

**DIVISION 1
GENERAL REQUIREMENTS**

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 01010

SPECIAL PROJECT CONDITIONS

Conditions of the Contract are hereby made a part of this Section.

PART 1 - GENERAL

1.01 SUPERINTENDENT

- A. The Contractor shall keep on the project at all times during all construction operations, a competent superintendent, who will be responsible for the coordination of all subcontractors, and quality control of the project.
- B. The Superintendent shall be approved by the Architect and the Owner at the commencement of the work. The Contractor will not be allowed to change the Superintendent without approval of the Architect and Owner.

1.02 PROTECTION OF BUILDING

- A. Each Subcontractor shall be responsible for protection of his own materials and equipment.

1.03 BUILDING LINES AND ELEVATIONS

- A. The Contractor shall retain a licensed Surveyor to establish locations of all building corners and lines, bench marks, pad elevations, and grades.
- B. The pad elevation shall be certified by a licensed surveyor prior to the issuance of a Building Permit. The pad certification shall be obtained thru the City of Indio.

1.04 TESTS AND INSPECTIONS

- A. If the provisions of the Contract or regulations prescribed by any legally constituted public authorities having jurisdiction, require that any of the work of Subcontractors, or any material therefor, whether complete or incomplete, be tested and/or inspected, then the Owner shall have said tests and/or inspections made, and will pay all testing laboratory costs in connection therewith, as hereinafter specified.
- B. The Contractor shall be responsible for the ordering of all required testing and the coordination of all such tests with the testing laboratory.

1.05 TESTING LABORATORY

- A. The testing laboratory shall be selected by the Architect and approved by the Owner. The Owner shall pay for all testing costs except as described in the following paragraphs.
- B. The testing laboratory shall report the results of all tests, in writing, simultaneously to Owner, Architect, Structural Engineer, and City Building Department. The Owner will not pay testing laboratory costs for tests or inspections required because of deficiencies in material or work. Tests and/or inspections may be required in order to determine whether or not there is a deficiency. Should the tests and/or inspections indicate a deficiency, these tests and/or inspections shall be paid for by the Contractor responsible for the deficiency.
- C. Upon completion of all tests and/or inspections, the testing laboratory shall furnish the Owner with a certified report, signed by a Notary Public, stating, in addition to the results, that the tests/inspections were made under the supervision of a Testing Engineer/Inspector, holding a California license in Civil Engineering, and that all tests/inspections were made in accordance with the provisions of these specifications and Drawings.

1.06 ORDERING EQUIPMENT AND MATERIALS

- A. Upon award of the contract all Subcontractors shall immediately order all equipment and materials required, in ample quantities and for delivery at proper times to permit uninterrupted progress of the work.
- B. If at the time of ordering, it is determined that a shortage exists in any item, the Architect and Owner shall be immediately notified, in writing.

1.07 MANUFACTURERS' DIRECTIONS

- A. All manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned, as directed by the manufacturer unless herein specified to the contrary.
- B. Two (2) copies of manufacturers' instructions shall accompany all deliveries to the job.

1.08 TOILET FACILITIES FOR WORKMEN (SEE SECTION 01500 - TEMPORARY FACILITIES)

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

1.09 FINAL APPROVAL AND ACCEPTANCE

- A. For final approval and acceptance, the building shall be complete and ready for occupancy, with all connections to utilities in place, all equipment installed in operating condition, and "Record Drawings" delivered to the Architect. See Section 01700 - Project Closeout.

1.10 MATERIALS AND WORKMANSHIP GUARANTEES

- A. All portions of the work shall be guaranteed against defects in workmanship and materials for a period of one (1) year from date of acceptance of the structure, unless a longer guarantee is specifically called for herein.
- B. Neither the final payment, nor occupancy by the Owner, nor Notice of Completion, shall be considered to relieve the Contractor of his responsibility for any materials or workmanship found to be defective, and he shall remedy any such defects and pay for damage to other work resulting from such defects, which may appear within a period of one (1) year after the date on which Notice of Completion has been filed.
- C. The Owner shall report to the Contractor, through the Architect, any such defects found, and the Contractor shall make all repairs with reasonable promptness.

1.11 DRAWINGS AND SPECIFICATIONS

- A. Drawings which form a part of the Contract Documents and which accompany these Specifications are listed in the "Index to Drawings" on the Drawings.
- B. Specifications which form a part of the Contract Documents consist of Sections as listed in the "Table of Contents" in the forepart of these Specifications.
- C. Division of the Specifications: For convenience, these Specifications are arranged in several trade sections, but such separation shall not be considered as the limits of the work required by any sub-contractor or trade. The terms and conditions of such limitations are wholly between the Owner and the Contractor.
- D. Addenda to Specifications: Instructions issued by the Architect covering changes in, or special interpretations of, Drawings or Specifications, during the Bidding Process, will be incorporated in the Contract Documents by means of Addenda before executing a Contract. The Contractor shall assure himself that changes and interpretations covered by such instructions have been correctly listed and described in the related Addenda.

1.12 CODES AND REGULATIONS

- A. General: The Contractor shall comply with all laws, ordinances, regulations and building code requirements governing the particular work, including, but not limited to those of:
1. The Building Ordinances of the County of Riverside including the latest Edition of the California Building Code as adopted by that agency.
 2. Industrial Safety of the State of California.
 3. The California Electrical Code, latest edition.
 4. The California Plumbing Code, latest edition.
 5. California Mechanical Code, latest edition.
 6. The Rules and Regulations of the Board of Underwriters of the Pacific.
 7. Federal Standards of the Department of Labor, Occupational Safety & Health Administration and all applicable State, County & City codes, ordinances, and regulations having jurisdiction thereof.
- B. Amendments: The above documents, latest editions as amended to date, are hereby made an integral part of these Specifications insofar as they apply to this work.

1.13 SHOP DRAWINGS AND SUBMITTALS (See Section 01340)

- A. Each Subcontractor shall submit for the review of the Architect, Shop Drawings and/or Submittals required by the Specifications, or that which may be required by the Architect, and no work shall be fabricated by the Contractor, except at his own risk, until such review has been made.
1. Five (5) copies of Submittals and Shop Drawings shall be submitted to the Architect for review.
 2. Each Submittal and/or Shop Drawing shall be accompanied by a letter of transmittal which shall give a list of numbers and dates of the Drawings/ Submittals submitted. The General Contractor shall be responsible for accurately reviewing all Submittals and/or Shop Drawings prior to transmitting them to the Architect. Each Shop Drawing or Submittal shall bear the stamp of the contractor indicating he has reviewed them and verified their completeness and accuracy. The Contractor shall be responsible for verifying all measurements. Shop Drawings and/or Submittals which do not contain the Contractors stamp shall be returned

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

without the Architect's review, and the Architect shall not be responsible for any construction delays due to this.

- B. Shop Drawings and/or Submittals shall be complete in every respect and bound in sets. The Shop Drawings and/or Submittals submitted shall be marked with the name of project and numbered consecutively.
1. Variations: If the Shop Drawings or submittals show variations, changes or substitutions from the requirements of the Construction Documents because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations, in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment, otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Construction Documents, even though such Shop Drawings have been reviewed.
 2. Departures: If the Shop Drawings or Submittals as submitted indicate a departure from the Construction Document requirements which the Architect finds to be in the interest of the Owner, and/or be so minor as not to involve a change in the Contract price or time for performance, he may accept the Shop Drawings and/or Submittals.
 3. Review of Shop Drawings and/or Submittals will be general and except as otherwise provided above, shall not be construed: 1) as permitting any departure from the Construction Documents requirements; 2) as relieving the Contractor of the responsibility of any error in details, dimensions or otherwise that may exist on the Shop Drawings and/or Submittals; 3) as exist on the Shop Drawings and/or Submittals; 4) as approving departures from additional details or instructions previously furnished by the Architect.

1.14 DUST PALLIATION

- A. Throughout the entire Construction period, effectively dust-palliate working area, and involved portions of site with such frequency as will satisfactorily alay dust during hours that work is being performed and protect, as necessary, adjacent existing work and structures from dust, etc. Comply with requirements of the City of Indio and County of Riverside PM10 regulations and SCAQMD.
- B. The Contractor shall be responsible for payment of any fines levied against the Owner for failure to meet the required regulations of PM10.

1.15 PUMPING AND DRAINAGE

- A. Surface, subsurface, or any other fluid shall not be permitted to accumulate in excavations, nor under structures. Should such conditions develop or be encountered, water or other fluids shall be controlled and suitably disposed of by

means of temporary pumps, piping, drainage lines and ditches, dams, or other means as found acceptable by Architect.

1.16 MANUFACTURED ITEMS

- A. Manufactured items installed on this project, but not specifically covered in these specifications or on the Drawings, are to be installed in strict accordance with the manufacturer's printed instructions.

1.17 SCAFFOLDING

- A. Scaffolding shall be the responsibility of each trade requiring same. Scaffolding shall be as approved by the State of California Safety Orders and CAL-OSHA.

1.18 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

- A. During Bidding Process: See Document 00440 - Substitutions prior to Bidding.
- B. After execution of Contract: See Section 01640 - Substitutions and Product Options after Execution of Contract.

1.19 RECORD DRAWINGS

- A. Subcontractors for Plumbing, Electrical, HVAC and Landscape Irrigation work, shall provide and keep up to date, a complete set of "Record Drawings" consisting of "pink" bond prints. These "pink" prints shall show every change from the approved Drawings and Specifications showing location, size and kind of every valve, fixture and run of pipe, wire and conduit. Prints for this purpose may be obtained from the Architect at the Contractor's cost. The job set of these Drawings shall be available for review on the job and be used only as a record set. On completion of this work, same shall be turned over to the Architect for review, before being given to the Owner.

1.20 REQUEST FOR INFORMATION

- A. All questions raised by the General Contractor and/or subcontractor during the construction period will be written on the Request For Information (RFI) form. A copy for use on this job is enclosed at the end of this section, and should be duplicated for use by the Contractor.
- B. All questions are to be described in as much detail as possible, referencing the drawings and/or specifications. In order to expedite responses, make sure questions are printed, typed, or written in legible fashion. In order to establish priorities, the Contractor is to indicate on the form, a "respond by" date. Do not use "ASAP". The Architect shall make every effort to respond to all RFI's in a timely fashion, however, only those that indicate a "respond by" date will have priority.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- C. RFI's can be sent to the Architect by fax or by e-mail. Either way the form enclosed shall be used.

END OF SECTION

REQUEST FOR INFORMATION

TO: **URRUTIA ARCHITECTS**
165 Luring Drive
Palm Springs, CA 92262
(760) 327-6800
(760) 327-6813 FAX
frank@urrutiaarchitects.com

RFI #: _____
DATE: _____
RESPOND BY: _____

ATTENTION: Francisco J. Urrutia, AIA/FARA

PROJECT: _____

PROJECT NO: _____

LOCATION: _____

SUBJECT: _____

SPEC. SECTION: _____

DRAWING: _____

REQUEST: _____

PREPARED BY: _____

REVIEWED BY: _____

RESPONSE: Should there be any cost and/ or time changes noted above, Contractor shall submit specific amounts to Architect prior to proceeding with any changes. Proceeding with the changes without the submittal of costs will be at the Contractor's own risk.

BY: _____

DATE: _____

SECTION 01042

COORDINATION DRAWINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General

1. Furnish all labor, materials, tools, equipment and services for all coordination drawings as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Coordination drawings: Overlay drawings showing all work in and above ceilings and in mechanical rooms with horizontal and vertical dimensions, to avoid interference with structural framing, ceilings, partitions and other services.

C. Prior to start of work in any given area, each Subcontractor shall approve, in writing, all coordination drawings affecting his work in that area.

D. Any relocations required as result of failure to resolve interferences, provide correct coordination drawings, or call attention to changes required in other work that result of modifications to Contract shall be paid for by responsible Subcontractor.

E. Coordination meetings shall be scheduled by General Contractor.

1.02 PRODUCTION OF COORDINATION DRAWINGS

A. General Contractor shall provide background drawings, showing partitions, ceiling heights, and structural framing locations and elevations, and existing obstructions. Drawing copies may be obtained from Architect.

B. Resolve major interferences at initial coordination meeting prior to production of any drawings.

C. Produce all initial coordination drawings within 15 days after initial meeting.

- D. Meet as required to resolve interferences and correct coordination drawings.

1.03 AFTER APPROVAL

- A. After Subcontractors' written approval of coordination drawings, method used to resolve interferences not previously identified shall be determined by General Contractor.
- B. All changes to approved coordination drawings shall be approved in writing by General Contractor prior to start of work in affected area.

1.04 PRECEDENCE OF SERVICES

- A. In event of conflicts involving location and layout of the work following priority will be used to resolve disputes. Structure has highest priority:
 - 1. Structure.
 - 2. Ceiling grid/tile/light fixtures.
 - 3. Gravity drainage lines.
 - 4. Large pipe mains/pneumatic conveyer.
 - 5. Pneumatic tube.
 - 6. Ductwork/diffusers, registers and grilles.
 - 7. Sprinkler heads.
 - 8. Small piping and tubing/electrical conduit.
 - 9. Access panels.

1.05 SUBMITTALS (SECTION 01340)

- A. Project data:
 - 1. Five copies of contractor - approved drawings to Architect for review and comment, prior to start of work.
 - 2. Architect and his Consultants shall review and provide comments on submittals.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 01045

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment and services for all cutting and patching as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for additional General Requirements.

1.02 DESCRIPTION

- A. Install work in such a manner and sequence as to preclude or minimize cutting and patching of new work.
- B. Execute cutting (including excavation) fitting or patching of work, required to:
1. Make several parts fit properly.
 2. Uncover work to provide for installation of ill-timed work
 3. Remove and replace defective work.
 4. Remove and replace non-conforming work.
 5. Remove samples of installed work for testing.
 6. Install specified work in existing construction.
- C. In addition to contract requirements, upon written instructions of Architect, of OSHPD/DSA project inspector:

1. Uncover work to provide for Architect's and OSHPD/DSA project inspector's observation of covered work in accord with Contract Documents.
 2. Remove samples of installed materials for testing in accord with Contract Document.
 3. Remove work to provide for alteration of work in place.
- D. Do not endanger any work or any work of other contractors, by cutting, excavating, or otherwise altering any work except with written consent of Architect and OSHPD/DSA inspector.
- E. Unless indicated on drawings, do not cut into or cut away any structural concrete or other structural members, nor dig under any foundation or into walls or other parts, or in any case allow same to be done without full knowledge and written consent of Architect and OSHPD/DSA project inspector. Contractor shall be responsible for damage resulting from violation of these provisions.
- F. Use only firms or individual trades qualified to perform work required under this section.

1.03 JOB CONDITIONS

- A. Perform preliminary investigations as required to ascertain extent of work. Conditions which would be apparent by such investigation will not be allowed as cause for claims for extra costs.
- B. Before start of work, obtain and pay for all permits required by all authorities having jurisdiction and notify all interested utility companies.
- C. Obtain approval of authorities having jurisdiction for work which affects existing exitways, exit stairs, means of egress, or access to, or exit from, areas.
1. Review with and obtain approval of authorities for any temporary construction which affects such areas.
 2. Obtain approval of fire authorities.

1.04 PAYMENT FOR COSTS

- A. Payment of costs caused by ill-timed or defective work, or work not conforming to Contract Documents, shall be by contractor responsible for ill-timed, rejected or non-conforming work.

PART 2 PRODUCTS

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

2.01 MATERIALS

- A. For patching of work provide matching items. Where applicable, comply with specifications for type of work to be done.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of work, including elements subject to movement or damage during:
 - 1. Cutting and patching.
 - 2. Excavating and backfilling.
- B. After uncovering work, inspect conditions affecting installation of new products.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of project.
- B. Provide protection for other portions of project which may be affected.
- C. Provide protection from elements when required.

3.03 CUTTING AND REMOVAL - GENERAL

- A. Execute fitting and adjustment to provide finished installation to comply with specified tolerances and finishes.
- B. Execute cutting by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs to new work.
- C. Perform backfilling as specified in applicable sections.
- D. Neatly cut and remove materials, and prepare all openings to receive new work.
- E. Remove masonry or concrete in small sections.
- F. Provide shoring, bracing, and other supports to prevent movement, settlement or collapse of remaining or adjacent wall areas, structure, or facilities. Arrange shoring, bracing, and supports to prevent overloading of structure.

- G. Take all precautions necessary to prevent damage to existing remaining work or to adjacent facilities. Execute work using methods which will prevent interference with use of remaining and adjacent facilities by Owner.
- H. Remove existing work indicated to be removed, or as necessary for installation of new work.

3.04 CUTTING IN CONCRETE CONSTRUCTION

- A. Do not cut into nor core drill any beams, joists and/or columns.
- B. Do not install sleeves in beams, joists and columns without prior written approval of Architect. When written approval is obtained, comply with additional requirements and instructions of Architect.
- C. Where an opening larger than 10 in. in any dimension is required and is not shown on architectural or structural drawings, obtain prior written approval of Architect.
 - 1. When written approval is obtained, comply with additional requirements and instructions of Architect and OSHPD/DSA project inspector.
 - 2. At no additional cost to Owner, arrange for, provide, and pay for any additional reinforcing required around such openings.

3.05 CUTTING IN STEEL FRAME AND METAL DECK CONSTRUCTION

- A. Unless shown on drawings, do not cut or drill holes in webs and flanges of columns, beams, purlins, and joists without prior written approval of Architect and OSHPD/DSA. When such approval is obtained, comply with requirements and instructions of Architect and OSHPD/DSA and provide reinforcing at such locations when required.
- B. When openings are cut into metal decks having cast-in-place concrete slab over the metal deck:
 - 1. No reinforcing of holes is required for circular openings or sleeves up to 6" diameter and for rectangular openings having no side dimension greater than 6".
 - 2. Reinforce openings greater than 6". Obtain prior written approval of Architect and OSHPD/DSA for openings not shown on architectural or structural drawings. Comply with additional requirements and instructions of Architects and OSHPD/DSA.
- C. When openings are cut into metal roof decks that have no concrete cast-in-place (except lightweight insulating cementitious roof fill) over the deck:

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

1. No reinforcing of holes is required for circular openings less than 6" diameter and for rectangular openings having no side dimension greater than 6".
2. Reinforced openings between 6" and 12", with 20 gauge flat steel sheet 12" greater in dimension than opening; fusion weld to top surface of deck at each corner and on each side midway between corners.
3. Do not cut openings greater than 12" without prior written approval of Architect and OSHPD/DSA. Comply with requirements and instruction of Architect and OSHPD/DSA.

3.06 CUTTING AND PATCHING IN EXISTING WORK

- A. Conform to all general cutting and patching requirements specified herein.
- B. Where items are removed from existing walls, ceilings, floors or partitions to remain-repair wall, ceiling, floor or partition disturbed by removal.
- C. Where walls, ceilings, floors or partitions are removed - repair abutting walls, ceilings or floors disturbed by removal.
- D. Where existing construction is cut or otherwise disturbed to permit installation of new work - match and patch existing disturbed construction.

3.07 MATCHING AND PATCHING

- A. Use methods and materials similar in appearance, and equal in quality to areas or surfaces being repaired.
- B. Methods, materials, and finished work are subject to review of Architect.
- C. Remove and replace areas, surfaces or items which cannot be satisfactorily matched and patched.
- D. Restore work which has been cut or removed; install new products to provide completed work in accord with requirements of Contract Documents. Patch work shall in every way possible match existing work and/or adjacent surfaces.
- E. Refinish entire surfaces as necessary to provide an even finish.
 1. Continuous surfaces; to nearest intersections.
 2. Assembly - entire refinishing.

3.07 CLEAN UP

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- A. Remove all debris, rubbish, and materials resulting from cutting, demolition or patching operations.
- B. Transport materials and legally dispose of off site.

END OF SECTION

SECTION 01152

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. General

1. Furnish all labor, materials, tools, equipment and services for applications for payment as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See General Conditions and Supplementary Conditions for additional general requirements.

1.02 SUBMITTALS

A. Project data

1. Submittals: Prior to first application for payment.
 - a. Schedule of Values.
 - b. Application for Payment.
2. Submittals: Monthly.
 - a. Application for Payment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL

- A. On or before first day of each month, General Contractor shall submit to Architect, for transmittal to Owner, itemized Application for Payment for work

completed during current calendar month, with estimate of cost of work to be completed next calendar month.

- B. Provide supporting data substantiating General Contractor's right to payment as Owner may require.
- C. Submit Applications for Payment on AIA Documents G702, Application and Certificate for Payment, and G703, Continuation Sheet, 1983 Edition. A copy of the form may be obtained from the Architect.
 - 1. Furnish in triplicate.
 - 2. Signed by duly authorized agent of General Contractor.
 - 3. Application for Payment shall show entire value of work installed, materials and equipment suitably stored at site, and materials and equipment suitably stored off site in insured or bonded warehouse, when approved in advance by Owner.
 - 4. Itemize Applications for Payment:
 - a. Work in place to date.
 - b. Materials and equipment stored on site.
 - c. Total amount due to date.
 - d. Retention amount of 10% deducted.
 - e. Amount of previous application.
 - f. Amount due for this period.
 - 5. Provide signed "Conditional Lien Release" for each itemized amount requested for payment. The "Conditional Lien Release" shall be for the amount requested.
- D. Along with first Application for Payment, Contractor shall obtain and submit, in triplicate, Consent of Surety to Reduction in or Partial Release of Retainage, AIA G707A, 1971 edition. (see enclosed).

3.02 SCHEDULE OF VALUES

- A. Subdivide the Schedule of Values items into defined areas of the building; the value of said subdivisions shall be mutually agreeable by the General Contractor, the Owner and Architect.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- B. Bond cost, when a part of contract amount, will be paid with 1st payment. Overhead and profit shall be distributed into each Schedule of Values item in proportion to the value of said item to the total value of the contract.
- C. Where the Schedule of Values items are separated into a Labor Amount and a Material Amount, payments shall be made for materials delivered and suitably stored. Where the Schedule of Values item is not separated into a Labor Amount and a Material Amount, payments shall be made for materials upon installation. The Labor Amount shall include all estimated on-site installation costs (including labor, applicable taxes, insurance, fringe benefits, erection equipment, tools, and overhead/profit). The Material Amount shall include all estimated material and manufactured equipment costs (including delivery costs, taxes, insurance and overhead/profit.).

3.04 PROGRESS PAYMENTS

- A. Owner will, within 15 days after receipt of Application for Payment, either make payment to General Contractor, for such amount Owner determines is properly due, or notify General Contractor of reasons for withholding payment.

3.05 FINAL COMPLETION AND FINAL PAYMENT

- A. Final payment constituting entire unpaid balance of Contract amount will be paid by Owner to General Contractor in accordance with General
Conditons.

END OF DOCUMENT

SECTION 01155

PAYMENT FOR DELIVERED MATERIALS AND EQUIPMENT

PART 1 - GENERAL - NOT USED

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PAYMENT FOR DELIVERED MATERIALS AND EQUIPMENT

- A. Owner may make payments to General Contractor for materials and equipment ready, but not yet incorporated in the Work, delivered and suitably stored at site or another location approved in writing by Owner.
 - 1. For purpose of above paragraph, "materials and equipment" eligible for payment are defined as finished goods made specifically for subject job and requiring extensive time to be manufactured or obtained. Raw materials or work-in-progress at manufacturer's plant are not eligible for payment. Items such as tubing, conduit, pipe, drywall, etc., and items which are readily available for purchase will not be considered eligible.
- B. Payment by Owner for such materials and equipment not yet incorporated in the Work will be made provided the following is accomplished:
 - 1. Items must be listed separately on Application for Payment.
 - 2. Provide receipted invoices as evidence that General Contractor is unconditional owner of equipment or material with Application for Payment.
 - 3. Execute transfer of title, attached, with each request.
 - 4. Describe method used to store off-site items.
 - 5. Identify items in storage as property of Owner, and furnish description of identification method.
 - 6. Provide written inventory, including General Contractor certification that all quantities have been received in good condition.
 - 7. Owner must approve location of off-site storage, in writing.
 - 8. Secure proof of insurance in Owner's name, at no additional cost to Owner.

9. Satisfactory proof of adequate transportation of items to site.
- C. Owner retains right to verify storage by physical inspection prior to invoice approval and at any item thereafter. Such payment does not relieve responsibility for protecting, safeguarding, transporting and proper installation of equipment or materials. Warranty and guarantee period does not commence until installation and substantial completion of work.
- D. Payment will be treated same as "work-in-place" with payment due upon evidence of delivery to job site (or other location acceptable to Owner except that these payments will not be included in value of work in place for payment of labor and mark-up. Each subsequent invoice will restate prior month's materials and equipment not incorporated in the work and current month addition and deletions for materials and equipment incorporated into the Work.
- E. Upon making of partial payments by Owner, all materials and equipment covered thereby becomes sole property of Owner. Partial payments, however, does not constitute acceptance of work by Owner, nor are they to be construed as waiver of any right or claim by Owner.

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

TRANSFER OF TITLE

_____ Date

KNOW ALL MEN BY THESE PRESENTS, THAT _____
(General Contractor)

in consideration of _____

paid by _____, the receipt of which is hereby acknowledged,
does hereby grant, sell, transfer and deliver unto _____ the
following goods and chattels, namely:

(Description of Material)

being materials manufactured especially for Riverside County Volunteers in Medicine Clinic
under construction at 82-915 Avenue 48, Indio, CA.

TO HAVE AND TO HOLD all and singular the said goods and chattels to the said Riverside
County, its successors and assigns to their own use, forever.

AND we hereby covenant with the grantee that we are the lawful owner of said goods and
chattels; that they are free from all encumbrances, security agreements, mortgages, or other
liens; that we will warrant and defend same against claims and demands of all persons.

WE ALSO AGREE that Riverside County shall have access to said goods at any time and that
goods are covered by Certificate of Insurance attached hereto.

IN WITNESS hereof we, the said _____ have
executed _____
(General Contractor)
this instrument this _____ day of _____ in the year one thousand nine
hundred and _____.

Signed in the presence of:

(Firm Name)

(Firm Name)

(General Contractor)

(Subcontractor or Supplier)

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Immediately after Contract award, prepare and submit progress schedule of work consistent with Contract Documents as herein specified.
- B. Coordinate Subcontractors schedules for entire project.
 - 1. Resolve conflicts among schedules of Subcontractors.
 - 2. Revise as required by conditions and progress of work.
 - 3. Furnish copy of schedule for entire project to each Subcontractor.

1.02 SUBMITTALS (SEE SECTION 01340)

- A. Initial construction schedule to Owner and Architect prior to start of work, but not later than date set for preconstruction conference.
- B. Updated schedules accurately depicting progress to last day of each month accompanied with each Application for Payment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 FORM OF SCHEDULES

- A. Prepare in form of horizontal bar chart.
 - 1. Provide separate horizontal bar column of each operation.
 - 2. Order: Table of contents from Project Manual or Chronological order of beginning and completion of each item of work, whichever is most applicable.
 - 3. Identify each column:
 - a. By major specification section number.

- b. By distinct graphic delineation.
- 4. Horizontal time scale: Identify first week day of each week.
- 5. Scale and spacing: To allow space for updating.
- B. Sheet size: Maximum 11" x 17".

3.02 CONTENTS OF SCHEDULES

- A. Provide complete sequence of construction by activity.
 - 1. Shop drawings, product data and samples:
 - a. Submittal dates.
 - b. Dates reviewed copies will be required.
 - 2. Decision dates for:
 - a. Products specified by allowances.
 - b. Selection of finishes.
 - 3. Product procurement and delivery dates.
 - 4. Dates for beginning, and completion of each element of construction.
- B. Identify work of separate floors, or separate phases, or other logically grouped activities.
- C. Show projected percentage of completion for each item of work as of last day of every month.
- D. Provide separate subschedule showing submittals, review times, procurement schedules, and delivery dates.
- E. Provide subschedule to define critical portions of entire schedule.

3.03 UPDATING

- A. Show all changes occurring since previous submission of updated schedules.
- B. Indicate progress of each activity, show completion dates.
- C. Include:

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

1. Major changes in scope.
 2. Activities modified since previous updating.
 3. Review projections due to changes.
- D. Provide narrative report including:
1. Discussion of problem areas including current and anticipated delay factors and their impact.
 2. Corrective action taken or proposed and its effect.
 3. Effect of change in schedule of subcontractors.
 4. Description of revisions.
 - a. Effect on schedule due to change of scope.
 - b. Revisions in duration of activities.
 - c. Other changes that may affect schedule.

3.04 DISTRIBUTION

- A. Distribute copies of revised schedules to:
1. Owner.
 2. Architect.
 3. Subcontractors.
 4. Job site file.
 5. On site OSHPD/DSA job inspector.
 6. Other concerned parties.
- B. Instruct recipients to report any inability to comply and provide detailed explanation, with suggested remedies.

END OF SECTION

SECTION 01320

PROGRESS REPORTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Project Data:
 - 1. Progress Report.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL

- A. Each subcontractor shall prepare a comprehensive daily log and maintain it during entire project period.
- B. Each subcontractor shall present a copy of the daily log to General Contractor for compilation into weekly Progress Reports.
- C. General Contractor shall present copies of Progress Reports with Application for Payment.
- D. Progress reports to include the following data for each day of entire project period.
 - 1. Manpower, by trade.
 - 2. Work being performed, with location.
 - 3. Weather.
 - 4. Situations or circumstances which could delay work or give cause for claims for extension of time or added cost.
 - 5. List of visitor's names, to include officials, Owner's representatives, and other authorities. Record their observations.
 - 6. Other information as required by OSHPD/OSA project inspector.
- E. Progress reports to include progress photographs.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

1. Minimum 12, 3" x 5" color, glossy photographs taken from different viewpoints of interest to current progress.
2. Identify all photographs with project name, date, and view or vantage point.
3. Adhere photographs to clear slip sheets, or white bond paper and presented in three-ring binder to Architect.

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND PROJECT DATA

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for furnishing, processing, delivery, reproduction and other functions for scheduling and handling of shop drawings, product data, samples and project data as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. See General Conditions for additional requirements.

C. See technical sections for data required.

1.02 DEFINITIONS

- A. "Base" manufacturer: Manufacturer listed as manufacturer in Part 2 "Products", of specification section, unless specifically indicated as "optional" manufacturer. More than one manufacturer can be "base" manufacturer. Base manufacturer(s) are either: The particular manufacturer the project was designed around or a manufacturer of an identical product. It does not include manufacturers listed as "optional manufacturers" in Part 2 of specification section.

1.03 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND PROJECT DATA GENERAL

- A. Submit all items to General Contractor for transmittal to:

Urrutia Architects
165 Luring Drive
Palm Springs, CA 92262
Attn: Francisco J. Urrutia, AIA/FARA

- B. Contractor is responsible for making all submissions.

1. Submit to address indicated.
 2. Transmit all items with Urrutia Architects transmittal form (see enclosed).
 3. Identify each transmittal using applicable 5 digit specification section number with a dash and an added number, i.e., metal handrails might be numbered 05500 -1 . If returned for re-submission, second submission would be 05500-1A.
- C. Provide all information required for complete review of each item in one submittal.
- D. Make submittals sufficiently in advance of date required to allow Architect reasonable time for review and re-submission if necessary.
1. Items not submitted in accord with provisions of this section will be returned, without action, for re-submission.
 2. Submissions on items not approved for use by specifications, addenda, or change order will be rejected.

1.04 SHOP DRAWINGS AND PRODUCT DATA SUBMITTALS

- A. Shop drawings and product data submittals are required as called for by submittal paragraph of specification section.
- B. Identify drawings with manufacturer, item, use, type, project designation, specification section or drawing detail reference.
- C. Submit (5) five white bond copies of each shop drawing until review is complete.
1. Submit in mailing tube.
 2. Do not fold.
 3. Submit drawings not larger than 24" x 36".
 4. Allow clear space, approximately 40 sq. inches, for stamping on right hand side.
- D. Submit (5) five copies of standard items such as equipment brochures, cuts of fixtures, or standard catalog items.
1. Indicate exact item or model and all proposed options.
 2. Include scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams, controls and other pertinent data.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

1.05 SAMPLE SUBMITTALS

- A. Identify samples with manufacturer's name, item, use, type, project designation, specification section or drawing detail reference, color, range, texture, finish and other pertinent data.
- B. Submit (5) five samples to address indicated, or construction site if required. For on-site mock-ups or large wall samples, only one sample is required.
 - 1. Include brochures, shop drawings, and installation instructions, if required, with transmittal.
 - 2. Submit transmittal for site-built samples to address indicated.
 - 3. Submit samples, as specified, to each address listed above.
- C. Architect may, at his option, retain samples for comparison purposes until completion of work.
 - 1. Samples will be returned or may be used in the work unless technical section specifically indicated otherwise.
 - 2. Remove samples when directed.
 - 3. Pay all costs of furnishing, construction, and removing samples.

1.06 PROJECT DATA SUBMITTALS

- A. Submit (5) five copies of project data as indicated in individual sections.
- B. If submittal does not comply with Contract Documents, Architect will so inform the Contractor. Contractor will resubmit until no further objection is made.
- C. Use of transmittal form required (see enclosed).

1.07 CONTRACTOR ACTION: SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Review, approve and stamp all items prior to submission to Architect.
- B. Stamp must indicate that Contractor has:
 - 1. Verified all field dimensions and quantities.
 - 2. Verified all field construction criteria, materials, catalog numbers and similar data.
 - 3. Reviewed and coordinated all submittal data with requirements of the Work and Contract Documents.

4. Certified that submittals comply with Contract Documents.
- C. Reproduce and distribute submittals receiving "No Exceptions Taken" or "Make Corrections Noted" stamp.
 1. Architect shall distribute copies to Owner and Architect's Consultants.
- D. Resubmit items stamped "Revise and Resubmit", "Submit Specified Item", or "Rejected".
 1. Add letter suffix to previous transmittal number, to indicate re-submission.

1.08 SUBMITTALS

- A. Project data: Submit prior to first application for payment:
 1. Product list.
 2. Schedule of submittals.

1.09 PRODUCT LIST

- A. Complete list of products and subcontractors proposed for use.
- B. Only products and manufacturers which have been specified or approved by addendum may be used.
- C. Partial payment request will not be processed until satisfactory product list has been received.
- D. Format for product list:
 1. Specification section.
 2. Product.
 3. Manufacturer.
 4. Subcontractor.

1.10 SCHEDULE OF SUBMITTALS

- A. Attached is a "Schedule of Submittals" prepared by the Architect. The Contractor shall verify that all submittals requirements are accurate and notify the Architect of any corrections. The "Schedule of Submittals" shall be used as a checklist of required shop drawings, product data, samples and project data.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- B. Schedule all submittals requiring Architect approval during first quarter of construction period.

1.11 ARCHITECT APPROVAL: SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Approval is only for conformance with the design concept of the project and compliance with the intent of the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.
- B. Approved samples, submitted or constructed, constitute criterion for judging completed work. Work or items not equal to samples will be rejected.
- C. Start of work (which requires submittals) prior to return of submittals, with Architect's stamp indicating approval, is at Contractor's risk.

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
 82-915 Avenue 48
 Indio, CA.
 Project #0901.00

TRANSMITTAL FORM

Specification Section _____
 Sequence Number _____
 Resubmittal Letter _____

Routing Sequence	Checked By	Date Rec'd	Date Sent	No. Copies	Comments
<u>GENERAL CONTRACTOR</u>					
Attn:					
<u>ARCHITECT</u> Urrutia Architects 165 Luring Drive Palm Springs, CA 92262 Attn: Francisco J. Urrutia					
<u>GENERAL CONTRACTOR</u>					
Attn:					
<u>CONTRACTOR/VENDOR</u>					
Attn:					
<u>OWNER REPRESENTATIVE</u>					
Attn:					
SHOP DRAWINGS	DESCRIPTION	MANUFACTURER	ACTION		

- Action Legend:
- | | |
|------------------------|---|
| A. No exceptions taken | D. Make corrections noted and return corrected copy |
| B. Revise and Resubmit | E. Submit specified items |
| C. Rejected | |

Remarks: _____

Riverside County – Volunteers in Medicine Clinic
 82-915 Avenue 48
 Indio, CA.
 Project #0901.00

SCHEDULE OF SUBMITTALS

PROJECT NAME:

PROJECT NUMBER:

SECTION	DESCRIPTION	REQUIREMENTS			
		MANUALS	SUBMITTALS	SAMPLES	SHOP DRAWINGS
00650	Certificate of Insurance		X		
01010	Special Project Conditions		RFI's		
01016	Continued Occupancy of Existing Facilities				
01042	Coordination Drawings				X
01045	Cutting and Patching				
01152	Applications for Payment		X		
01310	Construction Schedules		X		
01340	Shop Drawings, Product Data, Samples and Project		Schedule		
01400	General Testing Procedures				
01500	Temporary Facilities				
01600	Material & Equipment: Delivery, Handling & Storage				
01640	Substitutions & Product Options After Execution of		X		
01700	Project Closeout		X		"Record"
01710	Clean up				
01720	Project Record Documents		X		X
01730	Operating and Maintenance Data	X	X		
01735	Owner Instruction for Equipment and Systems		X		
01750	Warranties and Guarantees	X	X		
01760	Spare Parts and Maintenance Materials		X		
02060	Building Demolition				
02200	Earthwork		X		
02260	Finish Grading				
02280	Soil Treatment		X (1)		
02518	Solid Concrete Interlocking Pavers		X (1)	X	
02520	Concrete Paving and Curbs				
02810	Automatic Irrigation System				
02900	Landscaping		X (1) (2) (3)		
02980	Landscape Accessories - Boulders				
03000	Concrete General		X (4)		
03100	Concrete Formwork				
03200	Concrete Reinforcement		X (5)		X (13)
03300	Cast in Place Concrete		X (4)		
03310	Concrete Mixing, Placing, Jointing and Curing		X (4)		
03350	Concrete Finishing and Repair of Surface Defects			X (6)	
03400	Precast Concrete		X (7)		X (8)
04050	Cold and Hot Weather Protection				
04100	Mortar and Masonry Grout		X (9)		
04210	Masonry Veneer		X (17)	X (10)	
04220	Concrete Unit Masonry			X (10)	
04225	Hollow Clay Load-Bearing Brick		X (17)	X (10)	
04400	Stonework			X (11)	X (12)
04510	Masonry Cleaning		X (17)		
05120	Structural Steel				X (13)

Riverside County – Volunteers in Medicine Clinic
 82-915 Avenue 48
 Indio, CA.
 Project #0901.00

SECTION	DESCRIPTION	REQUIREMENTS			
		MANUALS	SUBMITTALS	SAMPLES	SHOP DRAWINGS
05160	Lightgauge Metal Framing Systems		X (17)		
05300	Metal Deck		X (17)		X (13)
05500	Metal Fabrications		X (17)		X (13)
05520	Handrails and Railings				X (13)
06100	Rough Carpentry		X (7)		X (8)
06180	Glue Laminated Beams		X (14)	X	X (8) (13)
06200	Finish Carpentry		X (17)	X (15)	X
06410	Architectural Cabinetwork			X (15) (16)	X (12)
07110	Sheet Membrane Waterproofing		X (1) (17)	X	
07120	Fluid Applied Waterproofing		X (17) (1)	X	
07190	Water Repellents		X (17) (1)	X	
07200	Insulation		X (17)		X (19)
07410	Metal Wall Panels		X (1) (17)	X (18)	X
07411	Preformed Roof Panels		X (1) (17)	X (18)	X
07532	Mechanically Fastened Single-Ply Roofing		X (1) (17)	X (18)	X
07545	Coated Foamed Roofing		X (17) (1) (32) (33)	X (18)	X
07620	Sheet Metal Flashing and Trim		X (1) (17)		
07800	Skylights		X (17)		
07820	Insulated Translucent Skylight and Wall Light System		X (1) (17)	X	X (13)
07840	Firestopping		X (17)		
07900	Joint Sealers and Caulking		X (17) (1)	X	
08100	Metal Doors and Frames		X (17)		X (13)
08166	Sliding Glass Doors			X (20)	X (13)
08210	Wood Doors and Frames		X (17)	X (15)	X (13)
08360	Sectional Overhead Doors		X (17)	X (15)	X (13)
08410	Aluminum Entrances and Storefronts		X (17) (1)	X (20)	X (13)
08710	Finish Hardware		X (21)		
08800	Glazing		X (1) (17)	X	
09110	Non Load Bearing Metal Wall Framing Systems		X (17)		
09120	Ceiling Suspension Systems		X (17)	X	X
09205	Furring and Lathing		X (17)		
09220	Portland Cement Plaster			X (22)	
09250	Gypsum Board				
09310	Ceramic Tile and Marble Granite			X (23)	
09510	Acoustical Ceilings		X (17)	X (23)	
09650	Resilient Tile Flooring		X (1) (17)	X	
09655	Resilient Sheet Flooring		X (1) (17)	X	
09688	Carpet		X (1) (17)	X	
09700	Special Flooring		X (1) (17)	X	
09720	Wallcovering		X (17)	X	
09775	Sanitary Wall Panels		X (17)	X	
09900	Painting		X (17)	X (24)	
09940	Painting Mechanical and Electrical Work		X (17)		
10160	Metal Toilet Compartments		X (17)	X	X (13)
10200	Louvers and Vents		X (1) (17)	X	X (13)
10500	Metal Lockers		X (17)	X	
10522	Fire Extinguishers, Cabinets, and Accessories		X (17)		
10800	Toilet and Bath Accessories		X (17)		

Riverside County – Volunteers in Medicine Clinic
 82-915 Avenue 48
 Indio, CA.
 Project #0901.00

SECTION	DESCRIPTION	REQUIREMENTS			
		MANUALS	SUBMITTALS	SAMPLES	SHOP DRAWINGS
11700	Medical Equipment	X	X (1) (17)		X
15400	Plumbing		X (17) (32) (33)		
15655	HVAC Residential		X (25) (27) (32) (33)		X (26)
16000	Electrical Residential		X (17)		
16110	Conduit and Fittings				
16123	Building Wire and Cables				
16130	Outlet Boxes				
16425	Switchboard				
16450	Grounding				
16480	Motor Control Center				
16500	Lighting		X (17) (32) (33)		

KEYNOTES

1. Guarantees and warranties
2. Soil samples
3. Plant list and photos
4. Concrete mix design for each type of concrete condition
5. Certified mill test reports for rebar
6. Prepare 4' x 4' color sample of each concrete color and finish
7. Structural calculations of trusses or other prefabricated systems
8. Layout plan identifying planks, beams, or trusses
9. Design mix for each type of grout and mortar specified
10. Sample of each type masonry unit specified
11. Sample of each type of stone specified
12. Cutting and setting shop drawings
13. Fabrication and installation shop drawings
14. Certificate of Inspection of glue lam beams
15. Sample of each type of wood finish specified
16. Sample of each type of plastic laminate specified
17. Cut sheets and/or product data on items specified
18. 4" x 4" sample with finish membrane
19. Tapered foam system layout drawings
20. Sample of aluminum finish specified
21. Complete hardware list and cut sheets
22. Prepare 4' x 4' finish sample of stucco texture specified
23. Samples of each tile specified
24. Color samples
25. Equipment cut sheets, wiring diagrams, control diagrams and materials lists
26. Sound trap encasement method
27. Air balance reports and test data
28. Name and address of surveyor
29. Certification for elevations by surveyor
30. Record drawing and/or topography map
31. Mix design
32. Documentation for full rebate programs with City of Palm Desert, Southern California Edison, and The Gas Company.
33. Documentation for allowing Owner to obtain tax credits for federal and state level energy efficiency programs.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 01352

CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall provide all necessary equipment and materials resources required to meet the requirements of this section.

1.02 SUBMITTALS

- A. The Contractor shall provide the following documentation:
1. Construction Indoor Air Quality Management Plan:
 - a. The Plan shall identify the five SMACNA IAQ requirements for Occupied Buildings Under Construction, 1995, Chapter 3.
 - 1) Part 3.01 of this Section, Indoor Air Quality Plan During Construction, can be used as a basis for development of the plan.
 - b. Provide a Draft of the Plan prior to the start of building construction.
 - c. Provide a Final version of the Construction IAQ Management Plan after completing the requirements of this section.
 - 1) The final Plan must be revised to reflect the actual as-built conditions of this project.
 2. Construction Indoor Air Quality Procedures Photographs:
 - a. Provide photographs of Construction IAQ Management measures such as protection of ducts and on-site stored or installed absorptive materials.
 - b. Photographs shall be taken on at least three different occasions during the interior finish work:
 - 1) The first two to four weeks of the work.
 - 2) The middle two to four weeks of the works.
 - 3) The last two or four weeks of the work.
 - c. On each occasion at minimum of six photographs representing at least three different Construction IAQ measures shall be taken. This represents a total of 18 photographs.

- d. Photographs shall be color, between 3"x5" and 5"x7" in size and of normal photographic quality (70 pixel resolution or better.)
3. Filtration Media Product Data:
 - a. Provide cut sheets for filtration media installed:
 - 1) During construction
 - 2) During the flush out
 - 3) After the flush out and prior to occupancy.
 - b. The cut sheets shall highlight the MERV values of the media.
4. Building Flush Out Draft Plan:
 - a. The Plan shall describe the flush out procedures planned for the project.
 - b. The Plan shall be approved by the Architect or Mechanical Engineer prior to initiation of the work.
5. Building Flush Out Final Plan:
 - a. Provide a copy the approved Final Plan.
 - b. The Final Plan shall include the actual dates of the building flush out.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INDOOR AIR QUALITY MANAGEMENT DURING CONSTRUCTION

- A. During construction the Contractor shall meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Association (SMACNA), IAQ Guidelines for Occupied Buildings Under Construction, 1995, Chapter 3, for the items listed below. The SMACNA guidelines have been modified to address the special issues and needs of a new construction project:
- B. HVAC Protection:
 1. Protect all air handling and distribution equipment, and air supply and return ducting during construction.
 2. Adequately cover and protect all exposed air inlets and outlets openings, grilles, ducts, plenums, etc. to prevent water, moisture, dust, and other contaminate intrusion.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

3. Apply protection immediately after installation of equipment and ducting.
4. Ducting runs that require more than a single day to install shall be protected at the end of each day's Work.
5. Install air filters with a MERV filtration value of 8, as determined by ASHRAE 52.2-1999, over all air return air grilles.

C. Source Control:

1. Protect stored on-site or installed absorptive or porous materials such as batt insulation and drywall from exposure to moisture.
2. Do not use wet damaged porous materials in the building.
3. Provide adequate ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues.
4. Provide a temperature range of 60°F minimum to 90°F maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by the Architect.
5. Route material deliveries and construction waste removal around the exterior of the building, not through it.

D. Pathway Interruption:

1. The Owner does not plan to occupy the building until construction is completed. Pathway interruption is not required for this project.

E. Housekeeping:

1. Minimize accumulation of duct fumes, vapors, or gases in the building.
2. Suppress dust with wetting agents or sweeping compounds.
3. Clean-up dust using a wet rag or damp mop.
4. Increase the cleaning frequency when dust build-up is noted.
5. Remove spills or excess applications of solvent-containing products as soon as possible.
6. Remove accumulated water and keep work areas as dry as possible.

7. Vacuum using HEPA filtered vacuum cleaners.
8. Store volatile liquids, including fuels and solvents, in closed containers and outside of the building when not in use.
9. Keep volatile liquid containers closed when the container is inside of the building and not in use.

F. Scheduling:

1. Schedule for application of interior finishes including timeframes for application of wet materials onto dry materials, dry materials onto wet materials, and expected curing times for applied wet materials.
2. Wet materials include all paints, adhesives, sealants, coatings, finishes and spray-applied materials, such as structural fireproofing.
3. Insure that all wet applied interior finish materials are property and fully cured before installing other finish materials over them.
4. Install carpets and furnishings after all other interior finish materials have been applied and fully cured.
5. Provide sufficient ventilation, air circulation and air changes to properly cure materials.
6. Provide sufficient ventilation, air circulation and air changes to dissipate excessive humidity when present.

3.02 INDOOR AIR QUALITY MANAGEMENT AT THE END OF CONSTRUCTION

- A. After construction and prior to occupancy the Contractor shall conduct a building flush out as follows:
 1. For a minimum of two continuous weeks.
 2. Using 100% outside air during the flush out.
 3. Using temporary HVAC filtration media if the HVAC system is used to conduct the flush out. The filtration media shall at least a Minimum Efficiency Reporting Valve (MERV) of 8 as determined by ASHRAE Standard 52.2-1999.
 4. After construction implies that the application of all finish materials is complete.
- B. After completion of the building flush out and immediately prior to occupancy replace of all HVAC filtration media installed in the HVAC system during construction and/or during the flush out with new filtration media. The new filtration media shall have at least a

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

Minimum Efficiency Reporting Valve (MERV) of 13 as determined by ASHRAE Standard 52.2-1999.

END OF SECTION

SECTION 01400

GENERAL TESTING PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. General:
 - 1. Furnish all labor, materials, tools, equipment and services for quality control as indicated, in accord with provisions of Contract Documents.
 - 2. Completely coordinate with work of all other trades.
 - 3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
 - 4. See Division 1 for General Requirements.
- B. See Testing and Inspection Form at end of this section for specific items to be performed.
- C. See General Conditions for inspection and testing required by public authorities having jurisdiction.
- D. Owner will arrange and pay for certain testing and inspections indicated; Contractor shall pay for all other testing and inspection, including:
 - 1. Re-testing of Owner provided tests due to failure.
 - 2. Concrete testing for qualification of materials and for Contractor's convenience: Section 03000.
 - 3. Contractor's duties for Owner provided tests, as specified.

1.02 QUALITY ASSURANCE

- A. Test and inspection method standards: See technical sections.
- B. Qualifications of independent testing agencies:
 - 1. Meet American Council of Independent Laboratories, "Recommended Requirements of Independent Laboratory Qualification", latest edition.

2. Meet requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as used in Construction", latest edition.
3. Satisfy inspection criteria of Materials Reference Laboratory of National Bureau of Standards.
4. See technical sections for additional requirements.
5. For each independent testing agency submit:
 - a. Report of Materials Reference Laboratory most recent inspection, with memorandum of remedies of any deficiencies reported.
 - b. Certificate of equipment calibration.
- C. Testing equipment calibration: By accredited calibration agency, at 12 month intervals, maximum, by devices of accuracy traceable to either:
 1. National Bureau of Standards.
 2. Accepted values of natural physical constants.

1.03 JOB CONDITIONS

- A. Employment of independent testing agency by Owner does not relieve obligation of Contractor to comply with Contract Documents.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. Perform indicated inspection, sampling and testing of materials and methods of construction.
- B. Use test/inspection/sampling methods conforming with methods indicated.
- C. Report each test/inspection/sampling as indicated.
 1. Report results called for by test method, in form specified.
- D. Retest failed products and systems.

3.02 REPORTS

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- A. Submit four copies of the reports promptly to the following:
 - 1. Architect: Urrutia Architects (2 copies)
 - 2. Riverside County (1 copy)
 - 3. General Contractor (1 copy)
 - 4. Structural Engineer: Knapp and Associates, Inc. (1 copy)

- B. Test/Inspection
 - 1. Project name and number.
 - 2. Project location.
 - 3. Product and specification section applicable.
 - 4. Type of test/inspection.
 - 5. Name of testing agency.
 - 6. Name of testing/inspecting personnel.
 - 7. Date of test/inspection.
 - 8. Record of field conditions encountered (temperature, weather).
 - 9. Observations regarding compliance.
 - 10. Test method used.
 - 11. Results of test.
 - 12. Date of report.
 - 13. Signature of testing/inspecting personnel.

3.03 INDEPENDENT TESTING AGENCY DUTIES AND LIMITATIONS OF AUTHORITY

- A. Cooperation with Architect, General Contractor, City/County building inspector, and subcontractors. Provide qualified personnel promptly on notice.

- B. Promptly notify Architect and Contractor of irregularities, or deficiencies of work which are observed during performance of services.

- C. Testing agency is not authorized to:

1. Release, revoke, alter, or expand on requirements of Contract Documents.
2. Approve or accept any portion of the work.
3. Perform any duties of the Contractor.

3.04 CONTRACTOR'S DUTIES WHEN INDEPENDENT TESTING AGENCIES ARE USED.

- A. Cooperate with testing agency personnel; provide access to the work and to manufacturer's operations, schedule and coordinate testing with the testing agency.
- B. Provide preliminary representative samples of materials to be tested, in required quantities.
- C. Furnish copies of mill test reports.
- D. Furnish labor and facilities:
 1. To provide access to work to be tested.
 2. To obtain and handle samples at site.
 3. To facilitate inspections and tests.
 4. Storage and curing facilities for testing agency's exclusive use.

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
 82-915 Avenue 48
 Indio, CA.
 Project #0901.00

TESTING LABORATORY:

JOB NAME: Riverside County Volunteers in Medicine Clinic

OWNER: Riverside County

DIVISION-FILE NO:

ARCHITECT: Urrutia Architects

STRUCTURAL ENGINEER: Knapp and Associates, Inc.

DATE:

PROJECT #: 0901.00

The following tests and inspections, as checked, will be required as detailed in applicable specifications.

COMPACTED FILL (02200)				REINFORCING STEEL (03200)
	Fill material, acceptance tests			Sample and test bar steel
X	Compaction control, continuous			Sample and test mesh
X	Compaction tests as ordered		X	Continuous inspection of all reinforcement
	Bearing capacity of compacted fill			
BRICK AND BLOCK (04220)				STRUCTURAL STEEL (05120)
X	Prism tests			Sample and test as detailed below
	Test only			Shop fabrication inspection
X	Continuous inspection of placing			Inspection of welds – Shop
	Core drill samples		X	Inspection of welds – Field
				Inspection of riveting or bolting - Shop
				Inspection of riveting or bolting - Field
				Sample and test high strength bolts and washers
GLUED LAMINATED STRUCTURAL LUMBER (06180)				
	Fabrication inspection			
	Sample and test steel accessories			
	Inspect fabrication of steel accessories			
X	Certificate of Inspection of Each Beam			
CONCRETE GUNITE GROUT MORTAR				
				Test of aggregates for mix design only
				Suitability tests of aggregates as detailed below
X		X	X	Mix designs
				Continuous batch plant inspection
				Inspect placing
X		X		Sample
X		X		Compression tests
X		X		Pick up samples at job
				Samples delivered to laboratory
X		X		Deliver sample forms to jobsite
				Sample and test cement

SUITABILITY TESTS		CONCRETE MATERIALS	GUNITE	GROUT	MORTAR	
	Sodium sulfate					
	Structural strength					
	Los Angeles rattler					
	Clay (Hydrometer Method)					
	Reactivity tests					
	Volume change					
MIX DESIGNS: CONCRETE, GROUT, MORTAR OR GUNITE						
COMPRESSIVE STRENGTH, PSI, MINIMUM						
MATERIAL	MAX. SIZE	7 Day	28 Day	45 Day		
Concrete		1250	2500			
Mortar		1000	1800			
Grout		1200	2000			
Gunite						
Concrete topping						

Testing Lab shall break grout and concrete test cylinders at “7 day”, “28 day”, and “45 day” periods. If the “28 day” compressive strength is achieved during a “7 day” break, the subsequent “28 day” and “45 day” breaks will not be required.

List of structural steel members to be tested:

Other tests and inspections, together with special instructions:

- All drilled-in concrete or masonry anchors shall be inspected.

Copies of reports to:			
1	Architect	1	Riverside County
1	Structural Engineer		
1	General Contractor		
	DSA		
	OSHPD		

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all temporary facilities and their subsequent removal as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 COLD WEATHER PROTECTION

- A. Provide all heating during construction period, prior to enclosure of building as required to perform work.

1.03 TEMPORARY HEATING OR COOLING

- A. Have heating or air conditioning system in readiness for furnishing temporary heat or cooling at time building is enclosed.
1. Building is considered enclosed when it has protection at doorways, windows, and other openings which will provide reasonable retention of heat or cooling.
 2. Make all temporary electrical connections and disconnect temporary connections at completion of temporary heating or cooling period.
 3. Operate system, furnishing necessary labor and supervision.
 4. Maintain temperature of spaces where concrete is being placed or cured at not less than 50 degF or more than 95 degF.

5. Maintain interior temperature of not less than 70 degF nor more than 85 degF for at least 7 days prior to and during placement of interior finishes, and after finishing until substantial completion.
- B. General Contractor shall pay for all fuel or energy used for temporary heat or air conditioning.
- C. Extend warranty or guarantee period on permanent systems used during construction period to commence on date of substantial completion.
- D. Use heating and air conditioning devices complying with codes and ordinances.

1.04 TEMPORARY ELECTRICITY

- A. Contractor shall install a temporary power pole, meter, and distribution system for the site. The Contractor will pay for all power consumption.
 1. Permanent building power distribution system may be used once it is installed.
 2. Remove all temporary electrical equipment, poles, meter, wiring, switched, outlets, etc., when no longer needed.
 3. At completion of work, remove and replace all parts of permanent systems damaged.
- B. Temporary electrical power used shall be paid for by Contractor.
- C. Extend warranty or guarantee period on permanent systems used during construction period to commence on date of substantial completion.
- D. Each contractor shall provide his own extension cords.
- E. Each contractor shall provide heavy duty electrical power, exceeding available power, required for his operations, and at his own expense.

1.05 TEMPORARY WATER

- A. Make all arrangements, install equipment, piping and outlets for an adequate supply of clean water for construction purposes.
 1. Existing water meter and line may be used for temporary service hook-up.
- B. Contractor shall apply for temporary water usage and pay for all water used on site.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- C. Furnish potable drinking water for all those connected with the work.

1.06 TEMPORARY TOILETS

- A. Provide temporary toilet facilities for use of all workmen.
 - 1. Provide facilities complying with local, State, and Federal sanitary laws and regulations.
 - 2. Maintain in clean, sanitary condition.
 - 3. Provide adequate supplies of toilet paper.
- B. Provide temporary fixtures in building as soon as conditions permit.
 - 1. Provide adequate supplies of toilet paper, cleaning and other required items.
 - 2. Contractor shall be responsible for replacement of any damaged fixtures, fittings, finishes, etc., due to misuse of the building facilities by any workmen, at no extra cost to the Owner.

1.07 FIELD OFFICES

- A. General Contractor shall provide a field office and telephone service for his use. They shall be set up in proper order. Provide layout table to allow for review of project drawings.
 - 1. Contractor to provide a FAX machine in the field office for use with this project. Contractor shall provide and pay for telephone service for this purpose.
 - 2. Contractor shall provide mobile cellular phones as required.
 - 3. Contractor shall provide computers and printers required to handle communication via email. All equipment and temporary phone lines or "DSL" shall be paid for by the Contractor.
 - 4. Provide minimum of 200 sq. ft. with heating, air conditioning, lighting, layout table, chairs, file cabinet, one stick drawing file, and one bookshelf.
 - a. Temporary office shall be large enough to hold a "conference type" table with chairs for at least (12) twelve people for job meetings.
 - b. Provide power from existing source near building, or provide for temporary power by installing temporary power pole.

- c. If providing temporary power pole, Contractor will pay for utilities used.
- 5. For trailer, provide steps.

1.08 TEMPORARY ENCLOSURES

- A. Furnish and install temporary enclosures, doors and transparent plastic windows required to protect building from damage due to vandalism, or the elements, or to maintain suitable temperature during installation or finish work.
- B. Provide all items required in connection with safety program.

1.09 TEMPORARY STORAGE AND WORKING AREAS

- A. Prior to start of work, General Contractor shall meet with all subcontractors to arrange and define working and storage areas.
 - 1. Except as specifically provided, working and storage areas shall be entirely within the property boundaries.
- B. Within area designated for his use, each contractor shall provide suitable and sufficient enclosed and covered spaces, with raised flooring, to protect materials and equipment from damage by weather or construction work.
 - 1. Maintain storage and working areas in clean and orderly condition.
 - 2. Upon completion of work, or sooner, if directed by Owner or Architect, remove temporary structures and leave area in clean and orderly condition.

1.10 TEMPORARY FENCES AND BARRICADES

- A. Furnish, install and maintain all necessary temporary site fences, barricades, trench and hole covers, warning lights and all other safety devices necessary to prevent injury to persons and damage to property.

1.11 TRAFFIC CONTROL

- A. Provide any traffic control deemed necessary to effect smooth City and site operations.

1.12 PARKING

- A. Construction personnel may only park within the public right-of-way adjacent to the site, or directly on the site.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- B. Any personnel parking on other property, do so at their own risk and should be aware that their vehicles may be ticketed and/or towed at their own expense.

1.13 PROJECT SIGNS

- A. Post no other signs on site except those required by law, and/or those approved by Riverside County.

1.14 SECURITY

- A. Contractor shall be responsible for security of construction area, any storage areas, and field office.

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 01600

MATERIAL & EQUIPMENT: DELIVERY, HANDLING & STORAGE

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, work, and services for delivery, receiving, storage and protection of material and equipment.
2. See technical sections for additional requirements.
3. Completely coordinate with work of other trades.
4. Although such work is not specifically indicated, furnish all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.02 CODES AND CONSTRUCTION REQUIREMENTS

- A. Comply with applicable codes.
- B. Accomplish work to avoid damage to property.
- C. Clean debris from streets and walks.
- D. Provide fire protection.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PRODUCT DELIVERY

- A. By manufacturer's normal means.
- B. In original labeled containers.
- C. Where applicable, with U/L labeling on packages.
- D. Subcontractor responsible for acceptance at site.

- E. Schedule deliveries to avoid delaying work.
- F. Inspect items for damage upon delivery, reorder as required to avoid delays.

3.02 PRODUCT HANDLING AND STORAGE

- A. Use methods to avoid damage to item or structure.
- B. Protect weather fragile items from weather damage.
- C. Handle and store bulk aggregates to avoid contamination.
- D. Store to allow air circulation.
- E. Store only in authorized areas on site.
- F. When offsite storage is authorized, perform rehandling to move items to site at no added cost.
- G. Replace or repair damaged items.
- H. Protect installed items as required until acceptance of building.
- I. Uncrate, assemble, if required, and remove debris.

3.03 CLEANUP

- A. Remove excess materials from site.
- B. Turn over to Owner, excess materials scheduled to remain.
- C. Restore site storage areas as directed by Architect.

END OF SECTION

SECTION 01640

SUBSTITUTIONS AND PRODUCT OPTIONS AFTER EXECUTION OF CONTRACT

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all work and services for furnishing, submitting, processing and handling of requests for substitution and data for product options after execution of Contract. Any substitution or product option must be in accord with provisions of Contract Documents.
2. Completely coordinate with work of other trades.
3. See appropriate sections for specific items.
4. See General Conditions for additional information.

B. Prior to submission of bids, substitution requests and product options shall be governed by Sections 00440.

C. After bid opening, substitution requests and product options shall be governed by this section.

1.02 PRODUCT SELECTION - GENERAL

A. Bids shall have been based on materials, equipment and procedures specified.

B. Certain types of equipment and kinds of material are described in specifications by means of trade names, catalog numbers and/or manufacturer's names.

C. Listing of a manufacturer implies acceptance of them only as supplier of a product which complies with specified item.

D. Architect reserves right to require substitution or product option items to comply with color and pattern-wise base specified items.

E. No substitution permitted between bid opening and execution of Contract.

F. No substitution permitted after execution of Contract except by change order.

1.03 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, use any product meeting standards.
- B. For products specified by naming several products or manufacturers, use any product or manufacturer named.
- C. For products specified by naming one manufacturer and product and several option manufacturers or products, select any named product and manufacturer which meets all specification criteria.
 - 1. Contract Documents are based on use of base specified manufacturer.
 - 2. By using an optional manufacturer or product, Contractor represents that he will be responsible for all adjustments to fit product to the work and for providing all additional work, equipment, and services required by use of product, at no additional cost.

1.04 SUBSTITUTION AFTER EXECUTION OF CONTRACT

- A. No substitution will be considered after execution of Contract except for non-availability of specified item due to:
 - 1. Strikes.
 - 2. Lockouts.
 - 3. Bankruptcy.
 - 4. Discontinuance of production.
 - 5. Proven shortage.
- B. Notify General Contractor who will notify Architect, in writing, with substantiating data as soon as non-availability becomes apparent.
- C. Notify in time to avoid delay in construction.
- D. Forward submittal data as required for substitutions.

1.05 REQUESTS FOR SUBSTITUTION

- A. Only written requests with complete submittal data will be considered.
- B. Submit request in three copies.
- C. In making request for substitutions, or in using an approved substitution item, Contractor represents:

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

1. He has investigated proposed product or method, and has determined that it is equal or superior in all respects to that specified, and that it will perform intended function.
 2. He will provide same guarantee for substitute item as for product or method specified.
 3. He will coordinate installation of accepted substitution into work, to include building modifications if necessary, making such changes as may be required for work to be complete in all respects.
 4. He waives all claims for additional costs or additional time related to substitution which subsequently become apparent.
 5. Acknowledgement of acceptance of these provisions in request.
- D. No verbal or written approvals other than by change order will be valid.

1.06 SUBSTITUTION SUBMITTAL DATA

- A. Complete data substantiating compliance of proposed substitution with Contract Documents.
- B. For products:
 1. Product identification, including manufacturer's name.
 2. Manufacturer's literature, marked to indicate specific model, type, size, and options to be considered:
 - a. Product description.
 - b. Performance and test data.
 - c. Reference standards.
 - d. Difference in power demand, air quantities, etc.
 - e. Dimensional differences from specified unit.
 3. Full size samples if requested. Architect reserves right to impound sample until physical units are installed on project for comparison purposes. Request pay all costs of furnishing and return of samples. Architect is not responsible for loss of, or damage to, samples.

4. Name and address of similar projects and name of Owner's representative who can be contacted, to discuss product, installation, and field performance data.
- C. For construction methods:
 1. Detailed description of proposed method.
 2. Illustrate on drawings.
- D. Itemized comparison of proposed substitute to specified item.
- E. Data relating to changes in construction schedule.
- F. Relation to separate contracts.
- G. Cost of proposed substitution in comparison with product or method specified.

1.07 REJECTION OF SUBSTITUTION

- A. Substitution will not be considered if:
 1. They are indicated or implied on shop drawings, or project data submittals, without formal request submitted in accord with this section.
 2. Acceptance will require substantial revision of Contract Documents, or building spaces.
 3. Request for substitution does not indicate specific item for which request is submitted. Acceptance of a manufacturer only will not be made.

END OF SECTION

SECTION 01700

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION

A. General

1. Furnish all labor, materials, tools, equipment, and services for project closeout as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See General Conditions and Supplementary Conditions for additional general requirements.
5. See technical sections for specific submittal items.

1.02 SUBMITTALS

A. Project data:

1. For substantial completion:
 - a. List of all items to be completed or corrected.
 - b. Written notice of substantial completion.
 - c. Certificates of governing authorities.
 - d. Initialed punch list.
2. For final completion:
 - a. Written certification that work is complete.
 - b. Evidence of payments and release or waiver of liens.
 - (1) In accordance with General Conditions.

- c. Final application for payment in accordance with General Conditions.
- d. List of all sales and services taxes.
- e. Letter of pad elevation certification.
- f. Record drawings completed.
- g. Warranties and guarantees.
- h. All equipment operation manuals.

1.03 FOR SUBSTANTIAL COMPLETION

- A. Obtain evidence of compliance with requirements of governing authorities.
 - 1. Certificates of inspection of:
 - a. Mechanical
 - b. Electrical
 - c. Plumbing
 - 2. Certificate of occupancy.
- B. Submit written notice, including list of all items to be completed or corrected, which states that Project, or designated portion thereof, is substantially complete.
- C. Architect will, within reasonable period after notification, review the work and list of items to be completed or corrected, and revise or add to list if necessary.
- D. If Architect does not agree that work is substantially complete:
 - 1. He shall immediately notify Contractor in writing, stating reasons.
 - 2. Contractor must substantially complete work and submit second written notice, including list of items to be completed or corrected, that Project, or designated portion thereof, is substantially complete.
 - 3. Architect will again review the work and list of items to be completed or corrected.

- E. If Architect agrees that work is substantially complete:
 - 1. Architect will prepare punch list for project, or designated portion thereof, and will provide one copy each to Contractor and Owner.
 - 2. Architect will return revised list of items to be completed or corrected, and punch list to Contractor.
 - 3. Architect will prepare Certificate of Substantial Completion, AIA G-704, accompanied by revised list of items to be completed or corrected and punch list.
 - 4. Owner may occupy Project, or designated portion thereof, at this time, under provisions stated in Certificate of Substantial Completion.
- F. If Owner is going to occupy project, or designated portion thereof, Contractor must perform final cleaning of designated portion, prior to occupancy.
- G. Contractor shall complete work listed for completion or correction and all punch list items, within designated time, and return both lists with each item initialed and dated to indicate completion.

1.04 FOR FINAL COMPLETION

- A. Submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Project has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested and are operational.
 - 5. Project is complete in every respect.
- B. Architect will make final “walk through” within thirty (30) days after receipt of certification.
- C. Contractor shall remedy any remaining deficiencies, and submit final closeout submittals.
- D. Should final completion be materially delayed through no fault of Contractor, Contractor may submit application for payment for portion of work on punch list which has been completed, in accord with provisions of General Conditions.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- E. Upon completion of project, before final payment, furnish Owner, in triplicate, certified list of all sales and services taxes paid by Contractor (and subcontractors) in execution of this Contract.
- F. Provide all written warranties and guarantees per Section 01750, prior to Final Payment.
- G. Provide Record Drawings per Section 01720, prior to Final Payment.
- H. Provide all operational manuals for all equipment and/or systems, per Section 01730. Such information is to be prepared and presented in an organized neat binder, prior to Final Payment.

END OF SECTION

SECTION 01710

CLEANUP

PART 1 - GENERAL

1.01 DESCRIPTION:

A. General:

1. Furnish all labor, materials, tools, equipment, and services for cleaning up required in conjunction with work performed, as indicated or required, in conjunction with work performed, as indicated or required, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.02 FIRE PROTECTION

- A. Store volatile waste in covered metal containers.
- B. Remove from premises daily.

1.03 POLLUTION CONTROL

- A. Conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws.
- B. Do not bury or burn rubbish and waste on site.

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS

- A. Use materials recommended by manufacturers of surfaces to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Clean all items installed under this Contract.
 - 1. Leave free of stains, damage, or other defects prior to final acceptance.
 - 2. Include washing, sweeping, polishing of all finished wall surfaces, floors, windows, hardware, mirrors, lighting fixtures and items of equipment.
 - 3. See technical sections for additional cleaning requirements.

3.02 DURING CONSTRUCTION

- A. Clean up all waste materials, rubbish, and debris resulting from the work on a daily basis.
- B. Ensure that building and grounds are maintained free from accumulations of debris.
- C. Sprinkle dusty debris with water.
- D. Daily clean-up site and access and dispose of debris off site.
- E. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces of fixtures, hardware, and equipment.
- F. Repair, patch, and touch-up marred surfaces to match adjacent finishes damaged by his own operations.
- G. Comply with additional requirements defined in specifications.
- H. Vacuum interior areas when ready for painting.
- I. Schedule cleaning operations so that contaminants resulting from cleaning do not fall on wet painted surfaces.
- J. Clean all glass and aluminum surfaces.
- K. Leave the work "vacuum clean".

3.03 FINAL CLEANING

- A. Use experienced workmen or professional cleaners for final cleaning.
- B. At completion of construction, just prior to acceptance or occupancy, perform final cleaning.
- C. Remove dirt, stains, labels, and foreign materials.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- D. Repair and touch-up marred areas.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds; vacuum, polish and mop floors.
- F. Replace air conditioning filters if units were operated during construction.
- G. Clean ducts, blowers, and coils if air conditioning units were operated without filters during construction.

END OF SECTION

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services to provide project record documents as specified, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. See Division 1 for additional General Requirements.

B. Project Record Documents: Complete set of all documents required for construction with exception of samples and mock-ups.

1. Do not use for construction of project.
2. Provide contract drawings in form of "pink bond" prints.
3. Project Record Documents include but are not limited to:
 - a. Contract drawings.
 - b. Project specifications.
 - c. Addenda.
 - d. Shop drawings.
 - e. Project data.
 - f. Product data.
 - g. Change orders.
 - h. Modifications.
 - i. Field test records.

1.02 SUBMITTALS (SEE SECTION 01340)

- A. Project Data:
1. Provide Project Record Documents, at completion of project, to Architect with letter of transmittal.
 2. Provide transmittal letter containing:
 - a. Date.
 - b. Project title.
 - c. Contractor's name and address.
 - d. Title and number of each Project Record Document.
 - e. Certification that Project Record Documents submitted are complete and accurate.
 3. Copy of transmittal letter to Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 POSTING PRIOR TO CONSTRUCTION

- A. After Contract is executed, but prior to start of construction, obtain Contract Drawings and Project Specifications which will be used for Field Documents and Periodic Update Documents.
- B. Obtain copies of all addenda and post above documents.

3.02 MAINTENANCE OF FIELD DOCUMENTS

- A. Maintain minimum of one copy of each document required for Project Record Documents at project site. Also, maintain one set of all samples and mock-ups.
- B. Label each document "FIELD".
- C. These documents will be used for construction of projects.
- D. Make documents available at all times for review by Architect, Owner, and authorities having jurisdiction.

3.03 MAINTENANCE OF PERIODIC UPDATE DOCUMENTS

- A. Maintain a separate set of all Field Documents on "pink bond" paper at project site.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- B. Label each document "PERIODIC UPDATE".
- C. Do not use these documents for construction purposes.
- D. Make documents available at all time for review by Architect, Owner and authorities having jurisdiction.
- E. Maintain in clean, dry, legible condition.
- F. Maintain contract drawings in stackable, enclosed file drawers designed to hold drawings horizontally.
- G. Maintain all other Periodic Update Documents in stackable, enclosed file boxes designed to hold specific type of document.
 - 1. Provide index of contents of each box on outside of box.

3.04 POSTING AND UPDATING OF PERIODIC UPDATE DOCUMENTS

- A. Post and update on weekly basis.
- B. Contract drawings: Mark legibly to record actual construction including but not limited to:
 - 1. Depths of various elements of foundations in relation to first floor level.
 - 2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by change order or field order.
- C. Project Specifications: Type on each section to record all changes including but not limited to:
 - 1. Addenda
 - 2. Change order or field order
 - 3. Modifications to contract
 - 4. Bind added sections into Project Specification

- 5. Indicate manufacturer
- D. Do not conceal work for which information must be recorded until all required information is recorded on Periodic Update Documents.
- E. Any work concealed prior to recording of required information will be exposed. Once all required information is recorded on Periodic Update Documents, work will be restored at contractor's expense.

3.05 PRODUCTION OF PROJECT RECORD DOCUMENTS

- A. At substantial completion, provide complete set of "pink bond" for each contract drawing.
- B. Label each document "PROJECT RECORD".
- C. All other Periodic Update Documents may be used for Project Record Documents provided they are in satisfactory condition.
- D. Replace any Periodic Update Document found to be in unsatisfactory condition. Transfer all recorded changes from original to replacement copy.
- D. Final payment or a minimum of 10% will be withheld from the Contractor until all record drawings have been completed and delivered to the Architect.
- E. On completion of the work, prepare survey of site to show actual elevations, grades, site features and building location.

END OF SECTION

SECTION 01730

OPERATIONS AND MAINTENANCE MANUALS AND PARTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section covers the general requirements for Operations and Maintenance Manuals, space parts and extra materials.

1.02 SUBMITTALS

- A. Submit (2) two copies of completed volumes 15 days prior to final inspection. These copies will be reviewed and returned, with Architect comments. Revise content of all document sets as required prior to final submission.
- B. Submit (2) copies of revised final volumes in final form within 10 days after final inspection.
- C. For equipment, or component parts or equipment put into service during construction and operated by Owner, submit documents within 10 days after acceptance.

1.03 QUALITY ASSURANCE:

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.04 FORMAT

- A. Prepare data in the form of instructional manuals.
- B. Binders: Commercial quality, 8 ½" x 11", three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- D. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- E. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- F. Drawings: Provide with reinforced punched binder tags. Bind in with text; fold larger drawings to size of text pages.
- G. Arrange content by systems under section numbers and sequence of Table of Contents.

1.05 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of project; names, addresses, and telephone numbers of Architect, Subconsultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use project record documents as maintenance drawings.
- E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.06 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for reordering custom manufactured Products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.07 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Each item Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed or by label machine.
- C. Include color coded wiring diagrams as installed.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.
- K. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Include air balance report.

1.08 INSTRUCTION OF OWNER PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. For equipment requiring seasonal operation, perform instructions for other seasons within six months.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in operation and maintenance manual when need for such data becomes apparent during instruction.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 MAINTENANCE MATERIALS AND SPARE PARTS

- A. Furnish and deliver special tools, instruments, accessories, spare parts, and maintenance materials required by the contract documents, and furnish and deliver the special tools, instruments, accessories, and the special lifting and handling devices shown in the instruction manuals approved above.
- B. Unless otherwise specified or directed, deliver the items to the Owner, with the Contractor's written transmittal accompanying each shipment, in the manufacturer's original containers labeled to describe the contents and the equipment for which it is furnished. Deliver a copy of each transmittal to the Architect for record purposes.

END OF SECTION

SECTION 01735

OWNER INSTRUCTION FOR EQUIPMENT AND SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all equipment demonstration and owner personnel instruction as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

- ###### B. Provide instruction for all equipment and systems for which operating and maintenance data is required. See individual sections.

1.02 QUALITY ASSURANCE

- ###### A. Instructors: Member(s) of installers' staffs and authorized representative(s) of equipment, subject to Owner's approval.

1. Submit report (form attached) with preliminary information indicated, to Owner at least two weeks prior to first instruction period.
2. Submit separate completed report for each system: one copy each to Owner and Architect.

1.04 JOB CONDITIONS

- ###### A. Complete all instruction prior to substantial completion.

PART 2 - NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

- A. Do not begin instructions until the component, assembly or system has been tested as specified and is in satisfactory operating condition.
- B. Assemble instructional aids.
 - 1. Have operating and maintenance data available for use during instruction (see Section 01730).

3.02 INSTRUCTION

- A. Instruct Owner's personnel in operation and maintenance of equipment and systems.
 - 1. Provide all necessary instruction to satisfaction of Owner.
- B. Explain use of operating and maintenance manuals.
- C. Tour building areas involved and identify:
 - 1. Maintenance points and access.
 - 2. Control locations and equipment.
- D. Explain operating sequences.
 - 1. Identify location and show operation of switches, valves, etc., used to start, stop and adjust systems.
 - 2. Explain use of flow diagrams, operating sequence diagrams, etc.
 - 3. Demonstrate operation through complete cycle(s) and full range of operation in all modes, including testing adjusting relevant to operation.
- E. Explain use of control equipment, including temperature settings, switch modes, available adjustments, reading of gauges, and functions that must be serviced only by authorized factory representative.
- F. Explain trouble-shooting procedures.
 - 1. Demonstrate commonly occurring problems.
 - 2. Note procedures which must be performed by factory personnel.
- G. Explain maintenance procedures and requirements.
 - 1. Point out items requiring periodic maintenance.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

2. Demonstrate typical preventive maintenance procedures and recommend typical maintenance intervals.
 3. Demonstrate other commonly occurring maintenance procedures not part of preventive maintenance program.
 4. Identify maintenance materials to be used.
- H. Have all tools required for instruction available.

END OF SECTION

EQUIPMENT AND SYSTEMS OWNER INSTRUCTION REPORT

System or Equipment: (Complete one form for each separate system)

NOTE: The Contractor's Representative shall maintain and complete this report during the course of instruction.

I. Preliminary Information

A. To be completed by Contractor:

1. Proposed dates for instruction period:
 _____ to _____
2. Contract Representative conducting instruction:

3. Number of hours of instruction required:

B. To be completed for Owner: (Information obtained from Owner)

1. Owner's personnel to be instructed (Designate supervisor, if required.)

- | | | |
|----------|----------|----------|
| a. _____ | e. _____ | i. _____ |
| b. _____ | f. _____ | j. _____ |
| c. _____ | g. _____ | k. _____ |
| d. _____ | h. _____ | l. _____ |

II. Instruction Log

Date	No. Hours	Material Covered	Instr. Initial	Owner's Receiving	Personnel Instruction	Initial Comments

Total: _____

Date Instruction Completed: _____
 Instructor's Signature: _____

Owner's Representative's Signature: _____

SECTION 01750

WARRANTIES AND GUARANTEES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide written guarantees for products and installations indicated.
- B. Provide guarantees for period(s) indicated.
 - 1. All portions of the work shall be guaranteed against defects in workmanship and materials for a minimum period of one (1) year from date of acceptance of the structure, unless a longer guarantee is specifically called for herein.
- C. For guarantees required and guarantee periods, see General Provisions.
- D. Provide manufacturer's guarantees for products.
 - 1. Where manufacturer's standard guarantees expire before expiration date required by Contract Documents, obtain and pay for guarantee extensions, at no additional cost to Owner.
- E. Provide all guarantees prior to final acceptance.
- F. Submit to Architect, all guarantees bound together, indexed and identified by specification section and equipment identification used in operating and maintenance data.
- G. Neither the final payment, nor occupancy by the Owner, nor Notice of Completion, shall be considered to relieve the Contractor of his responsibility for any materials or workmanship found to be defective, and he shall remedy any such defects and pay for damage to other work resulting from such defects, which may appear within the guarantee period.

END OF SECTION

SECTION 01760

SPARE PARTS AND MAINTENANCE MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, material, tools, equipment, and services for all spare parts and maintenance materials as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.
5. See specification sections for items required.

PART 2 - PRODUCTS

2.01 SPARE PARTS AND TOOLS

A. Package in clearly identified boxes.

1. Indicate manufacturers name, part name and stock number.
2. Indicate what piece of equipment part or tool is for.
3. Indicate name, address and phone number of closest supplier.

2.02 MAINTENANCE MATERIALS

A. Package in clearly identified boxes.

1. Indicate trade name and stock number.
2. Indicate which item material is to be used with.
3. Indicate name, address and phone number of closest supplier.

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

2.03 EXTRA MATERIALS

- A. Package in clearly identified containers, or install where indicated.
 - 1. Indicate trade name, stock number, size, color, etc.
 - 2. Indicate where product is to be used.
 - 3. Indicate name, address and phone number of closest supplier.

PART 3 - EXECUTION

3.01 DELIVERY

- A. Deliver to Owner at time of final completion, unless Owner requests earlier delivery.

END OF SECTION

SECTION 01810

BUILDING COMMISSIONING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing and training.
- B. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:
 - 1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
 - 2. Verify and document proper performance of equipment and systems.
 - 3. Verify that O&M documentation left on site is complete.
 - 4. Verify that the Owner's operating personnel are adequately trained.

1.02 RELATED WORK

- A. Specific commissioning requirements are given in the following sections of these specifications. All of the following sections apply to the Work of this section.
 - 1. 01810 Commissioning Requirements: Describes the commissioning process and responsibilities.
 - 2. 01811 Mechanical Systems Commissioning: Describes systems, pre-functional and final testing and startup responsibilities of each including checklist forms.
 - 3. 01812 Electrical Systems Commissioning: Describes systems, procedures, testing and checklists.

1.03 ABBREVIATIONS

- A. The following are common abbreviations used herein.
 - 1. A/E: Architect and Design Engineers
 - 2. CA: Commissioning Authority
 - 3. CC: Controls Contractor
 - 4. CM: Construction Manager (the Owner's representative).

- 5. Cx: Commissioning
- 6. EC: Electrical Contractor
- 7. FT: Functional Performance Test
- 8. GC: General Contractor (prime)
- 9. MC: Mechanical Contractor
- 10. PC: Pre-functional Checklist
- 11. PM: Project Manager (of the Owner)
- 12. Subs: Subcontractors to General
- 13. TAB: Testing, Adjusting and Balancing Contractor

1.04 DEFINITIONS

A. Following definitions apply to all Commissioning Activities:

- 1. "Contractor Start-Up" means sub-phase of Contractor's work ending with Acceptance of Work, during which Contractor performs a pre-planned program of activities including starting, testing, inspecting, adjusting, balancing, correcting Contract deficiencies, and other similar activities. During this period Commissioning Agent (CA) or his/her Representative shall be on site to observe, inspect and identify deficiencies in system operation.
- 2. "Completion of Startup" means when entire Work, including Contractor Startup and Fine Tuning, except those items arising from warranty provisions of Contract Documents, has been performed to requirements of Contract Documents and is so declared, in writing, by Commissioning Agent.
- 3. "Acceptance of Work" means when prerequisites to Acceptance of Work required by Contract Documents are fulfilled and Work is ready for use or is being used for purpose intended and state of work is so declared, in writing, by Owner.
- 4. "Fine Tuning" means sub-phase of Contractor's work, commencing after occupancy and ending twelve months later, during which Commissioning Agent identifies Contract deficiencies arising under normal operating conditions, after user occupancy, and Contractor corrects such Contract deficiencies.
- 5. "TAB" Contractor refers to the Test and Balance Contractor who is responsible for HVAC systems.

B. General:

- 1. Acceptance Phase: Phase of construction after startup and initial checkout when functional performance tests, O&M documentation review and training occurs.
- 2. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the Contract Documents.
- 3. Architect/Engineer (A/E): The prime consultant (Architect) and Mechanical and

Electrical sub-consultants who comprise the design team.

4. **Basis of Design:** The basis of design is the documentation of the approach and assumptions behind decisions that were made to meet the design intent. The basis of design describes the systems, components, conditions and methods chosen to meet the intent.
5. **Commissioning Authority (CA):** The CA directs and coordinates the day-to-day commissioning activities.
6. **Commissioning Plan:** An overall plan that provides the structure, schedule and coordination planning for the commissioning process.
7. **Contract Documents:** The documents binding on parties involved in the construction of this project (drawings, specifications, change orders, amendments, contracts, *Cx Plan*, etc.)
8. **Contractor:** The general contractor or authorized representative.
9. **Control System:** The central building energy management control system.
10. **Construction Manager (CM):**
 - a. The Owner's representative in the day-to-day activities of construction to assist in the overall management of the project including supervising and on-site managing authority over a project's construction.
11. **Data Logging:** Monitoring flows, currents, status, pressures, etc. of equipment using standalone data loggers separate from the control system.
12. **Deferred Function Tests:** FTs that are performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions that disallow the test from being performed.
13. **Deficiency:** A condition in the installation of function of a component, piece of equipment or system that is not in compliance with the Contract Documents (that is, does not perform properly or is not complying with the design intent).
14. **Design Intent:** A dynamic document that provides the explanation of the ideas, concepts and criteria that are considered important to the Owner.
15. **Design Narrative or Design Documentation:** Sections of either the Design Intent or Basis of Design.
16. **Factory Testing:** Testing of equipment on-site or at the factory, by factory personnel with an Owner's representative present.
17. **Functional Performance Test (FT):** Test of the dynamic function and operation of

equipment and systems (rather than just components) using manual (direct observation) or monitoring methods under (e.g. the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word, the primary work of TAB is setting up the system flows and pressures as specified, while functional testing is verifying that which has already been set up. The commissioning authority develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is usually performed by the installing contractor or vendor. Functional tests are performed after pre-functional checklists and startup is complete.

18. General Contractor (GC): The prime contractor for this project. Generally refers to all the GC's subcontractors as well. Also referred to as the Contractor, in some contexts.
19. Indirect Indicators: Indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100% closed.
20. Manual Test: Using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").
21. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.
22. Non-Compliance: See Deficiency.
23. Non-Conformance: See Deficiency.
24. Over-written Value: Writing over a sensor value in the control system to see the response of a system (e.g. changing the outside air temperature value from 50°F to 75°F to verify economizer operation). See also "simulated Signal."
25. Owner-Contracted Tests: Tests paid for by the Owner outside the GC's contract and for which the CA does not oversee. These tests will not be repeated during functional tests if properly documented.
26. Phased Commissioning: Commissioning that is completed in phases (by floors or areas, for example) due to the size of the structure or other scheduling issues, in order to minimize the total construction time.
27. Pre-functional Checklist (PC): A list of items to inspect and elementary component tests to conduct before final functional testing to verify proper installation of equipment, provided by the CA. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels OK labels affixed, gauges in place, sensors calibrated,

etc.). However, some pre-functional checklist items entail simple testing of the function of a component, a piece of equipment or system. Pre-functional checklists augment and are combined with the manufacturer's startup checklist.

The commissioning authority only requires that the procedures be documented in writing, and does not witness much of the pre-functional checklists, except for larger or more critical pieces of equipment.

28. Project Manager (PM): The contracting and managing authority for the Owner over the design and/or construction of the project.
29. Sampling: Functionally testing only a faction of the total number of identical or near identical pieces of equipment. Refer to Section 01810, part 3 for details.
30. Seasonal Performance Tests: Functional test which are deferred until the system(s) will experience conditions closer to their design conditions.
31. Simulated Signal: Disconnecting a sensor and using a signal generator to send an amperage, resistance or pressure to the transducer and DDC system to simulate a sensor value.
32. Specifications: The construction specifications of the Contract Documents.
33. Startup: The initial starting or activating of dynamic equipment, including executing pre-functional checklists.
34. Subs: The subcontractors to the GC who provide and install building components and systems.
35. Test Procedures: The step-by-step process that must be executed to fulfill the test requirements. The CA will develop the test procedures.
36. Test Requirements: Requirements specifying what modes and functions, etc. shall be tested. The test requirements are specified in the Contractor Documents.
37. Trending: Monitoring using the building control system.
38. Vendor: Supplier of equipment.
39. Warranty Period: Warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents.

1.05 COORDINATION

- A. Commissioning Team: The members of the commissioning team consist of the Commissioning Authority (CA), the Project Manger (PM), the General Contractor (CG), the Architect and Design Engineers (A/E), the Mechanical Contractor (MC), the Electrical

Contractor (EC), the TAB representative (TAB), the Controls Contractor (CC), any other installing subcontractors or suppliers of equipment. The Owner's building or plant operator/engineer is also a member of the commissioning team.

Management: Hired by the Owner, the CA directs and coordinates the commissioning activities. All members work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents. Refer to Section 01810 Part 1 for additional management details.

- B. Scheduling: The CA will work with the GC according to established protocols to schedule the commissioning activities. The CA will provide notice to the GC for scheduling commissioning activities. The GC will integrate all commissioning activities into the master schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.
- C. The CA will provide the initial schedule of primary commissioning events at the commissioning scoping meeting. The *Commissioning Plan* provides a format for this schedule. As construction progresses the CA will develop more detailed schedules. The Commissioning Plan also provides a format for detailed schedules.

1.06 COMMISSIONING PROCESS

- A. Commissioning Plan: The commissioning plan provides guidance in the execution of the commissioning process. The CA will issue the plan, although it will continue to evolve and expand as the project progresses. The *Specifications* will take precedence over the *Commissioning Plan*.
- B. Commissioning Process: The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.
 - 1. Commissioning during construction begins with a scoping meeting conducted the CA where the commissioning process is reviewed with the commissioning team members.
 - 2. Additional meetings will be required throughout construction, scheduled by the CA with necessary parties attending, to plan, scope, coordinate, schedule future activities and resolve problems.
 - 3. Equipment documentation is submitted to the CA during normal submittals, including detailed startup procedures.
 - 4. The CA works with the Subs in developing startup plans and startup documentation formats, including providing the pre-functional checklists to be completed by the appropriate Subs, during the startup process in conjunction with any additional startup forms used by the Subs.
 - 5. In general, the checkout and performance verification proceeds from simple to

complex; from component level to equipment to systems and intersystem levels with pre-functional checklists being completed before functional testing .an begin

6. The Subs, under their own direction, executed and document the pre-functional checklists and perform startup and initial checkout. The CA documents that the checklists and startup were completed according to the approved plans. This may include the CA witnessing startup of selected equipment.
7. The CA develops specific equipment and system functional performance test procedures. The Subs review the procedures.
8. The procedures are executed by the Subs, under the direction of, and documented by the CA.
9. Items of non-compliance in material, installation or setup are corrected at the Sub's expense and the system retested.
10. Commissioning is completed before Substantial Completion.
11. The CA reviews, pre-approved and coordinates the training provided by the Subs, and verifies that it was completed.
12. Deferred testing is conducted, as specified or required.

1.07 RESPONSIBILITIES

- A. The responsibilities of various parties in the commissioning process are provided in this section. The responsibilities of the mechanical contractor, TAB and controls contractor are in Section 01811 and those of the electrical contractor in Section 01812 and those of this Section. It is noted that the services for the Project Manager, Construction Manager, Architect, HVAC Mechanical and Electrical Designers/Engineers, and Commissioning Authority are not provided for in this contract. That is, the Contractor is not responsible for providing their services. Their responsibilities are listed here to clarify the commissioning process.
- B. All Parties:
 1. Follow the Commissioning Plan.
 2. Attend commissioning scoping meeting and additional meetings, as necessary.
- C. Architect (of A/E):
 1. Construction and Acceptance Phase:
 - a. Attend the commissioning scoping meeting and selected commissioning team meetings.

- b. Perform normal submittal review, construction observation, as-built drawing preparation, O&M manual preparation, etc., as contracted.
 - c. Provide any design narrative documentation requested by the CA.
 - d. Coordinate resolution of system deficiencies identified during commissioning, according to the contract documents.
 - e. Prepare and submit final as-built design intent documentation for inclusion in the O&M manuals. Review and approve the O&M manuals.
2. Warranty Period: Coordinate resolution of design non-conformance and design deficiencies identified during warranty period commissioning.
- D. Mechanical and Electrical Designers/Engineers:
1. Construction and acceptance Phase:
 - a. Perform normal submittal review, construction observation, as-built, drawing preparation, etc., as contracted.
 - b. Provide any design narrative, (Basis of Design) and sequences documentation requested by the CA. The designers shall assist (along with the contractors) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
 - c. Attend commissioning scoping meetings and other selected commissioning team meetings.
 - d. Participate in the resolution of system deficiencies identified during commissioning, according to the contract documents.
 - e. Prepare and submit the final as-built design intent and operating parameters documentation for inclusion in the O&M manuals. Review and approve the O&M manuals.
 - f. Provide a presentation at one of the training sessions for the Owner's personnel.
 - g. Review the pre-functional checklists for major pieces of equipment for sufficiency prior to their use.
 - h. Witness testing of selected pieces of equipment and systems.
- E. Commissioning Authority (CA):
1. The CA is not responsible for design concept, design criteria, compliance with codes, design or general construction scheduling, cost estimating, or construction

management. The CA may assist with problem solving, non-conformance or deficiencies, but ultimately that responsibility resides with the general contractor and the A/E. The primary role of the CA is to develop and coordinate the execution of a testing plan, observe and document performance – which systems are functioning in

accordance with the documented design intent and in accordance with the Contract Documents. The Contractors will provide all tools or the use of tools to start, checkout and functionally test equipment and system, except for specified testing with portable data-loggers, which shall be supplied and installed by the CA.

2. Construction and Acceptance Phase:

- a. Coordinates and directs the commissioning activities in a logical sequential an efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties.
- b. Coordinate the commissioning work and, with the GC and CM, ensure that commissioning activities are being scheduled into the master schedule.
- c. Develop the Commissioning Plan.
- d. Plan and conduct a commissioning scoping meeting and other commissioning meetings.
- e. Request and review additional information required to perform commissioning tasks, including O&M materials, contractor startup and checkout procedures.
- f. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
- g. Review normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the A/E reviews.
- h. Write and distribute pre-functional checklists.
- i. Develop an enhanced startup and initial systems checkout plan with Subs.
- j. Perform site visits, as necessary, to observe component, system installations, and testing. Attend selected planning and job site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/substitutions relating to the commissioning process. Assist in resolving any discrepancies.
- k. Approve pre-functional checklist completion by reviewing pre-functional checklist reports and by selected site observation and spot checking.
- l. Approve systems startup by reviewing startup reports and by selected site

observations.

- m. Review TAB execution plan.
- n. Witness sufficient functional testing of the control system and approve it to be used for TAB, fore TAB is executed.
- o. Approve air and water system balancing by reviewing completed reports and by selected site observation.
- p. With necessary assistance and review from installing contractors, write the functional performance test procedures for equipment and systems. This may include energy management control system trending, standalone data logger monitoring or manual functional testing.
- q. Analyze any functional performance trend logs and monitoring data to verify performance.
- r. Coordinate, witness and approve manual functional performance tests performed by installing contractors. Coordinate retesting as necessary until satisfactory performance is achieved. Perform actual functional testing without contractors on equipment so specified in Sections 01811 and 01812.
- s. Maintain a master deficiency and resolution log and a separate testing record. Provide the CM with written progress reports and test results with recommended actions.
- t. Review equipment warranties to ensure that the Owner's responsibilities are clearly defined.
- u. Oversee and approve the training of the Owner's operating personnel.
- v. Compile and maintain a commissioning record.
- w. Review the preparation of the O&M manuals.
- x. Provide a final commissioning report (as described in this section).

3. Warranty Period:

- a. Coordinate and witness required seasonal or deferred testing and deficiency corrections.

F. Construction Manager – Owner's Representative (CM):

1. Construction and Acceptance Phase:

- a. Facilitate the coordination of the commissioning work by the CA, and, with the GC

and CA, ensure that commissioning activities are being scheduled into the master schedule.

- b. Provide Owner's Project Requirements (OPR)
 - c. Review and approve the final *Commissioning Plan*.
 - d. Attend a commissioning scoping meeting and other commissioning team meetings.
 - e. Perform the normal review of Contractor submittals.
 - f. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CA.
 - g. Review and approve the functional performance test procedures submitted by the CA, prior to testing.
 - h. When necessary, observe and witness pre-functional checklists, startup and functional testing of selected equipment.
 - i. Review commissioning progress and deficiency reports.
 - j. Coordinate the resolution of non-compliance and design deficiencies identified in all phases of commissioning.
 - k. Sign-off (final approval) on individual commissioning tests as completed and passing. Recommend completion of the commissioning process to the Project Manager.
 - l. Assist the GC in coordinating the training of Owner personnel.
2. Warranty Period: Assist the CA as necessary in the seasonal or deferred testing and deficiency corrections required by the specifications.
- G. Owner's Project Manager (PM):
1. Construction and Acceptance Phase:
 - a. Manage the contract of the A/E and of the GC.
 - b. Arrange for facility operating and maintenance personnel to attend various field commissioning activities and field training sessions when scheduled.
 2. Commissioning Plan: Provide final approval for the completion of the commissioning work.

3. Warranty Period: Ensure that any seasonal or deferred testing and any deficiency issues are addressed.

H. General Contractor (GC):

1. Construction and Acceptance Phase:

- a. Facilitate the coordination of the commissioning work by the CA, and with the GC and CA ensure that commissioning activities are being scheduled into the master schedule.
- b. Include the complete cost of commissioning in the total contract price and ensure that all Subs have budgeted for their required level of involvement.
- c. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CA.
- d. In each purchase order or subcontract written, include requirements for submittal data, O&M data, commissioning tasks and training.
- e. Ensure that all Subs execute their commissioning responsibilities according to the Contract Documents and schedule.
- f. Provide materials and services to accomplish the commissioning scope of work for the mechanical and electrical systems furnished and installed as a part of this contract.
- g. Provide pre-functional and functional testing under the supervision of the Commissioning Agent, including preparation of data in form templates.
- h. Provide qualifying calibrated instrumentation needed for the prescribed testing procedures. Provide the services of specialized technicians when required for certain tests and/or validation efforts. These services may come from the vendors of the equipment to be tested or from qualified independent testing services.
- i. A representative shall attend a commissioning scoping meeting and other necessary meetings scheduled by the CA to facilitate the Cx process.
- j. Coordinate the training of Owner personnel.
- k. Prepare O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.

2. Warranty Period:

- a. Ensure that Subs execute seasonal or deferred functional performance testing,

witnessed by the CA, according to the specifications.

- b. Ensure that Subs correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

I. Equipment Suppliers:

1. Provide all requested submittal data, including detailed startup procedures and specific responsibilities of the Owner to keep warranties in force.
2. Assist in equipment testing per agreements with Subs.
3. Include all special tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment according to these Contract Documents in the base bid price to the Contractor, except for standalone data logging equipment that may be used by the CA.
4. Through the contractors they supply products to, analyze specified products and verify that the designer has specified the newest most updated equipment reasonable for this project's scope and budget.
5. Provide information requested by CA regarding equipment sequence of operation and testing procedures.
6. Review test procedures for equipment installed by factory representatives.

1.08 SUBMITTALS

- A. Submit draft and final contractor start-up report forms as described in part 3 of this section.

PART 2 – PRODUCTS

2.01 TEST EQUIPMENT

- A. Provide all testing equipment required by the Commissioning Process. Testing equipment shall be provided by the Contractor responsible for the item or system being tested. Mechanical contractor shall provide test equipment for HVAC and plumbing systems, except for equipment required by the Testing, Adjusting and Balancing contractor (TAB). Electrical contractor shall provide test equipment for electrical systems.
- B. Provide any special equipment, tools, and instruments, only available from vendor and specific to a piece of equipment, required for the commissioning process. This equipment shall remain on site and become property of the Owner after commissioning.

- C. Testing equipment shall be of sufficient quality and accuracy to test and measure to the tolerances specified. The following minimum requirements apply unless otherwise indicated.
1. Temperature sensors and digital thermometers: An accuracy of 0.5°F, resolution of $\pm 0.1^\circ\text{F}$ with a NIST certified calibration in the past year.
 2. Pressure sensors: An accuracy of $\pm 0.2.0\%$ of the value range being measured.
 3. Calibrated tags shall be affixed, or certificates of calibration shall be readily available.

PART 3 – EXECUTION

3.01 CONTRACTOR START-UP REPORT FORMS

- A. Prepare and submit one copy of report forms to be used in preparation of system reports for following:
1. Each mechanical system specified in Section 01811.
 2. Each electrical system specified in Section 01812.
- B. Each system report shall include following:
1. Project name.
 2. Name of system.
 3. Index of report's content.
 4. List of equipment in system.
 5. Adjacent to list of equipment, columns to indicate status of equipment operation, to date and to sign off equipment start-up.
 6. Space to record equipment and operational problems which cannot be corrected within scheduled Contractor Start-Up program, and which may delay Acceptance of Work.
 7. Manufacturers' equipment start-up reports.
 8. Systems' testing, balancing, and adjusting reports.
 9. Equipment report forms, which shall include:

- a. Project name.
 - b. Name of equipment.
 - c. Starting and testing procedures to be performed.
 - d. Observations and test results to be recorded.
- C. Submittals:
1. Submit draft report forms for Commissioning Agent's review and comment prior to final submission. Coordinate draft submissions with Commissioning Agent.
 2. Submit final report forms, acceptable to Commissioning Agent not later than twelve weeks before scheduled date of Acceptance of Work.

3.02 PRE-FACILITY START-UP MEETINGS

- A. Pre-Facility Start-Up meetings shall be held from start of Work until Contractor Start-Up schedules and Contractor Start-Up report forms have been approved by Commissioning Agent.
- B. Purpose: To monitor development of Contractor Start-Up schedule and Contractor Start-Up report forms.
- C. Frequency: As directed by Commissioning Agent until Contractor Start-Up schedule and Contractor Start-Up report forms are approved by Commissioning Agent.
- D. Location: Contractor's site office or other on-site location agreed to between Commissioning Agent and Contractor.
- E. Attendees:
 1. Contractor's Representatives: Contractor's site superintendent, mechanical and electrical subcontractors, and when so requested by Commissioning Agent, Sub-subcontractors, suppliers and other parties involved in Work. Contractor's representatives shall be qualified and authorized to act on behalf of party each represents.
 2. Commissioning Agent's representatives.
- F. Agenda:
 1. Review of progress of Contractor Start-Up schedule preparation.
 2. Review of progress of Contractor Start-Up report form preparation.
 3. Identification of problems impeding progress.

4. Other business.

G. Minutes: Contractor shall record minutes and distribute copies to all attendees within seven days after meeting.

3.03 FACILITY START-UP PROGRESS MEETINGS

A. Facility start-up progress meetings shall be held during Contractor Start-Up.

B. Purpose: To monitor Contractor Start-Up progress and to identify problems and action required for their resolution, to expedite Contractor Start-Up.

C. Frequency: Every two weeks or as otherwise directed by Commissioning Agent.

D. Location: Same as pre-Facility Start-Up meetings.

E. Attendees: Same as pre-Facility Start-Up meetings.

F. Agenda:

1. Review of Contractor Start-Up progress.

2. Identification of problems impeding progress towards achievement of Contractor Start-Up milestones.

3. Review of outstanding Contract deficiencies.

4. Review of Change Orders and Requests for Proposals.

5. Other business.

G. Minutes: Same as Pre-Facility Start-Up meetings.

3.04 FACILITY START-UP

A. Contractor Responsibilities During Facility Start-Up (Not necessarily in order listed):

1. Start equipment and systems as specified in Sections 01811 and 01812.

2. Test, adjust and balance equipment and systems as specified in Sections 01811 and 01812.

3. Demonstrate equipment and systems as specified in Sections 01811 and 01812.

4. Complete and submit Contractor Start-Up reports including:

a. Contractor's system and equipment start-up reports.

- b. Testing, adjusting and balancing reports.
 - c. Manufacturers' equipment start-up reports.
 - 5. Review Contract Documents and inspect Work to ensure completeness of Work and compliance with requirements of Contract Documents.
 - 6. Correct Contract deficiencies identified as a result of foregoing and as may be identified by Owner.
 - 7. Execute Change Orders issued by Owner.
 - 8. Perform other work and activities required for fulfillment of prerequisites to Acceptance of Work.
- B. Commissioning Agent Responsibilities during Facility Start-Up.
 - 1. Carry out pre-interim inspections as necessary.
 - 2. Witness manufacturers' equipment start-up.
 - 3. Verify starting, testing, adjusting and balancing by Contractor.
 - 4. Review and approve Contractor Start-Up reports.
 - 5. Cooperate in systems and equipment demonstration and instruction.
- C. Owner Responsibilities during Facility Start-Up.
 - 1. Initiate Change Orders as required.
 - 2. Verify correction of Contract deficiencies by Contractor.
 - 3. Verify execution of Change Orders by Contractor.
- D. Ongoing Cycle of Facility Start-Up Includes:
 - 1. Commissioning Agent's inspections.
 - 2. Documentation of results.
 - 3. Diagnosis of problems.
 - 4. Correction of Contract deficiencies and execution of Change Orders as required.
 - 5. Verification of results.