

SECTION 02 35 10 - ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

- Core tests shall be taken to verify thickness and subsurface compaction. Provide for three samples, randomly located. Test for extraction, gradation, laboratory density, and Marshalls Stability. Provide a certificate from the testing agency that materials and installation comply with specifications, signed by the asphaltic concrete producer and Contractor. All costs of the tests shall be paid by the Owner. If tests show the installation does not meet specifications, the paving shall be removed, replaced, and retested at no additional cost to the Owner.
- The entire installation shall comply with all local and state laws and ordinances.
- Take precautions that equipment and vehicles do not damage or disturb existing site grading, walks, drives, utilities, plants, etc.
- Provide temporary barricades and warning lights as required for the protection of the work and public safety.

PART 2 - PRODUCTS

- Asphalt cement, fine aggregate, and coarse aggregate shall be in compliance with state highway department standards for parking areas and driveways. See Civil Engineering plans for specifications. The minimum specification shall be:
 - A. Bituminous Binder Course: per civil plans and/or soils report.
 - B. Bituminous Binder Course: per civil plans and/or soils report.
 - C. Bituminous Wearing Course: per civil plans and/or soils report.
 - D. Wearer Sealer: Equal to Advanced Formula J-16 Pavement Sealer as manufactured by Maintenance, Inc., Wooster, Ohio.

PART 3 - EXECUTION

- Check subgrade surface elevation prior to placement of asphaltic concrete paving; method subject to approval of Architect.
- Proof roll prepared subgrade surface to check for unstable areas and areas needing additional compaction. Notify contractor of unsatisfactory conditions. Do not begin paving work until deficient subgrade areas have been repaired.
- Asphaltic concrete paving shall not be placed on surfaces which are damp or wet nor when the air temperature on the road three feet above the surface is less than 45 degrees F, except that work may begin before noon on bright sunny days when the air temperature three feet above the road surface is over 40 degrees F, and rising.
- When laying surfaces which require three or more adjacent passes of the finishing machine, the outer lanes shall be laid first and closure of the surface shall be made by the interior strips near the center line.
- The use of wood or metal headers to form the edge of the joint during the rolling of the fresh mixture will not be permitted. The edges of all fixtures in the streets, edges, or curbs, bridges or cold asphaltic concrete shall be lightly painted or sprayed with RC-70 or equal to facilitate a tight joint with the fresh mixture.
- The asphaltic concrete shall be thoroughly compacted while hot, by rolling and/or tamping. All areas of binder or surface courses inaccessible to the roller shall be thoroughly tamped while hot enough to compact properly. All depressed areas around weep holes shall be thoroughly tamped. Compaction of both surface and base course shall be a minimum of 96% of Laboratory Density if not specified otherwise.
- After the second rolling the surface course shall be checked with a 10' straightedge placed parallel to the center line and any variations greater than 1/4" in removal of bumps, the surface shall be smoothed. The surface shall first be warmed with a surface heater to soften the mixture, without burning it, until the surface can be loosened, and smoothed with rakes and straightedge. While still hot, the mixture shall be rolled to obtain proper density.

END OF SECTION

SECTION 02 36 20 - PAVEMENT MARKING

PART 1 - GENERAL

- Striping. All parking areas shall have four (4) inch white lines with separation between lines as shown on final approved Site Plan or as required by Local Code.
- Handicapped Parking & Symbol: Locate as indicated on final approved Site Plan and paint as required per Local Code.

END OF SECTION

SECTION 02 40 00 - STORM DRAINAGE

PART 1 - GENERAL

- Where connection to storm drains is necessary, furnish and install all pipe, structures, gratings and drains (per local codes and/or specifications) in sizes as noted on engineered site plans.
- Yard drains in the playground shall have locking plastic lids. No metal inlet covers will be allowed.
- Connect all roofing downspouts located in playground areas directly to underground storm drain lines.

END OF SECTION

SECTION 02 50 00 - IRRIGATION SYSTEMS

PART 1 - GENERAL

- Scope of the Work:
 - A. The work consists of designing and installing a complete underground irrigation system as hereinafter specified, including the furnishing of all labor, plant, equipment, appliances and materials and in performing all operations in connection with the construction of the irrigation system. It shall include furnishing and installing all plastic and pipe fittings, control valves, pressure regulators, check valves, automatic drain valves, impulse sprinkler heads as required for a complete system as shown on the Drawings or as called for in these Specifications or as may be required for proper operation of the system. The system shall provide 100% coverage of all turf and planted areas.
 - B. All local Municipal and State Laws and Rules and Regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these Specifications and their provisions shall be carried out by the Sprinkler Contractor. Include backflow preventer with unions as required by local codes.
 - C. Furnish the Owner with one set of blueprint prints, showing all sprinkler work required under this contract.
- Installation
 - A. All pipe, fittings and valves, etc., shall be carefully placed in the trenches with concrete thrust blocks to be poured at all fittings and valves, where required. Interior of pipes shall be kept free from dirt and debris and when pipe laying is not in progress, open ends of pipe shall be closed by approved means.
 - B. Heights of sprinkler heads or sprinkler valves in relation to ground level shall be agreed upon by the Owner and the Contractor prior to installation.
 - C. All piping shall be properly graded so that the entire system of piping may be drained to a depth below the area's frost line.

END OF SECTION

SECTION 02 60 00 - VINYL COATED CHAIN LINK FENCE

PART 1 - GENERAL

- Interior fence shall be four feet (4'-0") high or height as shown on plans with six (6) gauge finish material with two (2) inch mesh fabric coated with aluminum or zinc. All end, corner and gate posts to be two and one-half (2-1/2) inch O.D. with two (2) inch O.D. line posts and one and five-eighths (1-3/8) inch O.D. bottom and top rails. All framework pipe shall be galvanized steel pipe. Posts, rails and end caps shall be coated with vinyl unless noted otherwise on plans. Bottom ends on perimeter to face out. Color of all parts shall be black. All fence posts shall be set in solid concrete to a minimum depth of three (3) feet in solid ground. Line post spacing shall not exceed ten (10) on center. Line post footing shall be eight (8") diameter. Provide bolt caps on bolts facing into the playground or cut off flush.
- Provide gates as shown on Drawings in compliance with ASTM F 654. Provide access to all yards with double four foot wide gates for maintenance access to all areas of the playground. Provide four (4) foot wide gates for pedestrian access. All fence posts to be set in solid concrete to a minimum depth of three (3) feet in solid ground. Provide childproof free exit latches such as a pool latch by Hoover Fence CSL-3 (800-355-2335) or "Auto-Latch" by DAC Industries (800)-888-9768 on all playground gates. Double gates shall have Magna-Latch Lokk Bolt Lockable Drop Rod (came both) Model LB1248X-black or equal.
- Provide fence with knuckle sleeve top & bottom. Fabric shall comply with ASTM F 668, Class 1. Vinyl on fabric, post, rails, and frames shall comply with ASTM F 934. Fittings for a complete installation in accordance with ASTM F 626. Tie wires in compliance with ASTM F 626 shall be tied to line posts 12" o.c. and rails at 24" o.c.
- Fence fabric shall be installed facing playground areas if allowed by local code. Child safety regulations require no space between 3-1/2" and 9" (entrapment zone) exist anywhere on the constructed fence or between the fencing and building surfaces. Fencing contractor to supply and install filler plates as needed. Provide three rails on all gates. Connect to posts with approved fasteners. Top and bottom rails shall be flush. Steel tube pickets in picket holes in the rail shall be spaced 3.75" O.C. See details for further information.
- Finish shall be per manufacturer's specification.
- Provide gates as shown on Drawings. Provide access to all yards with double four foot wide gates for maintenance access to all areas of the playground. Provide cane bolt on passive gate with lock. Provide four (4) foot wide gates for pedestrian access. All fence posts to be set in solid concrete to a minimum depth of three (3) feet in solid ground. Gate latches shall be Magna latch magnetic pool safety gate latches #MLTSP2S2BGA black. Double gates shall have Magna-Latch Lock Bolt Lockable Drop Rod (came both) Model LB1248X-black or equal.

END OF SECTION

SECTION 02 62 50 - DECORATIVE STEEL FENCE - Ameristar

PART 1 - GENERAL

- If specified on the architectural site plan, interior fence shall be four feet (4'-0") high or height as shown on plans with ends on perimeter to face out. Color shall be black. All fence posts shall be set in solid concrete to a minimum depth of three (3) feet in solid ground. Line post spacing shall not exceed ten (10) on center. Provide bolt caps on bolts facing into the playground.
- All perimeter fence not shown on the site plan otherwise, shall be six (6") high black (6) gauge finish material. All fence parts shall be dark green or as selected by Owner. Fence posts shall be set in solid concrete to a minimum depth of three (3) feet in solid ground. Line post spacing shall not exceed ten (10) on center. Provide bolt caps on bolts facing into the playground.
- All fencing shall be Ameristar (Tulsa, OK) Montage Plus or equivalent steel Masonry Design, flush bottom rail treatment, 3-rail style. Pickets shall be 1/4" 18ga tubing. Child safety regulations require no space between 3-1/2" and 9" (entrapment zone) exist anywhere on the constructed fence or between the fencing and building surfaces. Fencing contractor to supply and install filler plates as needed. Provide three rails on all gates. Connect to posts with approved fasteners. Top and bottom rails shall be flush. Steel tube pickets in picket holes in the rail shall be spaced 3.75" O.C. See details for further information.
- Provide gates as shown on Drawings. Provide access to all yards with double four foot wide gates for maintenance access to all areas of the playground. Provide cane bolt on passive gate with lock. Provide four (4) foot wide gates for pedestrian access. All fence posts to be set in solid concrete to a minimum depth of three (3) feet in solid ground. Gate latches shall be Magna latch magnetic pool safety gate latches #MLTSP2S2BGA black. Double gates shall have Magna-Latch Lock Bolt Lockable Drop Rod (came both) Model LB1248X-black or equal.

END OF SECTION

SECTION 02 70 00 - PLAYGROUND EQUIPMENT

PART 1 - GENERAL

- The Contractor is responsible for providing and installing the playground equipment site area as specified on site plan, including final grading (maximum two (2) percent slope) suitable for installation of playground equipment.
- Equipment shall be ordered and paid for by Owner from the Owner's playground equipment supplier. The Owner's playground equipment supplier shall be responsible for coordinating with the Contractor to receive, verify, and store, playground equipment when delivered. Equipment shall not be delivered to the Project until Owner's playground supplier and installer has visited the site and coordinated the delivery of the playground equipment with the Contractor. Owner's playground equipment installer must be onsite the time of delivery to verify receipt and that the equipment is not damaged and is properly stored on site.
- Owner shall purchase the playground equipment from the vendor and the install shall be done on a turn-key basis by Owner's Playground installer. **NO EXCEPTIONS.**
- Owner's playground supplier and installer shall release the Contractor from any damage, loss or theft to the playground equipment while equipment is stored onsite. **Owner's installer shall provide Contractor with written verification that the equipment has been delivered to the site.**
- Owner's playground installer shall coordinate the installation and equipment delivery date with the Contractor. Contractor will coordinate with other trades as required for the playground equipment site area to be ready for installation per the project schedule. Owner's playground installer shall be responsible for completing the entire playground installation by the date as provided by the Contractor. Any delays in the schedule resulting from the failure of the Owner's playground supplier in delivering the equipment to the site or by playground installer installing the equipment by the due date, the project schedule and corresponding project schedule deadlines shall be extended by each day of such delay.**
- Owner will ensure that the playground equipment is installed after grade has been established in the fall zone areas. Any required drainage of the fall zone areas will be installed and connected to the approved storm system by Owner's playground equipment installer immediately preceding the completion of the play structure installation by Owner's installer, the sod and remaining landscape features shall be completed. The playground, playground artificial turf and all other required installations in the playground shall be installed by Owner's artificial turf installer and completed at a minimum of 30 days prior to Occupancy (Substantial Completion). Refer to the plans and specs' for additional information. **Contractor shall not install the sod or the section of fencing in the landscape areas in front of the playground entrance areas before the prior to installation of the playground structures.**
- Owner's playground contractor is required to verify all setbacks, underground utilities, fall height requirements, state and local municipality requirements, permits, inspections and any other requirements as required to complete the improvements. Contractor and Owner shall be released from any and all liability in its entirety regarding the playground installation.**

END OF SECTION

SECTION 02 82 40 - ARTIFICIAL TURF SURFACING

PART 1 - GENERAL

- A complete synthetic turf system, consisting of a vertical draining blanket and nominal polyethylene-blended fiber, tufted into a single, dimensionally stable, three component primary backing with a secondary backing.
- A resilient infill system, consisting of rubber granules.
- Pre-manufactured pads for fall zone pad under play equipment.
- Owner's Artificial Turf supplier and installer shall provide a qualified installation foreman to coordinate and review the component parts of the artificial turf system.

PART 2 - PRODUCTS

- Turf shall be equal to Xgrass or approved equal. Owner to contract with a vendor for the material and installation at Owner's sole cost.
- Excavation: Existing grade shall be excavated by Owner's installer to the depth established by Xgrass, not less than 2" for the turf and 4" of stone base. The sub grade shall be shaped to achieve a .5% (one half of one percent) slope from the center of the field to the perimeter in order to mirror the grade of the finished synthetic turf surface. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate.
- Owner's artificial turf supplier and installer shall provide closed cell foam pad under turf minimum 1", and as required to provide appropriate ASTM/PEMA/CPSC or state licensing fall attenuation for the maximum fall height of the playground equipment served. The turf must comply with **IPEMA** for maximum fall height of equipment. **ASTM F1951** Wheelchair Accessibility, and:
 - A. Face Weight 50 oz/sy
 - B. Face Yarn Type: Polyethylene
 - C. Yarn Size 10800/7300
 - D. Pile Height 1.75 inches
 - E. Color Blend
 - F. Construction: Broadloom tufted
 - G. Stitch Rate: 8 per 3 inches
 - H. Tufting Gauge: 1/4"
 - I. Primary Backing: Stabilized dual layered woven polypropylene
 - J. Secondary Backing 10 oz. DuraFlo
 - K. Total Product Weight 68.7 oz/sy
 - L. Finished Roll Width 180' untruncated
 - M. Warranty: 10-year fade
- Pad Underlayment System: Standard recycled, non-contaminated, Post Industrial cross-link, closed cell Polyethylene - polyolefin foam pad. Pad Underlayment System.
 - A. Foam Type: Polyethylene - Polyolefin
 - B. Bulk Density: 5.0-8.0 lb/cu ft
 - C. Effective Size 24 sq ft (net coverage)
 - D. Tensile Strength 34-36 psi
- Synthetic Grass Infill: Coating: Priority acrylic, iron oxide and chromium oxide
 - A. Grain shape: Hardness: 6-8 Mohs
 - B. Curvature: 0.7+
 - C. Specific Gravity: 1.76 g/cm³
 - D. Bulk Density: 110 lb/cu ft
 - E. Uniform coefficient 1.1 to 1.40
 - F. Effective Size 84 - 1.68 mm
 - G. Broom in infill round quartz silica sand approximately 3.5 pounds per square foot
- Splicing Material: 1000 denier corded nylon 12" wide minimum.
- Adhesive: Synthetic Turf Adhesive

PART 3 - EXECUTION

- The synthetic turf contractor that's contracted by Owner at Owner's sole cost shall adhere to the installation procedures outlined by the manufacturer. Any variance from these requirements must be approved in writing, verifying that the changes do not in any way affect the warranty. If required, Owners installer shall remove all existing surfacing materials such as sod, wood chips or gravel from the playground area. Remove any and all stones, or other vegetation.
- Owner's installer shall install fall impact pads at least as large as the area required by the playground equipment manufacturer.
- Synthetic Turf and Infill Materials After a final inspection of the base and fall impact pads by the turf installer and the Owner's installer, the synthetic turf installation shall begin.
- Owner and Contractor shall not be responsible for the scheduling or installation of the artificial turf.

END OF SECTION

SECTION 02 90 00 - LANDSCAPING

PART 1 - GENERAL

- Planting of Lawn Areas - See Landscape Plan for locations.
 - A. Seedbeds shall be per the site plan. If not indicated, seed shall be as selected by the Owner's representative.
 - B. Fertilizer shall be in composition, free-flowing and delivered to the site unopened in original containers in accordance with common trade practice.
 - C. Prior to seeding, all vegetation which might interfere shall be mowed, grubbed, raked and the debris removed from the site.
 - D. Seed beds shall be thoroughly tilled to a depth of at least six (6) inches.
 - E. Seeding shall be done during a time of the year suitable for establishment of turf. Do not seed when wind velocity exceeds five (5) miles per hour. Distribute seed evenly over entire area by sowing equal quantity in two (2) directions at right angles to each other. Seed shall be sown at a rate recommended by the seed supplier. Maintain seed areas until final acceptance by the Owner. Maintenance shall consist of mowing, seeding and watering as necessary to maintain healthy turf. Any bare area larger than one foot square shall be reseeded at no cost to the Owner.
 - F. Warrant all seeded areas for a period of one year after final acceptance. Reseed all areas showing unsatisfactory growth at the end of the warranty period.
- Sodding of Lawn Areas - See Landscape Plan for locations.
 - A. Variety of sods to be per the site plan, or as selected by the Owner's representative.
 - B. Sod shall be grown on a strongly rooted and reasonably free of pernicious weeds and apparent disease.
 - C. Fertilizer shall be Milorganite and shall be distributed uniformly at the rate recommended by manufacturer. The fertilizer shall be delivered to the site unopened in original containers, each bearing the manufacturer's guaranteed analysis and in conformity with state fertilizer laws.
 - D. Prior to sodding, all vegetation which might interfere shall be mowed, grubbed, raked and the debris removed from the site. Area then shall be thoroughly tilled to a depth of at least six (6) inches.
 - E. Sod strips twelve (12) to eighteen (18) inches wide shall be laid smoothly, edge to edge, and with staggered joint. The sod shall be watered immediately after laying and rolled to the proper grade within forty eight (48) hours after harvesting. On slopes, the sodding shall begin at the bottom and progress upward with strips laid transverse to the flow of water.
 - F. Maintain sodded areas until final acceptance by Owner. Maintenance shall consist of mowing, weeding and watering as necessary to maintain healthy turf. Any dead or deficient sod shall be removed and replaced.
 - G. Warrant all sodded areas for a period of (1) one year after final acceptance. Reseed all areas deemed unsatisfactory at the end of the warranty period.
- Planting of Trees, Shrubs and Ground Cover
 - A. Provide trees, shrubs and ground cover complying with the recommendations and requirements of ANSI Z60.1 "Standard for Nursery Stock" and as further specified.
 - B. Fertilizer shall be uniform in composition, free-flowing and delivered to the site unopened in original containers each bearing the manufacturer's guaranteed analysis and in conformity with state fertilizer laws.

- Peat shall be free from lumps, roots, woody material and stones or other foreign matter and shall contain no less than ninety (90) percent organic matter by weight on an oven-dry basis. Peat moss shall be free of mineral matter harmful to plant life, water-absorbing capacity to 1,100 to 2,000 percent, moisture content thirty (30%) percent natural, acid reaction four (4) to five (5) pH.
- Provide stakes which are straight, sound, rough sawn, not less than two (2) inches if square, or two and one-half (2-1/2) inches in diameter if round and eight (8) feet long. Provide wire ties and gags of 2-ratio twisted, pliable galvanized iron wire not lighter than twelve (12) gauge. Provide new 2-ply garden hoses not less than one-half (1/2)" inch in diameter.
- Mulch shall be medium size, dried redwood bark chips or equal. Spread evenly to a thickness of two (2) inches in tree and shrub saucers and in mulch cover planting beds.
- Weed barrier fabric shall be 30-mil, multi-use woven flat ribbon polypropylene (black) yarn with a facing of polypropylene, needing weed barrier fabric shall be designed to ensure positive permeability, strength and durability. **WEED BARRIER SHALL BE APPLIED IN ALL ROCK OR BARK LANDSCAPED AREAS.**
- Wrapping material for tree trunks shall be two (2) thicknesses of crinkled paper, cemented together with bituminous material. Wrapping material shall be strips three (3) to five (5) inches wide, having qualities to resist insect infestation.
- Topsoil shall be a natural, friable topsoil, representative of productive soils in the vicinity. It shall be obtained from well-drained areas, free of subsol, foreign matter, toxic substances and any harmful material.
- Plant trees, shrubs and ground covers during normal season for such work. Do not plant in frozen ground. Provide fertilizer, humus and other soil amendments of a type which are known to improve the pH condition of the soils for the particular plant material to be planted. Mix peat humus with topsoil in the ratio 1:3 for use in planting.
- Prune, thin out and shape trees, shrubs and ground covers in accordance with standard horticultural practice.
- Maintain plant material until final acceptance by the Owner. Maintenance shall consist of spraying, pruning, watering and weeding as required for healthy growth. Any plant material found to be dead or in a unhealthy condition shall be removed and replaced.
- Warrant all plantings for a period of one (1) year after final acceptance. At the end of the warranty period dead and deficient material will be removed and replaced at no cost to the owner.
- Installation of Erosion Control Fabric:
 - A. Fabric shall be "Sail Saver" as is distributed by Jim Walls Company in Dallas, Texas (214) 239-8577, or "Curtex Blankets" as is distributed by American Excelsior Company in North Kansas City, Missouri (816) 842-3034, or approved equal.
 - B. Staples shall be #11 gauge steel wire formed into a "U" shape, six (6) inches long.
 - C. Fabric shall be rolled out in place. Fabric shall be applied without stretching and shall lie smoothly, but loosely on the soil surface.
 - D. The Contractor shall refer to the Drawings for details of fabric fastening.
 - E. It is intended that non-seeded areas indicated on the Drawings to be protected from erosion be left unprotected. Therefore, application of the erosion control fabric shall occur the same day that the seeding of an area has taken place.
 - F. Fabric shall completely cover all areas which are shown on the Drawings to be protected from erosion. After fabric installation the entire area shall be rolled with a smooth roller weighing between 200 to 250 pounds. After rolling, the fabric shall be in intimate contact with the soil surface at all points. Any clods, etc. which hold the fabric off the ground should be removed. The fabric shall be forced down into any depressions and held there with a staple.

END OF SECTION

DIVISION 03 - CONCRETE

SECTION 03 01 00 - POURED-IN-PLACE CONCRETE

PART 1 - GENERAL

- All footings shall be in undisturbed soil or compacted and tested fill. Elevations on plan are minimum depths.
- Provide concrete testing in compliance with ASTM C 172-C31. Provide one slump test per ASTM C 143 for a load of concrete at the point of discharge. Provide one air content test for each compressive strength. Provide one compressive strength tests per ASTM C 39 for each 50 cu. yds. or fraction thereof. Test one specimen at 7 days, one specimen tested at 28 days, and one retained for later testing if required. **Costs of testing shall be borne by the Contractor.** Results of the tests shall be reported by the laboratory directly to the Architect. If a test indicates strength less than desired, additional testing shall be ordered by the Contractor's cost or the direction of the Architect. If results are still unsatisfactory, those portions of the structure shall be removed and repaired at the direction of the Architect at the Contractor's expense.
- PRODUCTS**
 - Strength: 3,000 psi at 28 days per ASTM C-311-99. Provide a minimum of 470 pounds of cementitious material per cubic yard.
 - Strength:
 - A. Footings: 3000 psi to 4" slump
 - B. Slabs: 3000 psi to 2" slump
 - C. Columns shall be determined in compliance to Section 4.2.2.4 of ACI 301 for durability.
 - Cement: ASTM Type II types & II.
 - D. Woven fabric: 1/2" x 3/4" mesh of eight (8) inches for block fill, three (3) inches plus or minus one (1) inch for slabs on grade and four (4) inches plus or minus one (1) inch for all other concrete.
 - E. Aggregates shall be 3/4" maximum size 1-1/2" for footings and 3/4" maximum for all other except that local aggregates may have been given by tests and actual service may be used when approved by the Architect.
 - F. Concrete shall be moist mixed in compliance with ACI 301, 304, 318 and ASTM C94. Air entrainment shall be per ASTM C-260.
- Corrosives: Air Entraining Agent shall be neutralized vinyl resin conforming to ASTM C-260. Water Reducing Agent shall be Pozzolith by Master Builders Co. conforming to ASTM C-494 or equal. Admixtures may not be used without prior approval of the Architect. Admixtures to increase the workability of the concrete shall not reduce the strength of the concrete.
- Reinforcing Bars: ASTM A615, Grade 60 with deformations conforming to ASTM A615-60. All #3 bars, stirrups and ties shall be minimum Grade 40. Welded rebar shall be Grade 70S welded in accordance with AWS D 1.4. Detailing, fabrication, and erection of reinforcing bars shall follow the ACI Manual of Standard Practice for Detailing Reinforced Concrete Structures, ACI 315 - latest edition. All reinforcing shall be held securely above the ground. All vertical steel shall be centered unless noted otherwise, and shall be adequately tied top and bottom. All rebar bends shall be made cold. Lap all bars 24 diameters.
- Protective cover for steel shall be three (3) inches bottom and sides of dirt trenches, two (2) inches top exposed to weather.
- Welded Wire Mesh: ASTM A 185, all slabs unless indicated otherwise. Wire mesh shall be supported with brick bats laying flat on a 4" by 4" grid. It is intended and required the mesh be in the top or center portions of the slab. Lap mesh 6 inches or one full mesh, whichever is greater.
- Formwork: All wood formwork shall be free from defects when concrete is exposed. All wood forms and stakes shall be completely removed.
- Granular/Porous Fill: Crushed limestone or river gravel, three quarter (3/4) inch to one and one-half (1-1/2) inches. Clean coarse graded sand, free from clay, loam, or other organic matter may be used if approved by the Owner.
- Vapor Barrier: 6-mil thick plain polyethylene sheeting. Lap end and side joints six (6) inches and completely seal joints and ALL penetrations. Install over granular fill, unless otherwise indicated by Subsurface Investigation Report.
- Where slabs abut vertical surfaces, provide one-half (1/2) inch pre-moulded expansion joint in compliance with ASTM D1751.
- ALL projecting corners, horizontal and vertical, including all slab and flatwork, shall have a 3/4" chamfer for child safety.**
- No conduits placed in the slab shall have an outside diameter greater than 1/3 the thickness of the slab. No conduit shall be embedded in a slab that is less than 3-1/2" thick except for local offsets. Minimum clear distance between conduits shall be 6".

PART 3 - EXECUTION

- Concrete shall not be placed on muddy or frozen ground. Interior slabs on grade shall not be placed until all danger of frost has passed. Before pouring against set concrete, the hardened surface shall be carefully cleaned and wetted.
- Notify testing agency a minimum of 24 hours before commencement of operations.
- Finish: Floor slab shall be steel troweled to a smooth plain surface, free of score marks, grooves, and depressions. Variations in surface shall not be more than one-quarter (1/4) inch in twelve (12) feet. When concrete has set sufficiently to ring under the trowel, it shall be given a second troweling to produce a smooth dense surface. The application of additional cement or "dryer" is expressly prohibited.
- Protect concrete against frost, wind, rain, ice, and rapid drying. Keep moist for at least seven days after placing. During this period the concrete shall be maintained at temperatures between 50deg and 80deg F. Floor shall be cured by wetting and covering with one sand or six (6) mil visqueen, or apply Somecure liquid curing compound or equal. Temperature shall be maintained by placing sheet insulation over the slab.
- Saw cut concrete within 24 hours of placing, cut 1/4" deep.
- Cold Weather Concrete: When the air temperature is 40deg, or below or expected to drop below 40deg, within 24 hours of placement, the following precautions shall be taken.
 - A. Adequately heat all material. No frozen ingredients shall be used.
 - B. Temperature of the delivered concrete shall be 70deg +/- 10deg F.
 - C. Concrete shall not come into contact with frozen ground or forms.
 - D. Concrete when placed shall have a slump not to exceed four inches.
 - E. During placing and finishing, concrete shall be maintained at a temperature of 50 degrees F. or above, but not more than 80 degrees.
 - F. Troweling shall be delayed in order to avoid bringing an excess of fines to the surface.
 - G. During placement and finishing, slabs shall be protected from wind to prevent loss of heat and rapid drying.
 - H. Sudden cooling of ambient air temperature in excess of 20 degrees F. in any 24 hour period shall not be allowed. During this period the concrete shall not be allowed to drop to a temperature below 40 degrees F.
 - I. Newly finished flatwork shall be covered and protected during cold weather for at least 14 days against exposure to rain, sleet and ice.
 - J. During the entire protection period, adequate means shall be provided to prevent loss of moisture from the concrete surface.
- Hot Weather Concrete: When the air temperature is above 80 degrees or is forecast to rise above that temperature within 24 hours of placement, the following precautions shall be taken:
 - A. Stockpiled aggregates shall be saturated and the surface kept moist by intermittent sprinkling or continuous fog spray.
 - B. Mixing water shall be kept cool.
 - C. When necessary to produce and maintain concrete at an acceptable temperature, chopped or crushed ice up to a limit of 50% of the required water may be added at a rate and in a manner that it will be completely melted during the mixing period.

- The cement factor required by the design mix shall be increased as necessary to maintain the specified water-cement ratio whenever additional water is added to compensate for loss of slump during transportation, handling, or placing.
- Retarding admixtures may be added with the approval of the Architect.
- Temperature of the concrete when placed shall not exceed 85 degrees.
- Forms, reinforcing, and subgrade shall be wetted immediately before concrete is placed. Wetting down areas around the pour is recommended to reduce air temperature and increase humidity.
- Placing and finishing shall be done as quickly as possible. Adequate manpower and equipment shall be available to handle and place the concrete immediately after its mixing or delivery to the site of the work. Concrete shall be placed to avoid cold joints.
- In extremely hot weather, or in very dry and/or windy weather, sunshades, wind breaks or fog nozzles, or a combination of such items, will be required during flat slab operations.
- Concrete shall be kept cool and moist during the curing period. Initial curing media shall be placed within 20 minutes of final finishing of each area.
- Form Removal: Forms shall be removed without damage to concrete. The time of removal shall be governed by the weather and local conditions, but shall generally stay in place a minimum of four days.
- After form removal, concrete shall be covered with plastic and honeycombed concrete to be solid concrete; fill all voids with cement mortar, rub to match adjacent surfaces, and completely conceal. There shall be no sharp edges present on any concrete flatwork.

END OF SECTION

SECTION 04300 - BRICK MASONRY

PART 1 - GENERAL

- General: All exposed and concealed masonry shall be installed in accordance with applicable provisions of the Brick Institute of America and Brick Products Institute "Technical Manual".
- Craftsmanship: All brick shall be made waterproof by quality craftsmanship and installation of the specified materials.
- Shipping: All brick shall be packaged, shipped and transported in a manner to minimize chipping and damage to the units. All units damaged in transit shall not be transported into the project exposed walls.
- Coordination: The contractor shall coordinate with the masonry contractor and certain design features. Consult the drawings and coordinate the masonry work with masons and other trades.
- Protection: The tops of all walls and all completed walls shall be covered at night and at all times of precipitation to prevent water snow or ice from entering the masonry. All cavities from damaged exterior surface. All protections shall be held firmly in place during wind disposal.
- Cold Weather Precautions: Do not lay brick in less than 40 degree F. or expected lower temperatures unless suitable means are provided to heat the materials and to protect the uncured mortar from frost damage. No antifreeze compounds containing calcium chloride to be added to the mortar at any time. Remove snow and ice from all previous masonry work by elevating the temperature of the air around it. Do not heat the masonry directly. Ice crystals form on surfaces. The mortar during the cooling and compressing stage, rake the mortar out to a depth of 1/2" and compact well. When air temperatures recover above 40 degrees F, and will not fall below 32 degrees F within 72 hours, tuck point the raked joint with fresh mortar, tool and compress.
- Hot Weather Protection: All brick units shall be dampened to prevent pre-hydration of the contact surfaces before the brick and mortar in contact with the Structure. Brick Products Institute recommendations. If the job site air temperature is above 80 degrees F. during the work day, mortar shall be placed in final position within 1 hour after mixing.
- Brick: ASTM C-216, Grade SW, Type FBS, standard modular face brick size: (2-5/8"x4"x8"). See Exterior Color Schedule for color, manufacturer and type.
 - Mortar: Type M for masonry in contact with the earth and for filling concrete block, Type S for exposed masonry walls. one (1) part Portland cement, one-quarter (1/4) part hydrated lime, and not less than 2-1/4 or more than three times the sum of the volumes of the cements and lime used for sand. Mortar color per Exterior Color Schedule. Compressive strength of the mortar at 28 days shall be:
 - a. Type M - 2500 psi
 - b. Type S - 2000 psi
- Water Mortar: Where masonry will be subject to excessive moisture or normal hydrostatic pressures (i.e. below grade, retaining walls) a water mortar such as Hydrocide Powder, a product of Sonneborn- Rexnord, shall be added to the mortar per the manufacturer's recommendations.
- Base Flashing: 30-50 mil PVC.

PART 3 - EXECUTION

- Preparation: Layout and course all brick to conform with the drawings and the various elements to be incorporated. Establish locations of all anchors, ties, reinforcing, lintels, etc. and coordinate with other trades. No exposed cuts will be exposed. No cores shall be cut. Use a solid brick with facing.
- Wetting: Wet brick before the absorption rate does not exceed ASTM C-67 standards. When the air temperature is very hot and dry, or moderately hot and windy, wet the brick several times to insure all the bricks have been wetted. This shall be done several hours ahead of usage so the brick has no surface water, but the absorption rate has been reduced to prevent sucking the water out of the mortar matrix.
- Face units in vertical bond, except as specified on the drawings.
- Window sills shall be laid rowlock, or as called for on the drawings. Exposed brick shall be laid with vertical joints plumb and aligned.
- Joints: Shall be nominal 3/8" wide vertically and horizontally. Joints on all exposed masonry shall be standard tumbled and compressed concave. When mortar is tumbrelt hand, use a round jointer/roller to produce joint. Mortar shall be hard and firmly compressed.
- Joining: Where fresh masonry joints partially set masonry, remove loose bricks and mortar, clean and lightly wet contact surfaces. Stop horizontal runs by racking back one half (1/2) unit in each course. Tooling shall not be permitted.
- Thru-Wall Base Flashing: Install thru-wall flashing behind the sheathing as shown on the drawings and extend up 6" between the back face of the stud and the back face of the sheathing. Overlap 4" minimum and seal with compatible mastic. Any cavity space below the flashing at the wall base shall be completely filled with mortar. A thin bed of mortar or a comparable mastic shall be spread onto the brick before the flashing is set in place. Extend flashing stop bottom ledge and trim flush to outside face of brick to conceal.
- Weepholes: rope wicks, trimmed flush at 24" o.c. Rope wicks shall be untreated cotton or fiberglass rope with a diameter of not less than 3/8" or greater than 1/4" diameter. Wicks shall extend