

ARCHITECTURAL GENERAL SPECIFICATIONS:

5.1 WALL CONSTRUCTION - METAL FABRICATIONS (CONT.):

PART 2 - PRODUCTS

2.01 MATERIALS

- A. FERROUS MATERIALS:
 1. STEEL PLATES, SQUARE HEADS, ASTM A 36.
 2. STEEL PIPE, BLACK FINISH, ASTM A 53.
 3. STEEL TUBING, ASTM A 500 OR A 501.
 4. ROLLED STEEL FLOOR PLATES, ASTM A 786.
 5. REINFORCING BARS, ASTM A 615, GRADE 60.
 6. CONCRETE INSERTS, THREADED OR WEDGE TYPE.
 7. WELDING RODS AND BARE ELECTRODES, AWS SPECIFICATIONS.
- B. FASTENERS:
 1. BOLTS AND NUTS, HEXAGON HEAD TYPE, ASTM A 307, GRADE A.
 2. LAG BOLTS, SQUARE HEAD, FS FF-B-661.
 3. MACHINE SCREWS, CADMIUM PLATED STEEL, FS FF-S-92.
 4. WOOD SCREWS, FLAT HEAD CARBON STEEL, FS FF-S-111.
 5. PLAIN WASHERS, ROUND CARBON STEEL, FS FF-W-82.
 6. DRILLED-IN EXPANSION ANCHORS, FS FF-S-325.
 7. TOGGLE BOLTS, TUMBLE-WING TYPE, FS FF-B-588.
 8. LOCK WASHERS, SPRING TYPE CARBON STEEL, FS FF-W-84.
 9. ZINC-COATING FASTENERS IN EXTERIOR ASSEMBLIES OR EXTERIOR WALLS.
- C. AUXILIARY MATERIALS:
 1. NONSHRINK METALLIC GROUT, CE CR0-C621.
 2. NONSHRINK NON-METALLIC GROUT (WHERE EXPOSED), CE CRD-C621.
 3. INTERIOR ANCHORING CEMENT, HYDRAULIC EXPANSION CEMENT.
 4. EXTERIOR/INTERIOR ANCHORING CEMENT, EROSION-RESISTANT HYDRAULIC EXPANSION CEMENT.
 5. FINISH, PRIMED AND PAINTED, REFER TO SECTION 09900 FOR ADDITIONAL REQUIREMENTS.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

- A. TAKE FIELD MEASUREMENTS PRIOR TO PREPARATION OF SHOP DRAWINGS AND FABRICATION. DO NOT DELAY JOB. ALLOW FOR CUTTING AND FITTING IF FIELD MEASUREMENT IS NOT PRACTICAL.
- B. FORM WORK TRUE TO LINE WITH SHARP ANGLES AND EDGES. WELD CONTINUOUSLY, GRIND FLUSH AND MAKE SMOOTH ON EXPOSED SURFACES, UNLESS OTHERWISE INDICATED.
- C. FIELD WELD COMPONENTS AS INDICATED. PERFORM FIELD WELDING IN ACCORDANCE WITH AWS D1.1.
- D. INSTALL WORK PLUMB WITH HAIRLINE JOINTS AND GROUND FLUSH WELDS.
- E. LINTELS: PROVIDE SIZES INDICATED WITH 6-INCH BEARING AT EACH END.
- F. TOUCH-UP DAMAGED COATINGS WITH SHOP PRIMER AND GALVANIZE REPAIR PAINT.
- G. PAINT ITEMS SCHEDULED IN ACCORDANCE WITH SECTION 09 90 00.

3.02 MISCELLANEOUS METAL FABRICATIONS

- A. PIPE RAILINGS, STANDARD WEIGHT STEEL PIPE, WITH THE FITTINGS AND BRACKETS AS VARIOUSLY DETAILED, OF SIZES INDICATED, NEATLY WELDED AND ALL WELDS DRESSED SMOOTH. ROUND WITH 2-INCH MINIMUM RADIUS ALL CHANGES OF DIRECTION. PLUG OPEN ENDS. SET PIPE IN CONCRETE IN NON-CORROSIVE PIPE SLEEVES WITH NON-SHRINK GROUT OR ANCHOR TO SUPPORTS WITH ADEQUATE METAL EXPANSION BOLTS.
 1. STEEL HANDRAILS AND GUARDRAILS, TYPE AND LAYOUT AS SHOWN ON DRAWINGS.
 - a. SUBMIT SHOP DRAWINGS FOR OWNER APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
 - b. HANDRAILS SHALL BE CONSTRUCTED OF 1-1/2" DIAMETER STANDARD PIPE MATERIAL AT 36" HIGH MEASURED FROM THE HIGHEST ADJACENT WALKING SURFACE ELEVATION ABOVE GROUND AND AS PROJECTED ABOVE FROM TOP OF NOISING AT STAIRS.
 - c. GUARDRAILS SHALL BE CONSTRUCTED OF 1-1/2" DIAMETER STANDARD PIPE MATERIAL AT 42" HIGH MEASURED FROM THE HIGHEST ADJACENT WALKING SURFACE ELEVATION ABOVE GROUND.
 - d. POST SHALL BE CONSTRUCTED OF 1-1/2" DIAMETER STANDARD PIPE MATERIAL.
 - e. INFILL PICKETS SHALL BE CONSTRUCTED OF 1/2" DIAMETER SOLID BAR MATERIAL AT 4" ON CENTER AT LOCATIONS WHERE HANDRAILS OR GUARDRAILS EXCEED 15' ABOVE THE LOWEST ADJACENT GROUND SURFACE.
 - f. PAINTING SHALL COMPLY WITH SECTION 09 90 00.
- B. LADDER, STEEL BARS, RODS AND SHAPES OF SIZES AND DESIGNS INDICATED, AND SECURELY ANCHORED TO FLOOR AND WALL.
- C. STEEL SUPPORTS: PROVIDE STRUCTURAL STEEL LINTELS, CHANNELS, BRACES, ANGLES, ETC., AS INDICATED AND ASSEMBLE AS DETAILED. SECURE ALL CONNECTIONS TO PROVIDE RIGID SUPPORTS FOR ALL ITEMS REQUIRED INCLUDING SUPPORTS NOT SPECIFICALLY SPECIFIED IN OTHER SECTIONS.

5.2 WALL CONSTRUCTION - UNIT MASONRY:

PART 1 - GENERAL

1.01 SUMMARY

- A. PROVIDE CONCRETE AND BRICK MASONRY CONSTRUCTION WORK WHERE INDICATED. INCLUDE INSULATION WHERE INDICATED IN EXTERIOR MULTI-WYTHE CAVITY WALLS.

1.02 SUBMITTALS

- A. COMPLY WITH SECTION 01 33 00.
- B. PRODUCT DATA: SUBMIT MANUFACTURER'S TECHNICAL DATA AND INSTALLATION INSTRUCTION FOR ANCHORS AND REINFORCEMENT.
- C. SAMPLES: SUBMIT SAMPLES OF EACH TYPE OF MASONRY UNIT AND MORTAR MATERIAL TO BE USED WHICH IS REPRESENTATIVE OF TEXTURE AND COLOR.

1.03 QUALITY ASSURANCE

- A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. FIELD CONSTRUCTION MOCK-UP: NOT REQUIRED FOR THIS PROJECT.
- C. STANDARDS: COMPLY WITH THE PROVISIONS OF THE FOLLOWING SPECIFICATIONS AND STANDARDS, EXCEPT AS OTHERWISE NOTED OR SPECIFIED:
 1. BRICK INSTITUTE OF AMERICA STANDARDS AND SPECIFICATIONS
 2. NATIONAL CONCRETE MASONRY ASSOCIATION STANDARDS AND SPECIFICATIONS
 3. TMS 402-11/ACI 530-1/ASCE 5-11 BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES
 4. TMS 602-05/ACI 530-1/ASCE 6-05 SPECIFICATION FOR MASONRY STRUCTURES
 5. ASTM A615-12 STANDARD SPECIFICATION FOR STEEL WIRE, PLAIN, FOR CONCRETE REINFORCEMENT
 6. ASTM A615-12 STANDARD SPECIFICATION FOR DEFORMED AND PLAIN CARBON STEEL BARS FOR CONCRETE REINFORCEMENT
 7. ASTM C55-11 STANDARD SPECIFICATION FOR CONCRETE BUILDING BRICK
 8. ASTM C90-12 STANDARD SPECIFICATION FOR LOAD-BEARING CONCRETE MASONRY UNITS
 9. ASTM C144-11 STANDARD SPECIFICATION FOR AGGREGATE FOR MASONRY MORTAR
 10. ASTM C144-12 STANDARD SPECIFICATION FOR PORTLAND CEMENT
 11. ASTM C207-06 (2011) STANDARD SPECIFICATION FOR HYDRATED LIME FOR MASONRY PURPOSES
 12. ASTM C216-12A STANDARD SPECIFICATION FOR FACED BRICK (SOLID MASONRY) UNITS MADE FROM CLAY OR SHALE
 13. ASTM C270-12A STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY
 14. ASTM C404-11 STANDARD SPECIFICATION FOR GROUT FOR MASONRY GROUT
 15. ASTM C1194-03 (2011) STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF ARCHITECTURAL CAST STONE
 16. ASTM C1394-12A STANDARD SPECIFICATION FOR ADMIXTURE FOR MASONRY MORTARS
 17. ASTM C1714-13 STANDARD SPECIFICATION FOR PREPARED DRY MORTAR MIX FOR UNIT MASONRY

D. TESTING AND INSPECTIONS

- 1. COMPLY WITH SECTION 05 16 - QUALITY CONTROL PROCEDURES
- 2. REFER TO DRAWINGS FOR SCHEDULE OF REQUIRED TESTING AND INSPECTIONS
- 3. OWNER SHALL PROVIDE SERVICES OF QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM REQUIRED TESTING AND INSPECTIONS
- 4. MASONRY CONSTRUCTION SHALL BE INSPECTED AND VERIFIED IN ACCORDANCE WITH TMS 402-11/ACI 530-1/ASCE 5-11 AND TMS 602-05/ACI 530-1/ASCE 6-05 QUALITY ASSURANCE PROGRAMS AS REQUIRED BY APPLICABLE BUILDING CODE.

5.2 WALL CONSTRUCTION - UNIT MASONRY (CONT.):

PART 2 - PRODUCTS

2.01 MASONRY - GENERAL

- E. TOLERANCES:
 1. VARIATION FROM PLUMB: FOR VERTICAL LINES AND SURFACES OF COLUMNS, WALLS AND ARISES DO NOT EXCEED 1/4-INCH IN 10 FEET, OR 3/8-INCH IN A STORY HEIGHT NOT TO EXCEED 20 FEET, NOR 1/2-INCH IN 40 FEET OR MORE. FOR EXTERNAL CORNERS, EXPANSION JOINTS, CONTROL JOINTS AND OTHER CONSPICUOUS LINES, DO NOT EXCEED 1/4-INCH IN ANY STORY OF 20 FEET MAXIMUM, NOR 1/2-INCH IN 40 FEET OR MORE.
 2. VARIATION FROM LEVEL: FOR LINES OF EXPOSED LINTELS, SILLS, PARAPETS, HORIZONTAL GROOVES AND OTHER CONSPICUOUS LINES, DO NOT EXCEED 1/4-INCH IN ANY BAY OR 20 FEET MAXIMUM, NOR 3/4-INCH IN 40 FEET OR MORE.
 3. VARIATION OF LINEAR BUILDING LINE: FOR POSITION SHOWN IN PLAN AND RELATED PORTION OF COLUMNS, WALLS AND PARTITIONS, DO NOT EXCEED 1/2-INCH IN ANY BAY OR 20 FEET MAXIMUM, NOR 3/4-INCH IN 40 FEET OR MORE.
 4. VARIATION IN CROSS-SECTIONAL DIMENSIONS: FOR COLUMNS AND THICKNESS OF WALLS, FROM DIMENSIONS SHOWN, DO NOT EXCEED - 1/4-INCH NOR + 1/2-INCH.
- A. MANUFACTURER: OBTAIN EACH TYPE OF UNIT FROM ONE MANUFACTURER, CURED BY ONE PROCESS, AND OF UNIFORM TEXTURE AND COLOR.
- B. COLOR, FINISH, AND TEXTURE: TO BE AS INDICATED ON DRAWINGS OR TO BE SELECTED FROM MANUFACTURER'S STANDARD SAMPLES FOR APPROVED EQUALS.
- C. PROVIDE SPECIAL SHAPES WHERE REQUIRED FOR CORNERS, LINTELS, JAMBS, SASH, CONTROL JOINTS, HEADERS, BONDING, CAP, AND OTHER SPECIAL CONDITIONS. PROVIDE FULL 8" FACE UNITS AT CMU CORNERS. REFER TO DRAWINGS FOR TYPICAL UNIT TYPES, SIZES, SHAPES AND COURSE. COMPLY WITH REFERENCED STANDARDS AND OTHER SPECIFIED REQUIREMENTS FOR EACH TYPE OF MASONRY UNIT REQUIRED.

PART 2 - PRODUCTS

2.01 MASONRY - GENERAL

- A. FACE BRICK:
 1. MANUFACTURER: ACME, BELDEN BRICK, BORAL BRICK, ENDICOTT CLAY PRODUCTS, GLEN-GERY
 2. GRADE: ASTM C216-12A, TYPE FBS, GRADE SW, SEVERE WEATHERING TYPE FOR AREAS SUBJECT TO FREEZE-THAW.

2.03 CONCRETE MASONRY UNITS

- A. LOAD-BEARING CONCRETE MASONRY UNITS:
 1. MANUFACTURER: NO SUBMITTAL REQUIRED.
 2. GRADE: SOLID OR HOLLOW LOAD-BEARING BLOCK, AGGREGATE ASTM C33 NORMAL WEIGHT, CEMENT ASTM C150, QUALITY ASTM C618/CI 11, 3000 PSI MINIMUM COMPRESSIVE STRENGTH.
 3. AT FIRE RATED ASSEMBLIES PROVIDE BLOCK DESIGN AND CLASSIFICATION REQUIRED FOR CORNER AND BAY TYPE INDICATED ON DRAWINGS. SUBMIT CERTIFICATE UPON REQUEST FROM UNDERWRITERS LABORATORIES OR OTHER RECOGNIZED TESTING AGENCY, AS EVIDENCE THAT MATERIAL SUPPLIED MEETS OR EXCEEDS RATING AND CLASSIFICATION STANDARDS REQUIRED.
 4. INTEGRAL WATER REPELLANT (PROVIDE WHERE UNITS ARE NOT FIELD PAINTED ON EXTERIOR EXPOSED SURFACES): AQUA STOP PLUS, ACGESHEILD, SONNEBORN "HYDROCIDE POWDER", W. R. GRACE "DRY-BLOCK", OR APPROVED EQUAL PER MANUFACTURER'S RECOMMENDATIONS.

B. CONCRETE BRICK:

- 1. MANUFACTURER: CONCRETE PRODUCTS GROUP "SPEC-BRIK" OR APPROVED EQUAL.
- 2. GRADE: SOLID OR HOLLOW VENEER BLOCK, AGGREGATE ASTM C33 NORMAL WEIGHT, CEMENT ASTM C150, QUALITY ASTM C618/CI 11, 3000 PSI MINIMUM COMPRESSIVE STRENGTH.
- 3. COLORED PIGMENTS: NATURAL OR SYNTHETIC IRON OXIDES AND CHROMIUM OXIDES, COMPOUNDED FOR USE IN CONCRETE MIXES. USE ONLY PIGMENTS WITH RECORD OF SATISFACTORY PERFORMANCE IN CONCRETE MASONRY UNITS, MANUFACTURED BY LEHIGH, ATLAS, SOLOMON OR APPROVED EQUAL. COLOR AS SELECTED BY ARCHITECT.
- 4. INTEGRAL WATER REPELLANT: AQUA STOP PLUS, ACGESHEILD, SONNEBORN "HYDROCIDE POWDER", W. R. GRACE "DRY-BLOCK", OR APPROVED EQUAL PER MANUFACTURER'S RECOMMENDATIONS.

2.04 MORTAR AND GROUT

- A. GROUT MIX: ASTM C 478.
- B. MORTAR MIX:
 1. ASTM C270-12A, TYPE S, FOR REINFORCED MASONRY, MASONRY BELOW GRADE AND MASONRY IN CONTACT WITH EARTH.
 2. ASTM C270-12A, TYPE N, FOR ABOVE-GRADE LOAD-BEARING AND NON-LOAD-BEARING WALLS AND PARAPETS, WALLS AND FOR INTERIOR LOAD-BEARING AND NON-LOAD-BEARING PARTITIONS.
 3. MEASURE AND BATCH MATERIALS EITHER BY VOLUME OR WEIGHT, SUCH THAT MIXED PROPORTIONS CAN BE ACCURATELY CONTROLLED AND MAINTAINED. MEASUREMENTS SHOULD EXCLUSIVELY BY SHOVEL WILL NOT BE PERMITTED. MORTARS WITH THE MAXIMUM WEIGHT OF WATER CONSISTENT WITH WORKABILITY TO PROVIDE MAXIMUM TENSILE BOND STRENGTH WITHIN THE CAPACITY OF MORTAR. MIX INGREDIENTS FOR A MINIMUM OF 5 MINUTES IN A MECHANICAL MIXER. MEASUREMENTS OF WATER SHALL BE A MINIMUM OF 30 SECONDS OR IF MORE THAN 2-1/2 HOURS HAS ELAPSED SINCE INITIAL MIXING, RE-TEMPER MORTAR DURING 12-1/2 HOUR PERIOD AS REQUIRED TO RESTORE WORKABILITY.
 4. DO NOT ADD AIR-ENTRAINING AGENTS OR OTHER ADMIXTURES TO MORTAR OR GROUT MATERIALS WITHOUT ARCHITECT'S PRIOR WRITTEN APPROVAL.
- C. PORTLAND CEMENT: ASTM C150-12, TYPE III, EXCEPT TYPE III SHALL BE USED FOR COLD WEATHER CONSTRUCTION. PROVIDE NATURAL COLOR OR WHITE AS REQUIRED TO PRODUCE MORTAR COLOR.
- D. HYDRATED LIME: ASTM C207-06, TYPE S.
- E. AGGREGATE FOR MORTAR: SAND, CONFORMING TO ASTM C144-11 OR ASTM C404-11, SIZE NO. 2.
- F. AGGREGATE FOR GROUT: STM C404-11, SIZE NO. 8 OR SIZE NO. 89.
- G. COLORED MORTAR PIGMENTS: ASTM C1714-13, NATURAL OR SYNTHETIC IRON OXIDES AND CHROMIUM OXIDES, COMPOUNDED FOR USE IN MORTAR MIXES. USE ONLY PIGMENTS WITH RECORD OF SATISFACTORY PERFORMANCE IN MASONRY MORTAR, MANUFACTURED BY LEHIGH, ATLAS, SOLOMON OR APPROVED EQUAL. COLOR AS SELECTED BY OWNER.
- H. WATER: CLEAN AND POTABLE.

2.05 REINFORCING

- A. REINFORCING BARS: ASTM A615-12, GRADE 60, DEFORMED BILLET BARS OF SIZES AND SPACINGS INDICATED ON DRAWINGS, FREE FROM LOOSE RUST, SCALE AND OTHER COATINGS THAT MAY REDUCE BOND.
- B. JOINT REINFORCING: PROVIDE WELDED WIRE UNITS PREFABRICATED WITH DEFORMED COLD CHASE SIDE RODS AND PLAIN CROSS RODS INTO STRAIGHT LENGTHS OF NOT LESS THAN 10 FEET WITH PREFABRICATED CORNER AND TEE UNITS, AND COMPLY WITH REQUIREMENTS BELOW:
 1. MANUFACTURER: AA WIRE PRODUCTS, HOHMANN & BARNARD, INC., NATIONAL WIRE PRODUCTS, OR APPROVED EQUAL.
 2. MATERIAL: ASTM A82-07 CARBON STEEL WITH ASTM A153 - CLASS B2 HOT DIPPED GALVANIZED COATING.
 3. SIDE AND CROSS ROD WIRE SIZE: 9 GAGE (0.1875-INCH DIAMETER) GALVANIZED STEEL FOR EACH 2 SQUARE FEET OF WALL AREA. VERTICAL SPACING SHALL NOT EXCEED 16-INCHES.
 4. WIDTH: FABRICATE JOINT REINFORCEMENT IN UNITS WITH WIDTHS OF APPROXIMATELY 2" LESS THAN NOMINAL WIDTH OF WALLS AND PARTITIONS AS REQUIRED TO PROVIDE MORTAR COVERAGE OF NOT LESS THAN 5/8-INCH ON JOINT FACES EXPOSED TO EXTERIOR AND 1/4-INCH ELSEWHERE.
 5. SINGLE-WYTHE MASONRY: PROVIDE TYPE AS FOLLOWS WITH SINGLE PAIR OF SIDE RODS.
 - a. LADDER OR TRUSS TYPE DESIGN WITH PERPENDICULAR OR DIAGONAL CROSS RODS SPACED NOT MORE THAN 16-INCHES ON CENTER.
 - b. MULTI-WYTHE MASONRY: PROVIDE TYPE AS FOLLOWS:
 - a. LADDER DESIGN FOR BACKUP WYTHE WITH EYES OR TABS WELDED AT NOMINAL 16-INCHES ON CENTER AND SIDE RODS FOR EACH FACE OF SHELL.
 - b. TAB DESIGN WITH SINGLE PAIR OF SIDE RODS AND RECTANGULAR BOX TYPE CROSS TIES SPACED NOT MORE THAN 16-INCHES ON CENTER, WITH SIDE RODS SPACED FOR EMBEDMENT WITHIN EACH FACE SHELL OF BACK-UP WYTHE AND TIES EXTENDING TO WITHIN 1-INCH OF EXTERIOR FACE OF FACING WYTHE.

5.2 WALL CONSTRUCTION - UNIT MASONRY (CONT.):

- C. TIES AND ANCHORS: PROVIDE CAVITY WALL TIES SUFFICIENT TO ENGAGE BACKING AND VENEER AND SHALL BE COMPLETELY EMBEDDED 2-INCHES MINIMUM INTO MORTAR AND EXTEND WITHIN 5/8-INCH OF JOINT FACE EXTERIOR AND SHALL MEET THE FOLLOWING REQUIREMENTS:
 1. MANUFACTURER: AA WIRE PRODUCTS, HOHMANN & BARNARD, INC., NATIONAL WIRE PRODUCTS, OR APPROVED EQUAL.
 2. MATERIAL: ASTM A82-07 CARBON STEEL WITH ASTM A153 - CLASS B2 HOT DIPPED GALVANIZED COATING.
 3. TIES IN ALTERNATE COURSES SHALL BE STAGGERED. MAXIMUM VERTICAL DISTANCE BETWEEN TIES SHALL NOT EXCEED 24-INCHES AND MAXIMUM HORIZONTAL DISTANCE BETWEEN TIES SHALL NOT EXCEED 36-INCHES. ADDITIONAL WALL TIES SHALL BE PROVIDED WITHIN 12-INCHES FROM EDGE OF OPENINGS.

- a. FIXED TYPE TIES: THERE SHALL BE AT LEAST 3/16-INCH DIAMETER WALL TIE FOR EACH 4.5 SQUARE FEET OF WALL AREA. FOR CAVITY WALLS WITH GREATER THAN 9-INCHES OF AIR SPACE, THERE SHALL BE AT LEAST 3/16-INCH DIAMETER WALL TIE FOR EACH 3 SQUARE FEET OF WALL AREA.
- b. ADJUSTABLE TYPE TIES: THERE SHALL BE AT LEAST 3/16-INCH DIAMETER WALL TIE FOR EACH 1.77 SQUARE FEET OF WALL AREA REGARDLESS OF AIR SPACE WIDTH.
- 4. AT METAL STUDS OR METAL PANELS: 12 GAGE STEEL SCREW ON ANCHOR, 3/4-INCH WIDE BY 9-INCHES LONG, AND TRIANGLE TIE, 1/4-INCH WIRE, LENGTH AS REQUIRED BY WALL CONDITIONS.
- 5. AT CAVITY/COMPOSITE MASONRY WALLS DOUBLE EYE ADJUSTABLE TRUSS, WITH EYE SECTIONS SPACED 16-INCHES ON CENTER, EYE AND PIVOT LENGTH AS REQUIRED BY WALL CONDITIONS.
- 6. AT CONCRETE FOUNDATIONS: 1-INCH WIDE BY 1-INCH DEEP BY 3/4-INCH THROAT, 24 GAGE DOVETAIL ANCHOR SLOT, AND DOVETAIL TRIANGLE WITH 1/4-INCH WIRE TIE AND 12 GAGE MILL GALVANIZED DOVETAIL.
- 7. AT STEEL FRAMES: 8-INCH LONG BY 3/4-INCH WIDE, 12 GAGE, FLAT CONTINUOUS ADJUSTABLE WELD ON ANCHOR, AND 3/16-INCH GAGE SQUARE NOSED BEAM TIE.
- 8. SCREWS: ASTM C954-11, ORGANIC POLYMER COATED STEEL DRILL SCREWS.
- 9. DO NOT USE CORRUGATED SHEET METAL WALL TIES.

2.06 MASONRY ACCESSORIES

- A. FLASHING: FLEXIBLE SHEET FLASHING FORMULATED FROM VIRGIN POLYVINYL CHLORIDE WITH PLASTICIZERS AND OTHER MODIFIERS TO REMAIN FLEXIBLE AND WATERPROOF IN CONCEALED MASONRY APPLICATIONS, BLACK IN COLOR, 20 MILS THICK. LAP JOINTS 4-INCHES MINIMUM AND PROVIDE MASTIC AND SEALANT; TYPE AS RECOMMENDED BY FLASHING MANUFACTURER.
- B. WEEPS: 3/8-INCH DIAMETER COTTON SASH CORD OR ROPE, LENGTH TO PRODUCE 2-INCH EXPOSURE ON EXTERIOR AND 12-INCHES IN CAVITY.
- C. SEALANT BACKER ROD: COMPRESSIBLE ROD STOCK POLYETHYLENE FOAM, POLYETHYLENE POLYURETHANE FOAM, BUTYL RUBBER FOAM, NEOPRENE FOAM OR OTHER FLEXIBLE, PERMANENT, DURABLE NON-ABSORBITIVE MATERIAL AS RECOMMENDED BY COMPATIBILITY WITH SEALANT BY SEALANT MANUFACTURER. PROVIDE SIZE AND SHAPE OF ROD WHICH WILL CONTROL THE JOINT DEPTH FOR SEALANT PLACEMENT. GREAT CARE SHOULD BE TAKEN TO PREVENT SEALANT FROM CONTACT WITH SEALANT BEAD ON BACK SIDE, AND PROVIDE HIGHLY COMPRESSIBLE BACKER TO MINIMIZE THE POSSIBILITY OF SEALANT EXTRUSION WHEN JOINT IS COMPRESSED.
- D. JOINT SEALANT: COLOR TO MATCH COLOR OF MATERIAL APPLIED UNLESS OTHERWISE INDICATED.
- E. PERFORMED CONTROL JOINTS: POLYVINYL CHLORIDE MATERIAL PROVIDE WITH CORNER AND TEE ACCESSORIES, CEMENT FUSED JOINTS, HOHMANN & BARNARD "VS SERIES", GREENSTEIN MODEL "ST" OR APPROVED EQUAL.
- F. CLEANING SOLUTION: NON-ACIDIC, NOT HARMFUL TO MASONRY WALL OR ADJACENT MATERIAL. RECOMMENDED BY MASONRY UNIT MANUFACTURER.
- G. STEEL LINTELS: REFER SECTION 05 50 00 FOR REQUIREMENTS.
- H. ANCHOR BOLTS (WHERE SHOWN ON DRAWINGS): ASTM A307, GRADE A, GALVANIZED.
- I. INSULATION (WHERE SHOWN ON DRAWINGS):

PART 3 - EXECUTION

3.01 GENERAL

- A. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS AND SYSTEMS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH STANDARDS AS FOLLOWS:
 1. COMPLY WITH BIA RECOMMENDED PRACTICES FOR LAYING CONCRETE BLOCK, BRICK INSTITUTE OF AMERICA (BIA) TECH NOTES, AND NCMR "EX BULLETINS"
 2. COMPLY WITH TMS AND AIA WEATHER AND WARM WEATHER PROTECTION PROCEDURES AS SPECIFIED IN TMS /S/C/ASCE BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

3.02 FABRICATION

- A. BRICK: FLUSH CLAY BRICK HAVING ASTM C67 ABSORPTION RATES GREATER THAN 0.025 OUNCE PER SQUARE INCH MINUTE.
- B. CMU: DO NOT WET CONCRETE MASONRY UNITS.
- C. CLEANING REINFORCING: BEFORE PLACING, REMOVE LOOSE RUST, ICE AND OTHER COATINGS FROM REINFORCING.

3.03 INSTALLATION

- A. CUT MASONRY UNITS USING MOTOR-DRIVEN SAWS TO PROVIDE CLEAN, SHARP, UNCHIPPED EDGES. CUT UNITS AS REQUIRED TO FIT ADJOINING WORK NEATLY. USE FULL SIZE UNITS WITHOUT CUTTING WHEREVER POSSIBLE.
- B. KEEP CAVITIES CLEAN OF MORTAR DROPPINGS AND OTHER MATERIALS DURING WALL CONSTRUCTION. STRIKE JOINTS FLUSH FACING CAVITY.
- C. PROVIDE WEEPS IN EXTERIOR WYTHES OF WALLS LOCATED IMMEDIATELY ABOVE LEDGES AND FLASHING, SPACE 32-INCHES ON CENTER UNLESS OTHERWISE INDICATED.
- D. INSTALL FLASHING COMPLYING WITH MANUFACTURER'S INSTRUCTIONS AND AS INDICATED ON DRAWINGS. SEAL PROJECTIONS THROUGH SHEET AND LAP AND SEAL SEAMS. BOND AS RECOMMENDED BY MANUFACTURER.
- E. COURSE: INSTALL MASONRY PER TOLERANCES SPECIFIED. LAY IN RUNNING BOND WITH VERTICAL JOINT IN EACH COURSE CENTERED ON UNITS IN COURSE ABOVE AND BELOW, EXCEPT WHERE OTHER COURSE IS INDICATED. DO NOT TOOTH CORNERS.
- F. JOINTS: MAINTAIN UNIFORM JOINT WIDTH OF 3/8-INCH. PROVIDE FULL BED, HEAD AND COLLAR JOINTS EXCEPT AT WEEPS. DO NOT SLASH HEAD JOINTS. USE AS DRY A MORTAR MIX AS PRACTICABLE AND COMPRESS JOINTS AS MUCH AS POSSIBLE TO PRODUCE A DENSE TIGHT JOINT.
 1. CONGEALED JOINTS: STRIKE FLUSH.
 2. EXPOSED BRICK JOINTS: TOOLED.
 3. EXPOSED CMU JOINTS: TOOLED.
- G. FILL VERTICAL AND HORIZONTAL CELLS OF CMU SOLIDLY WITH GROUT WHERE INDICATED. FILL SPACE BETWEEN HOLLOW METAL FRAMES AND MASONRY SOLIDLY WITH GROUT.
- H. INSTALL LINTELS AND ACCESSORIES IN MASONRY CONSTRUCTION AS INDICATED ON DRAWINGS.
- I. INSTALL REINFORCING AS SPECIFIED AND INDICATED ON DRAWINGS.
- J. PROVIDE EXPANSION AND CONTROL JOINTS IN ACCORDANCE WITH BIA AND NCMR RECOMMENDATIONS AND AS INDICATED ON DRAWINGS. INSTALL SEALANTS PER MANUFACTURER'S INSTRUCTIONS.

3.04 REPAIR, POINTING AND CLEANING

- A. REMOVE AND REPLACE DAMAGED UNITS.
- B. POINTING: DURING THE TOOLING OF JOINTS, ENLARGE ANY VOIDS OR HOLES, EXCEPT WEEP HOLES, AND COMPLETELY FILL WITH MORTAR. POINT-JOINT JOINTS AT CORNERS, OPENINGS, AND ADJACENT WORK TO PROVIDE A NEAT, UNIFORM APPEARANCE. PROPERLY PREPARED FOR APPLICATION OF CAULKING OR SEALANT ON GROUND.
- C. CLEAN BRICK USING BUCKET AND BRUSH METHOD, BIA TECH NOTE 20.
- D. CLEAN CONCRETE MASONRY BY DRY BRUSHING, NCMR TEK NO. 28.

5.3 WALL CONSTRUCTION - ROUGH CARPENTRY:

NOTE: ALL NEW BUILDING MATERIALS TO BE OF NON-COMBUSTIBLE OR WOOD FIRE RETARDANT TREATED MATERIAL.

PART 1 - GENERAL

1.01 SUMMARY

- A. PROVIDE ROUGH CARPENTRY WHERE INDICATED ON PLANS:
 1. FRAMING WITH DIMENSION LUMBER.
 2. WOOD GROUNDS, NAILERS, AND BLOCKING.
 3. WOOD SHEATHING.

1.02 SUBMITTALS

- A. NONE REQUIRED UNLESS SUBMITTING FOR APPROVED EQUALS.

1.03 QUALITY ASSURANCE

- A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. LUMBER STANDARDS AND GRADE STAMPING: PROCEED WITH STANDARDS P20. AMERICAN SOFTWOOD LUMBER STANDARD. INSPECTION AGENCY, GRADE AND CLASS. EATORY MARK EACH PIECE OF LUMBER OR PLYWOOD WITH TYPE, GRADE, MILLS AND GROUND. AGENCY IDENTIFICATION OR SUBMIT MILL CERTIFICATE THAT MATERIAL HAS BEEN INSPECTED AND GRADED IN ACCORDANCE WITH REQUIREMENTS IF IT CANNOT BE MARKED ON MATERIAL SURFACE.
- C. CONSTRUCTION PANEL SPECIFICATIONS: FOLLOW PRODUCT STANDARD FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD, APA 608.
- D. PRESERVATIVE TREATMENT: APA UC3B FOR LUMBER AND AWA UC3B FOR PLYWOOD; WATERBORNE PRESERVATIVE TREATMENT. LABEL EACH PIECE OF PRESSURE TREATED LUMBER AND PLYWOOD WITH THE QUALITY CONTROL MARK.
- E. FIRE-RETARDANT TREATMENT: AWA UC7B FOR LUMBER AND AWA UC7B FOR PLYWOOD. NON-PRESERVATIVE TREATMENT. IDENTIFY MATERIAL WITH APPROPRIATE CLASSIFICATION MARKING OF UNDERWRITERS LABORATORIES, INC., US TESTING, TIMBER PRODUCTS INSPECTION, OR OTHER TESTING AND INSPECTION AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

PART 2 - PRODUCTS

2.01 MATERIALS

A. GENERAL:

- 1. FIRE-RETARDANT TREATMENT: PROVIDE AT BUILDING INTERIOR AND EXTERIOR WHERE REQUIRED BY CODES.
- 2. PRESERVATIVE TREATMENT: PROVIDE FOR WOOD IN CONTACT WITH SOIL, CONCRETE, MASONRY, ROOFING, FLASHING, DAMP-PROOFING, AND WATERPROOFING, OR WHERE INSTALLED LESS THAN 18-INCHES ABOVE GRADE.
- 3. MOISTURE CONTENT: 19% FOR LUMBER ITEMS NOT SPECIFIED TO RECEIVE WOOD PRESERVATIVE TREATMENT AND STAMPED "S-DRY", "K-D", OR "MC19".
- B. DIMENSION LUMBER:
 1. SPECIES: SPRUCE-PINE-FIR GRADED UNDER NATIONAL GRADING RULES, PS 20-70, OR APPROVED EQUAL.
 2. LIGHT FRAMING: STUD, NO. 3 OR STANDARD GRADE.
 3. STRUCTURAL FRAMING: NO. 2 GRADE MEETING OR EXCEEDING THE STRESS RATING ALLOWABLE FOR REPERTITIVE MEMBERS CLASSIFIED AS FOLLOWS:
 - a. 1-1/2" THICK AND 5-12" WIDE
 - 1) FB BENDING: 1650 PSI
 - 2) FT TENSION: 825 PSI
 - 3) FV SHEAR: 90 PSI
 - 4) FC PERPENDICULAR: 405 PSI
 - 5) FC PARALLEL: 975 PSI
 - 6) E MODULUS OF ELASTICITY: 1,600,000 PSI
 - b. 1-1/2" TO 4" THICK AND 5-12" TO 12" WIDE
 - 1) FB BENDING: 1400 PSI
 - 2) FT TENSION: 625 PSI
 - 3) FV SHEAR: 90 PSI
 - 4) FC PERPENDICULAR: 405 PSI
 - 5) FC PARALLEL: 1000 PSI
 - 6) E MODULUS OF ELASTICITY: 1,600,000 PSI

C. CONSTRUCTION PANELS:

- 1. PLYWOOD SHEATHING: APA SHEATHING, EXPOSURE 1, EXTERIOR GRADE, FIRE-RETARDANT TREATED, WATERBOARD, COMPOSITE BOARD, AND ORIENTED STRAND BOARD (BUT NOT STRUCTURAL PARTICLE-BOARD) ARE ACCEPTED AS EQUALS PROVIDING SPECIFIED SPAN RATINGS ARE MET FOR INSTALLED CONDITION. IN ALL CASES, THICKNESS SHOWN IS MINIMUM REGARDLESS OF SPAN RATING. MATERIAL USED FOR SAME PURPOSE SHALL BE OF SAME THICKNESS.
- D. FASTENERS AND ADHESIVES:
 1. FASTENERS: NAILS, METAL CONNECTORS, BOLTS, NUTS, SCREWS, WASHERS, STAPLES, AND OTHER FASTENERS (EXCEPT AS SPECIFIED OR NOTED OTHERWISE), HOT-DIP GALVANIZED STEEL.
 2. POWER NAILS: NOT PERMITTED WITHOUT PRIOR APPROVAL OF OWNER.
 3. ADHESIVES: MEET REQUIREMENTS OF AMERICAN PLYWOOD ASSOCIATION SPECIFICATIONS AFG-01, (LATEST REVISION). USE PHENOL RESORCINOL TYPE FOR USE ON PRESSURE TREATED WOOD PRODUCTS.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. WOOD FRAMING: COMPLY WITH RECOMMENDATIONS OF NFPA MANUAL FOR HOUSE FRAMING, NFPA RECOMMENDED NAILING SCHEDULE, AND NFPA NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
- B. PLYWOOD: COMPLY WITH RECOMMENDATIONS OF APA DESIGN AND CONSTRUCTION GUIDE-RESIDENTIAL AND COMMERCIAL.
- C. PROVIDE NAILERS, BLOCKING, AND GROUNDS WHERE REQUIRED. SET WORK PLUMB, LEVEL, AND ACCURATELY CUT.
- D. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. INSTALL MATERIALS AND SYSTEMS IN PROPER RELATION WITH ADJACENT CONSTRUCTION. COORDINATE WITH OTHER WORK.
- E. COMPLY WITH MANUFACTURER'S REQUIREMENTS FOR CUTTING, HANDLING, FASTENING, AND WORKING TREATED MATERIALS.
- F. SECURELY ATTACH CARPENTRY WORK TO SUBSTRATE BY ANCHORING AND FASTENING AS INDICATED AND AS REQUIRED BY RECOGNIZED STANDARDS. COUNTERSINK NAIL HEADS ON EXPOSED CARPENTRY WORK AND FILL HOLES. SELECT FASTENERS OF SIZE THAT WILL NOT PENETRATE MEMBERS WHERE OPPOSITE SIDE WILL BE EXPOSED TO VIEW OR WILL RECEIVE FINISH MATERIALS. MAKE TIGHT CONNECTIONS BETWEEN MEMBERS. INSTALL FASTENERS WITHOUT SPLITTING OF WOOD. PRE-RILL AS REQUIRED.
- G. RESTORE DAMAGED COMPONENTS. PROTECT WORK FROM DAMAGE.



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