NORTH
SITE PLAN
SCALE 1/128"=1'0"

NORTH
SITE PLAN
SCALE 1/16"=1'0"

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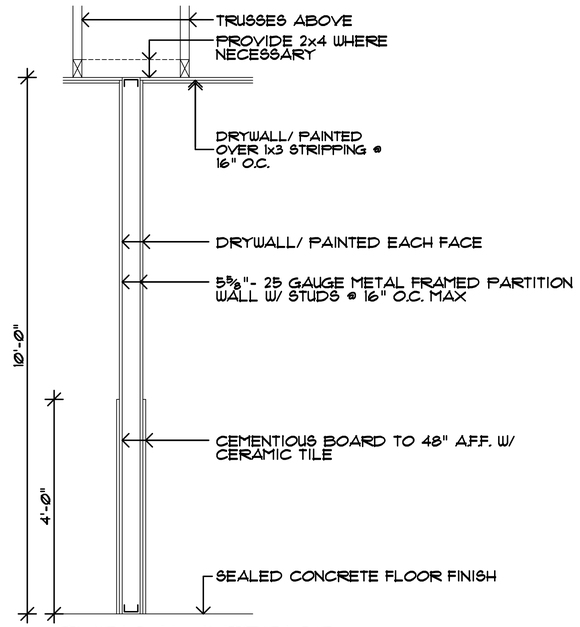
Cert. of Auth. No. A26001455
LOUIS C. KALLINOS®, AIA
FLA. REG. NO. AR 9909

DATE
23 SEP 2017

CORAL REEF PARK/ NEW RESTROOMS

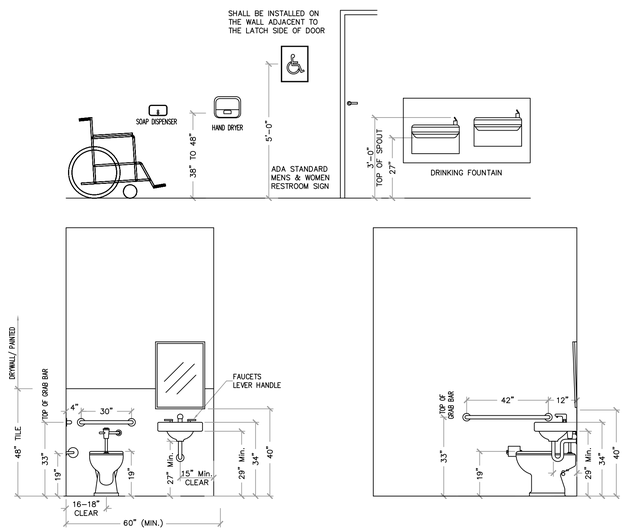
7895 SW 152 STREET
PALMETTO BAY, FLORIDA

SP-1



TYPICAL INTERIOR WALL SECTION

Ⓒ SCALE ¾"=1'0"



TYP. HANDICAP FIXTURES MOUNTING HEIGHTS. 3/8" = 1'0"

GENERAL NOTES

1. THIS IS A REMODELING OF EXISTING / WHERE EXISTING CONCEALED CONDITIONS MAY EXIST/ ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING W/ THE WORK
2. ALL WORK IS TO COMPLY W/ ALL APPLICABLE CODES INCLUDING 2014 FLA. BLDG. CODE EXISTG. ALTERATION LEVEL 2
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD DETERMINE AREAS TO BE CUT-OUT FROM THE EXISTING WALLS & CEILING TO THEN PATCH & PAINT TO ACCOMMODATE FOR NEW MECHANICAL/ ELECTRICAL & PLUMBING

SCOPE OF NEW WORK

NEW MEN'S & WOMEN'S RESTROOM= 207 SQ. FT.

NEW WORK LEGEND

Ⓐ PROVIDE NEW CONCRETE BLOCK WALL CONSTRUCTION/ CONCRETE FOUNDATION & SLAB/ W/ PRE-FAB WOOD TRUSS ROOF STRUCTURE/ (SEE STRUCTURAL SHEETS)
Ⓑ INSTALL NEW CONCRETE SLAB (SEE STRUCTURAL SHEETS)
Ⓒ PROVIDE NEW 5⅜"- 25 GAUGE METAL FRAMED PARTITION W/ CEMENTIOUS BOARD TO 48" A.F.F. W/ CERAMIC TILE/ DRYWALL FINISHED & PAINTED ABOVE W/ BASE EACH FACE
Ⓓ PROVIDE SEALED CONCRETE FLOOR FINISH
Ⓔ INSTALL NEW SINKS & FAUCETS (OWNER SUPPLIED)/ W/ HOT & COLD VALVES
Ⓕ INSTALL NEW TOILET
Ⓖ PROVIDE NEW 42" (ADA COMPLIANT) GRABBAR
Ⓗ PROVIDE NEW 36" (ADA COMPLIANT) GRABBAR
Ⓙ INSTALL NEW ELECTRICAL PANEL (SEE ELECTRICAL SHEETS)
Ⓚ INSTALL NEW HI-LO ADA DRINKING FOUNTAIN
Ⓛ INSTALL NEW 36" HIGH ALUMINUM PICKET RAILING (CONTRACTOR TO SUBMIT SHOP DWGS. FOR OWNER/ ARCHITECT REVIEW & APPROVAL)/ COLOR TO BE DETERMINED W/ OWNER
Ⓜ INSTALL NEW STEEL COLUMN WRAPPED W/ 8" ♦ KEYSTONE/ INSTALL WOOD TRELLIS (SEE ELEVATIONS & STRUCTURAL SHEETS)
Ⓝ PROVIDE NEW ASPHALT THIS AREA (SEE SITE PLAN & SEE DETAIL THIS SHEET)
Ⓟ PROVIDE NEW R-30 INSULATION IN CEILING
Ⓠ INSTALL NEW 24"x36" LOUVRE (SEE MECHANICAL SHEETS)
Ⓡ EXPOSED CONCRETE BLOCK FINISH (3 WALLS)
Ⓢ CONTRACTOR IS TO PROVIDE AN ENCLOSURE FOR THE 8 SOLAR BATTERIES & DC-AC INVERTER/ PROVIDE STEEL BRACKET SYSTEM & SOLID STEEL PANEL ENCLOSURE W/ KEYED DOOR ACCESS PANELS (SHOP DWGS. ARE TO BE PROVIDED FOR OWNER/ ARCHITECT REVIEW/ APPROVAL)
Ⓣ PROVIDE NEW ±22½"x30" ATTIC ACCESS PANEL (BETWEEN TRUSSES) W/ CODE APPROVED LATCH MECHANISM
Ⓤ PROVIDE NEW SOLAR PANELS (SEE ELECTRICAL & PLUMBING SHEETS)

RESTROOM FINISHES

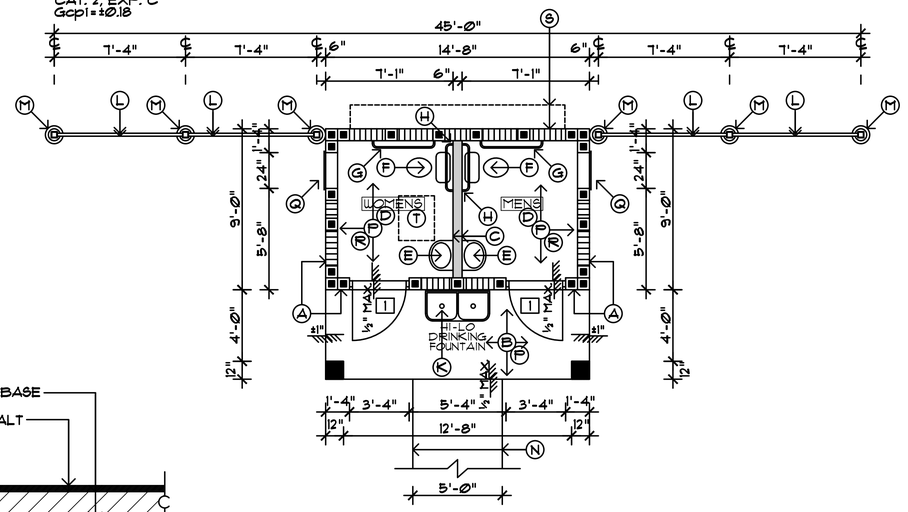
Walls and partitions within 2 feet of service sinks, urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of not less than 4 feet above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture. (i.e. epoxy paint.) per FBC 1210.2

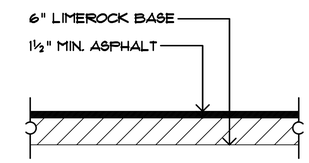
NEW DOOR SCHEDULE

[1] PROVIDE NEW 3'0"x7'0" HOLLOW METAL FULL LOUVERED DOOR/ FRAME & HARDWARE (IMPACT RESISTANT) W/ INSIDE LATCH TO LOCK/ KEYED OUTSIDE

WIND LOADING

AS PER ASCE 7-10, 175 MPH,
CAT. 2, EXP. C
Gcpi=±0.18





Ⓝ ASPHALT SECTION
SCALE ¾"=1'0"

NORTH

NEW WORK PLAN

SCALE 1/4"=1'0"

NOTE:
THE CONTRACTOR IS TO PAINT THRU-OUT THE INTERIOR & EXTERIOR OF ALL EXPOSED WOOD/ STUCCO & DRYWALL SURFACES/ PAINT COLOR & MFR IS TO BE COORDINATED W/ OWNER

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A-1

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- (F) INSTALL NEW TOILET
- (G) PROVIDE NEW 42" (ADA COMPLIANT) GRABBAR
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- (M) INSTALL NEW STEEL COLUMN WRAPPED W/ 8" ∅ KEYSTONE/ INSTALL WOOD TRELLIS (SEE ELEVATIONS & STRUCTURAL SHEETS)
- (N) PROVIDE NEW ASPHALT THIS AREA (SEE SITE PLAN & SEE DETAIL THIS SHEET)
- (P) PROVIDE NEW R-30 INSULATION IN CEILING
- (Q) INSTALL NEW 24"x36" LOUVRE (SEE MECHANICAL SHEETS)
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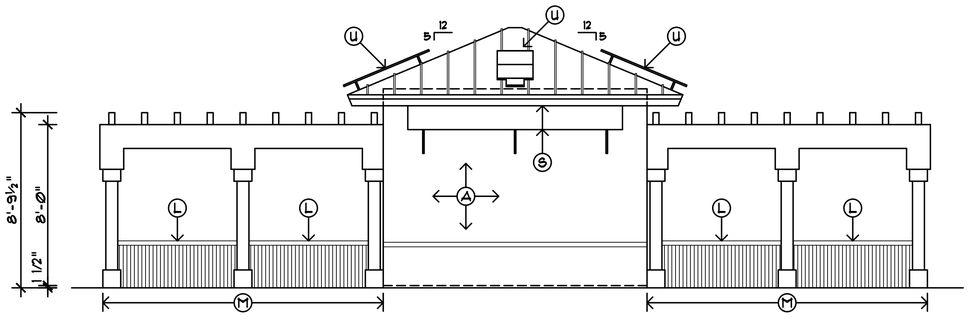
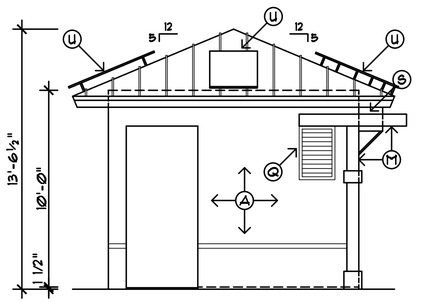
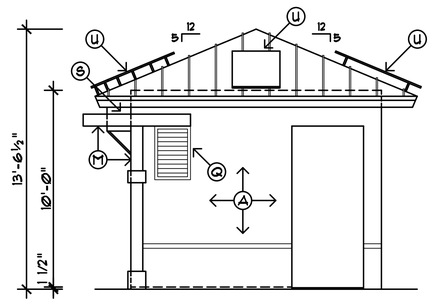


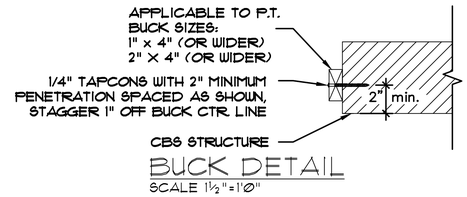
NEW WORK
REAR (WEST) ELEVATION
SCALE 1/4"=1'0"



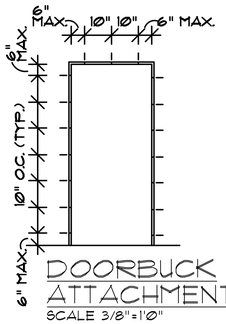
NEW WORK
LEFT SIDE (SOUTH) ELEVATION
SCALE 1/4"=1'0"



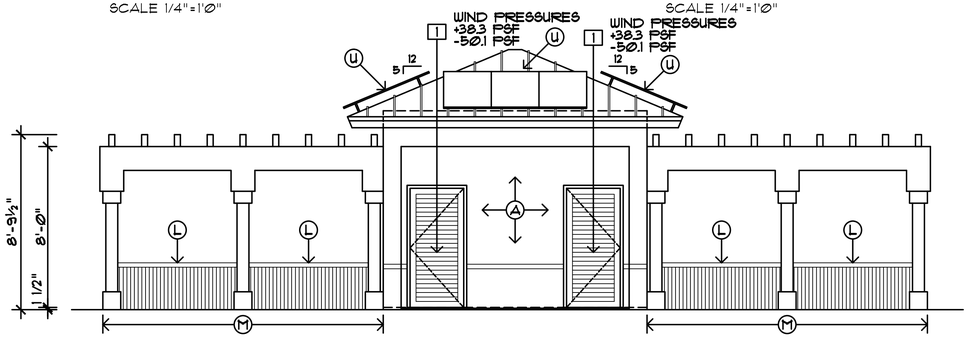
NEW WORK
RIGHT SIDE (NORTH) ELEVATION
SCALE 1/4"=1'0"



BUCK DETAIL
SCALE 1½"=1'0"



DOORBUCK
ATTACHMENTS
SCALE 3/8"=1'0"



NEW WORK
FRONT (EAST) ELEVATION
SCALE 1/4"=1'0"

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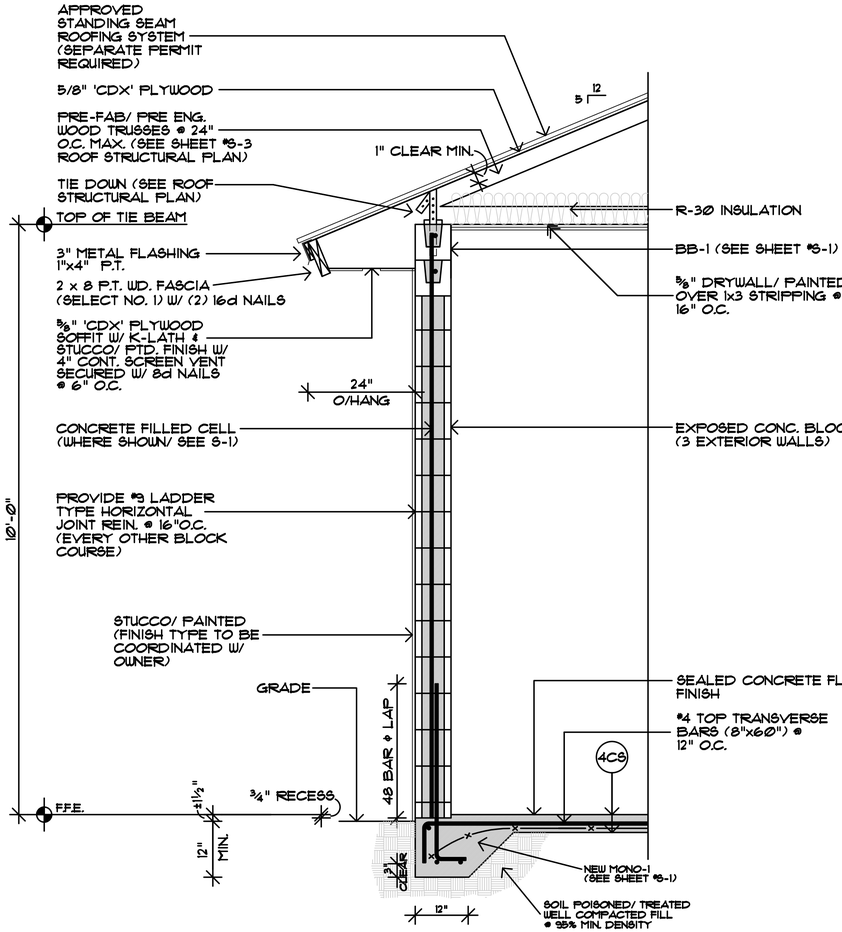
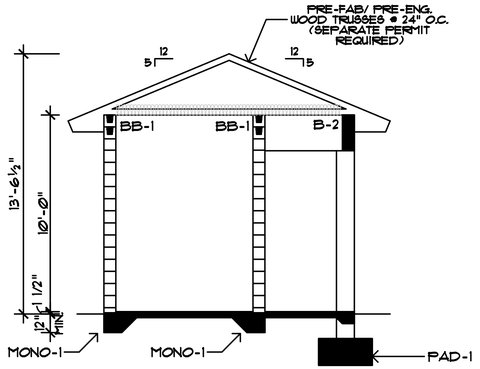
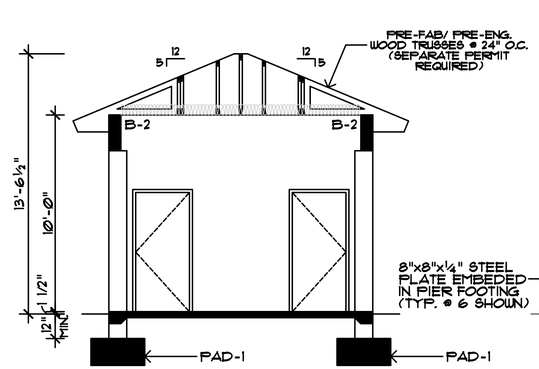


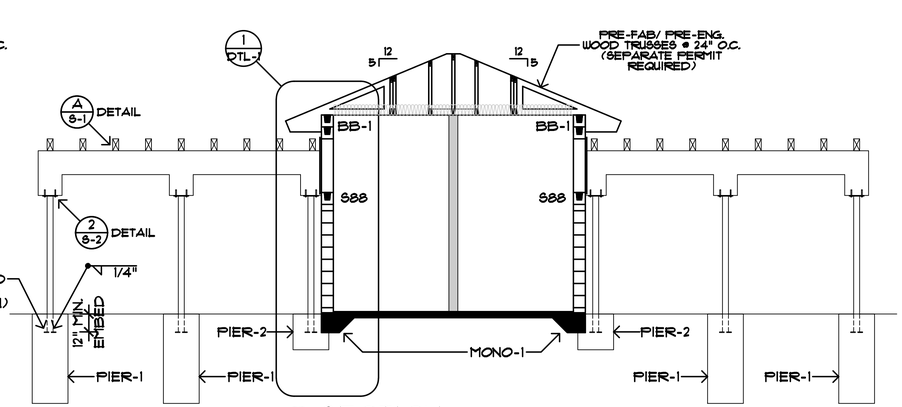
1 DTL-1 WALL SECTION
SCALE 3/4"=1'Ø"



C-C DTL-1 SECTION
SCALE 1/4"=1'Ø"



B-B DTL-1 SECTION
SCALE 1/4"=1'Ø"



A-A DTL-1 SECTION
SCALE 1/4"=1'Ø"

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DTL-1

GENERAL ENGINEERING – CONSTRUCTION SPECIFICATIONS

1. GENERAL:
DESIGN AND CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE 2014 FLORIDA BUILDING CODE LATEST EDITION. AMENDMENTS AND REVISIONS TO THE CODE AND REQUIREMENTS SET FORTH BY THE LOCAL BUILDING OFFICIAL.

2. STRUCTURAL ENGINEER AND RELATED PARTIES

2.1 THE WORD 'ENGINEER' AS USED HEREIN REFERS TO THOMAS MOE PE 63863 STRUCTURAL ENGINEER, 9719 SOUTH DIXIE HWY., UNIT 2, MIAMI, FLORIDA 33156. (305)609-3652, FAX (305)669-5065

2.2 THE FOLLOWING PARTIES REFERRED TO HEREIN ARE DEFINED AS FOLLOWS:
(A) OWNER: SEE TITLE BLOCK
(B) ARCHITECT: SEE TITLE BLOCK
(C) CONTRACTOR: NOT AVAILABLE

2.3 ALL SUBMITTALS TO AND/OR REQUIRED BY ENGINEER SHALL BE MADE THROUGH THE ARCHITECT, APPROVALS FROM AND/OR REQUIRED BY ENGINEER SHALL BE REQUESTED IN WRITING THROUGH ARCHITECT.

3. DESIGN CRITERIA

3.1 LOADS
SEE ROOF FRAMING

3.3 WIND LOAD (175 MPH)
PER ASCE 7-10

4. CONSTRUCTION

4.1 GENERAL: CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE THE NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY AND SERVICEABILITY OF THE CONSTRUCTION AT ALL TIMES.

4.2 CONSTRUCTION LOADS: STRUCTURAL MEMBERS AS SHOWN IN THE WORKING DRAWINGS HAVE BEEN DESIGNED TO CARRY THE CODE REQUIRED SERVICE LOADS IMPOSED DURING CONSTRUCTION. CONSTRUCTION LOADS MAY EXCEED THE SERVICE DESIGN LOADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENGAGING THE NECESSARY CONSTRUCTION ENGINEERING AND DESIGN AND DETERMINING AND EMPLOYING THE METHODS NECESSARY TO SUPPORT ALL LOADS IMPOSED DURING CONSTRUCTION.

4.3 CONSTRUCTION COORDINATOR:THE CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED BY THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL WORKING DRAWINGS, AND SHALL VERIFY THE LOCATION AND SIZES OF ALL CHASES, INSERTS, OPENINGS, SLEEVES, FINISHES, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON THE STRUCTURAL WORKING DRAWINGS.
4.4 CONFLICTS: WHEREVER CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST IN THE STRUCTURAL DRAWINGS, SCHEDULES, OR NOTES, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR CORRECTION AND/OR CLARIFICATION.

4.5 SHOP DRAWINGS:
(A) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS DETAILING CONCRETE REINFORCING STEEL, STRUCTURAL AND MISCELLANEOUS STEEL, WOOD ROOF TRUSSES, AND OTHER CONSTRUCTION REQUIRING OFF-SITE FABRICATION INCLUDED IN THE STRUCTURAL DRAWINGS FOR APPROVAL OF THE ENGINEER.
(B) APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER IS FOR DESIGN AND LAYOUT, AND IS NOT FOR THE PURPOSE OF AUTHORIZING CHANGES TO THE CONTRACT DRAWINGS OR APPROVING SUBSTITUTIONS. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS, GENERAL CONDITIONS, SUPPLEMENTAL CONDITIONS, SPECIAL CONDITIONS, AND SPECIFICATIONS APPLICABLE TO THE SHOP DRAWINGS AND THE SUBMITTALS. 'THE CONTRACTOR SHALL CHECK AND APPROVE THE SHOP DRAWINGS BEFORE SUBMISSION TO THE ENGINEER'. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIMENSIONS, QUANTITIES, JOB CONDITIONS, AND COORDINATION AS DEFINED HEREIN, AND WITH OTHER CONSTRUCTION TRADES, IF THE SHOP DRAWINGS ARE DISAPPROVED BY THE ENGINEER, THE CONTRACTOR SHALL RESUBMIT CORRECTED DRAWINGS TO COMPLY WITH THE CONTRACT DOCUMENTS.
(C) THE CONTRACTOR SHALL USE MANUFACTURER'S CERTIFIED SHOP DRAWINGS AND SPECIFICATIONS FOR SPECIAL EQUIPMENTS AND/OR CONSTRUCTION INSTALLATIONS AND PROVIDE ALL NECESSARY MATERIALS TO PROVIDE A FINISHED PRODUCT. DO NOT BEGIN CONSTRUCTION UNTIL THE REQUIRED SHOP DRAWINGS ARE APPROVED BY THE ARCHITECT AND ENGINEER.
(D) THE CONTRACTOR SHALL SUBMIT SUFFICIENT COPIES OF THE SHOP DRAWINGS TO ALLOW THE ENGINEER TO KEEP ONE SET OF DOCUMENTS FROM EACH SUBMITTAL FOR HIS RECORDS.
(E) THE CONTRACTOR SHALL ALLOW A MINIMUM OF 10 WORKING DAYS FOR THE ENGINEER TO REVIEW SHOP DRAWINGS AFTER DATE RECEIVED BY THE ENGINEER. FOR LARGE SUBMITTAL, ADDITIONAL TIME MAY BE REQUIRED.

4.6 SUBSTITUTIONS:
PROPOSED SUBSTITUTIONS, DESIGN ALTERNATIVES, OR CHANGES BY THE CONTRACTOR SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER PRIOR TO THE AWARD OF THE CONTRACT OR PRIOR TO ANY PERTINENT WORK TO THE SUBSTITUTION DESIGN ALTERNATIVE OR CHANGE. NO SUBSTITUTIONS WE BE ACCEPTED AFTER COMMENCEMENT OF WORK.

5. ENGINEER'S LIMITATION OF RESPONSIBILITY DURING CONSTRUCTION:
THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE QUALITY OR COMPOSITION OF MATERIALS, SHOP DRAWINGS OR FABRICATION. CONSTRUCTION INSPECTION, SUPERVISION, OR REVIEW, SPECIAL INSPECTIONS, SITE VISIT, CONSTRUCTION REVIEW, OR SPECIAL INSPECTIONS ARE PERFORMED BY THE ENGINEER OR HIS REPRESENTATIVE AS REQUIRED HEREIN, AND THEN ONLY SUCH RESPONSIBILITY AS IS ASSOCIATED WITH THE SPECIFIED WORK PERFORMED AND IS COMMONLY ASSIGNED A STRUCTURAL ENGINEER IN RELATION TO OTHER ENGINEERING AND CONSTRUCTION DISCIPLINE ASSOCIATED WITH THE PROJECT.

6. ENGINEER'S STATEMENT OF SERVICE AND COMPLIANCE:
SERVICES PROVIDED BY THE ENGINEER ARE CONSISTENT WITH THE LEVEL OF CARE AND SKILL ORDINARY EXERCISED BY MEMBERS OF THE PROFESSION CURRENTLY PRACTICING UNDER SIMILAR CIRCUMSTANCES AND LOCATION. NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE, TO THE BEST OF THE ENGINEER'S KNOWLEDGE. THE STRUCTURAL PLANS AND SPECIFICATIONS PRESENTED HEREIN COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES, STANDARDS, AND PRACTICES.

EXCAVATING, FOOTING, AND FOUNDATION
NOTES AND SPECIFICATIONS

1. EXCAVATIONS:
UNTIL PROVISIONS FOR PERMANENT SUPPORT HAVE BEEN MADE, ALL EXCAVATIONS SHALL BE PROPERLY GUARDED AND PROTECTED SO AS TO PREVENT THE SAME TO BECOMING DANGEROUS TO LIFE AND PROPERTY AND SHALL BE STEEL PILED, BRACED AND/OR SHORED, WHERE NECESSARY, TO PREVENT THE ADJOINING EARTH FROM CAVING IN. SUCH PROTECTION TO BE BY THE PERSON CAUSING THE EXCAVATION TO BE MADE. NO EXCAVATION, FOR ANY PURPOSE, SHALL EXTEND WITHIN ONE FOOT OF THE ANGLE OR REPOSE OF ANY SOIL BEARING FOOTING OR FOUNDATION UNLESS SUCH FOOTING OR FOUNDATION IS PROPERLY UNDERPINNED OR PROTECTED AGAINST SETTLEMENT.

2. FOUNDATIONS:
ALL STRUCTURE SHALL BE CONSTRUCTED ON SPREAD FOOTINGS WITH A MINIMUM WIDTH AS SPECIFIED ON PLAN AND SECTIONS.
DESIGN WAS BASED ON 2000 PSF BEARING CAPACITY

2.2 COMMENCEMENT OF CONSTRUCTION
(A) THE CONTRACTOR SHALL NOT PROCEED WITH THE CONSTRUCTION OF FOUNDATIONS OR SUPERSTRUCTURE WITHOUT PERMISSION FROM THE ENGINEER, AFTER RECEIPT BY THE ENGINEER OF VERIFICATION OF THE SUBSURFACE CONDITIONS AND GEOLOGY. SHOULD THE CONDITIONS DIFFER FROM ASSUMED CAPACITY AND CONDITIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
(B) THE CONTRACTOR SHALL NOT PROCEED WITH THE CONSTRUCTION OF FOUNDATIONS OR SUPERSTRUCTURE WITHOUT PERMISSION FROM THE ENGINEER, UPON THE ENGINEER'S COMPLETION OF ANY NECESSARY REVISIONS TO THE FOUNDATION PLANS RESULTING FROM THE GEOTECHNICAL ENGINEER'S REPORT, EVALUATIONS AND RECOMMENDATIONS, REVISED PLANS SHALL BE ISSUED FOR COMMENCEMENT OF CONSTRUCTION.

REINFORCED CONCRETE NOTES AND SPECIFICATIONS.
1. GENERAL:
REINFORCED CONCRETE SHALL BE OF THE MATERIALS, PROPORTIONS, STRENGTH, AND CONSISTENCY REQUIRED IN THE STRUCTURAL DRAWINGS, SCHEDULES AND NOTES.

2. STANDARDS:
DESIGN AND CONSTRUCTION OF REINFORCED CONCRETE SHALL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS.

2.1 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI 318.
2.2 MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315.
2.3 STANDARD SPECIFICATION FOR DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT ASTM A615.
2.4 STANDARD SPECIFICATION FOR COLD-DRAWN STEEL WIRE FOR REINFORCEMENT ASTM A82.
2.5 STANDARD SPECIFICATION FOR WELDED STEEL WIRE FABRIC REINFORCEMENT ASTM A185.
2.6 STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE ASTM C494.
2.7 STANDARD SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE ASTM C260.

3. MATERIAL AND TESTS

3.1 PORTLAND CEMENT:
PORTLAND CEMENT SHALL BE TYPE I CONFORMING TO THE STANDARD SPECIFICATIONS FOR PORTLAND CEMENT ASTM C150.

3.2 CONCRETE AGGREGATES:
NORMAL MAXIMUM SIZE OF COARSE AGGREGATES SHALL NOT BE LARGER THAN THREE-QUARTERS OF AN INCH. AGGREGATES USED IN CONCRETE SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONCRETE AGGREGATES ASTM C33. AGGREGATES SHALL BE QUARRIED OR WASHED IN FRESH WATER AND SHALL CONTAIN NOT MORE THAN ONE-TWENTIETH OF ONE PERCENT SALT BY WEIGHT. SUBMIT AGGREGATE GRADATIONS TO THE ENGINEER FOR APPROVAL.

3.3 WATER:
MIXING FOR CONCRETE SHALL BE POTABLE, CLEAN AND FREE FROM INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALIS, SALTS, ORGANIC MATERIALS, OR SUBSTANCES THAT MAY BE DELETERIOUS TO CONCRETE OR REINFORCEMENT.

3.4 REINFORCING:
REINFORCING STEEL SHALL BE GRADE 60.

3.5 ADMIXTURES:
ADMIXTURES TO BE USED IN CONCRETE SHALL BE APPROVED BY THE ENGINEER.

3.6 TESTS:
(A) THE ENGINEER SHALL HAVE THE RIGHT TO ORDER TESTS OF ANY MATERIAL ENTERING INTO CONCRETE OR REINFORCED CONCRETE TO DETERMINE SUITABILITY FOR THE PURPOSE, TO ORDER REASONABLE TEST OF THEM FROM TIME TO TIME TO DETERMINE WHETHER THE MATERIALS AND METHODS IN USE ARE SUCH AS TO PRODUCE CONCRETE OF THE NECESSARY QUALITY, AND TO ORDER THE TEST LOAD OF ANY PORTION OF THE STRUCTURE, WHEN CONDITIONS HAVE BEEN SUCH AS TO LEAVE DOUBT AS TO THE ADEQUACY OF THE STRUCTURE TO SERVE THE PURPOSE FOR WHICH IT IS INTENDED.

(B) TESTS OF MATERIALS AND OF CONCRETE SHALL BE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS. TESTS SHALL BE MADE BY A TESTING LABORATORY APPROVED BY THE ENGINEER. THE COST OF SUCH TESTS RESULTING FROM CONSTRUCTION RELATED PROBLEMS SHALL BE ASSUMED BY THE CONTRACTOR

4. QUALITY OF CONCRETE
4.1 CONCRETE QUALITY:
(A) CONCRETE SHALL BE NORMAL WEIGHT, AND SHALL ATTAIN A 28 DAY COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

28 DAY COMPRESSIVE STRENGTH PSI	
FOUNDATIONS	3,000
COLUMNS	4,000
ROOF AND FLOOR BEAMS	4,000
MISCELLANEOUS	4,000

(B) THE MAXIMUM WATER-CEMENT RATIO SHALL BE 0.55
(C) THE MINIMUM CEMENT CONTENT FOR CONCRETE SHALL BE FIVE BAGS PER CUBIC YARD.
(D) CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE CAPABLE OF INCREASING WORKABILITY AND REDUCING THE AMOUNT OF MIXING WATER (CONFORMING TO ASTM C494 TYPE A). OTHER ADMIXTURES MAY BE USED IF APPROVED BY THE ENGINEER. ADMIXTURES SHALL BE ADDED TO THE MIX IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AT A CONTROLLED RATE, WORKABILITY SHALL NOT BE ACHIEVED BY WATER ADDITION.
(E) PROPORTIONING AND MIXING OF ALL CONCRETE MIX DESIGNS, FOR EACH STRENGTH OF CONCRETE REQUIRED, SHALL BE APPROVED BY THE ENGINEER.

4.2 TESTS OF CONCRETE
(A)
(1) TEST ON CONCRETE USED IN CONSTRUCTION SHALL BE MADE BY AN APPROVED TESTING LABORATORY AND REPORTS SUBMITTED TO THE ENGINEER. THE COST OF SUCH TESTS SHALL BE ASSUMED BY THE OWNER.
(2) NOT LESS THAN THREE SPECIMENS SHALL BE MADE FOR EACH STANDARD TEST NOR LESS THAN ONE TEST FOR EACH 50 CUBIC YARDS OF CONCRETE USED ON THE PROJECT OR FRACTION THEREOF.
(3) SPECIMENS SHALL BE MADE AND CURED IN ACCORDANCE WITH THE STANDARD METHOD OF MAKING AND CURING CONCRETE COMPRESSION FLEXURE TEST SPECIMENS IN THE FIELD ASTM C31.
(4) SPECIMENS SHALL BE TESTED IN ACCORDANCE WITH THE STANDARD METHOD OF TEST FOR COMPRESSION STRENGTH OF MOLDED CONCRETE CYLINDERS ASTM C39. REPORTS TO THE ENGINEER SHALL BE SUBMITTED FOR EACH TEST PERFORMED.
(5) TEST CYLINDERS TAKEN OFF TRUCK-QUARTER POINT AND THE THREE-QUARTER POINT OF THE LOAD.
(B) THE AGE FOR STRENGTH TEST OF CONCRETE SHALL BE 28 DAYS. STRENGTH TESTS FOR AN EARLIER AGE SHALL BE SUBMITTED IF THE ENGINEER HAS APPROVED CONCRETE IN THE STRUCTURE TO RECEIVE ITS FULL WORKING LOADS AT SUCH EARLIER TIME. SEVEN DAY TESTS MAY BE USED WITH THE APPROVAL OF THE ENGINEER, PROVIDED THAT THE RELATION BETWEEN THE SEVEN AND 28-DAY STRENGTHS OF THE CONCRETE IS ESTABLISHED BY TESTS FOR THE MATERIALS AND PROPORTIONS USED.
(C) TO CONFORM TO THE REQUIREMENTS OF THESE SPECIFICATIONS, THE AVERAGE STRENGTH OF THE LABORATORY CURED CYLINDERS REPRESENTING EACH CLASS OF CONCRETE AS WELL AS THE AVERAGE OF ANY FIVE CONSECUTIVE STRENGTH TESTS REPRESENTING EACH CLASS OF CONCRETE SHALL BE EQUAL TO OR GREATER THAN THE SPECIFIED STRENGTH AND NOT MORE THAN ON STRENGTH TEST IN TEN SHALL HAVE AN AVERAGE VALUE OF LESS THAN 90 PERCENT OF THE SPECIFIED STRENGTH.
(D) WHEN THERE IS A QUESTION AS TO THE QUANTITY OF THE CONCRETE IN THE STRUCTURE, THE ENGINEER SHALL HAVE THE RIGHT TO REQUIRE CORE TEST IN ACCORDANCE WITH THE STANDARD METHOD OF OBTAINING AND TESTING DRILLED CORES AND SAWED BEAMS OF CONCRETE ASTM C42, TO ORDER LOAD TESTS ON THAT PORTION OF THE STRUCTURE WHERE THE QUESTIONABLE CONCRETE HAS BEEN PLACED OR TO REQUIRE OTHER REASONABLE TESTS TO EVALUATE THE STRENGTH OF THE STRUCTURE.
(E) THE MAXIMUM ALLOWABLE SLUMP OF CONCRETE SHALL BE FIVE INCHES. SLUMP GREATER THAN FIVE INCHES SHALL BE APPROVED BY THE ENGINEER, WITH THE PROPORTIONS OF THE CONCRETE ADJUSTED TO MAINTAIN THE STRENGTH AND QUALITY OF THE CONCRETE. NO WATER SHALL BE ADDED AT THE JOB SITE TO CONCRETE DELIVERED BY TRUCKS READY FOR USE WITHOUT THE APPROVAL OF THE ENGINEER AND THEN ONLY WHEN SLUMP TESTS ARE MADE AND THE CONCRETE SO DELIVERED IS KNOWN TO BE OF LESS SLUMP THAN SLUMP SPECIFIED.

5. MIXING AND PLACING
5.1 FORMS AND EQUIPMENT:
(A) BEFORE PLACING CONCRETE, ALL EQUIPMENT FOR MIXING AND TRANSPORTING THE CONCRETE SHALL BE CLEANED, ALL DEBRIS REMOVED FROM THE SPACES TO BE OCCUPIED BY THE CONCRETE, FORMS SHALL BE THOROUGHLY WETTED OR OILED, MASONRY FILLER UNITS THAT WILL BE IN CONTACT WITH CONCRETE SHALL BE WELL DRENCHED AND THE REINFORCEMENT THOROUGHLY CLEANE.

(B) STANDING WATER SHALL BE REMOVED FROM PLACES OF DEPOSIT BEFORE CONCRETE IS PLACED.

5.2 MIXING OF CONCRETE:
(A) JOB MIXING CONCRETE SHALL NOT BE PERMITTED UNLESS THE PROPORTIONS, EQUIPMENT, AND METHODS ARE APPROVED BY THE ENGINEER. CONCRETE TESTS SHALL BE REQUIRED AT THE RATE OF ONE TEST FOR EACH FIVE CUBIC YARDS OR LESS, OR EACH TIME CONCRETE IS MIXED.
(B) READY-MIXED CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR READY-MIXED CONCRETE, ASTM C94.
(C) NO CONCRETE SHALL BE RETEMPERED AFTER IT HAS TAKEN AN INITIAL SET NOR SHALL ANY BATCH OR PORTION THEREOF BE DEPOSITED IN FORMS MORE THAN ONE AND ONE-HALF HOURS AFTER THE MIXING OF THAT PARTICULAR BATCH HAS COMMENCED.

5.3 CONVEYING
(A) CONCRETE SHALL BE CONVEYED FROM THE MIXER TO THE PLACE OF FINAL DEPOSIT BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF THE MATERIALS.
(B) EQUIPMENT FOR CHUTING, PUMPING, AND PNEUMATICALLY CONVEYING CONCRETE SHALL BE OF SUCH SIZE AND DESIGN AS TO ENSURE A PRACTICALLY CONTINUOUS FLOW OF CONCRETE AT THE DELIVERY END SEPARATION OF THE MATERIALS.

5.4 DEPOSITING:
(A) CONCRETE SHALL BE DEPOSITED AS NEARLY AS PRACTICABLE IN ITS FINAL POSITION TO AVOID SEGREGATION DUE TO HANDLING OR FLOWING. THE CONCRETE SHALL BE CARRIED ON AT SUCH A RATE THAT THE CONCRETE IS AT ALL TIMES PLASTIC AND FLOWS READILY INTO THE SPACES BETWEEN THE BARS. NO CONCRETE THAT HAS BEEN CONTAMINATED BY FOREIGN MATERIALS SHALL BE DEPOSITED ON THE WORK.
(B) WHEN CONCRETE IS STARTED, IT SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL THE PLACING OF THE PANEL OR SECTION IS COMPLETED. THE TOP SURFACE SHALL BE GENERALLY LEVEL.
(C) ALL CONCRETE SHALL BE THOROUGHLY COMPACTED BY SUITABLE MEANS DURING THE OPERATION OF PLACING, AND SHALL BE THOROUGHLY WORKED AROUND THE REINFORCEMENT AND EMBEDDED FIXTURES AND INTO THE CORNERS OF THE FORMS, WHERE THE CONCRETE IS PLACED IN COLUMNS OR WALLS. THE PLACING SHALL BE SO CONDUCTED THAT THE CONCRETE WILL NOT PASS REINFORCEMENT FOR MORE THAN SIX FEET. SEPARATE LIFTS SHALL BE THOROUGHLY COMPACTED. VIBRATORS MAY BE USED TO AID IN THE PLACEMENT OF CONCRETE, PROVIDED THEY ARE USED UNDER EXPERIENCED SUPERVISION. THE FORMS DESIGNATED TO WITHSTAND THEIR ACTION AND THEIR ACTION IS NOT DIRECTED TO BARS, ANY PART OF WHICH IS IN CONTACT WITH CONCRETE WHICH STARTED TO TAKE ITS INITIAL SET.
(D) WHERE CONDITIONS MAKE COMPACTING DIFFICULT, OR WHERE THE REINFORCEMENT IS CONGESTED, BATCHES OF MORTAR CONTAINING THE SAME PROPORTIONS OF CEMENT TO SAND USED IN THE CONCRETE SHALL FIRST BE DEPOSITED IN THE FORMS TO A DEPTH OF AT LEAST ONE INCH.

5.5 CURING:
A CURING COMPOUND SHALL BE APPLIED TO THE TOP OF 'GREEN' CONCRETE SLABS AS SOON AS PRACTICAL AFTER PLACEMENT OF THE CONCRETE, FOLLOWING THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS. SPECIFICATIONS FOR CURING COMPOUNDS SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR APPROVAL. ALTERNATIVELY, CONCRETE SHALL BE KEPT IN A WET CONDITION FOR THE FIRST 24 HOURS AFTER PLACEMENT, AND SHALL BE MAINTAINED IN A MOIST CONDITION FOR AT LEAST THE FIRST SEVEN DAYS AFTER PLACING.

5.6 HOT WEATHER REQUIREMENTS:
DURING HOT WEATHER, PROPER ATTENTION SHALL BE GIVEN TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION AND CURING TO PREVENT EXCESSIVE CONCRETE TEMPERATURES OR WATER EVAPORATION THAT MAY IMPAIR REQUIRED STRENGTH OR SERVICEABILITY OF CONCRETE MEMBERS.

5.7 BONDING:
BEFORE NEW CONCRETE IS DEPOSITED ON OR AGAINST CONCRETE WHICH HAS SET, THE FORMS SHALL BE RETIGHTENED. THE SURFACE OF SET CONCRETE SHALL BE CLEANED OF ALL FOREIGN MATTER AND LAITANCE AND WETTED. THE CLEANED AND WETTED SURFACES OF THE HARDENED CONCRETE SHALL FIRST BE SLOSHED WITH A COATING NEAT CEMENT AGAINST WITH THE NEW CONCRETE SHALL BE PLACE BEFORE THE MORTAR HAS ATTAINED ITS INITIAL SET.

6. FORMS AND DETAILS OF CONSTRUCTION:

6.1 DESIGN OF FORMS:
FORMS SHALL CONFORM TO THE SHAPE LINES AND DIMENSIONS OF THE MEMBERS AS CALLED FOR ON THE PLANS, AND SHALL BE SUBSTANTIAL AND SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF MORTAR, FORMS SHALL BE PROPERLY BRACED OR TIED TOGETHER SO AS TO MAINTAIN POSITION AND SHAPE, TEMPORARY OPENINGS AT THE BOTTOM OF COLUMNS SHALL BE PROVIDED TO FACILITATE CLEANING AND INSPECTION BEFORE DEPOSITING CONCRETE. WHEN THE CONCRETE HAS ATTAINED SUFFICIENT STRENGTH, FORMS SHALL BE REMOVED FROM AT LEAST TWO FACES OF ALL REINFORCEMENT MEMBERS, OTHER THAN WERE PLACED IN CONTACT WITH THE SOIL OR JOIST TO FACILITATE INSPECTION OF THE PLACING OPERATIONS, WITH THE EXCEPTION TO 'U' TYPE BEAM BLOCK.

6.2 REMOVAL OF FORMS:
THE REMOVAL OF FORMS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO INSURE THE COMPLETE SAFETY OF THE STRUCTURE. VERTICAL FORMS MAY BE REMOVED IN 24 HOURS, PROVIDED THAT THE CONCRETE HAS HARDENED SUFFICIENTLY SO TO PREVENT DAMAGE. BOTTOM FORMS AND SHORING, WITH RE-SHORING IMMEDIATELY, SLAB FORMS SHALL NOT BE REMOVED PRIOR TO 14 DAYS AFTER POUR IN SEQUENCE AND FULL RE-SHORING FOLLOWING.

6.3 PIPES AND CONDUIT EMBEDDED IN CONCRETE:
ELECTRIC CONDUIT AND OTHER PIPES SHALL NOT DISPLACE THAT ON WHICH STRESS IS CALCULATED OR WHICH IS REQUIRED FOR FIRE PROTECTION TO A GREATER EXTENT THAN FOUR PERCENT OF THE AREA OF THE CROSS SECTIONS. SLEEVES OR OTHER PIPES PASSING THROUGH FLOORS, WALLS, OR BEAMS SHALL NOT BE OF SUCH SIZE OR IN SUCH LOCATION AS TO UNDULY IMPAIR THE STRENGTH OF THE CONSTRUCTION. EMBEDDED PIPES AND CONDUITS OTHER THAN THOSE MERELY PASSING THROUGH SHALL NOT BE LARGER IN OUTSIDE DIAMETER THAN ONE-THIRD THE THICKNESS OF THE SLAB, WALL OR BEAM IN WHICH THEY ARE EMBEDDED; SHALL BE SPACED CLOSER THAN THREE DIAMETER ON CENTERS, NOR AS LOCATED AS TO UNDULY IMPAIR THE STRENGTH OF THE CONCRETE.

6.4 CLEANING AND BENDING REINFORCEMENT:
STEEL REINFORCEMENT AT THE TIME CONCRETE IS PLACED, SHALL BE FREE FROM RUST, SCALE, OR OTHER COATINGS THAT WILL DESTROY OR REDUCE THE BOND, REINFORCEMENT LESS THAN #8 BAR IN SIZE MAY BE HEATED AND FIELD BENT WITH THE APPROVAL OF THE ENGINEER, BARS LARGER THAN #8 SHALL NOT BE BENT IN THE FIELD BY NO MEANS.

6.5 PLACING REINFORCEMENT:
METAL REINFORCEMENT SHALL BE ACCURATELY PLACED AND ADEQUATELY SECURED IN POSITION BY CONCRETE OR METAL CHAIRS OR SPACERS OR OTHER ACCEPTABLE METHODS. THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS, EXCEPT IN COLUMNS, SHALL BE EQUAL TO THE NOMINAL DIAMETER OF THE BARS, IN NO CASE SHALL THE CLEAR DISTANCE BETWEEN BARS BE LESS THAN ONE INCH, NOR LESS THAN ONE AND ONE-THIRD TIMES THE MAXIMUM SIZE OF THE COARSE AGGREGATE. WHEN REINFORCEMENT IN BEAMS OR GIRDERS IS PLACED IN TWO OR MORE LAYERS, THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN ONE INCH NOR LESS THAN THE DIAMETER OF THE BARS AND THE BARS IN THE UPPER LAYER SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTOM LAYER.

6.6 SPLICES IN REINFORCEMENT:
(A) IN SLABS, BEAMS, AND GIRDERS, SPLICES IN REINFORCEMENT AT POINTS OF MAXIMUM STRESS SHALL BE AVOIDED WHEREVER POSSIBLE. SUCH SPLICES WHERE USED SHALL BE WELDED, LAPPED, OR OTHERWISE FULLY DEVELOPED, BUT IN ANY CASE SHALL TRANSFER THE ENTIRE STRESS FROM BAR TO BAR WITHOUT EXCEEDING THE ALLOWABLE BOND AND SHEER STRESSES. THE MINIMUM OVERLAP FOR A LAPPED SPLICE SHALL BE 36 BAR DIAMETERS, BUT NOT LESS THAN 12 INCHES. THE CLEAR DISTANCE FROM A CONTACT SPLICE AND ADJACENT SPLICE OR BARS.
(B) WELDED WIRE FABRIC REINFORCEMENT SHALL BE LAPPED ONE MESH PLUS TWO INCHES, OR AS NOTED IN THE PLANS.
(C) SPLICES IN COLUMNS, BEAMS, GIRDERS, AND SLABS NOT SHOWN IN PLANS SHALL BE CLASS C CONTACT LAB SPLICES

6.7 CONCRETE PROTECTION FOR REINFORCEMENT:
THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

	MINIMUM COVER (INCH)
(A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
(B) CONCRETE EXPOSED TO EARTH OR WEATHER: #8 THROUGH #11 BARS	2
#5 BAR W31 OR D31 WIRE AND SMALLER	1 1/2
(C) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND, SLABS, WALLS OR JOISTS: #11 AND SMALLER	3/4
BEAMS, COLUMNS: PRIMARY REINFORCEMENT, TIE STIRRUPS OR SPIRALS	1 1/2
(D) FORMED SIDES OF GB	2

(E) THE ABOVE PROTECTIVE COVERINGS ARE A MINIMUM BUT PROTECTION SHALL NOT BE LESS THAN REQUIRED FOR FIRE-RESISTIVE RATINGS.
(F) THE CONTRACTOR SHALL PROVIDE THE NECESSARY BOLSTERS, CHAIRS, CONCRETE BLOCK, AND MISCELLANEOUS REINFORCEMENT FOR THE SUPPORT OF REINFORCING, STEEL WIRE BAR SUPPORTS USED IN SLABS, BEAMS AND COLUMNS SHALL BE CLASS C, PLASTIC PROTECTED.

6.8 CONSTRUCTION JOINTS:
(A) ALL CONSTRUCTION JOINTS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE INCORPORATED TO FACILITATE CONSTRUCTION, JOINTS NOT DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE LOCATED AND DETAILED ON SHOP DRAWINGS AND APPROVED BY THE ENGINEER.
(B) JOINTS NOT INDICATED ON THE PLANS SHALL BE SO MADE AND LOCATED AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE WHERE A JOINT IS TO BE MADE. THE SURFACE OF THE CONCRETE SHALL BE THOROUGHLY CLEANED AND ALL LAITANCE REMOVED. VERTICAL JOINTS SHALL BE THOROUGHLY WETTED, AND SLOSHED WITH A COAT OF NEAT CEMENT GROUT IMMEDIATELY BEFORE PLACING OF NEW CONCRETE.
(C) AT LEAST TWO HOURS MUST ELAPSE AFTER DEPOSITING CONCRETE IN THE COLUMNS OR WALLS BEFORE DEPOSITING IN BEAMS GIRDERS, BRACKETS, COLUMN CAPITALS, AND HAUNCHES SHALL BE CONSIDERED AS PART OF THE FLOOR SYSTEM AND SHALL BE PLACED MONOLITHICALLY THEREWITH.
(D) CONSTRUCTION JOINTS IN FLOORS SHALL BE LOCATED NEAR THE MIDDLE SPAN OF SLABS, BEAMS, OR GIRDERS EXCEPT WHERE SUCH SLABS, BEAMS, OR GIRDERS CARRY CONCENTRATED LOADS, IN WHICH CASE THE LOCATION OF CONSTRUCTION JOINTS SHALL BE DETERMINED BY ENGINEER ANALYSIS.
(E) HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED IN WALLS AND BEAMS UNLESS SHOWN IN THE STRUCTURAL DRAWINGS, OR APPROVED BY THE ENGINEER.

6.9 COLUMN TIES:
(A) COLUMN TIES SHALL BE OF THE SIZE AND SPACING INDICATED IN THE COLUMN SCHEDULE, WHERE TIE ARRANGEMENT ARE NOT SPECIFIED. TIES SHALL BE SUCH THAT EVERY CORNER AND ALTERNATE LONGITUDINAL BARS SHALL HAVE LATERAL SUPPORT PROVIDED BY THE CORNER OF A TIE WITH AN INCLUDED ANGLE OF NOT MORE THAN 135 DEGREES AND NO BAR SHALL BE FARTHER THAN SIX INCHES CLEAR ON EACH SIDE ALONG THE TIE FROM SUCH A LATERALLY SUPPORTED BAR.
(B) COLUMN TIES SHALL BE LOCATED NOT MORE THAN HALF A TIE SPACING ABOVE THE TOP OF FOOTING OR SLAB IN ANY STORY, AND SHALL BE SPACED SUCH THAT A TIE SHALL BE NOT MORE THAN HALF A TIE SPACING BELOW THE LOWEST HORIZONTAL REINFORCEMENT IN MEMBERS SUPPORTED ABOVE.
(C) WHERE BEAMS OR BRACKETS FRAME INTO ALL SIDES OF A COLUMN, TIES SHALL BE TERMINATED NOT MORE THAN THREE INCHES BELOW THE LOWEST REINFORCEMENT IN SUCH BEAMS OR BRACKETS.

6.10 MISCELLANEOUS REINFORCEMENT DETAILS:
INTERIOR AND EXTERIOR HORIZONTAL LAPPED CORNER BARS SHALL PROVIDE AT ALL CORNERS TO MATCH THE SIZE, TYPE, AND SPACING OF HORIZONTAL FOOTING WALL, MASONRY BOND BEAMS, OR CONCRETE TIE BEAMS REINFORCEMENTS.

6.11 SHORING AND RESHORING OF CONSTRUCTION:
(A) THE SHORING SYSTEM SHALL BE DESIGNED BY A COMPETENT AND EXPERIENCED ENGINEER QUALIFIED BY BEING REGULARLY ENGAGED FOR AT LEAST FIVE YEARS IN DESIGN AND INSTALLATION OF SHORING AND RESHORING SYSTEMS FOR CONCRETE CONSTRUCTION SIMILAR TO THE REQUIREMENTS OF THIS PROJECT.
(B) THE SHORING SYSTEM DESIGN AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
(1) DESIGN OF WOOD FRAMEWORK FOR CONCRETE STRUCTURES, NATIONAL LUMBER MANUFACTURERS ASSOCIATION.
(2) FORMWORK FOR CONCRETE, PUBLICATION SP-4, ACI.
(3) PLYWOOD FOR CONCRETE FORMING, APA.
(4) RECOMMENDED SAFETY REQUIREMENTS FOR SHORING CONCRETE FORMWORK, SCAFFOLDING & SHORING INSTITUTE.
(C) THE ENGINEERS SHALL NOT BE RESPONSIBLE FOR THE SHORING OR RESHORING OF CONCRETE CONSTRUCTION FOR THE PROJECT.

1. MASONRY NOTES AND SPECIFICATIONS
GENERAL:
CONCRETE MASONRY AND REINFORCED CONCRETE MASONRY SHALL BE OF THE MATERIALS, STRENGTH, AND CONSTRUCTION REQUIRED IN THE STRUCTURAL DRAWINGS, SCHEDULES, AND NOTES.

2. QUALITY AND TEST:
2.1 GENERAL:
(A) QUALITY:
THE QUALITY OF MATERIALS ASSEMBLED INTO MASONRY AND THE METHOD AND MANNER OF THEIR ASSEMBLY SHALL CONFORM TO ACCEPTABLE STANDARDS OF CONSTRUCTION AND THE REQUIREMENTS SET FORTH HEREIN.

(B) TESTS:
(1)THE ENGINEER MAY REQUIRE MATERIALS TO BE SUBJECTED TO TEST IN ORDER TO DETERMINE THEIR QUALITY WHENEVER THERE IS REASON TO BELIEVE THAT THE MATERIAL IS NOT OF ACCEPTABLE QUALITY. THE COSTS OF SUCH TESTS SHALL BE ASSUMED BY THE OWNER.
(2) TESTS OF MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS.

2.2 CONCRETE BLOCKS:
(A) GENERAL:
(1) CONCRETE BLOCKS SHALL BE MADE OF PORTLAND CEMENT, WATER, AND APPROVED AGGREGATES. THE MATERIALS SHALL CONFORM TO THE REQUIREMENTS FOR THE MATERIALS OF CONCRETE, AND FINISHED UNITS SHALL MEET THE REQUIREMENTS OF THIS SECTION.
(2) CONCRETE BLOCKS USED FOR FIRE RESISTIVE WALLS RATED TWO-HOURS OR MORE OR USED FOR LOAD-BEARING OR EXTERIOR WALLS SHALL HAVE A MINIMUM FACE-SHELL THICKNESS OF ONE AND ONE-FOURTH INCHES, A MINIMUM WEB THICKNESS OF ONE INCH, AND SHALL HAVE A NET CROSS-SECTIONAL AREA NOT LESS THAN 50 PERCENT OF THE CROSS SECTION.
(3) CONCRETE BLOCKS FOR OTHER PURPOSES SHALL HAVE A WALL AND WEB THICKNESS OF NOT LESS THAN THREE-FOURTHS INCH.
(4) WHERE MASONRY WALLS ARE REQUIRED BY THE PLANS TO BE EIGHT INCHES IN THICKNESS, HOLLOW CONCRETE BLOCK UNITS MAY BE 7 5/8" X 7 5/8" X 15 5/8" MODULAR DIMENSION WITH CORRESPONDING WIDTHS FOR TIE COLUMNS AND TIE BEAMS, AND STRUCTURAL BEAMS AND COLUMNS UNLESS OTHERWISE NOTED IN THE PLANS.
(B) QUALITY:
STANDARD UNITS OF HOLLOW CONCRETE SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS, ASTM C90, EXCEPT THAT THE MAXIMUM MOISTURE CONTENT SHALL NOT EXCEED 80 PERCENT OF THE TOTAL ABSORPTION.

2.3 PLAIN CONCRETE:
PLAIN CONCRETE IS CONCRETE CAST IN PLACE AND NOT REINFORCED ONLY FOR SHRINKAGE OR CHANGE OF TEMPERATURE, PLAIN CONCRETE SHALL BE MIXED, PLACED, AND CURED AS SPECIFIED FOR CONCRETE ELSEWHERE. THE MINIMUM STRENGTH OF REGULAR CONCRETE SHALL BE NOT LESS THAN 3,000 PSI IN 28 DAYS LIGHT WEIGHT CONCRETE SHALL NOT BE USED.

2.4 MORTAR:
(A) GENERAL:
EXCEPT AS OTHERWISE NOTED HEREIN, ALL MORTARS AND THE MATERIALS THEREIN SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR MORTAR OF MASONRY UNITS, ASTM C270.

(1) THE GRADATION OF AGGREGATES FOR MASONRY MORTAR SHALL BE SUCH THAT THE FINENESS MODULUS IS BETWEEN 1.2 AND 2.35 WHEN DETERMINED IN ACCORDANCE WITH THE STANDARD FOR AGGREGATE FOR MASONRY MORTAR, ASTM C144.

(2) AGGREGATES SHALL BE QUARRIED OR WASHED IN FRESH WATER AND SHALL CONTAIN NOT MORE THAN ONE-TWENTIETH OF ONE PERCENT SLAT BY WEIGHT.

(B) MORTAR:
(1) MORTAR USED TO BOND MASONRY SHALL BE OF TYPE M, AND SHALL COMPLY WITH EITHER THE PROPERTY SPECIFICATIONS SET FORTH BELOW OF THE PROPORTION SPECIFICATIONS OF ASTM C270.
MORTAR STRENGTH PROPERTY SPECIFICATION
TYPE MINIMUM AVERAGE STRENGTH, PSI
M OR S 2500

(2) THE TYPE OF MORTAR BASED ON CONSIDERATION OF THE LOCATION OF THE UNIT MASONRY CONSTRUCTION SHALL BE AS FOLLOWS:

USE OR LOCATION TYPE OF MORTAR
EXTERIOR WALLS AND
LOAD BEARING WALLS M OR S

MORTAR OR GROUT UNDER
CONCENTRATED LOADS M

(3) ALL HOLLOW UNIT MASONRY SHALL, OTHER THAN SHEAR WALLS, SHALL BE LAID WITH FULL MORTAR COVERAGE OF THE FACE SHELLS IN BOTH HORIZONTAL AND VERTICAL JOINTS, EXCEPT THE FIRST COURSE OF MASONRY SHALL BE LAID IN FULL BEDDED MORTAR.

3. CONSTRUCTION DETAILS:
3.1 GENERAL:
(A) REINFORCED CONCRETE SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THAT SECTION.
(B) SECOND-HAND MASONRY UNITS SHALL NOT BE USED UNLESS THEY CONFORM TO THE REQUIREMENTS OF THIS SECTION, ARE SOUND, HAVE BEEN THOROUGHLY CLEANED, AND ARE APPROVED FOR USE BY THE ENGINEER.
(C) BOND SHALL BE PROVIDED BY LAPPING UNITS IN SUCCESSIVE VERTICAL COURSES IN A COMMON RUNNING BOND PATTERN.
(D) HORIZONTAL AND VERTICAL JOINTS SHALL BE THREE-EIGHTHS OF AN INCH THICKNESS.

3.2 EXTERIOR WALLS:
(A) GENERAL:
(1) EXTERIOR WALLS OF UNIT MASONRY SHALL HAVE A MINIMUM THICKNESS OF EIGHT INCHES, UNLESS OTHERWISE NOTED.
(2) THE MAXIMUM AREA OF WALL PANELS OF 8 INCHES THICK UNIT MASONRY AS MEASURED BETWEEN THE CONCRETE MEMBERS WHICH FRAME THE PANEL SUCH AS TIE BEAMS AND THE COLUMNS, SHALL NOT EXCEED 258 SQUARE FEET, UNLESS OTHERWISE INDICATED IN THE STRUCTURAL DRAWINGS.
(B) MASONRY BEARING WALLS SHALL BE REINFORCED WITH AN APPROVED NO. 8 LADDER-TYPE PREFABRICATED STEEL-WIRE REINFORCEMENT LAID IN EVERY SECOND HORIZONTAL JOINT, STARTING WITH THE SECOND JOINT ABOVE THE BEARING SURFACE. HORIZONTAL WALL REINFORCEMENT SHALL LAP SIX INCHES.
(C) TIE BEAMS:
(1) A TIE BEAM OF REINFORCED CONCRETE SHALL BE PLACED IN ALL WALL UNITS, MASONRY, AT EACH FLOOR LEVEL, AND AT SUCH INTERMEDIATE LEVELS AS MAY BE REQUIRED TO LIMIT THE VERTICAL HEIGHTS OF THE MASONRY UNITS TO 15 FEET, UNLESS OTHERWISE NOTED, TIE BEAMS SHALL BE REQUIRED WHERE INDICATED IN THE PLANS.
(2) A TIE BEAM SHALL NOT BE LESS IN DIMENSION OR REINFORCING THAN REQUIRED IN THE PLANS NOR LESS THAN A NOMINAL EIGHT INCHES, SHALL HAVE A HEIGHT OF NOT LESS THAN 12 INCHES, AND SHALL BE REINFORCED WITH NOT LESS THAN FOUR #5 REINFORCING BARS PLACED TWO AT THE TOP AND TWO AT THE BOTTOM OF THE BEAM, CONTAIN #3 TIES AT 48" O.C. WITH 4 TIES AT EACH BEND SPACED 12" O.C. INDICTED IN THE STANDARD DETAIL PROVIDED. ALL TB TURNS MUST CONTAIN CORNER BARS AS INDICATED IN SAME DETAIL.
(3) THE TIE BEAM SHALL BE CONTINUOUS, CONTINUITY OF THE REINFORCING IN STRAIGHT RUNS SHALL BE PROVIDED BY LAPPING SPLICES NOT LESS THAN 18 INCHES, 30 BAR DIAMETERS, OR AS INDICATED IN THE PLANS, CONTINUITY SHALL BE PROVIDED AT THE CORNERS BY BENDING TWO BARS FROM EACH DIRECTION AROUND THE CORNER 30 INCHES, OR AS INDICATED IN THE PLANS OR BY ADDING BARS WITH EQUIVALENT LAP LENGTHS WHICH EXTEND EACH WAY FROM THE CORNER, CONTINUITY AT THE COLUMNS SHALL BE PROVIDED BY CONTINUING HORIZONTAL REINFORCEMENT THROUGH COLUMNS OR BY BENDING HORIZONTAL REINFORCING, THE COLUMNS A DISTANCE OF 18 INCHES OR AS INDICATED IN THE PLANS.
(4) CHANGES IN LEVEL OF TIE BEAMS SHALL BE MADE AT COLUMNS.
(5) THE CONCRETE IN TIE BEAMS SHALL BE PLACED TO BOND TO THE MASONRY UNITS IMMEDIATELY BELOW AND SHALL NOT BE SEPARATED THERE FROM BY WOOD, FELT, OR ANY OTHER MATERIAL WHICH MAY PREVENT BOND, FELT PAPER OR OTHER MEANS MAY BE USED TO PREVENT CELLS FROM FILLING WITH CONCRETE, PROVIDED THAT THE MATERIAL IS NOT WIDER THAN THE WIDTH OF THE CELLS AND IS DEPRESSED TO PREVENT DISPLACEMENT.

(D) CHASES, RECESSES AND OPENING:
(1) UNITS MASONRY WALLS REQUIRED TO BE A MINIMUM OF 8 INCHES THICK, SUCH AS EXTERIOR WALLS, FIRE WALLS, AND BEARING WALLS, MAY BE CHASED OR RECESSED WITH THE APPROVAL OF THE ENGINEER. CHASES AND RECESSES SHALL NOT BE DEEPER THAN ONE-HALF THE WALL THICKNESS FOR AN AREA NOT EXCEEDING EIGHT SQUARE FEET. THE HORIZONTAL DIMENSION OF THE CHASE OF RECESS SHALL NOT EXCEED FOUR FEET, AND CHASING SHALL NOT REDUCE THE DIMENSION OF TIE BEAMS AND TIE COLUMNS TO LESS THAN HEREIN REQUIRED.
(2) OPENINGS SHALL HAVE LINTELS OF REINFORCED CONCRETE WHERE SUCH LINTEL IS PRECAST OR FORMED SEPARATELY FROM A TIE BEAM. IT SHALL BEAR NOT LESS THAN 8 INCHES ON THE MASONRY AT EACH END, WHERE SUCH LINTEL IS FORMED INTEGRALLY WITH THE TIE BEAM BY DEEPENING THE TIE BEAM ABOVE THE OPENING, AND THE TIE BEAM ITSELF IS CAPABLE OF SAFELY SUPPORTING ALL LOADS. THE BEAM MAY SPAN UP TO 6 FEET IN LENGTH AND MAY BE DEEPENED NOT MORE THAN 8 INCHES WITHOUT ADDITIONAL REINFORCING, WHERE THE BEAM IS DEEPENED IN EXCESS OF EIGHT INCHES WITH A SPAN LESS THAN SIX FEET IN LENGTH AND THE TIE BEAM ITSELF IS CAPABLE OF SUPPORTING ALL LOADS. THE DROPPED PORTION SHALL CONTAIN A #5 HORIZONTAL BAR AT THE BOTTOM, BENT UP AT EACH END AND FASTENED TO THE UPPER TIE BEAM STEEL, OR TWO #4 HORIZONTAL BARS. THE DROPPED PORTION SHALL BEAR AT LEAST EIGHT INCHES ON THE MASONRY AT EACH END, WHERE THE SPAN IS IN EXCESS OF SIX FEET. THE PRINCIPAL BEAM REINFORCING SHALL BE AT THE BOTTOM OF THE BEAM. ALL LINTELS SHALL BE SHORED UNTIL THE CONCRETE FILL STRENGTH HAS REACHED 100%.

4. REINFORCED CONCRETE MASONRY:
STANDARDS:
DESIGN AND CONSTRUCTION OF REINFORCED UNIT MASONRY SHALL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS.
(A) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES ACI-ASCE 530.
(B) SPECIFICATIONS FOR MASONRY STRUCTURES ACI-ASCE 530.1

4.2 GENERAL REQUIREMENTS:
(A) TIE COLUMNS AND TIE BEAMS AS SET FORTH HEREIN ARE NOT REQUIRED WHERE REINFORCED MASONRY CONSTRUCTION IS INDICATED IN THE PLANS.
(B) REINFORCED UNIT MASONRY SHALL BE STEEL REINFORCED GROUTED HOLLOW-UNIT MASONRY.
(C) THE ENGINEER SHALL INSPECT REINFORCEMENT FOR THE MASONRY PRIOR TO GROUTING THE CELL. (IF REQUIRED BY LOCAL BUILDING DEPARTMENT)

4.3 MATERIALS AND TESTS:
(A) CONCRETE MASONRY:
CONCRETE MASONRY SHALL HAVE AN AVERAGE PRISM STRENGTH IN ACCORDANCE WITH THE FOLLOWING SCHEDULE.

AVERAGE PRISM STRENGTH. F'M.1,500 PSI
MASONRY BEARING WALLS
UNIT COMPRESSIVE STRENGTH: 1,900 PSI NET AREA UNIT COMPRESSIVE STRENGTH, AVERAGE OF THREE UNITS NONE LESS THAN 1,700 PSI (F'm = 1,500 PSI.)
(B) GROUT:
CONCRETE GROUT SHALL BE A PEA ROCK MIX WITH A MAXIMUM AGGREGATE SIZE OF 3/8 INCH AND 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI, GROUT SHALL CONFORM TO ASTM C476.
(C)REINFORCING:
(1) DEFORMED REINFORCING STEEL SHALL BE GRADE 60.
(2) HORIZONTAL REINFORCEMENT: HORIZONTAL WALL REINFORCEMENT SHALL BE 8-GAUGE LADDER TYPE, CONFORMING TO ASTM A82, AND SHALL BE GALVANIZED, WIDTH OF HORIZONTAL REINFORCEMENT SHALL BE TWO INCHES LESS THAN THE WIDTH OF THE MASONRY TRUSS TYPE HORIZONTAL REINFORCEMENT SHALL NOT BE USED.

4.4 REINFORCED MASONRY COLUMNS AND WALLS:
(A) THE MINIMUM LENGTH OF LAP FOR DEFORMED BARS IN GROUT, IN TENSION OR COMPRESSION, SHALL BE 48 BAR DIAMETER, BUT NOT LESS THAN 24 INCHES.
(B) HORIZONTAL REINFORCEMENT:
(1) MASONRY BEARING WALLS SHALL BE REINFORCED WITH AN APPROVED LADDER-TYPE PREFABRICATED STEEL-WIRE REINFORCEMENT LAID IN EVERY SECOND HORIZONTAL JOINT, STARTING WITH THE SECOND JOINT ABOVE THE BEARING SURFACE.
(2) MASONRY RETAINING WALLS SHALL BE REINFORCED WITH AN APPROVED LADDER-TYPE PREFABRICATED STEEL-WIRED REINFORCEMENT LAID IN EVERY HORIZONTAL JOINT, STARTING WITH THE BEARING SURFACE.
(3) HORIZONTAL WALL REINFORCEMENT SHALL LAP SIX INCHES.
(C) ANCHORAGE REQUIREMENTS:
REINFORCED MASONRY WALLS SHALL BE SECURELY ANCHORED TO ADJACENT STRUCTURAL MEMBERS SUCH AS ROOFS, FLOORS, COLUMNS, PILASTERS, BUTTRESSES, AND INTERSECTION WALLS. REQUIRED ANCHORS SHALL BE EMBEDDED IN REINFORCED GROUTED CELLS, AS INDICATED IN THE PLANS, OR EXTEND DUROWALL 4" INTO COLUMN.
(D) MORTAR AND GROUT:
(1) VERTICAL CELLS TO BE GROUTED SHALL PROVIDE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN CLEAR, UNOBSTRUCTED CONTINUOUS VERTICAL CORES MEASURING NOT LESS THAN TWO BY THREE INCHES.
(2) GROUT SHALL BE A PLASTIC MIX HAVING A MAXIMUM SLUMP OF NINE INCHES PLUS OR MINUS ONE INCH.
(3) GROUT SHALL BE PLACED BEFORE ANY INITIAL SET HAS OCCURRED, BUT IN NO CASE MORE THAN ONE-HALF HOURS AFTER THE MIXED-DESIGN WATER HAS BEEN ADDED.
(4) GROUTING SHALL BE A CONTINUOUS OPERATION NOT EXCEEDING FOUR FEET BETWEEN REINFORCED, GROUTED CELLS, AND WITH A MAXIMUM POUR LIFT OF 4 FEET.
(5) GROUTING SHALL BE CONSOLIDATED BETWEEN LIFTS BY PUDDLING, RODDING, OR MECHANICAL VIBRATION.
(E) BEARING:
PRECAST FLOOR AND ROOF UNITS SUPPORTED ON MASONRY WALLS SHALL PROVIDE MINIMUM BEARING OF THREE INCHES, AND ANCHORAGE AS INDICATED IN THE PLANS.
(F) PROTECTION OF MASONRY:
UNFINISHED WORK SHALL BE STEPPED BACK FOR JOINING WITH NEW WORK. TOOTHING SHALL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER.

STRUCTURAL STEEL NOTES AND SPECIFICATIONS
1. GENERAL:
1.1 FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE AS REQUIRED IN THE STRUCTURAL DRAWINGS, SCHEDULES, AND NOTES.
1.2 THE CONTRACTOR AND STRUCTURAL STEEL FABRICATOR SHALL SURVEY ALL PLANS, DETAILS, SECTIONS, SCHEDULE, AND SHOP DRAWINGS FOR MISCELLANEOUS STEEL AND CONNECTIONS NOT SPECIFICALLY SHOWN OR DESIGNED BY THE ENGINEER. MISCELLANEOUS STEEL AND CONNECTIONS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

2. STANDARDS:
DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

2.1 SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS

2.2 (A) STRUCTURAL WELDING COD-STEEL AWS D1.1.
(B) SPECIFICATION FOR WELDING SHEET STEEL IN STRUCTURES, AWG D1.3.

2.3 STANDARD FOR QUALIFICATION OF WELDING PROCEDURES AND WELDERS FOR
PIPING AND TUBING, AWS B3.0.

3. MATERIAL:
3.1 STRUCTURAL STEEL:
(A) STRUCTURAL STEEL, ASTM A36.
(B) STRUCTURAL TUBING ASTM A500, GRADE B.

3.2 FILLER METAL AND FLUX FOR WELDING:
WELDING ELECTRODES SHALL BE E70 SERIES, WELDING ELECTRODES AND FLUXES SHALL CONFORM TO THE APPROPRIATE AWS SPECIFICATION FOR THE METHOD EMPLOYED.

3.3 USED AND DAMAGED MATERIAL:
ALL STEEL SHALL BE STRAIGHT AND TRUE AND ANY SECTION DAMAGED TO BE OUT OF SHAPE SHALL NOT BE USED. STEEL PREVIOUSLY USED OR FABRICATED FOR USE OR FABRICATED IN ERROR SHALL NOT BE USED EXCEPT WITH THE APPROVAL OF THE ENGINEER. FILLED HOLES OR WELDS SHALL NOT BE CONCEALED, STRAIGHTENED OR RETEMPERED. FIRE-BURNED STEEL SHALL NOT BE USED EXCEPT WITH THE APPROVAL OF THE ENGINEER.

3.4 TESTS:
THE ENGINEER MAY REQUIRE TESTS AND OR MILL RECORDS TO DETERMINE THE QUALITY OF MATERIALS, THE COSTS OF SUCH TESTS SHALL BE ASSUMED BY THE CONTRACTOR.

4. MINIMUM THICKNESS OF MATERIALS:
THE MINIMUM THICKNESS OF MATERIAL SHALL NOT BE LESS THAN AS SET FORTH IN THE APPLICABLE STANDARDS, OR AS REQUIRED IN THE STRUCTURAL DRAWINGS.

5. CONNECTIONS:
5.1 CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE STANDARDS.

5.2 THE ENGINEER OR SPECIAL INSPECTOR SHALL INSPECT ALL WELDING AND HIGH-STRENGTH BOILING, AND OTHER CONNECTIONS WHEN REQUIRED BY THE ENGINEER BECAUSE OF SPECIAL CONDITIONS.

5.3 CONNECTIONS NOT SPECIFICALLY DETAILED AND DESIGNED BY THE ENGINEER SHALL BE DESIGNED BY THE STRUCTURAL STEEL FABRICATOR.
(A) WHEN SIMPLE SHEAR CONNECTIONS DESIGN FORCES ARE NOT INDICATED IN THE STRUCTURAL DRAWINGS FOR THE CONNECTION SHALL BE DESIGNED FOR 60% OF THE TOTAL ALLOWABLE WEB SHEAR CAPACITY OF THE SUPPORTED MEMBER(S).
(B) SIMPLE SHEAR CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH PARAGRAPH 5.6 FOR SECTIONS LESS THAN 18 INCHES IN DEPTH.

5.4 THE CONTRACTOR AND STRUCTURAL STEEL FABRICATOR SHALL SURVEY ALL PLANS, DETAILS, SECTION, SCHEDULES, AND SHOP DRAWINGS FOR SPECIAL CONNECTIONS NOT DETAILED OR DESIGNED BY THE ENGINEER, OR ARISING FROM THE CONSTRUCTION. ATTENTION OF THE ENGINEER FOR DETAILING AND DESIGN OR SHALL BE DETAILED AND DESIGNED BY THE FABRICATOR. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

5.5 WELDED CONNECTIONS:
(A) WELDING IN THE SHOP OR FIELD SHALL BE DONE ONLY BY PERSONS WHO HAVE BEEN TESTED AND CERTIFIED BY AN APPROVED TESTING LABORATORY FOR THE TYPE AND METHOD OF WELDS TO BE PERFORMED. VALID CERTIFICATION FOR EACH WELDING OPERATOR SHALL BE AVAILABLE UPON REQUEST. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE LAWS.

(B) TYPE, SIZE, THICKNESS OF WELDS SHALL BE AS DETAILED BY THE ENGINEER, SPECIFIED, OR REQUIRED BY APPLICABLE CODES. WELDS NOT SPECIFIED IN THE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC STANDARDS AND APPROVED BY THE ENGINEER.

LUMBER AND RELATED PRODUCTS
1. GENERAL:
1.1 ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED OR OTHERWISE HAVE AN APPROVED SEPARATING MATERIAL.

1.2 ALL LUMBER SHALL BE VISUALLY GRADED DOMESTIC LUMBER AND SHALL BE IDENTIFIED BY AN APPROVED AGENCY. GRADING SHALL BE BASED ON RULES PUBLISHED BY THE FOLLOWING AGENCIES.
HEM FIR WCLIB (WEST COAST LUMBER INSPECTION BUREAU)
OR WWPA (WESTERN WOOD PRODUCTS ASSOCIATION)
SO PINE SPIB (SOUTHERN PINE INSPECTION BUREAU) No. 2

2. DESIGN VALUES:
2.1 ALL DESIGN VALUES SHALL BE BASED ON THE PROVISIONS OF ASTM DESIGNATION P245 "METHODS FOR ESTABLISHING STRUCTURAL GRADED AND RELATED ALLOWABLE PROPERTIES FOR VISUALLY GRADED LUMBER".

2.2 CALCULATIONS ARE BASED ON THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION LATEST EDITION AND DESIGN VALUES FOR WOOD CONSTRUCTION SUPPLEMENT TO THE SPECIFICATIONS, NDS.

3. CONSTRUCTION MINIMUM STANDARDS:
3.1 ALL WORK SHALL BE CONDUCTED IN GENERAL CONFORMANCE WITH THE BUILDING CODE. ALL PARTITIONS SHALL BE ERECTED PLUMB AND TO REQUIRED HEIGHTS. SPLICING OF ANY STRUCTURAL MEMBERS SHALL NOT BE MADE WITHOUT APPROVED ENGINEERING DETAILS. NOTCHING OR CUTTING OF ANY STUDS SHALL BE LIMITED TO 1/6 DEPTH, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

3.2 (A) INTERIOR BEARING PARTITIONS SHALL BE CONSTRUCTED OF SPECIFIED LUMBER, SEE PLANS. THEY SHALL HAVE A DOUBLE TOP PLATE AND SINGLE SILL WHICH SHALL BE PRESSURE TREATED. THE INDIVIDUAL STUDS SHALL BE CONNECTED TO TOP PLATE SILL AS NOTED ON PLANS.
(B) THE SILL PLATE OF ALL BEARING PARTITIONS SHALL BE CONNECTED TO THE FOUNDATION BY METHODS DESCRIBED IN DETAILS ON THE DRAWINGS.

3.3 ROOF TRUSS CONNECTIONS:
EACH TRUSS OR GIRDER MAY REQUIRE A DIFFERENT TYPE OF CONNECTION UNLESS OTHERWISE NOTED. THE STANDARD TRUSS CONNECTION HAS BEEN DETAILED, SEE ROOF FRAMING PLANS FOR DIFFERENT CONDITIONS.

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ANCHORING SCHEDULE

MARK	SUPPLIER / PRODUCT	UPLIFT CAP.	GRAVITY CAP.	FASTENERS	PRODUCT APPROVAL
A	SIMPSON HHETA20 TRUSS ANCHOR	1,935 LB	—	9-10d X 1 1/2" NAILS PER TRUSS	FL 11473

NOTE:
CONTRACTOR MAY NOT SUBSTITUTE ANCHORS/ HANGERS WITH OUT WRITTEN PERMISSION FROM ENGINEER OF RECORD

ROOF REACTIONS

MARK	REACTIONS (LBS)		ANCHOR TYPE
	UPLIFT	GRAVITY	
1	1,597	1,444	A
2	1,155	1,036	A
3	475	385	A
4	1,069	495	A

ROOF TRUSS LOADING

GRAVITY:
DL = 25 PSF
LL = 30 PSF

TRUSS DESIGNER NOTES:
DESIGNER MAY OVERSTRESS WOOD MEMBERS FOR WIND LOADING BUT MAY NOT OVERSTRES TRUSS METAL PLATES

DESIGNER TO DESIGN TRUSSES TO RESIST 200 LB POINT LOAD AT BOTTOM CHORD PANEL POINTS

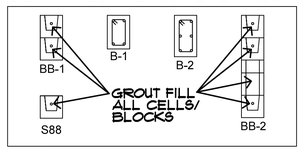
UPLIFT: AS PER ASCE 7-10, 175 MPH, RISK CATEGORY 2, EXP. C, GCPI = +/-0.18

ROOF SHEATHING
5/8" CD-X PLYWOOD FASTENED W/ 10d x 3" LONG COMMON NAILS FASTENED AT 4" o.c AT GABLE ENDS AND DIAPHRAGM BOUNDARIES AND AT 6" o.c AT BLOCKING MEMBERS AND REMAINDER.

ROOF TRUSS LEGEND

======	DENOTES 2x4 BOTTOM CHORD BRACING @ 10'-0" O.C. W/ (2) 8d NAILS

BEAM REINFORCING LAYOUT

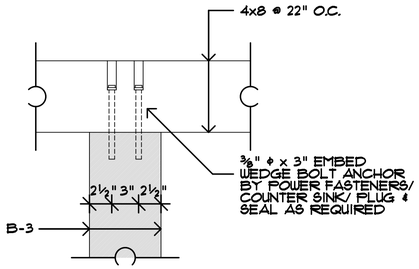


NOTE:
M.O. (MASONRY OPENING) SHOWN IS TO BE VERIFIED W/ DOOR/ LOUVRE MFR

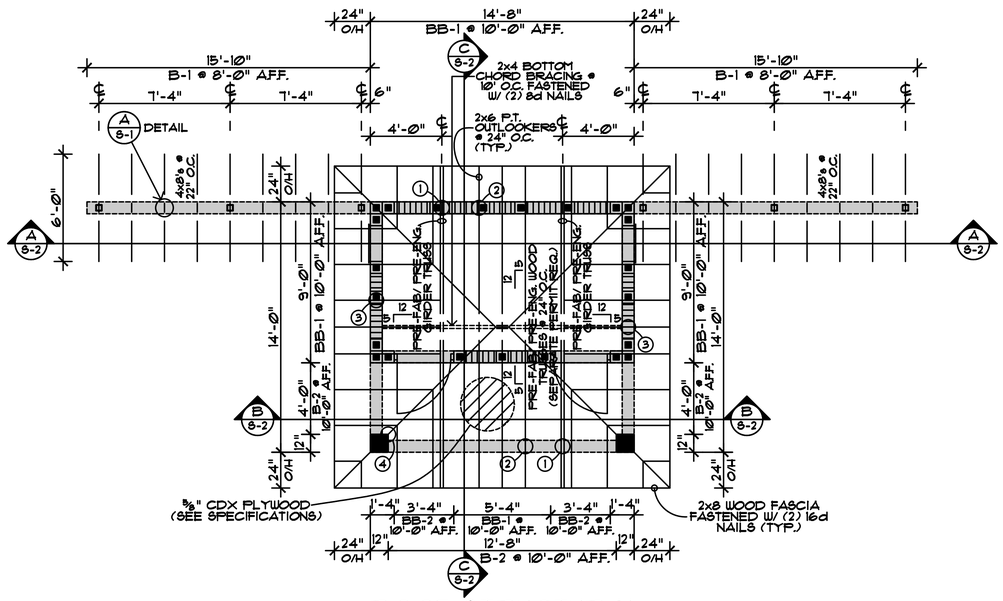
BEAM SCHEDULE

MARK	SIZE	REINFORCEMENT			STIRRUPS	T.O.B. ELEVATIONS
		B	T	S (EACH FACE)		
BB-1 (BOND BEAM)	8" X 16"	(1) #7	(1) #7	-	-	+10'-0"
BB-2 (BOND BEAM)	8" X 36"	(2) #7	(1) #7	-	-	+10'-0"
B-1	8" x 16" W/ DROPPED COLUMN CAPITALS (SEE B-1 ELEVATION ON S-2)	(2) #5	(2) #5	-	#3 @ 6" O.C.	+8'-0"
B-2	8" X 24"	(2) #5	(2) #5	(1) #5	#3 @ 10" O.C.	+10'-0"
S88	8" X 8"	-	(2) #5	-	-	+5'-8"

NOTES:
— SPLICE REINFORCEMENT AS PER TABLE
— PROVIDE CORNER BARS AS SPECIFIED ON SHEET #S-3
— TYP. BEAM REINFORCING DETAIL SPECIFIED ON SHEET #S-3



PERGOLA DETAIL/ ATTACHMENT
A / S-1 SCALE 1½"=1'Ø"



ROOF STRUCTURAL NEW WORK PLAN
NORTH SCALE 1/4"=1'Ø"

TERMITE NOTE:

PRIOR TO PLACEMENT OF CONC. THE FILL INSIDE OF THE FOUNDATION SHALL BE TREATED FOR SUBTERRANEAN TERMITES BY A LICENSED PEST CONTROL COMPANY. UPON COMPLETION A CERTIFICATE OF COMPLETION SHALL BE ISSUED BY THE LICENSED PEST CONTROL COMPANY TO THE BUILDING DEPARTMENT CONFIRMING THAT THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES AND THAT THE TREATMENT IS IN ACCORDANCE WITH AGRICULTURE AND CONSUMER SERVICES.

SOIL STATEMENT

BASED ON VISUAL INSPECTION, THE FOUNDATIONS HAVE BEEN DESIGNED FOR A 2,000 PSF SOIL BEARING CAPACITY. AT THE TIME THE SOIL IS BROKEN, A SITE INSPECTION MUST BE DONE BY THIS ENGINEER, OR ARCHITECT, ATTESTING THAT THE SITE HAS BEEN OBSERVED & THE FOUNDATION CONDITIONS ARE SIMILAR TO THOSE UPON WHICH THE DESIGN IS BASED.

4CS SLAB ON GRADE / COMPACTION SPECIFICATIONS:

1. INSTALL 4" CONCRETE SLAB ON GRADE REINFORCED WITH 6 X 6 W1.4 X W1.4 WELDED WIRE REINFORCEMENT PLACED 1 1/2" FROM TOP OF SLAB, PROVIDE (1) #4 BAR @ SLAB PERIMETER.
2. SUB SOIL TO BE FREE FROM ALL DETRITUS MATERIALS AND COMPACTED TO 95% MAX DRY DENSITY PER ASTM D-1557.
3. FILL SHALL BE PLACED IN LIFTS NOT GREATER THAN 12" LOOSE THICKNESS FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, & NOT MORE THAN 6" INCHES LOOSE THICKNESS FOR MATERIAL COMPACTED BY HAND - OPERATED UNITS. SUITABLE FILL MATERIAL SHALL BE CRUSHED LIMEROCK, WHICH SHALL BE THE LESSER OF 2" OR 50% OF THE COMPACTED LAYER THICKNESS.
4. SLAB TO BE PLACED OVER 6 MIL POLYETHYLENE VAPOR BARRIER
5. ADD ¼"x1" CONTROL JOINTS (C.J.) AS SHOWN W/ 12 HOURS OF POUR. JOINTS TO BE TREATED W/ CLOSED CELL POLYETHYLENE BACKER RODS & SEALER

FOUNDATION SCHEDULE

MARK	SIZE	REINFORCEMENT
TE88	8" X 8" CONT. THICKENED EDGE	(1) #5 BAR CONTINUOUS (BOTTOM)
MONO-1	12" WIDE x 16" DEEP (MIN.) MONOLITHIC FOOTING	(2) #5 CONT. BOTTOM BARS/ (1) #4 CONT. TOP EDGE BAR & #4 TOP TRANSVERSE BARS x 5'0" W/ 8" HOOK (SEE MONOLITHIC FTG. DTL.)
PAD-1	3'-0" x 3'-0" x 1'-2" DEEP	#6 BARS @ 10" O.C. EACH WAY (BOTTOM) & #5 BARS @ 10" O.C. EACH WAY (TOP)
PIER-1	24" ϕ x 5' DEEP PIER	(8) #5 BARS & #3 TIES @ 16" O.C.
PIER-2	24" ϕ x 2' DEEP PIER	(8) #5 BARS & #3 TIES @ 16" O.C.

NOTES:
-SPLICE REINFORCEMENT 36 BAR DIAMETERS
-AT CORNERS AND TURNS PROVIDE 48 BAR DIAMETER BENT BARS
-TOP OF ALL FOOTINGS TO E 12" BELOW NATURAL GRADE (UNLESS OTHERWISE STATED)
-TOP OF ALL PADS TO BE 12" BELOW GRADE
-TOP OF ALL CONTINUOUS WALL FOOTINGS TO BE 12" BELOW GRADE

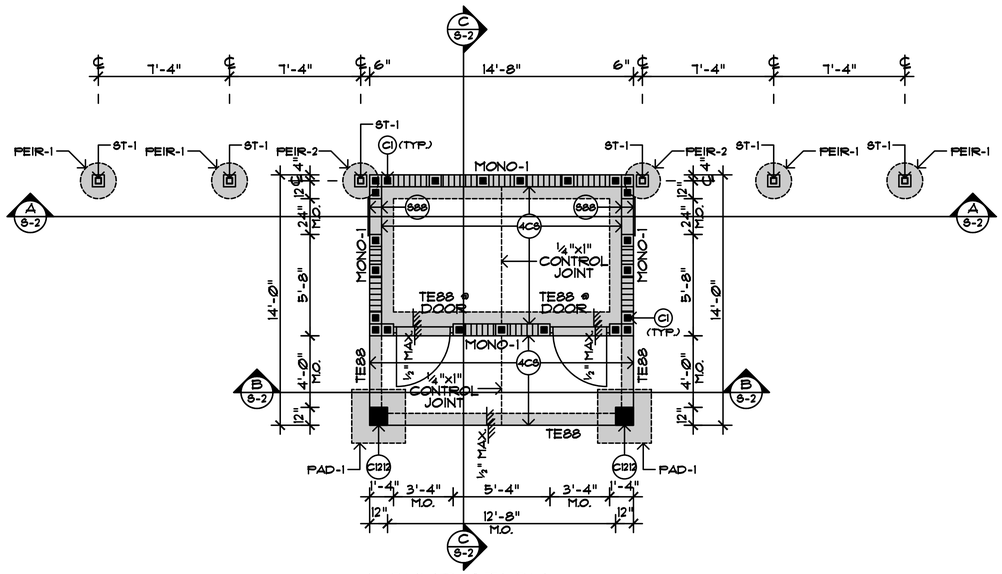
COLUMN SCHEDULE

MARK	SIZE	REMARKS
C1	8" MASONRY BLOCK	1 #5 BAR IN GROUT FILLED MASONRY BLOCK SPACED AS SHOWN BUT NO GREATER THAN 32" O.C. (UNLESS OTHERWISE STATED)
ST-1	4"x4"x1/4"	ASTM A500 GR. B (W/ 2 COATS OF PRIMER)
C1212	12" X 12" CONCRETE COLUMN	(4) #6 BARS WITH #3 TIES @ 12" O.C.

NOTES:
—SPLICE ALL CONCRETE COLUMN REINFORCEMENT 48 BAR DIA..
—HOOK VERTICAL REINFORCEMENT 8" AT TOP OF COLUMN

COLUMN REINFORCING LAYOUT

NOTE:
M.O. (MASONRY OPENING) SHOWN IS TO BE VERIFIED W/ DOOR/ LOUVRE MFR



FOUNDATION NEW WORK PLAN
NORTH SCALE 1/4"=1'Ø"

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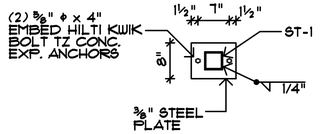
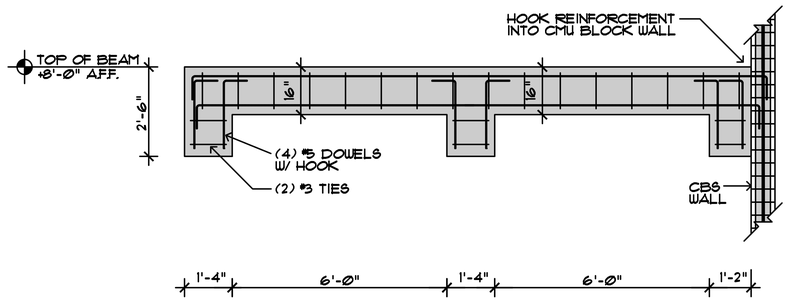
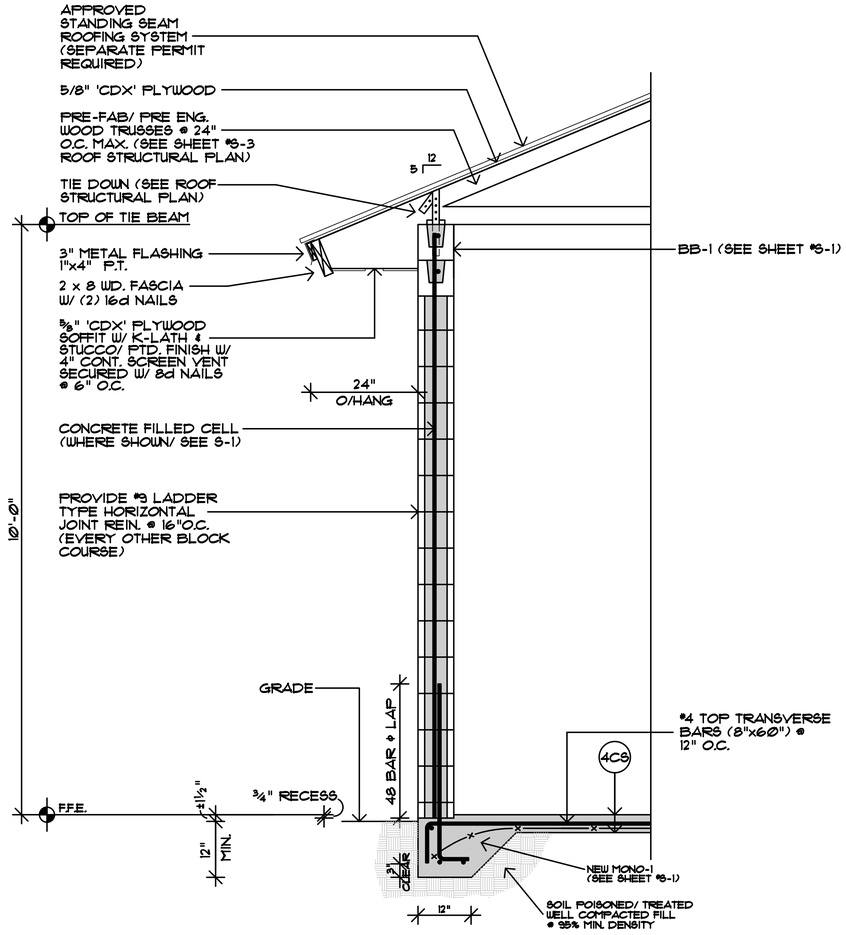


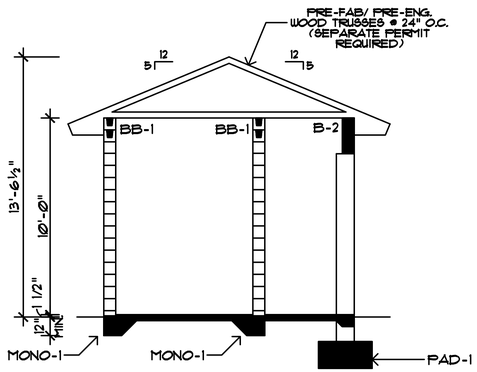
2 S-2 PLATE DETAIL
SCALE 3/4"=1'Ø"



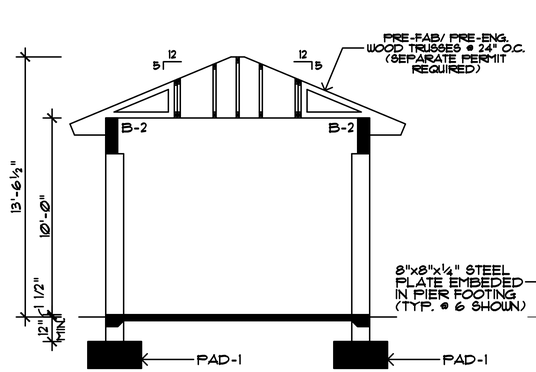
B-1 ELEVATION
SCALE 1/2"=1'Ø"



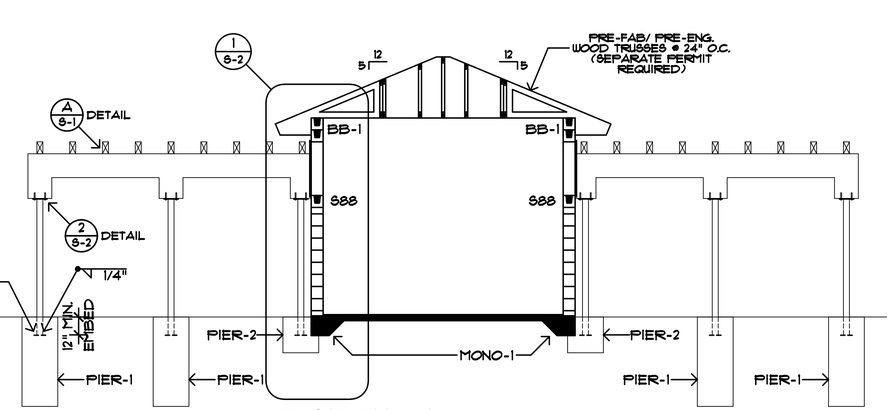
1 S-2 WALL SECTION
SCALE 3/4"=1'Ø"



C-C S-2 SECTION
SCALE 1/4"=1'Ø"



B-B S-2 SECTION
SCALE 1/4"=1'Ø"



A-A S-2 SECTION
SCALE 1/4"=1'Ø"

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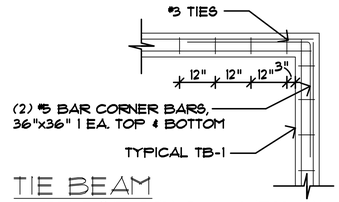
LAP LENGTHS FOR TENSION BARS:
CONCRETE BEAMS

#4 BAR = 24"
#5 BAR = 30"
#6 BAR = 36"
#7 BAR = 42"



TIE BEAM INTERSECTION DETAIL
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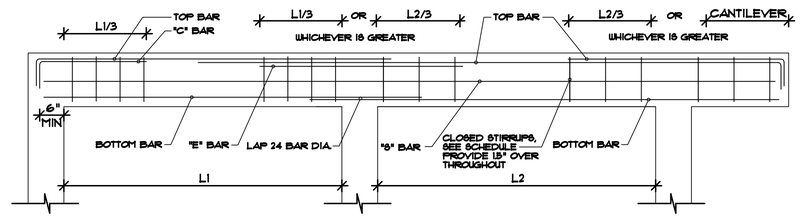

BEAM REINFORCING
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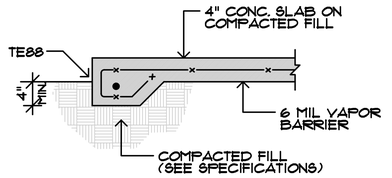
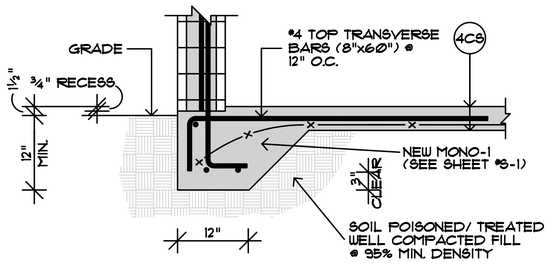
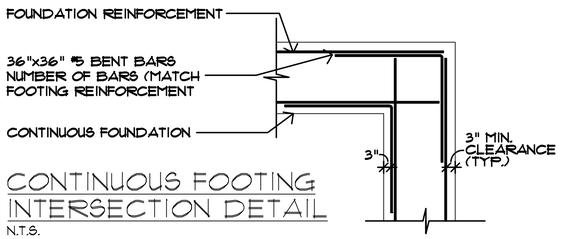


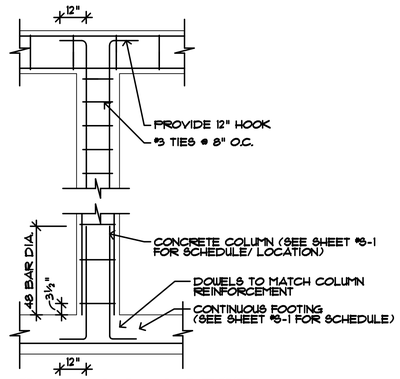
THICKENED EDGE DETAIL
SCALE 1"=1'0"



MONOLITHIC FOOTING DETAIL
SCALE 1"=1'0"



CONTINUOUS FOOTING INTERSECTION DETAIL
N.T.S.



TYP. CONCRETE COLUMN REINFORCING
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Thomas Moe, P.E.
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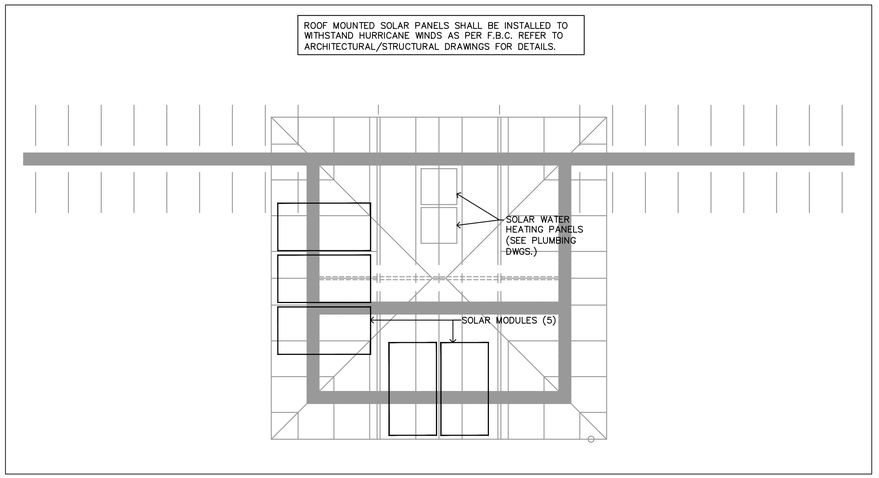
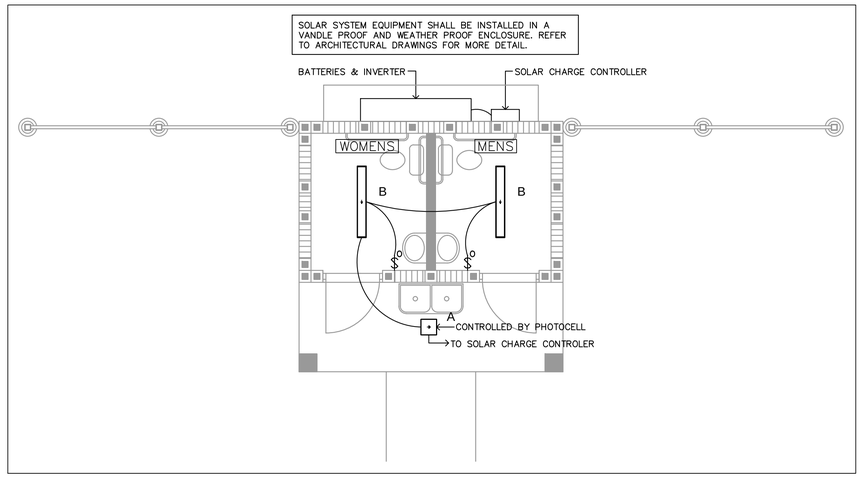
S-3



NORTH

ELECTRICAL ROOF PLAN

SCALE 1/4"=1'0"



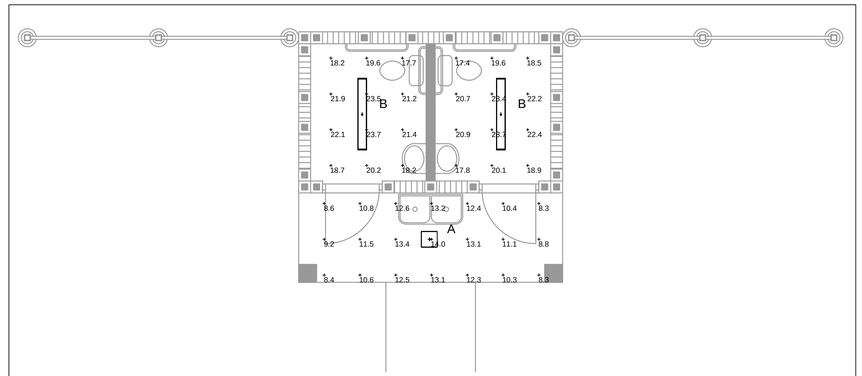
NORTH

ELECTRICAL PLAN

SCALE 1/4"=1'0"

GENERAL ELECTRICAL NOTES

- ALL ELECTRICAL WORK PERFORMED UNDER THIS CONTRACT SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC) 2011, LOCAL CODES AND ORDINANCES (INCLUDING THE 2014 FLORIDA BUILDING CODE (F.B.C.) WITH LATEST SUPPLEMENTS & AMENDMENTS), AND ALL STANDARDS OF CONSTRUCTION ESTABLISHED BY THE LANDLORD.
- PRIOR TO BID OR COMMENCEMENT OF WORK, THE CONTRACTOR SHALL VISIT THE JOB SITE AND EVALUATE ALL EXISTING FIELD CONDITIONS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OR ENGINEER OF ANY DISCREPANCIES. THE CONTRACTOR SHALL QUALIFY THE BID ACCORDINGLY.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ACCEPTANCE BY THE ARCHITECT AND/OR ENGINEER BEFORE PROCEEDING WITH THE PURCHASE OR INSTALLATION OF THE EQUIPMENT AND MATERIALS. NO FACSIMILES OR FACSIMILE COPIES SHALL BE ACCEPTED.
- THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO CUTTING OR DRILLING ANY STRUCTURAL SUPPORT MEMBER.
- THE CONTRACTOR SHALL SATISFACTORILY REPAIR/REPLACE ANY EQUIPMENT OR PART OF STRUCTURE DAMAGED AS A RESULT OF WORK PERFORMED. SURFACES AND FINISHED AREAS SHALL BE RESTORED TO MATCH ADJACENT AREAS.
- ALL CONDUCTORS SHALL BE THWN OR THHN COPPER.
- METAL-CLAD (MC) CABLE SHALL NOT BE USED IN ANY PORTION OF THE INSTALLATION UNLESS PRIOR WRITTEN CONSENT IS OBTAINED FROM THE OWNER, ARCHITECT AND ENGINEER.
- ALL EXPOSED CONDUITS SHALL BE RUN AS NEAT AS POSSIBLE. P.V.C. CONDUIT SHALL ONLY BE USED IN SLAB OR UNDERGROUND AT A MINIMUM DEPTH OF 24 INCHES.
- ALL UNDERGROUND CONDUIT INSTALLATIONS SHALL COMPLY WITH NEC SECTION 300.5.
- ALL UNDERGROUND CONDUITS SHALL BE CONVERTED TO E.M.T. CONDUIT ABOVE SLAB LEVEL. ALL UNDERGROUND ELBOWS SHALL BE R.G.S. CONDUIT.
- PROVIDE PULL STRINGS IN ALL EMPTY CONDUITS.
- ALLOW NO MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) BETWEEN ALL PULL POINTS, E.G., CONDUIT BODIES AND BOXES AS PER NEC 344.26.
- PROVIDE EXPANSION JOINTS WHERE REQUIRED AS PER NEC 300.7(B).
- ALL WIRING DEVICES SHALL BE LEVITON COMMERCIAL GRADE (WHITE DECORA) OR EQUAL AS APPROVED BY ARCHITECT OR ENGINEER.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH THE ARCHITECTURAL PLANS BEFORE ROUGH INSTALLATION OF LIGHTS, RECEPTACLES, SWITCHES, AND EQUIPMENT FOR EXACT LOCATION.
- ELECTRICAL CONTRACTOR SHALL VERIFY EXACT DIMENSIONS AND LOCATIONS OF ALL EQUIPMENT WITH OWNER PRIOR TO ROUGH INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATIONS OF ALL ELECTRICAL WIRING DEVICES (INCLUDING LUMINAIRES, RECEPTACLES, SWITCHES, CONDUITS, WIRING, ETC.) WITH OTHER TRADES TO AVOID CONFLICTS.
- ELECTRICAL CONTRACTOR SHALL VERIFY THE CEILING FINISHES AND SUSPENSION SYSTEMS FOR SELECTION OF THE PROPER TRIM AND SUPPORT ARRANGEMENTS OF ALL ELECTRICAL DEVICES.
- PROVIDE ACCESS PANELS AS REQUIRED TO SERVICE ALL ELECTRICAL EQUIPMENT ABOVE HARD CEILINGS. COORDINATE WITH ARCHITECT BEFORE ROUGH INSTALLATION.
- WHERE APPLICABLE, ALL LUMINAIRES SHALL BE PROPERLY SECURED TO CEILING GRID SYSTEM.
- FLUORESCENT LUMINAIRES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE OR BALLASTED LUMINAIRES THAT ARE SUPPLIED FROM MULTIWIRE BRANCH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL HAVE A DISCONNECTING MEANS IN ACCORDANCE WITH NEC 410.130(G), WHERE APPLICABLE.
- ALL LUMINARIES SHALL BE PROPERLY SUPPORTED IN ACCORDANCE WITH THE CEILING SYSTEM MANUFACTURER RECOMMENDATIONS AND LOCAL CODE REQUIREMENTS.
- ALL LIGHTING CIRCUITS WHICH CONTROL AND/OR OPERATE LIGHTING FIXTURES WITH AN ELECTRONIC BALLAST SHALL BE PROVIDED WITH A SEPARATE NEUTRAL WIRE PER EACH PHASE.
- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LIGHT FIXTURE QUANTITIES AND MEASUREMENTS (LENGTHS) ON PLANS PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
- EACH MULTIWIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS WHAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES AS PER NEC 210.4(B).
- ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE APPROVED AS SAFE FOR USE IN THE U.S. WORKPLACE FOR THE INTENDED APPLICATION, AS DETERMINED BY AN ORGANIZATION CURRENTLY RECOGNIZED BY OSHA (OCCUPATIONAL SAFETY AND HEALTH) AS A NRTL (NATIONALLY RECOGNIZED TEST LABORATORY). (E.G. – UL, CSA, ETC.)
- AS PER F.B.C. ENERGY CONSERVATION, CHAPTER 4, SECTION 405.7.3.1, FEEDER AND CUSTOMER-OWNED SERVICE CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2 PERCENT AT DESIGN LOAD REGARDLESS OF SIZES SHOWN ON PLANS OR PANEL SCHEDULES.
- ALL BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH N.E.C. 210.19 AND FOR A MAXIMUM VOLTAGE DROP OF 3 PERCENT AT DESIGN LOAD AS PER F.B.C. ENERGY CONSERVATION, CHAPTER 4, SECTION 405.7.3.2 REGARDLESS OF SIZES SHOWN ON PLANS OR PANEL SCHEDULES.
- AS PER F.B.C. ENERGY CONSERVATION, CHAPTER 4, SECTION 405.7.4.1, WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO THE BUILDING OWNER, INCLUDING:
  1. A SINGLE-LINE DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM AND
  2. FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION.
- AS PER F.B.C. ENERGY CONSERVATION, CHAPTER 4, SECTION 405.7.4.2, THE GENERAL CONTRACTOR SHALL PROVIDE AN OPERATING MANUAL AND MAINTENANCE MANUAL TO THE BUILDING OWNER. THE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
  1. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
  2. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
  3. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY.
- IF ANY CONFLICT IS ENCOUNTERED WITHIN THE DESIGN DOCUMENTS, REGARDLESS OF TRADE OR RESPONSIBILITY, THE GREATER SCOPE OF WORK SHALL PREVAIL.
- CONTRACTOR SHALL WARRANT ALL WORK TO BE FREE OF DEFECT IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE PROJECT.



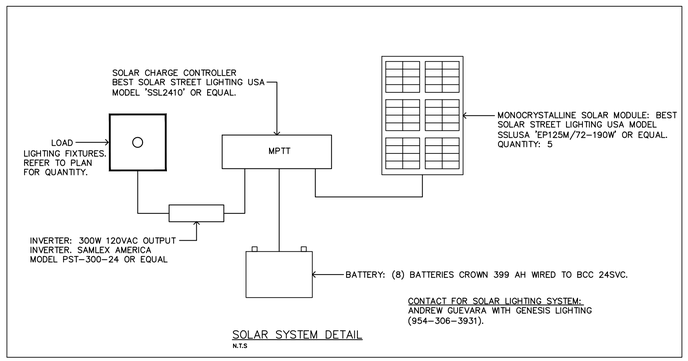
Luminaire Schedule							
Symbol	Qty	Label	Manufacturer	Catalog No.	Description	LLF	Lum. Lumens
	1	A	XTRALIGHT	CCLM-4K / MTD AT 11' AFF	LED CANOPY LIGHT VANDAL PROOF	0.900	3884
	2	B	XTRALIGHT	LSTLED-4K / MTD AT 11' AFF	LED STRIP LIGHT VANDAL PROOF	0.900	3927

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CANOPY AREA_Floor	Illuminance	Fc	11.09	14.0	8.3	1.34	1.69
RR 1_Workplane	Illuminance	Fc	20.53	23.7	17.7	1.16	1.34
RR 2_Workplane	Illuminance	Fc	20.47	23.7	17.4	1.18	1.36

NORTH

PHOTOMETRIC PLAN

SCALE 1/4"=1'0"



SOLAR SYSTEM DETAIL

N.T.S

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CA No. 29859

DATE

22 SEPT. 2017

CORAL REEF PARK / RESTROOMS

PALMETTO BAY, FLORIDA

E-1

H.V.A.C. GENERAL NOTES

1.0 GENERAL

1.1 ALL WORK TO BE PERFORMED UNDER THESE DOCUMENTS SHALL CONFORM WITH THE FLORIDA BUILDING CODE, AND ALL OTHER APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

1.2 ALL WORK SHALL BE PERFORMED BY A LICENSED AND INSURED MECHANICAL CONTRACTOR, IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETE SYSTEM SHALL BE FULLY OPERATIVE AFTER COMPLETION OF WORK.

1.3 MECHANICAL CONTRACTOR SHALL FURNISH WRITTEN GUARANTEE THAT THE INSTALLED SYSTEM SHALL BE FREE OF MATERIALS AND WORKMANSHIP DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE BY THE OWNER.

1.4 MECHANICAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING HIS OWN PERMIT AND PAYING ALL PERMIT AND INSPECTION FEES.

1.5 SUBMIT SHOP DRAWINGS FOR ACCEPTANCE BY THE ARCHITECT AND/OR ENGINEER BEFORE PROCEEDING WITH PURCHASE OR INSTALLATION OF THE EQUIPMENT AND MATERIALS

1.6 THE CONTRACTOR SHALL PROVIDE A SET OF PRINTS CLEARLY MARKED TO SHOW AS-BUILT CONDITIONS AT THE COMPLETION OF CONSTRUCTION.

1.7 ALL BUILDING CONSTRUCTION AFFECTED BY THE REMOVAL, RELOCATION OR INSTALLATION OF ANY PIECE OF EQUIPMENT SHALL BE REPAIRED AND FINISHED AS REQUIRED TO MATCH EXISTING CONDITIONS, OR AS DIRECTED BY THE ARCHITECTURAL DRAWINGS AND/ OR SPECIFICATIONS.

1.8 PLANS AND SCHEMATICS ARE DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED. COORDINATE HVAC WORK WITH ALL PLUMBING, FIRE PROTECTION AND ELECTRICAL WORK AT THE SITE SO AS NOT TO CONFLICT IN LOCATION WITH OTHER WORK PERFORMED UNDER THIS CONSTRUCTION DOCUMENTS.

2.0 FIELD VERIFICATION

2.1 ALL WORK SHALL BE FIELD VERIFIED BEFORE INSTALLATION AND COORDINATED WITH ALL OTHER TRADES.

2.2 WHERE INTERFERENCES OCCUR AND DEPARTURES FROM INDICATED DESIGN WILL BE REQUIRED TO DETERMINE CHANGES ON LOCATIONS, SIZES AND ELEVATIONS OF PIPING, DUCTWORK, ETC. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST FOR THE CHANGE ACCOMPANIED BY A DETAILED DRAWING FOR APPROVAL FROM ARCHITECT/ ENGINEER PRIOR TO PROCEEDING WITH ANY CHANGE OR DEPARTURES FROM CONTRACT DOCUMENTS.

2.3 COORDINATE LOCATION OF LOUVERS. WITH OTHER TRADES, PARTICULARLY WHERE LOUVER PENETRATES STRUCTURAL ELEMENTS. PROVIDE ALL NECESSARY SLEEVES BEFORE CONCRETE IS POURED.

2.4 BEFORE CUTTING OR MAKING OPENINGS IN ANY BUILDING COMPONENT, CONTRACTOR SHALL VERIFY USING ANY REQUIRED MEANS THAT ITS LOAD BEARING CAPABILITY IS NOT COMPROMISED IN ANY MATTER.

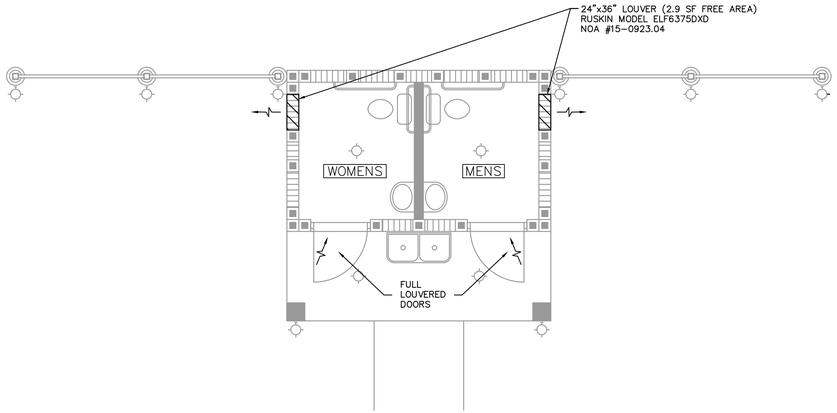
3.0 EQUIPMENT

3.1 ALL MECHANICAL EQUIPMENT LOCATED ON THE EXTERIOR OF THE BUILDING SHALL BE CONSTRUCTED AND INSTALLED TO WITHSTAND HURRICANE FORCE WINDS FROM ANY DIRECTION AS PER F.B.C.

3.2 MECHANICAL EQUIPMENT SHALL BE INSTALLED AND SUPPORTED PER MANUFACTURER RECOMMENDATIONS AND AS REQUIRED FOR APPLICABLE CODES AND STANDARDS, USING SOUND INDUSTRY STANDARD PRACTICES. STRUCTURAL ENGINEER DESIGN AND RECOMMENDATIONS SHALL BE AS FOLLOWS. SUBMIT SHOP DRAWINGS OF ALL SUPPORTING STRUCTURES THAT CLEARLY INDICATE SIZES, MATERIAL, DESIGN AND PRODUCT APPROVAL NUMBERS.

3.3 EQUIPMENT DATA SHOWN IN THE EQUIPMENT SCHEDULES IS BASED ON MANUFACTURER'S ACTUAL CATALOG. VERIFY THIS INFORMATION WITH MANUFACTURERS PRIOR TO PURCHASING OR INSTALLING ANY EQUIPMENT. MANUFACTURER'S NAMES SHALL BE INTERPRETED AS ESTABLISHMENT OF REQUIRED TYPE CLASS AND QUALITY. ALL SUBSTITUTIONS SHALL BE APPROVED BY THE PROJECT ENGINEER. PROVIDE ALL NECESSARY INSTRUCTIONS TO THE OWNER IN THE OPERATION OF THE MECHANICAL SYSTEM.

3.4 EXHAUST VENTS SHALL BE LOCATED 10' MINIMUM DISTANCE FROM ANY OUTSIDE AIR INTAKE.



NORTH

MECHANICAL PLAN
SCALE 1/4"=1'0"

VENTILATION CALCULATION

BATHROOMS SHALL BE VENTILATED BY MEANS OF NATURAL VENTILATION AS PER 2014 F.B.C.-MECHANICAL SECTION 402.

MINIMUM REQUIRED OPENABLE AREA TO THE OUTDOORS SHALL BE 4 PERCENT OF THE FLOOR AREA BEING VENTILATED AS PER SECTION 402.2

BATHROOM	FLOOR AREA (SQ FT)	REQUIRED OPENING (SF FREE AREA)	OPENING PROVIDED (SF FREE AREA)
MENS	50	2	2.9
WOMENS	50	2	2.9

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CA No. 29859

DATE

22 SEPT. 2017

CORAL REEF PARK/ RESTROOMS

PALMETTO BAY, FLORIDA

M-1

GENERAL PLUMBING NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, AND ALL APPLICABLE LOCAL ORDINANCES.
2. ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETE SYSTEM SHALL BE FULLY OPERATIVE AFTER COMPLETION OF WORK.
3. PLUMBING CONTRACTOR SHALL FURNISH WRITTEN GUARANTEE THAT ALL PLUMBING WORK SHALL BE FREE OF DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
4. CONTRACTOR SHALL VISIT THE SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS. FIELD VERIFY LOCATION OF EXISTING POINTS OF CONNECTIONS BEFORE SUBMITTING BID AND OBTAIN ANY REQUIRED CLARIFICATION BEFORE COMMENCING WORK.
5. NOT USED.
6. COORDINATE NEW PLUMBING WORK WITH LIGHTING, ELECTRICAL, DUCTWORK, STRUCTURAL FRAMING AND CEILING SYSTEMS.
7. CONTRACTOR SHALL COORDINATE LOCATION AND SIZE OF ALL PENETRATIONS THROUGH WALLS, CEILINGS, FLOORS AND ROOFS WITH OTHER TRADES AND REPORT ANY DISCREPANCIES TO ARCHITECT /ENGINEER. NO STRUCTURAL MEMBER SHALL BE CUT OR MODIFIED WITHOUT WRITTEN AUTHORIZATION.
8. DRAWING ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS FOR EXACT LOCATION OF FIXTURES AND PIPING.
9. CONTRACTORS SHALL BE RESPONSIBLE FOR ALL PERMITS, TAXES, INSPECTIONS AND TEST FEES.
10. ALL MATERIALS TO BE PROVIDED UNDER THIS DOCUMENTS SHALL MEET ALL THE REQUIREMENTS OF THE F.P.C, AND ALL OTHER LOCAL STANDARDS AND REGULATIONS. MATERIALS SHALL BE NEW, FREE OF DEFECTS AND OF AMERICAN MANUFACTURER, INDELIBLY MARKED WITH MANUFACTURER NAME, WEIGHT AND/OR CLASS. MANUFACTURER NAMES SHALL BE INTERPRETED AS ESTABLISHMENT OF REQUIRED TYPE, CLASS AND QUALITY. MATERIAL SHALL BE PROVIDED AS FOLLOWS:
    - A. ALL WASTE AND VENT PIPING SHALL BE SCHEDULE 40, DWV, PVC PIPING AS PER TABLE–702.2, F.P.C
    - B. DOMESTIC WATER PIPING AND FITTINGS SHALL CONFORM WITH TABLES 605.4 THRU 605.8. OF THE F.P.C. AND SHALL BE ONE OF THE FOLLOWING TYPES:
        - B.1 COPPER TYPE 'W' ABOVE GROUND AND BELOW GROUND INSIDE A PROTECTIVE SLEEVE. WATER SERVICE PIPING SHALL BE PRESSURE RATED, SCHDULE 40 PVC PIPING, AS PER ASTM D 1785.
        - B.2 INSULATE ALL HOT WATER PIPING WITH 1" RIGID FIBERGLASS OR 1/2" FLEXIBLE FOAM INSULATION (ARMAFLEX). FLEXIBLE FOAM INSULATION SHALL NOT BE SPLIT, AND SHALL BE TAPED AT BUTT JOINTS.
    - E. WALL CLEANOUTS.
        - E.1 JOSAM SERIES 58750 WITH ACCESS COVER OR EQUAL.
        - E.2 PROVIDE CHROME PLATED BRASS ESCUTCHEONS WITH LOCKING SCREWS WHERE PIPE PASS THROUGH FINISHED WALLS.
        - E.3 A CLEANOUT SHALL BE PROVIDED AT THE BASE OF EACH SOIL AND WASTE STACK.
    - F. VALVES.
        - F.1 125 PSI NIBCO SCOTT, STOCKHAM OR EQUAL.
        - F.2 PROVIDES STOPS AT ALL PLUMBING FIXTURES. EXPOSED STOPS SHALL BE CHROME PLATED.
    - G. PLUMBING FIXTURES.
        - G.1 SEE PLUMBING FIXTURE SCHEDULE FOR FIXTURE SPECIFICATIONS.
        - G.2 PLUMBING FIXTURES SHALL COMPLY WITH WATER CONSERVATION REGULATION FS.553.14.
11. PERFORM THE FOLLOWING TEST:
    - A. NEW DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT 100 PSIG FOR A PERIOD OF NO LESS THAN ONE HOUR.
    - B. WASTE AND VENT PIPING SHALL BE FILLED WITH WATER TO A 10 FOOT HEAD AND ALLOWED TO STAND UNTIL THE WATER LEVEL REMAINS CONSTANT.
    - C. CORRECT ALL DEFECTS DISCLOSED BY ABOVE TESTING.
    - D. STERILIZE ALL NEW DOMESTIC WATER PIPING WITH A MIXTURE OF TWO POUNDS OF CHLORINATED LIME TO EACH 1000 GALLONS OF WATER (50PPM OF AVAILABLE CHLORINE). RETAIN MIXTURE IN PIPE FOR A PERIOD OF 24 HOURS AND FLUSH THOROUGHLY WITH POTABLE WATER BEFORE PLACING SYSTEM IN SERVICE.
12. WASTE PIPING 2 1/2" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT MINIMUM. PIPES LARGER THAN 2 1/2" SHALL BE SLOPED AT 1/8" PER FOOT MINIMUM FALL.
13. NOT USED.
14. PIPING PENETRATION AT ROOFS, CEILINGS, FLOORS AND WALLS SHALL BE SEALED AIR AND WATER TIGHT. WHERE PENETRATING FIRE RATED CONSTRUCTION, FIRE SAFE TO PROVIDE PROTECTION MATCHING REQUIRED FIRE RESISTANCE RATING.
15. ALL HORIZONTAL VENT PIPING SHALL SLOPE TO DRAW TO STACKS. NO POCKETS OR LOW POINTS SHALL BE CREATED IN THE VENT LINES WHICH MAY PREVENT VENTING IF FILLED WITH CONDENSATION.
16. CEILING ACCESS PANELS SHALL BE PROVIDED FOR VALVES INSTALLED ABOVE OTHERWISE NON–ACCESSIBLE CEILINGS.
17. NO EQUIPMENT OR MATERIALS SHALL BE PURCHASED OR INSTALLED PRIOR TO FINAL APPROVAL OF SHOP DRAWINGS.
18. THE CONTRACTOR SHALL PROVIDE A SET OF PRINTS CLEARLY MARKED TO SHOW AS–BUILT CONDITIONS AT THE COMPLETION OF CONSTRUCTION.
19. FURNISH AND INSTALL DIELECTRIC COUPLINGS AT ALL CONNECTIONS BETWEEN DISSIMILAR METALS.

PLUMBING ABBREVIATIONS

A/C	AIR CONDITIONING
A.F.F.	ABOVE FINISH FLOOR
A.A.V.	AIR ADMITANCE VALVE
B.F.P.	BACK FLOW PREVENTER
BH	BOOSTER HEATER
BV	BALANCING VALVE
BFP	BACK FLOW PREVENTER
CLG.	CEILING
CO	CLEANOUT
COND.	CONDENSATE
CONT'N.	CONTINUATION
CW	COLD WATER
CONN.	CONNECTION
DN.	DOWN
DWG.	DRAWING
DR.	DRAIN
ELEC.	ELECTRIC
EQUIP.	EQUIPMENT
EXP.	EXPANSION
EDP	EMERGENCY DRAIN PAN
EX.	EXISTING
FT.	FEET
FD	FLOOR DRAIN
FFE.	FLOOR ELEVATION
FU	FIXTURE UNITS
FL.	FLOOR
GAL.	GALLONS
GALV.	GALVANIZED
GRND.	GROUND
GPM	GALLONS PER MINUTES
GW	GREASE WASTE
HB	HOSE BIBB
HP	HORSE POWER
HYD.	HYDRANT
HW	HOT WATER
HWR	HOT WATER RETURN
MIN.	MINIMUM
PRES.	PRESSURE
PRV.	PRESSURE REDUCING VALVE
PSI.	POUND SQUARE INCH
PTR	PRESSURE AND TEMPERATURE RELIEF VALVE.
REG.	REGULAR
SAN.	SANITARY
SF	SQUARE FEET
SD	STORM DRAIN
TDH.	TOTAL DYNAMIC HEAD
TYP.	TYPICAL
TMV	TEMPERATURE MIXING VALVE (LOW FLOW).
UNDRG.	UNDERGROUND
VTR	VENT THRU ROOF

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SANITARY WASTE PIPE		GATE VALVE
	GREASE WASTE PIPE		CHECK VALVE
	INDIRECT WASTE		BALANCING VALVE
	VENT PIPE		CLEANOUT
	COLD WATER PIPE		HOSE BIBB
	HOT WATER PIPE		BALL VALVE
	RECIRCULATING PIPE		UNION
CD	CONDENSATE PIPE		AIR CHAMBER
	DENOTES EXISTING PIPING OR FIXTURE		PIPE DOWN
	VENT THRU ROOF	Ø	DIAMETER
	FLOOR DRAIN WITH TRAP PRIMING		MECHANICAL SHOCK ABSORBER AS SCHEDULED
	FLOOR SINK		DENOTES NEW CONNECTING TO EXISTING
	FLOOR CLEANOUT		DENOTES DRAWING REFERENCE CALL OUT
	WALL CLEANOUT		

PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	FIXTURE	WASTE (IN.)	VENT (IN.)	COLD WATER (IN.)	HOT WATER (IN.)	REMARKS
WC	WATER CLOSET	4	2	1–1/2	––	ADA COMPLIANT
LAV	LAVATORY	2	2	1/2	1/2	ADA COMPLIANT
DF	DRINKING FOUNTAIN	2	2	1/2	––	HI/LO ADA COMPLIANT

NOTES:

1 PLUMBING FIXTURES SHALL COMPLY WITH REQUIREMENTS OF F.P.C. CHAPTER 4, SECTION 405.3.1 AND TABLES 604.4, 604.5 AND 709.1.
2 WALL HUNG FIXTURES SHALL BE SUPPORTED AS PER SECTION 2318.15 OR 2510.5.1.1, 2510.5.1.3, FLORIDA BUILDING CODE.
3 COORDINATE FINAL FIXTURE LAYOUT AND SPECIFICATIONS WITH ARCHITECTURAL DRAWINGS BEFORE COMMENCEMENT OF JOB.
4 PROVIDE ALL REQUIRED ADDITIONAL COMPONENTS, DEVICES AND ACCESSORIES FOR A COMPLETE FIXTURE INSTALLATION.
5 PLUMBING FIXTURES TO BE SELECTED AND SUPPLIED BY OWNER.
6 ALL FIXTURES SHALL COMPLY WITH MIAMI–DADE COUNTY CODE SEC. 8–31.

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DATE
22 SEPT. 2017

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PALMETTO BAY, FLORIDA

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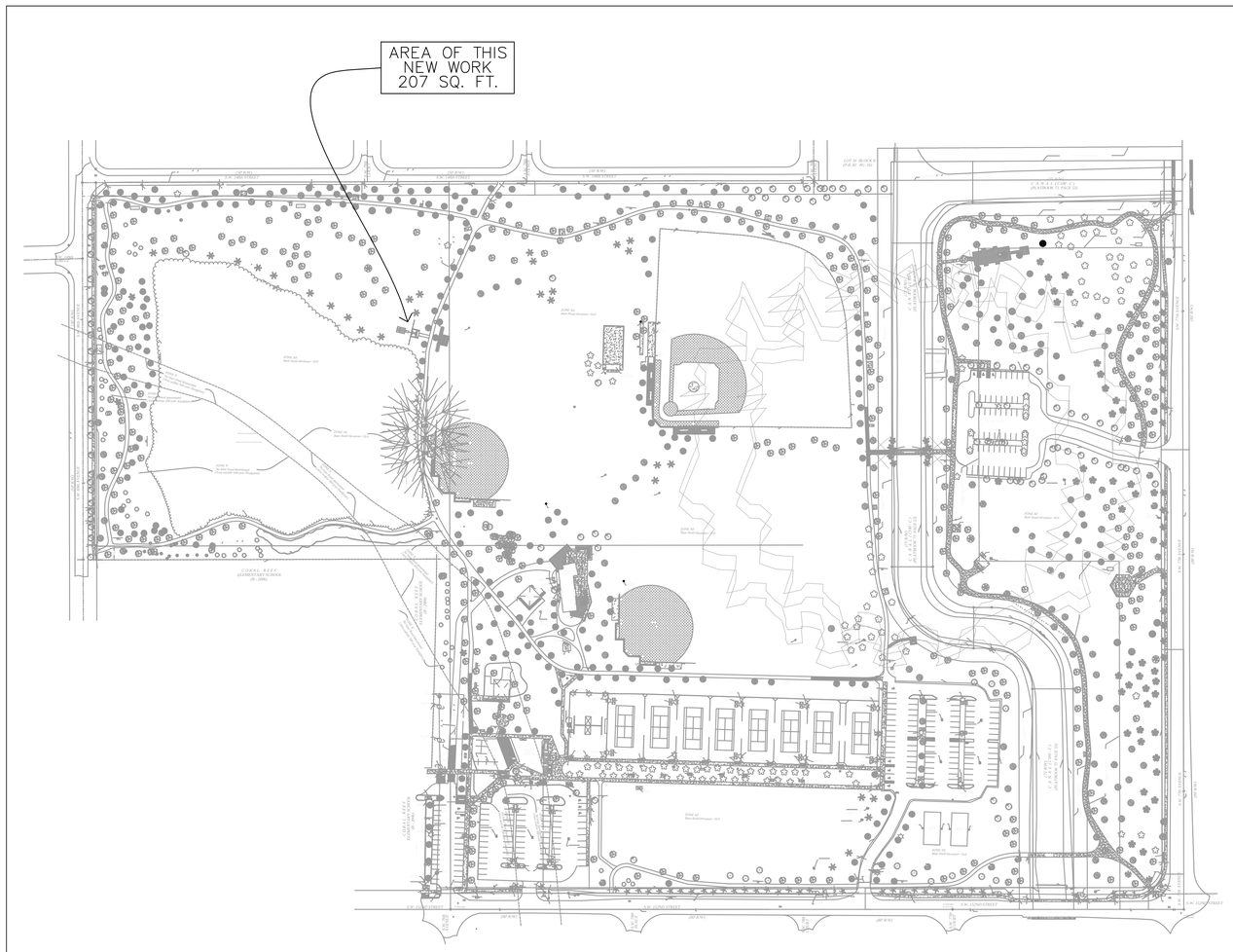
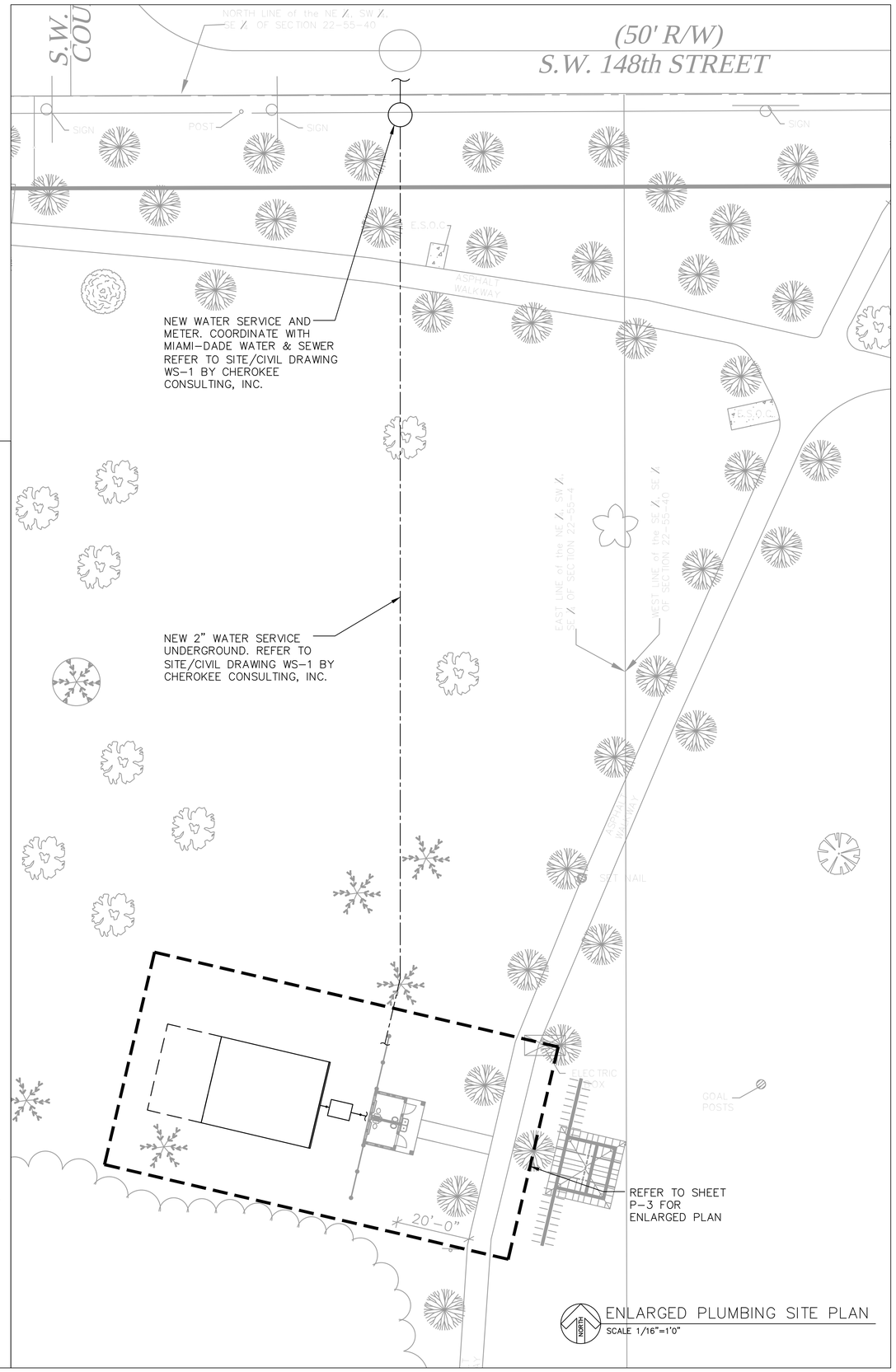


OVERALL SITE PLAN
SCALE 1/128"=1'0"



ENLARGED PLUMBING SITE PLAN
SCALE 1/16"=1'0"

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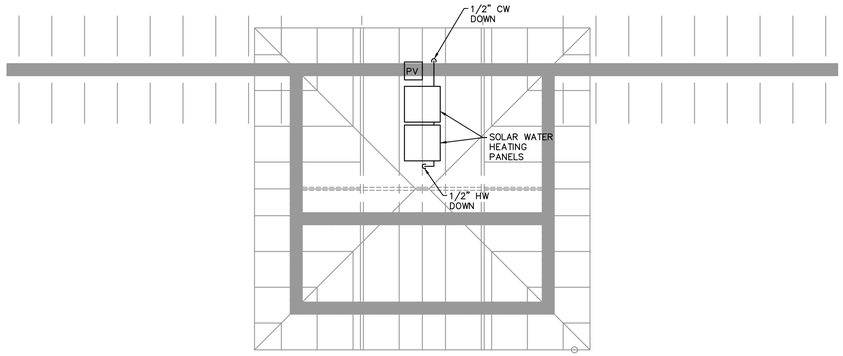
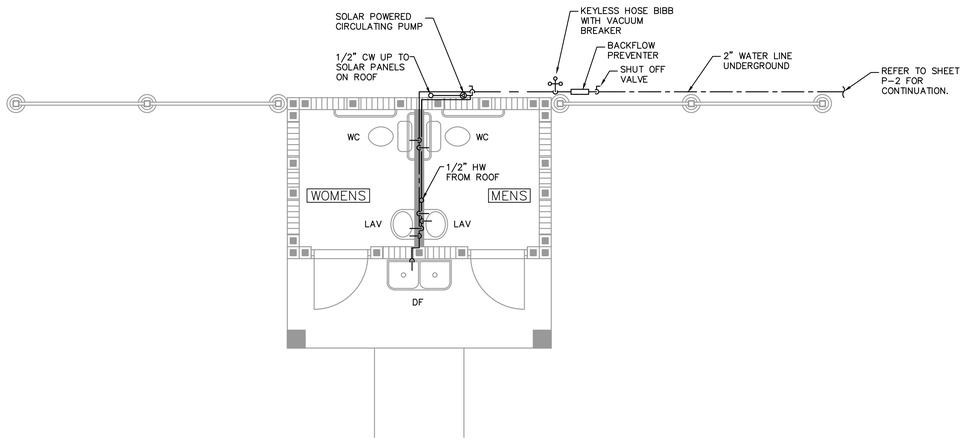
ROOF MOUNTED SOLAR PANELS SHALL BE INSTALLED TO WITHSTAND HURRICANE WINDS AS PER F.B.C. REFER TO ARCHITECTURAL/STRUCTURAL DRAWINGS FOR DETAILS.



NORTH

PLUMBING ROOF PLAN – WATER

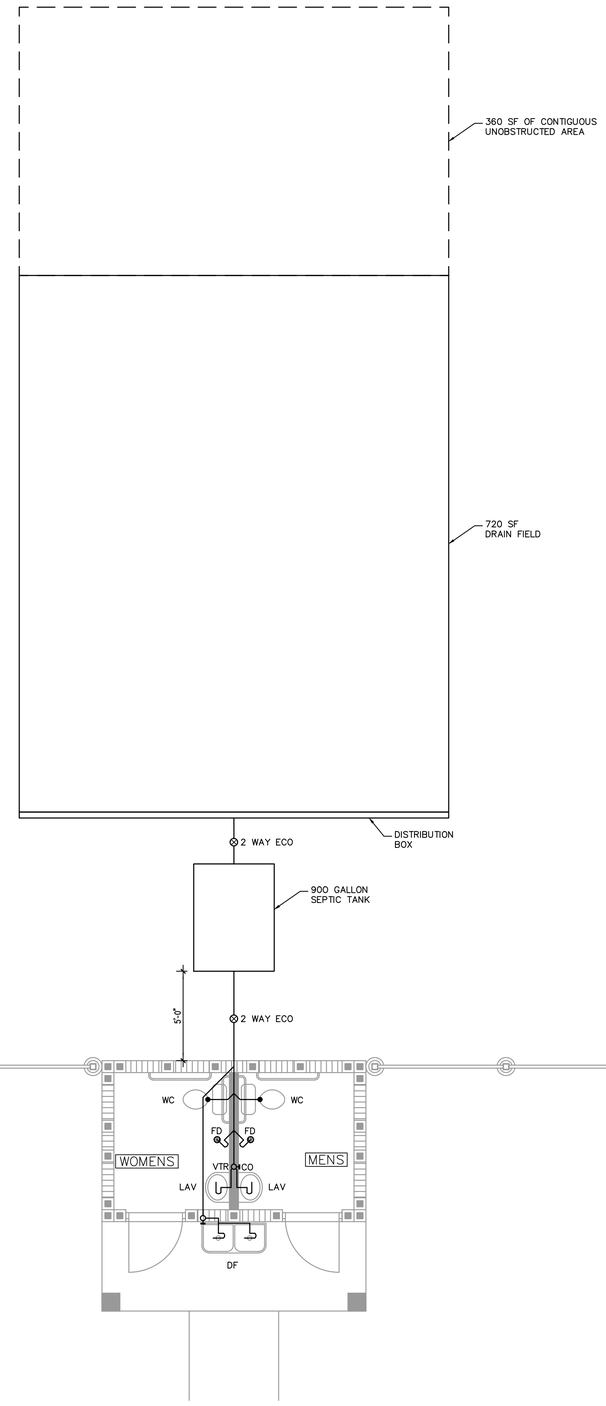
SCALE 1/4"=1'0"



NORTH

PLUMBING PLAN – WATER

SCALE 1/4"=1'0"



NORTH

PLUMBING PLAN – SANITARY

SCALE 1/4"=1'0"

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P-3

SEPTIC TANK CALCULATION AND NOTES

SUBSURFACE SEWAGE DISPOSAL SYSTEM SHALL COMPLY WITH CHAPTER 64R-6, F.A.C.-STANDARDS FOR ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

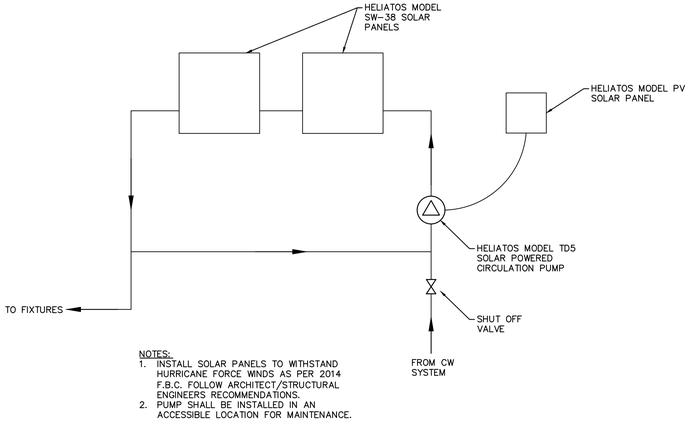
1. THE SEWAGE DISPOSAL SYSTEM IS CONFIGURED TO PROVIDE THE FOLLOWING MINIMUM CLEARANCES TO EXISTING/PROPOSED STRUCTURES:
   - 1.1. DISTANCE TO PRIVATE POTABLE WELL (AS MEASURED FROM NEAREST CORNER OF DRAINFIELD)..... EXCEEDS 75'
   - 1.2. DISTANCE TO LIMITED USE NON-COMMUNITY OR OTHER PUBLIC POTABLE WATER WELL..... EXCEEDS 100'
   - 1.3. DISTANCE TO PUBLIC POTABLE WELL SYSTEM..... EXCEEDS 200'
   - 1.4. DISTANCE TO NON-POTABLE WELL..... EXCEEDS 50'
   - 1.5. DISTANCE TO STORM SEWER PIPE..... EXCEEDS 10'
   - 1.6. DISTANCE TO STRUCTURE FOUNDATIONS..... EXCEEDS 5'
   - 1.7. DISTANCE TO MEAN HIGH WATER LINE OF TIDAL WATERS, STREAMS, CANALS AND DRAINAGE STRUCTURES..... EXCEEDS 75'
   - 1.8. DISTANCE TO DESIGN HIGH WATER LINE OF INDIVIDUAL STORM WATER DRY RETENTION AREAS..... EXCEEDS 15'
   - 1.9. DISTANCE TO PROPERTY LINE..... EXCEEDS 5'
2. CALCULATED SEWAGE FLOW UP TO 1,020.0 GALLONS PER DAY. REFER TO CALCULATIONS BELOW.

SPACE TYPE	AREA	PERSON/DAY	DISCHARGE RATE	GPD
PUBLIC PARK	270	50	4 GPD/PERSON	200

3. THEREFORE, SEPTIC TANK MINIMUM EFFECTIVE CAPACITY = 900 GALLONS PER CHAPTER 64E-6.008, F.A.C. TABLE II.
4. REQUIRED DRAINFIELD AREA IS 720 SQUARE FEET (MINIMUM) PER SYSTEM PER SEWAGE LOADING RATE OF 0.8 GALLONS PER SQUARE FOOT PER DAY.
5. MAINTAIN A CONTIGUOUS UNOBSTRUCTED AREA EQUAL TO 50% OF THE DRAINFIELD AREA AND COMPLY WITH SET-BACK REQUIREMENTS.
6. SEASONAL HIGH WATER TABLE ELEVATION = 5.50' N.G.V.D.
7. THE ENGINEER HAS VERIFIED WITH THE OWNER THAT THERE ARE NO ACTIVE WELLS WITHIN 200 FEET OF THE PROPOSED DRAINFIELD AND THAT THE PROPOSED AND EXISTING WELLS ARE NOT WITHIN 200 FEET OF THE PROPOSED SEPTIC SYSTEM.

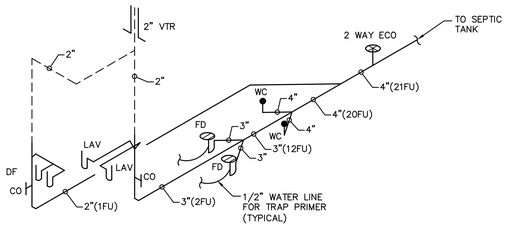
PERTINENT FEATURE NOTES:

- THERE ARE NO PERTINENT FEATURES ON ADJACENT PROPERTIES OR ACROSS THE STREET THAT AFFECT THE SYSTEM INSTALLATION.
- THE SEPTIC TANK AND DRAINFIELD ARE NOT WITHIN 100 FEET OF A POTABLE WELL WATER SOURCE.
- NO PERTINENT FEATURE ON THIS PROPERTY WILL AFFECT ANY OF THE ADJACENT PROPERTIES.

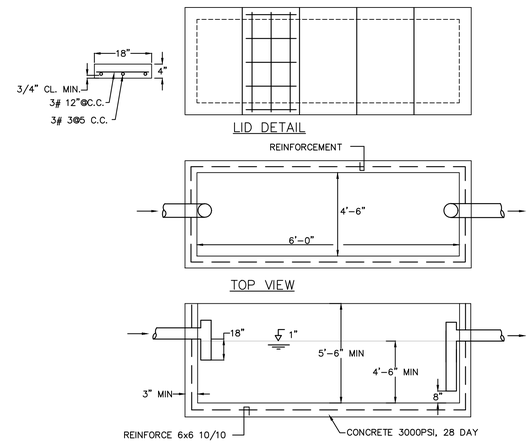


NOTES:
1. INSTALL SOLAR PANELS TO WITHSTAND HURRICANE FORCE WINDS AS PER 2014 F.B.C. FOLLOW ARCHITECT/STRUCTURAL ENGINEERS RECOMMENDATIONS.
2. PUMP SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION FOR MAINTENANCE.

SOLAR POWERED WATER HEATING SYSTEM DETAIL
N.T.S.

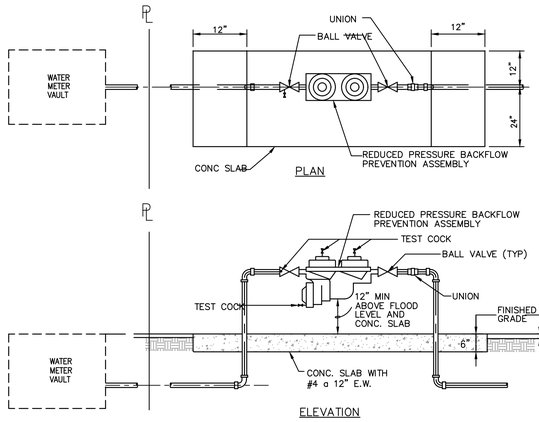


PLUMBING SANITARY RISER DIAGRAM
N.T.S.



NOTE: INFLUENT INVERT SHALL BE 1" MIN. / 3" MAX ABOVE EFFLUENT INVERT ELEVATION.

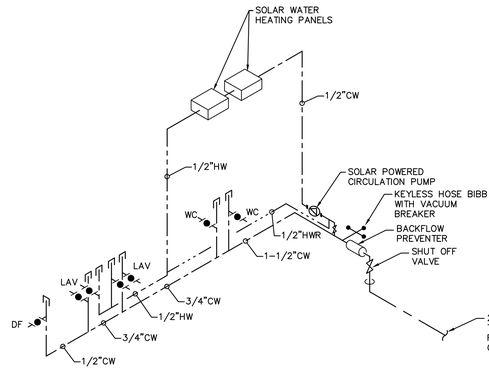
900 GAL SEPTIC TANK STANDARD DETAIL
N.T.S.



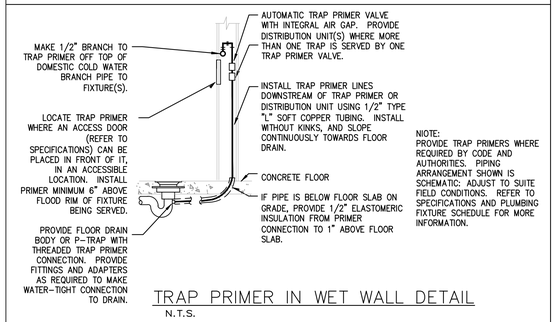
REDUCED PRESSURE BACKFLOW PREVENTOR
(SERVICE SIZES 3/4" THRU 2")
N.T.S.

NOTES:

1. THE ASSEMBLY SHALL BE INSTALLED WITH MINIMUM HORIZONTAL CLEARANCES OF 30 INCHES FREE FROM OBSTRUCTIONS IN ALL DIRECTIONS.
2. GUARD POSTS SHALL BE INSTALLED IF THE ASSEMBLY IS EXPOSED TO POSSIBLE DAMAGE FROM VEHICULAR TRAFFIC, AS DETERMINED BY THE DEPARTMENT, OR THE MDWASD INSPECTOR.
3. THE ASSEMBLY SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION, APPROVED BY THE DEPARTMENT AND THE MDWASD INSPECTOR.
4. ADJUSTABLE PIPE SADDLE SUPPORT (GRINNEL FIG. 264, OR EQUAL) SIZED TO FIT CURVATURE OF DOUBLE DETECTOR CHECK VALVE ASSEMBLY, WITH GALVANIZED STEEL PIPE AND FLOOR FLANGE. ATTACHED FLOOR FLANGE TO CONCRETE SLAB WITH GALVANIZED EXPANSION BOLTS.
5. THE DEPARTMENT SHALL HAVE UNRESTRICTED AND CONTINUOUS ACCESS TO THE BACKFLOW PREVENTION ASSEMBLY.
6. PIPING 2" AND SMALLER SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE WITH GALVANIZED MALLEABLE IRON THREADED FITTINGS. PIPING 2-1/2" AND LARGER SHALL BE DUCTILE IRON PIPE WITH FLANGED FITTINGS. ALL PIPING SHALL BE IN ACCORDANCE WITH MDWASD "CONSTRUCTION SPECIFICATIONS FOR DONATION OF WATER MAINS".
7. ALL EXPOSED METALLIC THREADS SHALL BE PAINTED WITH BITUMASTIC PAINT.

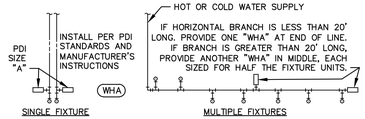


PLUMBING WATER RISER DIAGRAM
N.T.S.



NOTE:
PROVIDE TRAP PRIMERS WHERE REQUIRED BY CODE AND AUTHORITIES. PIPING ARRANGEMENT SHOWN IS SCHEMATIC: ADJUST TO SUITE FIELD CONDITIONS. REFER TO SPECIFICATIONS AND PLUMBING FIXTURE SCHEDULE FOR MORE INFORMATION.

TRAP PRIMER IN WET WALL DETAIL
N.T.S.



PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1-11
B	3/4"	12-32
C	1"	33-60
D	1-1/4"	61-113
E	1-1/2"	114-154
F	2"	154-330

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	--
TANK WATER CLOSET	5	--
URINAL	5	--
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	2

DO NOT PROVIDE AIR CHAMBERS. PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE # 1010 AND ANSI # A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE.

* PLUMBING & DRAINAGE INSTITUTE(PDI)

WATER HAMMER ARRESTERS INSTALLATION GUID
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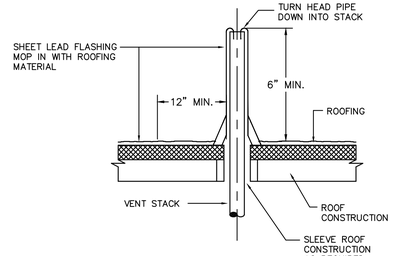
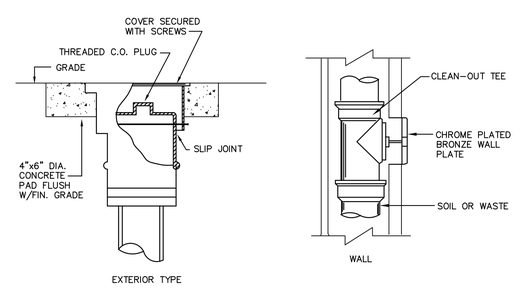


NOTE:
ANY VENT PIPE WITHIN 10'-0" OF ANY DOOR, WINDOW, OR INTAKE OPENINGS SHALL EXTEND NOT LESS THAN 3'-0" ABOVE SUCH

VENT THRU ROOF DETAIL
N.T.S.



TYPICAL CLEANOUT DETAILS
N.T.S.

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