

P R O J E C T M A N U A L

FAMILY PARTNERS MANCHESTER

**351-377 FOREST SUMMIT COURT
MANCHESTER, MISSOURI 63021**

**ZWICK + GANDT PROJECT NO. 19049.00
FEBRUARY 12, 2020**



**ZWICK + GANDT ARCHITECTURE, INC.
9109 WATSON ROAD, SUITE 110
ST. LOUIS, MISSOURI 63126**

RESPONSIBLE PARTIES INVOLVED WITH PROJECT

OWNER:

FAMILY PARTNERS MANCHESTER, LLC

12880 Manchester rd.
St. Louis, MO 63131
314-863-9912

CONTACT:

Mr. Barth Holohan MSW, MBA

The Seal and Signatures below represent each
portion of the project that has been prepared
under his/her immediate supervision.

GENERAL CONTRACTOR:

REICON CONSTRUCTION CO.

3118 Watson Road
St. Louis, MO 63139
314-645-6363

CONTACT:

SEAN CONAWAY
rsc@reiconconstructors.com

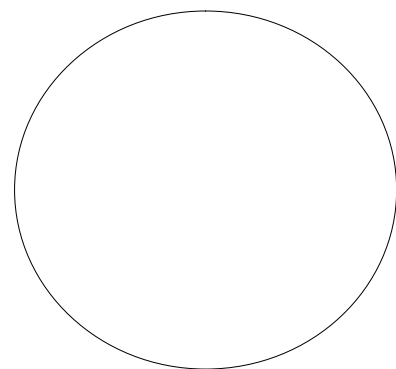
ARCHITECTURE:

ZWICK + GANDT ARCHITECTURE, INC.

9109 Watson Road, Ste. 110
St. Louis, Missouri
314-962-9292

CONTACT:

Brian Zwick
bzwick@zgarch-stl.com



Missouri State Certificate of Authority
A-2005007814-D

RESPONSIBLE PARTIES INVOLVED WITH PROJECT

SECTION 000100 INSTRUCTIONS TO BIDDERS

1. THE PROJECT

FAMILY PARTNERS MANCHESTER

Project is located at:
351-377 FOREST SUMMIT COURT,
MANCHESTER, MO 63021

2. THE OWNER

FAMILY PARTNERS MANCHESTER, llc
12880 Manchester rd.
St. Louis, MO 63131
Attn: Mr. Barth Holohan MSW, MBA

Telephone: 314-863-9912
<http://familypartners.com/>

3. THE ARCHITECT

Zwick + Gandt Architecture, Inc.
9109 Watson Road, Suite 110
St. Louis, MO 63126

Phone: 314-962-9292
Email: bzwick@zgarch-stl.com
Contact: Brian Zwick

4. CONSULTANTS

The **Structural Engineer** for the project is:

Ron Romacker
Phone: (636) 667-7937
Email: rsquareromacker@gmail.com

The **Civil Engineer** for the project is:

David Vonarx
Phone: (636) 797-8425
Email: dvonarx@vonarxengineering.com

5. GENERAL CONTRACTOR

Reicon construction co.

3118 Watson Road
St. Louis, MO 63139
314-645-6363

Phone: 314-645-6363
Email: rsc@reiconconstructors.com
Contact: Sean Conway

6. SECURING DOCUMENTS

- 6.1 Bidding documents are made available thru printer, General Contractor and Architect.

7. BIDDING

- 7.1 The fact that a Subcontractor submits a bid will be construed to mean that he agrees to carry out all provisions set forth in the drawings and specifications according to their full intent and meaning.
- 7.2 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

8. EXAMINATION OF DOCUMENTS AND SITE OF WORK

- 8.1 Before submitting a bid, each bidder shall examine the Drawings carefully, shall read the Specifications and all other proposed Contract Documents, and shall visit the site where work will be performed. Each Bidder shall fully inform itself, prior to bidding, as to existing conditions and limitations under which the Work is to be performed, and shall include in its bid a sum to cover the cost of all items necessary to perform the Work as set forth in the proposed Contract Documents. No allowance will be made to a bidder because of the lack of such examination or knowledge. The submission of a bid will be considered as conclusive evidence that the Bidder has made such examination.

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- 8.2 Adequate time and facilities have been made available by the Owner for the Bidders to satisfy themselves as to the conditions of the bid, and no adjustments of any kind will be made in the Contract Sum or Time as a result of Bidder's failure to acquaint itself with these conditions.
 - 8.3 Submitting a bid shall constitute full evidence that the Bidder has examined the site, read the specifications, examined the drawings, and is fully cognizant of the conditions under which the work will be conducted.

9. BIDDER AND SUBCONTRACTORS

- 9.1 The Bidder shall have sufficient means and experience in the types of work called for to assure completion of the Contract in a satisfactory manner.
- 9.2 The Bidder by making a Bid represents that:
 - 9.2.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.
 - 9.2.2 The Bid is made in compliance with the Bidding Documents.
 - 9.2.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.
 - 9.2.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

10. EXECUTION OF AGREEMENT

- 10.1 Form of contract shall be A.I.A. Form A-101, 2017 Edition, "Standard form of Agreement between Owner and Constructor" where basis of payment is stipulated sum.

CONTRACT SUBMITTALS

- 10.2 Prior to delivery of the signed Agreement, the Bidder to whom has received Notice of Intent to Award shall deliver to the Owner for review and evaluation the contract submittals identified in paragraph 12.4 below. Two (2) copies of all

contract submittals will be required within 15 days after NOTICE OF INTENT TO AWARD.

- 10.3 All Contract submittals shall be approved by the Owner before the successful bidder receives Notice to proceed and allows the bidder to proceed with the Work. Failure or refusal to provide the required Contract submittals in a form satisfactory to the Owner shall subject the successful bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required materials or loss of award. Upon loss of award the Owner will go to the next successful bidder until a Contract is fully executed.
- 10.4 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after NOTICE OF INTENT TO AWARD, furnish to the Owner through the Architect in writing the following Contract Submittals:
1. Schedule of values
 2. Certificate of Insurance
 3. Evidence of legal authority to perform work within the jurisdiction of the project
 4. Any requirements of Bank, Title Company, etc.
 5. Other items identified in the documents.
- 10.5 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.
- 10.6 Prior to the execution of the Contract, the Owner or Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.
- 10.7 Persons and entities proposed by the bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be change except with the written consent of the Owner and Architect.

11. INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING

INTERPRETATION

INSTRUCTIONS TO BIDDERS

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- 11.1 If any Bidder is in doubt as to the true meaning of any part of the proposed Contract Documents, or finds discrepancies in or omissions from any part of the proposed Contract Documents, it is required to submit to the Owner and Architect a written request for interpretation thereof no later than five (5) business days before bids will be opened. The person submitting the request shall be responsible for its prompt delivery.

ADDENDUM

- 11.2 Interpretation or correction of proposed Contract Documents will be made only by ADDENDUM and will be mailed, faxed, e-mailed, or delivered to each Bidder. No one is authorized to amend any of the proposed Contract Documents, in any respect, by an oral statement, or to make any representation or interpretation not incorporated into an Addendum.
- 11.2.1 Addenda will be mailed or faxed to all who are known to have received a complete set of Bidding Documents (Drawings and Specifications).
- 11.2.2 Copies of Addenda will be made available for review wherever bidding documents are on file for that purpose.
- 11.2.3 Failure of any bidder to receive any such Addendum will not relieve such Bidder from any obligation set forth in the Bidding Documents (Drawings and Specifications). All addenda become part of the Contract Documents.
- 11.2.4 Each bidder shall acknowledge receipt of all addenda in his bid by inserting the number and date of each addendum in the space allocated on the bid proposal form.
- 11.2.5 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which included postponement of the date for receipt of Bids.
- 11.2.6 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

SUBSTITUTION

- 11.3 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

INSTRUCTIONS TO BIDDERS

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- 11.4 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contract that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Owner or Architects decision of approval or disapproval of the proposed substitution shall be final.
- 11.5 If the Owner or Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
- 11.6 All Bidders will be informed in writing by the Owner or Architect of all interpretations or acceptable material substitutions made during the time of bidding; IN THE ABSENCE OF SUCH APPROVAL ALL ITEMS SHALL BE FURNISHED AS SPECIFIED. No oral interpretations of the plans or specifications will be made to bidders. Interpretations made will be in the form of written addenda, which, if issued, will be sent to all bidders, providing said interpretations can be made at least 48 hours prior to opening of bids.
- 11.7 No substitutions will be considered after the Contact award unless specifically provided for tin the Contract Documents.

12. ALTERNATES, ALLOWANCES AND UNIT PRICES

- 12.1 The Owner has included Alternate Bids and Unit Prices on the Bid Form that must be completed by the bidder as part of its bid. If the Alternate Bids or unit prices are not completed, the bid may be rejected by the Owner as non-responsive. The Owner may also require allowances applicable to specific portions of the work. The bidder, as part of its bid, must include these allowances. If these allowances are not included, the bid may be rejected by the Owner as non-responsive.
- 12.2 The Bidder shall carefully review all work described on the drawings and in Section 001210, 001230 and 001432 of the specifications pertaining to Allowances, Unit Prices and Alternatives before bidding.
- 12.3 Should clarification of alternatives be required; they will be issued to all Bidders by Addendum.

INSTRUCTIONS TO BIDDERS

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- 12.4 Alternative prices shall truly reflect all overhead, profit, insurance and taxes.
- 12.5 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the Sum of the Base Bid and Alternates accepted.
- 12.6 Each Bidder must bid on all Alternates and Unit Prices listed in the Bid Proposal. They will be fully considered in awarding the Contract.

13. TAXES

- 13.1 The Contractor shall include all sales and use taxes on materials and equipment included in his Bid Proposal.

14. PERMITS

- 14.1 The Owner/ Architect will apply for permit and respond to questions to obtain the approval of the plan reviewers. Upon agency acceptance and notice of permit to be picked-up the successful bidder shall pay for and pick up the permit.

Contractor will be responsible for obtaining all permits and giving all required notifications, and shall include all associated costs in their bid. All costs for any additional permits, fees, etc., will be the respective sub-contractor's responsibility.

- 14.2 All work is to be performed in compliance with all OSHA regulations and Federal Hazard Communication Regulations.
- 14.3 All work to be governed and controlled by local, state and federal requirements for air pollution and disturbance of the surrounding areas.
- 14.4 All work performed on a design-build basis require that the selected Design-Build Subcontractor/ designer prepare their own documents and submit them for permit approval in a timely manner to maintain the project schedule.

15. UNIT PRICES

- 15.1 The Owner may include Unit Prices in the Bid Form that must be completed by the Bidder as part of its bid. If the Unit Prices are not completed, may be rejected by the Owner as non-responsive.

16. SCHEDULE

INSTRUCTIONS TO BIDDERS

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- 16.1 Each bidder, by submitting a bid, certifies that it will meet all schedule milestones and completion dates. A project schedule is to be submitted after bid selection as part of the contract submittals.

END OF SECTION 00100 - INSTRUCTIONS TO BIDDERS

SECTION 000700 – GENERAL CONDITIONS**PART 1 – GENERAL**

General conditions of the contract are AIA A201, General Conditions of the Contract, 2007 edition. This document is mentioned for reference and standard in the industry available for viewing and download at <https://www.aiacontracts.org/>.

It is the responsibility of each bidder to become familiar with this document and the supplementary conditions the are referenced in this Project manual and are considered in the preparation of a bid and the execution of the work.

END OF SECTION 000700 A201 GENERAL CONDITIONS

SECTION 000800 - SUPPLEMENT TO GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

These SUPPLEMENTARY GENERAL CONDITIONS modify, change, delete from or add to the "General Conditions of the Contract for Construction", AIA Document A201 2007 Edition. Where any Article of the General Conditions is modified, or any Article, Section, Paragraph, Subparagraph or Sub-subparagraph thereof is modified or deleted by these SUPPLEMENTARY GENERAL CONDITIONS, the unaltered provisions of that Article, Section, Paragraph, Subparagraph or Sub-subparagraph shall remain in effect.

The articles of the SUPPLEMENTARY GENERAL CONDITIONS use Articles, Numbers and Titles which relate to the AIA document A201, General Conditions of the Contract. As an example, **1.2.3.4** indicates a reference to Article **1**, Paragraph **2**, and Subparagraph **3**, and Sub-subparagraph **4** of the AIA General Conditions original document.

All Divisions of the Specifications shall be subject to the requirements of the General Conditions and Supplementary General Conditions.

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ARTICLE 1 - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

Delete Subparagraph 1.1.1 and substitute the following subparagraph:

1.1.1 The Contract Documents consist of ALL BIDDING DOCUMENTS, the AGREEMENT BETWEEN THE OWNER AND THE CONTRACTOR, THE CONDITIONS OF THE CONTRACT (GENERAL, SUPPLEMENTARY, SPECIAL AND OTHER CONDITIONS), INVITATION TO BIDDERS, INSTRUCTIONS TO BIDDERS, BID FORM, THE DRAWINGS, THE SPECIFICATIONS OR PROJECT MANUAL, ALL ADDENDA issued prior to and all MODIFICATIONS issued after execution of the Contract. A modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a written order in the form of a Construction Change Directive pursuant to paragraph 7.3 or (4) a written order for a minor change in the Work issued by the Architect pursuant to paragraph 7.4.

Add the following Subparagraphs to Paragraph 1.1:

1.1.9 ADDENDA

1.1.9 Addenda are written or graphic instruments issued by the Architect prior to receipt of the bids which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections.

1.1.10 BID

1.1.10 A Bid is a complete and properly signed proposal to do the Work for the sums stipulated therein, submitted in accordance with Bidding Documents. Acceptance of the Bid by the Owner will result in a contract between the Owner and Contractor.

1.1.11 BASE BID

1.1.11 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

1.1.12 ALTERNATE BID

1.1.12 An Alternate Bid (or Alternate) is the amount stated in the Bid to be added or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

1.1.13 BIDDER

1.1.13 A Bidder is a person or entity who submits a Bid.

1.1.14 SUB-BIDDER

1.1.14 A Sub-bidder is a Person or entity who submits a Bid to a Bidder for materials, equipment, or labor for a portion of the Work.

1.1.15 FINAL COMPLETION

1.1.15 Final Completion is achieved at the time that final project review has been performed by the Architect and the final Certificate for Payment issued by the Architect to the Owner.

1.1.16 JOBSITE

1.1.16 The Jobsite shall mean the area in which the Work is to be performed and such other areas as may be designated by OWNER for the storage of CONTRACTOR's materials and equipment.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following sentence to end of Subparagraph 1.2.1:

"If the Contract Documents do not specifically allow CONTRACTOR a choice as to quality or cost of items to be furnished, but could be interpreted to permit such a choice, they shall be construed to require CONTRACTOR to furnish the best quality and most expensive items."

1.4 INTERPRETATION

Add the following sentences to Subparagraph 1.4.1:

"Specifications and drawings are to be interpreted according to the full intent, meaning and spirit, whether taken together or separately. Taken together, they shall be deemed to mutually explain each other and to be descriptive of the work to be performed under the Contract."

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Add the following Subparagraph 1.5.3 to paragraph 1.5:

1.5.3 CONTRACTOR'S USE OF INSTRUMENTS OF SERVICE IN ELECTRONIC FORM

1.5.3.1 The Architect may, with the concurrence of the Owner, furnish to the Contractor versions of Instruments of Service in electronic form. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.

1.5.3.2 The Contractor shall not transfer or reuse Instruments of Service in electronic or machine-readable form without the prior written consent of the Architect.

1.5.3.3 All Contract Documents furnished by OWNER are and shall remain OWNER's property. They are not to be published or used by CONTRACTOR on any other project and, with the exception of one complete set for CONTRACTOR, are to be returned to OWNER upon completion of the work.

Add the following Subparagraphs to Article 1:

1.6 EXECUTION OF CONTRACT DOCUMENTS

1.6.1 Execution of Contract: The successful bidder shall execute a contract per Section 00100, Instructions to Bidders with written Notice of Intent to Award the contract. The executed contract will use form "Agreement between Contractor and Owner (Form A-101, issued by the AIA, 2007 edition).

1.6.2 CONTRACTOR warrants and represents that, in executing the Agreement and undertaking the Work, it has not relied upon any oral inducement or representation by OWNER, OWNER'S REPRESENTATIVE, the Architect/Engineer or any of their officers or agents as to the nature of the Work, the Project conditions or otherwise.

1.7 COORDINATION

1.7.1 Representatives of the Owner, Contractor and Architect shall meet periodically at mutually agreed-upon intervals for the purpose of establishing procedures to facilitate cooperation, communication and timely responses among the participants. By participating in this arrangement, the parties do not intend to create additional contractual obligations or modify the legal relationships which may otherwise exist.

ARTICLE 2 - OWNER**2.1 GENERAL**

The following Sub-Subparagraphs added to Subparagraph 2.1.1:

2.1.1.1 The OWNER'S REPRESENTATIVE or ARCHITECT, with the written consent of Family Partners llc, is the only person or organization authorized and empowered to issue Modifications. If the CONTRACTOR should proceed with any work without a written Modification from the OWNER'S REPRESENTATIVE or ARCHITECT countersigned by Family Partners llc, it shall constitute a waiver by the CONTRACTOR of any claim for an increase in the Contract Price or an extension of the Contract Time resulting from that work activity, and the CONTRACTOR shall be stopped from asserting any claim under Article 13 as a result of its actions in this regard.

2.1.1.2 With respect to any provisions of the Contract which require CONTRACTOR to indemnify OWNER, to provide insurance for the protection of OWNER or to release OWNER from, or waive, any claims CONTRACTOR may have against it, the term "OWNER" shall mean OWNER and OWNER'S REPRESENTATIVE, and their officers, directors, agents, employees and assigns of each and shall to the extent applicable, include the parent, related, affiliated and subsidiary companies of OWNER'S REPRESENTATIVE and the officers, directors, agents, employees and assigns of each.

2.1.1.3 OWNER'S REPRESENTATIVE is the person or organization designated from time to time by OWNER to act as its representative and is identified in Article 3 of the Agreement or the most current amendment thereto. Except as otherwise provided in the Contract Documents and until CONTRATOR is notified in writing by OWNER to the contrary, all actions to be taken by, all approvals, notices, consents, directions and instructions to be given by, all notices and other matters to be delivered to, all determinations and decisions to be made by, and, in general, all other action to be taken by, or given to OWNER shall be taken, given and made by, or delivered or given to OWNER'S REPRESENTATIVE and Family Partners llc; provided, however, that OWNER (and not OWNER'S REPRESENTATIVE) shall be solely obligated to CONTRACTOR for all compensation required to be paid by OWNER to CONTRACTOR hereunder. OWNER'S REPRESENTATIVE is referred to throughout the Contract Documents as if singular in number and neutral in gender. If OWNER'S

REPRESENTATIVE is an organization, then it shall, in turn, act through such person or persons as it may designate in writing from time to time. Only those so designated are authorized to grant on behalf of OWNER'S REPRESENTATIVE any approval, consent or waiver with respect to the Contract Documents or the Work, or to otherwise act for OWNER'S REPRESENTATIVE in any capacity whatsoever. All communication with the OWNER'S REPRESENTATIVE or such other person as it may designate. Any reliance, act or omission on the part of CONTRACTOR not authorized or approved by OWNER'S REPRESENTATIVE and Family Partners llc shall be at the sole risk and expense of the CONTRACTOR.

Add the following Subparagraph to Paragraph 2.1:

- 2.1.3** "The Owner" refers to:
FAMILY PARTNERS MANCHESTER, llc
12880 Manchester rd.
St. Louis, MO 63131

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

Add the following Subparagraphs to Paragraph 2.2:

- 2.2.6** Access. Owner shall at all times have access to the Work at each and every stage of preparation and progress. CONTRACTOR shall provide facilities for such access. The CONTRACTOR shall not inhibit free and direct access to properties neighboring the Project site.
- 2.2.7** General. The foregoing is in addition to all other rights, privileges, duties and responsibilities of OWNER enumerated in these Contract Documents.

ARTICLE 3 - CONTRACTOR

3.1 GENERAL

Add following Sub-Subparagraph to Subparagraph 3.1.1:

- 3.1.1.1** The term "CONTRACTOR" means the CONTRACTOR, its project manager (or such other title used by CONTRACTOR to designate its on-site representative responsible for the performance of the Work) and such other person or persons designated in writing to OWNER from time to time by CONTRACTOR to act as its representative and who shall have the authority to binding CONTRACTOR. The CONTRACTOR shall so designate a sufficient number of representatives that there shall be at least one authorized representative on the Jobsite at all times in which the Work is being performed.

Add the following Subparagraph to Paragraph 3.1:

3.1.4 No Oral Waiver. The provisions of this Contract cannot be amended, modified, varied or waived in any respect except by a writing signed by OWNER. CONTRACTOR is hereby given notice that no person has authority to orally waive, or to release CONTRACTOR from, any of CONTRACTOR'S duties or obligations under or arising out of this Contract. Any waiver, approval or consent granted to CONTRACTOR shall be limited to those matters specifically and expressly stated thereby to be waived, approved or consented to and shall not relieve CONTRACTOR of the obligation to obtain any future waiver, approval or consent.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Delete the first sentence of Subparagraph 3.2.2 and substitute the following sentence:

"The Contractor to carefully study and compares the Contract Documents with each other PRIOR TO EVERY SEQUENCE OF WORK in the construction schedule and with information furnished by the Owner pursuant to subparagraph 2.2.2 (for the duration of the project) and report to the Architect, in writing, immediately, errors, inconsistencies, or omissions discovered."

Delete Subparagraph 3.2.4 and substitute the following Subparagraph:

3.2.4 The Contractor shall perform the work in accordance with the Contract Documents and submittals reviewed for general compliance with the Contract Documents and as necessary and reasonably inferable to produce the intended results, and pursuant to paragraph 3.12. Should it appear that work intended to be described, or any of the matters relative thereto, is not sufficiently detailed or explained on the drawings or in the specifications, the Contractor shall apply, in writing, immediately to the Architect, for such drawings or explanations as may be necessary, and shall conform to the same as far as they shall be consistent with original documents.

Add the following Subparagraphs to Paragraph 3.2:

3.2.5 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect (due to delays in completion beyond the completion date) when providing: additional management of the project, evaluation and responses to the Contractor's requests for information (where such information was available to the Contractor from a careful study and comparison of the Contract Documents & field conditions or other Owner-provided information or Contractor-prepared coordination drawings or prior Project correspondence or documentation.

3.2.6 Any errors or omissions appearing in the drawings or specifications shall be called to the attention of the Owner's Representative or Architect by the Contractor before the bids are received or, in any case, BEFORE WORK PROCEEDS. It shall also be the obligation of the CONTRACTOR to review the Contract Documents to determine and to notify the OWNER of any discrepancy between building codes and regulations of which the CONTRACTOR has knowledge or should be reasonably able to determine. The CONTRACTOR shall not violate any applicable

laws, codes and ordinances, or of any recorded covenants of which the CONTRACTOR has knowledge. If the CONTRACTOR observes that portions of the Contract Documents are at variance with applicable laws, statutes, ordinances, building codes, rules or regulations, the CONTRACTOR promptly shall notify the OWNER in writing. OWNER shall thereafter give appropriate written instructions to CONTRACTOR, and such instructions shall be final.

Should CONTRACTOR fail to report in writing an error in the Contract Documents or, having reported the same, fail to wait for OWNER's instructions as aforesaid prior to proceeding with the Work, then any Work performed by or on behalf of CONTRACTOR, directly or indirectly, after its discovery of an error in the Contract Documents shall be at CONTRACTOR'S own risk and expense, and CONTRACTOR shall be liable for all damages and corrective action resulting there from. Further, any defective Work performed by or on behalf of CONTRACTOR, directly or indirectly, as a result of an undiscovered error in the Contract Documents which CONTRACTOR should have discovered by careful study and comparing the same shall be at CONTRACTOR'S own risk and expense, and CONTRACTOR shall be liable for all damages and corrective action resulting there from.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Delete Subparagraph 3.3.1 and substitute the following Subparagraph:

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

3.3.1.1 The Contractor executing this contract shall be responsible for coordinating and scheduling this work and the work of his subcontractors, sub-subcontractors, material suppliers, fabricators, and all other agents, employees, or other persons performing portions of the work.

3.3.1.2 Where required by local codes, jurisdictions, etc., this Contractor shall arrange for the proper installation of such components or items of the work included, that are not a part of the work normally done by his personnel, by securing the services of personnel properly qualified for such work or by subcontracting such portions of the work to qualified firms.

Add the following Subparagraphs to Subparagraph 3.3:

3.3.4 Measurements: Verify all measurements at the job. No extra charges or compensation will be allowed as a result of failure to verify dimensions before ordering materials or fabricating items.

3.3.5 Layout: Contractor and all Subcontractors shall be fully responsible for the accurate placement and installation of their work.

3.3.6 Job Site Administration: The Contractor is to provide full time on-site supervision by a competent project superintendent. This individual is to be present at each weekly project meeting. This individual is to be dedicated to this project full-time for the duration of the Contract.

3.3.7 Weekly Project Meetings: The Contractor is to have the on-site superintendent at weekly project meetings on the site, for the duration of the Contract. These meetings are primarily to review progress and address potential problems that need to be addressed. The Contractor is to prepare and distribute typed written minutes within two days of the meeting. Meeting minutes DO NOT fulfill the requirements for written confirmation or notification as prescribed elsewhere in the Contract. Meeting minutes to identify: Old Business, New Business, and Responsible Party for each item. These meeting will be held in the General Contractor's construction trailer. The Contractor will be required to submit the previous weeks daily construction log along with a thorough schedule review. Meeting agenda to include but not limited to: Construction Progress, Shop drawing submittal progress, Review of RFI's, schedule progress, current construction issues, Coordination of Owner's on-going use of site with construction activities, subcontractor issues from previous meeting, and any other issues. General Contractor weekly meetings with subcontractors is to be held prior to the Owner's weekly Project Meetings, NO EXCEPTIONS.

3.3.8 Surveying, Layout and Controls: The Contractor shall establish and maintain lines, levels, and benchmarks. Furthermore, the Contractor shall employ a surveyor licensed by the State of Missouri to establish and maintain all lines, levels and benchmarks necessary for the location and construction of the project. It is preferred the licensed surveyor be the civil engineer of record given their knowledge of the existing conditions and proposed work. Before proceeding with the work, check the information shown on the drawings with the existing conditions; verify that there are not discrepancies prior to start of work.

3.3.9 CONTRACTOR shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of OWNER, OWNER'S REPRESENTATIVE or the Architect/Engineer in their administration of this Contract or by inspections, tests or approvals required or performed under Paragraph 13.5 herein by persons other than CONTRACTOR.

Further, notwithstanding the fact that a dispute, controversy or other question may have arisen between the parties hereto relating to the execution or progress of the work, the interpretation of the Contract Documents, the payment of any monies, the delivery of any materials or any other matter whatsoever, CONTRACTOR shall not be relieved of its obligations under the Contract Documents pending the determination of such dispute, controversy or other question.

3.3.10 CONTRACTOR shall in all respects comply with, and shall cooperate with the OWNER in enforcing all site procedures, conditions and rules established by the OWNER which affect any of the Work being performed for the Project or at the Jobsite, including but not limited to Project

schedules; access; security; traffic and solicitation; work and storage areas; utilities; safety, medical and first aid facilities; fire and explosion precautions; pollution; sanitation; cleanup and work conditions. CONTRACTOR shall be required to attend all Jobsite or Project meetings held by the OWNER in regard to site control, procedures, schedule or coordination.

3.4 LABOR AND MATERIALS

Add the following Sub-subparagraphs to Subparagraph 3.4.1:

3.4.1.1 The name of a certain brand, make, or manufacturer shall set forth and convey the style, type, character, capacity, function, quality, performance requirement, design, and appearance of the article required.

3.4.1.2 The Contract is based on the products (materials, components, assemblies, and equipment) specified.

3.4.1.3 All materials shall be factory labeled or shall be shipped in labeled containers describing the contents. Labels and containers shall be retained as necessary for review by the Architect.

3.4.1.4 Erection, application, or installation shall be in accordance with manufacturer's specifications and best standard, and architectural and engineering practice.

3.4.1.5 SUBSTITUTIONS MAY BE MADE PROVIDED THEY HAVE THE WRITTEN APPROVAL OF THE ARCHITECT ISSUED PRIOR TO SUBMISSION OF BIDS AS OUTLINED IN THE "INSTRUCTIONS TO BIDDERS" SECTION. IN THE ABSENCE OF SUCH APPROVAL, ALL MATERIALS SHALL BE BID AND FURNISHED AS SPECIFIED, REFER TO ARTICLE 3.4.1.6.

3.4.1.6 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified, only under the conditions set forth herein, and where circumstances require consideration, as determined by the Owner and the Architect.

(a) The Contractor, subcontractor, sub-subcontractor, material supplier, manufacturer, or fabricator certifies in writing that a specific material, product, component, assembly, or item specified or required as part of the work is no longer manufactured, produced, fabricated, or has materially changed from the intended item specified;

(b) Due to adverse conditions of timely availability and/or delivery as necessary to maintain the construction sequence or schedule of the work which are beyond the control of the Contractor, and which can be proven to the satisfaction of the Owner and Architect that

the Contractor has fully endeavored to secure the availability and/or timely delivery of the specified item of which the substitution request is subsequently being made.

3.4.1.7 By making written requests for substitutions based on Clause 3.4.1.6 (a) or (b) above, the Contractor:

(a) represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified, utilizing the characteristics as defined in paragraph 3.4.1.1, and the relevant appropriate technical specification sections, drawings, and project manual information as a basis for selection and submission as a substitution;

(b) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;

(c) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

(d) certifies that the cost data presented is complete and includes all related costs under this Contract but excludes costs under separate contracts, and excludes the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently becomes apparent; and

(e) the Contractor shall endeavor to select an acceptable substitution which meets the appropriate criteria and does not require an adjustment to the Contract Sum.

Add the following Subparagraphs to Paragraph 3.4:

3.4.4 Acceptance of Previous Work: Any Contractor or Subcontractor who installs work over surfaces of previous work accepts same as being satisfactory to provide a substantial first-class workmanship installation. If undersurface is such that this is not possible, then said Contractor shall notify the Owner's Representative or the Owner so that proper corrective steps may be taken before any installation is made.

3.4.5 CONTRACTOR shall assign to and maintain on the Work a force of experienced employees in the knowledge and skills to perform the work. Equipment and tools to be in first class operating condition, adequate to complete the work within the prescribed time schedule and shall furnish careful, efficient and experienced business administration and supervision of the work force.

3.4.6 Any of CONTRACTOR's assigned personnel or subcontractors whom the OWNER may consider to be incompetent, careless, insubordinate or otherwise objectionable, or whose conduct

or presence is considered to be detrimental to the best interests of the Project, or who are not required for the Work shall be removed at OWNER's request. OWNER shall not incur any liability, responsibility or obligation whatsoever in regard to exercising its rights herein either to CONTRACTOR or any other person.

3.4.7 If OWNER requires, CONTRACTOR shall give, or shall require its suppliers or the manufacturers to give, full and accurate information in writing to OWNER on any questions concerning the kind and quality, performance and/or delivery status of any materials and equipment, or such other data with respect thereto as may be requested by OWNER, and shall obtain for OWNER the written assurances of a manufacturer that its material and/or equipment is designed and appropriate for the use intended.

3.4.8 The Contractor, subcontractors, sub-subcontractors and any other person's part of the work force to complete the work; must install all products and materials per the manufacturer's latest installation instructions and procedures. Whether shown on the documents or not. A brief review of the contract documents and the manufactures installation instructions is to be performed by the superintendent and/or subcontractor performing the work; PRIOR TO ANY WORK STARTING. Any discrepancies between installation instructions/ procedures and the Documents are to be brought to the attention of the Architect for a resolution prior to performing the work. Failure to follow this subparagraph is cause to remove work in place and properly reinstall the products, materials or systems as required at no additional expense to the Owner. The objective in subparagraphs 3.4.10, 3.4.11, and 3.4.12 are to improve the quality of the installation, but more importantly to take advantage of the skill and expertise of the installers to promote communication early to resolve potential conflicts.

3.5 WARRANTY

Subparagraph 3.5 – Delete words “of good quality and” in the first sentence.

Add the following Sub-Subparagraph to Subparagraph 3.5:

3.5.1 The CONTRACTOR agrees that this warranty and others specified in the Contract Documents shall be expressly included in its subcontracts and purchase orders, and those subcontracts and purchase orders shall further provide that either the CONTRACTOR and/or OWNER may enforce these warranties in any manner provided by law or the Contract Documents. The CONTRACTOR shall further require its subcontractors to provide identical terms in its subcontracts and purchase orders to the ultimate effect that the OWNER can enforce such warranties on its behalf if that is deemed necessary or desirable by the OWNER.

The CONTRACTOR shall assemble all warranties set forth in the Contract Documents into the operation and maintenance manuals required in the Contract Documents. The OWNER shall be supplied un-priced subcontracts and purchase orders from the CONTRACTOR and its

subcontractors to verify that these warranty protections and the other requirements of the Contract Documents are being imposed as required.

3.6 TAXES

Add the following Sub-Subparagraph to Subparagraph 3.6:

3.6.1 CONTRACTOR shall pay, or cause to be paid, all sales, consumer, use, excise and other similar taxes required to be paid in connection with the Work or upon materials, tools or equipment brought to the Jobsite or used in the Work, and all ad valorem personal property taxes levied against any tools or equipment utilized by CONTRACTOR or its Subcontractors or Sub-Subcontractors in the performance of the Work, all of which shall be deemed included in the Contract Price, except the taxes described in Paragraph 3.6.

If any of the foregoing taxes are not paid in a timely manner, OWNER may withhold the amount of any such taxes from any amounts owing to CONTRACTOR under the Contract Documents, submit the amount so withheld to the appropriate taxing authority on behalf of CONTRACTOR and credit said amount against the Contract Price.

3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

Delete Subparagraph 3.7.1 and add the following Subparagraph to Paragraph 3.7:

Delete words in first sentence up to the first comma in Subparagraph 3.7.1 and add the following:

“The Owner has paid application fees to start the processing of the General Building permit from the City of Manchester and the West County Fire Department prior to start of bidding. Since application the Architect has responded to questions and clarifications to enable the permit to be picked up upon notice to proceed or soon thereafter,”

Add the following Subparagraphs to Paragraph 3.7:

3.7.6 In addition to the permits and licenses necessary and required for the prosecution of the project, the Contractor shall secure and pay for all fees, repairs or cleaning of streets and adjacent property, and other damages in the course of the construction work. Upon completion, the Contractor shall secure and deliver all of the certificates of inspection, approval and occupancy permits to the Owner.

3.7.7 All contractors, subcontractors, sub-subcontractors, etc. shall be licensed by the prevailing city and/or municipality at the location of the Work. As required the Contractor and shall submit to the city a copy of their State Workmen's Compensation insurance policy.

3.7.9 CONTRACTOR shall secure and pay for all governmental fees and licenses which OWNER is not specifically required to provide and pay for under the Contract Documents. The OWNER will pay for all fees and charges related to the supply of permanent power to the Project, from the local utility company.

3.7.10 Compliance with Laws. CONTRACTOR shall, at its cost and expense, comply with every federal, state and local law, ordinance, code, rule and regulation, as well as the lawful order or decree of any public or quasi-public authority, bearing on the performance of the Work, specifically including, but not limited to, those specified in Article 10 and applicable building codes.

It shall be the responsibility of CONTRACTOR to familiarize itself with all of the same, and any performance of the Work by or on behalf of CONTRACTOR which is not in compliance therewith shall be at CONTRACTOR's sole risk and expense. It shall be the further responsibility of CONTRACTOR to give all notices required to be given by it pursuant to applicable law.

3.9 SUPERINTENDENT

Subparagraph 3.9.1; revise all terms "superintendent" with "project manager/ superintendent".

Add the following sentences to Subparagraph 3.9.1:

"The Contractor will be required to provide a full time (40 hours/ week) Superintendent on each jobsite. The Superintendent shall be satisfactory to the Owner, Architect and shall not be changed except with the consent of the Owner and Architect, unless the Superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ."

Add the following Subparagraphs to Paragraph 3.9:

3.9.4 The Contractor shall employ a superintendent or an assistant to the superintendent with knowledge to act as a coordinator for Mechanical, Electrical, Plumbing and Fire Protection work.

The Coordinator shall be knowledgeable in all MEP/FP systems and capable of reading, interpreting and coordinating Drawings, Specifications, and shop drawings pertaining to such systems. The coordinator shall assist the Subcontractors in arranging space conditions to eliminate interference between the mechanical and electrical systems and other Work and shall supervise the preparation of coordination drawings documenting the spatial arrangements for such systems within restricted spaces to maintain the finished ceiling design effect and proper clearances for maintenance access. The coordinator shall assist in planning and expediting the proper sequence of delivery of mechanical and electrical equipment to the site.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

Add the following Sub-subparagraphs to Subparagraph 3.10.1:

3.10.1.1 Prepare and submit a written copy of an itemized construction schedule indicating starting and completion dates of the major and critical items of work. If changes become necessary, the Contractor shall revise the schedule and resubmit for approval. It shall be noted that certain work under this project must be scheduled in advance to permit the Owner's staff to make necessary adjustments in the Owner's operation which will allow the Contractor to perform his work. Therefore, the Contractor must follow the agreed upon schedule unless he receives subsequent approval from the Owner for rescheduling individual items. The schedule shall be a bar chart or similar graph based on the items of work listed on the "Schedule of Estimated Values". The schedule shall be submitted two (2) weeks after the Notice to Proceed and updated monthly at time of each partial payment submittal. Payments will not be processed unless the updated schedule is attached.

3.10.1.2 Contractor shall inform Owner of both starting and completion dates of the site work prior to beginning any particular phase of work at the site.

3.10.1.3 Prior to commencing work, the contractor shall meet with the Architect's and/or Owner's representative to discuss routing of delivery trucks to the site, location of storage areas, requirements for parking permits and locations.

3.10.1.4 It is hereby understood and mutually agreed, by and between the Contractor and Owner, that if applicable to the Work of the project, that the Owner must maintain continued use and operation of the Owner's site and facilities during the execution of the work. The Contractor shall be required to schedule and sequence any work as necessary to maintain the Owner's activities of use and operations at no additional cost to the Owner.

Delete Subparagraph 3.10.2 and add the following:

3.10.2 The Contractor shall prepare and keep current, for the Architect's review, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Architect one (1) week to review submittals. No more than five (5) submittals are to be submitted at one time.

Add the following Subparagraphs to Paragraph 3.10:

3.10.4 72 Hour notice: If ever, in the opinion of the Owner, the project is either insufficiently manned or is significantly behind schedule, a seventy-two (72) hour notice will be given to the contractor to appropriately staff the job so that it is brought back on schedule. If the Contractor

fails to respond to this seventy-two (72) hour notice, the Owner reserves the right to staff the project with its own forces in order to maintain schedule and charge the expense to the Contractor.

3.10.5 Substantial Completion.

Requests for extension of time by the Contractor will be granted for delays that the Contractor could not have reasonably foreseen. The Contractor will foresee, and include in the bid, an average number of working days lost to weather, typical for the time of year. This average will be defined by records compiled by the National Weather Service Climate Center. In addition, the Contractor will include twenty-five (25) days lost to weather. The Contractor shall be prepared to provide temporary facilities and protection that allow construction to proceed during typical weather encountered on this project.

The Contractor shall not be entitled to extensions of time for delays resulting from any condition or cause unless it shall have given the Owner written notice within three calendar days following the commencement of each condition or cause, and unless it shall have received written consent to the time extension from the Owner. Meeting Minutes, submittals, RFI's, or answers to RFI's DO NOT fulfill the requirement for written consent from the Owner or for written notice from the Contractor (see Paragraph 13.3 of the General Conditions of the Contract for Construction for the definition of "written notice"). A time extension incurred due to a change in the Contract must be included in a Charge Order for the associated additional work. No extension of time will result in claims for additional compensation for general conditions (including supervision). The Contractor is to submit a proposal schedule upon award of contract, showing activities, durations, milestones, and the Substantial Completion Dates set by the Contract. The current schedule will be reviewed at each weekly project meeting. The Contractor will update and reissue the schedule each month.

If, in the judgment and discretion of the Owner, the Contractor is unable to maintain the schedule, Owner shall reserve the right to require the Contractor to supplement the work force and/ or work overtime hours, all at no additional expense to the Owner, until a time that the project schedule is met.

If a delay affects the Notice to Proceed date of the Contractor, then the date of Substantial Completion will be postponed by exactly the number of working days that the Notice to Proceed date was postponed.

A reasonable delay claim by a Contractor will only affect the date of Substantial Completion for the particular activity giving rise to the claim.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Subparagraph to Paragraph 3.11:

3.11.1 Record Drawings in accordance with the General Requirements shall be signed by the CONTRACTOR, certifying that they show complete and exact "as-built" conditions, including dimensions, locations and other similar pertinent information. The CONTRACTOR will maintain all approved permit drawings in a manner so as to make them accessible to governmental inspectors and other authorized persons. All drawings shall be wrapped, marked and delivered to the OWNER within 60 days of completion of the Work.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Add Subparagraph 3.12.11 to Paragraph 3.12:

3.12.11 The Architect's review of Contractor's submittals will be limited to examination of an initial submittal and one resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

3.12.12 The Contractor shall prepare and submit a complete schedule of submittal dates and estimated fabrication times. This shall be submitted to the Architect within fourteen days from Notice to Proceed.

3.12.13 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architects' approval thereof.

3.14 CUTTING AND PATCHING

Add the following Subparagraph to Paragraph 3.14:

3.14.3 The Contractor shall locate, protect and save from injury utilities of all kinds, either above or below grade found in the areas affected by his work. He shall be responsible for all damage caused to such utility by the operation of equipment or delivery of materials or as the direct or indirect result of any of his work, and shall repair all such damage at his expense and as a part of the work included in the Contract Documents. The Contractor shall not be entitled to any increase in the Contract Sum or the Contract Time on account of such damage to any utility.

3.15 CLEANING UP

Add the following Subparagraphs to Paragraph 3.15:

3.15.3 Immediately after unpacking materials, all packing case lumber or other materials, excelsior, wrappings, or other like flammable rubbish shall be collected and removed from the building and/or premises by the Contractor or subcontractor furnishing material or equipment. Before the interior painting is begun, or at such time as may be directed by the Architect, the General Contractor shall be responsible for ensuring that all trades supply all labor and material required to thoroughly "broom clean" the spaces to be painted. This cleaning shall include the removal of all surplus materials from all surfaces; and all surfaces which are to be finished shall be left in a clean and suitable condition for painting and finishing.

3.15.4 During the progress of the work and upon completion of the work, the immediate construction site premises and adjoining drives, parking areas and sidewalks shall be maintained neat and free of dirt and debris resulting from this work. Accumulations of daily trash shall be periodically removed from the site. Area shall be left in a "broom Clean" condition when completed for final inspection. Hardware, equipment, and all other exposed finish materials shall be cleaned of all extraneous paint, mortar, dirt, etc., immediately prior to the final inspection of the work. All equipment with removable or detachable panels, covers, plates, etc., shall be cleaned on the inside before the apparatus is turned over for use by the Owner. All marred finishes shall be repaired, touched-up or replaced.

ARTICLE 4 - ARCHITECT

4.1 GENERAL

Subparagraph 4.1.1 -- The following Clause added to 4.1.1:

"The "Architect" refers Zwick + Gandt Architecture, Inc., 9109 Watson road, Suite 110, St. Louis, Missouri 63126, whose name appears on the drawings and who by Contract with the Owner, is authorized to prepare all drawings, specifications, and details of this Work."

Add the following Subparagraph to Paragraph 4.1:

4.1.4 Disputes arising under Subparagraphs 4.1.2 and 4.1.3 shall be subject to mediation.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

Subparagraph 4.2.7 -- Last sentence revised to read as follows:

"The Architect's review of a specific item shall not indicate approval of an assembly of which the item is a component."

Add the following Sub-subparagraph to Subparagraph 4.2.7:

4.2.7.1 Architect's review will include review of all appearance and performance characteristics. In the case of structural work (structural steel, reinforcing steel, etc.), the Architect and the appropriate consulting engineer will check cross sectional size and structural adequacy of members, but not dimensions affecting placement with respect to other members. In the case of mechanical or electrical equipment, the Architect and the appropriate consulting engineer will check performance characteristics, finishes and general arrangement of components.

Delete Subparagraph 4.2.8 and substitute the following:

4.2.8 The Contractor will prepare RFI's, and Construction Change Proposals from proposal requests or other means. The Architect will prepare: responses to RFI's, review CCP's, prepare and issue Change Orders, Proposal Requests, Architect's Supplementary Instructions, Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

Subparagraph 4.2.9 – Omit words "inspections or inspection" and replace with "site visit".

Delete Subparagraph 4.2.11 and substitute the following:

4.2.11 The Architect will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made with reasonable promptness and within time limits mutually agreed upon. Should a request for an interpretation of the requirements of the Contract Documents by the Owner or Contractor require a decision and/ or interpretation within a specific amount of time, determined as necessary to maintain the project's schedule or timely sequence of work, by either party, the party shall so identify such requirement in writing with the request for interpretation. The Architect's action will be taken with such reasonable promptness as to endeavor to render such interpretation within a reasonably requested time period, while allowing sufficient time in the Architect's professional judgment to permit adequate review. Failure of the Architect to render such interpretation within the requested period of time shall not be cause for claim or damages against the Architect as provided in Article 3.18.

ARTICLE 5 – SUBCONTRACTORS

5.1 DEFINITIONS

Delete first sentence of Subparagraph 5.1.1, and substitute with the following:

"A Subcontractor is a person or organization having a direct contract with CONTRACTOR to perform any of the Work at the Jobsite or to supply any materials or equipment to be incorporated in, or utilized in connection with the Work."

Delete first sentence of Subparagraph 5.1.2, and substitute with the following:

"A Sub-subcontractor is a person or organization having a direct or indirect contract with a Subcontractor to perform any of the Work at the Jobsite or to supply any materials or equipment to be incorporated in, or utilized in connection with, the Work."

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

The first sentence of the Section is amended to read as follows:

5.2.1 The Contractor shall, within fifteen (15) working days after the Notice of Intent to Award the contract, furnish to the Architect, in writing, for acceptance by the Owner, Two (2) copies of the complete list of Subcontractors, Sub-subcontractors to perform the work, including their names, address, telephone & fax number, and email address along with the brand or trade names of the major materials and products they will supply and install.

Add the following subparagraphs to Paragraph 5.2:

5.2.5 The list of subcontractors and suppliers submitted with the bid will be approved prior to award of the Contract unless otherwise indicated in the Notice to Proceed. The Contractor may not change any subcontractor and/ or supplier without written consent from the Owner. The Contractor may not give access of the site to anyone without previously approved in writing by the Owner.

5.3 SUBCONTRACTUAL RELATIONS

Add the following Subparagraphs to Paragraph 5.3:

5.3.1 The Contractor and subcontractor(s) are obligated not to discriminate in employment practices.

5.3.2 The list of subcontractors and suppliers submitted with the bid form will be approved prior to award of the Contract unless otherwise indicated in the Notice to Proceed. The Contractor may not change any subcontractor and /or supplier without prior written consent from the Owner. The Contractor may not give access of the site to anyone not previously approved in writing by the Owner.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Add the following Subparagraphs to Paragraph 5.4:

5.4.4 Each subcontract shall provide for its termination by CONTRACTOR if, in OWNER'S opinion, the Subcontractor fails to comply with the requirements of the Contract Documents insofar as the same may be applicable to its portion of the Work; and each Subcontractor shall be required to insert a similar provision in each of its subcontracts. In the event of any such failure by a Subcontractor or Sub-subcontractor, as the case may be, shall be removed immediately from the Work and shall not again be employed on the Work. CONTRACTOR shall be responsible for all costs and expenses arising out of, and shall defend, indemnify and hold OWNER harmless on account of, any such failure by a Subcontractor or Sub-subcontractor (specifically including, without limitation, a failure to pay for labor or materials or to comply with the provisions of the union and/or trade agreements applicable to the Work).

ARTICLE 7 – CHANGES IN THE WORK

Add new paragraph to Article 7 as follows:

7.0 REQUEST FOR INFORMATION

7.0.1 The contractor shall issue RFI's well in advance of current and prior to upcoming construction activities to proactively obtain clarifications to the construction documents. RFI's are the contractor's responsibility to issue. A schedule of all RFI's is to be prepared and maintained by the contractor identifying each RFI with its identifying number, description, and approval status. RFI's that are extremely time sensitive are to be clearly identified.

7.0.2 The architect or others, so as to avoid delays in construction activities, must prepare a response to RFI's in a timely manner. Contractors must also keep in mind that a response to an RFI may require input from, but not limited to, the architect, Owner, other consultants, manufacturers and/ or suppliers; therefore, it is the contractor's sole responsibility to allocate adequate time for a response that he/ she considers critical.

7.1 GENERAL

Add the following Subparagraphs to Paragraph 7.1:

7.1.4 When changes are required or requested by Owner, Architect shall issue a description of proposed changes in the work that may require adjustment to the Contract Sum or Time. Such changes are issued to the Contractor in the form of a Proposal Request.

7.1.5 Contractor shall submit a CCP (Construction Change Proposal) to the Architect for review of completeness, and any revisions to, Contract Sum, Time or scope. CCP are to be submitted within 5 days of receipt of the Proposal Request. The CCP shall include all work necessary due to project requirements and field conditions. The CCP shall provide information

including material and labor unit costs and quantities. CCP's include, but are not limited to: Proposal Requests issued by the Architect, Architect's Supplementary Instructions, responses to RFI's, field issues, Owner directed items and Contractor Items.

7.1.5.1 The CCP shall be complete and inclusive of all items necessary for the scope of changes requested. After a proposal is accepted, additional claims for the same changes will not be considered. Failure to identify required changes in scope on a proposal does not relieve the Contractor from completing the changes in the work as accepted.

7.1.5.2 The Contractors CCP will be reviewed by the architect. Additional back-up may be requested and provided by the Contractor. After finalizing the review, the Architect will make a recommendation to the Owner. Based on the Owners' decision a letter will issued by the Architect identifying acceptance or rejection of the CCP. Upon acceptance a modification to the contract will be prepared and signed by all parties in the form of a Change Order.

7.1.5.3 Upon disagreement of the CCP by the Owner or Architect a written response will be submitted to the Contractor with the reasons for the disagreement for clarification or adjustment. It is the intent of the Owner to pay fair market value for the work that may result in addition or subtraction of cost or time to the project. Additional documentation may be necessary to fully understand the Contractor's Change Proposal. Unclear documentation or unsubstantiated claims will not allow the contractor extensions in time for delays due to proposal acceptance. CLEAR and prompt descriptions/ documentation on the costs by the contractor will allow prompt approvals and is the contractor's sole responsibility.

7.1.5.4 A schedule of all CCP's is to be maintained by the Contractor identifying each CCP with its identifying number, description, and approval status. The status is to be reviewed by the Contractor at regular intervals to assist in maintaining progress towards review and approvals.

7.1.5.6 The contractor shall not be entitled to an increase in contract price resulting from any claim unless it shall have given the Owner written notice within three calendar days after the occurrence of the event giving rise to the claim, AND unless it shall have received prior written authorization to proceed with the change from the Owner.

7.1.6 Meeting minutes, verbal direction, reviewed submittals, RFI's or answers to RFI's, DO NOT fulfill the requirements for written authorization from the Owner or for written notice from the Contractor (see paragraph 13.3 of the General Conditions of the Contract for Construction for the definition of "written notice"). ONLY THE OWNER MAY AUTHORIZE THE MODIFICATION OF THE CONTRACT. THE CONTRACTOR MUST HAVE WRITTEN AUTHORIZATION TO PROCEED WITH WORK ASSOCIATED WITH A CHANGE IN THE CONTRACT AMOUNT. ANY ADDITIONAL WORK THAT THE CONTRACTOR EXECUTES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OWNER WILL

BE AT THE CONTRACTOR'S EXPENSE. THE OWNER'S AGREEMENT TO PAY FOR PREVIOUSLY UNAUTHORIZED WORK ALREADY COMPLETED SHALL NOT OBLIGATE, NOR SET A PRECEDENCE FOR, THE OWNER TO DO SO AGAIN IN THE FUTURE. ADDITIONAL COSTS DUE TO THE FAILURE OF THE CONTRACTOR TO COORDINATE PORTIONS OF THE WORK WILL NOT BE THE RESPONSIBILITY OF THE OWNER. Written authorization from the Owner may be via facsimile transmission, but must be on the Owner's letterhead and signed by the Owner. The written authorization MUST specify the change to the work and, either the total cost to the change, or the method of compensation to the Contractor (i.e. unit prices, time and materials, etc.). If the total cost of the change is not included in the written authorization, then the contractor shall have until thirty (30) days past the completion of the work associated with the change to submit a total cost to the Owner.

7.1.7 The only means for modification and/ or adjustments of scope, cost or time to the contract between the Owner and the Contractor will be from the following documents:

- (a) a Change Order;
- (b) a Directive; or
- (c) any other written amendment to the Contract signed by both parties.

A Modification may be made only after execution of the Contractual Agreement.

7.2 CHANGE ORDERS

Delete Subparagraph 7.2.1 and substitute the following:

7.2.1 A Change Order is a written Modification prepared by the ARCHITECT OR CONTRACTOR and signed by the Owner, and constitutes additions, deletions or other revisions to the Contract. A Change Order may be accompanied by and/or may identify additional or revised Drawings, sketches or other written instructions which become and form a part of the Contract Documents by virtue of the executed Change Order. Except as otherwise provided in Subparagraph 1.1.5, a change in the scope of the Work, the Contract Time or the Contract Price shall become the subject of a Change Order.

A schedule of all Change Orders is to be prepared and maintained by the ARCHITECT OR CONTRACTOR identifying each change order with its number, date, description, and approval status by each party (contractor, owner, and architect). The contractor to review the status of change order approvals at regular intervals as necessary to assist the architect and owner in understanding the urgency of any approvals that jeopardize the construction schedule

Add the following sub-paragraphs to sub-paragraph 7.2:

7.2.2 Methods used in determining adjustments to the Contract shall include those listed in subparagraphs 7.3.3, 7.3.3.1, 7.3.3.2, 7.3.3.3, and 7.3.3.4, as recommended by the Architect. The

cost or credit to the Owner resulting from a change to the Work shown on the Change Order shall reflect the entire effect of the change and its cost impact on all other portions and facets of the work. Additional compensation will not be granted to the Contractor for additional work or extended time as required by a Change Order, but not claimed at the time the initiating Change Order is issued.

7.2.3 The Contractor will be allowed to mark-up self-performed work and subcontractor or sub-subcontractors work using the percentages indicated on the bid form Proposal. This mark-up will cover all elements of overhead and profit (including, but not limited to, supervision, estimating, schedule, procurement, cleanup, delivery, temporary utilities/ facilities, consumables, insurance, performance/ Labor and Materials payment bonds, safety, quality control/ assurance, protection, security, small tools, radios, vehicles, and all home/ site office costs and expenses). Unit prices are to include the markup. Any deduct Modification will include the markup.

ARTICLE 8 - TIME

8.1 DEFINITIONS

Delete Subparagraph 8.1.4 and substitute the following:

8.1.4 The term "day" as used in the Contract Documents shall mean working day, excluding weekends and legal holidays

8.2 PROGRESS AND COMPLETION

Add the following Sub-subparagraph to Subparagraph 8.2.1:

8.2.1.1 The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the usual construction conditions prevailing in this locality.

Add the following Subparagraphs to Paragraph 8.2:

8.2.4 Start to Work Order: When above has been completed to the satisfaction of the Owner and when necessary building permits have been received by the Contractor, the Architect will notify the Contractor in writing of the "DATE TO START WORK.", however unless identified otherwise will be "NOTICE TO PROCEED".

8.2.6 Completion of Work: Upon receipt of this notice, the Contractor shall cause the work to proceed as rapidly as possible to completion and is to include in his proposal his estimate of

consecutive calendar days he will require to complete the project.

8.2.7 The Contractor shall submit a project schedule after the Notice of Intent to Award identifying all major areas of work and corresponding dates. The schedule shall include quantity of weather days and schedule float. The schedule is to be updated once a month and submitted with monthly pay requests during the course of the project.

8.3 DELAYS AND EXTENSIONS OF TIME

Delete Subparagraph 8.3.1 and substitute the following:

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending mediation, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

Add the following Subparagraph to Paragraph 8.3:

8.3.4 Any approved extension of time, shall be based upon working days.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

Add the following sentence to Subparagraph 9.2.1 before the last sentence:

"The schedule must be prepared in such a manner that each major item of work and each subcontracted item of work is shown as a single line item on AIA Document G703, Certificated for Payment, Continuation Sheet."

9.3 APPLICATIONS FOR PAYMENTS

Add the following sentence to Subparagraph 9.3.1:

"The form of Application for Payment, duly notarized, shall be current authorized edition of AIA Document G702, Application and Certification for Payment, supported by a current authorized edition of AIA Document G703, Continuation Sheet."

Add the following Sub-subparagraphs to Subparagraph 9.3.1:

9.3.1.3 The Owner shall pay 90 percent of the amount due the contractor on account of progress payments. Retainage shall be held individually by Subcontractor or Material Supplier only when required by prevailing law. Release of retainage shall be upon final completion and acceptance of the Work covered under the contract, or with acceptable substitute security tendered to the Owner by the Contractor as prescribed by prevailing law. Form of substitute security shall be acceptable by Owner.

9.3.1.4 Waivers of Lien: Each monthly request for payment shall be accompanied by waivers of lien (one original and two copies) covering the full amount paid by the Owner to the Contractor the immediate previous month, and in no case shall more than thirty (30) days elapse between receipt of payment from the Owner and the submission of waivers of lien. Such waivers shall be submitted by the Contractor and each Subcontractor to the extent involved. Contractor shall deliver to the Owner final waivers of lien and guarantees with last certificate for payment.

9.4 CERTIFICATES FOR PAYMENT

Add the following Subparagraphs to Paragraph 9.4:

9.4.3 No Payment made by the Owner shall be considered as evidence of satisfactory performance of the work, either wholly or in part, nor construed as acceptance of defective work or as relieving the Contractor from its full responsibility under the agreement.

9.8 SUBSTANTIAL COMPLETION

Revise subparagraph 9.8.2 as follows: "...the Architect shall prepare a comprehensive list of items..."

Delete Subparagraph 9.8.3 and substitute the following:

9.8.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner may make payment, reflecting adjustments in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

The Owner retains sole right to retain the full retainage, plus such amounts as the Architect shall determine for all incomplete work and unsettled claims, on the entire work of the project until final completion of the project.

Acceptance of Contractor of the final payment under the agreement shall constitute a waiver of all claims which Contractor may have against the Owner.

Add the following Sub-subparagraph to Subparagraph 9.8.3:

9.8.3.1 Except with the consent of the Owner, the Architect will perform no more than TWO (2) site reviews to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect, per 9.8.2, for any additional site reviews of completed work.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

10.2 SAFETY OF PERSONS AND PROPERTY

Add the following Sub-subparagraph to Subparagraph 10.2.2:

10.2.2.1 The Contractor, subcontractor, sub-subcontractor, and any person, firm or entity involved in any aspect of the execution of the work of the project shall be experienced in the type of work or trade to be performed, shall be suitably trained and supervised as necessary, and shall be responsible for performing all work in accordance with all applicable laws, ordinances, rules, regulations and lawful orders of federal, state and local public authorities, and public or private utility companies bearing on the safety of persons or property or their protection from damage, injury or loss. The Contractor shall be required to contact public authorities, and public or private utility companies prior to execution of any work as required by the appropriate authority, for review and approval prior to starting work.

Add the following Subparagraphs to Paragraph 10.2:

10.2.9 The Contractor shall provide temporary weather tight enclosures for openings, and shall keep building secure and watertight.

10.2.10 The Owner reserves the right to approve or deny access to the site of any persons, subcontractor and/or supplier.

It is the responsibility of the Contractor to provide for a safe work environment for all of its employees and subcontractors. The Contractor shall comply with all local, state, and federal safety regulations and regulatory agencies.

If the Owner deems any situation resulting from the Contractor activities to be an emergency, the Owner has the right to correct the situation and withhold cost from the Contract amount

10.2.11 The Contractor, subcontractor, sub-subcontractor, material supplier and all parties directly or indirectly involved in the work of the project shall not incorporate any asbestos-containing materials in the work of the project.

ARTICLE 11 - INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

Add the following Subparagraphs to Paragraph 11.1.1:

11.1.1.9 Liability Insurance shall include all major divisions or coverage and be on a comprehensive basis including:

1. Premises Operations (including X-C/U).
2. Independent Contractor's Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual - including specified provision for Contractor's obligation under Paragraph 4.18.
6. Owner, non-owned and hired motor vehicles.
7. Broad Form Property Damage including Completed Operations.
8. Umbrella Excess Liability.

11.1.1.10 The Contractor, subcontractor, sub-subcontractor and material supplier or distributor shall provide all necessary property insurance coverages to fully cover all materials and equipment stored off site and during transit.

Delete Subparagraph 11.1.2 and substitute the following:

11.1.2 The insurance required by subparagraph 11.1.1 shall be written for not less than the limits of liability specified in Appendix "A", following the Supplementary Conditions, or as required by law, whichever is greater. Appendix "A" shall be included as part of the Contract Documents. All insurance coverage shall be written on an "Occurrence" basis, and shall be maintained without

interruption from the commencement of work until date of final payment and termination of any coverage required to be maintained after final payment.

Add the following Subparagraph to Paragraph 11.1:

11.1.5 Each Subcontractor shall procure and maintain during the life of his contract, insurance of the type and in the same amount as listed in this Article. Certificates of Insurance shall be submitted by each Subcontractor to the Contractor no later than fifteen (15) days after the award of subcontract and prior to the commencement of his work. No Subcontractor shall be allowed to continue on site after the expiration of full insurance coverage.

11.3 PROPERTY INSURANCE

Add the following sentences to Sub-subparagraph 11.3.1.1:

"The Owner's Property Insurance will not include provisions for theft, mysterious disappearance, or glass breakage. The Contractor is hereby made aware that he will be held responsible for a complete job in every detail, and shall replace any contract items which are stolen, or which mysteriously disappear and shall replace any broken glass before Owner's acceptance."

Add the following sentences to Sub-subparagraph 11.3.1.3:

"This property insurance is written with a deductible of \$_____ per occurrence with a deductible aggregate of \$_____."

Delete Subparagraph 11.3.1.4 and substitute the following:

11.3.1.4 The Contractor shall at the Contractor's own expense provide insurance coverage for materials stored off the site after written approval of the Owner at the value established in the approval, and also for portions of the Work in transit until such materials are permanently attached to the Work.

Delete the third sentence in Subparagraph 11.3.9 and substitute the following:

"The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may read, or in accordance with a mediation award in which case the procedure shall be as provided in Paragraph 15.3."

Delete Subparagraph 11.3.10 and substitute the following:

11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss

to the Owner's exercise of this power; if such objection be made, mediators shall be chosen as provided in Paragraph 15.3. The Owner as fiduciary shall, in that case, make settlement with insurers in accordance with directions of such mediators. If distribution of insurance proceeds by mediation is required, the mediators will direct such distribution.

ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK

12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

Add the following Sub-subparagraph to Subparagraph 12.2.1:

12.2.1.2 If the Contractor fails to correct such work within ten (10) days after receipt of written notice from the Owner or Architect, the owner shall have the work done and the cost thereof charged to the Contractor.

ARTICLE 13 – MISCELLANEOUS PROVISIONS

13.5 TESTS AND INSPECTIONS

Add the following Sub-subparagraphs to subparagraph 13.5.4:

13.5.4.1 Testing: General Contractor will retain professional materials testing company to provide testing for soil compaction, asphalt placement, concrete strength, reinforcing bar inspection, and steel erection. It will be the responsibility of the Contractor to notify the testing company twenty-four hours prior to necessary testing.

The testing company will make and collect concrete test cylinders. It is the Contractor's responsibility to notify the testing company of any on-site changes made to delivery of concrete.

The Contractor shall provide a schedule showing anticipated dates and durations for activities involving the testing company.

The Contractor shall not consider directives or suggestions from representatives of the testing company as an authorization for changes to the Contract, or for any action that may result in a change to the Contract or an extension of time.

13.5.4.2 Any other testing required will be the responsibility of the Contractor. Owner may require any special inspection, testing or approval of the Work not included under Subparagraph 13.5.1, or any more stringent inspection, testing or approval thereof, in which event it shall instruct Contractor to order such inspection, testing or approval, and Contractor shall advise Owner in a

timely manner (in writing, if practicable) as in Subparagraph 13.5.1. If such inspection or testing reveals any failure of the Work or the performance thereof to comply with the more stringent of:

- (a) the requirements of the Contract documents
- (b) applicable industry standards, or
- (c) applicable laws, ordinances, rules, regulations, or orders of any public or quasi-public authority having jurisdiction,
- (d) and/or reveals any defect in the Work, Contractor shall bear the costs of such inspection or testing and all costs to correct the Work to the satisfaction of Owner, including compensation for any additional Architect/Engineering, management, or administrative services made necessary by such failure, the latter of which, if incurred by Owner, may be offset by Owner against any amounts then or thereafter due to Contractor. If such inspection or testing proves that the Work was performed properly, Owner shall bear the costs of such inspection or testing.

ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Subparagraph 14.4.3 and substitute the following:

14.4.3 In case of termination for the Owner's convenience, the Contractor shall be entitled to receive payment for work executed and costs incurred by reason of such termination to the date of termination.

ARTICLE 15 – CLAIMS AND DISPUTES

4.3 CLAIMS AND DISPUTES

Subparagraph 15.1.3 -- Revised to read as follows:

15.1.3 Continuing Contract Performance. Pending final resolution of a Claim including mediation, unless otherwise agreed in writing the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

Add the following Sub-subparagraphs to Subparagraph 15.1.5

15.1.5.3 Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, written notice as provided herein shall be given, the date upon which each cause of delay began to affect the progress of the Work, the specific number of calendar days increase in the Contract Time claimed, Justification for the requested extension and the probable

effect of delay on the progress of the work as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim. A request for time extension which requires an adjustment to Contract Sum which is due solely to the claim for extension of time shall only be considered when sufficient documentation, as determined necessary in the professional judgment of the Architect, is submitted for review.

15.1.5.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

15.1.5.5 If the number of actual adverse weather delay days exceeds the number of days listed, the Contractor shall notify the Architect in writing that the adverse weather delay days have been met or exceeded. Claims for increases in the Contract Time due to adverse weather conditions shall be submitted on a monthly basis **only** and must be submitted by the end of the month following the adverse weather conditions. Failure to timely submit any such request to the Architect will constitute a waiver of any such Claim.

15.1.5.6 Adverse weather conditions are conditions that are considered abnormal for the applicable time of year and must have actually had an adverse effect on the Work in progress, and must be in excess of the 30-year Normals, Means, and Extremes, as published by the National Weather Service, applicable to the location of the Project.

Add the following sentence to Subparagraph 15.1.6:

"If, before expiration of 30 days from the date of execution for this Agreement, the Owner obtains by separate agreement and furnishes to the Contractor a similar mutual waiver of all claims from the Architect against the Contractor for consequential damages which the Architect may incur as a result of any act or omission of the Owner or Contractor, then the waiver of consequential damages by the Owner and Contractor contained in this Subparagraph 4.3.10 shall be applicable to claims by the Contractor against the Architect."

15.2 INITIAL DECISION

Subparagraph 15.2.1 -- Revised to read as follows:

15.2.1 Decision of Architect (Initial Decision Maker). Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 15.2. A decision by the Architect, as provided in Subparagraph 15.2.4, shall be required as a condition precedent to mediation or litigation of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due, regardless of

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- .1 whether such matters relate to execution and progress of the Work or
 - .2 the extent to which the Work has been completed.

The decision by the Architect in response to a Claim shall not be a condition precedent to mediation or litigation in the event

- .3 the position of Architect is vacant,
- .4 the Architect has not received evidence or has failed to render a decision within agreed time limits,
- .5 the Architect has failed to take action required under Subparagraph 15.2.4 within 30 days after the Claim is made,
- .6 45 days have passed after the Claim has been referred to the Architect or
- .7 the Claim relates to a mechanic's lien.

Add the following Subparagraph to Paragraph 15.2.4:

15.2.4.1 If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect's decision will be made within ten days, which decision shall be final and binding on the parties but subject to mediation. Upon expiration of such time period, the Architect will render to the parties the Architect's written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

15.3 MEDIATION

Subparagraphs 15.3.1 through 15.3.6, deleted, and replaced with the following:

15.3 DISPUTE RESOLUTION

15.3.1 In an effort to resolve any conflicts that arise during the design or construction phases of the project, the Owner and Architect agree that all disputes between them arising out of or relating to this Agreement shall be first submitted to nonbinding mediation unless the parties mutually agree otherwise.

15.3.2 The Owner and the Architect further agree to include similar mediation provisions in all agreements with independent contractors and consultants retained for the project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with subcontractors, suppliers or fabricators so retained, thereby providing for mediation as the primary method for dispute resolution between the parties to those agreements.

15.3.3 Conflicts that arise after the date of Substantial Completion shall be first submitted to nonbinding mediation unless the parties mutually agree otherwise. If mediation is not agreed upon, resolution shall be by way of litigation.

END OF SECTION 000800

SECTION 000800A, APPENDIX "A" - SUPPLEMENTARY CONDITIONS RELATING TO INSURANCE

ARTICLE 11 - INSURANCE

Paragraph 11.1 - "Contractor's Liability Insurance", shall be amplified by adding:

A. During the term of the contract the Contractor and each Subcontractor shall, at their own expense, purchase and maintain the following insurance in accordance with the conditions of the contract with companies properly licensed and acceptable to the Owner and in not less than the following amounts:

1. Worker's Compensation
 - a. State: All
 - b. Applicable Federal (e.g. Longshoremen, harbor work, work at or outside U.S. boundaries): Statutory
 - c. Employer's Liability: \$1,000,000
 - d. Benefits required by union labor contracts: As applicable
2. Comprehensive General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):
 - a. Bodily Injury:

\$ 1,000,000 Each Occurrence
\$ 3,000,000 Aggregate, Products and Completed Operations
 - b. Property Damage:

\$ 1,000,000 Each Occurrence
\$ 3,000,000 Aggregate
 - c. Products and Completed Operations Insurance shall be maintained for a minimum period of after final payment and Contractor shall continue to provide evidence of such coverage to Owner on an annual basis during the aforementioned period.
 - d. Property Damage Liability Insurance shall include coverage for the following hazards:

SUPPLEMENTARY CONDITIONS RELATING TO INSURANCE

☐ X (Explosion)
☐ C (Collapse)
☐ U (Underground)

e. Contractual Liability (Hold Harmless Coverage):

A Bodily Injury:

\$ 1,000,000 Each Occurrence

B Property Damage:

\$ 1,000,000 Each Occurrence

\$ 3,000,000 Aggregate

f. Personal Injury, with Employment Exclusion deleted:

\$ 1,000,000 Aggregate

3. Comprehensive Automobile Liability (owned, non-owned, hired):

a. Bodily Injury:

\$ 1,000,000 Each Person

\$ 1,000,000 Each Accident

b. Property Damage:

\$ 1,000,000 Each Occurrence

4. Umbrella Excess Liability

\$ 1,000,000 Each Occurrence

Paragraph 11.2.1 under "Owner's Liability Insurance" shall be modified to provide:

A. The Contractor shall provide this insurance (normally under an Owner's Protective Liability policy) with the following limits:

1. Bodily Injury

\$1,000,000 Each Occurrence

\$3,000,000 Aggregate

SUPPLEMENTARY CONDITIONS RELATING TO INSURANCE

SECTION 000800A, APPENDIX "A" - 2 of 3

2. Property Damage

\$1,000,000 Each Occurrence
\$3,000,000 Aggregate

3. Personal Injury, with Employment Exclusion deleted:

\$1,000,000 Aggregate

Paragraph 11.3.1 under "Property Insurance" shall be modified to provide:

- A. the Contractor shall purchase All Risk Insurance on the Completed Value Form in the names of the Owner, Contractor, Subcontractors and Sub-subcontractors as their interest may appear with limits in the amount equal to the contract sum for the work.

Other instructions related to insurance:

- A. The maximum amount of Contractors deductible shall not exceed One Thousand Dollars (\$1,000.00).

***All coverage should be for Per Project, Locations**

***Job site shall have an All Risk Builders Risk policy in place and contractor would be required to pay for such coverage. Owner may provide coverage options to contractor.**

END OF SECTION 000800A, APPENDIX "A" - SUPPLEMENTARY CONDITIONS RELATING TO INSURANCE

OUTLINE SPECIFICATION**DIVISION 010000 GENERAL REQUIREMENTS****012100 – Allowances:**

Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

At the earliest practical date after award of the Contract, advise Owner/ Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

At Owner/ Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

Purchase products and systems selected by Owner/ Architect from the designated supplier.

Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and under allowance shall be **included as part of the Contract Sum and not part of the allowance**.

Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by Unit Price Quantities identified in Unit Prices. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

Installation costs ARE TO BE INCLUDE IN THE CONTRACT sum. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

012300 – Alternates:

Alternate: an amount proposed by bidders and stated on the bid form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if owner decides to accept a corresponding change either in the amount of

construction to be completed or in the products, materials, equipment, systems, or installation methods described in the contract documents.

Alternates described in this section are part of the work only if enumerated in the agreement.

The cost or credit for each alternate is the net addition to or deduction from the contract sum to incorporate alternate into the work. No other adjustments are made to the contract sum.

Procedures:

Coordination: revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into project.

Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

Notification: immediately following award of the contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

Execute accepted alternates under the same conditions as other work of the contract.

Schedule: a schedule of alternates is included at the end of this section. Specification sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

Schedule of Alternates:

Alternate No 1: Bedroom Wardrobe/ Storage Cabinetry:

Base bid to include walls, wall finish, base and flooring scheduled for installation of furniture by others.

Alternate: Add cabinetry for storage of clothes and belongings in each bedroom as shown on details 5/A4.0 & 6/A4.0.

Alternate No 2: Exterior Fireplace

Base bid to include exterior wall siding and patio concrete as shown on 1/A3.0.

Alternate: Add new fireplace to the exterior patio as shown on elevation detail 1A/A3.0.

Alternate No 3: Optional toilet room/ Shower Flooring

Base bid to include epoxy flooring and base as scheduled.

Alternate: Add new flooring per room finish schedule as an alternate to the polymer epoxy system.

013300 - Shop Drawings:

Prior to fabrication and delivery, contractor must submit shop drawings/submittals and receive approval from the architect on all specified products including but not limited to the following:

1. Asphalt, site concrete,
2. Windows,
3. All cabinetry,
4. Molding and trim,
5. All siding,
6. Stone,
7. Shingles,
8. Sheetmetal,
9. Fencing,
10. Fireplace,
11. Framing,
12. Wallboard,
13. Sheathing,
14. Concrete,
15. Hardware,
16. Doors/ Frames,
17. Sheetmetal,
18. Plumbing,
19. Mechanical,
20. Electrical,
21. Fire protection systems,

014320 – Unit Prices:

DEFINITIONS

Unit price is **an amount incorporated in the Agreement, applicable during the duration of the Work as** a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

PROCEDURES

Unit prices include all necessary material, plus cost for delivery, installation, insurance, **applicable taxes**, overhead, and profit.

Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

List of Unit Prices: A schedule of unit prices is included on the bid form. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

015000 - Temporary Facilities and Controls

This work shall consist of the application of temporary measures throughout the life of the project.

015100 - Temporary Utilities

All connections and extensions required to provide temporary utilities shall be made by the Contractor at the Contractor's expense.

015110 - Temporary Electricity

Contractor to provide and install temporary power for construction site. Connect to existing power service without disrupting local service requirements. Power feeder service characteristics shall be compatible with the service from which it is taken. Size, type and loading shall be per requirements as established by the National Electric Code (NEC). The contractor shall provide main service disconnect and over-current protection at a convenient location in accordance with the NEC. The Contractor shall provide power outlets for construction operations, with branch wiring and distribution boxes located as necessary and shall provide flexible power cords as required. Provide and install distribution equipment, wiring and outlets to provide single phase branch circuits for power and lighting.

015120 - Temporary Heating, Cooling, and Ventilating

Contractor to provide and install temporary heating, cooling and ventilation for construction site. Contractor to maintain system during construction, while exercising measures to conserve energy. Ventilate enclosed areas to assist cure of materials, to dissipate humidity and to prevent accumulation of dust, fumes, vapors or gases. Supplement with temporary fan units as required maintaining clean air for construction operation.

015120.6 - Temporary Lighting

Contractor to provide and install temporary lighting for construction site. Provide and install temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by OSHA standards. As permanent lighting facilities are completed, they may be used in lieu of temporary facilities. Provide temporary lighting as required to satisfy safety and security requirements. Maintain a minimum illumination level of 30 foot-candles measured 3 ft. above floor in areas where finish trades are performing work

015200 - Construction Facilities

Field offices will be allowed on the site.

015210 - Sanitary Facilities

Existing facilities shall not be used. Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as will comply with laws and regulations. Temporary toilet facilities may consist of portable toilets. The number shall be based on number of workers, 1 toilet per 15 workers. Toilet facilities shall be kept supplied and clean and in sanitary condition until the completion of the work and then shall be removed from the site. Upon removal the site shall be properly cleaned and graded.

015300 - Temporary Construction

The contractor shall provide and maintain for duration of work all required temporary stairs, ladders, ramps, runways and hoists for use of all trades.

015400 - Construction Aides

The contractor to provide all construction aids needed during construction which shall include but not limited to; elevators, hoists, cranes, etc.

015420 - Temporary Scaffolding and Platforms

The contractor shall provide and maintain for duration of work all required temporary standing scaffolding. 'Independent tied' scaffolds will normally be provided for painting, pointing or other maintenance work. 'Putlog scaffolds', used for the construction of brick walls, have only one row of standards which are usually erected some 3' 0" from the face of the wall, with the boards carried on horizontal members known as 'putlogs. When used in new construction, the flattened ends of the putlogs are built into the bed joints as work proceeds and then withdrawn on completion, the resulting hole being pointed up.

015500 - Vehicular Access and Parking

Construct and maintain temporary roads accessing public thoroughfares to serve construction area. Arrange parking areas to accommodate construction personnel. Do not allow vehicle parking on existing pavement. When site space is not adequate provide additional off-site parking.

015600 - Temporary Barriers and Enclosures

The contractor shall provide barriers to prevent unauthorized entry into construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition. Install barricades and covered walkways required by governing authorities for public right of ways. When necessary install chain link fence around job site.

015700 - Temporary Controls

This work shall consist of the application of temporary measures throughout the life of the project to control erosion and siltation. Such measures shall include, but are not limited to, the use of berms, dikes, dams, sediment basins, fiber mats, silt fences, straw bales, washed gravel or crushed stone, mulch, grasses, slope drains, temporary seeding and other methods. Temporary erosion and siltation control measures as described herein, shall be applied to

erodible material exposed by any activity associated with the construction and consistent with state and local control standard.

015800 - Project Identification

Within 15 days after the commencement of work, provide one project identification sign at the locations indicated. Maintain sign throughout the life of the project. On the sign, list two points of contact by name and telephone number.

016000 - Product Requirements

All materials shall be installed in strict accordance with the manufacturer's written specifications or Material's Institute Standards. Where the manufacturer's recommended details are used, the manufacturer shall be responsible for the performance of their product. All Items not specifically mentioned that are required to make the work complete and operational shall be included.

Installation and Storage - All materials, supplies and equipment shall be installed per manufacturer's recommendations and per applicable codes and requirements. Material stored on site shall be protected from damage by moisture, wind, sun, abuse or any other harmful effects.

016400 - Owner-Furnished Products

Contractor is not responsible for products furnished by the owner that are damaged prior to opening or receiving. Additional work required to install owner furnished products will be charged to the owner and due upon installation.

017000 - Execution and Closeout Requirements

The execution of all work shall be in strict accordance with these specifications and manufacturer's written specifications or Material's Institute Standards. Where the manufacturer's recommended details are used, the manufacturer shall be responsible for the performance of their product. All work not specifically mentioned that is required to make the work complete and operational shall be included.

Codes - Construction shall comply with all applicable national, state and local building codes. It is the responsibility of the Contractor to ensure compliance with said codes and modify the specifications as needed to comply with such codes.

Measurements - The Contractor shall check and verify all dimensions and conditions before proceeding with construction. Do not scale drawings. Noted dimensions take precedence.

Workmanship - Workmanship shall conform to the best and highest standards of quality in each trade and shall include all items of fabrication, construction and installation. All work shall be completed by skilled tradesmen and mechanics. Installation of all equipment and materials shall be in strict accordance with manufacturer's recommendations.

Insurance - Builders Risk Insurance shall be maintained by the contractor during the course of construction until final acceptance by the owner. All bonding and insurance requirements shall be coordinated with the Owner prior to beginning construction. All contractors shall provide and be solely responsible for necessary barricades and safety precautions, and strictly adhere to all governing codes on safety, including the OSHA Act.

017100 - Local Conditions

Building requirements shall be in compliance with all applicable local and regional Ordinances, codes, construction techniques and weather conditions.

017400 - Cleaning and Waste Management

Construction site to be in a clean and orderly condition throughout the construction process. Clean interior spaces prior to the start of finish painting and the application of other finishes. At the conclusion of construction, the project shall be properly cleaned. This should include but not be limited to; cleaning the interior and exterior glass, surfaces exposed to view, remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surface areas, sweep and mop all tiled surfaces, etc. Replace filters of operating equipment. Clean equipment and fixtures to a sanitary condition. Clean exterior such as debris from roof, gutters, landscape areas, driveways and walks, etc. Remove all waste and surplus materials.

017600 - Protecting Installed Construction

Contractor to protect all installed construction. If products or materials come with a protective coating, contractor shall maintain protective coating until construction is complete. Contractor shall replace any items that become defective or damaged.

DIVISION 020000 EXISTING CONDITIONS

020000 - Existing Conditions

Contractor shall review construction documents and provide necessary site work, excavation and grading as required to construct said project.

024100 - Demolition

Provide all labor, materials and equipment to perform the required demolition of existing pavement no longer needed for access or parking, abandoned utilities and structures which interfere with the proposed construction. When required install chain link fencing around the area of demolition work. Protect all adjacent areas not to be demolished. Remove all debris from job site before construction begins.

DIVISION 030000 CONCRETE

030000 - Concrete

Contractor shall review construction documents and provide labor and materials pertaining to concrete and foundations as required in said documents and as specified herein, while complying with all applicable building codes.

030500 - Common Work Results for Concrete

All concrete work shall be designed on the basis of "Strength Design" in accordance with ACI 318 "Building Code Requirements for reinforced Concrete." Concrete work shall be proportioned in accordance with ACI 301 "Specifications for Structural Concrete" and ACI 211.1 "Recommended Practice for Selecting Proportions for Normal Weight Concrete". Concrete slabs, patios, driveways, walls and foundations shall be constructed of a minimum 3000 to 3600 psi concrete, 28-day test, with a 4" minimum to 6" maximum slump maximum, air-entrained to 5 - 8%. No additional water shall be added to concrete after slump test is recorded. Cylinders shall be taken from every batch truck and tested for compressive strength at 7 and 28 days. Concrete should be a mix of high-grade Portland cement, clean sand or granular fill and washed gravel or crushed stone as coarse aggregate per ACI 530. Maximum aggregate size shall be 3/4". All aggregates shall conform to ASTM C33. Gravel should be well graded and not exceed 1 1/2" in size. Water shall not exceed 5 1/2 gallons for each bag, unless sand is very dry. Concrete shall be mixed using an approved batch machine or mobile mixer until uniform in color and providing a 4" minimum to 6" maximum slump.

031000 - Concrete Forming and Accessories

Provide all labor, materials and equipment necessary for the completion of the plain and reinforced concrete called for on the plans. Concrete when deposited shall have a temperature ranging between a minimum of 50 degrees Fahrenheit and a maximum of 90 degrees Fahrenheit.

Construction of Forms - Construct wood forms of sound material, and of the correct shape and dimensions, constructed tightly and of sufficient strength. Brace and tie the forms together. Make joints and seams mortar tight. Install leakage control materials in accordance with manufacturer's installation instructions.

Chamfered Corners - Unless otherwise noted, provide chamfered corners on all exposed corners. Provide 3/4-inch moldings in forms for all chamfering required.

Embedded Items - make provisions for sleeves, anchors, inserts, water-stops and other features.

Form Ties - Use form ties of sufficient strength and in sufficient quantities to prevent spreading of the forms. Place ties at least 1 inch away from the finished surface of the concrete. Do not use ties consisting of twisted wire loops. Leave inner rods in concrete when forms are stripped. Space all form ties equidistant and symmetrical and line up both vertically and horizontally.

Cleanouts and Access Panels - Provide removable cleanout sections or access panels at the bottom of all forms to permit inspection and effective cleaning of loose dirt, debris and water material. Clean all forms and surfaces to receive concrete of all chips,

sawdust, and other debris and thoroughly blow out with compressed air just before concrete is placed.

031513 - Concrete Accessories

Provide 1/2" thick by 4" wide bituminous expansion joint material at all surfaces where slabs adjoin raised slab, crawlspace or basement stem-wall CMU or poured foundations.

032100 - Reinforcing Steel

Reinforcing steel (rebar) shall be minimum ASTM A615, grade 40. All reinforcement splices shall be as follows: #5 bars 25" minimum, #7 bars 35" minimum. All rebar (reinforcing steel) shall be located 3" clear from bottom and side of footing and 2" clear from top. Locate vertical rebar (reinforcing steel) 4'-0" on center (OC). All reinforcement splices shall be in accordance with ACI 318 for "Strength Design." All reinforcement steel shall be accurately placed, rigidly supported, and firmly tied in place with bar supports and spacers in accordance with ACI 301 and ACI 318.

032200 - Welded Wire Fabric Reinforcing

Welded wire fabric shall conform to ASTM A105 and be located in the center of the depth. Install at slab on grade conditions.

033000 - Footings

Center all footings on walls, piers, or columns above unless otherwise noted. All footings shall rest on undisturbed virgin soil, tested for 95 percent compaction, or 3/4" stone compacted in 12" lifts to 95 percent density if fill is required. Footings to be constructed of concrete strength as shown on the structural drawings. Provide rebar (reinforcing steel) continuous through footers as shown on the structural drawings. Provide #5 rebar (reinforcing steel) corner bars at all corners and intersections of footers, beams and walls. Each side should overlap 2'-0", with a 90-degree bend. Footers shall bear on undisturbed soil and kept free from ground water. Underneath load-bearing walls and interior or exterior column footings, thicken slabs within a 1' radius to 12" thick.

033001 - Floor Slab

Concrete floor slabs shall be constructed of 3000 psi concrete, 4" thick reinforced with 10 gauge 6" x 6" welded-wire mesh continuous and rebar (reinforcing steel) as per plans. Place slabs over well-compacted granular fill compacted in 12-inch lifts to 95 percent density per AASHTO T-180 Proctor, and a 4 or 6 mil vapor barrier. Construction or control joints shall be provided in slabs on grade so that the maximum area between joints shall be 400 sq. ft. and the length of that area is not more than twice the width. Provide smooth steel trowel finish for all interior slab areas. Provide broom finish texture for all exterior slabs. Slope exterior patio or porch slabs away from building at 1/4" of drop in elevation for every 1'-0" in distance. At floor drains and showers slope concrete to drains.

033500 - Concrete Finishing

Repair of surface defects shall begin immediately after removal of form or pouring of slab foundation. Provide smooth steel trowel finish for all interior slab areas and garage surfaces. Provide broom finish texture for all exterior slabs. Slope exterior patio or porch slabs away from

building at 1/4" of drop in elevation for every 1'-0" in distance. At garage slab, provide positive drainage and taper lip at garage/overhead door. Patch all voids and depressions exceeding 3/8 inch in any direction.

DIVISION 040000 MASONRY

047300 – Manufactured Stone Veneer

This work includes manufactured stone veneer and trims units as shown on the drawings. Install in accordance with manufacturer's instructions. Install manufactured stone masonry veneer in accordance with MVMA Installation Guide for Adhered Manufactured Stone Veneer, ASTM C 1780 and applicable Codes. Install/Apply Related Materials in accordance with type of substrate and manufactured stone veneer manufacture's installation instructions. General:

Walls: Provide with Blended Color / Texture specified.

Special Shapes: Color to match stones specified.

- a. Provide Stones manufactured specifically for installation at corners where located on the Drawings.

Mortar Joints a. Style: Standard 1/2 inch tooled

Include weep screeds, metal trims and flashings taped to substrate sheathing material.

Substrate to be combination of mortar and lathe for a standard watertight system.

DIVISION 050000 METALS

050523 - Metal Fastenings

Provide 1/2" diameter x 10" long anchor bolts in filled cells and poured concrete walls at 48" on center (OC) maximum at all window locations and on each side of exterior doors. For slabs, install appropriate tie downs or straps as required by applicable building codes.

051010 - Structural Metal Framing

All structural metal for beams and plates shall be in accordance with ASTM A-36. All structural steel for steel columns shall comply with ASTM specification A-53 Grade B or A-501. Structural steel columns shall be 3" minimum inside diameter, unless noted otherwise. All steel details and connections shall be in accordance with the requirements of the latest AISC specifications and latest revisions. Provide all required anchor bolts, bearing plates and metal ties required by standard practice and as noted below.

Tubular Steel shall be in conformance with ASTM A500 Grade B

Steel pipe shall be in conformance with ASTM A-53, Type E or S, Grade A or B.

Cast Iron shall be in conformance with ASTM A-48, Class 30, unless otherwise noted.

Welding Electrodes shall be as permitted by AWS Code D1.0.

055000 - Metal Fabrications

Install metal detailing as specified on construction documents. Install metal gates, grilles, iron work, etc. to meet all applicable building codes, with appropriate detailing and patterns as shown in construction documents. Metal shall be shop built, welded together, cleaned thoroughly and painted with two coats of an anti-rust primer. After installation, apply an additional coat and anti-rust primer in preparation for finish coats.

DIVISION 060000 WOOD, PLASTICS, AND COMPOSITES**061000 - Rough Carpentry**

Lumber shall be of live, sound stock and properly dried. Pressure treated lumber shall be used where any lumber shall come into contact with concrete, masonry block or soil and when using as support members for decks, porches or balconies. Lumber for use at exterior shall have a maximum 12 percent moisture content, for dry climates 9 percent is recommended. Provide adequate bracing and shoring during the construction process. Studs and joists cut to install plumbing and/or wiring shall be reinforced by adding metal or wood structural reinforcing to strengthen member back to original capacity and maintain structural integrity. Holes bored shall not be larger than 1/3 the depth and not closer than 2" to the top or bottom of the joist.

Wood Species: as shown on the structural drawings.

061100 - Wood Framing

Exterior Walls - All exterior walls shall be constructed with 2"x 6" wood studs at 16" on center (OC), with single bottom plates and double top plates throughout. Provide solid blocking at mid-height of all walls. For exterior corner joints, install (3) 2"x 6"s nailed together. Where interior partitions meet exterior walls, install 2 studs fastened together with 2"x 6" blocks approximately one foot long. One block is placed at the bottom, one at the top and one about center of the studs.

2"x 4" studs placed 16" on center (OC) - typical

2"x 6" studs placed 16" on center (OC) - for higher ceilings and higher insulation values

Where exterior openings occur on 2"x 6" exterior walls, provide structural headers designed with (3) pieces of 2"x 10" lumber with a 1/2" continuous plywood flitch plate glued and nailed between the 2"x 10" s. At window sills, provide a single piece of, 2"x 6" lumber. Provide double jacks or liners for openings 6'-0" wide or greater, unless otherwise noted. At exterior walls provide shear walls where shown and detailed on the structural drawings.

Fascia and Soffit - Provide solid 2x blocking with aluminum covering at all fascia's. Soffits to have a prefinished soffit panel system with vented panels spaced equally. See construction documents for complete architectural details.

Interior Walls

All interior walls shall be wood studs, with single bottom plates and double top plates throughout. Provide solid blocking at mid-height of all walls which exceed 9'-0" in height.

2"x 4" studs placed 16" on center (OC) - typical

Roof Decking - Provide and install exterior sheathing of APA rated and code certified CDX plywood panels or OSB. Sheathing shall be installed with the face grain running across the rafters, vertical joints staggered. Nails shall be 6d or 8d common smooth, ring-shank or spiral thread nails spaced 6" apart on the ends and 12" apart inside. Install with plywood "H" clips between each piece of decking, every 48". Install one layer of moisture barrier 15# felt, overlapped a minimum of 6".

Blocking – Provide wall and ceiling blocking as required for all equipment, accessories, devices.

Fireblocking/ draftstopping – Provide fireblocking and draftstopping as required by building codes.

061600 – Sheathing

- A. Between studs and sheathing, install one layer of approved moisture barrier overlapped a minimum of 6". Provide and install exterior sheathing of 1/2" rated plywood panels. For plywood panels, use 6d nails spaced 6" apart on the edges and 12" apart on the studs.
- B. Install sheathing panels in accordance with local codes and requirements of authorities having jurisdiction.

061813 - Glued-Laminated Beams

For large spans, structural laminated beams will be required as set forth in the construction documents or by applicable building codes. Laminated timber is hereby defined to include engineered stress-rated products of wood members fabricated from 1" to 2" nominal thickness lumber glued face to face to a depth of four laminations or more.

Glue-lam Beams shall have a minimum bending design values (Fb) of 2400 psi and a modulus of elasticity of 1,800,000. Install with crown up.

Micro-Lam Lumber shall have a minimum bending design values (Fb) of 2,800 psi and a modulus of elasticity of 2,000,000 psi.

Parallam Beams shall have a minimum bending design values (Fb) 2900 psi and a modulus of elasticity of 2,000,000 psi

062000 - Finish Carpentry

All architectural trim and woodwork shall be select paint grade material suitable for appropriate finishes. All wood to be free of marks, blemishes, warping, etc. Wood that will be stained shall be clear of knots with concealed joints.

062200 - Millwork

Moisture content for interior woodwork shall be 8-10 percent to reduce excess shrinking. Provide and install interior wood trim as shown in construction documents.

064100 – Architectural Wood Casework

Install pre-fabricated cabinetry as detailed in construction documents. Sizes of upper & base cabinets are shown on the drawings. Provide concealed or decorative hinges and cabinet hardware.

1. All hardware to be brushed stainless.
2. Pulls: to be selected by owner.
3. Shelves: Provide minimum 1 shelf per cabinet or 12" on center vertically. Provide adjustable pin construction with 20% extra stock.
4. All cabinets in public spaces to be Opaque premium grade wood with style and color as selected by manufacturer. Cabinetry & countertops in the Nurse & Laundry areas to be plastic laminate as selected from full range of laminates.
5. All countertops in public spaces are to be solid surface per drawings.

DIVISION 070000 THERMAL AND MOISTURE PROTECTION**071000 - Dampproofing**

All joints and penetrations in walls, floors, and roofs shall be made watertight using approved methods and materials. Dampproofing recommendations contained herein are minimum, check with local code officials for additional requirements.

Slab Foundations - Install a minimum (6 mil) polyethylene vapor barrier in all slabs, directly underneath concrete. Lap joints not less than 12 inches and tape and seal in accordance with manufacturers guidelines.

071313 - Felt

On all roof surfaces install a minimum 15, asphalt impregnated roofing felt. For roofs that are steeper than a 6:12 pitch use a single layer of felt. For roofs with less than a 6:12 pitch install a double layer of felt and overlap a minimum of 18". Overlap felt a minimum of 4" vertically and 12" horizontally. Continue felt 6" up all vertical surfaces and 4" over gutter and valley metal. Fasten all edges with large headed galvanized nails on 6" centers. Lay courses parallel with eaves. Do not stretch courses.

072000 - Thermal Protection

Effective R values shall be in accordance with local and state energy codes. Floor, walls and ceilings insulation shall be constructed with: batt, blanket, insulation. All plumbing chases in interior and exterior walls shall be insulated with batt insulation for sound attenuation.

Exterior Walls - Wall insulation shall be 5 1/2" batt with an R value of 19.

Interior Walls - Install 3 1/2", batt insulation where shown on the drawings specified for sound attenuation.

Ceilings - Attic insulation shall be batt blankets, with an R value of 30.

Foundation - For concrete slab foundation, provide 2" thick x 24" high and 24" wide x 2" thick L-shaped R-7 Styrofoam frost barrier around perimeter of structure.

072500 - Air and moisture barrier

Dupont Tyvek "HomeWrap" weather barrier membrane, seam tape, flashing and fasteners.

Installation

- A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.
- B. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.
- C. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface. Maintain weather barrier plumb and level.
- D. Extend bottom roll edge over sill plate interface 2" to 3" minimum. Seal weather barrier with sealant or tape. Shingle weather barrier over back edge of thru-wall flashings and seal weather barrier with sealant or tape. Ensure weeps are not blocked.
- E. Subsequent layers shall overlap lower layers a minimum of 6 inches horizontally in a shingling manner.
- F. Window and Door Openings: Extend weather barrier completely over openings.
- G. Weather Barrier Attachment: Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, spaced 12 -18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.

SEAMING

- A. Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.
- B. Seal any tears or cuts as recommended by weather barrier manufacturer.

FLASHING

- A. Cut 9-inch wide DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF a minimum of 12 inches longer than width of sill rough opening. Apply primer as recommended by the manufacturer.
- B. Cover horizontal sill by aligning DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before adhering up the jambs.

- C. Fan DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges. Mechanical fastening is not required for DuPont™ FlexWrap™ NF.
- D. On exterior, apply continuous bead of sealant to wall or backside of window mounting flange across jambs and head. Do not apply sealant across sill.
- E. Install window according to manufacturer's instructions.
- F. Apply 4-inch wide strips of DuPont™ StraightFlash™ at jambs overlapping entire mounting flange. Extend jamb flashing 1-inch above top of rough opening and below bottom edge of sill flashing.
- G. Apply 4-inch wide strip of DuPont™ StraightFlash™ as head flashing overlapping the mounting flange. Head flashing should extend beyond outside edges of both jamb flashings.
- H. Position weather barrier head flap across head flashing. Adhere using 4-inch wide DuPont™ StraightFlash™ over the 45-degree seams.
- I. Tape head flap in accordance with manufacturer recommendations.
- J. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer's instructions and ASTM C1193.

073113 - Asphalt Shingles

Provide 30-year Composite/Asphalt three tab, dimensional, shadow line shingles over one, layer of 15# felt. Minimum recommended pitch is a 4:12 slope.

Asphalt shingles shall be: GAF Timberline Prestique 30 or similar products by other manufacturers.

Ice and water shield, self-adhered roofing underlayment to be installed where shown on the documents. 3 ft wide rolls similar to "Grace Ice & Water Shield".

074600 - Siding

Provide and install siding exterior in accordance with applicable building codes and manufacturers guidelines.

Fiber Cement Siding - Install siding by James Hardie or similar, as specified in construction documents. Provide all necessary starter strips, drip cap, corner detailing, etc. required by manufacturer and as stated in construction documents. Include manufacturer's prefinished corner trims and smooth panels. Install all materials using manufacturer's latest published installation instructions.

Overhangs and soffits – Prefinished steel soffit system by Peterson aluminum Corporation PAC-CLAD or similar products by other manufacturers.

Thickness 1"

Material: corrosive resistant steel

Finish: Kynar 500 or Hylar 5000

Seams: concealed interlocking panels

Width: 12" wide
Venting: provide 12" wide venting panels as indicated on drawings.
Provide "J" trims and other accessories as required for a complete installation.

076000 - Flashing and Sheet Metal

Install appropriate flashing and sheet metal shop fabricated to the sizes shown at all joints of chimney cap, fascia Sheetmetal, gutters, downspouts, wall flashings, and other connection points to prevent the infiltration of water. Flashing and sheet metal shall be assembled of 24-gauge prefinished coil stock using standard colors, corrosion resistant sheet metal. Coil stock to be similar to PAC-CLAD Peterson Aluminum Corporation or similar. Keep flashing concealed except where exposed on vertical surfaces or counter flashing.

077123 - Manufactured Gutters and Downspouts

Install metal gutters downspouts. Attach every 2'-6" on center (OC) with straps and/or fasteners. Metal should be 24-gauge steel prefinished with Kynar 500. Install expansion joints and all typical construction complying with SMACNA standards. All gutters to receive leaf guards.

077200 - Roof Accessories

Vents - Proper roof ventilation requires a minimum 1 sq inch of vent area for every 2.08 square feet of attic floor area. Provide a minimum of 144 square inches of free air ventilation for every 300 square feet of attic floor area. 50% of the roof ventilation should be located adjacent the roof peak with the other 50% located in the soffit area under the eaves to provide natural convection throughout the attic area. Check ventilation requirements with roof system manufacturer.

Ridge Vents - Install aluminum ridge vents at top of ridge for the removal of heated attic air. See construction documents for location. All ridge vents to have wind baffles.

079200 - Joint Sealants

Use a 50-year warranty silicon-based caulk at high expansion/compression areas, such as around chimneys, tile, ceramic, and around enamel and pre-fabricated tubs and showers. For exterior windows, door frames, interior trim, woodwork and other paintable surfaces use a clear, colored Latex based caulk. Color shall match wood stain or paint.

DIVISION 080000 OPENINGS

081100 - Metal Doors and Frames

Hollow metal frames to be fabricated from steel in the shapes shown for use in stud construction. Provide knock-down frames primed for paint finish. Fire rated frames to have UL label where indicated in schedules. Interior frames to be 18 gauge.

081101 - Exterior Doors

All exterior doors shall be solid core 6-piece construction, insulated and swing inside with weather-tight thresholds. Install weather-stripping around all doors.

Standard Exterior Door – Fiberglass reinforced facings with wood grain texture, polyurethane insulated core w/ solid wood stile & rails, wood blocking, ½” insulated glass lite, 1 3/4” thick, with full weather-stripping and metal, ADA compliant threshold. Provide necessary hardware per door schedule.

Location: Entry

Style: Raised Panel, w/ wood texture.

Specify: similar to Masonite, Exterior, Artisan 6 lite Craftsman over 2 panel.

081400 - Interior Doors

Interior doors shall be pre-hung split-jamb units, including casing on both sides of the door.

Standard Interior Door - Wood door, solid core. Provide necessary hardware per door schedule.

Type: Hollow core

Style: per door types on documents.

Type: 3 panel, Craftsman or French 1 Lite where scheduled.

Material: Masonite molded door,

Specify: Similar to Masonite Heritage series Winslow

Fire Rating: See schedule.

Interior Door Frames - Install pre-hung split-jamb units with interior casing, interior casing as shown on documents for paint finish where no fire ratings are required. Install interior casings over hollow metal frames per details @ fire rated openings.

085000 - Windows

Confirm that openings are compliant with all applicable building codes concerning egress, lighting and ventilation requirements. Temper all glass at locations required by building codes. Provide and install necessary windows and appropriate hardware to operate and lock windows. Hardware Finish shall be: white or brushed stainless.

Windows: Exterior windows to be Anderson composite Fibrex or similar products by other manufacturers of vinyl windows.

Typical Windows:

Frame: composite or vinyl

Style: 100 series, single-hung.

Glazing options: Clear insulated Glazing, Low-E coating, Gas-Filled

Color: White

Hardware: Satin Nickel

Size: window size and type shown on documents.

Grill type: simulated divided light.

Screens: per 085166

Four Season Room windows:

1 Frame: composite or vinyl
2 Style: 100 series, sliding windows.
3 Glazing options: Clear insulated Glazing, Low-E coating, Gas-Filled
4 Color: White
5 Hardware: Satin Nickel
6 Size: window size and type shown on documents.
7 Grill type: simulated divided light.
8 Screens: per 085166
9

10 **085166 - Metal Window Screens**

11 Exterior frames shall be a metal finish with joints welded and sanded smooth. Wire mesh shall
12 be aluminum "charcoal". Screens will be installed for easy removal as recommended by
13 manufacturer's guidelines.
14

15 **087100 - Door Hardware**

16 Finish hardware shall include materials as shown on drawings at all doors. Specific doors will
17 require connection to access control system. Fire doors are also shown on hold-open devices
18 specified and installed by the electrician. All hardware to comply with ADA accessibility.
19

20 Typical hardware as follows:
21

22 **Type:** Lever door hardware.

23 **Finish:** Brushed stainless.

24 **Hardware Groups:** see schedule on drawings.
25

26 **088300 - Mirrors**

27 Install mirrors as noted in construction documents. Install with silicon sealant and spacer strips
28 per manufacturers recommendations.
29

30 **088000 - Glazing**

31 Exterior windows to be supplied with insulated glazing per section 08500 - Windows. Interior
32 glazing wit be 1/4" clear glass for unrated frames and tempered where required by code for
33 safety conditions.
34

35 Interior fire rated glazing to be transparent glass-ceramic as manufactured from "Firetlite"
36 or similar products by other manufacturers. See drawings for various fire ratings required.
37

38 **DIVISION 090000 FINISHES**

40 **092900 - Gypsum Board**

41 Gypsum board must be held firmly against the framing while fastening to avoid later movement
42 of gypsum board on the shank of the nails or screws.
43

44 **Nails or Screws:** Nails and screws shall be a minimum 3/8" and a maximum of 1/2" from edges
45 and ends of wallboard and the heads shall be seated slightly below the surface without breaking
46 the paper. Nails shall be spaced not to exceed 7" on ceilings or 8" on sidewalls. Head diameter

shall be a nominal 1/4" with the length 1 1/2" to penetrate a minimum of 7/8" into nailing member. Nails shall meet the minimum requirements of ASTM C514 and may include coated, etched treated or annular ring shanks to improve withdrawal resistance. Drywall screws shall meet the minimum requirements of ASTM C1002. Bugle-shaped heads shall be 0.315" in nominal diameter and contain a No. 2 Phillips driving recess. Type "W" screws are designed for easier fastening in wood.

Joints: At gypsum wallboard joints install a 2" strong, cross threaded tape with a cross tensile strength of 45 lbs per lineal inch. Press a strong, good quality tape firmly onto sheathing joints and around openings, imbedded in joint cement. At corners and angles, install metal corner beads as specified by manufacturer. If corners are rounded, install corner reinforcement as required. Spread gypsum wallboard mud at all tape joints, corner beads, nails and screw penetrations and where a smooth surface is needed. Apply second coat of wallboard mud after a minimum 24 hours. After drying (minimum 48 hours), sand all joints and other areas to a smooth consistent surface.

Interior Walls: Sheath walls with 5/8" gypsum wallboard, either vertically with long edges parallel to framing, or horizontally with long edges at right angles to framing members. Apply one layer of 5/8" x 4' x, 8', 9', 10' or 12' foot lengths to all wall surfaces. Offset joints between layers at least 10".

Ceilings: Apply a single layer of 5/8" gypsum wallboard across the supports and fasten with nails or screws. Offset joints between layers at least 10". Nails are spaced 6" on center (OC) with 1 1/4" heads. Screws are spaced 12" on center (OC). Ceiling finish shall be smooth.

Fire-Rated Gypsum Wallboard: where shown and around gas water heaters and as required by applicable building codes, install 5/8" Type "X" fire-rated gypsum wallboard. Nails shall be 1 3/4" long, spaced a maximum of 4" on center (OC) around perimeter and 8" on center (OC) in the field of the board.

Water Resistant Gypsum Wallboard: Around showers, tubs, whirlpools, or as required by applicable building codes, install 5/8" water resistant drywall (green board).

093000 - Tiling

Tile, shall be appropriate grade and finish in accordance with applicable building codes and owner requirements. Contractor shall properly clean all surfaces to be covered and install appropriate underlayment per manufacturers recommendations. Installation should be carried out with a slow setting cement adhesive, well mixed per manufacturer recommendations. Grouting of control joints can be executed either with cement-based grout or with resin based organic materials.

Floors: Contractor shall properly clean all surfaces to be covered and install appropriate underlayment per manufacturers recommendations.

Tile: Floors shall be installed with a Ceramic tile as shown on construction documents.

Underlayment: Cementitious, Self-leveling, etc
Color: Color selected from full range of colors by manufacturer for tile and grout.
Metal transition strips, provide Schluter transitions strips on the exposed edges
of any tile flooring to prevent cracking.

095123 – Acoustic Ceiling

Acoustical Tile Standard: Provide manufacturer's standard tiles of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance's unless otherwise indicated.

Style: As indicated on drawings.

Color: White.

Edge/ Joint Detail: kerfed and rabbeted (tegular) for "Second-Look".

Metal Suspension-System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M. Provide Zinc-coated, carbon steel wire hangers, brace and ties. Provide Seismic bracing as shown on the plans.

Style: Exposed 15/16" Tee system.

Color: White.

Acoustic ceiling tiles and grid by Armstrong industries or similar products by other manufacturers.

096000 - Flooring

Subcontractor shall properly clean all surfaces to be covered and inspect substrate to meet manufacturers' acceptable requirements. Patch/ fill any areas that require leveling. Install appropriate underlayment or any other preparation per selected flooring manufacturers recommendations.

Vinyl Simulated Wood Flooring as specified on the documents,
Carpet as specified in the documents.

Adhesives Waterproof,

Leveling and patching compound Latex type recommended by flooring manufacturer.

Resilient wall base, Style as scheduled, provide standard shapes as required for inside and outside corners.

Resilient accessories Vinyl resilient flooring adaptor, between differing materials.

Concrete sealer: Durable satin curing, non-yellowing, non-staining, sealer that protects freshly placed concrete. Include powdered additives for slip resistance. Products from "Brickform" or similar products by other manufacturers. See room finish schedules for concrete sealer locations.

096723 - Polymer Resinous Flooring

Seamless floor covering by Desco Coatings, Inc. with binders, aggregate, grout and top coats of 100% solids clear resin. Provide an integral base on all sides.

Minimum Performance Characteristics:

1. Impact Resistance: Gardner Impact Test. 160 in/lb - no cracking, chipping or delamination.
2. Toxicity: U.S. Department of Agriculture Research Service Meat Inspection Division, Non-Toxic.
3. Flammability: ASTM D-635. Self-extinguishing.
4. Compressive Strength: ASTM C-579 - 10,400 psi.
5. Chemical Resistance: Unaffected by the following:

20% Hydrochloric Acid	10% Lactic Acid
Urine	Tea
Coffee	Mustard
Ethyl Alcohol	Mercurochrome
Iodine	Betadyne
6. Epoxy top coats shall produce no color shift after exposure to fluorescent lighting on the "b" axis yellow index after 3 weeks exposure.
7. Texture shall be as selected from manufacturers standard options.
8. Finishes shall be SR Co-Polymer topcoat with desired texture.
 - a. Provide slip-resistant texture in all shower rooms.
 - b. Provide standard finish everywhere else.

Installer is to review actual conditions and provide caulked joints in flooring as required or recommended by the manufacturer along existing major slab joints.

097000 - Wall Finishes

Walls shall be clean and free of defects such as cracks or unfinished joints prior to installation of wall finishes. If mildew is evident, mildew must be removed and surface properly treated to inhibit further mildew growth.

099000 - Painting and Coating

Prepare each surface to receive scheduled work as set forth below.

099113 - Exterior Painting

All nail heads shall be set below the surface and finished smooth. If mildew is evident, the mildew must be removed and surface treated to inhibit further mildew growth. Clean and prep surfaces to be painted per manufacturer before application of any paint products.

1. Exterior
 - a. Metals

1 coat rust inhibiting primer and,
2 coats of semi-gloss enamel paint
 - b. Ceilings

1 coat primer and,
2 coats of flat enamel paint
2. Interior

- | | |
|-------------|--|
| a. Metal | 1 coat rust inhibiting primer and,
2 coats of semi-gloss enamel paint |
| b. Ceilings | 1 coat primer and,
2 coats of flat latex paint |
| c. Walls | 1 coat primer and,
2 coats of eggshell enamel paint |
| d. Wood ptd | 1 coat primer and,
2 coats of semi-gloss enamel paint |

099123 - Interior Painting

All nail heads shall be set below the surface and finished smooth. Joints should be taped and covered with a suitable drywall joint compound. Sand the spackled nail heads and joint compound smooth and dust well before priming. Interior walls shall receive a primer coat and two coats of flat or eggshell paint. Surfaces shall be sanded before each finish layer is applied.

099300 - Interior Wood

Wood surfaces shall be sanded smooth before finish is applied. Putty areas with a wood-based filler where nails or other defects appear in the surface.

DIVISION 100000 SPECIALITIES**102000 - Aluminum louvers**

Furnish and install where indicated on the drawings extruded aluminum louver as manufactured by construction specialties, Inc. or similar products by other manufacturers. Louvers shall be fabricated from .050" (1.27 mm) thick aluminum sections, 6063-t52 alloy.

Blades to be vertical type rigidly secured in place. All frames to be mitered at corners and reinforced with corner brackets. Standard baked on enamel finish.

102116 – Shower Compartments

4mm acrylic shower panel system by Mermaid or similar products by other manufacturers. Panels to be from the "E1" price group with color to be selected from manufacturer's full range of colors. Provide PVC color coordinated internal corners, edge profiles, base bottom seals, etc. Install panels per manufacturer's recommendations using adhesives, sealants and other materials for a watertight installation.

102600 – Wall and Corner Protection

Corner Guards. - 90-degree surface mounted corner guards with extruded high-impact Acrovyn 400 with "shadowgrain" texture. Colors to be selected from manufacturers full range of available colors. Mounting with manufacturers tape or adhesives. Length of 90-degree legs and length of guard are as shown on the drawings. Provide products from CS Acrovyn or similar.

1 Wall Protection. – Wall covering panels with rigid high impact Acrovyn 4000, .040 thickness, in
2 standard Suede texture. Provide adhesives and primers as necessary. Colors to be selected
3 from manufacturers full range of available colors. Provide products from CS Acrovyn or **similar**
4 **products by other manufacturers.**
5
6

7 **102816 - Bath Accessories**

8 Contractor shall install accessories as shown on the drawings. Install per manufacturer's
9 installation instructions.
10

11 **104416 – Fire Extinguishers & Cabinets.**

12 Cabinet.

13 Semi-recessed steel heavy gauge cabinets, white baked enamel box. Door to be steel ½" thick
14 hollow metal heavy gauge. Trims and door to have one-piece construction with satin finish pull
15 handle, continuous hinge, and self-adjusting roller catch. Baked white finish.

16 Door style: Solid

17 Lettering: red die-cut letters vertical "Fire Extinguisher"

18 Trim: Steel

19 Projection: rolled semi-recessed. 2.5" +/-

20 Handle: recessed with Larson-Loc features.

21 Fire extinguishers:

22 All areas: multipurpose, 10lb ABC type.

23 Kitchen: "K" rated extinguisher.
24

25 Manufactured by Larson's Manufacturing Company or similar products by other manufacturers.
26

27 **105700 - Wardrobe and Closet Specialties**

28 Install shelving as indicated on construction documents for all closets, storage areas and
29 pantries. Metal shelving shall be fabricated of heavy-gauge vinyl coated welded steel rod with
30 deck rod spacing having a maximum distance of 1". Provide supports every 3'-6" maximum on
31 center (OC). In coat closets where shown provide a combination wire shelf and clothes rod.
32
33

34 **DIVISION 110000 EQUIPMENT**

35 **115213 – Projection Screens**

36 Fully recessed and electrically operated automatic closing projection screen similar to
37 "Descender Pro" by Da-Lite and Milestone AV Technologies or similar products by other
38 manufacturers. Size and style shown on the drawings.
39

40 **DIVISION 120000 FURNISHINGS**

41 **123661 – Simulated Stone Countertops**

42 Countertops fabricated from Quartz and other raw materials. Countertops to have matching
43 backsplash where shown. All countertops to be anti-microbial, stain resistant, high impact
44 strength, and scratch resistant.
45

46 Tone: White, Grey or Blue

Style: Plain.
Finish: Polished texture.
Thickness:

DIVISION 310000 EARTHWORK

311000 - Site Clearing

The area of clearing shall be maintained within the limits shown on the appropriate site plans.

Soil Bearing - Foundation designs are based on a soil bearing value to be determined by soils report. Foundations and slabs are designed to uniformly bear on well-compacted, well-drained non-expansive soils. A certified soils engineer shall review foundation designs and building loads and compare with subsurface soil investigation. Should on-site observations show that foundation designs are not satisfactory, a structural engineer should be contacted immediately to redesign foundations to accommodate conditions.

311100 - Clearing and Grubbing

Clear and grub the construction site. Grade building site with appropriate soils. Existing trees to remain shall be marked prior to clearing and protected to prevent damage. If any damage is done to walkways, driveways, etc, needed repairs shall be provided by the contractor. Repair or replace any damaged vegetation or terrain that is indicated to be protected or is more than eight feet from the edge of any construction.

312000 - Earth Moving

Excavate bottom of all foundation walls and footings at building perimeter a minimum of 12" below frost line and 20" wide, (check with local building officials for frost line level requirements). Base of footings shall extend down to undisturbed virgin soil which has been compacted to 95 percent proctor density. All excavation shall be to a level below existing demolition debris. Board form all footing as required by soil conditions.

At slab foundations, compact sub-grade under slabs to a minimum 95% density. Compact backfill areas not under slabs or foundation to a minimum 90% ASTM D-689. Sub-base directly under concrete slabs on grade shall be a minimum of four inches of compacted granular fill.

312200 - Grading

Carefully remove loam and topsoil to be incorporated in the finished work and store separate from the other excavated material. Failure to isolate loam and topsoil from the other excavations shall require that said soils not be used as topsoil.

312213 - Rough Grading

Prior to commencement of earthwork, perform such soil and rock removal and filling as may be required to facilitate the progress of the work and bring all elevations to the rough grade lines indicated on the Contract Documents. Fill or backfill as required.

312219 - Finish Grading

1 Keep exterior finished grade a minimum of 6" below finished floor elevation (see construction
2 documents for exact locations) by backfilling with appropriate soils. Provide swales with positive
3 outfall and slope grade away from building to allow water to drain away from the building
4 foundation. Do not backfill against foundation until project is completely framed and roof
5 structure is in place. Soil type of fill shall be specified by Geotechnical Engineer.

6 7 **312300 - Excavation and Fill**

8 Backfill material to be used from the excavations shall be of such nature that after it has been
9 placed and properly compacted, it will make a dense, stable fill. It shall not contain vegetation,
10 masses of roots, stones over 3-inches in diameter, or porous matter and shall not be saturated.
11 Organic matter shall not exceed minor quantities and shall be well distributed.

12 13 **312316 - Excavation**

14 Carry out the excavation, dewatering, sheeting and bracing in such manner as to eliminate any
15 possibility of undermining or disturbing the foundations or any existing structure or any work
16 previously completed.

17
18 Excavate pipe trenches to the necessary depth as shown on plans. Trenches over 5 feet in
19 depth shall be properly sloped, shored, braced or otherwise supported in conformance with the
20 OSHA Construction Safety and Health Standards.

21 Excavate trenches to provide a uniform and continuous bearing and support for the pipe and
22 appurtenant structures on solid and undisturbed ground and at the specified grade at every
23 point.

24
25 Excavation for structures and pipelines shall include the disposal of materials unsuitable for
26 reuse for backfill. Excavation activities shall include the stockpiling of suitable materials which
27 shall be incorporated into the project at a later date of different location.

28 29 **312319 - Dewatering**

30 At all times during construction - provide, place and maintain ample means and devices with
31 which to remove promptly all water entering trenches and other excavations. Keep excavations
32 dry until the structures, pipes and appurtenances to be built therein have been completed and
33 backfilled. Dispose of all water pumped or drained from the work without interference with other
34 work, traffic or injury to public or private property. Prevent siltation of storm water facilities or
35 receiving waterways.

36 37 **312323 - Select Borrow**

38 Material needed in addition to that available from construction operations shall be defined as
39 select borrow. Select borrow shall consist of durable natural granular material or granular
40 aggregates mixed or blended with sand, stone dust, soil or other filler materials to provide a well
41 graded mixture meeting the requirements herein specified.

42
43 These materials shall be free from vegetable or organic matter, lumps or an excessive quantity
44 or clay or other objectionable or foreign substances, but may contain a maximum of ten percent
45 of shale by weight.

The size and gradation of the material shall range from stone no larger than 3 inches across its maximum dimension to soil passing a No 200 sieve. The gradation shall be well dispersed through the borrow.

312323.13 - Backfill

Correct any part of the trench bottom excavated below the specified grade with approved materials and thoroughly compact.

Complete all backfilling to the dimensions and levels shown on the construction documents. Where excavated material or any portion thereof is deemed unsuitable for backfilling material, procure and place approved select borrow materials.

Backfill as promptly as is consistent with non-damage to the installed structures. Do not place frozen material in the backfill.

No material shall be placed or compacted when it is too wet or frozen or when the sub-grade or previously placed material is too wet or frozen.

312500 - Erosion and Sedimentation Controls

Clear the top layer of soil and place in a designated area for use at the end of the project. Provide swales with positive outfall, and slope grade away from building to allow water to drain away from the foundation. Backfill around building with subsoil graded free of lumps larger than 6", rocks larger than 3" and debris. Keep finished grade elevations a minimum of 6" below finished floor elevation (see construction documents for exact locations). Do not backfill against foundation, until home is completely framed and roof structure is in place.

315000 - Excavation Support and Protection

Install excavation support systems for safety preservation of existing improvements. Design criteria of support systems shall consider all loads in a manner which will allow the safe and expeditious construction of permanent structures without movement or settlement of the ground.

DIVISION 320000 EXTERIOR IMPROVEMENTS

320190 - Operation and Maintenance of Planting

All plants shall be kept in healthy, growing condition by replacement of dead or dying plants where necessary, by watering, weeding, cultivating, pruning, spraying, trimming, protection from wind, and by performing any other necessary operations or maintenance for a period of 30 days or until acceptance of the planting at the time of the final inspection. A final weeding of all plant areas shall be made immediately prior to final inspection. Newly planted trees shall be pruned as necessary. All dead branches shall be removed. Rootstock shoots from grafted material shall be removed.

320190.13 - Fertilizing

Commercial fertilizer to mix with backfill soil shall be ammonium phosphate 16-20-0 applied at twenty (20) pounds actual nitrogen per 1000 square feet (12.5 pounds of ammonium phosphate applied to each 1000 square foot area). Use Agriform tablets at twice label recommendations for

tree and shrub materials. Fertilizer will be applied for seeding areas disturbed by clearing operations. Spread soil conditioners and fertilizers and thoroughly incorporate by rototilling work into topsoil to a depth of 4". Rake topsoil until the surface is finely pulverized and smooth.

321313 - Concrete Pads and Walks

Provide light duty paving for pavements on sub-grade compacted to 98 percent density. Consult site plan for additional information. Expansion joints shall be installed as in standard concrete practices. Control joints shall be installed at pre-determined locations no later than 12 hours after installation.

Design mix to produce normal-weight concrete consisting of portland cement, aggregate, air entraining admixture and water to produce the following properties:

Compressive strength: 4000 psi, minimum at 28 days. Slump range: 3 inches air content: 5 to 8 percent

Contraction joints: construct at a depth equal to at least 1/4 concrete thickness using tooled joints.

Expansion joints: extend joint fillers full width and depth of joint and not less than 1/2" or more than 1" below finished surface. Fill with sealant.

322832- Dry-set masonry retaining wall

Provide masonry units from versa-lok wall system as distributed by f.f. kckhner, inc. Install on compacted granular fill using versa-tuff pins and geogrid fabric. Backfill as required. Provide solid cap units.

323000 - Site Improvements

Provide and install landscaping accessories as specified in construction documents. Edging materials, tree grates, etc.

323100 - Fences and Gates

Provide and install fence and gates at locations shown in construction documents. Support as required by manufacturer. Installation of fencing shall not be started until final grading has been completed. Posts shall be plumb and rigid after installation. Rails shall be straight and tight. Drill holes for post footings in firm, undisturbed or compacted soil. Footing holes shall be not less than 9 inches in diameter and 38 inches in depth. Post embedment in concrete shall be 36 inches. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads.

Gates - Gates shall be installed plumb, level and secure for full opening without interference. Install ground-set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricate. Sliding gates shall operate smoothly and easily under minimum pressure.

Concrete - Place concrete around posts in a continuous pour. Check each post for plumb and vertical and top alignment and hold in position during placement and finishing operations. Trowel finish tops of footings and slope or dome to direct water away from posts. Set keepers, stops, sleeves, tracks, eye bolts and other accessories into concrete as required. Wheel rolling area for sliding gates shall be steel towel smooth finish concrete.

323123 - Plastic Fences and Gates

Install pre-fabricated fence and gates. Provide fence and gate size, style & locations as shown in construction documents. Support as required by manufacturer.

Manufacturer: Woodland Select or similar

Color: to be selected with woodgrain finish

Style: Privacy or picket where shown

329000 - Planting

Provide and install all plants, materials, and labor required to execute the landscaping as described in the Contract Documents. Landscape site per construction documents with appropriate sod, plants, trees, and shrubs suitable for local climate and site requirements as listed below. Landscaping budget shall be determined by an allowance as stated in the Contract Documents.

329113 - Soil Preparation

Do not plant until finish grades are established and planting areas are properly prepared and graded. When preliminary grading, including weeding and fertilizing, has been completed and the soil may be readily worked, grade all planting areas to a smooth, even and uniform plane with no abrupt change in surface. Slope soil areas adjacent to buildings away from the buildings, and direct surface drainage as indicated on the drawings. Grading shall provide for natural runoff of water without low spot or pockets. Finish grade of earth in landscaped areas shall be 3 1/2 inches below the top of adjacent pavement, curbs or headers.

329113.16 - Mulching

Apply mulch immediately after seeding. Loosen baled straw and thoroughly break up before placing. Begin placement of mulch on the windward side and from the toe to slopes. On slopes 2 to 1 and greater provide jute matting stapled 18 inches to 3 feet apart using closer spacing around curves and areas of concentrated storm water runoff. Soil amendment and mulch shall consist of Cedar-soil or equal, composted, nitrogen-stabilized, water-holding materials with long residual life.

329119.13 - Topsoil Placement and Grading

A three (3") inch cover of topsoil or appropriate soil amendment shall be spread uniformly over the soil (9 yards per 1000 sq. ft.) and tilled into the top six (6") inches of soil. Topsoil shall be a natural, fertile, friable soil, typical of productive soil in the vicinity, obtained from naturally well drained areas. Rototill all areas indicated on plans and on areas damaged by construction, to depth of 4", removing stumps, all foreign objects and stones larger than one inch diameter. Place topsoil on all areas and incorporate by rototilling into subsoil.

329219 - Seeding

Seed only when weather conditions are suitable. All newly seeded turf areas shall be free of broadleaf weeds. Sow seed with mechanical spreaders at the specified rate on a calm day. Sow one half the seed in one direction and the other half at right angles. Seed shall be raked lightly into the soil to a depth of 1/4 inch and rolled with a roller weighing not more than 100 pounds per linear foot of tread. Keep the surface moist by a fine spray until the grass shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than three (3) square feet, reseed, roll and water as necessary to obtain proper germination. Infested areas shall be treated with a selective broadleaf insecticide; Trimec or approved equal.

329223 - Sodding

Plant only certified sod only when the soil is moist and favorable for growth. Shape the area to be sodded and finish to the lines and grades indicated on the plans. Loosen the surface prior to placing sod. Keep the grade moist by sprinkling, if necessary, sod on the prepared surface with the edges in close contact. Each piece of sod laid shall be fitted and tamped into place with hand tampers not less than one hundred square inches in area. Apply a sufficient quantity of water to all sod after laying and to prevent the sod from drying out for a period at least two weeks to ensure growth.

329300 - Plants

Shrubs and trees shall be of a variety, size and quantity shown in the Construction Documents. Cut burlap, twin and wire baskets from top 12 inches of root-ball and remove from site. Backfill with 1/2 clean existing soil, 1/4 sand and 1/4 peat moss. Plants shall bear some relation to soil level when planted as they did when in container. Place each plant in center of plant pit. Firmly tap backfill material into plant pits around and under the root ball to force out all air pockets. Backfill as specified on the plans. Thoroughly water to saturate the root ball and backfill. Stake all trees with hardwood stakes driven 2' into firm ground and secure tree to stake.

DIVISION 330000 UTILITIES**334613.13 – Retaining wall Drainage Piping**

Install a minimum 5" slotted drain pipe with a positive outflow around exterior basement wall footings, imbedded in a loose fill gravel, minimum 12" deep. Slotted drain pipe should be wrapped with an appropriate geo-technical fabric to prevent silt buildup. Install other drains necessary for positive site drainage.

END OF OUTLINE SPECIFICATION

DIVISION 415300 - FIRE PROTECTION SYSTEM DESIGN CRITERIA

PART 1 – GENERAL

1.1 SUMMARY

Scope of Work:

1. Work under this general heading consists of design, engineering, permitting and construction for all required labor, materials, equipment and service necessary to provide complete automatic sprinkler protection in accordance with NFPA13, (latest required edition) for a residential care home as hereinafter described. All work to be designed by a licensed engineer
2. Automatic sprinkler protection shall be installed in the following areas:
 - a. Entire home to be fully sprinklered.
 - b. All other areas required by codes.

1.2 CODES AND ORDINANCES:

1. Nothing in this Specification shall be interpreted to conflict with any City or State law, regulation, code, ordinance, ruling or Fire Underwriters' requirement applicable to this class of work.
2. Governing agencies: All work shall be installed in accordance with, but not limited to, the applicable provisions of:
 - a. latest edition of National Fire Protection Association Pamphlet No. 13 and,
 - b. shall meet requirements of Factory Mutual Engineering Division and,
 - c. NFPA 101, Life Safety Code, 2000 edition and,
 - d. State of Missouri Department of Health and Senior Services, Chapter 86 – Residential Care Facilities and Assisted Living Facilities and,
 - e. Any other required Division or Chapter of the rules and regulations from the State Department of Health and Senior Services and,
 - f. the State fire Marshall and,
 - g. City or St. Louis County adopted HVAC Codes and,
 - h. Americans with Disabilities Act, ANSI or other required accessibility regulations.

i. Compliance as may be required with locally adopted energy code.

3. All materials under this section of specifications shall be listed by Factory Mutual as approved for fire protection installation.

4. Fire protection system shall be designed and installed as approved by Factory Mutual. Where each code/ regulation / rule defines a design requirement; each code/ regulation / rule is to be compared for their specific conditions and parameters for design. The most extreme case is to be followed. By doing so the proposed system will comply with all governing codes including but not limited to those indicated above.

1.3 SUPERVISION

1. Work shall be done under personal supervision of Fire Protection sub-Contractor, who shall provide a competent foreman to lay out work. Work shall be laid out with due regard for space requirements of other Contractors. This contractor shall report any conflicts or difficulties in regard to installation immediately.

1.4 DESIGN

1. Fire Protection design and engineering work supplied by Fire Protection Contractor is insured against design errors and omissions by Engineers Errors and Omissions Insurance.

2. The scope of work for this project includes engineering/design for Fire Protection plans and specifications and all engineering fees provided by a licensed engineer in the state of the project.

3. Fire Protection System Design Conditions to comply with all governing codes.

4. Base drawings in AutoCAD LT format will be provided for preparation of construction and permit documents.

5. There shall be no exposed piping, wiring, hangers, or supports. The design and routing of the proposed system is to fit within the space available on the current architectural drawings. No soffits will be added for required ductwork, piping etc. The intent is for the entire system to be concealed in the walls and/ or ceilings for an acceptable design.

6. Pipe routing – All pipes to be routed:

a. in concealed spaces above suspended ceilings,

b. below the thermal envelope,

c. within walls,

d. within existing soffits shown,

e. any piping routing or coverage outside the thermal envelope are to be a dry system and included in this proposal.

f. Provide as little underground piping as possible.

1 Coordination:

- a. Include revisions as necessary to coordinate the systems into the building construction with the architect.
- b. Coordinate any HVAC, plumbing, and electrical requirements along with the Fire Protection system design.
- c. Concealed spaces: The installation of fire protection systems can be eliminated in concealed spaces, overhangs and other locations allowed by governing fire suppression codes. In most cases the option to eliminate the fire suppression work in these areas requires work by other trades such as filling cavities with non-combustible insulation, creating fire compartments, fire blocking or other means. Therefore, either a fire suppression system or the work of the other trades will be required as a cost to the project by the general contractor to satisfy the codes. This work (fire suppression or the other required work) in concealed and other space is to be coordinated between the general contractor and the fire suppression system designer/ subcontractor and all design/ materials/ labor cost to satisfy this requirement is to be included in the contract for General construction.

2. Approval:

- a. Final design Submittal - to be submitted to architect, owner, owner's representative for approval of layout, aesthetic use and location of devices and equipment. All sprinkler head styles, finish and equipment to be submitted for review prior to submission for permit approval.

1.5 MISCELLANEOUS REQUIREMENTS

1. Include Crane, lifts or other required equipment as necessary for hoisting and setting the Fire Protection equipment.
2. Include all Federal, state and local taxes.
3. Include Fire Protection permits and fees. This proposal to include all costs to submit and obtain approval from the governing agencies in a timely fashion so as to maintain the project schedule.
4. Additions and Changes to Work Included: Any changes to work, and any work in addition to work herein specified and/or shown on accompanying drawings, must be authorized in writing by General Contractor, Construction Manager, and Owner.

1.6 CLOSEOUT – WARRANTIES

1. Final testing and inspections of Fire Protection systems, supervised and certified by required personnel. Testing reports to be submitted to Owner, architect, owner's representative for approval and acceptance.

-
2. A complete record set of "as-built" Fire Protection plans in AutoCAD and paper form to be supplied to owner at job completion.
 3. Operating and Maintenance Instructions: At time designated by Owner, Architect shall provide service of a competent operator to instruct representatives of Owner in maintenance and operation of system.
 4. Operating and Service Manuals: At completion of project, Fire Protection Contractor shall be required to provide 3 volumes of Operating and Service Manuals containing the following:
 5. Start up and Shutdown Procedures: Provide a step-by-step write up of major equipment. When manufacturer's printed start up, trouble shooting and shutdown procedures are available they may be incorporated into operating manual for reference.
 6. One (1) year guarantee on installation against new equipment, defective workmanship and materials as described in this proposal, with the guarantee period beginning on date of acceptance of certificate of final inspection and approval by inspection authorities having jurisdiction. This guarantee does not include standard preventive maintenance as specified by equipment manufacturers maintenance instructions, and this guarantee can only be honored if specified preventive maintenance is performed. Any equipment found defective during that period shall be replaced without cost to Owner.
 7. Cleaning: Scale and dirt shall be thoroughly cleaned and blow out of piping, and equipment on completion of installation and before starting system in operation.
 8. Stocking of extra supplies, tools, heads, etc. as required.

PART 2 – PRODUCTS

2.1 MISCELLANEOUS EQUIPMENT

1. Service entrance- Lead-in and yard main from public mains shall be located as to run directly into building from street or main water main feeding the development. Service entrance to be from the side or rear of the home only.
2. Devices –
 - A. Sprinkler heads in the home shall be:
 1. white "recessed" heads in Gypsum board ceilings.
 2. Satin Chrome semi-recessed in Acoustic Ceilings.
 3. Satin Chrome wall mounted.

g. Sprinkler guards are to be provided on sprinklers located less than 7'-0" from finished floor and where subject to mechanical injury.

3. High temperature sprinklers of proper degree rating shall be installed where necessary to meet Factory Mutual and plant process ambient requirements.

4. Alarm valve, drains, fire department hose connections, indicator post, fire hose and racks, etc., shall be included as required.

2.2 OVERHEAD PIPE AND FITTINGS:

1. Overhead pipe shall be standard weight, black steel pipe.

2. Fittings shall be screwed or flanged black cast-iron.

3. Reducing bushings are not permitted in more than one outlet of any tee or any two outlets of any cross. Bushings are not permitted in any elbows or when reduction in size of outlet is less than 1/2-inch.

2.3 HANGERS AND SLEEVES:

1. Hangers shall be of Factory Mutual approved materials and spaced in accordance with NFPA Pamphlet No. 13.

2. Sleeves shall be set for pipes passing through concrete floors and masonry walls and shall be packed watertight with flexible caulking. Approved UL designed collars and/ or penetration assemblies to be used at all fire and smoke rated partitions.

3. Factory finish" white" escutcheon plates shall be provided at sleeves.

2.4 WATER FLOW INDICATORS:

1. At each system riser, furnish and install a Factory Mutual approved paddle-type water flow switch, a Factory Mutual approved electric alarm bell mounted on inside of adjacent wall, a pressure gauge with gauge cock, and a drain valve with drain connection as indicated on drawings.

2. Exclude:

A. Back flow prevention device.

B. Annunciator and electrical wiring of flow switches and bells are not included in sprinkler contract.

3. A sprinkler cabinet shall be furnished and installed at each system riser. Cabinet shall be stocked with a sprinkler head wrench and twelve extra sprinkler heads. Types and temperatures of extra sprinklers to be in proportion to those installed on the system.

2.5 UNDERGROUND PIPING:

1. An underground line with divisional valves from utility main shall be furnished and installed.
2. Underground pipe shall be enameled cast-iron or P.V.C. Class 150 with cast-iron Class 250 fittings.
3. Joints in underground pipe shall be mechanical joints with high-strength, cast-iron tee head bolts with hex nuts, cast-iron guards, and plain molded rubber gaskets.
4. Flange spigots, bends and tee in underground pipe are to be rodded and clamped. Rods, clamps, nuts and washers are to be coated with quick drying asphaltic paint.
5. Bends and tees are to be provided with concrete thrust blocks of sufficient size to prevent rupture of joints due to movement of pipe.

2.6 INSPECTORS' TEST CONNECTIONS AND SIGNS:

1. Furnish and install inspectors' test connections. Test connections shall extend down and through wall and terminate in a threaded and capped connection extending 4 inches beyond outside of building wall at each location.
2. Approved enameled metal signs shall be securely attached at main drains, auxiliary drains, inspectors' test connections, control valves and alarm bells.
3. Entire automatic sprinkler system piping shall be tested in presence of an authorized representative of owner and governing agencies having jurisdiction of approval.
4. Overhead and underground piping shall be tested hydro-statically at not less than 200 psi for two hours in accordance with NFPA Pamphlet No. 13, Sections 1630 and 1650.

2.7 PAINTING:

1. Painting of sprinkler piping, except as hereinbefore stated, is not included in this contract.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Install identifying devices after completion of coverings and painting.

- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. For labels that are installed using pressure-sensitive adhesives, clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.
- C. For pipe markers that are pre-coiled or strap-on type and do not adhere directly to the piping, no surface preparation is necessary.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Equipment Labels:
- a. Install or permanently fasten labels on each major item of fire suppression equipment.
 - b. Locate equipment labels where accessible and visible.

3.4 Access Panel and Door Markers.

- A. Install or permanently fasten markers on access panels and door for fire suppression equipment.
- a. Locate equipment labels where accessible and visible.
- B. Pipe Labels: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
- a. Near each valve and control device.
 - b. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
 - c. Near penetrations and on both sides of through walls, floors, ceilings, and inaccessible enclosures.
 - d. At access doors, manholes, and similar access points that permit view of concealed piping.
 - e. Near major equipment items and other points of origination and termination.
 - f. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.

3.5 Valve Tags: Install tags on all shut-off valves and control devices in piping systems, except valves within factory-fabricated equipment units.

3.5.1 Warning Tags:

- 3.5.1.1 Install or warning tags on each major item of fire suppression equipment to have a warning tag.

3.5.1.2 Locate tags where accessible and visible.

3.5.2 Mark location of equipment or valves located above ceilings with identifying "buttons" to help in identification for maintenance.

3.6 PROTECTION

3.6.1 Protect installed products until completion of project.

3.6.2 Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 15300 – FIRE PROTECTION SYSTEM DESIGN CRITERIA

SECTION 415400 – PLUMBING SYSTEM DESIGN CRITERIA

PART 1 – GENERAL

1.1 SUMMARY

Scope of Work:

1. Work consists of design, engineering, permitting and construction to furnishing labor, material and tools necessary to install a complete system of plumbing and sewers in accordance with this outline specification, for construction of a Home for Residential Care.

1.2 CODES AND ORDINANCES:

2. Nothing in this Specification shall be interpreted to conflict with any City or State law, regulation, code, ordinance, ruling or Fire Underwriters' requirement applicable to this class of work.
3. Governing agencies - All work shall be installed in accordance with, but not limited to, the applicable provisions of:
 - a. NFPA 101, Life Safety Code, 2000 edition and,
 - b. State of Missouri Department of Health and Senior Services, Chapter 86 – Residential Care Facilities and Assisted Living Facilities and,
 - c. Any other required Division or Chapter of the rules and regulations from the State Department of Health and Senior Services and,
 - d. the State fire Marshall and,
 - e. City or St. Louis County adopted HVAC Codes and,
 - f. Americans with Disabilities Act, ANSI or other required accessibility regulations.
 - g. Compliance as may be required with locally adopted energy code.

1.3 SUPERVISION

1. Work shall be done under personal supervision of Plumbing sub-Contractor, who shall provide a competent foreman to lay out work. Work shall be laid out with due regard for space requirements of other Contractors. This contractor shall report any conflicts or difficulties in regard to installation immediately.

1.4 DESIGN

1. An electronic file of the architectural drawings is available in AutoCAD Lt or Revit format and made available at the start of design.
2. Plumbing design work supplied by Plumbing Contractor is insured against design errors and omissions by Engineers Errors and Omissions Insurance.
3. Plumbing engineering design fees for completion of H.V.A.C. plans and specifications by a licensed engineer in the state of the project.
4. Plumbing System Design Conditions to comply with all governing codes.
5. There shall be no exposed piping, hangers, or supports. The design and routing of the proposed system is to fit within the space available on the current architectural drawings. No soffits will be added for required ductwork, piping etc. The intent is for the entire system to be concealed in the walls and/ or ceilings for an acceptable design.
6. Coordination:
 - Include revisions as necessary to coordinate the systems into the building construction with the architect.
 - Coordinate any HVAC, electrical and fire protection requirements along with the Plumbing system design.
7. Approval: Final design Submittal to be submitted to architect, owner, owner's representative for approval of layout, aesthetic use and location of devices and equipment. All plumbing fixtures with styles, finish and equipment to be submitted for review prior to submission for permit approval.
8. Permits: This proposal to include all costs to submit and obtain approval from the governing agencies in a timely fashion so as to maintain the project schedule.

1.5 MISCELLANEOUS REQUIREMENTS

1. Federal, state and local taxes.
2. H.V.A.C. permits and fees.
3. Additions and Changes to Work Included: Any changes to work, and any work in addition to work herein specified and/or shown on accompanying drawings, must be authorized in writing by General Contractor, Construction Manager, and Owner.

1.6 CLOSEOUT – WARRANTIES

1. A complete set of Plumbing plans in AutoCAD and paper form to be supplied to Owner at job completion.

-
2. Operating and Maintenance Instructions: At time designated by Architect, Contractor shall provide service of a competent operator to instruct representatives of Owner in maintenance and operation of system.
 3. Operating and Service Manuals: At completion of project, Plumbing Contractor shall be required to provide 3 volumes of Operating and Service Manuals containing the following:
Start up and Shutdown Procedures: Provide a step-by-step write up of major equipment. When manufacturer's printed start up, trouble shooting and shutdown procedures are available they may be incorporated into operating manual for reference.
 4. One (1) year guarantee on new equipment, materials, and workmanship, with the guarantee period beginning on date of startup of Plumbing system. This guarantee does not include standard preventive maintenance as specified by equipment manufacturers maintenance instructions, and this guarantee can only be honored if specified preventive maintenance is performed.
 5. Cleaning: Scale and dirt shall be thoroughly cleaned before starting system operation.

PART 2 – PRODUCTS

1.1 MATERIALS

1. Sanitary Sewers:
 - a. See civil drawings for Sewers inside building shall be Schedule 40 Plastic pipe and fittings.
 - b. Sewers outside building shall be PVC ASTM D-3034 SOR-35 pipe and fittings.
2. Drains:
 - a. Required floor drains in toilet rooms and mechanical rooms and where required shall be cast iron with polished brass strainers.
 - b. All cleanouts to be polished brass and centered in hallways.
3. Water Piping:
 - a. Extend domestic water service in from street main, provide meter box, meter and connect to all plumbing fixtures and water heaters. All water piping to be overhead and within concealed walls as shown the architectural drawings.
 - b. Service entrance to be from the side or rear of the home only.
 - c. Water piping underground shall be type "L" copper pipe and fitting.
 - d. Water piping above grade shall be type "M" copper pipe and fitting.

-
- e. Provide building water service shut-off as well as pressure reducing valve if required.
 - f. All hot water piping to be insulated.
 4. Plumbing Fixtures - Plumbing fixtures shall be new, as listed:
 - a. Waterclosets: see drawing schedule.
 - b. Urinals: see drawing schedule.
 - c. Lavatories: see drawing schedule.
 - d. Service sink: see drawing schedule.
 - e. Drinking Fountains: see drawing schedule.
 - f. Kitchen Sink: see drawing schedule, with garbage disposal.
 - g. Wall Hydrants: Freeze-proof type with handle.
 - h. Roof Drainage: Gutter and downspouts
 - i. Water Heater(s): Multiple gas water heaters as shown sized to provide adequate hot water requirements for building usage. On-demand water heaters are not allowed. For long runs provide a recirculating pump to maintain water pressure.
 - j. Provide backflow preventer for connection of the connection of outdoor Landscape irrigation system.
 - k. Provide water shut-off for each wing to allow maintenance/ repair without shutting down entire building.
 5. Storm Water - All storm water to be connected to storm sewer and or retention basin system. System to be approved by St. Louis County Plumbing Dept. and M.S.D. as required. See Civil drawings.
 6. Provide flush metal access panels with keyed access (field painted) where required.
 7. See Civil drawings for location of all utilities.

PART 3 – EXECUTION

3.1 EXAMINATION

1. Examine roughing-in of water-supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing-fixture installation.
2. Examine walls, floors, cabinets, and counters for suitable conditions where fixtures will be installed.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Install plumbing fixtures level and plumb according to roughing-in drawings.
2. Install floor-mounted water closets on closet flange attachments to drainage piping.
3. Install counter-mounting fixtures in and attached to casework.
4. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
5. Use ball, gate, or globe valves if supply stops are not specified with fixture.
6. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.
7. Install toilet seats on water closets.
8. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
9. Install shower flow-control fittings with specified maximum flow rates in shower arms.
10. Install traps on fixture outlets.
11. Install disposer in outlet of each sink indicated to have a disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.
12. Install dishwasher air-gap fitting at each sink indicated to have air-gap fitting. Connect inlet hose to dishwasher and outlet hose to disposer.
13. Install hot-water dispensers in back top surface of sink or in countertop with spout over sink.
14. Set bathtubs in leveling bed of cement grout.

15. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories and sinks. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

16. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings.

17. Seal joints between plumbing fixtures, counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color.

3.3 ADJUSTING

1. Operate and adjust plumbing fixtures and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.

2. Adjust water pressure at faucets to produce proper flow.

3.4 CLEANING AND PROTECTION

1. After completing installation of plumbing fixtures, inspect and repair damaged finishes.

2. Clean plumbing fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.

3. Provide protective covering for installed plumbing fixtures and fittings.

4. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

3.5 IDENTIFICATION

1. Comply with requirements in "Earth Moving" for underground utility identification devices. Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.

2. Use detectable warning tape over ferrous piping.

END OF SECTION 15400 – PLUMBING SYSTEM DESIGN CRITERIA

Plumbing Fixture Cut Sheets

Below are cut sheets for plumbing fixtures be used/installed for Family Partners Care Home project. Cut sheets are labeled per tag from Plumbing Fixture Schedule from Architectural Drawings. Plumbing fixtures are subject to change and this list may not be final.

PLUMBING FIXTURE SCHEDULE

<u>TAG</u>	<u>DESCRIPTION</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>
P-1	Tub	Invacare	3752G
P-2	Vanity Sink	Gerber	Luxoval 12-780
P-3	Utility Sink	Proflow	PFLT2522D
P-4	Mop Basin	Fiat	MSBID2424
P-5	ADA Toilet	Gerber	Maxwell ER60HEIGHT21-918
P-6	ADA shower head	Delta	Innovations Monitor 17
P-7	Floor Drain	Kohler	K-9136
P-8	Kitchen Sink	Elkay	DXUH312010RDF
P-9	single sink	Elkay	ECTRU30179RTC
P-10	Garbage Disposal	Insinkerator/Emerson	Evolution Pro 880LT



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Item # bci2198863



PROFLO PFLT2522D 24-1/2" Single Basin Drop-In Composite Laundry Sink

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Finish: White



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PROFLO PFLT2123W (9) Starting at \$96.91	PROFLO PFLT2123 (3) Starting at \$85.51	Design House 557686 (0) Starting at \$135.30	Toto LT233 (0) Starting at \$97.77	PROFLO PFLT2522D (21) Starting at \$99.59	PROFLO PFLT2024 (17) Starting at \$76.04
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Overview

Reviews21

Product Q&A5

Matching Products

Product Overview

ProFlo PFLT2522D Features:

- Single basin design provides maximum workspace
- Rectangular basin gives a utilitarian look to your laundry application
- Covered under ProFlo's one year limited warranty
- Constructed of Sheet Molding Compound (SMC) plastic composite, delivering unparalleled strength and dependability
- Center drain location provides optimal drainage capability

ProFlo PFLT2522D Specifications:

- Height: 13-1/2" (measured from the bottom of sink to the top of the rim)
- Overall Width: 22" (measured from the back outer rim to the front outer rim)
- Overall Length: 24-1/2" (measured from the left outer rim to the right outer rim)
- Basin Width: 17" (measured from the back inner rim to the front inner rim)
- Basin Length: 22-1/8" (measured from the left inner rim to the right inner rim)
- Basin Depth: 12-3/4" (measured from the center of basin to the rim)
- Installation Type: Drop-in
- Drain Outlet Connection: 1-1/2"

Additional PROFLO Links

- View the Manufacturer Warranty
- Browse All PROFLO Products

Manufacturer Resources

Specification Sheet

Installation Sheet

Dimensions and Measurements

Basin Depth

?

12.75 in.

Basin Length

?

22.125 in.

Basin Width

?

17 in.

Drain Connection

?

1.5 in.

Height

?

10 in.

Length

?

24.5 in.

Width

?

22 in.

Included Components

Faucet Included

?

No

Characteristics and Features

Basin Split

?

Single Basin

Drain Placement

?

Center

Installation Type

?

Drop In

View More

Material

?

Composite

Related PROFLO Categories

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This product is listed under the following manufacturer number(s):

PROFLO PFLT2522D

White



MOLDED STONE® INTEGRAL DRAIN MOP SERVICE BASIN MSBID2424

MOLDED STONE® INTEGRAL DRAIN MOP SERVICE BASIN

❑ MSBID2424

- Molding done in matched metal dies under heat and pressure resulting in a one-piece homogeneous product
- Integral drain is molded into a one piece unit and designed to connect to a 3" (76mm) drain pipe with a QIC3XH gasket
- Stainless steel strainer included

Nominal Dimensions:

24" x 24" x 10"
(610 x 610 x 254mm)

Shipping Weight:

27lbs. (12.3 Kg)



Optional Components:

- ❑ **QIC32** Quick Drain Connector for 2" pipe. Order separately.
- ❑ **QIC3SN** Quick Drain Connector for 3" cast iron soil pipe. Order separately
- ❑ **830AA** Service Faucet:
 - Chrome plated with vacuum breaker, integral stops, adjustable wall brace, pail hook and 3/4" hose thread on spout
- ❑ **832AA** Hose & Hose Bracket
- ❑ **889CC** Mop Hanger
- ❑ **833AA** Silicone Sealant
- ❑ **E77AA24** Vinyl Bumperguard
- ❑ **MSG2424** Stainless Steel Wall Guard

SEE REVERSE FOR ROUGHING-IN DIMENSIONS

Compliance Certifications -

Meets or Exceeds the Following Specifications:

- IAPMO / ANSI Z124.6-2007
- ASME A112.18.2 / CSA B125.2
- CSA B45.5
- Made in U.S.A.

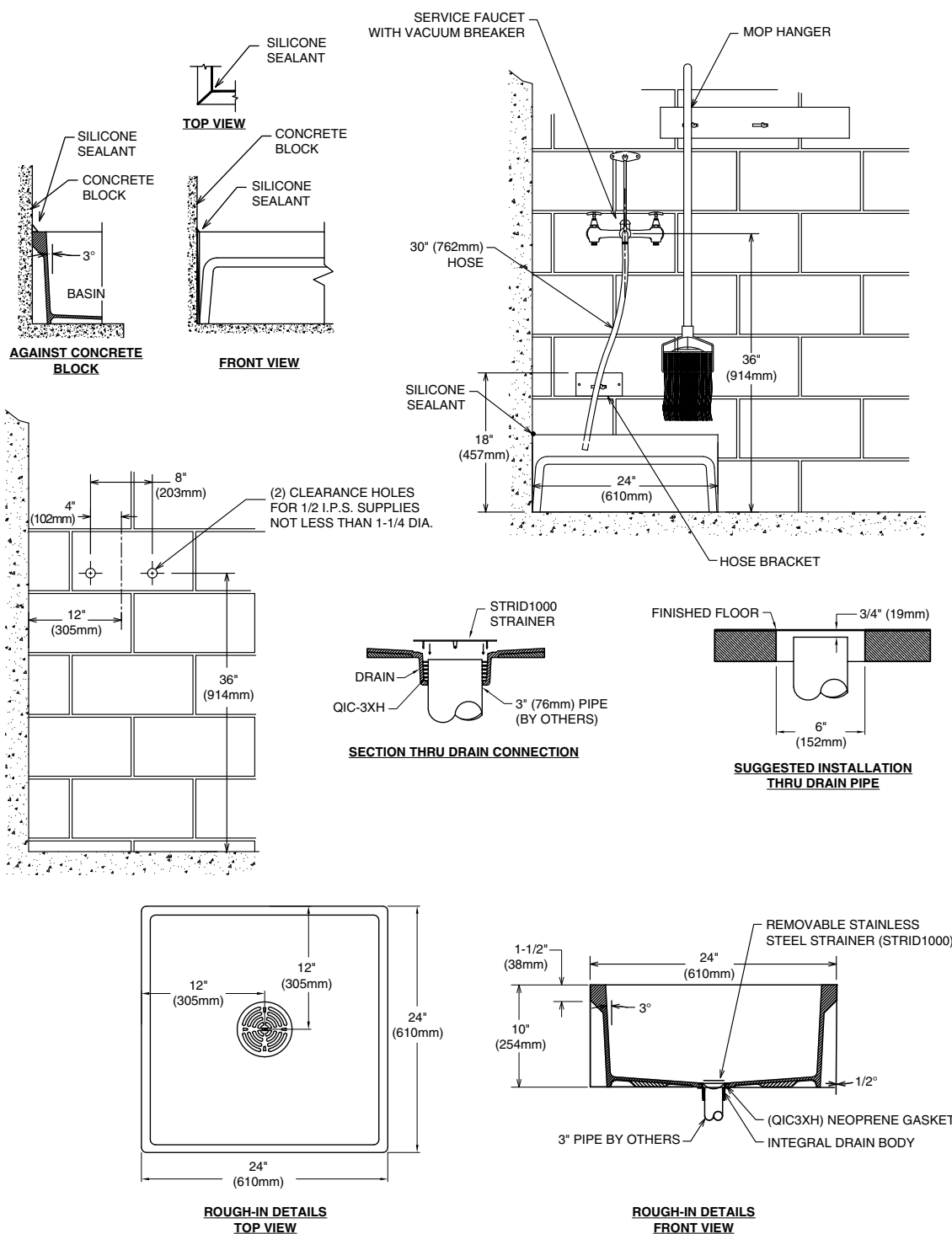
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FIAT
QUALITY FOR LIFE

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1-800-442-1902
www.fiatproducts.com



MOLDED STONE® INTEGRAL DRAIN MOP SERVICE BASIN MSBID2424



Installation Note : QIC32 Quick Drain Connector for 2" pipe or QIC3SN Quick Drain Connector for cast iron soil pipe must be ordered separately.

IMPORTANT: Roughing-in dimensions may vary 1/2" and are subject to change or cancellation without prior notice.

Customer Service Canada
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MECHANICAL FAUCETS

897-RCF

Manual Faucets



a Geberit company

MOP BASIN

Product Type

Wall Mounted 8" Body, Adjustable Arms 7-5/8" - 8-3/8" Hot and Cold Water Sink Faucet

Features & Specifications

- 8" Body, Adjustable Arms 7-5/8" - 8-3/8"
- 2-3/8" Vandal Proof Lever
- Ceramic
- 1/2" NPT Adjustable Female Union Nut Supply Arms
- 3/4" Male Hose Thread Outlet
- Round Wall Escutcheons
- Integral Stop Valves for Servicing the product
- Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications
- Vacuum Breaker Spout with Pail Hook and Wall Brace
- Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications
- CFNow! Item Ships in 3 Days

Performance Specification

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

Warranty

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

Codes & Standards

- ASME A112.18.1/CSA B125.1
- ADA ANSI/ICC A117.1

Job Name _____

Item Number _____

Section/Tag _____

Model Specified _____

Architect _____

Engineer _____

Contractor _____

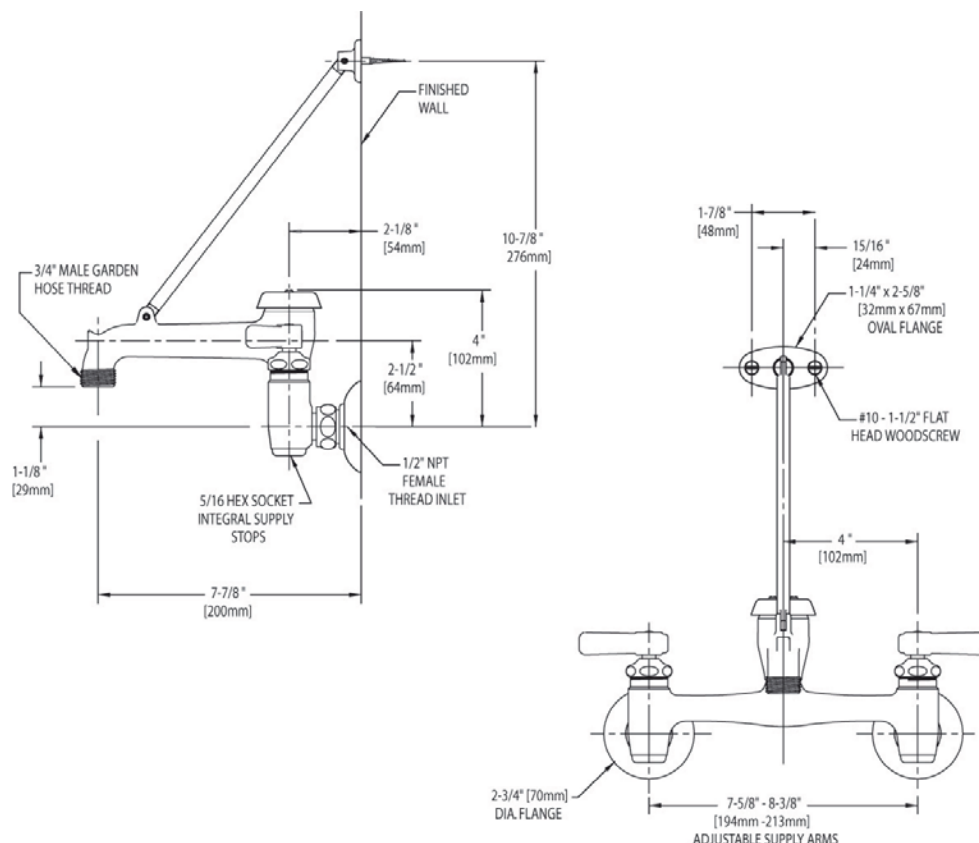
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Date _____



Architect/Engineer Specification

Chicago Faucets No. 897-RCF, Sink Faucet for hot and cold water, wall-mounted with 7-5/8" - 8-3/8" adjustable centers. Rough chrome plated. Vacuum breaker spout with pail hook and wall brace. 2-3/8" metal, vandal-proof, lever handles with sixteen-point, tapered broach and secured blue and red index buttons. Quatern™ rebuildable compression cartridge, opens and closes 90°, closes with water pressure, features square, tapered stem. Adjustable supply arms include 1/2" NPT female union nut. 3/4" male hose thread outlet. Round wall escutcheons. Integral stop valves for servicing the faucet. NOTE: Atmospheric vacuum breaker is NOT intended for continuous pressure applications. This product meets ADA ANSI/ICC A117.1 requirements and is tested and certified to industry standards: ASME A112.18.1/CSA B125.1.



Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at www.chicagofaucets.com.

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



**MAXWELL® 1.28**
ErgoHeight™
17" High Elongated Toilet

12" Rough-in

Features:

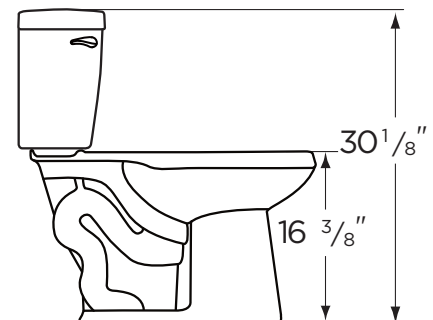
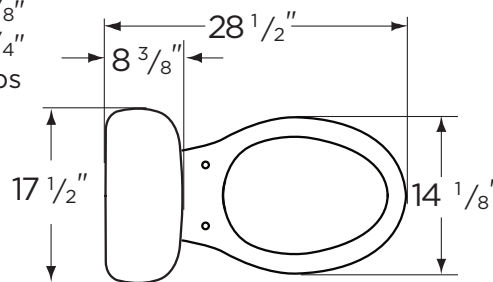
- 1.28 gpf/4.8 Lpf high efficiency two-piece toilet
- Elongated ErgoHeight™ bowl
- Dual-fed siphon jet
- Pilot fill valve
- 3" flush valve
- 2" glazed trapway
- Color matched front tank lever (white only)
- Optional insulated non-sweating tank
- Optional right-handed trip lever
- Available in White, Bone and Biscuit
- 2 bolt caps
- ADA Compliant

Dimensions:

Height 30 1/8"
Width 17 1/2"
Depth 28 1/2"
Rough-in 12"
Water Surface from Rim 6 1/2"
Trapway 2"
Water Surface 8 7/8" x 7 3/8"
Water Seal 2 1/4"
Shipping Weight 85.5 lbs

**Specifications:** Bowl—#21-928 Front Bowl
Seat not included

Tank—#28-990



THIS FIXTURE QUALIFIES
ACCORDING TO ASME TEST
PROCEDURES AS A HIGH
EFFICIENCY WATER CLOSET WITH
AN AVERAGE CONSUMPTION OF
1.28 gpf (4.8 Lpf) OR LESS.

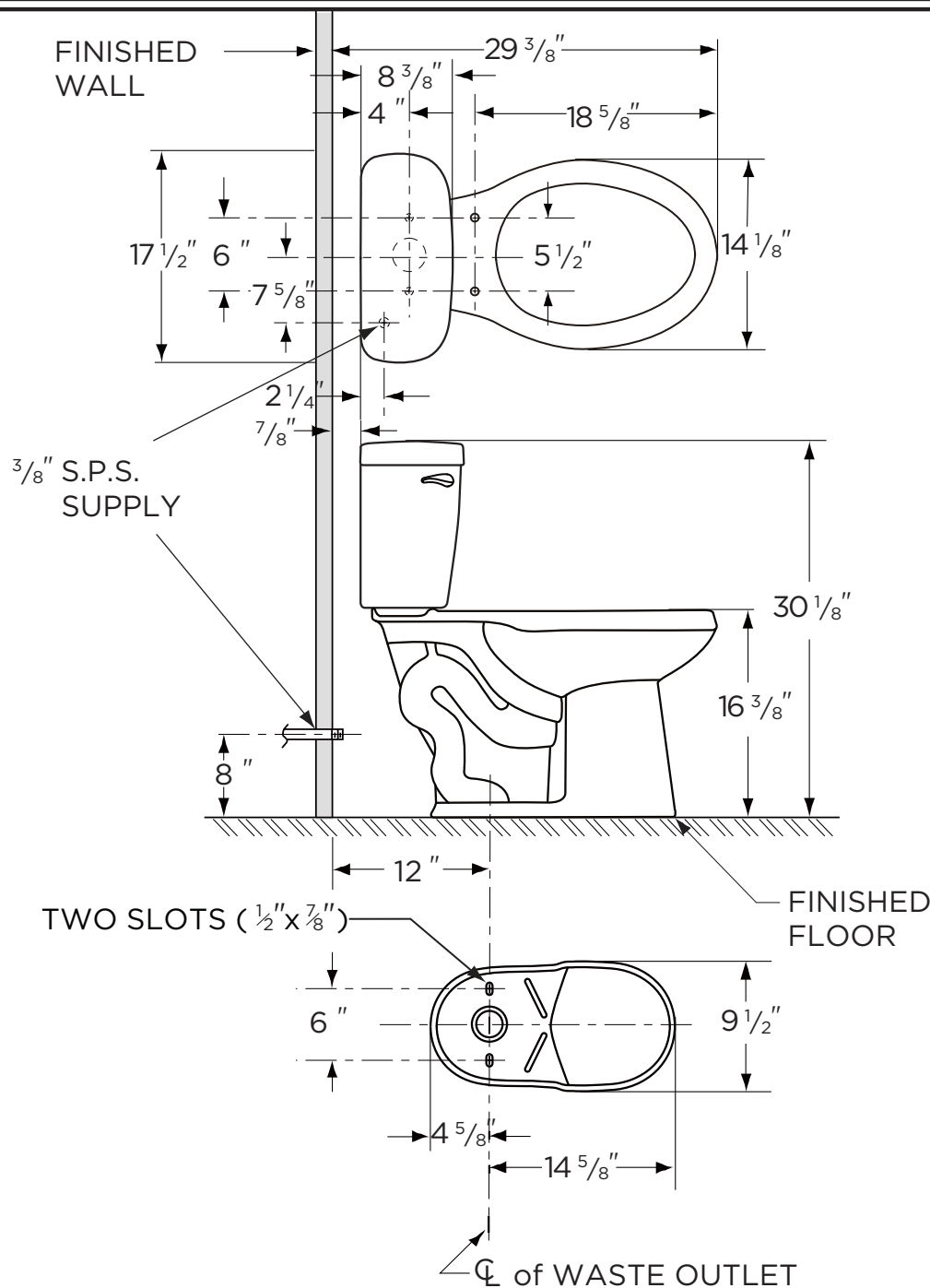
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HIGH EFFICIENCY TOILETwww.gerberonline.com

Job Name	
Date	
Model Specified	
Quantity	
Customer	
Contractor	
Architect/engineer	



1.28 gpf (4.8 Lpf) MAXWELL® 1.28 TOILET

21-918

17" High Elongated, 12" Rough-in
(Bowl 21-928 with Tank 28-990)

NOTES:

All dimensions are in inches.

Illustrations may not be drawn to scale.

IMPORTANT:

Dimensions of fixtures are nominal and may vary within the range of tolerances established by ASME Standard A 112.19.2.

THIS FIXTURE QUALIFIES ACCORDING TO ASME TEST PROCEDURES AS A HIGH EFFICIENCY WATER CLOSET WITH AN AVERAGE CONSUMPTION OF 1.28 gpf (4.8 Lpf) OR LESS.

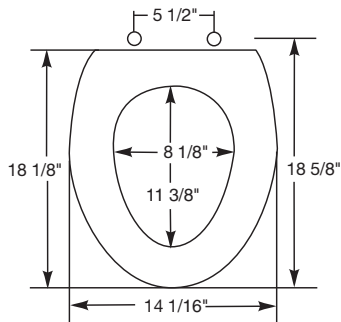


RESIDENTIAL PLASTIC SEATS

WATER CLOSET

MODEL 170

- ELONGATED SEAT, CLOSED FRONT WITH COVER
- SOLID PLASTIC
- TOP-LOC® HINGES WITH NON-CORROSIVE BOLTS AND WING NUTS



Seats shall be No. 170 as manufactured by Church Seats. Seats shall be standard weight and injection molded of solid plastic. Seats shall be closed front with cover for elongated bowl and feature molded-in bumpers. Color-matched hinges with non-corrosive top-tightening bolts and wing nuts. Color to be _____. (specify white or fixture manufacturer's color)

Ring thickness is 3/8"

Ring thickness including the bumper is 5/8"

Height of the seat with cover is 1-1/2"





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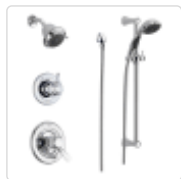
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[Home](#) > [Brands](#) > [Delta](#) > [Shower Faucets](#) > Delta Innovations Monitor 17 Series Shower System

Item # bci1957897



Delta Innovations Monitor 17 Series Shower System CH with Shower Head, Diverter Trim, Slide Bar Hand Shower and Wall Supply

from the Classic Collection

[Write a Review](#)

\$529.35

MSRP \$861.30, You Save 39%

Finish: Chrome

Chat with an E...



Chrome
\$529.35
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69 In Stock

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This package includes the following items



T17230
\$118.54



50560
\$33.14



R11000
\$80.17



T11800
\$102.45

Chat with an E...



57014
\$174.22



R10000-UNBXHF
\$37.20

These items purchased separately would cost \$545.72. **You save 3%!**

Customers Also Viewed

Delta DSS-Lahara-1701
(3)
Starting at \$554.84

Delta DSS-Lahara-1401
(0)
Starting at \$515.84

Delta DSS-Vero-1701
(3)
Starting at \$751.41

Delta DSS-Trinsic-1701
(0)
Starting at \$557.09

Delta DSS-Ashlyn-1401
(0)
Starting at \$527.81

Kohler Moxie HydroRail
Custom Shower System
(1)
Starting at \$699.00

Overview

Reviews

Product Q&A 4

Matching Products

Product Overview

Delta Innovations Monitor 17 Series Shower System Includes:

- Innovations Monitor 17 Series Shower Trim with Shower Head (T17230)
- 3 Setting Diverter Trim (T11800)
- 6 Setting Diverter Rough (R11000)
- Slide Bar Hand Shower (57014)
- Wall Supply Elbow (50560)
- Mixing Rough-In Valve (R10000-UNBXHF)

Delta Innovations Monitor 17 Shower Package Features:

- **Pressure Balanced Valve & Trim Features:**
 - Pressure balanced bath mixing valve with Scald-Guard
 - Maintains a balanced pressure of hot and cold water even when a valve is turned on or off elsewhere in the system
 - Back-to-back installation capable
 - Solid brass forged valve body
 - Lever volume control handle; temperature adjustment dial
 - Field adjustable to limit rotation into hot water zone
 - All parts are replaceable from the front of the valve
 - Maximum dial rotation adjustable between 90 and 180 degrees
- **Diverter Trim Features:**
 - Three function diverter: 2 individual positions, 1 shared position
 - 1/2" rough-in
- **Slide Bar Hand Shower Features:**
 - Multi-Function Hand Shower with five settings
 - 69" long hose for a long reach within the shower
 - Hose is constructed from flexible plastic in matching finish to avoid scalding
 - Includes wall bar with adjustable slide for tall or short bathers
 - Certified dual check valves

Chat with an E...

- 2.5gpm @ 80psi

Wall Elbow Features:

- 90° wall elbow
- Solid brass construction
- 1/2" female NPT inlet
- 1/2" male NPSM outlet for connecting to shower hose
- Personal shower wall supply

• Diverter Rough-In Features:

- Three port diverter rough-in valve
- For use with 3 or 6 function diverters
- Forged brass body

Delta Smart Features:

- **ADA Compliant** : Some people, and some local codes, require fixtures that are compliant with the Americans with Disabilities Act. If someone may visit who has special needs, or if you believe future buyers might appreciate this feature, this shower package meets those specifications.
- **MultiChoice Valve** : Flexibility is the big benefit of the MultiChoice Universal Valve. Once the MultiChoice rough is installed, future shower function upgrades or style changes can easily be made without altering the plumbing behind the wall.
- **Monitor Technology**: Delta Monitor® faucets feature pressure balance valves, which protect against sudden temperature or pressure changes to keep the water in the shower within a safe $\pm 3^{\circ}$ F.
- **With Volume Control** : This Smart Feature provides separate controls for the temperature and volume, allowing you to set the temperature and keep it consistent shower after shower.
- **Touch Clean Technology** : Only Delta faucets are equipped with Touch-Clean soft, rubber nubbins that allow you to easily wipe away calcium and lime build-up with the touch of a finger.

Delta Innovations Monitor 17 Series Shower System Specifications

- Shower Valve Trim Dimensions: 7-1/2"W x 7-1/2"H
- Valve Type: Dual-function pressure balance cartridge
- Diverter Trim Dimensions: 4-1/2"W x 4-1/2"H
- Wall Bar Length: 24"
- Hand Shower Flow Rate: 2.5gpm @ 80psi
- Hand Shower Spray Settings: Full Body Spray, Massage Spray, Full Spray with Massage, Soft Drench Spray, Soft Drench Spray with Massage

Additional Notes :

Do you like this shower system, but would like to make minor changes to it? Maybe you would like to add a body spray or another shower head? For any questions regarding changes to the configuration of this shower system, please visit our contact page or get in touch with one of our experts by calling the number at the top of this page

Additional Delta Links

- View the Manufacturer Warranty
- Browse All Delta Products
- Delta Classic Collection

This product is listed under the following manufacturer number(s):

Delta Innovations Monitor 17 Series Shower System CH
Chrome

Manufacturer Resources

Exploded Parts

Manufacturer Warranty

Installation Guides

Specification Sheet

 Chat with an E...

Dimensions and Measurements

Flow Rate (GPM) ? 2.5

Our biggest sale of the year is on
Shop Memorial Day deals on top products from Dyson, Nintendo, and more.

Home > Home Improvement & Tools > Plumbing Supplies > Plumbing Parts & Repair Kits > Drain Assemblies & Parts

KOHLER K-9136-CP Square Design Tile-In Shower Drain, Polished Chrome

★★★★☆ 210 reviews



About this product

- Inside tailpiece for 2 In. drains and outside tailpiece 3 In. drains
- Matches KOHLER faucet finishes
- Tarnish resistant
- Grooved collar works as weep holes while the grooved flange adapter provides a strong seal
- Durable construction and Kohler quality

Color: Polished Chrome



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Jun 11

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DEAL: 20% OFF YC

\$85.78

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20% off your first order, 1
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About this product

Complete your custom shower installation with the superior quality and reliability of this KOHLER drain. Designed for tile-in applications, it is available in a myriad of finishes to complement any style.

Similar items

 More options	 More options							 More options		 More options
\$105.00 FREE	\$83.63 \$111.50	\$34.86 5-14 days	\$26.71 FREE	\$65.00 6-11 days	\$58.63 FREE	\$36.80 \$49.68	\$65.55 FREE	\$48.99 FREE	\$24.69 FREE	\$92.99 FREE

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9135-CP
Round
Design ...
Shower
Drain,
Polished
Chrome
★★★★★ 21
Fishp...

Shower
Grid
Drain...Gas
ket, Matte
Black, K-
9132-BL
★★★★★ 109
eFau...

Caregiver
Drain Kit
Reso...

ACO
37100 2"
Tile-In
Shower
Drain
Fishp...

Mo...
Shower
Drain with
Solid Cover
BlueB...

60.300A
Drain Kit
★★★★★ 22
Fishp...

Drain 03-
1224
★★★★★ 84
Comf...

FD2210-
PV3 3"
Outlet
Conn...ion
Adjustable
PVC Floor
Drain
Fishp...

westbrass
2 in. PVC
Shower
Dra...ly and
Grid | Black
| D206P-62
Wayf...

10307P
Low Profile
Shower
Drain
NuW...

Shower
Drain
Channel
Side...th
Adjustable
Feet -
DHC32000
4
Wayf...

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Product details

General

Assembled Depth (In)	6.5 in
Assembled Height (In)	4.125 in
Assembled Width (In)	6.5 in
Assembled Weight (Lbs)	1.91 lbs
Item Has MSDS (SDS)?	N
Item Is Shipped At This Packaging Level	Y

MORE DETAILS

Reviews summary

4.6

★★★★★

210 reviews

5	77%
4	14%
3	2%
2	1%
1	3%

Top positive review

I originally purchased the the drain in "oil rubbed bronze" to match the fixtures in my bathroom....
★★★★★ August 9, 2018
I originally purchased the the drain in "oil rubbed bronze" to match the fixtures in my bathroom. It was painted brown and was chipping before we even installed it. I then purchased the drain in "vibrant brushed bronze". Much better. It is actually a finish and not painted and the color, while not oil rubbed bronze goes great with the ... Show more
Reviewed on Home Depot
See all 194 positive reviews

vs

Top critical review

I ordered this shower drain for my new shower remodel. For \$ WAS NOT expecting th...
★☆☆☆☆ September 26, 2018
I ordered this shower drain for my new shower remodel. For \$72, I cert expecting the "oil rubbed bronze" drain cover to be dark gray/black pla seemed to be of good quality, but you can't see the drain, it is in the flo which you can see looked like cheap plastic. Definitely WOULD ... Shov
Reviewed on Home Depot
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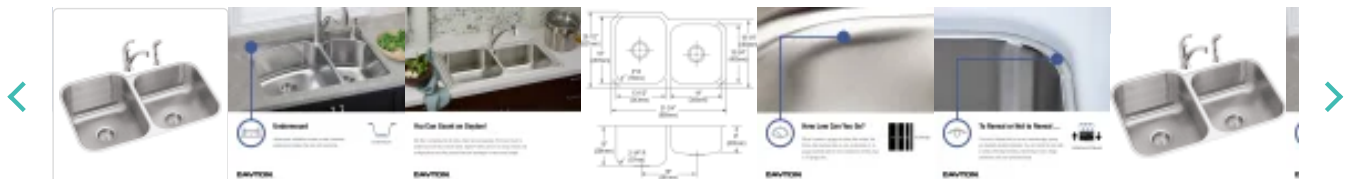
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Item # bci2837210

ELKAY



Elkay DXUH312010RDF Dayton 31-3/4" Double Basin Undermount Stainless Steel Kitchen Sink with Kitchen Faucet - Includes Sidespray and Drain

from the Dayton Collection

[Write a Review](#)

\$364.75

MSRP \$585.00, You Save 38%

Finish: Stainless Steel



Stainless Steel

\$364.75

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Customers Also Viewed

Elkay ELUHAQD3218 (4) Starting at \$571.40	Elkay ELUHAQD32179 (5) Starting at \$502.57	Elkay ETRU31189PD (1) Starting at \$541.45	Kohler K-3838-3 (2) Starting at \$614.25	Elkay ECTSRAO33229BG (0) Starting at \$558.25	Kraus KBU23-KPF1612-KSD30 (6) Starting at \$389.95
--	---	--	--	---	--

Overview


Reviews


Product Q&A


Matching Products


Product Overview

This product has additional required/recommended options. To configure, add to your cart.

Basin Rack Recommended

Cutting Board Recommended

Garbage Disposal Recommended

Rinsing Basket Recommended

Package Includes:

- Faucet
- Sink
- Drain

Product Technologies / Benefits:

- Sound Deadening:** Sound-deadening material minimizes sound and vibration for a quieter time at the sink.

Sink Features:

- Double basin sink with a 50/50 split provides increased versatility for any task
- Covered under Elkay's limited lifetime residential warranty
- Constructed of 18 gauge premium grade stainless steel - guaranteed to never rust or corrode
- Undermount installation provides a seamless transition between countertop and sink
- Center drain location provides optimal drainage capability

Faucet Features:

- Covered under Elkay's limited lifetime warranty
- Premier finishing process - finishes will resist corrosion and tarnishing through everyday use
- Single handle operation
- Side spray with hose aids with a variety of kitchen tasks
- Spout swivels 360 degrees, providing greater access to more areas of the sink
- ADA compliant - complies with the standards set forth by the Americans with Disabilities Act for kitchen faucets
- WaterSense Certified product - using at least 30% less water than standard 2.2 GPM faucets, while still meeting strict performance guide lines

Manufacturer Resources

Installation Sheet

Specification Sheet

Dimensions and Measurements

Basin Depth	<div>?</div>	10, 8 in.
Basin Depth (Left)	<div>?</div>	10 in.
Basin Depth (Right)	<div>?</div>	8 in.
Basin Length (Left)	<div>?</div>	13.5 in.
Basin Length (Right)	<div>?</div>	14 in.
Basin Width (Left)	<div>?</div>	18 in.
Basin Width (Right)	<div>?</div>	15.75 in.
Connection Size	<div>?</div>	.5 in.
Drain Connection	<div>?</div>	3.5 in.
Faucet Height	<div>?</div>	7.375 in.
Flow Rate (GPM)	<div>?</div>	1.5
Gauge	<div>?</div>	18
Height	<div>?</div>	10 in.
Length	<div>?</div>	31.75 in.
Max Deck Thickness	<div>?</div>	2.5 in.
Minimum Cabinet Size	<div>?</div>	36 in.

Chat with an E...

Sink Specifications:

- Height: 10" (measured from the bottom of sink to the top of the rim)
- Overall Width: 20-1/2" (measured from the back outer rim to the front outer rim)
- Overall Length: 31-3/4" (measured from the left outer rim to the right outer rim)
- Basin Width: (measured from the back inner rim to the front inner rim)
 - Left: 18"
 - Right: 15-3/4"
- Basin Length: (measured from the left inner rim to the right inner rim)
 - Left: 13-1/2"
 - Right: 14"
- Basin Depth: (measured from the center of basin to the rim)
 - Left: 10"
 - Right: 8"
- Installation Type: Undermount
- Drain Outlet Connection: 3-1/2"
- Minimum Base Cabinet Width: 36"

Faucet Specifications:

- Overall Height: 7-3/8" (measured from counter top to highest part of faucet)
- Spout Height: 4-7/8" (measured from counter top to spout outlet)
- Spout Reach: 8" (measured from center of faucet base to center of spout outlet)
- Flow Rate: 1.5 GPM (gallons per minute)
- Maximum Deck Thickness: 2-1/2" (cannot mount to thicker decks without use of extension kit)
- 1 handle included with faucet
- Designed for use with standard U.S. plumbing connections

Additional Elkay Links

- [View the Manufacturer Warranty](#)
- [Browse All Elkay Products](#)
- [Elkay Dayton Collection](#)

This product is listed under the following manufacturer number(s):

Elkay DXUH312010RDF
Stainless Steel

Nominal Length	<div>?</div>	32 in.
Sink Length	<div>?</div>	31.75 in.
Spout Height	<div>?</div>	4.875 in.
Spout Reach	<div>?</div>	8 in.
Spout Swivel	<div>?</div>	360 Degrees
Width	<div>?</div>	20.5 in.

Included Components

Basin Rack Included	<div>?</div>	No
Basket Strainer Included	<div>?</div>	Yes
Colander Included	<div>?</div>	No
Cutting Board Included	<div>?</div>	No
Drain Assembly Included	<div>?</div>	Yes
Escutcheon Included	<div>?</div>	No
Faucet Included	<div>?</div>	Yes
Filtering	<div>?</div>	No
Handles Included	<div>?</div>	Yes
Sidespray	<div>?</div>	Yes
Soap Dispenser Included	<div>?</div>	No
Valve Included	<div>?</div>	Yes

Characteristics and Features

Basin Split	<div>?</div>	50/50
Connection Type	<div>?</div>	IPS
Corner Sink	<div>?</div>	No
Drain Placement	<div>?</div>	Center
Electronic	<div>?</div>	No

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Related Elkay Categories

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Questions about Elkay
DXUH312010RDF?

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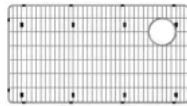
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[Home](#) > [Brands](#) > [Elkay](#) > [Popular Collections](#) > [Elkay Crosstown](#) > [Elkay ECTRU30179RTC](#)

Item # bci3457292

ELKAY



Elkay ECTRU30179RTC Crosstown 31-1/2" Undermount Single Basin Stainless Steel Kitchen Sink with Sound Dampening - Includes Basket Strainer and Sink Grid

from the Crosstown Collection

[Write a Review](#)

\$334.75

MSRP \$515.00, You Save 35%

Finish: Stainless Steel



Stainless Steel

\$334.75

32 In Stock

Leaves the Warehouse Tomorrow, May 24th

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32 In Stock

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Customers Also Viewed

Elkay EFRU311610T (0) Starting at \$399.10	Elkay ETRU30179PD (4) Starting at \$508.30	Elkay ELUH2317 (5) Starting at \$360.57	Kohler K-5409 (4) Starting at \$621.75	Elkay ECTRUF30179R (0) Starting at \$419.90	Blanco 518172 (0) Starting at \$348.00
--	--	---	--	---	--

OverviewReviewsProduct Q&AMatching Products

Product Overview

This product has additional required/recommended options. To configure, add to your cart.



Cutting Board Recommended

Elkay Crosstown is the ultimate mix of beauty, function and modern design. Tight corners provide more space inside the sink for stacking and washing dishes. The striking geometric aesthetic has universal appeal and makes an impact in any space.

Elkay ECTRU30179RTC Features:

- Covered under Elkay's limited lifetime warranty
- Coordinates flawlessly with items from the Crosstown collection by Elkay
- Sink is installed in an undermount configuration beneath the countertop creating a seamless appearance between the sink and the countertop
- Single bowl gives you uninterrupted space for washing and stacking dishes or other household tasks
- Highest quality 18-gauge thickness and type 304 stainless steel for lasting durability, performance and lustrous beauty
- Sound-deadening pad minimizes sound and vibration for a quieter time at the sink
- Fresh, geometric design offers straight sidewalls and a flat bottom for a modern look and more usable space
- Offset drain placement provides more usable space on the bottom of the sink and in the cabinet below
- High-capacity bowl offers more room inside for stacking dishes, filling stockpots, and handling large baking sheets and roasters
- Creased accent lines in the sink bottom deliver superior drainage and give the sink a professional appearance

Elkay ECTRU30179RTC Specifications:

- Length: 31-1/2" (from left to right)
- Width: 18-1/2" (from front to back)
- Height: 9" (from top to bottom)
- Basin Dimensions: 30" L x 17" W x 9" D
- Minimum Cabinet Size: 36"
- Drain Connection: 3-1/2"

Additional Elkay Links

- View the Manufacturer Warranty
- Browse All Elkay Products
- Elkay Crosstown Collection

Manufacturer Resources

[Specification Sheet](#)

[Installation Guide](#)

[Care and Cleaning](#)

Dimensions and Measurements

Basin Depth	<div>?</div>	9 in.
Basin Length	<div>?</div>	30 in.
Basin Width	<div>?</div>	17 in.
Drain Connection	<div>?</div>	3.5 in.
Faucet Centers	<div>?</div>	0 in.
Gauge	<div>?</div>	18
Height	<div>?</div>	9 in.
Length	<div>?</div>	31.5 in.
Minimum Cabinet Size	<div>?</div>	36 in.
Nominal Length	<div>?</div>	32 in.
Sink Length	<div>?</div>	31.5 in.
Width	<div>?</div>	18.5 in.

Chat with an E...

Included Components

Basin Rack Included	<div>?</div>	Yes
Basket Strainer Included	<div>?</div>	Yes

[Insinkerator](#) / Evolution Pro 880LT Garbage Disposal, 7/8 HP



Evolution Pro 880LT Garbage Disposal, 7/8 HP



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More performance in a compact size. InSinkErator® is offering professionals a distinct advantage with the PRO Series Food Waste Disposers and Water Dispensing Technologies. PRO Series Disposers provide the most power and performance your customers can buy, while the instant hot water dispenser sits right on the edge of the kitchen sink, ready to dispense steaming hot water at your command.

EvoPro880LT

Select Power Cord Attached

—

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Price Not Available

1

NOT AVAILABLE

Features

- 7/8 HP
- 8-Year warranty
- Auto-Reverse
- Anti-Microbial Baffle

Specifications

[DOWNLOAD FULL SPECS](#) 

Warranty 8 Year We Come To You® In-Home Limited Warranty

Type of Feed Continuous

On/Off Control Wall Switch

Motor Single Phase

Horsepower 7/8 HP

Time Rating Intermittent

Lubrication Permanently Lubricated Upper & Lower Bearings

Unit Finish Black Enamel

Overall Height 12-1/4"

Soundseal Technology Anti-Vibration Mount™, Anti-Vibration Tailpipe Mount™, Sink Baffle, Multi-Layer SoundLimiter™ Insulation

MultiGrind Technology GrindShear Ring®

Grind Chamber Capacity 34.6 oz

Motor Protection Manual Reset Overload

Average Water Usage Approx. 1 Gallon Per Person Per Day


Documents & Drawings

ENGLISH


[DATA SHEETS & BULLETINS](#)

[MANUALS & GUIDES](#)

Evolution Pro 880LT Specifications

 [English](#) .PDF

Evolution Pro 880LT Warranty

 [English](#) .PDF

Feedback

SECTION 415500 - HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM DESIGN CRITERIA**PART 1 – GENERAL****1.1 SUMMARY****Scope of Work:**

1. Work under this general heading consists of design, engineering, permitting and construction to furnishing labor and material necessary for complete installation of Heating, Ventilating and Air Conditioning and their component systems.
2. A new ground up residential care home to be designed with 3 separate areas:
 - a. The central common living area: Living, Dining, Activity, Corridors, Kitchen, (one zone),
 - b. Each wing of bedrooms for the residents (two zones – one per wing).
 - c. Each wing of support spaces for residents (two zones – one per wing).
 - d. Based upon the above criteria, provide a HVAC system with 5 zones.
3. The design-build HVAC subcontractor is to determine the best systems to supply HVAC to all 3 areas using the space available shown on the architectural documents.
4. Proposed population to include; one resident in each bedroom, a staff of 3 persons and brief visits from family members in the Common areas assuming ten guests at any one time. The resident bedrooms do not have a requirement for individual temperature control and could be one common system.
5. The ComCHECK listed on the drawings identifies the R-values of the building envelope as well as thermal resistance of the windows and other construction materials.

1.2 CODES AND ORDINANCES:

1. Nothing in this Specification shall be interpreted to conflict with any City or State law, regulation, code, ordinance, ruling or Fire Underwriters' requirement applicable to this class of work.
2. Governing agencies - All work shall be installed in accordance with, but not limited to, the applicable provisions of:
 - a. NFPA 101, Life Safety Code, 2000 edition and,
 - b. State of Missouri Department of Health and Senior Services, Chapter 86 – Residential Care Facilities and Assisted Living Facilities and,

-
- c. Any other required Division or Chapter of the rules and regulations from the State Department of Health and Senior Services and,
 - d. the State fire Marshall and,
 - e. City or St. Louis County adopted HVAC Codes and,
 - f. Americans with Disabilities Act, ANSI or other required accessibility regulations.
 - g. Compliance as may be required with locally adopted energy code.

1.3 SUPERVISION

1. Work shall be done under personal supervision of HVAC sub-Contractor, who shall provide a competent foreman to lay out work. Work shall be laid out with due regard for space requirements of other Contractors. This contractor shall report any conflicts or difficulties in regard to installation immediately.

1.4 DESIGN

1. An electronic file of the architectural drawings is available in AutoCAD Lt or Revit format and will be made available at the start of design.
2. H.V.A.C. design work supplied by Mechanical Contractor is insured against design errors and omissions by Engineers Errors and Omissions Insurance. A copy of the insurance certificate is to be made available upon request.
3. H.V.A.C. engineering design fees are to be included in the H.V.A.C. design-build cost. H.V.A.C. plans and specifications are to be prepared by a licensed engineer in the state of the project.
4. H.V.A.C. System Design Conditions to comply with all governing codes.
5. There shall be no exposed ductwork, piping, wiring, hangers, or supports. The design and routing of the proposed system is to fit within the space available on the current architectural drawings. No soffits will be added for required ductwork, piping etc. The intent is for the entire system to be concealed in the walls and/ or ceilings for an acceptable design.
6. Provide gas piping with standard black iron pipe from a gas meter, (meter furnished and installed by others) to gas fired H.V.A.C. equipment, hot water heaters.
7. Complete electric temperature control system using programable thermostats with an internet connection.
8. Coordination:

- Include revisions as necessary to coordinate the systems into the building construction with the architect.
- Coordinate with civil, architectural, structural, plumbing, electrical and fire protection with the HVAC system design.

9. A humidification system is to be included.

10. Approval: Final design Submittal to be submitted to architect, owner, owner's representative for approval of layout, aesthetic use and location of devices and equipment. All sprinkler head styles, finish and equipment to be submitted for review prior to submission for permit approval.

11. Permits: This proposal to include all costs to submit and obtain approval from the governing agencies in a timely fashion so as to maintain the project schedule.

12. Design of all H.V.A.C. systems to meet fresh air requirements.

13. Laundry, toilet rooms, and kitchen exhaust is to be included.

1.5 MISCELLANEOUS REQUIREMENTS

1. Crane service for hoisting and setting the H.V.A.C. equipment.

2. Federal, state and local taxes.

3. H.V.A.C. permits and fees.

4. Additions and Changes to Work Included: Any changes to work, and any work in addition to work herein specified and/or shown on accompanying drawings, must be authorized in writing by General Contractor, Construction Manager, and Owner.

1.6 CLOSEOUT – WARRANTIES

1. Complete balance of H.V.A.C. systems, supervised by N.E.B.B. certified personnel. Balance report to be submitted to Owner, architect, owner's representative for approval and acceptance.

2. A complete set of H.V.A.C. plans in AutoCAD and paper form to be supplied to purchaser at job completion.

3. A complete typed sequence of operation, wiring, diagram and mechanical service check list given to Owners building operating personnel at job completion.

4. Operating and Maintenance Instructions: At time designated by Architect, Contractor shall provide service of a competent operator to instruct representatives of Owner in maintenance and operation of system.

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5. Operating and Service Manuals: At completion of project, H.V.A.C. Contractor shall be required to provide 3 volumes of Operating and Service Manuals containing the following:
 - a. Start up and Shutdown Procedures: Provide a step-by-step write up of major equipment. When manufacturer's printed start up, trouble shooting and shutdown procedures are available they may be incorporated into operating manual for reference.
 6. One (2) year guarantee on new equipment, materials, and workmanship supplied by Climate as described in this proposal, with the guarantee period beginning on date of startup of H.V.A.C. system. This guarantee does not include standard preventive maintenance as specified by equipment manufacturers maintenance instructions, and this guarantee can only be honored if specified preventive maintenance is performed. Compressors shall have a minimum 5-year factory warranty.
 7. Cleaning: Scale and dirt shall be thoroughly cleaned and blow out of piping, ductwork and equipment on completion of installation and before starting plant in operation.

PART 2 – PRODUCTS

2.1 CUTTING AND PATCHING:

1. This Contractor shall do cutting and repairing necessary for installation of apparatus included under this contract. Cutting shall be neatly done, and in no case shall holes be cut larger than necessary to allow convenient installation of work.
2. General Contractor shall provide sufficient openings in areas required for admission of new equipment to be installed under this contract. This Contractor shall inform General Contractor as to sizes and location of openings required.
3. Required patching and repairing of walls, floors, roofs and ceilings shall be neatly done and shall be furnished to match existing surfaces.

2.2 SHEET METAL WORK:

1. Installation: Sheet metal work as shown on drawings shall be followed except that Contractor shall examine actual installation of other members, such as beams, piping, conduit, etc. and shall offset or provide transition pieces as necessary to avoid interferences with others.
2. There shall be no exposed ductwork, piping wiring, hangers or supports.
3. Work includes connection to and between equipment access doors, setting automatic dampers, elbows, offsets, transitions, volume dampers, grilles, registers and diffusers, fire and radiation dampers.
4. Duct shall be constructed in strict accordance with S.M.A.C.N.A. and A.S.H.R.E. standards for that classification of duct.

5. Reinforce ducts to prevent buckling, breathing vibrations or unnecessary noise, such as may be required to meet job conditions.
6. Longitudinal and cross joints, elbows, transitions, etc., all to be furnished as specified in "Duct Manual".
7. Support ducts with hangers to suit constructions as shown in "Duct Manual".
8. Ducts shall be neatly furnished on outside with sharp edges removed.
9. Inside surfaces shall be smooth with not projection into air stream except where otherwise noted.
10. Fasteners and attachments shall be made on same material as ducts or of corrosion resistant material.
11. Provide smoke or fire dampers in smoke or fire rated walls installed complying with U.L. approved design assemblies.
12. All ductwork run in attic space is be to fully insulated.

2.3 GRILLES, REGISTERS AND DIFFUSERS:

1. Grilles, registers and diffusers to be submitted to construction manager and architect for review.
2. Duct Insulation: Exterior duct insulation shall be insulated with 1-1/2 inches, 3 lbs./ft. density J-M Microlate or approved equal fiberglass duct liner and meet the requirements of NFPA pamphlet No. 90A insulate as indicated on plans.
3. Internal acoustical duct liners shall be installed in accordance with manufacturer's instructions utilizing "gripnail" or approved equal mechanical fasteners. Insulate duct as required for a proper system. At a minimum, duct insulation internal liner shall extend 15 feet from top of unit down supply and return trunk lines.

2.4 PIPING WORK:

1. Contractor shall furnish and install, as shown on drawings or as necessary to complete working system in accordance with intent of drawings and specifications, a complete system of piping subject to requirements of heating, ventilating and air conditioning system.
2. Erection: Piping shall be installed by experienced mechanics, properly supported with provisions made for expansion, contraction, slope and anchorage. Pipes shall have burr and cutting slag removed by reaming or other cleaning methods. Changes in direction shall be made with fittings, except that bending of pipe will be permitted providing a pipe bender is

used to prevent kinks, wrinkles, or other malformations. Work shall be performed in a workmanlike manner.

3. Pipe sleeves shall be installed and properly secured in place at joints where pipes pass through masonry or concrete, as shown on drawings.

2.5 PIPE HANGERS:

1. Horizontal piping above grade shall be supported by rod unless otherwise detailed. Rods shall be protected against corrosion by being cadmium-plated so as to prevent oxidation.
2. Hangers shall be connected to structure with beam clamps, uni-strut, or concrete inserts.

2.6 TOOLS Scaffolding:

1. This contractor shall furnish drayage labor, materials, apparatus, scaffolding and tools necessary for performance of work in accordance with plans and specifications.

2.7 CONCRETE WORK AND FOUNDATION:

2. Concrete pads and foundations for mechanical equipment shall be provided by General Contractor.
3. Each concrete pad shall be sized to conveniently accommodate equipment set thereon. This Contractor shall coordinate with concrete flatwork Contractor giving him necessary information. This Contractor shall furnish and install anchor bolts required.

2.8 WIRING AND WIRING DIAGRAMS:

1. Wiring from power sources to motors on this project (through disconnect switches or mains and starters) will be furnished and installed by Electrical Contractor.
2. Temperature control wiring shall be furnished and installed by H.V.A.C. Contractor.
3. This Contractor shall deliver to equipment location when required, and properly identified, detached motors, controls, starters, etc., specified for Electrical Contractor who will install them together with wiring in connection with same. This Contractor shall furnish instructions and necessary wiring diagrams of electrical equipment and controls furnished by him and shall be responsible for their proper working installation.
4. Wiring furnished or furnished and installed by this Contractor to conform with all codes for this project.

2.9 GAS:

1. Service entrance to be from the side or rear of the home only.

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2 2.10 MECHANICAL SYSTEMS:
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- 4 1. High efficiency split systems sized for the heat/ cooling loss of the thermal envelope. Provide
5 concrete pads, disconnects, piping, insulation, ductwork, etc. for a complete installation.
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10 PART 3 – EXECUTION
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19 **END OF SECTION 15500 HVAC SYSTEMS DESIGN CRITERIA**

SECTION 416000 – ELECTRICAL SYSTEM DESIGN CRITERIA**PART 1 – GENERAL****1.1 SUMMARY****Scope of Work:**

1. Work under this general heading consists of design, engineering, permitting and construction to furnishing labor and material necessary for complete installation of Electrical work and their component systems including the following:
 - Power.
 - Lighting.
 - Fire Alarm.
 - Telephone.
 - Cable TV/ Internet/ Data/ WiFi.
 - Security Cameras.
 - Access Controls.
2. A new ground up residential care home to be designed with 3 separate areas:
 - a. The central common living area: Living, Dining, Activity, Corridors, Kitchen,
 - b. Each wing of bedrooms for the residents.
 - c. Support spaces for residents.

1.2 CODES AND ORDINANCES:

1. Nothing in this Specification shall be interpreted to conflict with any City or State law, regulation, code, ordinance, ruling or Fire Underwriters' requirement applicable to this class of work.
2. Governing agencies - All work shall be installed in accordance with, but not limited to, the applicable provisions of:
 - a. NFPA 101, Life Safety Code, 2000 edition and,
 - b. State of Missouri Department of Health and Senior Services, Chapter 86 – Residential Care Facilities and Assisted Living Facilities and,
 - c. Any other required Division or Chapter of the rules and regulations from the State Department of Health and Senior Services and,
 - d. the State fire Marshall and,
 - e. City or St. Louis County adopted Electric Codes and,

f. Americans with Disabilities Act, ANSI or other required accessibility regulations.

g. Compliance as may be required with locally adopted energy code.

1.3 SUPERVISION

1. Work shall be done under personal supervision of Electrical sub-Contractor, who shall provide a competent foreman to lay out work. Work shall be laid out with due regard for space requirements of other Contractors. This contractor shall report any conflicts or difficulties in regard to installation immediately.

1.4 DESIGN

1. An electronic file of the architectural drawings is available in AutoCAD Lt or Revit format and made available at the start of design.
2. Electrical design work supplied by Electrical Contractor is insured against design errors and omissions by Engineers Errors and Omissions Insurance.
3. Electrical engineering design fees for completion of Electrical plans and specifications by a licensed engineer in the state of the project.
4. Electrical System Design Conditions to comply with all governing codes.
5. There shall be no exposed piping, wiring, hangers, or supports. The design and routing of the proposed system is to fit within the space available on the current architectural drawings. No soffits will be added for required equipment, piping etc. The intent is for the entire system to be concealed in the walls and/ or ceilings for an acceptable design.
6. A complete electric temperature control system using programable thermostats will be provided and installed by the HVAC contractor. Coordinate any electrical needs with HVAC contractor for a complete system.
7. Coordination:
 - Include revisions as necessary to coordinate the systems into the building construction with the architect.
 - Coordinate and provide all electrical needs as required with the HVAC, plumbing and fire protection work as part of the Electrical system design and scope.
8. Approval: Final design Submittal to be submitted to architect, owner, owner's representative for approval of layout, aesthetic use and location of devices and equipment. All fixtures and equipment to be submitted for review prior to submission for permit approval. Light fixture layout will not be approved until the review and approval of the photometric study has been completed.

9. Permits: This proposal to include all costs to submit and obtain approval from the governing agencies in a timely fashion so as to maintain the project schedule.

10. Investigate and offer tax credits or other energy savings available from local programs on any proposed system.

1.5 MISCELLANEOUS REQUIREMENTS

1. Crane service for hoisting and setting the Electrical equipment.

2. Any federal, state and local taxes.

3. Electrical permits and fees.

4. Additions and Changes to Work Included: Any changes to work, and any work in addition to work herein specified and/or shown on accompanying drawings, must be authorized in writing by General Contractor, Construction Manager, and Owner.

1.6 CLOSEOUT – WARRANTIES

1. A complete set of Electrical plans in AutoCAD and paper form to be supplied to purchaser at job completion.

2. A complete typed sequence of operation, wiring, diagram and mechanical service check list given to Owners building operating personnel at job completion.

3. Operating and Maintenance Instructions: At time designated by Architect, Contractor shall provide service of a competent operator to instruct representatives of Owner in maintenance and operation of system.

4. Operating and Service Manuals: At completion of project, Electrical Contractor shall be required to provide 3 volumes of Operating and Service Manuals containing the following:

5. Start up and Shutdown Procedures: Provide a step-by-step write up of major equipment. When manufacturer's printed start up, trouble shooting and shutdown procedures are available they may be incorporated into operating manual for reference.

6. One (1) year guarantee on new equipment, materials, and workmanship as described in this proposal, with the guarantee period beginning on date of startup of Electrical system. This guarantee does not include standard preventive maintenance as specified by equipment manufacturers maintenance instructions, and this guarantee can only be honored if specified preventive maintenance is performed.

7. Cleaning: Scale and dirt shall be thoroughly cleaned

PART 2 – PRODUCTS

2.1 TEMPORARY ELECTRICAL POWER:

1. Electrical Contractor shall furnish, install and maintain temporary lighting in accordance with applicable OSHA regulations and standards and power system for use of contractors.
2. Ground fault interrupter protection is to be furnished by each contractor requiring use of extension cords.
3. Utility charges for 1 and 2 indicated above and power consumption would not be included in our proposal.

2.2 ELECTRICAL SERVICE:

1. Service to building will be underground from a utility owned pole-mounted transformer.
2. Service will be sized to handle requirements for entire home along with spare capacity.
3. Electrical service entrance to be from the side or rear of the home only.

2.3 POWER DISTRIBUTION:

1. Electrical service to enter building from sides or rear of building.
2. The 277/480V/3/4 wire will be distributed from main panel to localized panels. Lighting will be at 120 volts and receptacle circuits will be at 120/3 wire through dry-type transformers.
3. Panelboards will be provided with 20 percent spare capacity.

2.4 CONDUCTORS:

1. Aluminum conductors will be provided from pole mounted transformers to main service switchboard.
2. All other feeders and branch circuit conductors shall be copper "THHN/THW" insulated for 600 volts.

3.5 POWER:

1. Outlets:
 - A. Receptacles will be provided as shown on the drawings.
 - B. Convenience outlets will be provided for TV's, computers, equipment in living room cabinets, & kitchen equipment, as required. Outlets may not be shown in all locations on the drawings and final power needs, height, location, access to be coordinated with final equipment to be installed.
 - C. Provide dedicated circuit for tub or other equipment as required.
 - D. All devices and cover plates to "white".
2. Motor Control HVAC units mounted on the will be furnished complete with controllers and disconnects.

3. Individual units such as air handling units, exhaust fans, etc., will be provided with individual motor starters by Mechanical Contractor and disconnects by Electrical Contractor.

2.6 LIGHTING:

1. Interior lighting will be as follows:

Nurse Station: 100-foot candles.

Corridors: 40 to 50-foot candles.

Toilets: 50-foot candles.

Storage and Mechanical Area: 20-foot candles.

Dining, Private Dining, Living Room, Activity Room: 60 to 75-foot candles.

Bedrooms: 40 to 50-foot candles.

- a. Light fixture selections and quantities shown on the drawings are for bidding purposes only and have not been analyzed for proper light levels. Electrical Design-Build designer to prepare a photometric drawing showing the achieved light level with the current fixture layout using light fixtures selected, fixture spacing and mounting heights.
- i. Photometric drawing to be prepared only after all light fixtures have been selected and approved thru submittal process.
- ii. The completed photometric drawing to be compares against the minimum light levels indicated above for each location in the building.
- iii. Any additional lighting needed to achieve the proper light level is to be shown on an adjusted photometric drawing to indicating the number and proposed location of the additional fixtures.
- b. Emergency and exit lighting will be provided at main entrance to building.

2. Exterior lighting will be as follows:

Landscape lighting will be provided at front elevation of the building.

Parking Lot lighting: Floor lighting at sides of main entrance.

Soffit Lighting: As indicated on the plans.

Building accent lighting as shown on the drawings.

3. Lighting Switches:

A. All devices & faceplates to be "white".

B. All corridor switches to be "Hubbell" or sim industrial grade key lock, wall and dimer light switch.

C. Bedroom, Bathrooms 1 thru 4, Nurse, Lounge, sunroom, Private dining, Dining, Kitchen, Foyer, Living Room to have on/ off toggle switch with mini slider to dim or brighten.

D. All other areas to have on/ off toggle switches.

E. Exterior Lighting Switches:

a. Front accent lighting, parking lot floodlights, & front entry decorative fixture to be connected to photocell and timer.

b. All other lighting to have on/ off toggle switch.

c. Timer to be individual seven-day automatic timing device located in nurses office cabinet.

2.7 TELEPHONE SYSTEMS:

1. Service entrance to the building to be from the sides or rear only.
2. Incoming underground telephone service shall be from nearby public utility.
3. Telephone service shall terminate within nurse's office.
4. Telephone outlets will be fished in voids provided within walls and run thru attic. In areas that have non-accessible ceilings telephone outlets will be installed with conduit.
5. Furnish and install telephone outlets, wiring, power, as required for a complete system. Phone system will be VOIP.

2.8 FIRE ALARM AND SMOKE DETECTION SYSTEM:

1. Electrical Contractor will furnish and install a complete fire alarm system, as required by governing codes.
2. All devices & faceplates be "white".
3. Smoke and/ or Heat detection system shall be installed in accordance with St. Louis County requirements.
4. Doors shown to be connected by hold-open devices are to be released upon the detection of smoke. Hold-open device are to be included in the scope of work. Provide shims or other devices to allow the hold-open device to adjust the pocket door angle to allow it lay parallel to the adjacent wall.
5. Water flow and tamper switches for sprinkler system shall be furnished and installed by sprinkler contractor and wired to fire alarm system by electrical contractor.
6. Provide fire alarm panel where shown on the drawings.
7. Provide strobes, alarms, pull stations, and all other required devices by governing codes.

8. All required heat and smoke detectors, strobes, alarms, pull stations or other devices may not be identified on the drawings. The electrical designer for the selected design-build electrical systems are to investigate required codes and included in the scope of this work all required devices.

2.8 TEMPERATURE CONTROL:

1. wiring shall be furnished and installed by temperature control contractor under HVAC contractor's scope. Coordinate and provide any power needs.

2.9 SECURITY CAMERAS

1. Provide Speco Technologies security camera system.
- a. exterior coverage for the front and back of the building including rear courtyard, rear exit way.
 - b. Interior coverage to include all halls and all common areas.
 - c. System to be monitored from the Nurse's Station with separate monitor at the desk area.
 - d. All equipment to be located in Nurse's station equipment cabinet.
 - e. Provide any wiring, cameras, recorders, software and or other equipment for a complete system.
 - i. Cameras to be 1080p night vision all-weather, see plans for camera locations.
 - ii. Infinite loop recording
 - iii. Monitor at nurse desk
 - iv. IP based with apps
 - f. Provide sleeve/ conduit from cabinet to attic and from attic to desk area.
 - g. Provide a 5-year warranty.

2.10 ACCESS CONTROLS:

1. Provide complete access control system including but not limited to design and installation on all devices, wiring, control panels, software, and related equipment to all exterior doors and rear courtyard gates.
2. Access controls to be connected to the PC in the Nurse's station and be 'IP' based. Any other controls to be in equipment cabinet in nurse's station.
3. The system to have the ability to unlock all egress door from a remote location.
4. Readers (Keypad or swipe controls) to be provided on inside and outside of all exterior doors. Style to be approved by owner, architect.
5. Electric strikes are indicated on hardware schedules and to be provided by hardware supplier. The wiring of the strikes is to be included in this scope of work. All wiring to be thru frame fully concealed. Coordinate as may be required with delay egress hardware scheduled.

2.11 CABLE/ INTERNET/ DATA/ WIFI:

1. Provide local cable internet/ data service to the building including all equipment and wiring.
2. Main box to be located in the nurse's equipment cabinet.

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3. DVR and WIFI router to be located in the cabinetry in the Living Room next to the fireplace.
 4. Provide (pucks) network bridge as required to extend the WIFI signal to the remote points of the building. All exposed devices to be "white".
 5. Provide high speed internet service minimum 100bps with options to faster speeds for the owner to consider.

2.12 EMERGENCY GENERATOR:

1. Provide emergency Generator System for house sized for the following:
 - a. **Base bid system** to include enough power to allow the home to operate with minimal electric to energize the bedrooms, one toilet room, core lighting for the entire home, any emergency systems, kitchen appliances, enough air-conditioning and heat to keep the bedrooms comfortable, Hot water tanks.
2. **Sizing** - the wattage required to start many of these devices will require a lot more power than just running them and plan accordingly to make sure you have the surplus required. Startup wattage must be considered.
3. **Generator** - Make sure the operating capacity is not at full wattage measurement of the generator. 80% of the listed maximum capacity to be safe running measurement during operation. Engines to be cast iron. Sound absorbing, weather-proof housing, a very good noise reduction muffler, and a slower 1800 RPM engine. Provide grid quality sinewave output with a rock stable voltage throughout the full capacity range of the generator
4. Fuel – Natural gas with nearby shut-off.
5. Provide automatic transfer switch as necessary to go off when the power is cut and bring the generator to life in order to make sure that you're back online as soon as possible.
6. Provide concrete pad, wiring, disconnects, switches, etc. for a complete system.
7. Locate generator to prevent noise from bedrooms and neighbors.

END OF SECTION 16000 ELECTRICAL SYSTEM DESIGN CRITERIA