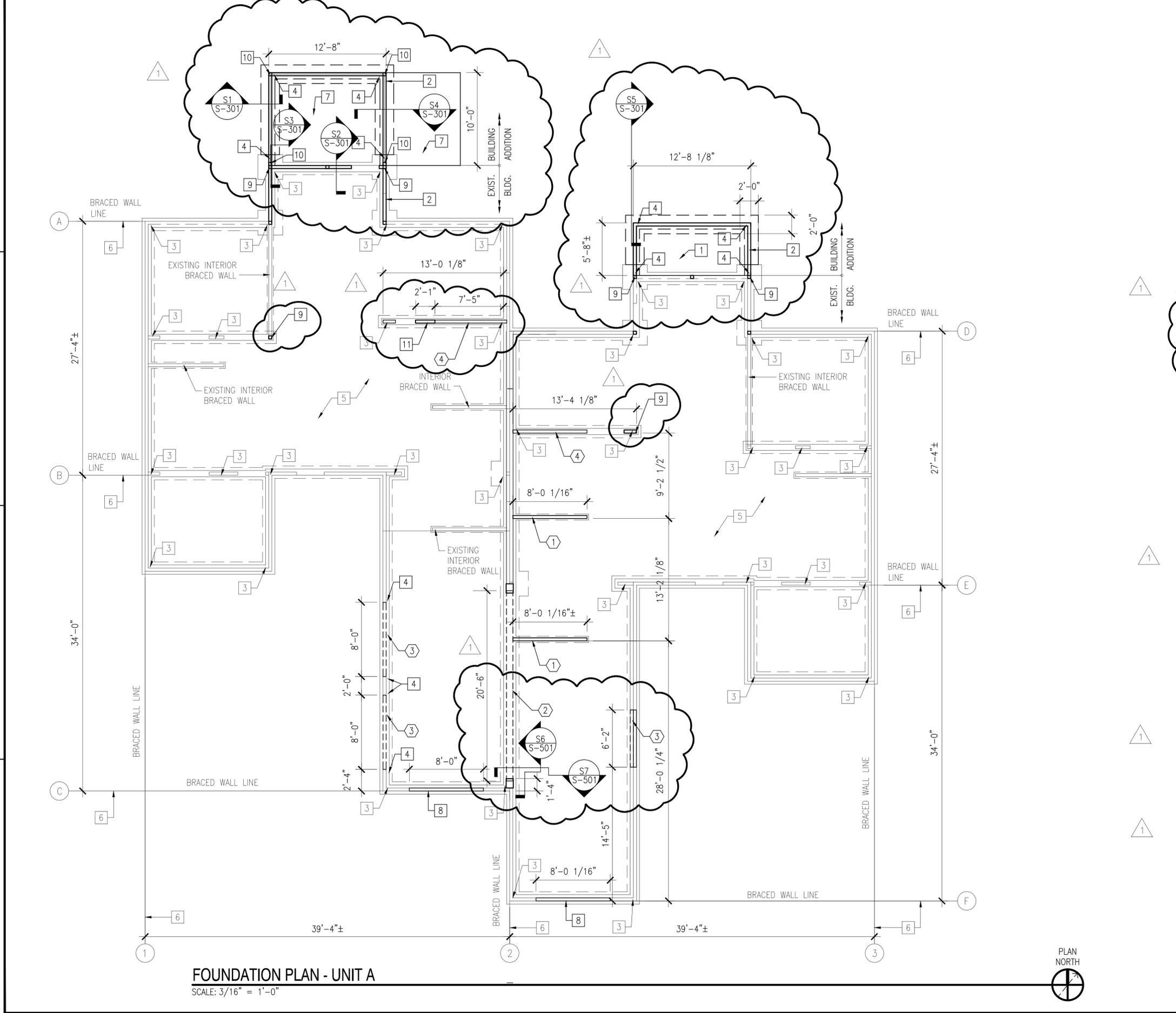
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DRAWING REVISION: 10 MARCH 2009

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FILE NAME: P:\VA Wallops Island\WILCON\2016\_1366573\_P1602\_DBS\_SkeletalConstruction\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\1270827-1366573-5-001\_GENERAL NOTES, ABBREV, SYMBOLS.dwg LAYOUT NAME: S-001 PLOTTED: Friday, January 22, 2016 - 8:46am USER: venomanander2



**FOUNDATION PLAN - UNIT A**  
SCALE: 3/16" = 1'-0"

**GENERAL SHEET NOTES**

1. ALL MEASUREMENTS ARE FROM OUTSIDE FACE OF EXTERIOR STUD WALL. REFERENCE ARCHITECTURAL DRAWINGS AND FIELD VERIFY FOR EXACT LOCATIONS.
2. ACTUAL FINISH FLOOR ELEVATION SHALL MATCH EXISTING FINISH FLOOR ELEVATION AND SHALL SERVE AS THE REFERENCE ELEVATION, 0'-0".
3. TOP OF FOOTINGS SHALL BE -2'-0" BELOW REFERENCE ELEVATION.

**DEMOLITION NOTES**

1. EXISTING INTERIOR BRACED WALL TO BE REMOVED.
2. EXISTING LOAD BEARING PARTY WALL TO BE REMOVED. PROVIDE BRACING SUPPORT PLAN FOR OVERHEAD TRUSSES FOR GOVERNMENT APPROVAL PRIOR TO DEMOLITION FOR INSTALLATION OF NEW OVERHEAD BEAM.
3. EXISTING LOAD BEARING EXTERIOR PERIMETER WALL TO BE REMOVED.
4. EXISTING INTERIOR PARTITION WALL TO BE REMOVED.

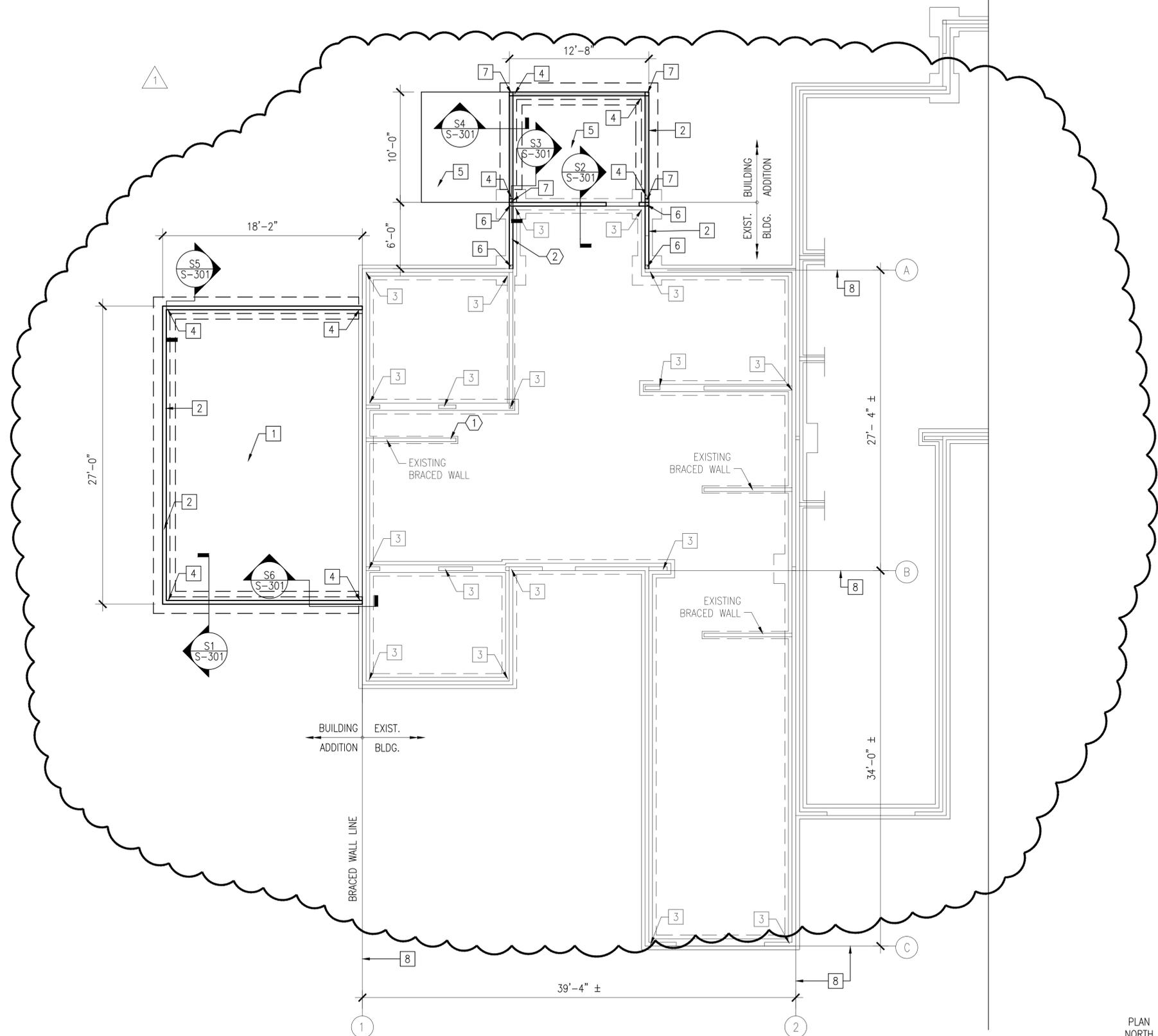
**KEYNOTES**

1. 4 INCH THICK CONCRETE FLOOR SLAB WITH CONTINUOUS REINFORCED CONCRETE FOUNDATION FOOTINGS. PLACE SLAB ON VAPOR BARRIER OVER 4 INCH POROUS FILL. REINFORCE SLAB WITH 6X6 W1.4XW1.4 WWF. PLACE WWF. 2 INCHES FROM THE TOP.
2. ANCHOR BOTTOM PLATE OF NEW EXTERIOR BEARING WALLS WITH 5/8" DIAMETER ANCHOR BOLTS AT 48 INCH ON CENTER (MAX.). USE 3X3X1/4 PLATE WASHER. MINIMUM BOLT EMBEDMENT 7 INCHES.
3. EXISTING BEARING WALL HOLD DOWN ANCHOR TO REMAIN. EACH ANCHOR IS ANCHORED TO THE FOUNDATION VIA JACK STUD SUPPORTS AT 1.5 KIPS PER LOCATION.
4. BEARING WALL HOLD DOWN "TENSION-TIE" ANCHOR. ANCHOR TO FOUNDATION WITH JACK STUD SUPPORTS AT 1.5 KIPS PER LOCATION.
5. EXISTING CAST-IN-PLACE CONCRETE SLAB-ON GRADE, ±4" THICK, TYPICALLY; ±5" THICK AT GARAGE.
6. EXISTING BRACED WALL LINE PURSUANT TO INTERNATIONAL RESIDENTIAL CODE (IRC) 2012 FOR LATERAL LOAD RESISTANT WIND LOAD BRACING @ 85-110 MPH WINDS AND SEISMIC BRACING FOR SEISMIC DESIGN CATEGORY (SDC) A.  
NOTE: MAXIMUM SPACING PERMISSIBLE: SINGLE FAMILY DETACHED TOWNHOUSE - 60 FEET.
7. EXTERIOR SLABS, PATIO AND PORCH: 5" THICK AIR-ENTRAINED CONCRETE SLAB WITH 6X6-W2.9X2.9 WELDED WIRE FABRIC SUPERS ON 6" THICK GRANULAR BASE WHERE INDICATED.
8. 2X6 STUD INFILL WALL @ 16" O.C. SPACING.
9. EXISTING BEARING POST/WALL TO REMAIN.
10. 4X4 SUPPORT POST.
11. PARTITION SUPPORT WALL: 2'-1" LONG. REFERENCE ARCH SHEET A-101 FOR LOCATION AND LENGTH VERIFICATION.

**GRAPHIC SCALE**



APPROVED		DATE	APPR
FOR COMMANDER NAVFAC		01/21/16	
ACTIVITY			
HERM ROLLINGS			
SATISFACTORY TO	DATE	MM/DD/YY	
DES VAA	DRW VAA	CHK NBJ	
FM/DM JTL/APK			
BRANCH MANAGER			
CHEF ENG/ARCH	RLW		
FIRE PROTECTION		DPS	
NAVAL FACILITIES ENGINEERING COMMAND		NORFOLK NAVAL STATION	
NAVAL FACILITIES ENGINEERING COMMAND		WALLOPS ISLAND, VA	
SURFACE COMBAT SYSTEM CENTER		P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING	
UNIT A - STRUCTURAL FOUNDATION PLAN			
SCALE: AS NOTED		PROJECT NO.: 1366573	
CONSTR. CONTR. NO.		12708280	
NAVFAC DRAWING NO.		SHEET 28 OF 121	
S-101		DRAWING REVISION: 10 MARCH 2009	



**FOUNDATION PLAN - UNIT B**  
 SCALE: 3/16" = 1'-0"

**GENERAL SHEET NOTES**

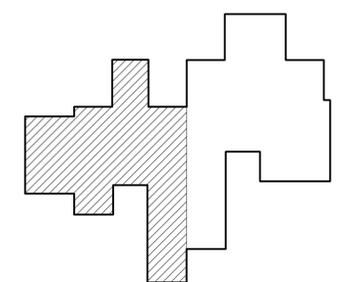
1. ALL MEASUREMENTS ARE FROM OUTSIDE FACE OF EXTERIOR STUD WALL. REFERENCE ARCHITECTURAL DRAWINGS AND FIELD VERIFY FOR EXACT LOCATIONS.
2. ACTUAL FINISH FLOOR ELEVATION SHALL MATCH EXISTING FINISH FLOOR ELEVATION AND SHALL SERVE AS THE REFERENCE ELEVATION, 0'-0".
3. TOP OF FOOTINGS SHALL BE -2'-0" BELOW REFERENCE ELEVATION.

**DEMOLITION NOTES**

1. EXISTING INTERIOR BRACED WALL TO BE REMOVED.
2. EXISTING PORCH SCREEN WALLS (THREE SIDES) TO BE REMOVED.

**KEYNOTES**

1. 4 INCH THICK CONCRETE FLOOR SLAB WITH CONTINUOUS REINFORCED CONCRETE FOUNDATION FOOTINGS. PLACE SLAB ON VAPOR BARRIER OVER 4 INCH POROUS FILL. REINFORCE SLAB WITH 6X6 W1.4XW1.4 WWF. PLACE WWF. 2 INCHES FROM THE TOP.
2. ANCHOR BOTTOM PLATE OF NEW EXTERIOR BEARING WALLS WITH 5/8" DIAMETER ANCHOR BOLTS AT 48 INCH ON CENTER (MAX.). USE 3X3X1/4 PLATE WASHER. MINIMUM BOLT EMBEDMENT 7 INCHES.
3. EXISTING BEARING WALL HOLD DOWN ANCHOR. EACH ANCHOR IS ANCHORED TO THE FOUNDATION VIA JACK STUD SUPPORTS AT 1.5 KIPS PER LOCATION.
4. BEARING WALL HOLD DOWN "TENTION-TIE" ANCHOR. ANCHOR TO FOUNDATION WITH JACK STUD SUPPORTS AT 1.5 KIPS PER LOCATION.
5. EXTERIOR SLABS, PATIO AND PORCH: 5" THICK, AIR-ENTRAINED CONCRETE SLAB WITH 6X6-W2.9X2.9 WELDED WIRE FABRIC SHEETS ON 6" THICK GRANULAR BASE WHERE INDICATED.
6. EXISTING BEARING POST TO REMAIN.
7. 4X4 POST SUPPORT POST.
8. EXISTING BRACED WALL LINE: REFERENCE SHEET S-101 KEYNOTE 6 FOR DETAILS.



**UNIT B KEY PLAN**  
 SCALE: NTS

**GRAPHIC SCALE**



NO.	DATE	DESCRIPTION
1	01/21/16	GENERAL REVISIONS 01

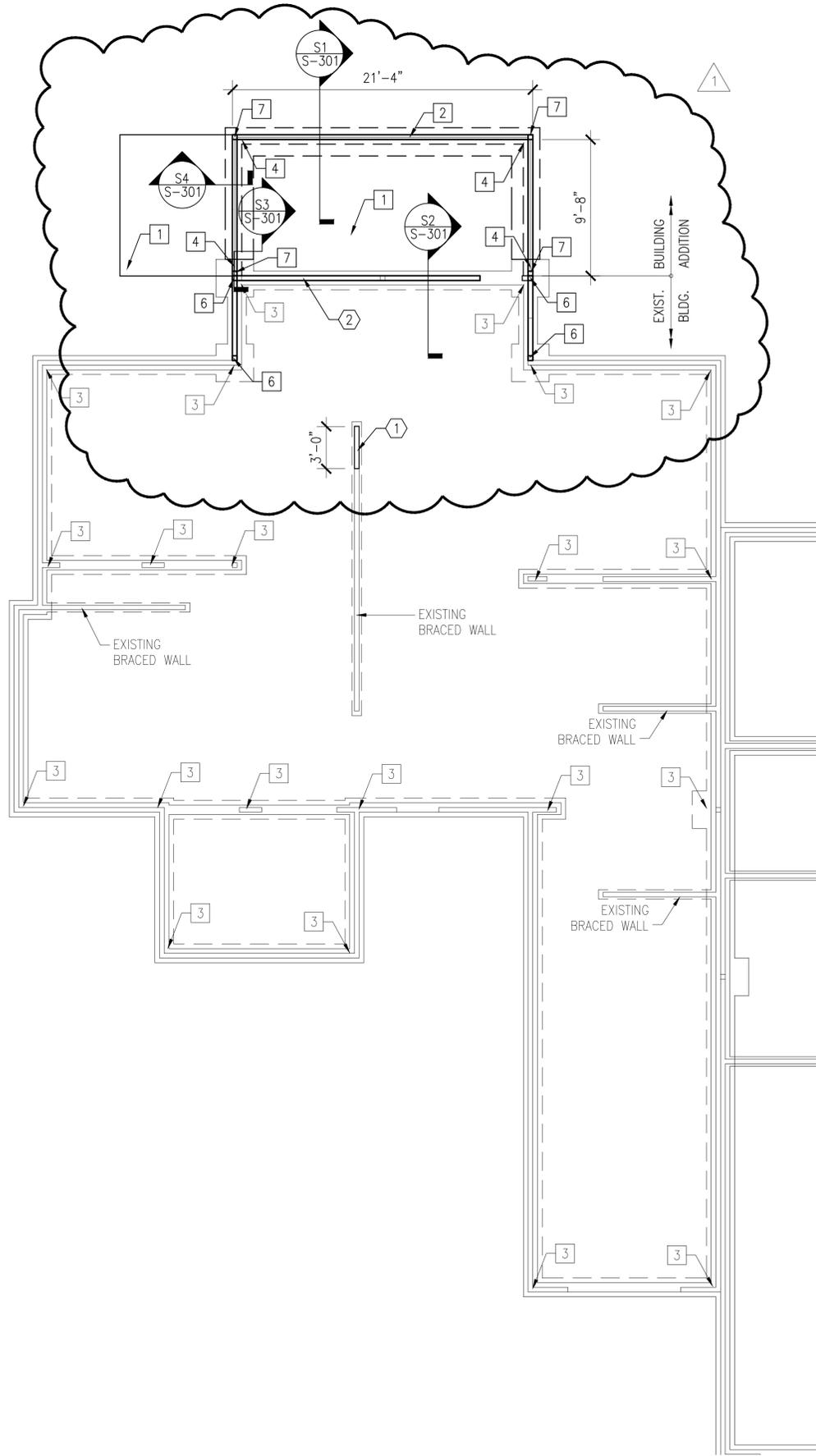


APPROVED	A/E: RWJ
FOR COMMANDER NAVFAC	
ACTIVITY	HERM ROLLINGS
SATISFACTORY TO DATE	MM/DD/YY
DES: VAA	DRW: VAA
CHK: NBJ	
FM/DM: JTL/APK	
BRANCH MANAGER	
CHEF/ENG/ARCH: RLW	
FIRE PROTECTION	DPS

DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND	NAVAL FACILITIES ENGINEERING COMMAND	NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT	NORFOLK NAVAL STATION	WALLOPS ISLAND, VA	UNIT B - STRUCTURAL FOUNDATION PLAN
<b>P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING</b>			
SCALE:	AS NOTED	PROJECT NO.:	1366573
CONSTR. CONTR. NO.	#####-##-####	NAVAC DRAWING NO.	12708281
SHEET	29	OF	121
<b>S-102</b>			

FILE NAME: P:\VA\Wallops Island\WALCON\2016\_1366573\_P1602\_DBS\_SkeletonRenovation\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\12708281-1366573-S-102\_UNIT B FOUNDATION PLAN.dwg LAYOUT NAME: S-102 PLOTTED: Friday, January 22, 2016 - 8:47am USER: vernon.mcdonald





**FOUNDATION PLAN - UNIT D**  
 SCALE: 3/16" = 1'-0"



**GENERAL SHEET NOTES**

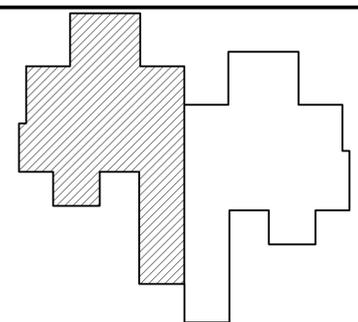
1. ALL MEASUREMENTS ARE FROM OUTSIDE FACE OF EXTERIOR STUD WALL. REFERENCE ARCHITECTURAL DRAWINGS AND FIELD VERIFY FOR EXACT LOCATIONS.
2. ACTUAL FINISH FLOOR ELEVATION SHALL MATCH EXISTING FINISH FLOOR ELEVATION AND SHALL SERVE AS THE REFERENCE ELEVATION, 0'-0".
3. TOP OF FOOTINGS SHALL BE -2'-0" BELOW REFERENCE ELEVATION.

**DEMOLITION NOTES**

1. EXISTING INTERIOR BRACED WALL TO BE REMOVED.
2. EXISTING PORCH SCREEN WALLS (THREE SIDES) TO BE REMOVED.

**KEYNOTES**

1. EXTERIOR SLABS, PATIO AND PORCH: 5" THICK AIR-ENTRAINED CONCRETE SLAB WITH 6X6-W2.9X2.9 WELDED WIRE FABRIC SHEETS ON 6" THICK GRANULAR BASE WHERE INDICATED. PLACE WWF. 2 INCHES FROM THE TOP.
2. ANCHOR BOTTOM PLATE OF NEW EXTERIOR BEARING WALLS WITH 5/8" DIAMETER ANCHOR BOLTS AT 48 INCH ON CENTER (MAX.). USE 3X3X1/4 PLATE WASHER. MINIMUM BOLT EMBEDMENT 7 INCHES.
3. EXISTING BEARING WALL HOLD DOWN ANCHOR TO REMAIN. EACH ANCHOR IS ANCHORED TO THE FOUNDATION VIA JACK STUD SUPPORTS AT 1.5 KIPS PER LOCATION.
4. BEARING WALL HOLD DOWN "TENSION-TIE" ANCHOR. ANCHOR TO FOUNDATION WITH JACK STUD SUPPORTS AT 1.5 KIPS PER LOCATION.
5. EXISTING BEARING POST TO REMAIN.
6. 4X4 SUPPORT POST.



**UNIT D KEY PLAN**  
 SCALE: NTS

**GRAPHIC SCALE**



NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	01/21/16	GENERAL REVISIONS 01			



APPROVED	A/E: NFO
FOR COMMANDER NAVFAC	
ACTIVITY	

HERM ROLLINGS	
SATISFACTORY TO	DATE MM/DD/YY
DES: VAA	DRW: VAA
FM/DM: JTL/APK	CHK: NBJ
BRANCH MANAGER	
CHEF/ENG/ARCH: RLW	
FIRE PROTECTION: DPS	

DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT	NORFOLK NAVAL STATION
SURFACE COMBAT SYSTEM CENTER	
WALLOPS ISLAND, VA	

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING	
UNIT D - STRUCTURAL FOUNDATION PLAN	
SCALE:	AS NOTED
PROJECT NO.:	1366573
CONSTR. CONTR. NO.:	#####-#-#-#
NAVFAC DRAWING NO.:	1278283
SHEET:	31 OF 121

<b>S-104</b>	
DRAWING REVISION: 10 MARCH 2009	

FILE NAME: P:\VA\Wallops Island\WALCON\2016\_1366573\_P1602\_DBS\_SkeletonRenovation\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\1278283-1366573-S-104 UNIT D FOUNDATION PLAN.dwg LAYOUT NAME: S-104 PLOTTED: Friday, January 22, 2016 - 8:49am USER: vernon.mcdonald

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### GENERAL SHEET NOTES

1. ALL MEASUREMENTS ARE FROM OUTSIDE FACE OF EXTERIOR STUD WALL. REFERENCE ARCHITECTURAL DRAWINGS AND FIELD VERIFY FOR EXACT LOCATIONS.
2. TRUSS BEARING ELEVATION SHALL MATCH THE EXISTING HOUSING UNIT AT APPROXIMATELY 8'-0" ABOVE FINISH FLOOR.

### KEYNOTES

1. ROOF TRUSSES SPACED 24-INCHES ON CENTER (O.C.) WITH PLYWOOD DECK SHEATHING AND ASPHALT SHINGLES. MATCH EXISTING ROOF OUTLINE AND CONFIGURATION.

TRUSSES SHALL BE DESIGNED FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARDS OF THE TRUSS PLATE INSTITUTE. ANCHOR ALL TRUSSES AT BEARING POINTS WITH MIN. 16 GA. (GALV.) STEEL HURRICANE TIES. MINIMUM ALLOWABLE LOAD = 1.0 KIPS. PROVIDE PERMANENT DIAGONAL GABLE END AND BOTTOM CHORD BRACING.

PLYWOOD ROOF SHEATHING SHALL BE 5/8 INCH APA STRUCTURAL 1, RATED SHEATHING, 32/16 SPAN, EXPOSURE 1. FASTEN SHEATHING TO STRUCTURAL MEMBERS WITH 10d COMMON (3" X 0.148" DIAM.) THREADED HARDENED STEEL NAILS. REFERENCE PLYWOOD DIAPHRAGM SCHEDULE SHEET S-302. APPLY CONSTRUCTION ADHESIVE TO STRUCTURAL MEMBERS BEFORE PLACING SHEATHING.

2. GLUE LAMINATED BEAM: SIZE 8 1/2" WIDE X 12 3/8" DEEP X 20'-6" LONG, INDUSTRIAL GRADE, SERIES 24F-E4, SOUTHERN PINE OUTER/INNER CORE LAMINATES, F<sub>bx</sub> = 2,400 PSI. SUPPORT WITH MIN. THREE (3) 2X10 JACK STUDS AT EACH END, ANCHORED TO CONCRETE FOUNDATION.

3. GLUE LAMINATED BEAM: SIZE 3 1/2" WIDE X 13 3/4" DEEP X 13'-4" LONG, INDUSTRIAL GRADE, SERIES 24F-E4, SOUTHERN PINE OUTER/INNER CORE LAMINATES, F<sub>bx</sub> = 2,400 PSI. REMOVE AND REPLACE (2) SETS OF (2) 2X8 BOX BEAMS WITH NEW GLUE LAMINATED TIMBER. SUPPORT WITH MIN. THREE (3) 2X6 JACK STUDS AT EACH END, ANCHORED TO CONCRETE FOUNDATION.

4. GLUE LAMINATED BEAM: SIZE 3 1/2" WIDE X 9 5/8" DEEP X 13'-3/8" LONG, INDUSTRIAL GRADE, SERIES 24F-E4, SOUTHERN PINE OUTER/INNER CORE LAMINATES, F<sub>bx</sub> = 2,400 PSI. REMOVE AND REPLACE (2) SETS OF (2) 1 3/4" X 9 1/2" LVL BEAMS WITH NEW GLUE LAMINATED TIMBER. SUPPORT WITH ITEM 5, GLU-LAM BEAM WITH GLU-LAM TOP FLANGE HANGER AT OPEN END AND MIN. THREE (3) 2X6 JACK STUD FRAMING (OTHER END) ANCHORED TO CONCRETE FOUNDATION.

5. GLUE LAMINATED BEAM: SIZE 3 1/2" WIDE X 11" DEEP X 4'-4" LONG, INDUSTRIAL GRADE, SERIES 24F-E4, SOUTHERN PINE OUTER/INNER CORE LAMINATES, F<sub>bx</sub> = 2,400 PSI.

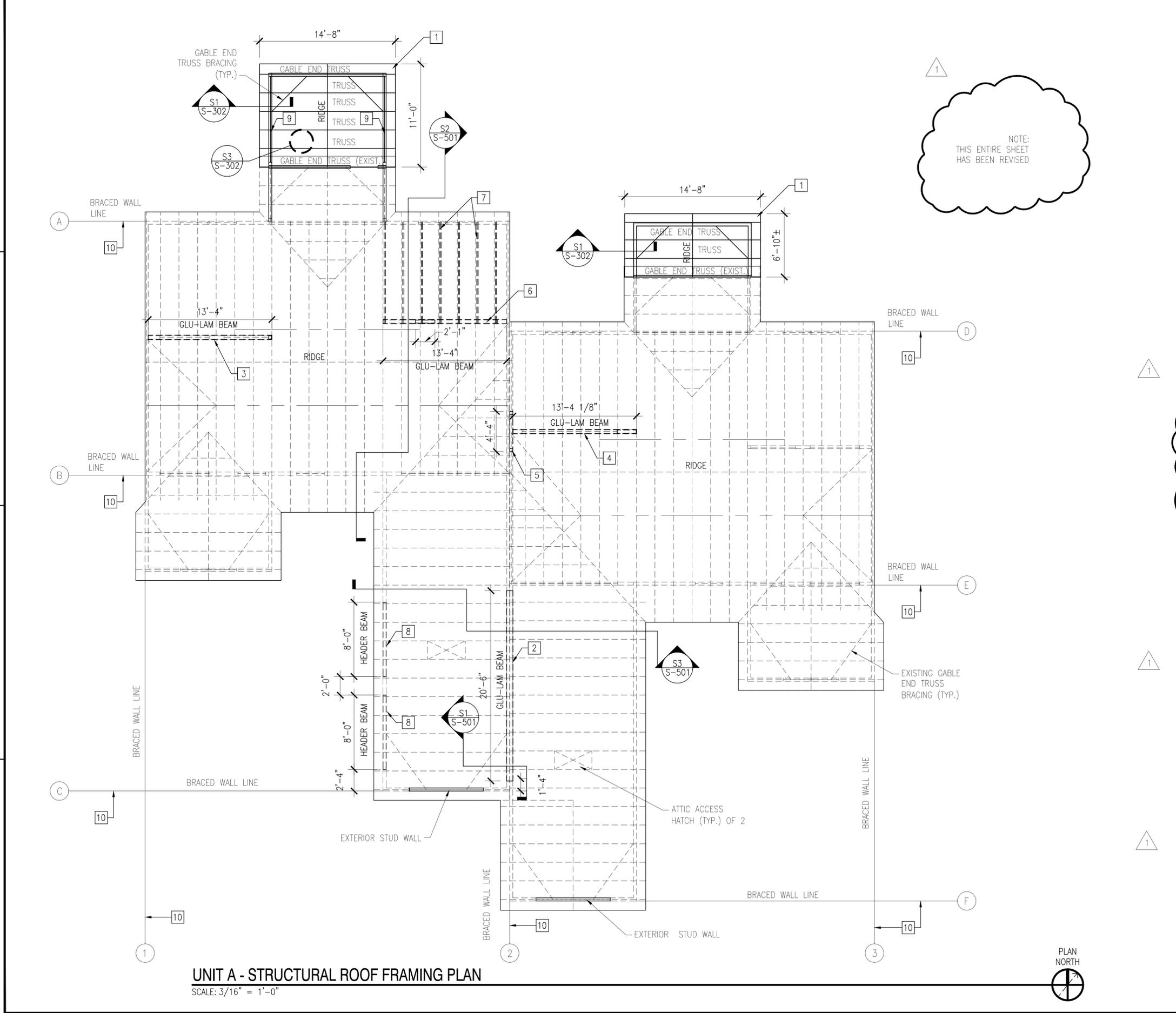
6. GLUE LAMINATED BEAM: SIZE 3 1/2" WIDE X 13 3/4" DEEP X 13'-4" LONG, CANTILEVERED, INDUSTRIAL GRADE, SERIES 24F-E4, SOUTHERN PINE OUTER/INNER CORE LAMINATES, F<sub>bx</sub> = 2,400 PSI. SUPPORT CANTILEVERED END WITH 2'-1" STUD WALL AND GLU-LAM TOP FLANGE HANGER AT OPEN END.

7. SEVEN (7) 2X6 10'-3" LONG, 24" O.C., HORIZONTAL CEILING SUPPORT JOISTS TO INFILL CATHEDRAL CEILING.
8. TWO (2) 2X8 8'-0" LONG, SOUTHERN PINE, NO. 2 DENSE HEADER BEAMS OVER GARAGE DOORS. F<sub>b</sub> = 1,400 PSI, F<sub>v</sub> = 175 PSI. FASTEN BEAMS TOGETHER WITH (2) ROWS OF 16d COMMON NAILS (3 1/2" X 0.162" DIAM.) AT 12 INCHES O.C. SUPPORT BEAMS WITH TWO (2) JACKS STUDS ANCHORED TO CONCRETE FOUNDATION.

9. TWO (2) 2X8, SOUTHERN PINE, NO. 2 DENSE BEAMS AT PATIO. F<sub>b</sub> = 1,400 PSI, F<sub>v</sub> = 175 PSI. FASTEN BEAMS TOGETHER WITH (2) ROWS OF 16d COMMON NAILS (3 1/2" X 0.162" DIAM.) AT 12 INCHES O.C.

10. EXISTING BRACED WALL LINE

NOTE:  
THIS ENTIRE SHEET  
HAS BEEN REVISED



### UNIT A - STRUCTURAL ROOF FRAMING PLAN

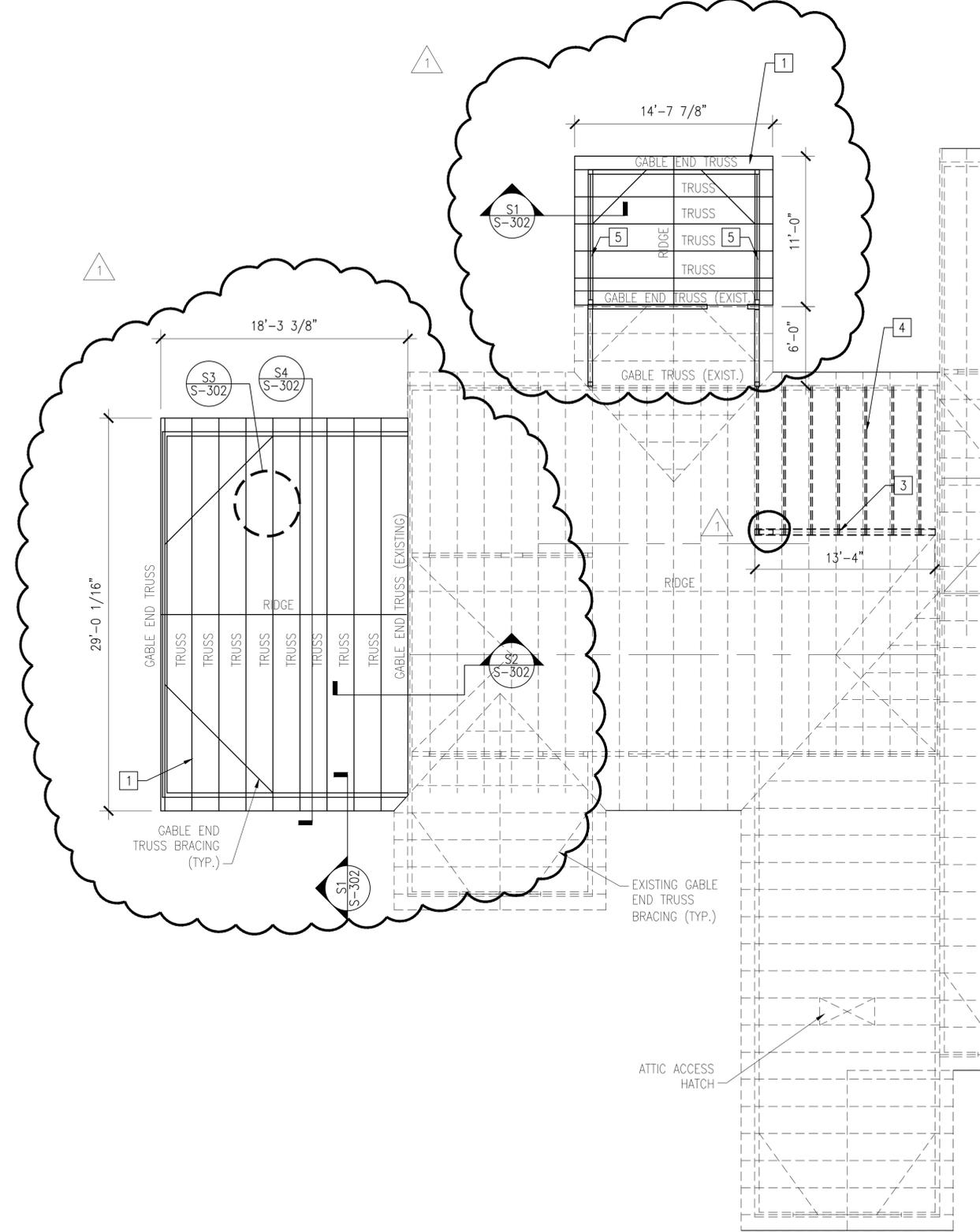
SCALE: 3/16" = 1'-0"



### GRAPHIC SCALE



GENERAL REVISIONS		DATE	APPR.
1	GENERAL REVISIONS 01	01/21/16	
APPROVED		A/E: NFO	SEAL
FOR COMMANDER NAVFAC		HERM ROLLINGS	
ACTIVITY		SCHEDULE TO DATE MM/DD/YY	
DES: VAA	DRW: VAA	CHK: NBJ	
FM/DM: JTL/APK	BRANCH MANAGER		
CHIEF ENG/ARCH: RLW		DPS	
FIRE PROTECTION			
NAVAL FACILITIES ENGINEERING COMMAND		NORFOLK NAVAL STATION	
NAVAL FACILITIES ENGINEERING COMMAND		WALLOPS ISLAND, VA	
SURFACE COMBAT SYSTEM CENTER		P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING	
HAMPTON ROADS IPT		UNIT A - STRUCTURAL ROOF FRAMING PLAN	
SCALE: AS NOTED		PROJECT NO.: 1366573	
CONSTR. CONTR. NO.		12708284	
NAVFAC DRAWING NO.		SHEET 32 OF 121	
S-201		DRAWING REVISION: 10 MARCH 2009	



**UNIT B - ROOF FRAMING PLAN**  
 SCALE: 3/16" = 1'-0"

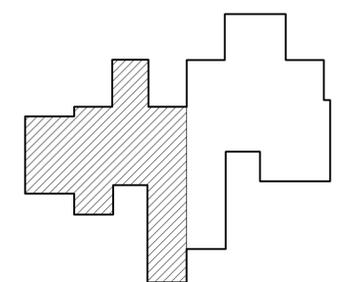


**GENERAL SHEET NOTES**

1. ALL MEASUREMENTS ARE FROM OUTSIDE FACE OF EXTERIOR STUD WALL. REFERENCE ARCHITECTURAL DRAWINGS AND FIELD VERIFY FOR EXACT LOCATIONS.
2. TRUSS BEARING ELEVATION SHALL MATCH THE EXISTING HOUSING UNIT AT APPROXIMATELY 8'- 0" ABOVE FINISH FLOOR.

**KEYNOTES**

1. ROOF TRUSSES SPACED 24-INCHES ON CENTER (O.C.) WITH PLYWOOD DECK SHEATHING AND ASPHALT SHINGLES. MATCH EXISTING ROOF OUTLINE AND CONFIGURATION.  
  
TRUSSES SHALL BE DESIGNED FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARDS OF THE TRUSS PLATE INSTITUTE. ANCHOR ALL TRUSSES AT BEARING POINTS WITH MIN. 16 GA. (GALV.) STEEL HURRICANE TIES. MINIMUM ALLOWABLE LOAD = 1.0 KIPS. PROVIDE PERMANENT DIAGONAL GABLE END AND BOTTOM CHORD BRACING.  
  
PLYWOOD ROOF SHEATHING SHALL BE 5/8 INCH APA STRUCTURAL 1, RATED SHEATHING, 32/16 SPAN, EXPOSURE 1. FASTEN SHEATHING TO STRUCTURAL MEMBERS WITH 10d COMMON (3" X 0.148" DIAM.) THREADED HARDENED STEEL NAILS. REFERENCE PLYWOOD DIAPHRAGM SCHEDULE SHEET S-302. APPLY CONSTRUCTION ADHESIVE TO STRUCTURAL MEMBERS BEFORE PLACING SHEATHING.
3. GLUE LAMINATED BEAM: SIZE 3 1/2" WIDE X 13 3/4" DEEP X 13'-4" LONG, CANTILEVERED, INDUSTRIAL GRADE, SERIES 24F-E4, SOUTHERN PINE OUTER/INNER CORE LAMINATES, Fbx = 2,400 PSI.
4. SEVEN (7) 2X6 10'-3" LONG, 24" O.C., HORIZONTAL CEILING SUPPORT JOISTS TO INFILL CATHEDRAL CEILING.
5. TWO (2) 2X8 SOUTHERN PINE NO. 2 DENSE BEAMS. Fb = 1,400 PSI, Fv = 175 PSI. FASTEN BEAMS TOGETHER WITH (2) ROWS OF 16d COMMON NAILS (3 1/2" X 0.162")



**UNIT B KEY PLAN**  
 SCALE: NTS

**GRAPHIC SCALE**



NO.	DATE	DESCRIPTION	BY	CHK	APPR
1	01/21/16	GENERAL REVISIONS 01			



APPROVED	A/E: R/W	
FOR COMMANDER NAVFAC		
ACTIVITY	HERM ROLLINGS	
SATISFACTORY TO DATE	MM/DD/YY	
DES: VAA	DRW: VAA	CHK: NBJ
FM/DM: JTL/APK		
BRANCH MANAGER		
CHIEF ENG/ARCH: RLW		
FIRE PROTECTION:	DPS	

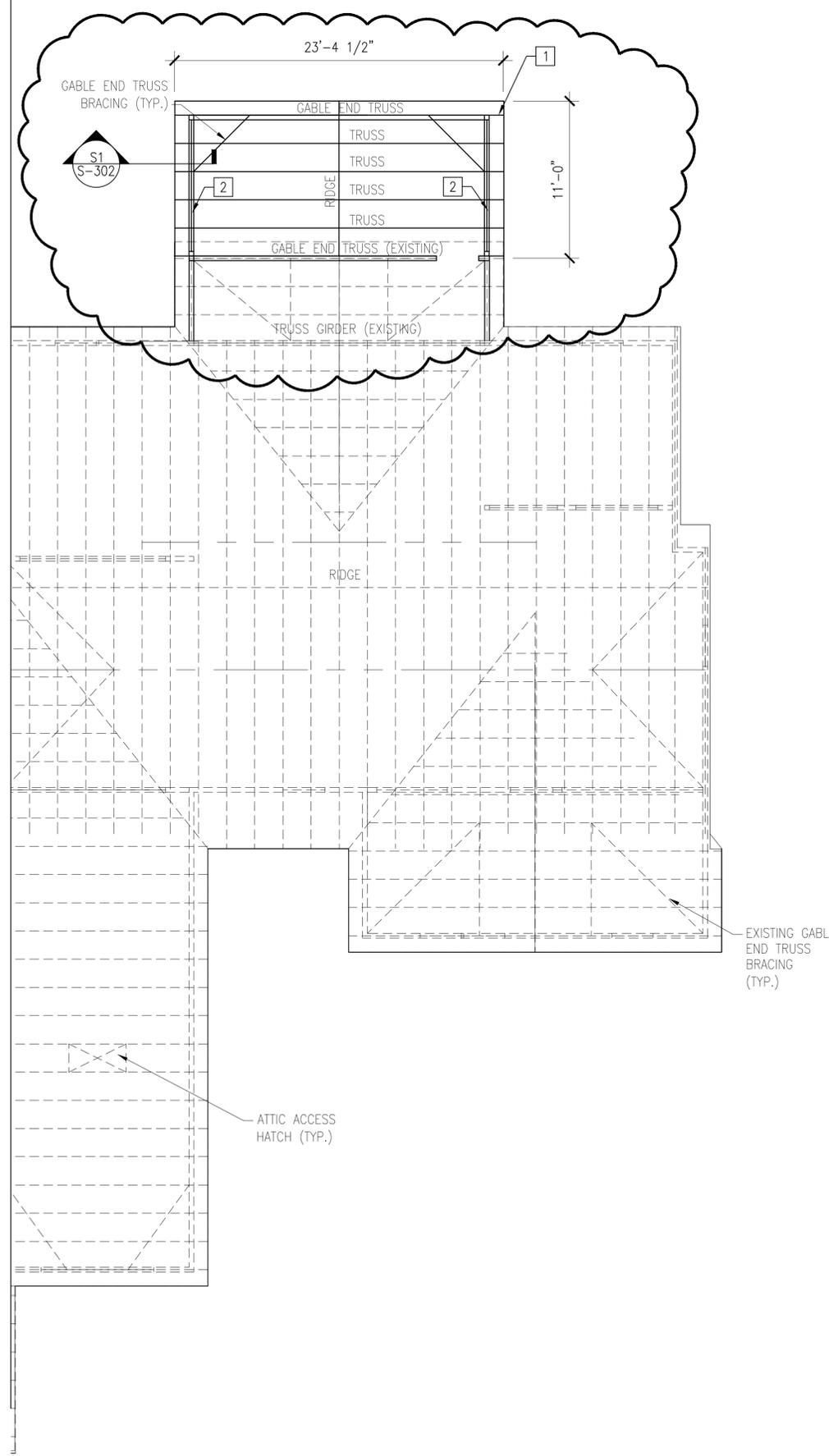
DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 HAMPTON ROADS IPT  
 NAVFAC ENGINEERING COMMAND  
 NORFOLK NAVAL STATION  
 WOLLOPS ISLAND, VA  
 SURFACE COMBAT SYSTEM CENTER  
**P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING**  
 UNIT B - ROOF FRAMING PLAN

SCALE:	AS NOTED
PROJECT NO.:	1366573
CONSTR. CONTR. NO.	####-#-#-####
NAVFAC DRAWING NO.	12708285
SHEET	33 OF 121
<b>S-202</b>	

FILE NAME: P:\VA\Wallops Island\WILCON\2016\_1366573\_P1602\_DBS\_SkeletalRenovation\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\12708285-1366573-S-202 UNIT B ROOF FRAMING PLAN.dwg LAYOUT NAME: S-202 PLOTTED: Friday, January 22, 2016 - 8:39am USER: venomantaberson2

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**UNIT C - ROOF FRAMING PLAN**  
 SCALE: 3/16" = 1'-0"

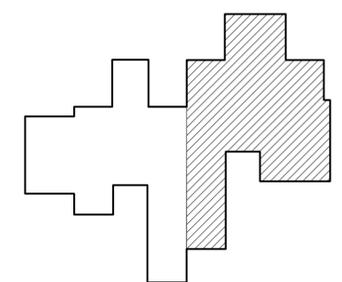


**GENERAL SHEET NOTES**

- ALL MEASUREMENTS ARE FROM OUTSIDE FACE OF EXTERIOR STUD WALL. REFERENCE ARCHITECTURAL DRAWINGS AND FIELD VERIFY FOR EXACT LOCATIONS.
- TRUSS BEARING ELEVATION SHALL MATCH THE EXISTING HOUSING UNIT AT APPROXIMATELY 8'- 0" ABOVE FINISH FLOOR.

**KEYNOTES**

- ROOF TRUSSES SPACED 24-INCHES ON CENTER (O.C.) WITH PLYWOOD DECK SHEATHING AND ASPHALT SHINGLES. MATCH EXISTING ROOF OUTLINE AND CONFIGURATION.  
  
TRUSSES SHALL BE DESIGNED FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARDS OF THE TRUSS PLATE INSTITUTE. ANCHOR ALL TRUSSES AT BEARING POINTS WITH MIN. 16 GA. (GALV.) STEEL HURRICANE TIES. MINIMUM ALLOWABLE LOAD = 1.0 KIPS. PROVIDE PERMANENT DIAGONAL GABLE END AND BOTTOM CHORD BRACING.  
  
PLYWOOD ROOF SHEATHING SHALL BE 5/8 INCH APA STRUCTURAL 1, RATED SHEATHING, 32/16 SPAN, EXPOSURE 1. SHEATHING SHALL BE FASTENED TO STRUCTURAL MEMBERS WITH 10d COMMON (3" X 0.148" DIAM.) THREADED HARDENED STEEL NAILS. REFERENCE PLYWOOD DIAPHRAGM, SHEET S-302. APPLY CONSTRUCTION ADHESIVE TO STRUCTURAL MEMBERS BEFORE PLACING SHEATHING.
- TWO (2) 2X8 SOUTHERN PINE NO. DENSE BEAMS AT PATIO. Fb = 1,400 PSI, Fv = 175 PSI. FASTEN BEAMS TOGETHER WITH (2) ROWS OF 16d COMMON NAILS (3 1/2" X 0.162 DIAM. AT 12 INCHES O.C.



**UNIT C KEY PLAN**  
 SCALE: NTS

**GRAPHIC SCALE**



NO.	DATE	DESCRIPTION
1	01/21/16	GENERAL REVISIONS 01



APPROVED	A/E: N/A	
FOR COMMANDER NAVFAC		
ACTIVITY	HERM ROLLINGS	
SATISFACTORY TO	DATE MM/DD/YY	
DES: VAA	DRW: VAA	CHK: NBJ
FM/DM: JTL/APK		
BRANCH MANAGER		
CHEF/ENG/ARCH: RLW		
FIRE PROTECTION:	DPS	

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 HAMPTON ROADS IPT  
 NAVFAC ENGINEERING COMMAND  
 NORFOLK NAVAL STATION  
 WOLLOPS ISLAND, VA  
**P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING**  
 UNIT C - STRUCTURAL ROOF FRAMING PLAN

SCALE:	AS NOTED
PROJECT NO.:	1366573
CONSTR. CONTR. NO.	#####-#-#-#
NAVFAC DRAWING NO.	12708286
SHEET	34 OF 121
<b>S-203</b>	

FILE NAME: P:\VA\Wallops Island\WILCON\2016\_1366573\_P1602\_DBS\_SketchUp\Renovation\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\12728-1366573-5-203 UNIT C ROOF FRAMING PLAN.dwg LAYOUT NAME: S-203 PLOTTED: Friday, January 22, 2016 - 8:41am USER: vemon.amberson2

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FILE NAME: P:\VA\Wallops Island\Wallops Island\2016\_1366573\_P1602\_DBS\_SkeletonRenovation\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\12728-1366573-5-301\_TYPICAL DETAILS.dwg LAYOUT NAME: S-301 PLOTTED: Friday, January 22, 2016 - 8:36am USER: venturanderson2

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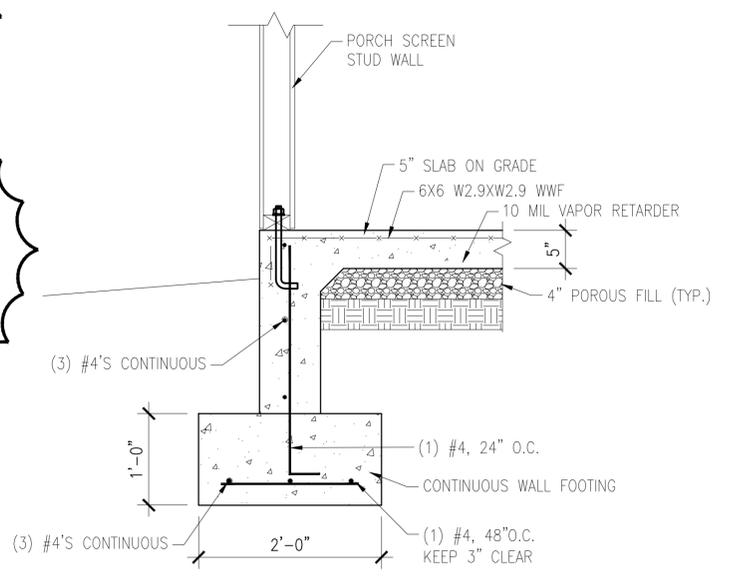
1

2

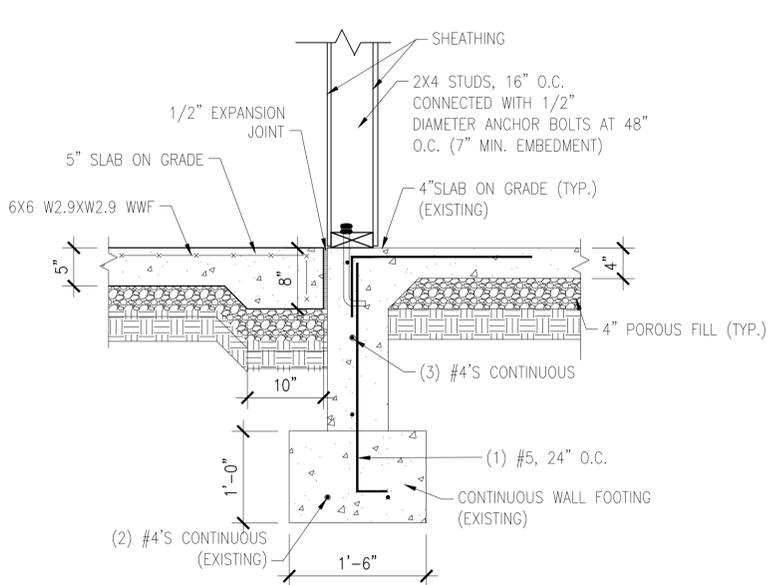
3

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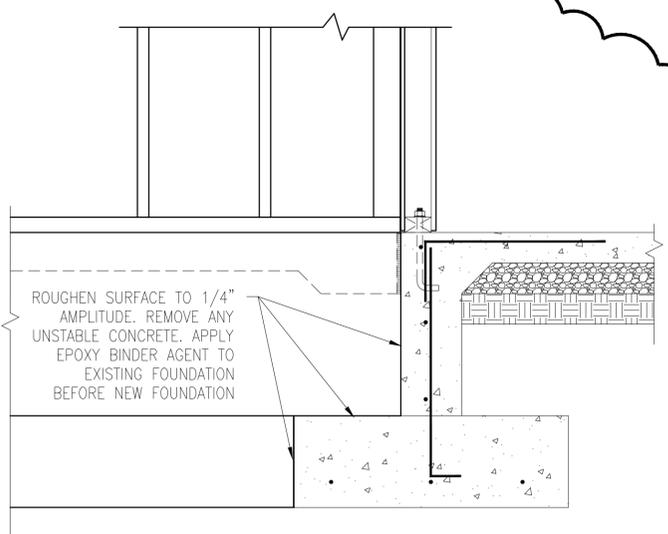
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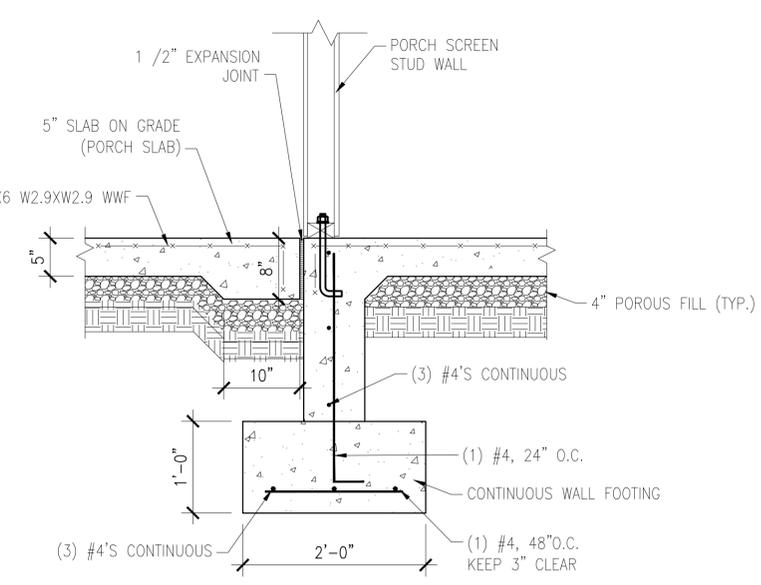
**S1** DETAIL  
SCALE: 1" = 1'-0" S-101, S-102, S-103, S-104



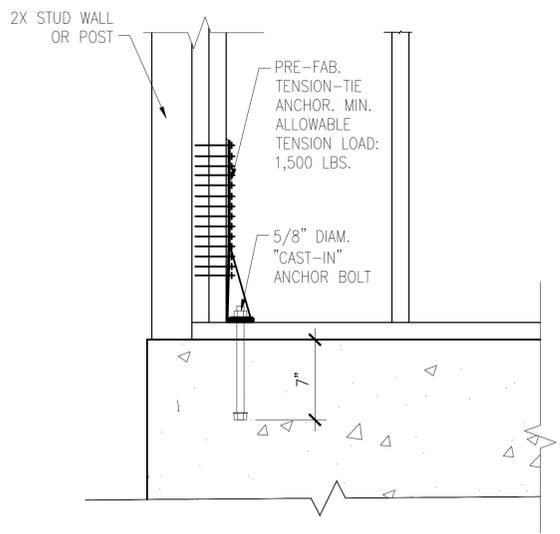
**S2** DETAIL  
SCALE: 1" = 1'-0" S-101, S-102, S-103, S-104



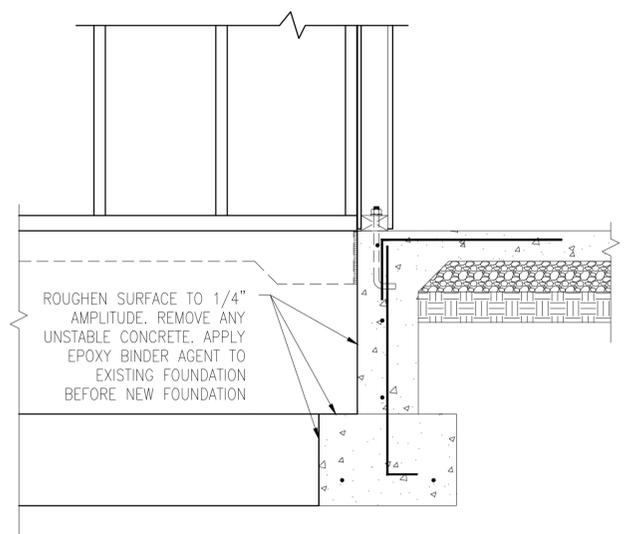
**S3** DETAIL  
SCALE: 1" = 1'-0" S-101, S-102, S-103, S-104



**S4** DETAIL  
SCALE: 1" = 1'-0" S-101, S-102, S-103, S-104



**S5** DETAIL  
SCALE: 1" = 1'-0" S-101, S-102, S-103, S-104



**S6** DETAIL  
SCALE: 1" = 1'-0" S-102

01/21/16	DATE	APPR
GENERAL REVISIONS 01	DESCRIPTION	SYN
1		

APPROVED

FOR COMMANDER NAVFAC:

ACTIVITY: HERM ROLLINGS

SATISFACTORY TO DATE: MM/DD/YY

DES: VAA | DRW: VAA | CHK: NBJ

FM/DM: JTL/APK

BRANCH MANAGER:

CHIEF ENG/ARCH: RLW

FIRE PROTECTION: DPS

NAVAL FACILITIES ENGINEERING COMMAND

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK NAVAL STATION

WALLOPS ISLAND, VA

SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

TYPICAL DETAILS

SCALE: AS NOTED

PROJECT NO.: 1366573

CONSTR. CONTR. NO. #####-#-#-####

NAVFAC DRAWING NO. 12708288

SHEET 36 OF 127

**S-301**

DRAWING REVISION: 10 MARCH 2009

1

2

3

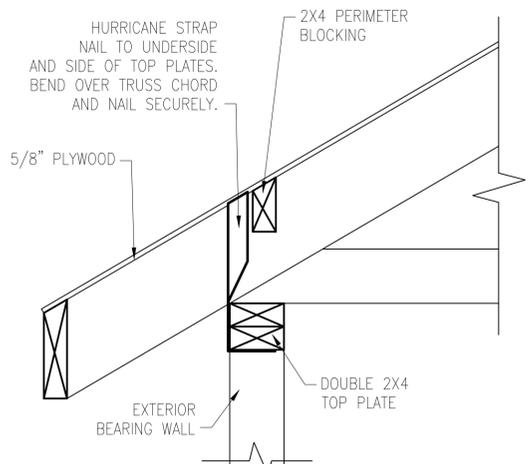
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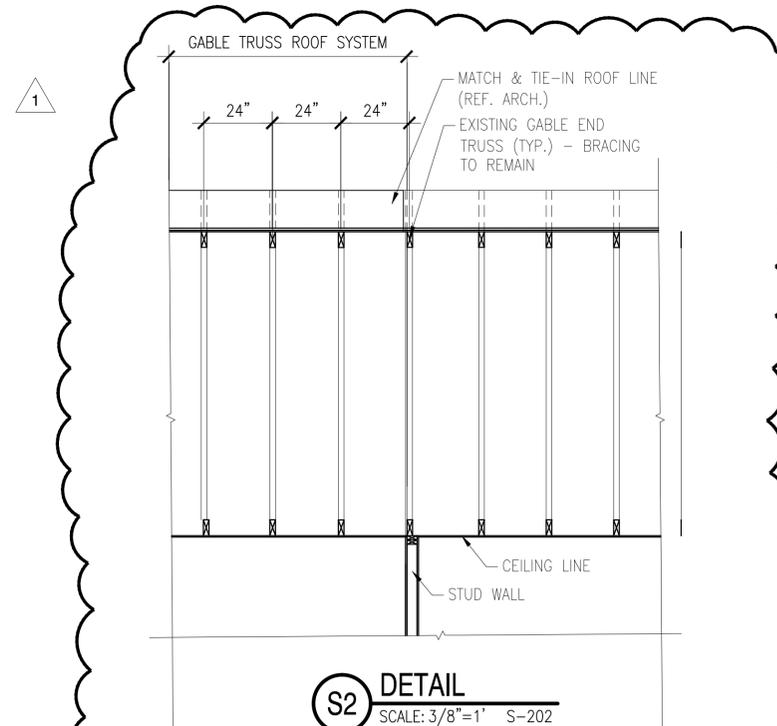
2

3

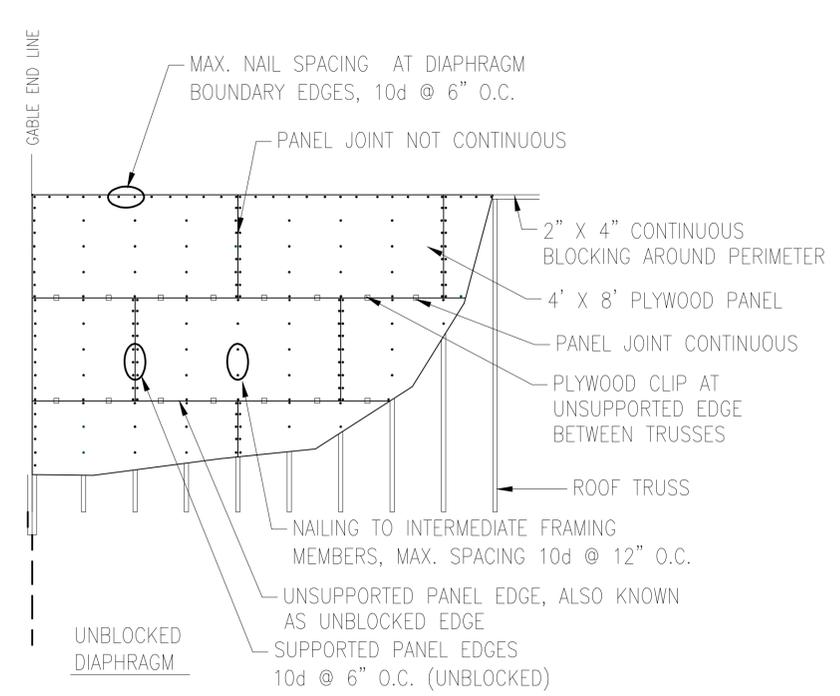
4



**S1** **DETAIL - TRUSS BEARING**  
SCALE: NTS S-201, S-202, S-203, S-204



**S2** **DETAIL**  
SCALE: 3/8"=1' S-202



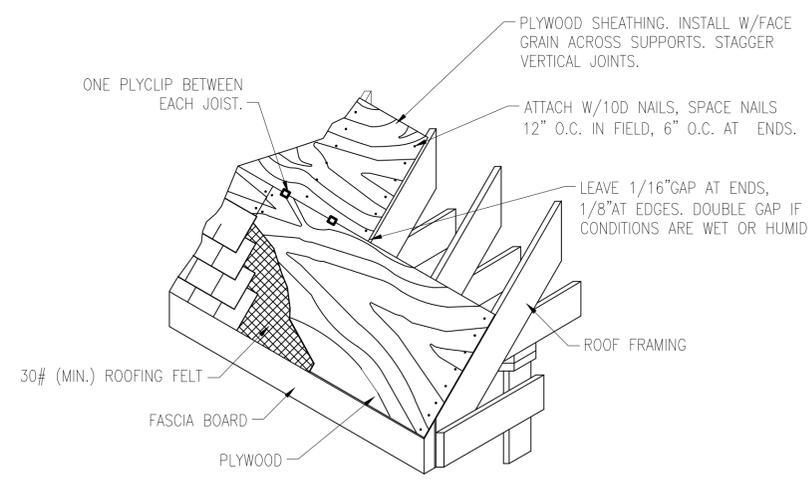
**PLYWOOD ROOF DIAPHRAGM SCHEDULE**  
SCALE: 3/4"=1'-0"

NOTES:

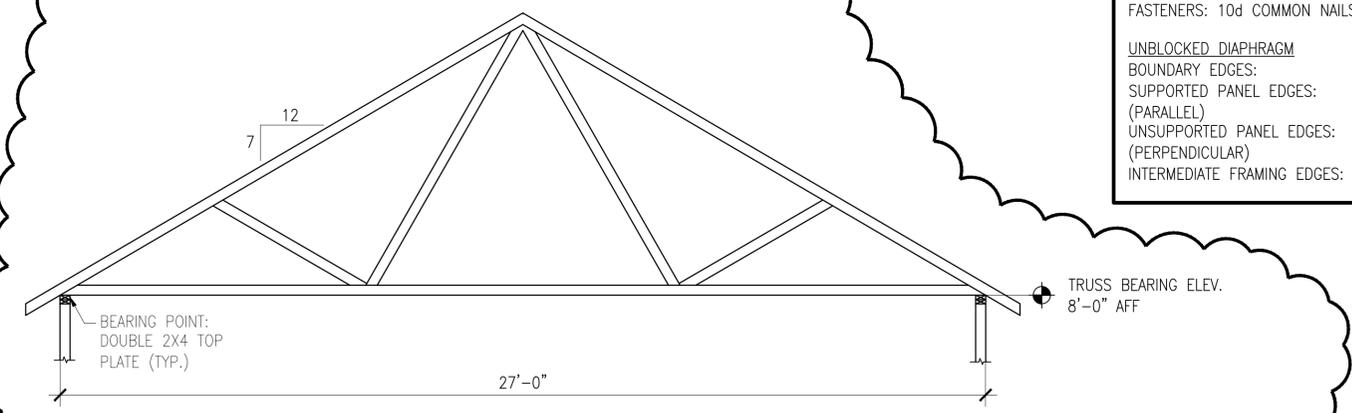
CASE 1 LOADING PLYWOOD DIAPHRAGM NAILING:  
FASTENERS: 10d COMMON NAILS (3" X 0.148" DIAMETER)

UNBLOCKED DIAPHRAGM

BOUNDARY EDGES:	10d's @ 6" O.C.
SUPPORTED PANEL EDGES: (PARALLEL)	10d's @ 6" O.C.
UNSUPPORTED PANEL EDGES: (PERPENDICULAR)	PLYCLIP
INTERMEDIATE FRAMING EDGES:	10d's @ 12" O.C.



**S3** **DETAIL - PLYWOOD SHEATHING**  
SCALE: NTS S-201, S-202, S-203, S-204



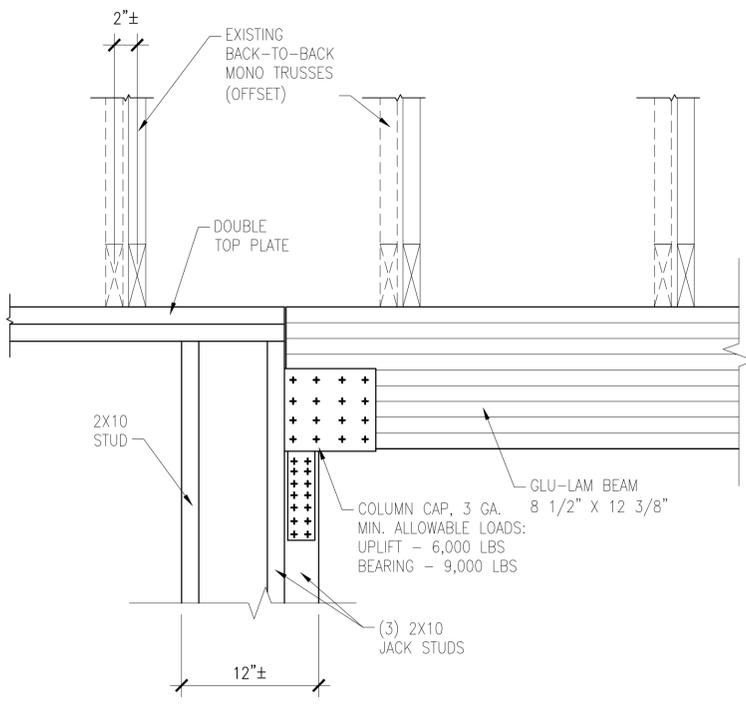
**S4** **DETAIL - COMMON "GIRDER" TRUSS (TYP.)**  
SCALE: NTS S-202

APPROVED	DATE	APP'R
FOR COMMANDER NAVFAC	01/21/16	
ACTIVITY	GENERAL REVISIONS 01	DESCRIPTION
HERM ROLLINGS	1	
SATISFACTORY TO DATE	MM/DD/YY	
DES: VAA	DRW: VAA	CHK: NBJ
FM/DM: JTL/APK		
BRANCH MANAGER		
CHEF ENG/ARCH		
FIRE PROTECTION	DPS	
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND	
HAMPTON ROADS IPT	NORFOLK NAVAL STATION	
SURFACE COMBAT SYSTEM CENTER	WALLOPS ISLAND, VA	
<b>P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING</b>		
TYPICAL ROOF FRAMING DETAILS		
SCALE: AS NOTED	PROJECT NO.: 1366573	
CONSTR. CONTR. NO.	####-##-####	
NAVFAC DRAWING NO.	12708289	
SHEET 37	OF 121	
<b>S-302</b>		
DRAWING REVISION: 10 MARCH 2009		

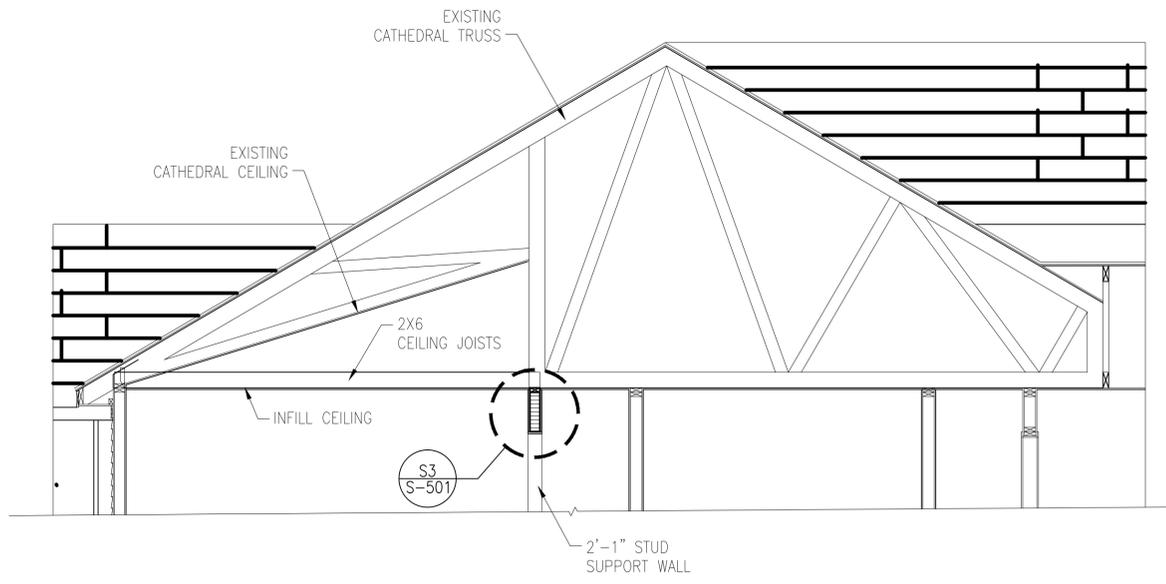
FILE NAME: P:\VA\Wallops Island\WICON\2016\_1366573\_P1602\_DBS\_SkeletonRenovation\Conversion\B\_Design\Drawings\Sheet Files\07\_Structural\2228-1366573-S-302\_TYPICAL ROOF FRAMING DETAILS.dwg LAYOUT NAME: S-302 PLOTTED: Friday, January 22, 2016 - 8:33am USER: vermoranderson2

UNCLASSIFIED//FOR OFFICIAL USE ONLY

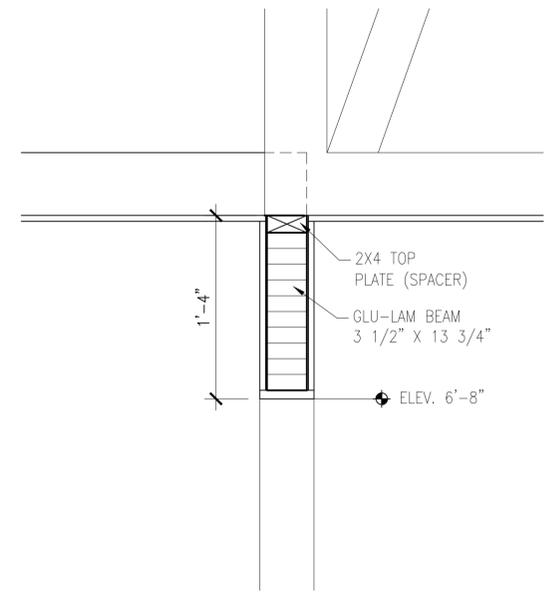
UNCLASSIFIED//FOR OFFICIAL USE ONLY



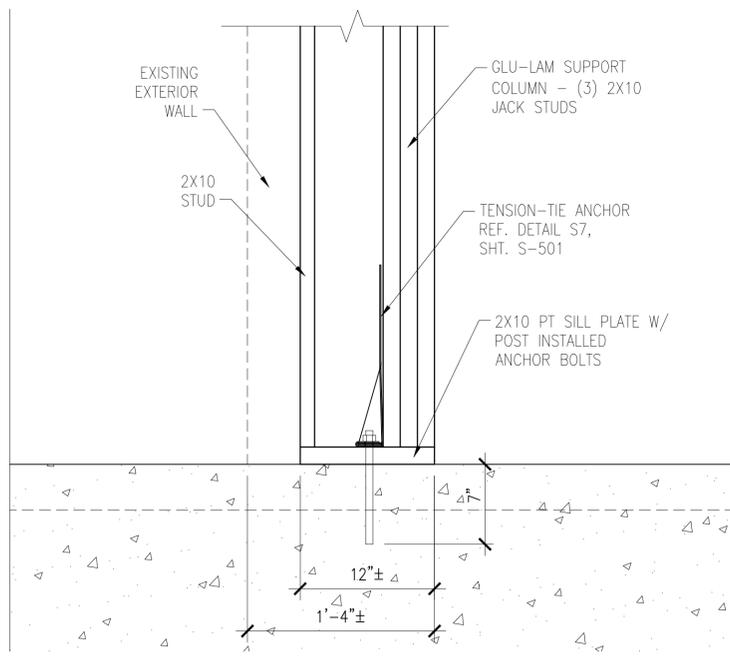
**S1 DETAIL**  
SCALE: 1 1/2" = 1'-0"  
S-201



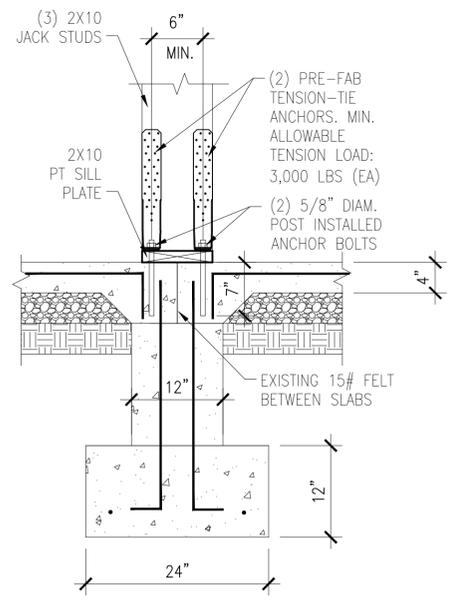
**S2 DETAIL**  
SCALE: 3/8" = 1'-0"  
S-201



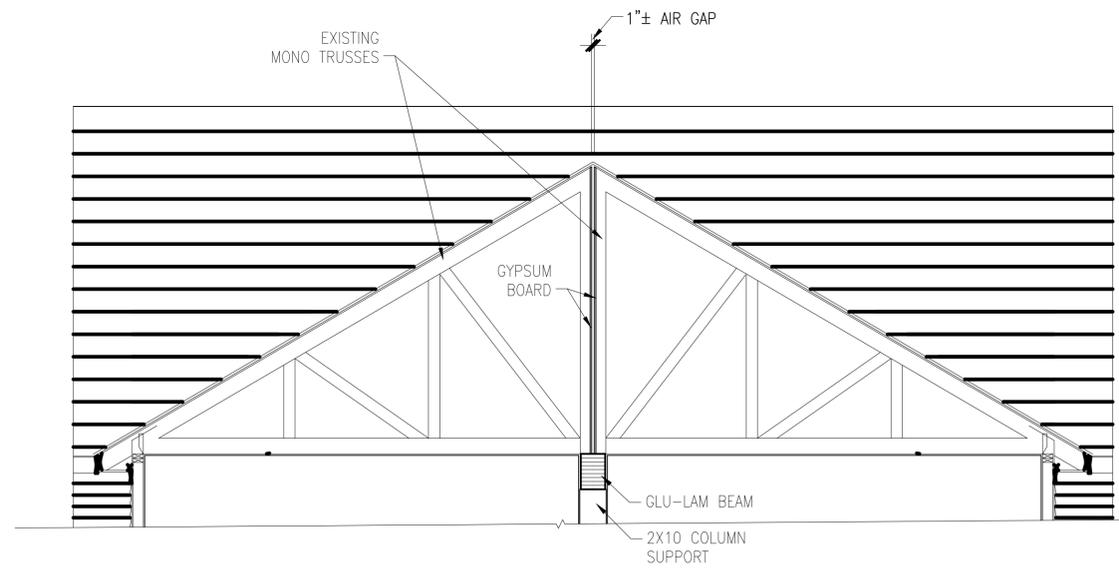
**S3 DETAIL**  
SCALE: 1 1/2" = 1'-0"  
S-501



**S6 DETAIL**  
SCALE: 1 1/2" = 1'-0"  
S-101

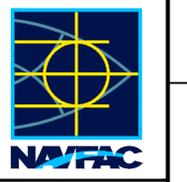


**S7 DETAIL**  
SCALE: 3/8" = 1'-0"  
S-101



**S3 DETAIL**  
SCALE: 3/8" = 1'-0"  
S-201

NO.	DATE	DESCRIPTION	BY	CHK	APPR
1	01/21/16	GENERAL REVISIONS 01			



APPROVED	A/E: NFO
FOR COMMANDER NAVFAC	
ACTIVITY	HERM ROLLINGS
SATISFACTORY TO DATE	MM/DD/YY
DES	VAA   DRW   VAA   CHK   NBU
FM/DM	JTL/APK
BRANCH MANAGER	
CHIEF ENG/ARCH	RLW
FIRE PROTECTION	DPS

DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT	NAVAL FACILITIES ENGINEERING COMMAND
SURFACE COMBAT SYSTEM CENTER	NORFOLK NAVAL STATION
WALLOPS ISLAND, VA	

**P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING**

DETAILS

SCALE:	AS NOTED
PROJECT NO.:	1366573
CONSTR. CONTR. NO.	####-##-###
NAVFAC DRAWING NO.	12708290
SHEET	32 OF 121