

**SECTION 016211 – DELEGATED DESIGN**

**PART 1 - GENERAL**

1.01 SUMMARY  
A. This Section includes administrative and procedural requirements for the portions of the Work specified as Delegated Design.  
B. Sections with delegated design components include but are not limited to the following:  
1. Section 051200 "Structural Steel Framing."  
2. Section 052100 "Steel Joist Framing."  
3. Section 055300 "Metal Fabrications."  
4. Section 074800 "Sintered Compact Surface Panel Rainscreen System."  
5. Section 095113 "Acoustical Panel Callings."  
6. Section 210548 "Vibration and Seismic Controls for fire-suppression piping and equipment."  
7. Section 211000 "Water Based Fire-Suppression Systems."  
8. Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."  
9. Section 230548 "Vibration and Seismic Controls for HVAC."  
10. Section 260548.16 "Seismic Controls for Electrical Systems."  
11. Section 283100 "Fire Detection and Alarm."

1.02 DEFINITIONS  
A. Delegated Design: Portions of the Work for which the Contractor is required to procure professional design services or certification by a design professional related to systems, materials or equipment.  
1. Delegated Design components shall comply with the performance requirements and design intent indicated in the Contract Documents.

1.03 PERFORMANCE REQUIREMENTS  
A. Comply with applicable codes and regulations, except where more stringent requirements are specified.

1.04 SUBMITTALS  
A. Comply with Section 013300 "Submittal Procedures."  
1. Submittals without required calculations, without the Delegated Design Engineer's signature and seal, or which have not been reviewed by Contractor will not be reviewed by Architect.  
B. Owner and the Architect will rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals in complying with all performance and design criteria indicated in the Contract Documents. The Architect will review and take appropriate action on submittals only to the limited purpose of checking for conformance with information given and the design intent expressed in the Contract Documents.  
C. Delegated Design Project Record Document Requirements:  
1. Provide the Owner with electronic copies of all drawings, calculations, and specifications related to Delegated Design as follows:  
a. Content:  
1) Include all revisions made to the project by Addenda, Change Orders, Shop Drawing review and other modifications.  
2) Include the following information on each Drawing: "Project Record Documents - This document has been prepared using information furnished by (list Design Engineer Name, date, etc)."  
b. Format:  
1) Latest PDF format for all documents. For drawings include AutoCAD files of correlating drawings.  
2) AutoCAD File Requirements;  
a) Bind all external reference files.  
b) Provide one file correlating to each Drawing. Use the drawing number and title to name the file.

1.05 QUALITY ASSURANCE  
A. Delegated Design Engineer Qualifications: A structural engineer licensed by the jurisdiction in which the Project is located and who is experienced in providing engineering services of the kind indicated in jurisdictions that do not issue licenses to structural engineers, a licensed professional engineer engaged in the practice of structural engineering is acceptable.

1.06 SCHEDULING AND COORDINATION  
A. Owner will not be responsible for paying for any administrative and labor costs, scheduling delays, material or installation costs, reworking fees or rework resulting from failure by the Contractor to coordinate Delegated Design work or execute Delegated Design work in a timely manner.  
B. General Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for installation, connection, and operation.  
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.  
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.  
3. Make adequate provisions to accommodate items scheduled for later installation.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

END OF SECTION

**SECTION 017229 - CUTTING AND PATCHING**

**PART 1 - GENERAL**

1.1 SUMMARY  
A. This Section includes procedural requirements for cutting and patching.

1.2 SUBMITTALS  
1. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations stamped by a professional licensed to practice by the authorities having jurisdiction to show how reinforcement is integrated with the original structure.  
2. Submit a cutting and patching proposal for review before cutting and patching the following operating elements or safety related systems:  
a. Structural elements, including equipment supports.  
b. Shoring, bracing and sheathing.  
c. Water, moisture or vapor barriers.  
d. Membranes and flashings.  
e. Control systems.  
f. Communication systems.  
g. Electrical wiring systems.

1.3 PERFORMANCE REQUIREMENTS  
A. Extent of cutting and patching work is generally not necessarily shown on Drawings. Include cutting and patching work as indicated by provisions of this Section.  
1. Cut holes and openings and remove portions of existing construction necessary for connection of new construction.  
2. Patch around mechanical and electrical penetrations.  
3. Patch walks, pavement, structures, floors, walls, and ceilings damaged by demolition operations, including removal of indicated mechanical and electrical items. Patch and panel openings in walls, floors and ceilings created by demolition operations.  
4. Patch and repair blemishes and holes in existing construction surfaces left in place, and scheduled to be exposed, that have been damaged due to construction operations.  
5. Repair or patch all areas where demolition, alterations or cutting is required to make work fit, at no increase to the contract amount.  
6. Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.  
B. Materials removed and not indicated to be turned over to Owner or indicated for reuse, as well as rubble and debris resulting from these operations, are property of Contractor, unless otherwise indicated.

**PART 2 - PRODUCTS**

2.1 MATERIALS  
A. Materials for Patching: Unless otherwise indicated, use materials for patching identical to existing materials. If identical materials are not available, or cannot be used, use materials matching existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for patching that result in equal-or-better performance characteristics.

**PART 3 - EXECUTION**

3.1 PERFORMANCE  
A. Protect existing property, equipment, remaining surfaces, utilities and services within and adjacent to work from damage. If utilities or services are uncovered that are not indicated on Drawings, advise Owner immediately and do not work in the area until instructed by Owner.  
B. Shore and brace existing construction during cutting operations as required to prevent cracking, movement, or collapse of existing assemblies, surfaces and materials.  
C. Before cutting and patching structural concrete, rofing materials, or structural metals, obtain the Architect/Engineer's approval to proceed.  
D. Metal Cutting: Cut openings in existing finish metals using tools that cause the least practicable damage to adjacent surfaces to remain. Minimize cutting to smallest practicable area required to install new building components.  
F. Cutting and Patching Waterproofing Covered by Warranty: Prior to beginning work, verify with Owner that existing waterproofing is covered by a manufacturer's warranty. If waterproofing system is not covered by warranty, obtain Owner's written notification of non-coverage prior to beginning work. If waterproofing system is covered by warranty, perform cutting and patching work in a manner that does not void existing warranties.  
1. Engage the original waterproofing membrane installer to perform cutting and patching work.  
2. Where the identity of the original installer cannot be determined or the installer is otherwise unavailable, engage an installer approved by the Owner and authorized by the waterproofing membrane manufacturer to perform cutting and patching work in conformance with all provisions of the existing warranty.  
G. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review proposed procedures with the original installer and comply with the original installer's recommendations.  
1. Coordinate work to avoid cutting of existing piping, conduit or ductwork serving the building until provisions have been made to bypass them.  
H. Patching: Match existing construction. Comply with applicable materials and workmanship requirements of individual specification sections.  
1. Treat cut edges of metals to minimize corrosion potential.  
2. Patch exposed below surfaces with seams which are durable and as invisible as possible. Create surface finishes matching existing adjacent surfaces in color, texture, gloss and other visual characteristics.  
3. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.  
4. Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the architect's opinion, reduce the building's aesthetic qualities or result in visual evidence of cutting and patching.  
5. Patch all partition, floor, ceiling and roof assemblies to maintain original performance characteristics, including those for fire and acoustical barriers.  
a. Patch fire-rated assemblies using salvaging materials between the penetrating element and fire-rated assembly. Use salvaging materials that will not reduce the fire-rating of the existing assembly.  
b. Patch assemblies to maintain acoustical barrier performance using joint sealant materials between the penetrating element and surrounding assembly.  
1. Thoroughly clean areas and spaces where cutting and patching is performed. Completely remove paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION

**SECTION 024119 - SELECTIVE DEMOLITION:**

**PART 1 - GENERAL**

1.1 SUMMARY  
A. Section Includes:  
1. Demolition and removal of selected portions of building or structure.  
2. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS  
A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstated.  
B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.  
C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.  
D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstated.

1.3 INFORMATIONAL SUBMITTALS  
A. Predemolition Photographs or Video: Submit before Work begins.

1.4 FIELD CONDITIONS  
A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.  
B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.  
C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.  
D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.  
1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.  
E. Storage or sale of removed items or materials on-site is not permitted.  
F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.  
1. Maintain fire-protection facilities in service during selective demolition operations.

1.5 WARRANTY  
A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

**PART 2 - PRODUCTS**

2.1 PERFORMANCE REQUIREMENTS  
A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.  
B. Standards: Comply with ANSI/AISE A10.6 and NFPA 241.

**PART 3 - EXECUTION**

3.1 EXAMINATION  
A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.  
B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.  
C. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.  
D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS  
A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

3.3 PREPARATION  
A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.  
B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.  
C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION - GENERAL  
A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:  
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chipping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.  
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.  
3. Do not use cutting torches unless work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.  
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.  
5. Dispose of demolished items and materials promptly.  
B. Removed and Reinstalled Items:  
1. Clean and repair items to functional condition adequate for intended reuse.  
2. Pack or crate items after cleaning and repairing. Identify contents of containers.  
3. Protect items from damage during transport and storage.  
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.  
C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstated in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS  
A. General: Except for items or materials indicated to be reused, salvaged, reinstated, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.  
1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.  
2. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.  
B. Burning: Do not burn demolished materials.  
C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING  
A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

**SECTION 033000 CAST-IN-PLACE CONCRETE**

**PART 1 - GENERAL**

**1.01 SUMMARY**  
A. INCLUDED: CAST-IN-PLACE CONCRETE INCLUDES, BUT IS NOT LIMITED TO, FOLLOWING:  
1. FORMWORK  
2. REINFORCEMENT.  
3. RECEIVING AND INSTALLING INSERTS, ANCHORS AND LIKE ITEMS TO BE EMBEDDED IN CAST-IN-PLACE CONCRETE FOR OTHER WORK.  
4. NORMAL WEIGHT STRUCTURAL CONCRETE.  
5. CONCRETE FINISHING.

**1.02 SYSTEM DESCRIPTION**  
A. CODES AND STANDARDS: MEET REQUIREMENTS OF THE LATEST EDITIONS OF APPLICABLE CODES AND SPECIFICATIONS, EXCEPT TO EXTENT OF MOST STRINGENT REQUIREMENTS OF CONTRACT DOCUMENTS AND OF CODES AND REGULATIONS OF PUBLIC AUTHORITIES. HAVING JURISDICTION OVER THE WORK INCLUDING SPECIFICATION SECTIONS AS INCLUDED IN ARCHITECTURAL AND MECHANICAL / ELECTRICAL / PLUMBING DOCUMENTS.

**1.03 SUBMITTALS**  
A. PRODUCT DATA: SUBMIT PRODUCT SPECIFICATIONS, TECHNICAL DATA AND INSTALLATION INSTRUCTIONS OF MANUFACTURER FOR EACH PRODUCT. INCLUDE PUBLISHED DATA, CERTIFIED CONFORMANCE REPORT OR CERTIFIED LABORATORY TEST REPORT OF MANUFACTURER SUBSTANTIATING PROPOSED PRODUCTS MEET REQUIREMENTS OF CONTRACT DOCUMENTS.  
B. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS FOR FABRICATION AND INSTALLATION OF WORK. INCLUDE DETAILS AND REQUIREMENTS FOR REINFORCING AND OTHER PERTINENT DATA IN ACCORDANCE WITH ACI 315, ACI 318 AND ACI CRSI. SHOP DRAWINGS SHALL BE PREPARED UNDER DIRECTION OF ENGINEER OF CONTRACTOR. INCLUDE JOINT LOCATIONS AND DETAILS FOR CONSTRUCTION AND CONCRETE JOINTS.  
C. MATERIAL COMPLIANCE: SUBMIT DATA DESCRIBED UNDER SOURCE QUALITY CONTROL TO ARCHITECT FOR REVIEW BY QUALITY CONTROL SERVICE FOR COMPLIANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS AS WELL AS REQUESTED CHANGES TO CONCRETING MATERIALS OR CONCRETE MIX DESIGNS DURING COURSE OF WORK.

**1.04 PRODUCT HANDLING**  
A. GENERAL:  
1. MEET REQUIREMENTS OF ACI 304, ASTM D3963, CRSI, AWS D1.4, AND ACI 212  
2. DO NOT USE MATERIAL THAT HAS DETERIORATED OR HAS BEEN CONTAMINATED.

**1.05 PROJECT CONDITIONS**  
A. PROTECTION:  
1. UNLESS ADEQUATE PROTECTION IS PROVIDED, DO NOT PLACE CONCRETE DURING RAIN, SLEET, SNOW, HIGH WINDS OR LIKE WEATHER.  
2. DO NOT ALLOW RAIN WATER TO INCREASE MIXING WATER, OR DAMAGE OR DEFACE SURFACE FINISH.  
**PART 2 - PRODUCTS**  
**2.01 FORM MATERIALS**  
A. FORM FACINGS: MEET REQUIREMENTS OF ACI 347.  
B. CHAMBERS: STRIPS OF CONFIGURATION REQUIRED AND OF TYPE AND QUALITY MATERIAL THAT WILL ACHIEVE REQUIRED RESULT.  
C. FORM RELEASE AGENT: WATER RESISTANT, WATER OR NON-WATER BASE CHEMICAL ACTIVE TYPE BARRIER FOR METAL, WOOD, PLASTIC AND COMPOSITION FORMS THAT PREVENTS CONCRETE FROM BONDING OR STICKING TO FORMS AND WHICH DOES NOT AFFECT SURFACES OF CONCRETE. AGENT SHALL BE READY-TO-USE AND WILL NOT IMPAIR OR AFFECT ADHESION OF SEALANTS, PAINTS AND LIKE. SUBSEQUENT TREATMENTS OF CONCRETE SURFACES.  
**2.02 REINFORCEMENT MATERIALS**  
A. REINFORCING BARS - STANDARD: ASTM A615, GRADE 60 MINIMUM.  
B. REINFORCING BARS - EPOXY COATED: ASTM A615, GRADE 60 MINIMUM, DEFORMED, EPOXY COATED MEETING REQUIREMENTS OF ASTM A775 AND ASTM A934, AS APPLICABLE.  
C. WELDED WIRE FABRIC - STANDARD: ASTM A185, FLAT SHEETS. FABRIC IN ROLLS NOT ACCEPTABLE.  
D. REINFORCEMENT SUPPORTS: SUPPORTS SHALL MEET REQUIREMENTS OF ACI 315, ACI DETAILING MANUAL AND CRSI - PLACING REINFORCING BARS.  
E. TIES - EPOXY COATED REINFORCEMENT: NYLON, OR EPOXY OR PLASTIC COATED INDUSTRIAL COLD DRAWN WIRE AS ACCEPTABLE TO ARCHITECT. EPOXY COATING SHALL MEET REQUIREMENTS OF ASTM A984, CLASS A.  
**2.03 CONCRETE MATERIALS**  
A. CEMENTS:  
1. PORTLAND CEMENT - GENERAL: ASTM C150, TYPE I.  
B. AGGREGATES:  
1. FINE AND COARSE AGGREGATES SHALL BE REGARDED AS SEPARATE INGREDIENTS.  
2. NORMAL WEIGHT CONCRETE: ASTM C33, LOCAL AGGREGATE NOT MEETING REQUIREMENTS OF ASTM C33, BUT WHICH HAS SHOWN BY SPECIAL TEST OR ACTUAL SERVICE TO PRODUCE CONCRETE OF ADEQUATE STRENGTH, DURABILITY AND APPEARANCE MAY BE USED WHEN ACCEPTABLE TO ARCHITECT.  
C. WATER: POTABLE, FRESH, CLEAN AND CLEAR MEETING REQUIREMENTS OF ASTM C94.  
D. ADMIXTURES:  
1. GENERAL: EACH CONCRETE ADMIXTURE SHALL BE COMPATIBLE WITH OTHER REQUIRED ADMIXTURES FOR CONCRETE MIXES. ADMIXTURES SHALL NOT CONTAIN CALCIUM CHLORIDE, THIOCYANATES, MORE THAN 0.05 PERCENT CHLORIDE IONS, AND CHLORIDE IONS IN EXCESS OF REQUIREMENTS SPECIFIED FOR CONCRETE MIXES.  
2. AIR-ENTRAINING ADMIXTURE: ASTM C260.  
3. WATER-REDUCING ADMIXTURE: ASTM C494, TYPE A.  
4. RETARDING ADMIXTURE: ASTM C494, TYPE B.  
5. ACCELERATING ADMIXTURE: ASTM C494, TYPE C OR TYPE E.  
6. WATER-REDUCING AND RETARDING ADMIXTURE: ASTM C494, TYPE D.  
7. WATER-REDUCING AND ACCELERATING ADMIXTURE: ASTM C494, TYPE E.  
8. HIGH RANGE WATER-REDUCING ADMIXTURE: ASTM C494, TYPE F.  
9. HIGH RANGE WATER-REDUCING AND RETARDING ADMIXTURE: ASTM C494, TYPE G.  
10. FLY ASH: ASTM C618, CLASS C. LOSS ON IGNITION SHALL BE 2 PERCENT MAXIMUM.  
**2.04 CURING MATERIALS**  
A. MOISTURE RETAINING COVER: NON-WOVEN POLYPROPYLENE FABRIC WITH WHITE POLYPROPYLENE FILM COVER OR WOVEN BURLAP FABRIC WITH WHITE POLYPROPYLENE FILM COVER MEETING APPLICABLE REQUIREMENTS OF ASTM C171. COVERS SHALL BE ULTRAVIOLET RESISTANT AND NON-STAINING TO CONCRETE.  
**2.05 ACCESSORIES**  
A. PREFORMED JOINT FILLERS: AS SPECIFIED IN ARCHITECTURAL CONTRACT DOCUMENTS.  
B. EVAPORATION RETARDER: POLYMER MONOMOLECULAR FILM FORMING MATERIAL APPLIED TO EXPOSED SURFACES OF FRESH, PLASTIC CONCRETE TO RETARD EVAPORATION OF MOISTURE. RETARDER SHALL BE COMPATIBLE WITH CONCRETE MATERIALS AND NOT HAVE AN EFFECT ON CEMENT HYDRATION PROCESS.  
C. BONDING ADHESIVE - EPOXY: TWO COMPONENT, 100 PERCENT SOLIDS, MOISTURE INSENSITIVE, HIGH MODULUS OF ELASTICITY, STRUCTURAL EPOXY RESIN MATERIAL FOR BONDING FRESHLY MIXED CONCRETE TO HARDENED CONCRETE, MEETING REQUIREMENTS OF ASTM C881, TYPE V, GRADE AND CLASS SUITABLE FOR APPLICATION AS ACCEPTABLE TO ARCHITECT.  
D. POLYMER PATCHING MORTAR: POLYMER MODIFIED CEMENTITIOUS MORTAR MEETING REQUIREMENTS OF ASTM C1089, TYPE II, FOR CONCRETE REPAIR OF HORIZONTAL, VERTICAL AND OVERHEAD APPLICATIONS.

**2.06 PROPORTIONING AND DESIGNING MIXES**

A. GENERAL:  
1. PROPORTION CONCRETE MEETING REQUIREMENTS OF ACI 301 AND AS SPECIFIED IN THIS SECTION.  
2. WATER/CEMENT RATIO:  
a. NORMAL WEIGHT CONCRETE: MEET REQUIREMENTS OF ACI 211.1, BUT 0.50 MAXIMUM, EXCEPT AS OTHERWISE REQUIRED BY CONTRACT DOCUMENTS.  
3. FLY ASH:  
a. SUBSTITUTION FOR PORTLAND CEMENT SHALL NOT EXCEED 20 PERCENT BY WEIGHT OF CEMENTITIOUS MATERIAL, OR AT LEAST A FOUND-OR-FOUND BASIS.  
4. CHLORIDE IONS: MAXIMUM WATER SOLUBLE CHLORIDE ION CONCENTRATIONS IN HARDENED CONCRETE AT AGE FROM 28 TO 42 DAYS SHALL NOT EXCEED FOLLOWING LIMITS WHEN EVALUATED MEETING REQUIREMENTS OF SOXHELT METHOD:  
a. CONCRETE IN CONTACT WITH GROUND: 0.15 PERCENT BY WEIGHT OF CEMENT.  
b. CONCRETE, DRY WHILE IN SERVICE: 0.30 PERCENT BY WEIGHT OF CEMENT.  
c. OTHER CONCRETE CONSTRUCTION: 0.15 PERCENT BY WEIGHT OF CEMENT.  
B. STRENGTH:  
1. GENERAL: CONCRETE STRENGTH SHALL BE AS INDICATED ON DRAWINGS OR ELSEWHERE IN CONTRACT DOCUMENTS.  
C. AIR ENTRAINMENT:  
1. NORMAL WEIGHT CONCRETE:  
a. TOTAL AIR CONTENT OF CONCRETE USED IN FLATWORK, NOT EXPOSED TO POTENTIAL DESTRUCTIVE EXPOSURE, SHALL BE 3 PERCENT MAXIMUM OF VOLUME OF CONCRETE UNIFORM FOR WORK.  
b. EVALUATE AIR CONTENT MEETING REQUIREMENTS OF ASTM C231 OR ASTM C138.  
D. SLUMP: EVALUATE SLUMP MEETING REQUIREMENTS OF ASTM C143.  
1. NORMAL WEIGHT CONCRETE: UNLESS OTHERWISE REQUIRED, PROVIDE THE FOLLOWING SLUMPS:  
a. FOOTINGS, WALLS, COLUMNS: 4 INCHES MAXIMUM, 1 INCH MINIMUM.  
b. SLABS-ON-GROUND: 5 INCHES MAXIMUM, 3 INCHES MINIMUM.  
c. SLUMP OF NORMAL WEIGHT CONCRETE ENHANCED WITH HIGH-RANGE WATER-REDUCING ADMIXTURE MINIMUM SLUMP SHALL BE 7 INCHES AND MAXIMUM SLUMP SHALL BE 10 INCHES.  
E. GRADATION OF AGGREGATES FOR EACH CLASS AND TYPE CONCRETE TO BE USED IN WORK SHALL BE WELL GRADED FROM COARSE TO FINE. GAP GRADATION IS NOT ACCEPTABLE.  
F. ADMIXTURES: TWO OR MORE ADMIXTURES MAY BE USED IN SAME CONCRETE, PROVIDED REQUIREMENTS OF ACI 315 AND CRSI - MANUAL OF STANDARD PRACTICE, DO NOT REBIND OR IN COMBINATION SHALL RETAIN FULL EFFICIENCY AND HAVE NO DELETERIOUS EFFECT ON CONCRETE FINISH PROPERTIES OF EACH OTHER.  
A. GENERAL:  
1. MEET REQUIREMENTS OF ACI 301.  
2. MIX AND TRANSPORT READY MIXED CONCRETE MEETING REQUIREMENTS OF ASTM C94, EXCEPT CONCRETE SLUMP SHALL MEET REQUIREMENTS OF THIS SECTION. READY MIX PRODUCER SHALL BE CERTIFIED FOR COMPLIANCE TO NRMCA STANDARDS.  
B. WEATHER CONDITIONS:  
1. COLD WEATHER:  
a. MEET REQUIREMENTS OF ACI 306R-88.  
2. HOT WEATHER:  
a. MEET REQUIREMENTS OF ACI 305R-89.  
**2.08 REINFORCEMENT FABRICATION**  
A. GENERAL: FABRICATE REINFORCING BARS TO REQUIRED SHAPES AND DIMENSIONS MEETING REQUIREMENTS OF ACI 315 AND CRSI - MANUAL OF STANDARD PRACTICE. DO NOT REBIND OR STRAIGHTEN REINFORCEMENT IN A MANNER THAT WILL INJURE OR WEAKEN MATERIALS.  
**PART 3 - EXECUTION**  
**3.01 EXAMINATION**  
A. GENERAL: EXAMINE AREAS AND CONDITIONS UNDER WHICH CAST-IN-PLACE CONCRETE IS TO BE INSTALLED FOR COMPLIANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS AND TO DETERMINE IF CONDITIONS AFFECTING PERFORMANCE OF CAST-IN-PLACE CONCRETE ARE SATISFACTORY. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN RESOLVED. COMMENCEMENT OF INSTALLATION SHALL CONSTITUTE ACCEPTANCE OF CONDITIONS.  
**3.02 INSTALLATION - GENERAL**  
A. INSTALL WORK MEETING REQUIREMENTS OF CONTRACT DOCUMENTS, AS INDICATED BY FINAL REVIEWED SUBMITTALS FOR WORK AND MEETING INSTRUCTIONS AND RECOMMENDATIONS OF PRODUCT MANUFACTURERS, CONSULT WITH MANUFACTURERS FOR CONDITIONS NOT COVERED BY PRINTED INSTRUCTIONS.  
**3.03 FORMWORK**  
A. GENERAL: CONTRACTOR IS RESPONSIBLE FOR DESIGN AND ENGINEERING OF FORMWORK AND FORMWORK CONSTRUCTION.  
B. DESIGN: MEET DESIGN CONSIDERATIONS AND ALLOWABLE STRESSES OF ACI 347-88, SECTION 2.3, AND REQUIREMENTS OF CODES AND REGULATIONS OF PUBLIC AUTHORITIES HAVING JURISDICTION OVER THE WORK.  
C. FABRICATION AND INSTALLATION:  
1. GENERAL: CONSTRUCT FORMS WITH NEAT, TIGHT FITTING JOINTS TO PREVENT LEAKAGE OF MORTAR FROM CONCRETE DURING CONCRETE PLACEMENT AND TO FORM TRUE, CLEAN, SMOOTH SURFACES, FREE FROM HONEYCOMB AND EXPOSED AGGREGATE AREAS.  
2. JOINTS: AT CONSTRUCTION JOINTS, DO NOT OVERLAP HARDENED CONCRETE IN PREVIOUS PLACEMENT WITH CONTACT SURFACE OF FORM SHEATHING FOR FLUSH SURFACES EXPOSED TO VIEW BY MORE THAN 1/4 INCH. HOLD FORMS AGAINST HARDENED CONCRETE TO PREVENT OFFSETS OR LOSS OF MORTAR AT CONSTRUCTION JOINT AND TO MAINTAIN A TRUE SURFACE  
D. TOLERANCES: PROVIDE FORMWORK TO PROVIDE CONCRETE SURFACES MEETING TOLERANCES OF ACI 347R-88, SECTION 3.3. FORM OFFSETS SHALL NOT EXCEED 1/2".  
**3.04 PLACING REINFORCEMENT**  
A. GENERAL: MEET REQUIREMENTS OF ACI 301, ACI 315 AND CRSI - MANUAL OF STANDARD PRACTICE.  
B. PLACING:  
1. EXCEPT AS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS, MEET REQUIREMENTS OF CRSI - PLACING REINFORCING BARS.  
2. MAKE SPLICES ONLY AS INDICATED ON DRAWINGS.  
3. DO NOT BEND REINFORCEMENT AFTER BEING PARTIALLY EMBEDDED IN HARDENED CONCRETE EXCEPT FOR FIELD-BENT DOWELS.  
**3.05 JOINTS AND EMBEDDED ITEMS**  
A. CONSTRUCTION JOINTS:  
1. THOROUGHLY CLEAN SURFACE OF CONCRETE AT JOINTS AND REMOVE LATA.  
2. EXCEPT AS OTHERWISE REQUIRED, KEYWAYS IN SLABS-ON-GROUND ARE NOT PERMITTED.  
3. BONDING: PROVIDE BONDED JOINTS AT EXISTING CONCRETE SURFACES THAT WILL BE JOINED WITH FRESH CONCRETE MEETING REQUIREMENTS OF ACI 301-96 USING EPOXY BONDING ADHESIVE.  
B. EXPANSION JOINTS: DO NOT EXTEND REINFORCEMENT OR OTHER EMBEDDED METAL ITEMS BONDED TO CONCRETE, EXCEPT DOWELS IN FLOORS BONDED ON ONLY ONE SIDE OF JOINTS, CONTINUOUSLY THROUGH ANY EXPANSION JOINT.  
C. EMBEDDED ITEMS:  
1. SLEEVES, INSERTS AND ANCHORS: MEET REQUIREMENTS OF CONTRACT DOCUMENTS AND INSTRUCTIONS OF APPLICABLE MANUFACTURERS FOR WORK WHICH SLEEVES, INSERTS, ANCHORS AND EMBEDDED ITEMS ARE REQUIRED.  
2. CONDUIT - SLABS-ON-GROUND: DO NOT EMBED CONDUIT IN CONCRETE FOR SLABS-ON-GROUND. CONDUIT SHALL BE PLACED UNDER SLAB.  
C. EMBEDDED ITEMS:  
1. SLEEVES, INSERTS AND ANCHORS: MEET REQUIREMENTS OF CONTRACT DOCUMENTS AND INSTRUCTIONS OF APPLICABLE MANUFACTURERS FOR WORK WHICH SLEEVES, INSERTS, ANCHORS AND EMBEDDED ITEMS ARE REQUIRED.

**3.06 CONCRETE PLACEMENT**

A. PREPARATION:  
1. REMOVE HARDENED CONCRETE AND FOREIGN MATERIALS FROM INNER SURFACE OF CONVEYING EQUIPMENT.  
2. VERIFY THAT FORMWORK HAS BEEN COMPLETED.  
3. VERIFY THAT ICE AND EXCESS WATER AND OTHER FOREIGN MATERIAL HAS BEEN REMOVED; REINFORCEMENT HAS BEEN SECURED IN PLACE AND CLEANED OF FOREIGN MATTER, SUCH AS FORM OIL AND TAGS REMOVED; EXPANSION JOINT MATERIAL, ANCHORS, AND OTHER EMBEDDED ITEMS PROPERLY POSITIONED; AND PREPARATION AND REINFORCEMENT HAS BEEN INSPECTED BY QUALITY CONTROL SERVICE AND IS ACCEPTABLE TO ARCHITECT.  
4. DO NOT PLACE CONCRETE ON FROZEN GROUND.  
B. CONVEYING:  
1. GENERAL:  
a. MEET REQUIREMENTS OF ACI 301 AND ACI 304.  
b. HANDLE CONCRETE FROM POINT OF DELIVERY AND TRANSFER OR MIXER TO LOCATION OF FINAL DEPOSIT AS RAPIDLY AS PRACTICABLE BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF INGREDIENTS AND TO ASSURE REQUIRED QUALITY OF CONCRETE IS OBTAINED.  
c. CONVEYING EQUIPMENT SHALL BE OF SIZE, DESIGN AND TYPE TO ENSURE CONTINUOUS FLOW OF CONCRETE AT DELIVERY.  
2. PUMPING: MAXIMUM LOSS OF SLUMP IN PUMPING OR PNEUMATIC CONVEYING EQUIPMENT SHALL BE 2 INCHES. DO NOT CONVEY CONCRETE THROUGH PIPE OR EQUIPMENT MADE OF ALUMINUM OR ALUMINUM ALLOY.  
C. DROPPING:  
1. MEET REQUIREMENTS OF ACI 304.  
2. AVOID METHODS FOR DEPOSITING CONCRETE CAUSING SEGREGATION AND SPLASHING OF CONCRETE AGAINST FORMS AND REINFORCEMENT. USE CHUTES, TREMIES OR OTHER EQUIPMENT NECESSARY TO PREVENT CONCRETE SEGREGATION.  
3. DEPOSIT CONCRETE CONTINUOUSLY OR IN LAYERS OF THICKNESS SO THAT NO CONCRETE WILL BE DEPOSITED ON CONCRETE WHICH HAS HARDENED SUFFICIENTLY TO CAUSE FORMATION OF SEAMS OR PLANES OF WEAKNESS WITHIN SECTION.  
4. IF SECTION CANNOT BE PLACED CONTINUOUSLY, LOCATE CONSTRUCTION JOINTS AS INDICATED ON DRAWINGS.  
5. REMOVE TEMPORARY SPREADERS IN FORMS WHEN CONCRETE PLACING HAS REACHED ELEVATION RENDERING SERVICE UNNECESSARY.  
6. MEET INSTRUCTIONS OF HIGH-RANGE ADMIXTURE MANUFACTURER FOR DEPOSITING OF CONCRETE.  
D. CONSOLIDATION:  
1. MEET REQUIREMENTS OF ACI 309.  
2. CONSOLIDATE CONCRETE BY VIBRATION, SPADING, RODDING OR FORKING SO THAT CONCRETE IS THOROUGHLY COMPACTED, WITHOUT REINFORCEMENT, AROUND EMBEDDED ITEMS AND INTO CORNER OF FORMS, ELIMINATING AIR OR STONE POCKETS WHICH MAY CAUSE HONEYCOMB, PITTING OR PLANES OF WEAKNESS.  
3. VIBRATORS AND VIBRATING OPERATIONS SHALL MEET REQUIREMENTS OF ACI 301.  
4. MEET INSTRUCTIONS OF ADMIXTURE MANUFACTURER WHEN CONSOLIDATING OR VIBRATING CONCRETE ENHANCED WITH HIGH-RANGE WATER-REDUCING ADMIXTURE.  
E. TEMPERATURE:  
1. COLD WEATHER:  
a. MEET REQUIREMENTS OF ACI 306R.  
2. HOT WEATHER:  
a. MEET REQUIREMENTS OF ACI 305R.  
**3.07 FINISH REQUIREMENTS OF ACI 305R**  
A. GENERAL: MEET REQUIREMENTS OF ACI 301-96, SECTION 5, AFTER REMOVAL OF FORMS AND REPAIR OF SURFACE DEFECTS, FIVE SURFACES OF CONCRETE SMOOTH FORM FINISH SPECIFIED.  
**3.08 CURING AND PROTECTION**  
A. GENERAL:  
1. MEET RECOMMENDATIONS OF ACI 308, EXCEPT AS OTHERWISE SPECIFIED IN THIS SECTION.  
2. PROTECT FRESHLY DEPOSITED CONCRETE FROM PREMATURE DRYING, HOT OR COLD TEMPERATURES, PRECIPITATION AND MECHANICAL INJURY.  
3. MAINTAIN WITHOUT DRYING AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD OF TIME NECESSARY FOR HYDRATION OF CEMENT AND PROPER HARDENING OF CONCRETE.  
4. CONCRETE SHALL NOT BE WETTED AND DRY AND WETTED.  
B. EVAPORATION RETARDER:  
1. PROTECT CONCRETE EXPOSED OR SUBJECT TO RAPID MOISTURE EVAPORATION FROM AMBIENT DRY CONDITIONS IMMEDIATELY FOLLOWING SCHEDDING OPERATION AND BETWEEN FINISHING OPERATIONS AS APPLICABLE. DO NOT APPLY TO CONCRETE SURFACES AFTER FINAL FINISHING WHEN CURING OPERATION STARTS. DO NOT USE AS A CURING COMPOUND.  
2. APPLY EVAPORATION RETARDER, IN DILUTED SOLUTION FORM, UNIFORMLY OVER ENTIRE SURFACE OF CONCRETE IN A TWO COAT CONTINUOUS OPERATION BY SPRAY EQUIPMENT. MEET INSTRUCTIONS OF MANUFACTURER. PROTECT HARDENED CONCRETE AND OTHER SURFACES FROM RETARDER.  
C. CURING:  
1. FORMED SURFACES: FOR CONCRETE PLACED AGAINST FORMS, PREVENT MOISTURE LOSS AS FOLLOWS AS MINIMUM:  
a. MAINTAIN STEEL FORMS HEATED BY SUN DURING CURING PERIOD WET.  
b. MAINTAIN WOOD FORMS IN CONTACT WITH CONCRETE DURING CURING PERIOD WET.  
c. IF FORMS ARE TO BE REMOVED DURING CURING PERIOD, IMMEDIATELY PROVIDE CURING MATERIALS OR METHODS MEETING APPLICABLE REQUIREMENTS OF THIS PARAGRAPH AS ACCEPTABLE TO ARCHITECT.  
2. UNFORMED SURFACES - GENERAL: FOR CONCRETE NOT IN CONTACT WITH FORMS, PREVENT MOISTURE LOSS USING ONE OF FOLLOWING PROCEDURES, EXCEPT AS OTHERWISE REQUIRED:  
a. WATER CURING: WATER SHALL MEET REQUIREMENTS OF THIS SECTION.  
1) MOISTURE RETAINING COVER, OR ABSORPTIVE MAT OR FABRIC:  
3. STARTING: BEGIN CURING WITHIN 30 MINUTES MAXIMUM AFTER FINAL FINISHING OPERATION, EXCEPT AS OTHERWISE REQUIRED.  
4. DURATION:  
a. CURING SHALL CONTINUE UNTIL CUMULATIVE NUMBER OF CONSECUTIVE DAYS, DURING WHICH CURING METHOD OF AIR IN CONTACT WITH CONCRETE IS ABOVE 90 F, HAS TOTALLED 7 DAYS.  
b. AVOID RAPID DRYING AT END OF CURING PERIOD. RAPID DRYING AT END OF CURING PERIOD SHALL NOT INTERFERE WITH SUBSEQUENT FINISHES OR FLOOR COVERINGS.  
D. TEMPERATURE:  
1. COLD WEATHER:  
a. MEET REQUIREMENTS OF ACI 306R-88.  
2. HOT WEATHER:  
a. MEET REQUIREMENTS OF ACI 305R-89.  
3. TEMPERATURE CHANGES: MAINTAIN CONCRETE AT UNIFORM TEMPERATURE ABOVE 50 F DURING CURING PERIOD. CHANGES IN TEMPERATURE OF CONCRETE SHALL BE AS UNIFORM AS POSSIBLE AND SHALL NOT EXCEED 5 F IN ANY 1 HOUR OR 5 F IN ANY 24 HOUR PERIOD.  
E. PROTECTION:  
1. DURING CURING PERIOD, PROTECT FRESHLY PLACED CONCRETE FROM:  
a. RAIN, FLOWING WATER, HAIL, SLEET AND OTHER LIKE WEATHER.  
b. MECHANICAL DISTURBANCES, SUCH AS LOAD STRESS, HEAVY SHOCK OR EXCESSIVE VIBRATION.  
c. DAMAGE BY CONSTRUCTION EQUIPMENT, MATERIALS AND SUBSEQUENT CONSTRUCTION OPERATIONS.  
2. DO NOT LOAD SELF-SUPPORTING STRUCTURES AS TO OVERSTRESS CONCRETE.

ALL DIMENSIONS SHOWN TO BE FIELD VERIFIED U.N.O.



Chicago  
New York  
Buckharest  
Warsaw

Chicago  
600 W. Fulton Street  
Chicago, IL 60661-1259  
312.454.9100

www.epsteinnglobal.com

PROJECT NUMBER: 16303  
PROJECT MANAGER: DS  
ARCH/ENG: JH  
SCALE: 3/32" = 1'-0"  
DRAWN BY: JP  
CHECKED BY: JC

OUTLINE SPECIFICATIONS

La Quinta Inns & Suites

JASON P. CHANDLER  
No. 3962  
5/15/19

G-011

©2016 A. Epstein and Sons International, Inc. All rights reserved.

02/07/19 EPC/SJH