

### **ADDENDUM NO. 3**

The Architect/ Engineer issues this addendum, applicable to the above named project, to all known Contractors before receipt of proposal.

This addendum includes Item Number 3-1 thru 3-30. This addendum item shall be fully incorporated into the Bidding/Contract Documents and have the same force and effect as though originally included.

The Bidder shall acknowledge receipt of this Addendum No. 3 on the Bid Proposal Form in the place provided.

#### **GENERAL**

##### **Item 3-1: Laboratory Fixtures**

Note that plumbing fixture schedules govern over laboratory drawing elevation details regarding types of fixtures and their associated components. (i.e handle type, finish, vacuum breakers, etc.)

##### **Item 3-2: Existing Panelboards**

Note that the existing panelboards in the building are manufactured by GE.

#### **SPECIFICATIONS**

##### **Item 3-3: Division 00 and 01 Specification Sections**

The following sections have been added in their entirety to the Project Manual as part of this Addendum.

- 00 70 00 – General Conditions
- 00 73 00 – Supplementary Conditions
- 01 25 00 – Substitution Procedures
- 01 26 00 – Contract Modification Procedures
- 01 29 00 – Payment Procedures
- 01 33 00 – Submittal Procedures
- 01 73 00 – Execution
- 01 77 00 – Closeout Procedures
- 01 78 23 – Operation and Maintenance Data
- 01 78 39 – Project Record Documents
- 01 79 00 – Demonstration and Training

##### **Item 3-4: Section 09 51 13 – ACOUSTICAL PANEL CEILINGS**

Refer to subparagraph 2.1.A.3.& 5. APC-3 & APC-5 shall have the 15/16 wide PVC suspension system, as specified. All other ceiling types to have metal suspension system.

##### **Item 3-5: Section 12 35 54 – WOOD LABORATORY CASEWORK**

Refer to subparagraph 1.2 A "Section Includes:". Delete Subparagraph 1.2.A.10 in its entirety.

**Item 3-6: Section 12 35 54 – WOOD LABORATORY CASEWORK**

Refer to subparagraph 2.1 B “Source Limitations.” Delete Subparagraph 2.1 B 1 in its entirety.

**DRAWINGS**

**ARCHITECTURE**

**Item3-7: A1.12 – First Floor Reflected Ceiling Plan – Area A**

Reference room A111. The two ceiling notes ‘APC-1’ on the Northeast area of the room shall be revised to APC-4, 9’-6” AFF.

**Item3-8: A1.14 – First Floor Reflected Ceiling Plan – Area B**

Ceiling Height Elevation ‘9’-6” AFF’ by col. Grid 1 & in between col. Grid ZC & E shall be revised to 9’-4” AFF.

**Item3-9: A1.24 – Second Floor Reflected Ceiling Plan – Area B**

Reference room B202 & B204. The two ceiling notes ‘APC-3’ shall be revised to APC-1.

**Item3-10: A6.10 – Enlarged Restroom Plans & Elevations**

Reference Toilet Accessory Schedule: TH-1: Bobrick; B76727, CFS: Bobrick; B5181. Add MH (mop and broom holder) : Bobrick, B-224. The mop holder is to be located on the East wall of B 242 above the mop sink.

**Item3-11: LF1.16 – Enlarged Pilot Plant Floor Plan & Elevations**

See floor plan for revised equipment layout. All other associated sheets shall have the same revised equipment location.

**FINISH**

**Item 3-12: F1.10 – First Floor Area A- Finishes**

Remove note ‘WD-1 (ALT)’ – located in room A102A.

**Item 3-13: F1.20 – Room Finishes Schedule & Details**

Reference Room Finish Schedule.

Revise room A101G: remove note ‘APC-2’ and replace with PT-2.

Add room N1CR2 as follows: N1CR2: CORRIDOR: RFT-1: RB-1,3: PT-1: PT-1, PT-3: PT-1: PT-1, PT-3: APC-1, PT-2: ETF-1 FLOORING AND BASE AS ADD/ALTERNATE

Revise room B105: remove all finishes from room

Revise room B200: remove note ‘APC-1’

Revise room B212: remove note ‘APC-1’ and replace with APC-2.

Revise room D204: remove note ‘ APC-1’

## **MECHANICAL**

### **Item 3-14: M1.07 through M1.10 – First Floor HVAC Plans**

Refer to revised sheets M1.07 through M1.10 for added Kitchen Exhaust Hood KEH-5. Hood shall be installed in the northwest corner of C101, and shall be set off 1'-0" from both walls to allow hood to capture smoke and vapor off of tenant-provided smokers. Route 8" SS exhaust duct off of south smoker (NIC) under hood and terminate with elbow up into hood. Coordinate connections to smokers with tenant and manufacturer. Provide switch on hood, similar to KEH-3, which will allow a minimum/maximum airflow setting for the new hood. Interlock switch with VB-C101-2.

Relocate VB-C101-2 to serve KEH-5. Ductwork size and airflow to VAV box shall remain as shown on the bid set drawings.

Relocate KEH-2 and associate grease exhaust ductwork as shown on revised drawings. Hood shall be located adjacent to KEH-3, but with sufficient space to allow piping for both hoods to be routed in between.

Ductwork upstream of both VB-C101-1 and VB-C101-2, which serve both canopy hoods, shall be stainless steel construction up to 36/12 connection to hood.

### **Item 3-15: M6.01 and M6.02 – Mechanical Schedules**

Refer to revised VAV box schedule and revised Kitchen Exhaust Hood which include changes detailed above.

Refer to revised Diffusers, Registers, and Grilles schedule. D-3 shall be listed as Titus model TRITEC or equivalent. No prior approval shall be required.

## **PLUMBING**

### **Item 3-16: P1.14 and P1.15 – First Floor Plumbing Plans**

See revised plumbing sheets for added piping services to tenant-provided smokers. Ensure connection heights and sizes are coordinated with tenant and equipment manufacturer prior to installation. Provide additional high pressure steam condensate branch drip leg for new high pressure steam line.

Relocate natural gas connection for KEH-2.

Remove piping connections for tenant-provided proof box, which was previously located south of KEH-2.

### **Item 3-17: P2.08 and P2.09 – First Floor Water Supply Riser Diagrams**

Refer to revised riser diagrams, which include changes detailed above. Additionally, hot water lines in some plant spaces were mislabeled as recirculation lines in the bid set. See revised diagrams for correct labeling of the domestic hot water piping.

### **Item 3-18: P6.02 – Plumbing Schedules**

Refer to RO water faucets in laboratory sink fixture, accessory, and connection schedule. Model number shall be Watersaver L681.

## **ELECTRICAL**

**Item 3-19: E2.1.3– First Floor Power & Auxiliary Systems Plan- Area A3**

Reference Sensory Kitchen A102. Circuit power for the Steam Combination Oven receptacle, through a wall mounted GFI device (Bender #LG2-60-208-3/3-A-4X-P). Mount device on wall to the left of receptacle. Mount device at 48" AFF.

**Item 3-20: E2.1.7– First Floor Power & Auxiliary Systems Plan- Area B3**

Power for the impingement oven has been moved to the east wall of the room. Additionally, power for KEH-2 has been moved to the east wall of the room. Power for the proof box has been removed. Power for the Reel oven has been moved south along the west wall. Lastly, power for Smoker #1 and Smoker #2 has been added to the west wall of the room. Reference supplemental drawing SDE-01 for additional information.

**Item 3-21: E2.1.7– First Floor Power & Auxiliary Systems Plan- Area B3**

Power for the the GEA Filtration unit has been removed. Additionally, power for KEH-2 has been moved to the east wall of the room. Reference supplemental drawing SDE-02 for additional information.

**Item 3-22: E3.01– Electrical One-Line Diagram- Normal- South Building**

Power for Smoker #1 and Smoker #2 has been added to 1MDPHS1. Reference supplemental drawing SDE-03 for additional information.

**Item 3-23: E4.02– Electrical Schedules**

The followings circuits shall be marked with keyed note #2, which shall read:

*"CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD."*

1HN1: 4,6,8,9,10,11,12,13,14,15,16,17

2HN1: 5,6,7,8,9,10,11,12,13,14,15

3HN1: 5,6,7,8,9,10,11,12,13,14,15,16

The followings circuits shall be marked with keyed note #3, which shall read:

*"CONNECT 3 PHASE LOAD TO THREE 20AMP, 1 POLE SPARE CIRCUIT BREAKERS IN PANELBOARD. CONNECT BREAKERS WITH BREAKER TIES."*

3HN1: 19

PHN1: 12

**Item 3-24: E4.05– Electrical Schedules**

The followings circuits shall be marked with keyed note #2, which shall read:

*"CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD."*

2STHN1: 2,3,4,5,6,7,8,10

3STHN1: 2,3,4,5,6,7,8,9

PLN1: 7

1STHN1: 2,3

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ADD3-4



**Item 3-25: E4.08– Electrical Schedules**

The followings circuits shall be marked with keyed note #1, which shall read:

*“CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD.”*

2LSHN1: 1,2,3,4

4LSHN1: 1,2,9

2LSLN1: 26,27,28,29,30,31

4LSLN1: 16,17

**Item 3-26: E4.09– Electrical Schedules**

The followings circuits shall be marked with keyed note #1, which shall read:

*“CONNECT LOAD TO TWO 20AMP, 1 POLE SPARE CIRCUIT BREAKERS IN PANELBOARD.  
CONNECT BREAKERS WITH BREAKER TIES.”*

1LS1: 17

The followings circuits shall be marked with keyed note #2, which shall read:

*“CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD.”*

1HS1: 3,14,16

1LS1: 1,3,4,5,7,9,10,11,12,13,14

1LS2: 2,5,6,7,8,12,13,16,17,18

**Item 3-27: E4.11– Electrical Schedules**

The followings circuits shall be marked with keyed note #1, which shall read:

*“CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD.”*

1STHS1: 3,4,5,6,7,8,9

**Item 3-28: E4.12– Electrical Schedules**

The followings circuits shall be marked with keyed note #1, which shall read:

*“CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD.”*

1STLS1: 11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29

1STLS2: 1,2,3,4

1LSHS1: 3,4,5,6,12

**Item 3-29: E4.13– Electrical Schedules**

The followings circuits shall be marked with keyed note #1, which shall read:

*“CONNECT LOAD TO AN EXISTING 20AMP, 1POLE SPARE CIRCUIT BREAKER IN PANELBOARD.”*

1LSLS1: 21,22,23,24,25,26

### **TELECOMMUNICATIONS**

#### **Item 3-30: T1.2.1– Second Floor Telecommunications Plan – Area A**

Key note #1 shall read as follows:

*“ROUTE TWO BLUE CATEGORY 6 CABLES TO AN OFFICE FACEPLATE. SEE THE OFFICE FACEPLATE DETAIL AND THE TELECOM RISERS FOR ADDITIONAL INFORMATION.”*

Key note #5 shall read as follows:

*“ROUTE ONE BLUE CATEGORY 6 CABLE TO A LAB FACEPLATE. SEE THE LAB FACEPLATE DETAIL AND THE TELECOM RISERS FOR ADDITIONAL INFORMATION.”*

**Attachments: Front End Documents: 00 70 00, 00 73 00, 01 25 00, 01 26 00, 01 29 00, 01 33 00, 01 73 00, 01 77 00, 01 78 23, 01 78 39, 01 79 00, LF1.16, M1.07, M1.08, M1.09, M1.10, M6.01, M6.02, P1.14, P1.15, P2.08, P2.09, SDE-02, SDE-03.**

END OF ADDENDUM NO. 3

## **DOCUMENT 00 70 00 – GENERAL CONDITIONS**

### **1.1 GENERAL CONDITIONS**

- A. AIA Document A201, General Conditions of the Contract for Construction, 2007 edition, 38 pages, is hereby incorporated into the project manual by reference, and shall have the same force and effect upon the Contract as if here physically included in its entirety. A copy of A201 will be provided to plan holders upon request during the bidding process. A copy of A201 will be attached to the Agreement Between Owner and Contractor, and additional copies will be provided to the Contractor as his need may appear.

END OF DOCUMENT 00 70 00

## **SECTION 00 73 00 - SUPPLEMENTARY CONDITIONS**

The following supplements modify the "General Conditions of the Contract for Construction", A.I.A. Document A201, 2007. Where a portion of the General Conditions is modified or deleted by these Supplementary conditions, the unaltered portions of the General Conditions shall remain in effect.

### **ARTICLE 1** **GENERAL PROVISIONS**

#### **CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS**

Change subparagraph 1.2.1 as follows:

Delete "by the Contractor" and substitute "and to make all working parts operational by the Contractor except for items specially called for to be by Owner or others".

Add the following new subparagraphs after 1.2.1:

- 1.2.1.1 In the event of conflicting provisions, ;the more specific provision will take precedence over the less specific; the more stringent will take precedence over the less stringent; the more expensive item will take precedence over the less expensive. On all drawings, figures take precedence over scaled dimensions. Scaling of dimensions, if done, is done at the Contractor's own risk.
- 1.2.1.2 Repeated features throughout must be constructed alike, although drawn in detail only once and, similarly, all detail and ornament must be constructed throughout all moldings, bands, etc., and all indications of material, etc., shall apply to all similar features throughout. Contractor is solely responsible for coordination of bidding and scope of Work of subcontractors and shall assume full responsibility for complete coordination of subcontractors.

Add the following new subparagraphs after 1.2.3:

- 1.2.3.1 All references to the "Manufacturer's Specifications", "Manufacturer's Directions" or "Manufacturer's Recommendations" shall refer to the referenced manufacturer's published specifications or manuals. These publications hereby are made a part of and incorporated by this reference in the Contract Specifications as though repeated therein in full, and all manufacturer's articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned accordingly, unless specified to the contrary.
- 1.2.3.2 No provision or term of any referenced standard specification, manual, or code, or manufacturer's specification, direction, recommendation or publication, whether or not specifically made a part of or incorporated by reference in the Contract Documents, shall be effective to change the duties



and responsibilities of the Owner or Architect, or any of their consultants, agents or employees from those set forth in the Contract Documents or Owner-Architect Agreement.

- 1.2.4           Wherever an article, device and/or piece of equipment is referred to in the singular, such reference shall apply to as many such articles as shown on the Contract Documents or are required to complete installation.

#### INTERPRETATION

Change paragraph 1.4 to 1.4.1:

Add the following new subparagraphs after 1.4.1:

- 1.4.2           Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.
- 1.4.3           In the interest of conciseness, references to specification sections and details are preceded by the word "see". Any such references are to be interpreted to include applicable form of the phrase "and comply with."
- 1.4.4           In the interest of conciseness, certain sentences, statements, and clauses omit any form of the verb "shall," normally expressed in verb phrase with verbs such as "furnish", "install", "provide", "perform", "construct", "erect", "comply", "apply", "submit", etc. Any such sentences, statements, and clauses shall be interpreted to include the applicable form of the phrase "the Contractor shall," and requirements described therein shall be interpreted as mandatory elements of the Contract.

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

Add the following new subparagraph after 1.5.2:

- 1.5.3           Shop Drawings or BIM models created specifically for the project by Contractor, subcontractors, or material suppliers will be made available in electronic format to Owner. Owner may utilize the documents for the management, maintenance, operation, remodeling, renovation, or expansion specific to the Project as Owner deems desirable

**ARTICLE 2**  
**OWNER**

**INFORMATION AND SERVICES REQUIRED OF THE OWNER**

Delete subparagraph 2.2.1 and substitute the following:

- 2.2.1            The Owner warrants that the has the financial capacity or has made financial arrangements to fulfill his obligations under the Contract. At the request of Contractor, Owner will furnish reasonable evidence of such capacity and financial arrangements.

Delete subparagraph 2.2.2 and substitute the following:

- 2.2.2            Owner shall secure and pay all necessary zoning approvals, easements, property assessments impact fees, development fees and business licenses necessary to obtain a building permit or for operating a business in the finished project including building permits, plan check and connection fees. Contractor shall be responsible for all other permits, fees, inspections, etc., required to achieve a final occupancy permit and use of the premises unless specifically noted otherwise in the Contract.

Change subparagraph 2.2.3 as follows:

Delete “and a legal description of the site” and add “ Notwithstanding anything to the contrary herein, Contractor will be responsible for verifying the location of all overhead utilities” after the last sentence.

Delete subparagraph 2.2.5 and substitute the following:

- 2.2.5            Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one paper copy and CD of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2. Contractor shall be responsible for providing all subcontractors and material suppliers with adequate drawings and specifications.

**OWNER'S RIGHT TO STOP WORK**

Change paragraph 2.3 as follows:

Add “Nothing to the contrary herein will prevent the Owner from having the absolute and unconditional right to stop the Work at any time with or without cause.” after the last sentence.

**ARTICLE 3**  
**CONTRACTOR**

**REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

Change subparagraph 3.2.1 as follows:

Add "Contractor accepts all local requirements and existing conditions of the site. No allowance or additional compensation shall be made to Contractor on account of the conditions of the work site and the area surrounding the site, if such conditions could have been ascertained through exercise of reasonable diligence by Contractor." after the last sentence.

Change subparagraph 3.2.2 as follows:

Add "The Contractor shall be responsible for properly notifying the local utility locator agency and other appropriate utility agencies of any proposed excavation required by the Work and obtaining the location of any underground facilities, before commencing with any digging operations. Any charges resulting from damaged facilities or utilities that are visible and overhead shall be borne by the Contractor unless such utilities were not identified by the utility locator agency." after the last sentence.

Add the following subparagraphs after 3.2.4:

- 3.2.5      The Contractor may submit requests for information to the Architect to help facilitate the Contractor's performance of the Contract. Prior to submitting each request for information, the Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtained from such sources.
- 3.2.6      Each request for information shall be submitted to the Architect, in writing, on such form as the Architect may require and with such accompanying information as the Architect may require for such purpose. Each request for information shall identify the specific sources, which were reviewed by the Contractor in its efforts to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

**SUPERVISION AND CONSTRUCTION PROCEDURES**

Change subparagraph 3.3.1 as follows:

Delete "unless the Contract Documents give other specific instructions concerning these matters".

## LABOR AND MATERIALS

Add the following new subparagraphs after 3.4.2:

- 3.4.2.1 In all cases in which a manufacturer's name, trade name or other proprietary designation is used in connection with materials or articles to be furnished under this Contract, whether or not the phrase "or equal" is used after such name, the Contractor shall furnish the product of the named manufacturer(s) without substitution, unless a written request for a substitute has been submitted by the Contractor and approved in writing by the Architect as provided in Subparagraph 3.4.2.2.
- 3.4.2.2 If the Contractor proposes to use a material, system, or article which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Architect in writing, on such form as the Architect may require for such purpose, of the nature of such deviations at the time the material, system, or article is submitted for approval or consideration, and shall request written approval of the deviation from the requirements of the Contract Documents. By submitting such material or article for approval, the Contractor:
- 1) 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;
  - 2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
  - 3) certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's evaluation, redesign and other costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent; and
  - 4) will coordinate the installation of the accepted substitute, making such changes as may be required, whether required by the Architect or otherwise, for the Work to be completed in all respects.

- 3.4.2.3 In requesting approval of deviations or substitutions, the Contractor shall provide, upon the Architect's request, evidence leading to a reasonable certainty on the part of the Architect that the proposed substitution or deviation will provide a quality of result and performance at least equal to that otherwise attainable. If, in the sole good faith opinion of the Architect, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Architect may reject such substitution or deviation without further investigation.

#### WARRANTY

Delete paragraph 3.5 and substitute the following:

- 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage, provided such damage or defect is not caused in whole or in part by Contractor. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. All defective Work, whether or not in place, may be rejected, corrected or accepted by Owner as provided for herein, all at no additional cost to Owner. If in the event Owner gives notice to Contractor to perform warranty work, and Contractor fails to promptly perform warranty work, Owner may complete such work and correct the warranty work and the Contractor shall be responsible for all costs incurred by Owner to complete and correct the warranty work.

Add the following new subparagraphs after 3.5.1:

- 3.5.2 The entire Work shall be warranted against defects in material and workmanship for a period of one (1) year from the date of substantial completion except with respect to any "punch list" items noted at the time of substantial completion or occupancy by Owner which such warranty for the "punch list" items shall be for one (1) year from the date of final completion of such work. The warranty shall specifically provide that all defects in material and workmanship and all movable or adjustable work shall remain in working order, including hardware, weather-stripping, doors, windows, drawers, apparatus and all other equipment to which this heading is applicable

appearing during the warranty period, as determined by the Architect, will be remedied to the satisfaction of the Architect at no additional cost to the Owner. Such guarantee shall not apply to Work which has been abused or neglected by the Owner or Owner's successor in interest.

- 3.5.3 Notwithstanding Contractor's warranty as required under Paragraph 3.5.2, Contractor will be responsible for the correction of any hidden or latent defects discovered after the initial warranty period to the extent of State law.
- 3.5.4 Where a greater warranty is called for in the Specifications, the Contractor and his Subcontractor together on a single form, and the material manufacturer on the same or on a separate form, shall jointly furnish the Owner with their written warranty for the specified period in accordance with this article. Such warranties shall be in the Contractor's or Manufacturer's form, or in a trade association form, all subject to the Owner's and Architect's approval.
- 3.5.5 The Contractor shall secure and furnish to the Owner through the Architect, as a condition precedent to final acceptance and prior to application for final payment, all written guarantees and warranties called for in the Specifications.
- 3.5.6 The warranties and guaranties set forth by the paragraphs above are in addition to and without limitation or waiver of any other rights or remedies, at law or in equity, which Owner may have under the Contract or to which it may otherwise be entitled and shall survive the Owner's final payment, acceptance, inspection or failure of inspection of the Work and review of the Contract Documents.

#### PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

Add the following new subparagraph after 3.7.5:

- 3.7.6 The Electrical, Mechanical, Plumbing or any other Subcontractor shall secure all applicable permits and certificates, pay all fees and arrange for necessary inspections required by State, County, City or other authorities and pay all expenses for repairing highways, streets, sidewalks, alley, etc. occasioned by execution of his Work.

#### ALLOWANCES

Change subparagraph 3.8.2.3 as follows:

Add "No additional cost for Contractor's administrative overhead and profit may be added to any Change Order resulting from allowances." after the last sentence.

## SUPERINTENDENT

Delete subparagraph 3.9.1 and substitute the following:

- 3.9.1           The Contractor shall adequately staff the Project site to properly and thoroughly layout, schedule, coordinate, direct, administer and supervise all construction activities. Contractor shall employ competent and appropriately qualified and experienced personnel, consisting of a superintendent or multiple superintendents based on the complexity of the Project, and necessary assistants, and, if required by the Contract Documents, a registered land surveyor, each of whom shall be reasonably acceptable to the Owner. Such persons shall not be replaced without the Owner's prior written approval. The superintendent and other appropriate personnel shall be in attendance at the Project site during progress of the Work and at any time in which any construction activity is to take place, and until the date of final completion.. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

Delete subparagraph 3.9.2 and substitute the following:

- 3.9.2           The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and Architect the name and qualifications of a proposed superintendent(s) and Project Managers. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent. Failure of the Owner to reply within the 14 day period shall constitute notice of no reasonable objection.

## CONTRACTOR'S CONSTRUCTION SCHEDULES

Add the following new subparagraphs after 3.10.3:

- 3.10.4           General Contractor in conjunction with Major Subcontractors shall provide a Bar Chart or CPM Schedule of work to Architect, Owner and Subcontractors. Contractor, suppliers, manufacturers, and subcontractors are responsible for adherence to this schedule and shall at all times supply sufficient new equipment, tools, and workmen to complete work within time limits specified in this schedule.
- 3.10.5           General Contractor shall submit to Owner and Architect copy of Bar Chart, indicating dates that various phases of work will start and finish. The schedule shall contain an S curve projecting monthly expenditures based on the stage of completion. Submit schedule within 15 calendar days of start of construction. Keep Owner apprised of any delays or changes in this

schedule. Schedule shall be updated to current conditions and submitted with each pay request. No approval of pay request will be given unless this schedule is submitted.

3.10.6 Contractor shall on a daily basis prepare a report in which all events affecting the job and occurring that day are recorded. Copies of these reports shall be submitted to the Owner for his information and review at Owner's request.

3.10.7 Contractor shall maintain a Shop Drawing and submittal log, which shall be up-dated to current conditions, and be submitted with each request for payment.

#### SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Delete subparagraph 3.12.5 and substitute the following:

3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, or with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors one (1) electronic copy and two (2) printed copies of all shop or setting drawings and schedules required for his work. Where Revit or BIM models are utilized in the design of the Project, Contractor shall prepare and integrate Shop Drawing information into the BIM model and shall identify any conflicts and verify that the system locations fit within the spaces provided without alteration to finish dimensions and heights. Contractor shall also integrate into the BIM model steel rebar, post tension reinforcing tendons, all slab or beam penetrations for plumbing, mechanical or other equipment and other elements as applicable and requested by Architect.

1. The Architect's approval of such drawings and schedules does not relieve the Contractor from responsibility for deviations from contract drawings or specifications unless he has, in writing, called the Architect's attention to such deviations at the time of submission of shop drawings or dimensions of all various members, the arrangement and construction of all connections at joints and other necessary details; also all holes, straps, and other fittings required by other contractors for the attaching of their work to the work for which the shop drawings were prepared.
2. Where required, engineering computations shall also be submitted.
3. When requested or required by the Architect, copies of approved shop drawings of the Contractor's work shall be furnished by him to other contractors whose work comes in contact with or is attached to the work for which such drawings were prepared.
4. Contractor shall indicate his review and approval of shop drawings by



means of a stamp with his initials and date of review prior to submitting to the architect for review. Nonetheless, all submitted drawings, whether stamped or not, shall imply contractors review and approval thereof. Submittals, which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor or are not required by the Contract Documents, may be returned by the Architect without action. .

5. Only shop drawings, schedules, models and templates that bear the approved stamp of the Architect shall be used on this work. Work materials or equipment for which shop drawings are required shall not be fabricated, performed or installed until the Architect has approved the shop drawings. Such work, materials or equipment performed or installed without prior approval of shop drawings may not be accepted. It shall be the General Contractor's responsibility to submit shop drawings to the Architect.

Change subparagraph 3.12.10 as follows:

After, "The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional." Add the following "Such design professional shall carry professional liability insurance in such amounts as required by Owner and shall be required in its subcontract with Contractor to indemnify the Owner in the event of any negligent act, error or omission in the design professional's performance for this Project."

Add the following new subparagraph after 3.12.10:

- 3.12.11 Upon Substantial Completion of the Work, the Contractor shall compile for and deliver to the Owner a set of Record Documents conforming to the construction records of the Contractor as provided by him to the Contractor. This set of documents shall consist of corrected specifications and drawings showing the recorded location of the changes in the work. Within thirty (30) days upon completion of all work, the Contractor shall furnish to Architect one (1) complete set of reproducible Record Drawings/Documents that have been corrected to show all revisions, deletions and additions. These drawings shall be designated "Record Documents" and bear the General Contractor's and Subcontractor's signatures and date. The Architect shall then forward the Record Documents to the Owner (2 copies thereof). No final payment will be issued to the Contractor until the complete set of shop drawings, record drawings, and maintenance and operating manuals are delivered to the Architect/Engineer.

## USE OF SITE

Delete paragraph 3.13 and substitute the following:

- 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

Add the following new subparagraphs after 3.13.1:

- 3.13.2 The Contractor, each Subcontractor, and other Contractors shall provide their own protection against the elements for suitable storage of their materials or equipment delivered to the site or delivered to some other location agreed upon in writing, which are to be incorporated into this project, and shall provide their own trailers or sheds for storage of their materials, equipment, tools, etc., requiring such a facility, if not otherwise provided by the General Contractor. Areas for general storage and storage trailers or sheds shall be approved by the Owner. Deliver all cement, caulking materials, paint materials, lime, plaster, adhesives for resilient floors, acoustical materials, and all similar materials to the job or to the off-site storage location in original sealed containers, unopened, with seals unbroken and with labels plainly indicating manufacturer's name, brand, type and grade of materials. Containers which are broken, opened, water-marked or otherwise damaged and/or which contain caked, lumpy or otherwise damaged materials are unacceptable and shall be immediately removed from the premises. Store all the above mentioned materials above ground and protected from dampness, weather, and other damage.
- 3.13.3 The Contractor shall provide for maintenance of traffic over roads or streets involved in or adjacent to the Project. The Contractor shall keep roads or streets free from obstructions which might present a hazard or interference to traffic and keep such roads or streets in such condition that traffic can be adequately accommodated. When operations in connection with Contract Work necessitates the closing of traffic lanes, it shall be the Contractor's responsibility to arrange in advance with the authorities having jurisdiction, the Owner and other adjacent property owners for such closing, and to provide appropriate barricades, signs, marker, flares, guards and other devices as may be required by the various owners for traffic guides and public safety.

### CUTTING AND PATCHING

Add the following new subparagraphs after 3.14.1:

- 3.14.1.1 Each Subcontractor shall be responsible for all cutting and patching necessary for his work. All patching shall be done by the Contractor whose work is damaged.
- 3.14.1.2 Each Prime Contractor shall do all fitting of his own work as required to make its several components fit together or to receive the work of other Contractors. Holes cut in exterior walls or roofs for installation of mechanical or electrical equipment shall be waterproofed in accordance with the Contract Documents.

Add the following new subparagraphs after 3.14.2:

- 3.14.3 Permission to patch any areas or items of work does not imply a waiver of the Architect's right to require complete removal and replacement in said areas and of said items if, in Architect's opinion, said patching does not satisfactorily restore the quality and appearance of the work.

### INDEMNIFICATION

Delete paragraph 3.18.1 and substitute the following:

- 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify, defend and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from (1) performance of the Work, by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable (collectively the "Contractor Parties"); (2) the errors, omissions, negligent or intentional acts of the Contractor Parties; (3) violation of applicable laws by the Contractor Parties; or (4) any material breach of this Agreement by Contractor. Provided, however, that the Contractor's indemnity obligations under this Paragraph 3.18.1 shall not apply to the extent the applicable claim, damage, loss or expense is determined to be caused by the negligence of the Owner. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18. Acceptance of any Work by Owner or termination of this Agreement shall in no event waive the above described obligations as such shall survive the expiration of this Agreement.

**ARTICLE 4**  
**ARCHITECT**

**COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION**

Delete paragraph 4.2.4 and substitute the following:

- 4.2.4            Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract changes or modifications to plans and Specifications or the interpretation thereof. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner. Notwithstanding, Owner and Contractor may communicate directly with Consultants where Architect is not immediately available or where, in the judgment of the Owner/Contractor, Architect has been unresponsive.

Change subparagraph 4.2.6 as follows:

After the last sentence, add "Contractor shall promptly notify the Owner if Architect rejects work or request additional inspection/testing."

Add the following new subparagraphs after 4.2.14:

- 4.2.15            The Architect will evaluate substitutions proposed by the Contractor, whether as part of a cost reduction procedure or otherwise, which are prepared and submitted in accordance with the requirements of Subparagraph 3.4.2. Such evaluation and any action taken by the Architect with respect thereto shall be performed within such period of time as may in the Architect's professional judgment be required to permit adequate review. The Owner shall evaluate and approve or take other appropriate action upon Contractor proposed substitutions and the Architect's recommendations with respect thereto, which evaluation shall include but not be limited to a review of the total net change to the Project cost, taking into account the proposed change to the Construction Cost, the possible Additional Service costs of the Architect, and the possible change to the projected operating costs of the completed Project. Any change in the Contract Sum, the Contract Time, or the requirements of the Contract Documents as a result of an Owner approved substitution shall be reflected in a Change Order

**ARTICLE 5**  
**SUBCONTRACTORS**

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

Delete paragraph 5.2.1 and substitute the following:

- 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, after award of the Contract, shall furnish in writing to the Owner the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Owner may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

**CONTINGENT ASSIGNMENT OF SUBCONTRACTS**

Change subparagraph 5.4.2 as follows:

Delete "suspension" and replace with "suspension but only to the extent that subcontractor can prove that cost increases are a result of material cost or wage rate increase."

**ARTICLE 6**  
**CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

**OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

Delete subparagraph 6.1.1 and substitute the following:

- 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. The Contractor may not claim delay or additional cost of such action by the Owner, except to the extent that Contractor can produce compelling evidence that the work of separate contracts results in significant disruption of Contractor's work.

Delete subparagraph 6.1.3 and substitute the following:

- 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall take overall responsibility for coordinating the Work and shall notify the Owner in writing if any of the Owner's own forces or contractors fails to cooperate with the Contractor. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised and approved by Owner.

Delete subparagraph 6.1.4.

#### MUTUAL RESPONSIBILITY

Delete subparagraph 6.2.3 and substitute the following:

- 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall only be responsible to the Contractor for costs the Contractor incurs, resulting from delays caused by improperly timed activities, damage to the Work or defective construction of a separate contract.

### **ARTICLE 7** **CHANGES IN THE WORK**

#### GENERAL

Add the following new subparagraphs after 7.1.3:

- 7.1.4 Unless instructed otherwise by Owner, Contractor shall not commence work on, or provide materials for or make changes in, the Work which will require additional payment from the Owner until he has requested and obtained written approval from the Architect and Owner to proceed with the extra work. Failure of the Contractor to obtain written approval from the Architect and Owner before commencing such work shall constitute cause for rejection of request for additional compensation for such work.

## CHANGE ORDERS

Add the following new subparagraphs after 7.2.1:

- 7.2.2 The method used to determine adjustments to the Contract Sum shall be as follows:
- .1 Additional work which is performed by subcontractors will be charged at the subcontractor's cost of materials and labor for subcontractor's own work plus ten percent (10%) plus five percent (5%) for sub-subcontractor work thereof as full compensation for the subcontractor's supervision, general conditions, project management, mobilization, demobilization, tool and truck expense, and other general job expense, overhead, and profit.
  - .2 Subcontractor labor rates shall be calculated by taking the actual paid out payroll rate to an individual multiplied by 1.40 to cover all payroll burdens such as premiums for workmen's compensation, liability and health insurance, payroll taxes and social security contributions, union charges, vacation and holidays, truck and small tool expenses, and other employee benefits and burdens imposed on a basis of payrolls. List of laborers and copies of pay stubs shall be provided when requested by Owner to validate the rates. Alternatively, subject to advanced approval of Owner rates may be determined based on the most recent rates published by the US Department of Labor, Davis Bacon Wage Determination for the project area and labor classification.
  - .3 Rates for heavy machinery and equipment attributable to additional work including for Construction Manager or subcontractor owned equipment shall be determined in advance but in no case shall exceed that amount published by USACE-Construction Equipment Ownership and Operating Schedule, EP 1110-1-8 for the place of the Project.
  - .4 Contractor shall be entitled to a markup on all subcontractor changes and heavy machinery and equipment in the amount indicated in the Contract as full compensation to cover all Contractor's supervision, project management, other general conditions, overhead and profit.
  - .5 Additional work performed directly by Contractor or his employees shall be computed by adding the net direct cost of labor calculated in the same manner as that indicated in paragraph 7.2.2.2 above, except that direct cost of labor may be multiplied by one point three five (1.35); PLUS net direct cost of heavy machinery and equipment and materials, including all State and local taxes, freight and transportation applicable thereto; PLUS an allowance of the amount indicated in the Contract as full compensation to cover all general job costs for supervision (employees above the level of job superintendent or foreman), and unassignable job costs such as utilities, clean-up, hand-tools, pick-up trucks, other vehicles, other

general conditions, and Contractor overhead and profit.

- .6 Work that is scheduled as a Bid Alternate or Unit Price will be based on the lump-sum or actual in-place measurement of quantity multiplied by the applicable price as shown in the Construction Contract. There will be no additional mark-up or charge for Contractor's supervision, overhead, and profit.
- .7 Cost for Work that is shown as an Allowance will be adjusted based on the provisions of Paragraph 3.8.2. Actual costs will be calculated in accordance with Paragraph 7.2.2 without application of any additional markup for Contractor's general supervision, overhead and profit.

- 7.2.3 For work omitted, credit will be given in the amount of the actual savings in cost computed on the same basis as for work added but without application of Contractor's percentages covering job supervision, general expense, overhead, and profit described in Paragraph 7.2.2.
- 7.2.4 In cases where changes result in work both added and omitted, the percentages covering Contractor's job supervision, general expense, overhead and profit, shall be applied to the net difference between the costs of work added and omitted, if the net result is additive. Otherwise, the aforesaid percentages shall not be applied to either the cost of the work added or omitted.
- 7.2.5 All estimates for changes shall be accompanied by itemized breakdowns of all material and labor charges and credits. Contractor shall provide other breakdowns as may be reasonably requested by Owner or Architect to permit the proper evaluation of changes.
- 7.2.6 Additional General Conditions may only be charged to the extent that Changes in the Work increase the contract time, add to the scope of the Work, and or cost can be directly attributable to the change. For extensions in time, Construction Manager shall be entitled to additional General Conditions in the amount indicated in the Contract or if not indicated, General Conditions will be determined by calculating the daily cost at the same ratio as occurs between the fixed sum of the General Conditions and the original contract time, excluding any costs for non-recurring expenses such as mobilization, de-mobilization, permits and fees, final clean up, plan reproduction, close out expenses, etc
- 7.2.7 Construction Manager will not delay the progress of the Work pending final determination of value of the change in the Work provided he receives authorization from the Owner to proceed. Owner and Construction Manager will expedite responses and decisions with respect to changes so that final decisions can be made generally within 3 days of receipt of request for information or submission of proposed costs.



### CONSTRUCTION CHANGE DIRECTIVES

Delete subparagraph 7.3.3 and substitute the following:

- 7.3.3            If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on the methods used pursuant to Paragraph 7.2.2

Delete subparagraph 7.3.7 and substitute the following:

- 7.3.7            The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

Delete subparagraph 7.3.8 and substitute the following:

- 7.3.8            Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

Delete subparagraph 7.3.9 and substitute the following:

- 7.3.9            When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive

Delete subparagraph 7.3.10 and substitute the following:

- 7.3.10           Contractor will not delay the progress of the Work, pending final determination of value of the Change in the Work, provided he receives authorization from the Owner to proceed.

**ARTICLE 8**  
**TIME**

**DELAYS AND EXTENSIONS OF TIME**

Delete subparagraph 8.3.2 and substitute the following:

- 8.3.2 All claims for extension of time shall be made in writing to the Owner no more than twenty-one (21) days after the commencement of the delay; otherwise they shall be waived. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the work and shall notify Owner within seven (7) days after the event causing the delay has ceased.

Change subparagraph 8.3.3 as follows:

After the last sentence, add "The Owner's exercise of any of its rights under the Contract Documents regarding Changes in the Work, regardless of the extent or number of such changes, or the Owner's exercise of any of its remedies of suspension of the Work or requirement of correction or re-execution of any defective Work shall not under any circumstances be construed as intentional interference with the Contractor's performance of the Work."

Add the following new subparagraphs after 8.3.3:

- 8.3.4 By executing the Construction Contract, Contractor acknowledges that the fixing of the Contract Time, Completion Date, and amount of Liquidated Damages in the Contract Documents is fair and reasonable and has taken the following factors, among others, into consideration:
- .1 The urgent need of the Owner to have the project completed by the time specified in order to fulfill its commitments to lenders, tenants, employees, and other building occupants, invitees, or users;
  - .2 The size, design, and location of the project;
  - .3 The quantity, quality, and probable availability of labor and materials involved in the construction of the project;
  - .4 The total dollar amount of the Construction Contract;
  - .5 The average climatic range, the customary weather for the time period of the Construction Contract and the usual customs and practices prevailing in the construction industry in this area;
  - .6 The impossibility of ascertaining and fixing the actual damages the Owner would sustain the event of delay in the completion of the project;
  - .7 The applicable laws and governmental rules and regulations.

**ARTICLE 9**  
**PAYMENTS AND COMPLETION**

**SCHEDULE OF VALUES**

Delete paragraph 9.2 and substitute the following:

- 9.2.1           Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect and/or Owner may require. This schedule, unless objected to by the Architect and/or Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment

Add the following new subparagraph after 9.2.1:

- 9.2.2           Contractor shall provide a Schedule of Value which segregates and allocates the Contract Sum between portions of the work will include two separate breakdowns, 1) Core and Shell 2) Tenant Improvements . Upon Notice of Award Architect and/or Owner will provide Contractor with additional diagrams and descriptions to further define portions of work is to be included in each Scope. Contractor shall provide an explanation of the rationale used in allocating the costs and make further adjustments or refinements as requested by Owner.

**APPLICATIONS FOR PAYMENT**

Delete paragraph 9.3.1 and substitute the following:

- 9.3.1           On or about the first day of each month, the Contractor shall prepare a draft itemized Application for Payment in accordance with the Schedule of Values, indicating the Contractor's right to payment, together with supporting data and breakdowns as the Owner or Architect reasonably request for work completed. Contractor, Architect, and Owner shall meet at the job site, review Contractor's draft Application, and determine together the appropriate amounts owing for each item of Work. Contractor will then make the appropriate adjustments, provide additional substantiating data when requested, and submit to the Architect four copies of the final notarized Applications for Payment. Applications for Payment shall be submitted on AIA Document G702 and G703, or such other form as Owner may approve, and shall additionally include (i) upon reasonable request, a breakdown by trade of the amounts due under the applicable subcontract, (ii) an accounting of all

labor hours and rates for Work performed on the basis of cost-plus contracts, (iii) invoices attached for all materials, rental equipment and Subcontractor's statements, (iv) upon reasonable request, copies of the Contractor's daily log, (v) notarized "conditional" lien waiver and release of claims (in form and substance as required by Owner in its reasonable discretion) from the Contractor for the Work detailed in the current Application for Payment, (vi) notarized "unconditional" lien waivers and release of claims (in form and substance as required by Owner in its reasonable discretion) from the Subcontractors (including material men and suppliers) with contracts with a value of \$2,500 or more for all Work for which Contractor has received payment under prior application for payment, and (vii) any other information Owner may deem reasonably necessary to substantiate the Application for Payment. In the event of a dispute with regard to any item included in an Application for Payment, the Owner shall make payment for items not in dispute and shall have the right to withhold from payment the amount of such disputed item while the parties attempt to resolve the dispute in accordance with the dispute resolution procedures provided for in the Contract Documents, and the Contractor shall continue to perform the Work in accordance with the Construction Schedule and shall not stop, delay, slow down or hinder progress of the Project so long as Owner continues to pay undisputed amounts in accordance with this Agreement. Contractor will also comply with any customary and reasonable requests by Owner's Lender for information or proof of payment.

Delete paragraph 9.3.2 and substitute the following:

- 9.3.2 Except as otherwise provided in the Contract Documents, payments will not be made on account of materials and equipment not incorporated in the Work. However, if approved in advance by the Owner, payment may be made for materials and equipment suitably stored off the site at the jobsite or at some other location agreed upon in writing. Generally, Owner will approve payment only for materials that are specially fabricated or that are of a special nature not readily available but that are necessary for the proper sequencing of a timely execution of the construction or for major equipment. Payment shall be made only for Owner pre-approved materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. Notwithstanding the Owner having title to such material and equipment, pursuant to Paragraph 9.3.3, Contractor shall be responsible for the entire cost of any replacement, theft, repair, or other damage which make the materials unsuitable for incorporation in the Work to the extent coverage is provided thereunder for such loss and the Owner will not be held liable or responsible for the materials until they are fully incorporated into the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures

satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

#### DECISIONS TO WITHHOLD CERTIFICATION

Change subparagraph 9.5.1.2 as follows:

Delete "unless security acceptable to the Owner is provided by the Contractor."

Change subparagraph 9.5.1.6 as follows:

Delete "or"

Change subparagraph 9.5.1.7 as follows:

After the last sentence, add "or."

Add the following new subparagraph after 9.5.1.7:

9.5.1.8 items in dispute between the Owner and Contractor.

Delete paragraph 9.5.2 and substitute the following:

9.5.2 When the above reasons for withholding certification are removed, certification will be made on the next Application for payment for amounts previously withheld.

#### PROGRESS PAYMENTS

Change subparagraph 9.6.7 as follows:

After the last sentence, add "unless the Contractor cannot tender the funds owing in accordance with payment provisions of the Subcontract or Purchase Order to the Subcontractor or suppliers."

Add the following new subparagraph after 9.6.7:

9.6.8 The Owner reserves the right to take possession and use any completed or partially completed portion of the Project, regardless of the time of completion of the Project, providing it does not interfere with the Contractor's work. Such possession or use of the Project shall not be construed as final acceptance of the Project of any portion thereof.

## SUBSTANTIAL COMPLETION

Delete paragraph 9.8.2 and substitute the following:

- 9.8.2            When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor and the Architect shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon Substantial Completion of the Work, Owner reserves the right to retain the amount allowed by law for the Cost of the Work of the remaining punch list Work to be completed and/or corrected by Contractor (as determined by Owner in its reasonable discretion).

Change subparagraph 9.8.3 as follows:

After the last sentence, add "At time of Substantial Completion, Owner may withhold payment as incomplete work and not retainage in the following amounts. Payment will be withheld from each contractor, subcontractor and materials supplier until such time as the requested documents are submitted to the Owner in a complete and organized manner.

- .1            The greater of \$500 or one percent (1%) of the contract or subcontract amount for each subcontractor or contractor warranty.
- .2            The greater of \$500 or one percent (1%) of the contract or subcontract amount for each subcontractor or contractor project closeout, operations and maintenance manuals, parts list, extra stock, etc.
- .3            The greater of \$500 or one percent (1%) of the contractor or subcontractor amount until receipt of each as-built drawings as required by project closeout requirements.
- .4            The amount of one percent (1%) of the Contractor's total fee until the receipt of all final or unconditional final lien releases from subcontractors and major materials suppliers plus the amount of one percent (1%) of any contract or subcontract amount.

Add the following new subparagraph after 9.8.5:

- 9.8.6            If during the performance of the initial substantial completion inspection the Architect finds that the Contractor has failed to sufficiently complete the Work due to, but not limited to, incomplete work, deficient work and/or non-addressed work in accordance with the Contract Documents, the cost of additional inspections that may be subsequently required of the Architect for purposes of determining Substantial Completion shall be borne solely by the Contractor. Design Professional re-inspection service fees, owed by the Contractor, will be billed on a time and material basis at the Architect's

current billing rates and the Owner will deduct this amount from the Contractor's Final Payment request.

#### PARTIAL OCCUPANCY AND USE

Change subparagraph 9.9.1 as follows:

Delete “, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project.”

#### FINAL COMPLETION AND FINAL PAYMENT

Change subparagraph 9.10.1 as follows:

After the last sentence, add “. In connection with the final request for payment and as a condition to such payment, the Contractor must have: (1) completed all punch list items to the satisfaction of the Owner, (2) delivered to Owner for its review and approval a detailed final accounting of the actual Cost of the Work (together with any itemization of any fixed general conditions budget); (3) delivered to Owner all maintenance and operating instructions, schedules, guarantees and warranties, bonds, certificates of inspection, marked-up record documents, occupancy permits and other closeout submittals required by the Contract Documents; and (4) shall deliver to Owner a notarized Final Lien Waiver and Final Release on Owner's "Lien Waiver and Final Releases" form from Contractor, all subcontractors, and other persons furnishing labor or materials for the entire project. Contractor shall also comply with any reasonable requirements of Owner's Lender and Surety.”

Add the following new subparagraphs after 9.10.4.3:

- 9.10.4.4 latent and hidden defects discovered after final completion to the extent of State law; or
- 9.10.4.4 unrepaired items which were listed on a "punch list" prepared at time of Substantial Completion or at Final Completion.

Add the following new subparagraph after 9.10.5:

- 9.10.6 If during the performance of the initial final completion inspection the Architect finds that the Contractor has failed to fully complete the Work due to, but not limited to, incomplete work, deficient work and/or non-addressed work in accordance with the Contract Documents, the cost of additional inspections that may be subsequently required of the Architect for purposes of determining Final Completion shall be borne solely by the Contractor. Design

Professional re-inspection service fees, owed by the Contractor, will be billed on a time and material basis at the Architect's current billing rates and the Owner will deduct this amount from the Contractor's Final Payment request.

**ARTICLE 10**  
**PROTECTION OF PERSONS AND PROPERTY**

**SAFETY OF PERSONS AND PROPERTY**

Add the following new subparagraphs after 10.2.1.3:

- 10.2.1.4 existing systems, utilities, services and equipment not associated with this Work but within the site and as has been disclosed by Owner, Architect or utility (including by calling the utility "dig right" hotline) or as is apparent on reasonable inspection of the Project site, whether indicated on the Drawings or not, shall remain intact and undisturbed during the execution of the Work and in the event that damage to any such systems, utilities or equipment is caused by construction operations under this Contract, the Contractor shall be responsible for repairs or replacements as directed by the Owner and at no additional cost to the Owner; and
- 10.2.1.5 the intention of the Contract is that, upon completion, the entire work will be protected and delivered at the end to the Owner in proper, whole, and unblemished condition.

Add the following new subparagraphs after 10.2.3:

- 10.2.3.1 Provide and maintain, required amount of, portable fire-fighting equipment including fire extinguishers. All persons working on the project shall be familiarized with the locations and operation of fire extinguishers.
- 10.2.3.2 Provide, erect, and maintain all required planking, barricades, guardrails, temporary sidewalks, etc., streets, drives adjoining property and the new building, to prevent accidents to the public and the workmen at the jobsite.
- 10.2.3.3 Provide and maintain proper shoring and bracing to prevent earth from caving or washing into the building excavation.
- 10.2.3.4 Provide and maintain proper shoring and bracing for existing underground utilities, sewers, etc., encountered during excavation work, to protect them from collapse or other type of damage until such time as they are to be removed, incorporated into the new work, or can be properly backfilled upon completion of new work.



- 10.2.3.5 Provide heavy plank covering over walks, curbs, drives, etc., and heavy wood cribbing around all trees within the construction area and at corners of the new building to protect them from possible damage by trucking or otherwise.
- 10.2.3.6 Provide and maintain protection against rain, snow, wind, ice, storms and heat so as to maintain all Work, materials, apparatus, and fixtures, incorporated in the Work, free from injury or damage. At the end of the day's work, cover all Work subject to damage. Remove snow and ice as necessary for safety and proper execution of the Work.

Change subparagraph 10.2.5 as follows:

After the last sentence, add " Notwithstanding anything to the contrary herein, the Contractor shall assume the responsibility for the protection of all finished construction under his Contract and shall repair and restore any and all damage to his finished construction to its original state. Where responsibility can be fixed, the cost shall be borne by the party responsible. If responsibility cannot be fixed, the cost shall be pro-rated among all Contractors in proportion to their activities at the building at the time the damage was done."

#### HAZARDOUS MATERIALS

Delete paragraph 10.3.2 and substitute the following:

- 10.3.2 Upon receipt of the Contractor's written notice, the Owner will investigate these materials, and determine the method, if necessary, of removal, disposal or encapsulation of these materials. If the Contractor, any Subcontractor or any Sub-subcontractor disturbs, removes, disposes or encapsulates these materials without written authorization and instructions from the Owner; or disturbs, removes, disposes or encapsulates these materials in a manner not in accordance with the written authorizations and instructions of Owner, the Contractor shall be solely responsible for any and all loss, damage or liability arising or resulting from the acts of the Contractor, any Subcontractor or any Sub-subcontractor. By Change Order, where applicable the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

Delete paragraph 10.3.3 and substitute the following:

- 10.3.3 Contractor shall not incorporate in the Work any materials containing asbestos, PCB's, or other hazardous materials. Contractor shall not use, produce, store, release, dispose, or handle, in or about the project, or transfer to or from the project (or permit any other party to do such acts), any hazardous substance except in compliance with all applicable environmental laws. The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall not be responsible for hazardous materials or substances brought to the site by the Contractor unless such material or substances are required by the Contract Documents.

Delete paragraph 10.3.4 and substitute the following:

- 10.3.4 "Hazardous substances" and "hazardous materials" as used herein shall mean all substances, materials, and waste that are or become regulated or classified as hazardous or toxic under any environmental law. "Environmental Laws" shall mean any federal, state, or local statute, ordinance, rule, regulation, or guideline pertaining to health, industrial hygiene or the environment, including without limitation the Federal Comprehensive Environmental Response, Compensation, and Liability Act.

## **ARTICLE 11**

### **INSURANCE AND BONDS**

#### **CONTRACTOR LIABILITY INSURANCE**

Change subparagraph 11.1.1 as follows:

After the final sentence, add " All insurance shall be carried by companies acceptable to the Owner, and licensed in the state where the project is located:"

Delete paragraph 11.1.2 and substitute the following:

- 11.1.2 The insurance required by Section 11.1.1 shall be as follows:

Add the following new subparagraphs after 11.1.2:

- 11.1.2.1 Prior to commencement of Work, Contractor shall procure, and at all times thereafter maintain with insurers acceptable to Owner, the following minimum insurance insuring Contractor, Owner, the Architect and the Architect's consultants against liability from damages because of injuries, including death, suffered by persons, including employees of Contractor, and liability from damages to property arising from and flowing out of Contractor's operations, including its Subcontractors' and suppliers' operations, in connection with the performance of this Agreement.
- 11.1.2.1.1 Workers' Compensation in statutory limits as prescribed by applicable law where the work is being performed and Employers' Liability in the minimum amount of \$1,000,000 each accident.
- 11.1.2.1.2 Commercial General Liability including the following coverage extensions: (1) Personal Injury, (2) Premises Operations, (3) Contractual Liability, (4) Products/Completed Operations, (5) as applicable, coverage for Explosion, Collapse and Underground hazards, (6) Broad Form Property Damage and (7) Independent Contractors. The limits of liability for such insurance shall be not less than \$1,000,000 each occurrence and \$2,000,000 general aggregate. Coverage shall be written on an occurrence form, only, and shall provide that the general aggregate applies per project/location.
- 11.1.2.1.3 Automobile Liability extending to owned, non-owned and hired automobiles used in the performance of the work. The limits of liability shall be not less than \$1,000,000 combined single limit.
- 11.1.2.1.4 Umbrella Liability extending coverage beyond the limits for Commercial General Liability, Automobile Liability and Employers Liability. The limits shall be not less than \$5,000,000 and shall apply separately per project/location. Contractor's Umbrella shall include Owner, the Architect and the Architect's consultants as additional insureds.
- 11.1.2.2 Contractor's insurance shall be regarded as primary insurance to any other applicable insurance maintained by Owner.
- 11.1.2.3 Contractor's inclusion of Owner, as an additional insured in its Commercial General Liability and any Umbrella Liability policies, shall extend to products/completed operations coverages, and for the maximum limits of coverage carried by Contractor.
- 11.1.2.4 Contractors' completed operations coverage shall be maintained for a minimum of at least 2 years after final payment.
- 11.1.2.5 Contractor shall provide a waiver of subrogation in favor of Owner under its

Workers' Compensation and Commercial General Liability policies.

- 11.1.2.6 **Contractor** shall provide Owner with certificates evidencing such insurance as outlined above prior to beginning any Work under this Agreement. Such certificates shall provide for thirty (30) days advance written notice to Owner of cancellation, material change, reduction of coverage or non-renewal. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Contractor shall cause its Subcontractors, and suppliers to procure insurance as deemed adequate by Contractor. Contractor shall obtain policies or certificates of insurance from its Subcontractors and suppliers and deliver them to Owner, if requested to do so.

Add the following new subparagraphs after 11.1.4:

- 11.1.5 When any required insurance, due to the attainment of a normal expiration date or renewal date, shall expire, the Contractor shall supply the Owner with certificates of insurance and amendatory riders or endorsements that clearly evidence the continuation of all coverage in the same manner, limits of protection, and scope of coverage as was provided by the previous policy. In the event any renewal or replacement policy, for whatever reason obtained or required, is written by carrier other than that with whom the coverage was previously placed, or the subsequent policy differs in any way from the previous policy, the Contractor shall also furnish the Owner with a certified copy of the renewal or replacement policy unless the Owner provides the Contractor with prior written consent to submit only a Certificate of Insurance for any such policy. All renewal and replacement policies shall be in the form and substance satisfactory to the Owner and written by carriers acceptable to the Owner.
- 11.1.6 Any aggregate limit under the Contractor's liability insurance shall, by endorsement, apply to this project separately.
- 11.1.7 The Contractor shall cause each Subcontractor to (i) procure insurance reasonably satisfactory to the Owner and (ii) name the Indemnitees as additional insureds under the Subcontractor's comprehensive general liability policy. The additional insured endorsement included on the Subcontractor's comprehensive general liability policy shall state that coverage is afforded the additional insureds with respect to claims arising out of the operations performed by or on behalf of the Contractor. If the additional insureds have other insurance that is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the insurer's liability under this insurance policy shall not be reduced by the existence of such other insurance.

## PROPERTY INSURANCE

Delete paragraph 11.3.1 and substitute the following:

- 11.3.1 Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis. Such property insurance shall include any coverage for loss of rents & soft costs in the event our project was delayed and be maintained until final payment has been made as provided in Section 11.3 to be covered or until the policy is replaced by another policy which covers the same insurable interest. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

Delete paragraph 11.3.1.2.

Delete paragraph 11.3.1.3 and substitute the following:

- 11.3.1.3 Owner's Builders' Risk deductible shall not be greater than ten thousand dollars (\$10,000.00) for each occurrence. The Contractor shall be responsible for the payment of such deductible in the event the loss or damage is a result of Contractor's or Contractor's Subcontractor's negligence.

Delete paragraph 11.3.1.5 and substitute the following:

- 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance. Notwithstanding anything to the contrary, Owner may take partial occupancy without the consent of the insurance company in which case Owner shall be responsible for any costs or reduction of insurance payments on a paid out claim, if any.

## BOILER AND MACHINERY INSURANCE

Change subparagraph 11.3.2 as follows:

Delete "The Owner shall purchase" and substitute "The Contractor shall purchase"

#### LOSS OF USE INSURANCE

Delete paragraph 11.3.4 and substitute the following:

- 11.3.4 If the Owner requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Contractor shall, if possible, include such insurance, and the cost thereof shall be charged to the Owner by appropriate Change Order.

Delete paragraph 11.3.5 and substitute the following:

- 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance, except for claims for the cost of any deductible amounts which deductibles will be paid by the Contractor. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

Delete paragraph 11.3.6 and substitute the following:

- 11.3.6 Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

#### WAIVERS OF SUBROGATION

Delete paragraph 11.3.8 and substitute the following:

- 11.3.8 A loss insured under the Contractors property insurance shall be adjusted by the Owner as fiduciary and made payable to the Contractor as fiduciary for the insureds, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

## **ARTICLE 12**

### **UNCOVERING AND CORRECTION OF WORK**

#### **UNCOVERING OF WORK**

Change subparagraph 12.1.2 as follows:

After the final sentence add, "Contractor shall be responsible for all costs associated with uncovering and recovering any Work that requires special inspection where such inspections were not performed."

#### **AFTER SUBSTANTIAL COMPLETION**

Change subparagraph 12.2.2.1 as follows:

Delete, "If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct in accordance with Section 2.4."

Change subparagraph 12.2.2.2 as follows:

Delete, "The one-year period" and substitute with "The one year period, or any extended warranty period required by the Contract"

Change subparagraph 12.2.2.3 as follows:

After the last sentence, add "Neither the one-year warranty period nor acceptance of premises by the Owner shall relieve the Contractor of liability as to "latent defects" in workmanship or material discovered after the warranty period to the extent of State law."

## **ARTICLE 13**

### **MISCELLANEOUS PROVISIONS**

## WRITTEN NOTICE

Delete paragraph 13.3 and substitute the following:

- 13.3 Each notice, request, submission or other communication required or permitted to be delivered hereunder unless otherwise specified in the Contract Documents shall be (a) in writing; (b) transmitted by personal delivery, overnight courier service, United States mail in the manner described below, or electronic means of transmitting written material, with a hard copy deposited in the United States Postal Service; (c) deemed to be delivered on the earlier of (1) the date received or (2) five (5) business days after having been deposited in the United States mail, postage prepaid; and (d) addressed to the parties set forth on the cover page of the Agreement. Notwithstanding anything contained herein, any notice of default or termination shall be sent by overnight courier service or certified United States mail. Notice of change of address shall be given by written notice in the manner detailed in this Section of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

## RIGHTS AND REMEDIES

Delete paragraph 13.4.1 and substitute the following:

- 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law. All rights and remedies afforded hereunder are cumulative in nature and may be exercised at any time singularly or collectively.

## TESTS AND INSPECTIONS

Change subparagraph 13.5.2 as follows:

After the last sentence, add "Contractor shall notify Owner of the request to perform any additional testing or inspection prior to performing such work."

## CODES AND ORDINANCES



Add the following new subparagraph after 13.7:

- 13.8.1 Nothing contained in the specifications or on the drawings shall be construed as authority for violation by the Contractor of any applicable codes or ordinances in effect at the site. Codes and ordinances in effect shall take full and complete precedence over anything herein contained to the contrary. When the specifications or drawings call for work or materials of higher standard than those required by codes or ordinances, the specifications and drawings shall govern.

#### TRADE SECTIONS

Add the following new subparagraph after 13.8.1:

- 13.9.1 The specifications are generally divided into trade sections for the purpose of ready reference, consistent with the Construction Specifications Institute's format. The division of the Work among his subcontractors is the Contractor's responsibility and the Architect assumes no responsibility to act as arbiter to establish subcontract limits of work.

#### SAFETY REGULATIONS

Add the following new subparagraph after 13.9.1:

- 13.10.1 All work on this project will be done in accordance with the applicable regulations of the Federal Register, Occupation Safety and Health Administration, Occupation Safety and Health Act and other applicable State and Federal regulations. Compliance with these regulations shall be the responsibility of the General Contractor.

#### BAILING OR PUMPING

Add the following new subparagraph after 13.10.1:

- 13.11.1 Should water be found in any excavation, whether rain or seepage, it must immediately be pumped or bailed out. Trenches shall be kept free of water at all times.

#### CONSTRUCTION AND GRADING STAKING

Add the following new subparagraph after 13.11.1:

- 13.12.1 The Contractor shall be responsible and pay for all exterior and building construction staking and layout working from building corners, boundary corners, and elevation reference datum point identified on documents including, but not limited to establishing the location of all gridlines, utilities,

curbs and finish floor elevations. Contractor shall not begin paving operations until Owner and Architect have approved grades. Owner reserves the right to have an independent Registered Civil Engineer, employed by the Owner, verify any or all locations, grades or elevations. The Contractor shall make all corrections as required at no extra cost to the Owner. On completion and as required during the progress of the Work, the Contractor shall engage the services of a registered professional engineer or land surveyor who shall provide and record on as-built drawings the GPS coordinates of all utilities and spare conduits for future work to the extent shown on plans, and certify to the actual location, of all buildings, structures, roads, utilities, site grading and associated Work to be constructed on the site.

#### FEES FOR TESTS AND SPECIAL INSPECTIONS

Add the following new subparagraph after 13.12.1:

- 13.13.1 All independent testing and special inspection consultants shall be approved by the Contractor and Owner. Costs will be paid for by Contractor. The General Contractor shall be solely responsible for notifying the consultant that work requiring his inspection is in progress and shall maintain records for the benefit of the Owner and require such persons to sign in on arrival and sign out upon leaving. The frequency of testing required will be as indicated in the Specifications section, unless otherwise directed by Owner or Architect. No fill, compaction work, or concrete pours shall take place without notifications of the consultant and his presence on the jobsite (where his presence is required). Any retesting required as a result of deficient initial tests shall be at the expense of the Contractor.

#### TIME

Add the following new subparagraph after 13.13.1:

- 13.14.1 Time is of the essence hereunder and in each Subcontract Agreement between the General Contractor and Subcontractor, and the above provisions shall be included in all subcontractors contracts.

#### LIQUIDATED DAMAGES

Add the following new subparagraphs after 13.14.1:

- 13.15.1        The Parties acknowledge that time is of the essence of this Agreement and that Owner will sustain damages as a result of Contractor's failure to achieve Substantial Completion due to Contractor's failure to timely perform any of its contractual obligations by the dates indicated herein, which damages include, but are not limited to, loss of revenue, service charges, interest charges, breaches of rental contracts, extraordinary vacancy expenses, utility charges, labor and employee expenses. Contractor does hereby agree, as a part consideration for the award of this Contract, to pay to the Owner, as liquidated damages and not as a penalty, liquidated damages in the amount of five thousand dollars (\$500) per calendar day beyond the dates set forth in the Agreement. The indicated amount is fixed and agreed on by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual value of the damages, some of which are indefinite and not susceptible of easy validation, which the Owner will sustain by failure of the Contractor to achieve Substantial Completion of the Work by the dates indicated. Said amount of damages is agreed to be a reasonable value which the Owner will sustain. The indicated amount shall be deducted from any monies due or that may become due to the Contractor, including retainage, and, if said monies are insufficient to cover said damages, then the Contractor shall pay the amount of the difference.
- 13.15.2        It is expressly understood and agreed by Owner and Contractor that the time contained in Contractor's Bid Proposal for completion of the project is fair and reasonable.
- 13.15.3        It is expressly understood and agreed by Owner and Contractor that in fixing completion date, the following factors among others have been taken into consideration.
- 13.15.4.1      The urgent need of the Owner to have the project completed by the time specified in order to fulfill its staffing and Tenant commitments.
- 13.15.4.2      The size design and location of the project including the quantity, quality and probable availability of labor and materials required for the construction of the project.
- 13.15.4.3      The average climatic range and customary weather conditions reasonably anticipatable for the time period of this agreement and the usual customs and practice prevailing in the construction industry in the area of the project.
- 13.15.4.4      The total dollar amount of this agreement.
- 13.15.5        Extension of Contract Time will be allowed when delays in the completion of

the project are due to general strikes, acts of God, the public enemy, acts of the Owner, unusual weather, or casualty beyond the control of the Contractor and not due to the fault or negligence of the Contractor or delays of subcontractor's or suppliers occasioned by any of the causes specified herein.

#### OWNER'S LENDER'S REQUIREMENTS

Add the following new subparagraphs after 13.15.5:

- 13.16.1 Contractor acknowledges that Owner intends to obtain construction financing through an institutional lender and that such lender shall be in a priority position as beneficiary under a Deed of Trust recorded against the property. Neither Contractor nor any of its subcontractors shall commence work or file any preliminary notices of rights to claim a lien until Contractor has been given a Notice to Proceed. Any prior rights or claim that Contractor may have by law due to Contractor's commencement of work or Notice of Award prior to recording of any Deed of Trust shall be assigned and subrogated to that institutional lender. Contractor agrees that Contractor's rights shall be subordinate thereto.
- 13.16.2 In the event Contractor or any of its subcontractors commences work, orders materials, or files any type of preliminary notice of a right to claim a lien prior to receipt of a Notice to Proceed, such entities shall within no more than twenty-four (24) hours of notice thereof, remove such a claim from the public record to ensure lenders first priority position. Contractor shall pay a sum of Two Thousand Dollars (\$2,000) per day for its or any of its subcontractors' failure to remove such claim within the time period indicated.
- 13.16.3 Contractor agrees to include the language in Sections 13.16.1. and 13.16.2 in all of its subcontracts or agreements for purchase of materials with all subcontractors and materials suppliers on this Project.
- 13.16.4 Contractor agrees to execute any assignment of contract requested by Owner's lender provided that such assignment requires lender to assume all obligations of the Owner under the Agreement including obligations for payment of Work performed.

#### **ARTICLE 14**

#### **TERMINATION OR SUSPENSION OF THE CONTRACT**

#### TERMINATION BY CONTRACTOR

Delete subparagraph 14.1.1.3 and substitute the following:

- 14.1.1.3            Because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents.

Delete subparagraph 14.1.1.4.

Delete paragraph 14.1.3 and substitute the following:

- 14.1.3            If one of the reasons described in Section 14.1.1 or 14.1.2 exists, Contractor may only terminate after giving written notice of the Owner is unable to satisfy or remove the cause for termination within seven (7) days after Contractor's notice of intent to terminate. Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, and costs incurred by reason of termination. Contractor shall perform all tasks described in Section 14.4.2 as a condition precedent to the receipt of payments to which Contractor is entitled.

#### SUSPENSION BY THE OWNER FOR CONVENIENCE

Add the following new subparagraphs after 14.3.2:

- 14.3.3            In the event of a suspension in the Work there shall be no adjustments to the cost thereof except to the extent that Contractor or Subcontractor can demonstrate that his costs have increased as a result of increases in the cost of materials from materials suppliers or actual increases of wage rates paid to laborers at the Project. Additional overhead may only be charged for Contractor's actual General Conditions variable costs, but in no case for more than thirty (30) days. No remobilization costs may be charged nor additional overhead costs by subcontractors. Contractor profit may only be added to approved additional costs.

#### TERMINATION BY THE OWNER FOR CONVENIENCE

Add the following new subparagraphs after 14.4.2.3:

- 14.4.2.4           obtain materials from Subcontractors and suppliers for which payment has been made and deliver them to the jobsite or such other location as designed by Owner. Also, move stockpiled materials at the site to locations within the building or other locations designated by Owner; and
- 14.4.2.5           where orders have been placed, determine to what extent and at what cost

the orders may be canceled. Provide such information to Owner so Owner can decide whether to cancel or accept delivery and make payment. Deliver all such materials to the jobsite or to other location designed by Owner.

Delete paragraph 14.4.3 and substitute the following:

- 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, , and reasonable demobilization costs directly related to such termination including direct and verifiable costs associated with the termination as described in detail in invoices and descriptions provided by Contractor and approved by Owner, but in no event shall Contractor be paid anticipated profit or overhead for Work not yet performed.

## **ARTICLE 15**

### **CLAIMS AND DISPUTES**

#### **CLAIMS FOR ADDITIONAL TIME**

Delete paragraph 15.1.5.2 and substitute the following:

- 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction. The following listing defines monthly anticipated adverse weather for the Contract period. Contractor's schedule must reflect these anticipated adverse weather delays in all weather-dependent activities.

#### **Monthly Anticipated Adverse Weather Calendar Days**

|      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|
| JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  | OCT  | NOV  | DEC  |
| (08) | (05) | (03) | (04) | (06) | (04) | (05) | (05) | (03) | (02) | (03) | (06) |

The schedule above will constitute the base line for monthly, or a portion thereof, weather time evaluations. Upon acknowledgement of the Notice to Proceed and continuing throughout the Contract, on a monthly basis, actual adverse weather days will be recorded on a calendar day basis including weekends. The term "actual adverse weather days" shall include days materially impacted by adverse weather. The number of actual adverse weather days shall be calculated chronologically from the first weather-dependent activity and agreed by both the Owner and Contractor. Once the number of actual adverse weather days anticipated in the schedule above has been exceeded, Owner will examine all actual adverse weather days to

determine whether Contractor is entitled to a time extension. These actual adverse weather days must prevent 50% or more of Contractor's work day, delay Work critical to timely completion of the Project, and be documented in Contractor quality control reports. Owner will convert any delays meeting these requirements to calendar days and reserve the right to use contingency specifically identified in the contract bid form for recovery of the schedule for weather delays submitted by the Contractor.

Add the following new subparagraphs after 15.1.5.2:

- 15.1.5.3 The Contractor shall take due note of the fact that his failure to place orders for specified equipment or material sufficiently in advance of his scheduled date of installation or submit shop drawings in a timely manner will not be considered by the Architect or Owner as valid reasons on which the Contractor may base his request for an extension of contract time, for any substitutes, or for any deviations from the drawings and/or specifications.
- 15.1.5.4 No additional time will be allowed as a result of adverse weather unless it can be demonstrated that the period of time where extraordinary conditions existed above the norm customarily occurring for the full period of time during which work was being performed.

#### CLAIMS FOR CONSEQUENTIAL DAMAGES

Add the following new subparagraphs after 15.1.5.4:

- 15.1.6 The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:
- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
  - .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

#### INITIAL DECISION

Change subparagraph 15.2.3 as follows:

After the last sentence, add "In the event Owner fails to authorize retention of such persons, the Initial Decision Maker shall render a decision based on his experience and belief, or advise the Parties he is unable to resolve the claim because he lacks sufficient information to evaluate the merits."

Delete paragraph 15.2.5 and substitute the following:

- 15.2.5            The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be binding on the Parties but if objections remain and the Parties are unwilling to accept the decision and otherwise unable to resolve the dispute, the claim shall be subject to the other remedies available herein.

Delete paragraph 15.2.6 and substitute the following:

- 15.2.6            Except as mutually determined otherwise by the Owner and Contractor, all claims, disputes and other matters in question between the Contractor and the Owner arising out of or relating to the Contract Documents or breach thereof, that cannot be mutually resolved between the Contractor and/or any of its Subcontractors and/or the Owner by a decision of the Architect, or mediation and ,except for claims which have been waived by the making or acceptance of final payment, shall be decided by the courts of law unless the Parties mutually agree to arbitration. Any demand for mediation must be made in writing within thirty (30) days after the date on which the Party making the demand receives the written opinion of the Architect. Failure to demand mediation within said thirty (30) days shall result in the Architect's decision becoming final and binding upon the Owner and Contractor.

Add the following new paragraph after 15.2.8:

- 15.2.9            Pending final resolution of any claims including legal proceedings, the Contractor shall carry on the Work and maintain its progress, and the Owner shall continue to make payments to the Contractor in accordance with the Contract Documents except for items specifically in dispute.

Change subparagraph 15.3.3 as follows:

After the last sentence, add "In the event the Parties are unable to agree on



the decision reached by mediation, a request for arbitration may be made within twenty-one (21) days thereafter. If the Parties do not mutually agree to arbitration within ten (10) days after a written request, then the dispute shall be decided by legal action and the courts of law.”

#### ARBITRATION

Delete paragraph 15.4.1 and substitute the following:

- 15.4.1 If the parties agree to arbitration as a method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation may be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A request for arbitration shall be made in writing, delivered to the other party to the Contract, and if consented to, filed with the person or entity administering the arbitration. The party requesting arbitration must assert in the request all Claims then known to that party on which arbitration is permitted. Unless the party to which the request is made consents within fifteen (15) days thereafter, the request shall be deemed denied.

Change subparagraph 15.4.1.1 as follows:

Delete each instance of “demand” and substitute “request”.

#### CONSOLIDATION OR JOINDER

Delete paragraph 15.4.4.3

#### LEGAL FEES

Add the following new paragraph after 15.4.4.2:

- 15.4.5 In the event of any litigation or proceeding between the parties hereto growing out of the Contract Documents, the prevailing party shall be reimbursed for all reasonable cost, including but not limited to, attorney’s fees.

END OF SECTION 00 73 00



## Computer Generated Data Use Agreement

|                        |                                    |
|------------------------|------------------------------------|
| Project:               | <b>Food Sciences Tenant Finish</b> |
| Project Number:        | 716-006-13                         |
| Recipient:             |                                    |
| Covered Computer Data: |                                    |
| Date:                  | Click to select date               |

**Company Name**, (hereinafter referred to as "Recipient") has requested the above-referenced computer generated data and media (hereinafter referred to as the "Files") for their use in preparing layout and fabrication drawings. The Clark Enersen Partners (hereinafter referred to as "Clark Enersen") hereby grants the Recipient a personal, nonassignable, nonexclusive and fully revocable license to use the Files. All right, title and interest in and to the Files is retained by Clark Enersen. The Recipient agrees that no copies of the Files shall be made unless prior approval is obtained from Clark Enersen.

The Files constitute the proprietary and confidential work product and trade secrets of Clark Enersen. Clark Enersen claims and reserves all rights and benefits afforded under federal copyright law, as well as any pertinent state and international law, in the Files generated for the above-referenced project (the "Project").

The Recipient recognizes the potential problems and opportunities for error in the use and processing of the Files. Clark Enersen makes no representation or warranty as to the accuracy, completeness, suitability, or performance of any Files provided, nor does Clark Enersen warrant or represent that the Files shall be free of computer viruses or other such corruption.

The Recipient acknowledges that any plans and specifications contained in the Files are subject to change and therefore agrees to confirm that conditions existing at the Project site conform to the Files provided. Clark Enersen shall have no obligation to provide updated or revised Files as they become available. The Recipient further accepts responsibility for all deviations between the Files provided, the final design of the Project, and existing field conditions.

The Recipient agrees to defend, indemnify and hold harmless Clark Enersen from any and all liability associated with the Recipient's use of the Files.

Execution of this agreement below indicates the Recipient's acceptance of these terms and conditions.

**Accepted By:**

---

*Signature*

---

*Date*

---

*Printed Name/Title*

---

*Company*

## **SECTION 01 25 00 - SUBSTITUTION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 01 21 00 "Allowances" for products selected under an allowance.
  - 2. Section 01 23 00 "Alternates" for products selected under an alternate.

#### **1.3 DEFINITIONS**

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.
  - 3. The following are not considered to be requests for substitutions:
    - a. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
    - b. Revisions to the Contract Documents requested by the Owner or Architect.
    - c. Specified options of products and construction methods included in the Contract Documents.
    - d. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### **1.4 ACTION SUBMITTALS**

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

- a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
  - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
  - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - h. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - i. Cost information, including a proposal of change, if any, in the Contract Sum.
  - j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fourteen (14) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - b. Substitution request is fully documented and properly submitted.
  - c. Requested substitution will not adversely affect Contractor's construction schedule.
  - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - e. Requested substitution is compatible with other portions of the Work.
  - f. Requested substitution has been coordinated with other portions of the Work.
  - g. Requested substitution provides specified warranty.
  - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within sixty (60) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  - b. Requested substitution does not require extensive revisions to the Contract Documents.
  - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - d. Requested substitution provides sustainable design characteristics that specified product provided.
  - e. Substitution request is fully documented and properly submitted.
  - f. Requested substitution will not adversely affect Contractor's construction schedule.
  - g. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - h. Requested substitution is compatible with other portions of the Work.
  - i. Requested substitution has been coordinated with other portions of the Work.
  - j. Requested substitution provides specified warranty.

- k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

**PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 25 00

## **SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### **1.3 MINOR CHANGES IN THE WORK**

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710 "Architect's Supplemental Instructions."

#### **1.4 PROPOSAL REQUESTS**

- A. Architect/Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum and/or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within fourteen (14) days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and The Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - e. Quotation Form: Use form acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Include costs of labor and supervision directly attributable to the change.
  - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
  - 7. Proposal Request Form: Use form acceptable to Architect.

#### 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 01 21 00 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 01 22 00 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

#### 1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.



- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 26 00

## **SECTION 01 29 00 - PAYMENT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

#### **1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### **1.4 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
  - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
  - 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
  - 5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract as described in Section 01 10 00 "Summary."

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:
  - a. Project name and location.
  - b. Name of Architect.
  - c. Architect's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
    - 1) Labor.
    - 2) Materials.
    - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five (5) percent of the Contract Sum.
  - a. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five (5) percent of the Contract Sum and subcontract amount.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.

10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703, as modified by Owner, as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
  1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.

- c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. Transmittal: Submit three (1) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt.. One copy shall include waivers of lien and similar attachments if required. Transmittal shall include PDF file of application for payment and Excel spreadsheet.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
  - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  - 2. When an application shows completion of an item, submit conditional final or full waivers.
  - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  - 4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  - 1. List of subcontractors.
  - 2. Schedule of values.
  - 3. Contractor's construction schedule (preliminary if not final).
  - 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
  - 5. Copies of building permits.
  - 6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  - 7. Certificates of insurance and insurance policies.
  - 8. Performance and payment bonds.
  - 9. Data needed to acquire Owner's insurance.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
  - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  - 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
  - 3. Occupancy permits and similar approvals.
  - 4. Application for reduction of retainage, and consent of surety.
  - 5. Advice on shifting insurance coverage.
  - 6. List of incomplete Work of Substantial Completion.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
  - 1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.
10. Completion of items specified for completion after Substantial Completion.
11. Proof that taxes, fees and similar obligations have been paid.
12. Removal of temporary facilities and services.
13. Removal of surplus materials, rubbish and similar elements.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 29 00

## **SECTION 01 33 00 - SUBMITTAL PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
  - 1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
  - 2. Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
  - 3. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 4. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 5. Section 01 79 00 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

#### **1.3 ACTION SUBMITTALS**

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
  - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

- a. Scheduled date for first submittal.
- b. Specification Section number and title.
- c. Submittal category: Action; informational.
- d. Name of subcontractor.
- e. Description of the Work covered.
- f. Scheduled date for Architect's final release or approval.
- g. Scheduled date of fabrication.
- h. Scheduled dates for purchasing.
- i. Scheduled dates for installation.
- j. Activity or event number.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Organize and submit by Specification Section number.
2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
3. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
4. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
5. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
  - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
2. Resubmittal Review: Allow 15 days for review of each resubmittal.

C. Electronic Submittals using Submittal Exchange:

1. General: Prepare submittals required by individual Specification Sections using any or all of the following options:
  - a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the Submittal Exchange website.
  - b. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.



2. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination with other parts of the work.
3. Contractor shall transmit each submittal to Architect using the Submittal Exchange website, [www.submittalexchange.com](http://www.submittalexchange.com).
  - a. Architect/Engineer review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.
  - b. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
- D. Options: Identify options requiring selection by Architect.
- E. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- F. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

## **PART 2 - PRODUCTS**

### **2.1 SUBMITTAL PROCEDURES**

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  1. Post electronic submittals as PDF electronic files directly to Submittal Exchange site specifically established for project.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

- B.      **Certificates and Certifications Submittals:** Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- a.      Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
  - b.      Provide a notarized statement on original paper copy certificates and certifications where indicated.
- C.      **Product Data:** Collect information into a single submittal for each element of construction and type of product or equipment.
- 1.      If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2.      Mark each copy of each submittal to show which products and options are applicable.
  - 3.      Include the following information, as applicable:
    - a.      Manufacturer's catalog cuts.
    - b.      Manufacturer's product specifications.
    - c.      Standard color charts.
    - d.      Statement of compliance with specified referenced standards.
    - e.      Testing by recognized testing agency.
    - f.      Application of testing agency labels and seals.
    - g.      Notation of coordination requirements.
    - h.      Availability and delivery time information.
  - 4.      For equipment, include the following in addition to the above, as applicable:
    - a.      Wiring diagrams showing factory-installed wiring.
    - b.      Printed performance curves.
    - c.      Operational range diagrams.
    - d.      Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  - 5.      Submit Product Data before or concurrent with Samples.
- D.      **Shop Drawings:** Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
- 1.      **Preparation:** Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a.      Identification of products.
    - b.      Schedules.
    - c.      Compliance with specified standards.
    - d.      Notation of coordination requirements.
    - e.      Notation of dimensions established by field measurement.
    - f.      Relationship and attachment to adjoining construction clearly indicated.
    - g.      Seal and signature of professional engineer if specified.
- E.      **Samples:** Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.
  3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated. Refer to individual sections for detailed requirements.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- F. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
- G. Coordination Drawing Submittals: Comply with requirements specified in Section 01 31 00 "Project Management and Coordination."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

## 2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data and other required submittals, submit certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

### **PART 3 - EXECUTION**

#### **3.1 CONTRACTOR'S REVIEW**

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### **3.2 ARCHITECT'S ACTION**

- A. Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- C. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 01 33 00

## **SECTION 01 73 00 - EXECUTION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Coordination of Owner-installed products.
  - 6. Progress cleaning.
  - 7. Starting and adjusting.
  - 8. Protection of installed construction.
- B. Related Requirements:
  - 1. Section 01 10 00 "Summary" for limits on use of Project site.
  - 2. Section 01 33 00 "Submittal Procedures" for submitting surveys.
  - 3. Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
  - 4. Section 02 41 19 "Selective Demolition" for demolition and removal of selected portions of the building.

#### **1.3 DEFINITIONS**

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Final Property Survey: Submit 1 copy including electronic files showing the Work performed and record survey data.

## 1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  - 2. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.



1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

2. Establish limits on use of Project site.
  3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  4. Inform installers of lines and levels to which they must comply.
  5. Check the location, level and plumb, of every major element as the Work progresses.
  6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
  7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

### 3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas. Coordinate with utility provider if utility is to be abandoned.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
  - b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning

materials that are not hazardous to health or property and that will not damage exposed surfaces.

- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls"
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.
- C. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.
- D. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

- E. Limiting Exposures: Supervise construction operations to assure that not part of the construction, completed or in progress is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to the following:
1. Excessive static or dynamic loading.
  2. Excessively high or low temperatures.
  3. Excessively high or low humidity.
  4. Water or ice.
  5. Solvents.
  6. Chemicals.
  7. Light.
  8. Puncture.
  9. Abrasion.
  10. Heavy traffic.
  11. Soiling, staining, corrosion.
  12. Rodent and insect infestation.
  13. Electrical current.
  14. Improper lubrication.
  15. Unusual wear or other misuse.
  16. Contact between incompatible materials.
  17. Misalignment.
  18. Excessive weathering.
  19. Unprotected storage.
  20. Improper shipping or handling.
  21. Theft.
  22. Vandalism.

END OF SECTION 01 73 00

## **SECTION 01 77 00 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 01 32 33 "Photographic Documentation" for submitting final completion construction photographic documentation.
  - 2. Section 01 73 00 "Execution" for progress cleaning of Project site.
  - 3. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 4. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 5. Section 01 79 00 "Demonstration and Training" for requirements for instructing Owner's personnel.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

#### **1.4 MAINTENANCE MATERIAL SUBMITTALS**

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.



## 1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. In the Application for Payment that first follows the date of Substantial Completion, show supporting documentation for completion and a statement showing an accounting of changes to the Contract Sum.
    - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  - 2. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 3. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
  - 4. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 5. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
  - 6. Submit test/adjust/balance records.
  - 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 3. Complete startup and testing of systems and equipment.
  - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
  - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
  - 6. Advise Owner of changeover in heat and other utilities.
  - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 9. Complete final cleaning requirements, including touchup painting.

10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.6 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Prepare and submit Final Owner Turn-over Documents, including complete Operations and Maintenance Manuals, Warranties and Record Documents.
  2. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
  3. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  4. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  5. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties as indicated in individual sections for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

- b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
  - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
  - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
  - e. Remove snow and ice to provide safe access to building.
  - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
  - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - h. Sweep concrete floors broom clean in unoccupied spaces.
  - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
  - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - k. Remove labels that are not permanent.
  - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
    - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
  - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - q. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 01 50 00 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls"

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
  - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

## **SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Product maintenance manuals.
  - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
  - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
    - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    - b. Enable inserted reviewer comments on draft submittals.

- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
  - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training. Provide PDF format of Final Manual in addition to bound copy.

## **PART 2 - PRODUCTS**

### **2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY**

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

### **2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS**

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Include the following information:
  - 1. Subject matter included in manual.

2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name and contact information for Contractor.
  6. Name and contact information for Construction Manager.
  7. Name and contact information for Architect.
  8. Name and contact information for Commissioning Authority.
  9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components



of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
  - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
  1. Type of emergency.
  2. Emergency instructions.
  3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
  1. Fire.
  2. Flood.
  3. Gas leak.
  4. Water leak.
  5. Power failure.
  6. Water outage.
  7. System, subsystem, or equipment failure.
  8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
  1. Instructions on stopping.
  2. Shutdown instructions for each type of emergency.
  3. Operating instructions for conditions outside normal operating limits.
  4. Required sequences for electric or electronic systems.
  5. Special operating instructions and procedures.

## 2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.5 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference

Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- C. Product Information: Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Color, pattern, and texture.
  - 4. Material and chemical composition.
  - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - 1. Inspection procedures.
  - 2. Types of cleaning agents to be used and methods of cleaning.
  - 3. List of cleaning agents and methods of cleaning detrimental to product.
  - 4. Schedule for routine cleaning and maintenance.
  - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

## 2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
  2. Troubleshooting guide.
  3. Precautions against improper maintenance.
  4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
  6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

### **PART 3 - EXECUTION**

#### **3.1 MANUAL PREPARATION**

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original project record documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared record Drawings in Section 01 78 39 "Project Record Documents."
- G. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

## SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
  - 2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Submit record documents to the Architect for the Owner's records within 30 calendar days of Substantial Completion, without any mitigating circumstances. Failure to submit all required documents listed herein within this timeframe shall result in the 5% project retainage being held until such time that documents are provided in their entirety.
- B. Record Drawings: Comply with the following:
  - a. Final Submittal:
    - 1) Submit one paper-copy set(s) of marked-up record prints.
      - a) Submit one clean, undamaged set of Contract Drawings and Shop Drawings with all Addendums and contract modifications posted.
    - 2) Submit record digital data files in PDF format.
- C. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- D. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- E. Record Samples: Meet at the site with the Architect and the Owner's personnel to determine which of the submitted samples are to be transmitted to the Owner for record purposes.

## **PART 2 - PRODUCTS**

### **2.1 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
    - e. Cross-reference record prints to corresponding archive photographic documentation.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark important additional information that was either shown schematically or omitted from original Drawings.
  5. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  - 5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file and paper copy.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file and paper copy.
  - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

## 2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file and paper copy.
  - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.



### **PART 3 - EXECUTION**

#### **3.1 RECORDING AND MAINTENANCE**

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
  
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.
  - 1. Record Documents will be reviewed for completeness, quarterly, by Owner and Architect

END OF SECTION 01 78 39

## **SECTION 01 79 00 - DEMONSTRATION AND TRAINING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training video recordings.

#### **1.3 INFORMATIONAL SUBMITTALS**

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.
- C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
  - 1. Identification: On each copy, provide an applied label with the following information:
    - a. Name of Project.
    - b. Name and address of videographer.
    - c. Name of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Date of video recording.
  - 2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to

corresponding training components. Include name of Project and date of video recording on each page.

3. At completion of training, submit complete training manual(s) for Owner's use in PDF electronic file format on compact disc.

## 1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  1. Inspect and discuss locations and other facilities required for instruction.
  2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  3. Review required content of instruction.
  4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

## 1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

## PART 2 - PRODUCTS

### 2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each

module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
  - a. System, subsystem, and equipment descriptions.
  - b. Performance and design criteria if Contractor is delegated design responsibility.
  - c. Operating standards.
  - d. Regulatory requirements.
  - e. Equipment function.
  - f. Operating characteristics.
  - g. Limiting conditions.
  - h. Performance curves.
2. Documentation: Review the following items in detail:
  - a. Emergency manuals.
  - b. Operations manuals.
  - c. Maintenance manuals.
  - d. Project record documents.
  - e. Identification systems.
  - f. Warranties and bonds.
  - g. Maintenance service agreements and similar continuing commitments.
3. Emergencies: Include the following, as applicable:
  - a. Instructions on meaning of warnings, trouble indications, and error messages.
  - b. Instructions on stopping.
  - c. Shutdown instructions for each type of emergency.
  - d. Operating instructions for conditions outside of normal operating limits.
  - e. Sequences for electric or electronic systems.
  - f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.

- d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

#### **3.2 INSTRUCTION**

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
  - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
  - 3. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner with at least seven days' advance notice.

- C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- D. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

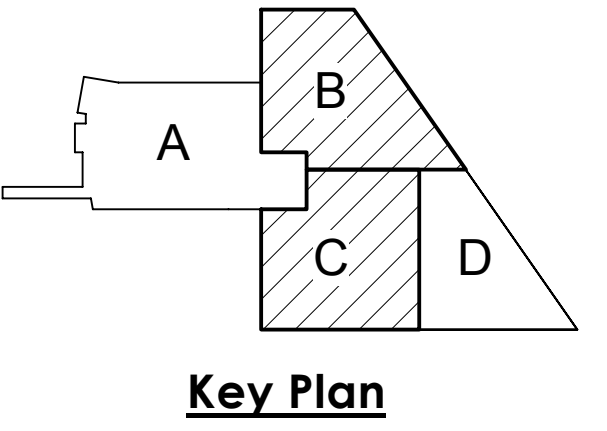
### 3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
  - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video: Provide minimum 640 x 480 video resolution converted to format file type acceptable to Owner, on electronic media.
  - 1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
  - 2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
  - 3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
  - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
    - a. Name of Contractor/Installer.
    - b. Business address.
    - c. Business phone number.
    - d. Point of contact.
    - e. E-mail address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
  - 1. Film training session(s) in segments not to exceed 15 minutes.
    - a. Produce segments to present a single significant piece of equipment per segment.
    - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
    - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 01 79 00

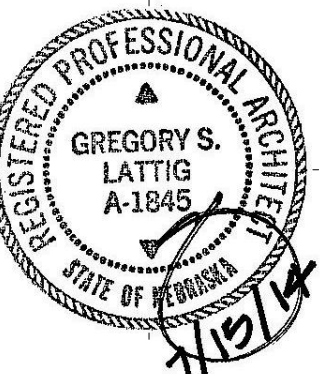




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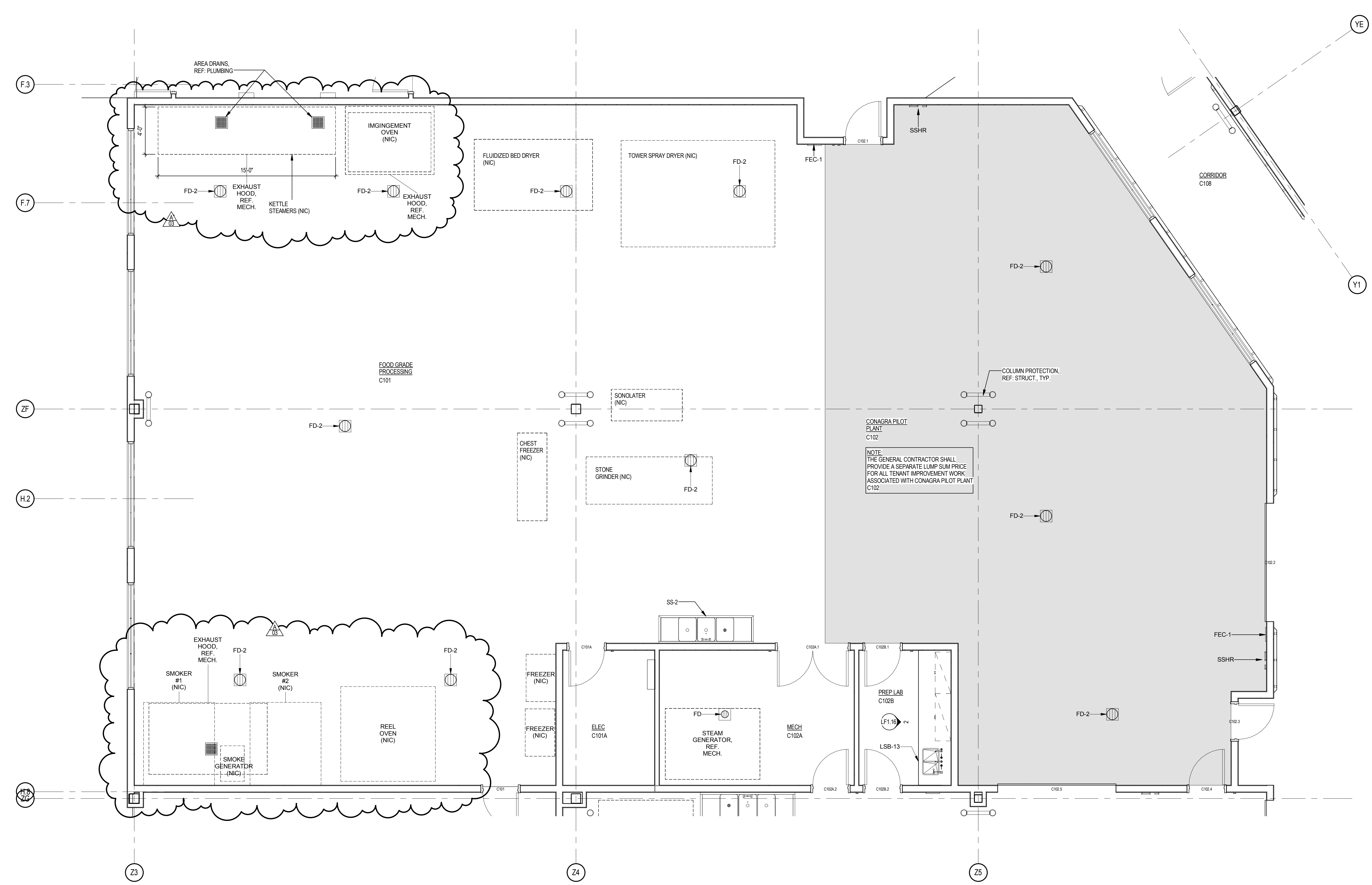
1910 N Antelope Valley  
Parkway  
Lincoln, Nebraska  
TCEP No.: 716-006-13

July 15, 2014

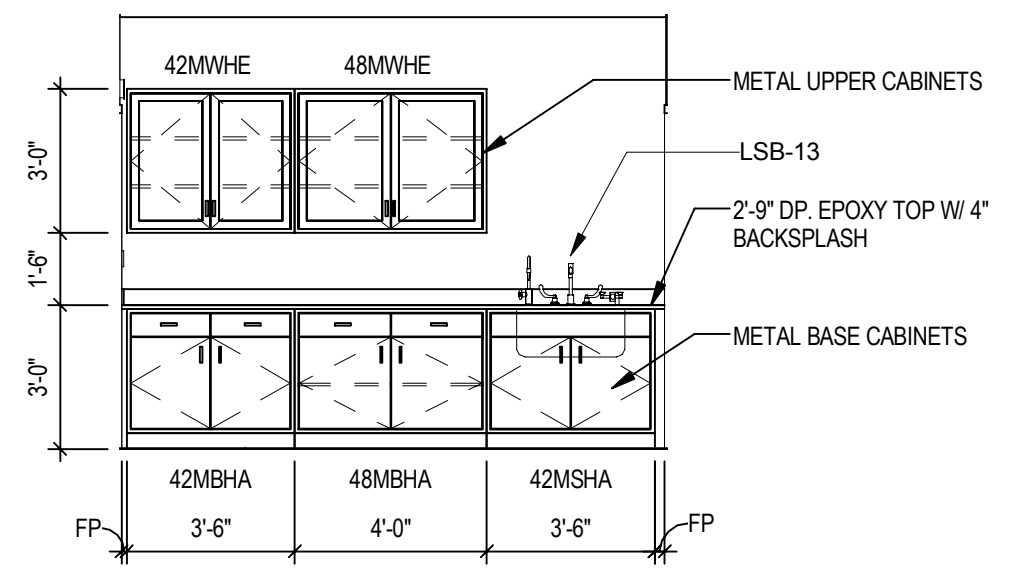


Enlarged Pilot Plant Floor  
Plan & Elevations

LF1.16



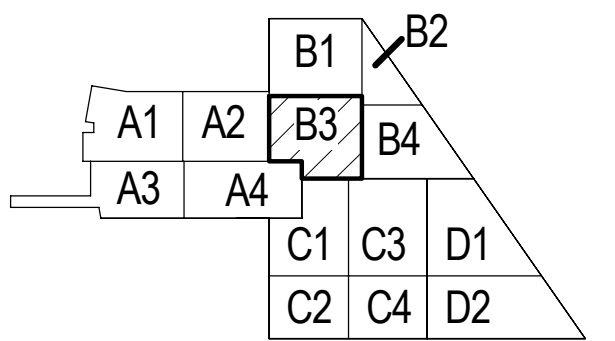
1 FOOD GRADE PROCESSING C101  
SCALE: 1/4" = 1'-0"



2 LAB ELEVATION  
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**SHEET HISTORY:**  
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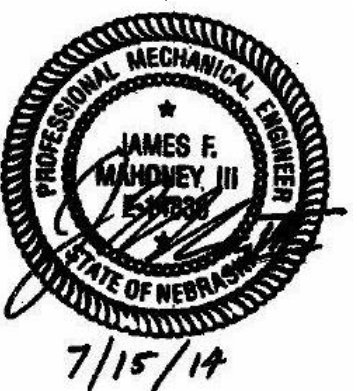


Key Plan

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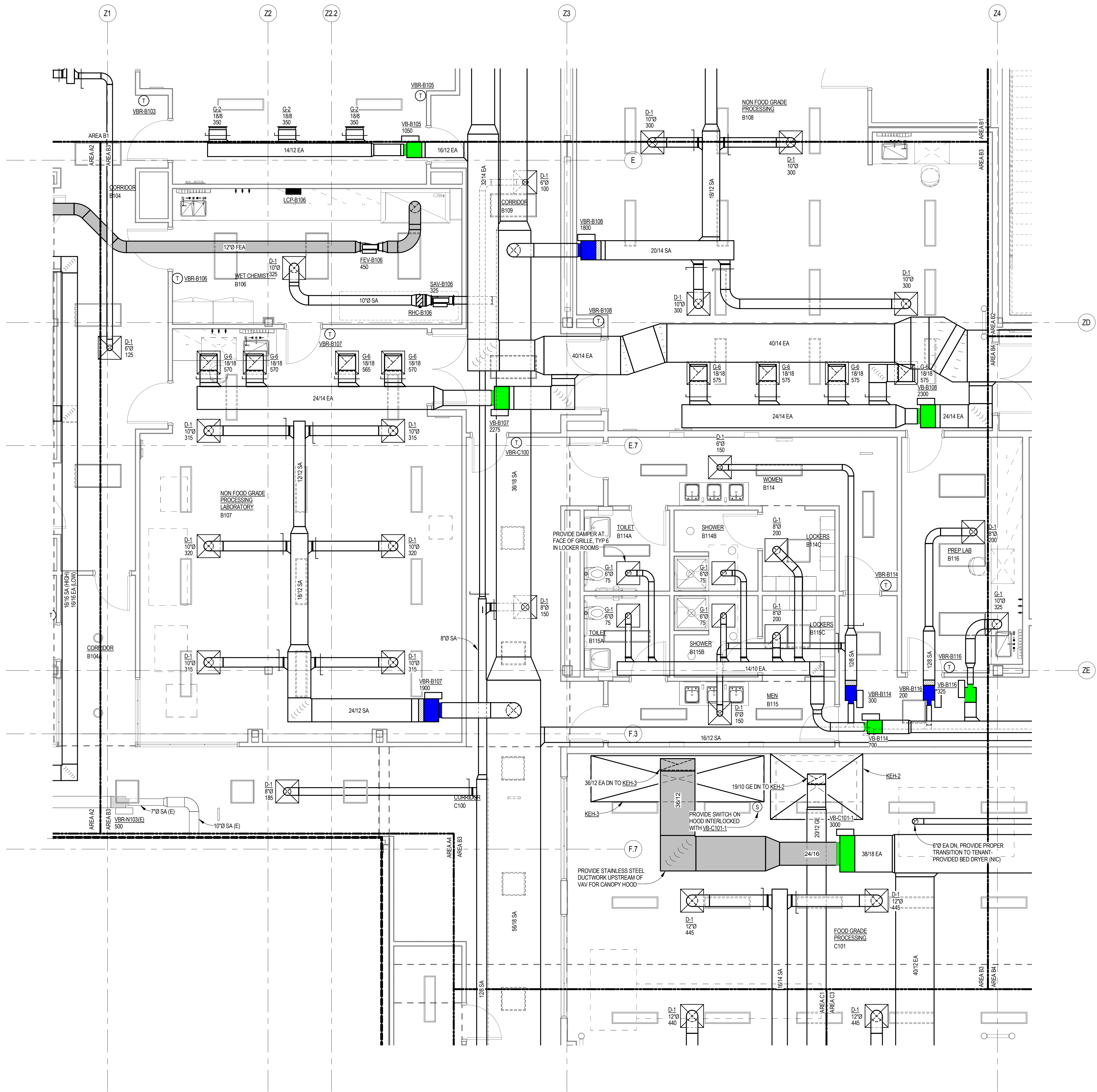
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July 15, 2014



First Floor HVAC Plan -  
Area B3

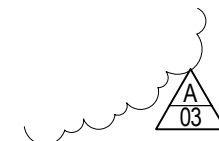
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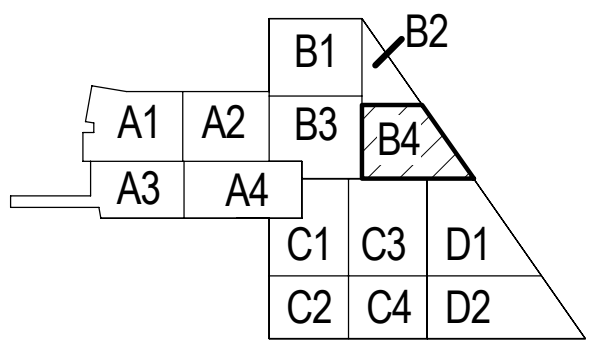
**FIRST FLOOR HVAC PLAN - AREA B3**  
SCALE: 1/4" = 1'-0"

**GENERAL NOTES:**

- ALL NEW MECHANICAL WORK IS SHOWN AS HEAVY LINEWEIGHT. MECHANICAL WORK TO REMAIN AS EXISTING IS SHOWN AS LIGHT LINEWEIGHT.
- ALL DUCTWORK SHOWN AS SHADED SHALL BE STAINLESS STEEL CONSTRUCTION.
- MAINTAIN A MINIMUM OF 18" CLEARANCE IN FRONT OF VAV CONTROLLERS.
- UNLESS OTHERWISE NOTED, NECK DIAMETER CALL-OUT OF SLOT DIFFUSERS SHALL BE OVAL AND SHALL BE FED BY AN 8" ROUND DUCT CONNECTION.
- UNLESS OTHERWISE NOTED, DUCTS FEEDING DIFFUSERS AND GRILLES SHALL MATCH THE NECK SIZE.
- UNLESS OTHERWISE NOTED, DUCTS FEEDING VAV BOX INLETS SHALL MATCH THE INLET SIZE.





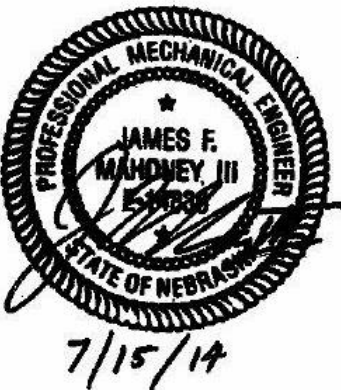


Key Plan

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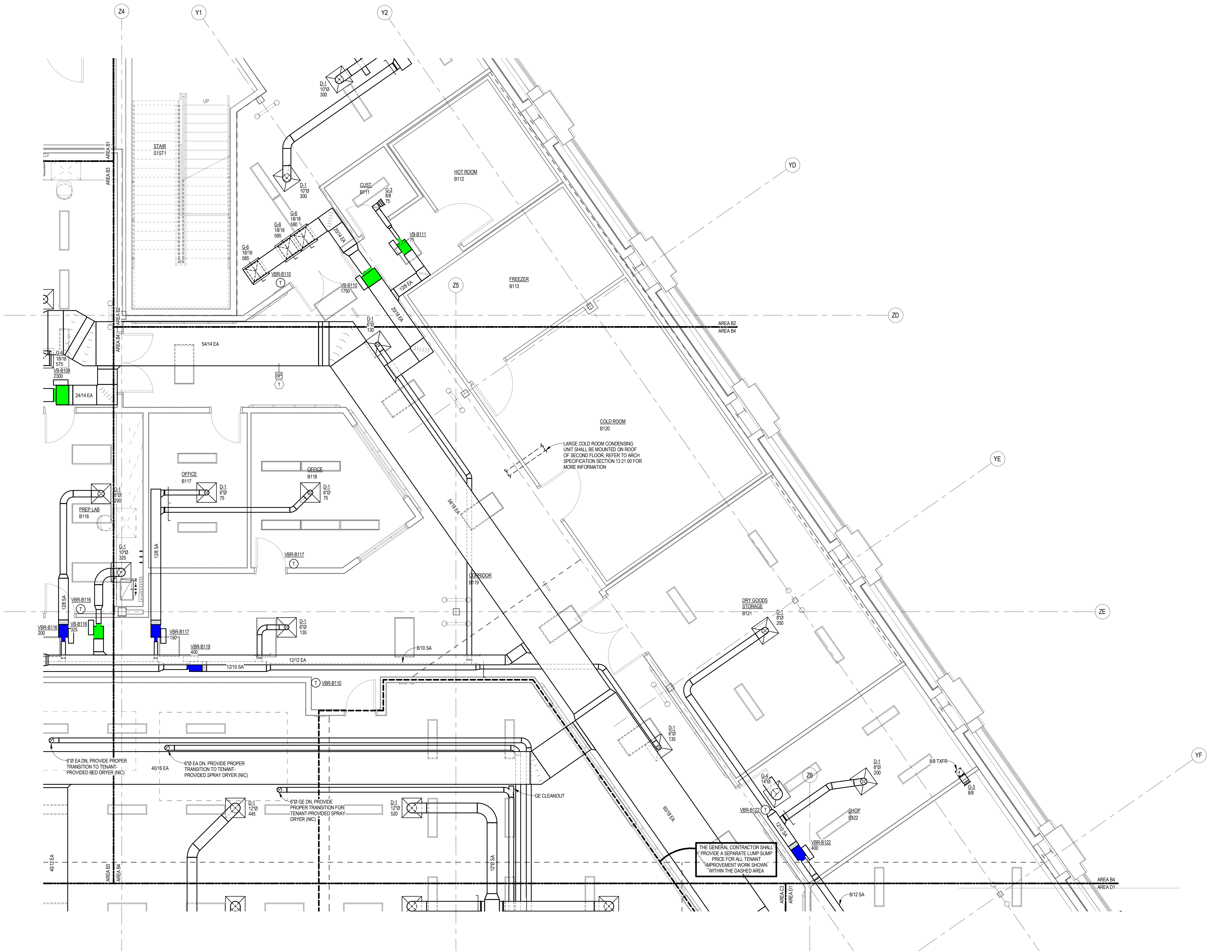
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July 15, 2014



First Floor HVAC Plan -  
Area B4

**M1.08**



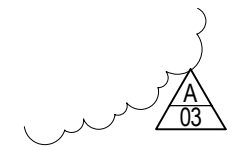
**FIRST FLOOR HVAC PLAN - AREA B4**  
SCALE: 1/4" = 1'-0"

**GENERAL NOTES:**

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**KEY NOTES:**

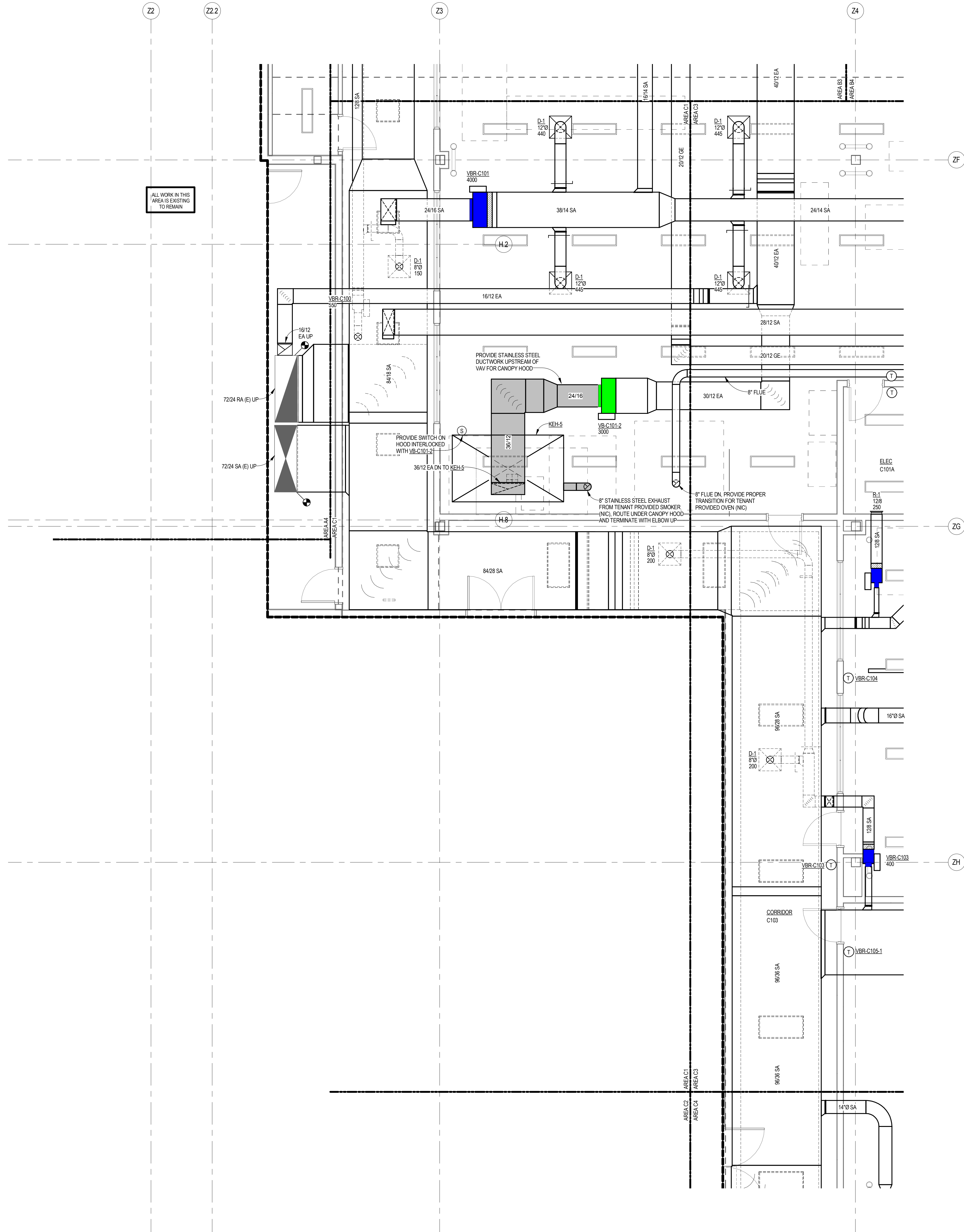
- EXHAUST AIR STATIC PRESSURE SENSOR LOCATION. SEE MECHANICAL CONTROLS ON THE SHELL PACKAGE FOR MORE INFORMATION.





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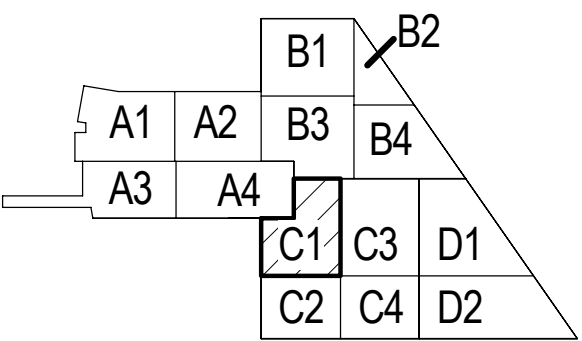
**FIRST FLOOR HVAC PLAN - AREA C1**  
SCALE: 1/4" = 1'-0"



**GENERAL NOTES:**

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| SHEET HISTORY: |               |                         |
|----------------|---------------|-------------------------|
| ISSUED         | July 15, 2014 | As Per Const. Documents |
| A - 03         | 08/01/2014    | Addendum #3             |

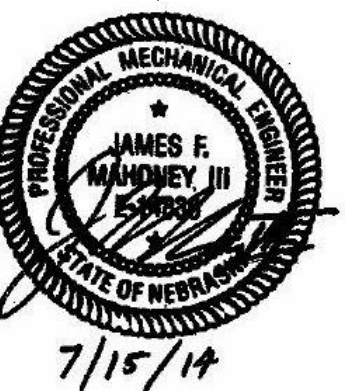


**Key Plan**

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Lincoln, Nebraska  
TCEP No.: 716-006-13

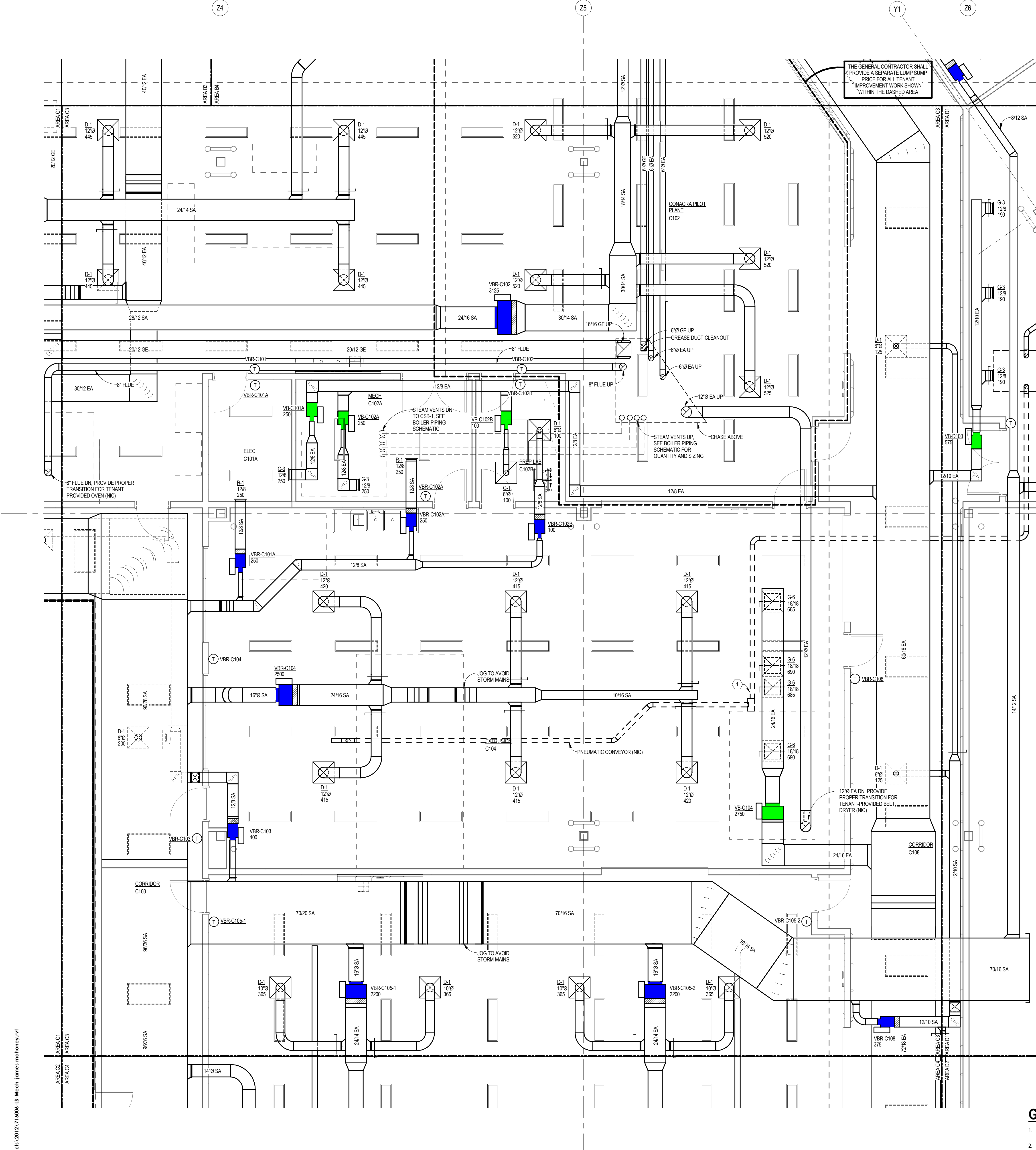
July 15, 2014



First Floor HVAC Plan -  
Area C1

**M1.09**





**FIRST FLOOR HVAC PLAN - AREA C3**  
SCALE: 1/4" = 1'-0"

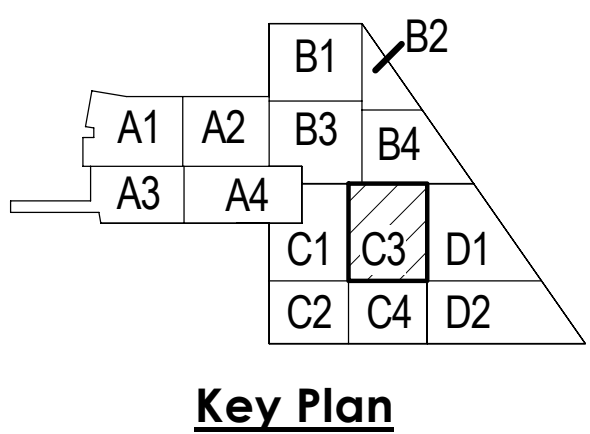
**GENERAL NOTES:**

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**KEY NOTES:**

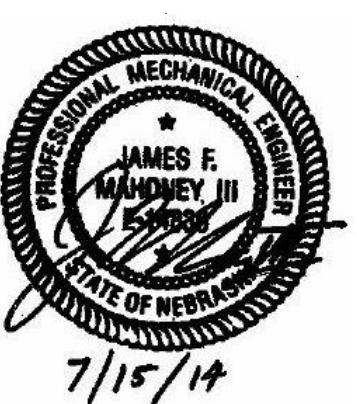
- ROUTE 2" Ø EA FROM BELT DRYER PNEUMATIC CONVEYOR TO EXHAUST FAN IN EQUIPMENT STORAGE ROOM, D110. CONFIRM CONNECTION SIZES AND PROPER TRANSITIONS WITH WENGER AND KICE, EQUIPMENT MANUFACTURERS, PRIOR TO INSTALLATION.

**SHEET HISTORY:**  
ISSUED July 15, 2014 As Per Const. Documents  
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July 15, 2014



First Floor HVAC Plan -  
Area C3

**M1.10**



AIR TERMINAL UNIT SCHEDULE

| MARK     | SERVES ROOMS                         | INLET SIZE (INCHES) | CURRENT MAXIMUM AIRFLOW (CFM) | CURRENT MINIMUM AIRFLOW (CFM) | UNIT AIR PD (IN. W.G.) | COIL AIRFLOW (CFM) | CAPACITY AT COIL AIRFLOW (MBH) | WATER FLOWRATE (GPM) | LEAVING WATER TEMP (DEG F) | COIL ROWS | FLUID PD PRESSURE DROP (FT. W.G.) | MANUFACTURER OR EQUIVALENT | REMARKS     |
|----------|--------------------------------------|---------------------|-------------------------------|-------------------------------|------------------------|--------------------|--------------------------------|----------------------|----------------------------|-----------|-----------------------------------|----------------------------|-------------|
| YB-A100  | STUDENT STUDY & INTERACTIVE AREA     | 10                  | 750                           | 500                           | 0.12                   | 500                | 9.8                            | 2.00                 | 120                        | 1         | 0.44                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A100A | GROUP STUDY                          | 5                   | 400                           | 300                           | 0.21                   | 300                | 5.4                            | 1.00                 | 119                        | 3         | 0.20                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A100A | GROUP STUDY                          | 5                   | 250                           | 90                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A100B | GROUP STUDY                          | 5                   | 250                           | 90                            | 0.21                   | 90                 | 5.4                            | 1.00                 | 119                        | 3         | 0.20                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A100B | GROUP STUDY                          | 5                   | 250                           | 90                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A100C | FOOD SCIENCE CLUB                    | 5                   | 250                           | 200                           | 0.21                   | 90                 | 5.4                            | 1.00                 | 119                        | 3         | 0.20                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A100C | FOOD SCIENCE CLUB                    | 5                   | 250                           | 90                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A100C | FOOD SCIENCE CLUB                    | 5                   | 250                           | 90                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A101  | CLINICAL INNOVATION SUITE            | 5                   | 250                           | 170                           | 0.15                   | 170                | 6.3                            | 1.00                 | 117                        | 2         | 0.13                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A101C | CONSULT                              | 4                   | 125                           | 45                            | 0.05                   | 45                 | 2.0                            | 1.00                 | 126                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A101C | CONSULT                              | 4                   | 125                           | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A101D | EXAM                                 | 5                   | 250                           | 200                           | 0.05                   | 200                | 4.5                            | 1.00                 | 121                        | 1         | 0.51                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A101D | EXAM                                 | 6                   | 275                           | 275                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A101F | CLINICAL LABORATORY                  | 10                  | 900                           | 230                           | 0.51                   | 230                | 13.3                           | 3.00                 | 121                        | 3         | 0.81                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A101F | CLINICAL LABORATORY                  | 10                  | 1025                          | 355                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A102  | SENSORY KITCHEN                      | 16                  | 1900                          | 650                           | 0.41                   | 650                | 31.6                           | 3.00                 | 109                        | 3         | 0.43                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A102  | SENSORY KITCHEN                      | 16                  | 2400                          | 1100                          | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A102A | DINING / MEETING ROOM                | 5                   | 225                           | 170                           | 0.07                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A102A | DINING / MEETING ROOM                | 4                   | 100                           | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A102B | MTGS AREA                            | 4                   | 125                           | 125                           | 0.05                   | 125                | 3.6                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A102C | SENSORY TESTING                      | 5                   | 250                           | 200                           | 0.08                   | 200                | 5.0                            | 1.00                 | 120                        | 1         | 0.51                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A102C | SENSORY TESTING                      | 4                   | 125                           | 125                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A104A | GLASSWARE WASH/STERIL                | 8                   | 600                           | 600                           | 0.33                   | 600                | 12.3                           | 1.00                 | 105                        | 2         | 0.18                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A104A | GLASSWARE WASH/STERIL                | 8                   | 600                           | 600                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A106  | FOOD PREPARATION & STORAGE           | 10                  | 975                           | 340                           | 0.58                   | 340                | 17.3                           | 3.00                 | 118                        | 3         | 0.81                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A106  | FOOD PREPARATION & STORAGE           | 12                  | 1100                          | 465                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A107  | FOOD GRADE INSTRUCTIONAL LABORATORY  | 16                  | 2500                          | 875                           | 0.45                   | 875                | 34.0                           | 6.00                 | 119                        | 2         | 0.44                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A107  | FOOD GRADE INSTRUCTIONAL LABORATORY  | 16                  | 2625                          | 1000                          | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A108  | FOOD GRADE ANALYTICAL LABORATORY     | 14                  | 1500                          | 725                           | 0.26                   | 725                | 26.1                           | 3.00                 | 112                        | 2         | 0.88                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A108  | FOOD GRADE ANALYTICAL LABORATORY     | 14                  | 1625                          | 650                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A110  | GRADUATE STUDENTS                    | 5                   | 200                           | 70                            | 0.05                   | 70                 | 2.6                            | 1.00                 | 125                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A110  | GRADUATE STUDENTS                    | 5                   | 200                           | 70                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A111  | PRODUCT DEVELOPMENT LABORATORY       | 16                  | 2300                          | 805                           | 0.39                   | 805                | 32.5                           | 6.00                 | 119                        | 2         | 0.44                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A111  | PRODUCT DEVELOPMENT LABORATORY       | 16                  | 2425                          | 900                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A120A | TISSUE CULTURE                       | 5                   | 200                           | 200                           | 0.05                   | 200                | 4.5                            | 1.00                 | 121                        | 1         | 0.51                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A200A | TISSUE CULTURE                       | 4                   | 75                            | 75                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A203A | TISSUE CULTURE                       | 4                   | 125                           | 125                           | 0.05                   | 125                | 3.6                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A203B | PROTEIN PURIFICATION                 | 4                   | 150                           | 120                           | 0.06                   | 120                | 3.5                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A203B | PROTEIN PURIFICATION                 | 4                   | 150                           | 120                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A204  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A204  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A205  | GLASSWARE WASHING & STERIL           | 9                   | 675                           | 675                           | 0.12                   | 675                | 11.8                           | 3.00                 | 122                        | 1         | 0.95                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A205  | GLASSWARE WASHING & STERIL           | 10                  | 800                           | 800                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A206  | OPTICAL ROOM                         | 5                   | 325                           | 500                           | 0.16                   | 190                | 4.4                            | 1.00                 | 121                        | 1         | 0.51                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A206  | OPTICAL ROOM                         | 5                   | 200                           | 65                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A207  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A207  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A208  | CYL. MANIFOLD                        | 4                   | 125                           | 125                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A209  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A209  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A211A | MILLING ROOM                         | 4                   | 125                           | 125                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A215  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A215  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A216  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A216  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A217  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A217  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A220  | GRADUATE STUDENTS                    | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A220  | GRADUATE STUDENTS                    | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A300C | TISSUE CULTURE                       | 5                   | 125                           | 125                           | 0.03                   | 125                | 3.6                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A300D | TISSUE CULTURE                       | 5                   | 125                           | 125                           | 0.03                   | 125                | 3.6                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A300E | PATHOGEN LABORATORY                  | 5                   | 200                           | 170                           | 0.05                   | 170                | 2.6                            | 1.00                 | 125                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A300E | PATHOGEN LABORATORY                  | 6                   | 325                           | 195                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A301A | MICRO.                               | 4                   | 125                           | 125                           | 0.05                   | 125                | 3.6                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A301A | MICRO.                               | 4                   | 125                           | 125                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A302  | MICROBIOLOGY SERVICE LABORATORY      | 14                  | 1400                          | 700                           | 0.24                   | 700                | 25.7                           | 3.00                 | 113                        | 2         | 0.88                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A302  | MICROBIOLOGY SERVICE LABORATORY      | 14                  | 1545                          | 625                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A303  | GRAD STUDENTS                        | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A303  | GRAD STUDENTS                        | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A304  | GRAD STUDENTS                        | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A304  | GRAD STUDENTS                        | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A305  | CYL. MANIFOLD                        | 4                   | 125                           | 125                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A307  | GRAD STUDENTS                        | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A307  | GRAD STUDENTS                        | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A310  | GLASSWARE WASHING & STER.            | 12                  | 1075                          | 1075                          | 0.27                   | 1075               | 24.7                           | 2.00                 | 105                        | 2         | 0.57                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A310  | GLASSWARE WASHING & STER.            | 12                  | 1200                          | 1200                          | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A311  | GRAD STUDENTS                        | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A311  | GRAD STUDENTS                        | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A312  | GRAD STUDENTS                        | 5                   | 200                           | 170                           | 0.05                   | 170                | 4.2                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A312  | GRAD STUDENTS                        | 4                   | 75                            | 45                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A313A | EQUIPMENT ROOM                       | 5                   | 175                           | 175                           | 0.04                   | 175                | 4.2                            | 1.00                 | 121                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A313A | EQUIPMENT ROOM                       | 5                   | 175                           | 175                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A314  | CYL. MANIFOLD                        | 4                   | 125                           | 125                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-A315  | GRAD STUDENTS                        | 4                   | 125                           | 125                           | 0.05                   | 125                | 3.6                            | 1.00                 | 123                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A320  | BIONFORMATICS                        | 7                   | 500                           | 175                           | 0.43                   | 175                | 9.8                            | 2.00                 | 120                        | 3         | 0.51                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-A320  | BIONFORMATICS                        | 7                   | 500                           | 175                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B101  | TRAINING ROOM                        | 7                   | 500                           | 175                           | 0.31                   | 175                | 7.6                            | 1.50                 | 120                        | 2         | 0.39                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B101  | TRAINING ROOM                        | 7                   | 375                           | 50                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B103  | CORRIDOR                             | 7                   | 500                           | 500                           | 0.31                   | 500                | 13.0                           | 1.50                 | 112                        | 2         | 0.39                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B105  | CONAGRA LABORATORY                   | 10                  | 800                           | 550                           | 0.28                   | 550                | 15.1                           | 1.50                 | 110                        | 2         | 0.27                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B105  | CONAGRA LABORATORY                   | 12                  | 1050                          | 800                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B107  | NON FOOD GRADE PROCESSING LABORATORY | 16                  | 1900                          | 760                           | 0.14                   | 760                | 17.0                           | 2.00                 | 113                        | 1         | 0.47                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B107  | NON FOOD GRADE PROCESSING LABORATORY | 16                  | 2275                          | 1135                          | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B108  | NON FOOD GRADE PROCESSING            | 14                  | 1800                          | 630                           | 0.18                   | 630                | 14.5                           | 2.00                 | 115                        | 1         | 0.44                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B108  | NON FOOD GRADE PROCESSING            | 16                  | 2300                          | 1130                          | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B110  | MILLING                              | 14                  | 1500                          | 525                           | 0.39                   | 525                | 27.5                           | 3.00                 | 112                        | 3         | 0.75                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B110  | MILLING                              | 14                  | 1750                          | 775                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B111  | CUSTODIAL STORAGE                    | 4                   | 75                            | 75                            | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B114  | LOCKERS                              | 6                   | 300                           | 300                           | 0.23                   | 300                | 8.3                            | 1.00                 | 113                        | 2         | 0.13                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B114  | LOCKERS                              | 9                   | 700                           | 700                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B115  | PREF LAB                             | 5                   | 200                           | 70                            | 0.05                   | 70                 | 2.6                            | 1.00                 | 125                        | 1         | 0.50                              | TITUS DESV                 | 1,2,3,4,5,6 |
| YB-B116  | PREF LAB                             | 6                   | 325                           | 155                           | -                      | -                  | -                              | -                    | -                          | -         | -                                 | TITUS DESV                 | 1,2,3,4     |
| YB-B117  | OFFICE                               | 4                   | 150                           | 150                           | 0.06                   | 150                | 3.9                            | 1.00                 | 122                        | 1         | 0.50                              | TITUS DESV                 |             |



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| DIFFUSER, REGISTER AND GRILLE SCHEDULE |                                                 |                        |              |                                       |                                                               |                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------|-------------------------------------------------|------------------------|--------------|---------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MARK                                   | TYPE                                            | MAX. P.D.<br>(IN. WG.) | MAX.<br>N.C. | MAXIMUM<br>CFM                        | MANUFACTURER AND<br>MODEL NUMBER                              | REMARKS                                                                                                                                                                                                                                                                                                                                                 |
| D-1                                    | SQUARE PLAQUE<br>CEILING DIFFUSER<br>ARCH. TYPE | 0.15                   | 25           | SEE PLANS<br>FOR CFM<br>AND NECK SIZE | TITUS OMN-AA OR<br>EQUIVALENT                                 | 24" X 24" FACE SIZE. ALL ALUMINUM CONSTRUCTION. WHITE FINISH.<br>PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION.                                                                                                                                                                                                                                           |
| D-2                                    | SLOT DIFFUSER                                   | 0.1                    | 30           | SEE PLANS<br>FOR CFM                  | TITUS MODEL ML-39<br>(2) 1" SLOTS<br>SEE PLANS FOR INLET SIZE | 4'-0" ONE-PIECE LENGTH. WITH END TO END ALIGNMENT FINIS. PROVIDE WITH PATTERN CONTROLLERS,<br>WHITE FINISH ON FACE WITH BLACK PATTERN CONTROLLERS. PROVIDE END BORDERS FOR END<br>DIFFUSERS. PROVIDE WITH INSULATED PLENUM.                                                                                                                             |
| D-3                                    | CRITICAL ENVIRONMENT<br>DIFFUSER                | 0.1                    | 25           | SEE PLANS<br>FOR CFM<br>AND NECK SIZE | TITUS MODEL TRITEC<br>OR EQUIVALENT                           | 24"x24" FACE SIZE. STEEL CONSTRUCTION. WHITE FINISH. REMOVABLE FACE. 51% FREE AREA WITH<br>3/16" DIAMETER HOLES ON 1/4" STAGGERED CENTERS. PROVIDE FACE WITH RETAINER CABLES.<br>FACE, LOWER AIR CHAMBER, DIRECTIONAL BLADES AND THE PRESSURE INDUCTION PLATE<br>SHALL BE ONE PIECE. POSITION DIFFUSER TO AVOID THROWING AIR TOWARD FUME HOODS OR BSCs. |
| D-4                                    | SQUARE PLAQUE<br>CEILING DIFFUSER<br>ARCH. TYPE | 0.15                   | 25           | SEE PLANS<br>FOR CFM<br>AND NECK SIZE | TITUS OMN-AA OR<br>EQUIVALENT                                 | 12" X 12" FACE SIZE. ALL ALUMINUM CONSTRUCTION. WHITE FINISH.<br>PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION.                                                                                                                                                                                                                                           |
| G-1                                    | SQUARE PLAQUE<br>CEILING GRILLE<br>ARCH. TYPE   | -0.15                  | 25           | SEE PLANS<br>FOR CFM<br>AND NECK SIZE | TITUS OMN-AA OR<br>EQUIVALENT                                 | 24" X 24" FACE SIZE. ALL ALUMINUM CONSTRUCTION. WHITE FINISH.<br>PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION.<br>PROVIDE DAMPER AT FACE OF GRILLE WHERE SHOWN ON PLAN.                                                                                                                                                                                  |
| G-2                                    | EGGGRATE FILTER<br>CEILING GRILLE               | -0.15                  | 25           | SEE PLANS<br>FOR CFM<br>12"x12" NECK  | TITUS 58FF OR<br>EQUIVALENT                                   | 12"x12" FACE. ALUMINUM CONSTRUCTION. 1/2"x1/2"x1/2" CORE. WHITE FINISH.<br>PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION.<br>PROVIDE 1" FILTER FRAME WITH THROWAWAY FILTER.                                                                                                                                                                               |
| G-3                                    | GRILLE                                          | -0.1                   | 25           | SEE PLANS<br>FOR SIZE                 | TITUS 359RL OR<br>EQUIVALENT                                  | 3/4" BLADE SPACING. SINGLE DEFLECTION. FRONT BLADES PARALLEL TO LONG DIMENSION.<br>AIRFOIL BLADES. ALUMINUM FINISH.                                                                                                                                                                                                                                     |
| G-4                                    | SQUARE PLAQUE<br>CEILING GRILLE<br>ARCH. TYPE   | -0.15                  | 25           | SEE PLANS<br>FOR CFM<br>AND NECK SIZE | TITUS OMN-AA OR<br>EQUIVALENT                                 | 24"x24" FACE. ALUMINUM CONSTRUCTION. WHITE FINISH.<br>PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION.<br>PROVIDE HARD 1/4" DUCTED ROUND BOOT.                                                                                                                                                                                                              |
| G-5                                    | SLOT RETURN PANEL                               | -0.1                   | 25           | SEE PLANS<br>FOR SIZE                 | TITUS MODEL MR-38<br>4 SLOTS                                  | BLACK PATTERN CONTROLLERS AND EXPOSED SURFACES.<br>WHITE PATTERN CONTROLLER.                                                                                                                                                                                                                                                                            |
| G-6                                    | PERFORATED<br>GRILLE                            | -0.1                   | 25           | SEE PLANS<br>FOR CFM<br>AND NECK SIZE | TITUS MODEL PAR-AA OR<br>EQUIVALENT                           | 24"x24" FACE. ALUMINUM CONSTRUCTION. FLUSH FACE. WHITE FINISH.<br>PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION.                                                                                                                                                                                                                                          |
| R-1                                    | REGISTER                                        | 0.15                   | 25           | SEE PLANS<br>FOR CFM AND<br>SIZE      | TITUS 272RL<br>OR EQUIVALENT                                  | 3/4" BLADE SPACING. DOUBLE DEFLECTION. FRONT BLADES PARALLEL TO LONG DIMENSION.<br>AIRFOIL BLADES. ALUMINUM FINISH. DAMPER AT FACE.                                                                                                                                                                                                                     |

#### STEAM SPECIALTIES SCHEDULE

| MARK   | FUNCTION                               | SERVES                          | OPERATING<br>CONDITIONS                                              | CAPACITY                                                                             | MANUFACTURER<br>OR EQUIVALENT | MODEL         | REMARKS |
|--------|----------------------------------------|---------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------|---------------|---------|
| SPRV-1 | CLEAN STEAM PRESSURE<br>REDUCING VALVE | STEAM SUPPLY                    | 125 PSIG INLET - 60 PSIG OUTLET,<br>+/- 1/2 PSIG REGULATION ACCURACY | 500 LBS/HR,<br>1/2" VALVE,<br>WITH MUFFLING ORIFICE                                  | ARMSTRONG                     | MODEL GP-2000 | 1       |
| SRV-1  | SAFETY<br>RELIEF VALVE                 | MEDIUM PRESSURE<br>STEAM SYSTEM | 60 PSIG SET PRESSURE                                                 | MINIMUM 1,404 LBS/HR<br>(90% RATED AT 10% OVER PRESSURE),<br>1" INLET, 1-1/4" OUTLET | KUNKLE                        | 6010FE        | 2       |
| T-1    | STEAM TRAP                             | STEAM DRIP LEGS                 | 70/125 PSIG STEAM,<br>65/120 PSIG DIFFERENTIAL. SEE PLANS            | INVERTED BUCKET TRAP                                                                 | ARMSTRONG                     | 800           | 3       |

#### REMARKS:

- CAST IRON BODY. STAINLESS STEEL STEM, DISC, SEAT, AND DIAPHRAGM. STEEL SPRING. SELF-OPERATED. EXTERNAL PILOT TYPE VALVE. RATED FOR 250 PSIG AT 450 DEG. F. PROVIDE MUFFLING ORIFICE.
- 2" 250-LB FLANGED INLET, 4" 125-LB FLANGED OUTLET. ASME SECTION VIII CERTIFIED. DUAL BLOWDOWN RING. OPEN LEVER ASSEMBLY. DRIP PAN ELBOW AT OUTLET.
- CAST IRON BODY, RATED FOR 250 PSIG AT 450 DEG. F. CONTINUOUS AIR VENTING AT STEAM TEMPERATURE. FREE-FLOATING STAINLESS STEEL MECHANISM. DISCHARGE ORIFICE AT TOP OF TRAP. THERMIC VENT BUCKET, 3/4" MIN. SIZE.

#### HYDRONIC SPECIALTIES SCHEDULE

| MARK | FUNCTION                 | SERVES                                    | OPERATING<br>CONDITIONS              | CAPACITY                  | MANUFACTURER<br>OR EQUIVALENT | MODEL                   | REMARKS |
|------|--------------------------|-------------------------------------------|--------------------------------------|---------------------------|-------------------------------|-------------------------|---------|
| PK-1 | COIL PIPE KIT<br>PACKAGE | UNIT HEATERS<br>VAV BOXES<br>REHEAT COILS | 80-130 DEG. F<br>AND<br>40-60 DEG. F | SEE DRAWINGS FOR MAX FLOW | NEXUS<br>WITH<br>DANFOSS      | CPP-NZY<br>WITH<br>ABCM | 5       |

#### REMARKS:

- SUPPLY SIDE-BRASS BALL VALVE. STAINLESS STEEL MESH FORGED BRASS BODY STRAINER. P&T PLUG AND UNION CONNECTION.  
RETURN SIDE-UNION COUPLING WITH MANUAL AIR VENT. PRESSURE INDEPENDENT MODULATING CONTROL VALVE. 2-P&T PLUG. BRASS BALL VALVE.  
FACTORY MOUNTED FULLY MODULATING ELECTRIC ACTUATOR SHALL BE COMPATIBLE WITH THE INSTALLED CONTROL SYSTEM. CONTROLS CONTRACTOR TO PROVIDE CONTROL VALVE AND ACTUATOR.

#### EXHAUST FAN SCHEDULE

| MARK  | SERVES                  | TYPE                       | CFM   | S.P. IN. WG. | DRIVE | RPM   | dBA | HP  | ELECTRICAL DATA |    |    | MANUFACTURER<br>AND MODEL NUMBER               | REMARKS                                                                                                                                                                                                                                                                        |
|-------|-------------------------|----------------------------|-------|--------------|-------|-------|-----|-----|-----------------|----|----|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                         |                            |       |              |       |       |     |     | V               | PH | HZ |                                                |                                                                                                                                                                                                                                                                                |
| KEF-1 | KITCHEN HOOD<br>EXHAUST | ROOF UPBLAST<br>GREASE     | 2,000 | 1.0          | BELT  | 1,524 | -   | 3/4 | 208             | 1  | 60 | GREENHECK MODEL K-CUBE-141-10<br>OR EQUIVALENT | PROVIDE GREASE TRAP. FAN SHALL BE HINGED AND<br>MOUNTED ON 21"Wx21"Lx24"H VENTED ROOF CURB<br>INTERLOCK FAN WITH MAU-1 AND SWITCH ON HOOD.                                                                                                                                     |
| KEF-2 | KITCHEN HOOD<br>EXHAUST | ROOF UPBLAST<br>GREASE     | 2,000 | 1.0          | BELT  | 1,524 | -   | 3/4 | 208             | 1  | 60 | GREENHECK MODEL K-CUBE-141-10<br>OR EQUIVALENT | PROVIDE GREASE TRAP. FAN SHALL BE HINGED AND<br>MOUNTED ON 21"Wx21"Lx24"H VENTED ROOF CURB<br>INTERLOCK FAN WITH SWITCH ON HOOD.                                                                                                                                               |
| EF-11 | GENERAL<br>EXHAUST      | ROOF UPBLAST<br>BELT DRIVE | 800   | 0.75         | BELT  | 1,492 | 56  | 1/4 | 120             | 1  | 60 | GREENHECK MODEL CUBE-101<br>OR EQUIVALENT      | PROVIDE WITH 18" ROOF CURB WITH 2" INSULATION MOTORIZED<br>DAMPER. DISCONNECT SWITCH.<br>ENERGY EFFICIENT INVERTER DUTY MOTOR.<br>PROVIDE SPARE SET OF BELTS AND EXTENDED LUBE<br>LINES FOR FAN MOTOR. HINGED BASE<br>INTERLOCK OPERATION WITH TENANT-PROVIDED BELT DRYER (NC) |

#### HYDRONIC UNIT HEATER SCHEDULE

| MARK | SERVES      | FAN<br>AIRFLOW<br>(CFM) | MOTOR<br>HP | MOTOR<br>RPM | COIL HEATING<br>CAPACITY<br>(MBH) | WATER<br>FLOWRATE<br>(GPM) | FLUID PRESSURE<br>DROP<br>(FT. W.G.) | ELECTRICAL<br>REQUIREMENTS<br>VOLTS/PH/Hz | MANUFACTURER AND<br>MODEL         | CONFIGURATION                           | REMARKS             |
|------|-------------|-------------------------|-------------|--------------|-----------------------------------|----------------------------|--------------------------------------|-------------------------------------------|-----------------------------------|-----------------------------------------|---------------------|
| UH-1 | SHELL SPACE | 1400                    | 1/12        | 1000         | 36.6                              | 6.00                       | 0.24                                 | 115 / 60 / 1                              | TRANE MODEL S-84<br>OR EQUIVALENT | PROPELLER UNIT HEATER<br>WITH FAN GUARD | 1, 2, 3, 4, 5, 6, 7 |

#### SCHEDULE NOTES AND REMARKS:

- PROVIDE ELECTRIC THERMOSTAT WITH MANUAL SETPOINT ADJUSTMENT
- PROVIDE DISCONNECT SWITCH
- PROVIDE FAN/OVER
- PROVIDE DISPOSABLE FILTER
- COPPER TUBING WITH ALUMINUM FINIS
- RATED FOR 200 PSIG
- PROVIDE UNIT MOUNTED THERMOSTAT.

#### DAMPER SCHEDULE

| MARK  | FUNCTION          | OPERATING<br>CONDITIONS | SIZE                | AIRFLOW<br>(CFM) | VELOCITY<br>(FPM) | MOUNTING<br>POSITION    | BLADE STYLE | FRAME CONSTRUCTION                       | BLADE CONSTRUCTION                            | LEAKAGE<br>(@ 1" WG PD) | BLADE<br>SEALS | EDGE | BEARINGS | ACTUATOR | MANUF. OR<br>EQUIVALENT | MODEL   | REMARKS       |
|-------|-------------------|-------------------------|---------------------|------------------|-------------------|-------------------------|-------------|------------------------------------------|-----------------------------------------------|-------------------------|----------------|------|----------|----------|-------------------------|---------|---------------|
| FSD-1 | FIRE/SMOKE DAMPER | SEE PLANS               | SQUARE<br>SEE PLANS | SEE PLANS        | SEE PLANS         | VERTICAL/<br>HORIZONTAL | PARALLEL    | 5" x 16-GA GALVANIZED HAT-SHAPED CHANNEL | 6" WIDE, 14-GA GALVANIZED STEEL AIRFOIL SHAPE | 4 CFM / S.F.            | SILICONE       | SS   | SS       | 1        | RUSKIN                  | FSD-40  | 1,2,3,4,5,6,7 |
| FSD-2 | FIRE/SMOKE DAMPER | SEE PLANS               | ROUND<br>SEE PLANS  | SEE PLANS        | SEE PLANS         | VERTICAL/<br>HORIZONTAL | PARALLEL    | 20-GA GALVANIZED STEEL                   | TWO-PIECE 14-GA GALVANIZED STEEL              | 4 CFM / S.F.            | SILICONE       | SS   | SS       | 1        | RUSKIN                  | FSDR-25 | 1,2,3,4,5,6,7 |

#### ACTUATOR

- 120-VOLT, 2-POSITION, 300 DEG. F UL555S RATED, FACTORY-PROVIDED. NORMALLY CLOSED. PROVIDE WITH FACTORY HEAT DETECTION DEVICE SYSTEM THAT ACTIVATES AT 165 DEG. F. RUSKIN EFL OR EQUIVALENT.  
WITH AUTOMATIC RESET AFTER TEST, SMOKE DETECTION OR POWER FAILURE. AFTER EXPOSURE TO ELEVATED TEMPERATURE, THE DAMPER SHALL BE RESET MANUALLY.

#### REMARKS

- CONTROLS SHALL INTERFACE WITH THE FIRE ALARM SYSTEM PROVIDED BY THE DIV. 16 CONTRACTOR.
- FIELD VERIFY DUCT SIZE PRIOR TO ORDERING AS ACTUAL DUCT SIZE MAY VARY DUE TO FABRICATION.
- SMOKE DETECTOR PROVIDED BY FIRE ALARM CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF FIRE DETECTOR WITH FIRE ALARM CONTRACTOR.
- DAMPER TO MEET THE REQUIREMENTS OF UL555S AND UL555S.
- PROVIDE RUSKIN SP100 SWITCH PACKAGE (OR EQUIVALENT) TO REMOTELY INDICATE DAMPER BLADE POSITION.
- CONTRACTOR SHALL PROPERLY LABEL ALL COMBINATION FIRE/SMOKE AND SMOKE DAMPERS PER CODE REQUIREMENTS.
- SUBMIT AMCA-CERTIFIED PERFORMANCE.

#### KITCHEN HOOD SCHEDULE



| MARK  | SERVES       | TYPE                 | TYPE | DIMENSIONS |       |        | EXHAUST OPERATING CONDITIONS |           |                    | MAKEUP AIR OPERATING CONDITIONS |            |                                     | FILTER TYPE | MOUNTING HEIGHT<br>ABOVE FINISH FLOOR | CLG HEIGHT | MFR. OR APPROVED<br>EQUIVALENT | MODEL | REMARKS                |
|-------|--------------|----------------------|------|------------|-------|--------|------------------------------|-----------|--------------------|---------------------------------|------------|-------------------------------------|-------------|---------------------------------------|------------|--------------------------------|-------|------------------------|
|       |              |                      |      | LENGTH     | WIDTH | HEIGHT | CFM                          | SP        | DUCT<br>CONNECTION | CFM                             | SP         | AIR CURTAIN SUPPLY<br>DUCT CONNECT. |             |                                       |            |                                |       |                        |
| KEH-1 | KITCHEN HOOD | TYPE I, GREASE HOOD  | 96"  | 51"        | 24"   | 2,000  | 0.691                        | 19" x 10" | 1,000              | 0.055                           | 108" x 14" | (2) 10" X 10"                       | SS FILTER   | 6'-8"                                 | 12'-0"     | GREENHECK                      | GXEW  | 1, 2, 3, 4, 5, 6 & 14  |
| KEH-2 | KITCHEN HOOD | TYPE II, GREASE HOOD | 90"  | 69"        | 24"   | 2,000  | 0.663                        | 19" x 10" | N/A                | N/A                             | N/A        | N/A                                 | SS FILTER   | 6'-8"                                 | 14'-6"     | GREENHECK                      | GXEW  | 1, 2, 3, 5, 6, 14 & 15 |
| KEH-3 | KITCHEN HOOD | TYPE II, GREASE HOOD | 180" | 48"        | 24"   | 3,000  | 0.12                         | 35" x 12" | N/A                | N/A                             | N/A        | N/A                                 | N/A         | 6'-8"                                 | 14'-6"     | GREENHECK                      | GD2   | 15                     |
| KEH-4 | KITCHEN HOOD | TYPE II, GREASE HOOD | 120" | 72"        | 24"   | 3,000  | 0.12                         | 35" x 12" | N/A                | N/A                             | N/A        | N/A                                 | N/A         | 6'-8"                                 | 14'-6"     | GREENHECK                      | GD2   | 15                     |

#### REMARKS:

- EXHAUST FAN FOR EACH HOOD SHALL BE PROVIDED BY THE SAME VENDOR AS THE KITCHEN HOOD SUPPLIER. EXHAUST FAN SHALL MATCH THE PERFORMANCE OF THE SUBMITTED HOOD
- PRIOR TO ORDERING, THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXHAUST HOOD DUCT CONNECTION IN RELATIONSHIP WITH THE EXISTING ROOF STRUCTURE.
- HOOD IS TO BE PROVIDED WITH FACTORY INSTALLED AND PIPED ANSUL FIRE SUPPRESSION SYSTEM PER NFPA AND ALL NECESSARY ACCESSORIES
- KITCHEN HOOD SHALL BE PAIRED WITH EXHAUST FAN KEF-1 AND MAU-1.
- HOOD TO BE PROVIDED WITH END UTILITY CABINET TO HOUSE FIRE SUPPRESSION SYSTEM
- FAN AND LIGHT SWITCH ARE TO BE LOCATED ON HOOD
- PROVIDE WITH FUEL GAS SHUTOFF DEVICE TO ACTIVATE UPON SUPPRESSION SYSTEM DISCHARGE
- HOOD TO INCLUDE FIRE ALARM INTERFACE TO ENUNCIATE A FIRE ALARM, ACTIVATED UPON SUPPRESSION SYSTEM DISCHARGE
- HOOD SHALL INCLUDE INTERNAL AUDIBLE BUZZER TO ACTIVATE UPON SYSTEM DISCHARGE
- HOOD SHALL INCLUDE PREINSTALLED AUTOMATIC FIRE SUPPRESSION SYSTEM. SUPPRESSION ACTIVATION SHALL BE BY FAST RESPONSE FUSIBLE LINKS
- EXTINGUISHING AGENT SHALL BE WET CHEMICAL POTASSIUM CITRATE OR POTASSIUM ACETATE SOLUTION IN A PRESSURIZED CYLINDER
- HOOD SHALL HAVE A VARIABLE SPEED FAN
- HOOD TO BE WALL MOUNTED. PROVIDE ALL NECESSARY MOUNTING ACCESSORIES
- PROVIDE GAS SOLENOID VALVE AND EMERGENCY GAS SHUT OFF TO BE INCLUDED BY THE EXHAUST HOOD MANUFACTURER
- KITCHEN HOOD SHALL BE PAIRED WITH EXHAUST FAN KEF-2
- 16 GAUGE STAINLESS STEEL #4 FINISH WITH CONDENSATE GUTTER, BAFFLES, AND DRAIN. MOUNT TOGGLE SWITCH ON HOOD TO CONTROL MINIMUM MAXIMUM FLOW. INTERLOCK WITH ASSOCIATED VAV BOX.

#### MAKEUP AIR UNIT SCHEDULE

| MARK  | MANUFACTURER | MODEL       | UNIT TYPE                | SUPPLY FAN |          |          |     | HEATING COIL |         |         |                   | COOLING COIL  |                  |                |                      | ELECTRICAL | NOTES   |                         |
|-------|--------------|-------------|--------------------------|------------|----------|----------|-----|--------------|---------|---------|-------------------|---------------|------------------|----------------|----------------------|------------|---------|-------------------------|
|       |              |             |                          | CFM        | ESP (IN) | TSP (IN) | HP  | FRPM         | MTR PWR | MTR RPM | MIN. OUTPUT (MBH) | MIN. EFF. (%) | EAT /LAT (DEG F) | GAS VALVE TYPE | TOTAL CAPACITY (MBH) |            |         | SENSIBLE CAPACITY (MBH) |
| MAU-1 | GREENHECK    | GD2-109-H12 | DIRECT GAS / PACKAGED DX | 2000       | 0.50     | 1.34     | 1.5 | 1355         | 1.06    | 1725    | 162.9             | 82            | -5 / 70          | MODULATING     | 83.4                 | 49.3       | 2086603 | 1,2,3,4,5,6,7,8,9,10    |

#### NOTES:

- AC INTERLOCK RELAY, 24 VAC COIL
- PROVIDE INLET PRESSURE GAUGE, RATED FROM 0-30"
- PROVIDE MANFOLD PRESSURE GAUGE RATED FROM 5 TO 15" W.C.
- PROVIDE MOTORIZED BACKDRIFT DAMPER AND FREEZE STAT
- PROVIDE MINIMUM 25.5" W x 121" x 14" INSULATED ROOF CURB PER MANUFACTURER'S RECOMMENDATION
- INTERLOCK MAU-1 WITH KEF-1.
- SPECIFIED FAN TSP INCLUDES LOSSES FOR DIRTY FILTERS
- DESIGN UNIT FOR NATURAL GAS AT 160 BTU/CT AT A GAS SUPPLY PRESSURE OF 7-10" W.C.
- PROVIDE FACTORY MOUNTED STARTER AND DISCONNECT SWITCH
- PROVIDE SINGLE POINT ELECTRICAL CONNECTION

#### SNORKEL HOOD SCHEDULE

| MARK | FUNCTION     | HOOD | MANUFACTURER AND MODEL                                                                                                                                                                       |
|------|--------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SN-1 | SNORKEL HOOD |      | NEDERMAN MODEL FX, 2" DIAMETER ARM WITH 60"<br>TOTAL REACH (MODEL 70510544), 2" NOZZLE.<br>POWDER COATED WALL BRACKET. CONNECTION DIRECTLY TO<br>THE ARM SWIVEL ASSEMBLY. NO MANUAL SHUTOFF. |

#### CLEAN STEAM BOILER SKID SCHEDULE

|                                                                                                                                                                |                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| EQUIPMENT MARK:<br>MANUFACTURER:                                                                                                                               | CSB-1<br>FULTON OR APPROVED EQUIVALENT                                                   |
| SINGLE POINT CONNECTIONS:<br>Steam Connection:<br>Make-Up Water Connection:<br>Drain Connection:<br>Electrical Connection:<br>Maximum Overall Skid Dimensions: | 1-1/4" NPT<br>1/2" NPT<br>3" NPT<br>189 A at 460V / 3PH / 60Hz<br>102" L x 78" W x 50" T |

#### General Skid Remarks:

- ALL SCHEDULED COMPONENTS SHALL COME PRE-PACKAGED ON A SINGLE SKID.
- PROVIDE SINGLE POINT CONNECTIONS AS LISTED ABOVE.

#### ELECTRIC STEAM BOILER

|                                                                     |                                                        |
|---------------------------------------------------------------------|--------------------------------------------------------|
| Model:<br>Minimum Output (b/hr):<br>Horsepower (HP):<br>Electrical: | FB-150L<br>511.0<br>15.3<br>50 KW at 460V / 3PH / 60Hz |
|---------------------------------------------------------------------|--------------------------------------------------------|

#### Electric Steam Boiler Remarks:

- 316 STAINLESS STEEL CONSTRUCTION WITH PASSIVATED ELEMENTS.
- CONSTRUCTED TO ASME SECTION I BOILER CODE
- 150 PSIG MAMP
- TRIMMED TO 150 PSIG. DESIGNED FOR 125 PSIG OPERATING PRESSURE.
- PROVIDE WITH NEMA 1 CONTROL PANEL AT 460/60
- PROVIDE WITH 120/160 STEP-DOWN TRANSFORMER FOR CONTROLS
- BOILER TRIM SHALL INCLUDE THE FOLLOWING: ASME CERTIFICATION, FULLY INSULATED VESSEL, FLOAT TYPE WATER LEVEL CONTROLS  
AND GAUGE GLASS ASSEMBLY, COMPLETE WITH SIGHT GLASS DRAIN, SAMPLE VALVE, AND STEAM PRESSURE TEST VALVE.  
PRIMARY LOW WATER CUTOFF WITH AUTO RESET. SECONDARY LOW WATER CUTOFF WITH MANUAL RESET.  
HIGH LIMIT AND OPERATING PRESSURE CONTROLS. LOW WATER LIGHT AND DOOR MOUNTED RESET.  
SURFACE BLOWDOWN DISRUPTER AND VALVE. FEEDWATER STOP AND CHECK VALVES.  
ASME SAFETY RELIEF VALVE. STEAM STOP VALVE. FUSED DISCONNECT.  
3 PHASE PUMP MOTOR STARTER IN BOILER PANEL IOM

#### CONDENSATE RETURN / FEEDWATER TANK

|                                                                                                                                                                                             |                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Model:<br>Tank Orientation:<br>Full Capacity (gallons):<br>Vent/Return Connection:<br>Drain Connection:<br>Pump Outlet Connection:<br>Water Inlet Connection:<br>Overflow Opening:<br>Pump: | HT-20<br>Horizontal<br>40<br>1-1/4"<br>1/2"<br>1"<br>1/2"<br>1"<br>Vertical Multistage 3/4 HP at 460V / 3PH / 60Hz |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|

#### Condensate Return / Feedwater Tank Remarks:

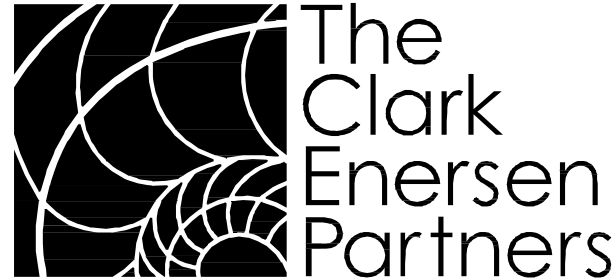
- TANK TRIM SHALL INCLUDE THE FOLLOWING: ADJUSTABLE FLOAT VALVE FOR WATER LEVEL CONTROL.  
SUCTION ISOLATION VALVE, FLEXIBLE VIBRATION ISOLATOR AND STRAINER.  
CONNECTIONS FOR CONDENSATE RETURN, VENT, WATER MAKE-UP AND PUMP DISCHARGE.  
SIGHT GLASS WITH ISOLATION VALVES AND PROTECTOR RODS. STAINLESS STEEL TANK.  
ELECTRIC PREHEAT. ALL WETTED PARTS STAINLESS STEEL.

#### BLOWOFF SEPARATOR

|                                                                                                                                    |                                                   |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Model:<br>Full Capacity (gallons):<br>Vent/Return Connection:<br>Drain Connection:<br>Water Inlet Connection:<br>Inlet Connection: | F-20<br>17.4<br>3"<br>1-1/2"<br>1"<br>3"<br>1.25" |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|

#### Blowoff Separator Remarks:

- SEPARATOR TRIM SHALL INCLUDE THE FOLLOWING: ASME STAMPED AT 75 PSIG. BAFFLE PLATE DESIGN  
TO ABSORB STEAM FLASH AND PRESSURE. LARGE STEAM VENT OPENING. 3/4" HAND HOLE FOR CLEANOUT AND INSPECTION.  
CARBON STEEL CONSTRUCTION. SELF-ACTUATED COOLING KIT.



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#### REVISIONS

ISSUED 07/15/2014 AS PER CONSTRUCTION DOCUMENTS

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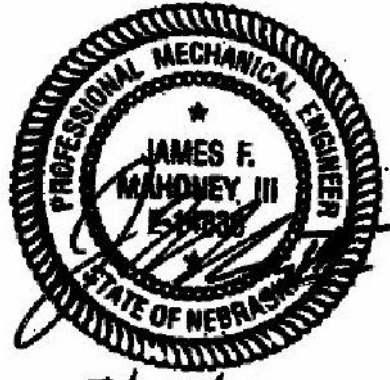
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TCEP No.: 716-006-13

July 15, 2014



Mechanical Schedules

M6.02





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## P1.14



- ### KEY NOTES:

- CUP SINK - 1/2" LHW, 1/2" LHW, 1-1/2" AW, 1-1/2" AV
- LAB SINK W/EYE WASH - 1/2" LCN, 1/2" LHW, 1-1/2" AW, 1-1/2" AV, 1/2" TW
- LAB SINK W/PURE WATER - 1/2" LCN, 1/2" LHW, 1-1/2" AW, 1-1/2" AV, (2) 2PW
- LAB SINK - 1/2" LCN, 1/2" LHW, 1-1/2" AW, 1-1/2" AV
- LAB SINK W/PURE WATER & EYE WASH - 1/2" LCN, 1/2" LHW, 1-1/2" AV, 1/2" AV, (2) 2PW
- LAB SINK W/CUP SINK TAP - (2) 1/2" LCN, 1/2" LHW, 1-1/2" AW, 1-1/2" AV
- LAB SINK W/PURE WATER AND GARBAGE DISPOSAL - 1/2" LCN, 1/2" LHW, 1-1/2" AW, 1-1/2" AV, (2) 2PW
- LAB SINK W/PURE WATER AND GARBAGE DISPOSAL - 1/2" LCN, 1/2" LHW, 1-1/2" AV, 1-1/2" AV, (2) 2PW (NOT USED)
- 1/2" LCN, 1/4" 3" LG, AND 3/4" LG DOWN FROM BELOW TO SERVE ISLAND FIXTURES
- 1" LV, 3/4" LA, AND 3/4" LG DN TO PENINSULA BENCH. ROUTE PIPING IN CASEWORK TO SERVE FIXTURES.
- 1" LV, 3/4" LA, AND 3/4" LG TO OVERHEAD SERVICE COUNTER. COORDINATE WITH ARCH. FOR PIPING CONNECTIONS AND LOCATIONS.
- 1" LV, 3/4" LA, AND 3/4" LG DN TO LAB GAS OUTLET(S).
- FUME HOOD(S) - 1/2" LCN, 1-1/2" AW, 1-1/2" AV, 3/4" LV, 1/2" LA, AND 3/4" LG
- ROUTE 3/4" CONDENSATE FLOW FROM COLD ROOM(S) TO ES<sub>2</sub>. COORDINATE CONDENSATE PIPING CONNECTIONS WITH COLD ROOM MANUFACTURER.
- STERILIZER - 1" LCN, 1/2" LA, 1" W PIPED TO ES<sub>2</sub> WITH AIR GAP
- GLASSWARE WASHER - 3/4" LV, 3/4" LG, (2) 2" PW, 1" W PIPED TO ES<sub>2</sub> WITH AIR GAP
- ISLAND FIXTURES - 3/4" LA, 3/4" LV, 3/4" LG, LCN STUB UP IN 4" PVC CONDUIT FOR EASE OF MAINTENANCE
- FOOD GRADE SINK - 1/2" CN, 1/2" HW, (2) 1/2" PMWG, 1-1/2" AW, 1-1/2" AV
- DOMESTIC WATER SINK - 1/2" CW, 1/2" HW, 1/2" V, 1-1/2" W
- ROUTE PIPING EXPOSED ON WALL IN PILOT PLANT SPACE WITH OFFSET BRACKET, 4" CLEAR. PIPE RISERS SHALL BE 1" CW, 1/16" 3/4" LA, 1/8" PS, 1/2" HW, 1/2" V, 1" PMWS, 10% UNLESS OTHERWISE NOTED.
- TERMINATE PIPES AT MOUNTAIN BALL VALVE AND CAP AT 8" VALVES.
- 3/4" H/W/O TO MDS<sub>1</sub> WITH A HORIZONTAL 42" AFF WITH ACCESSIBLE BALL VALVES ON EACH SIDER UPSTREAM OF
- 

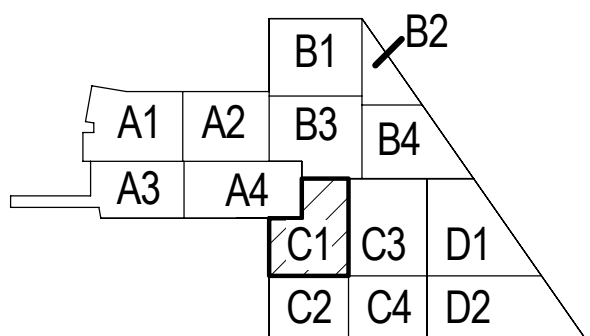


SCALE: 1/4" = 1'-0"





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Key Plan

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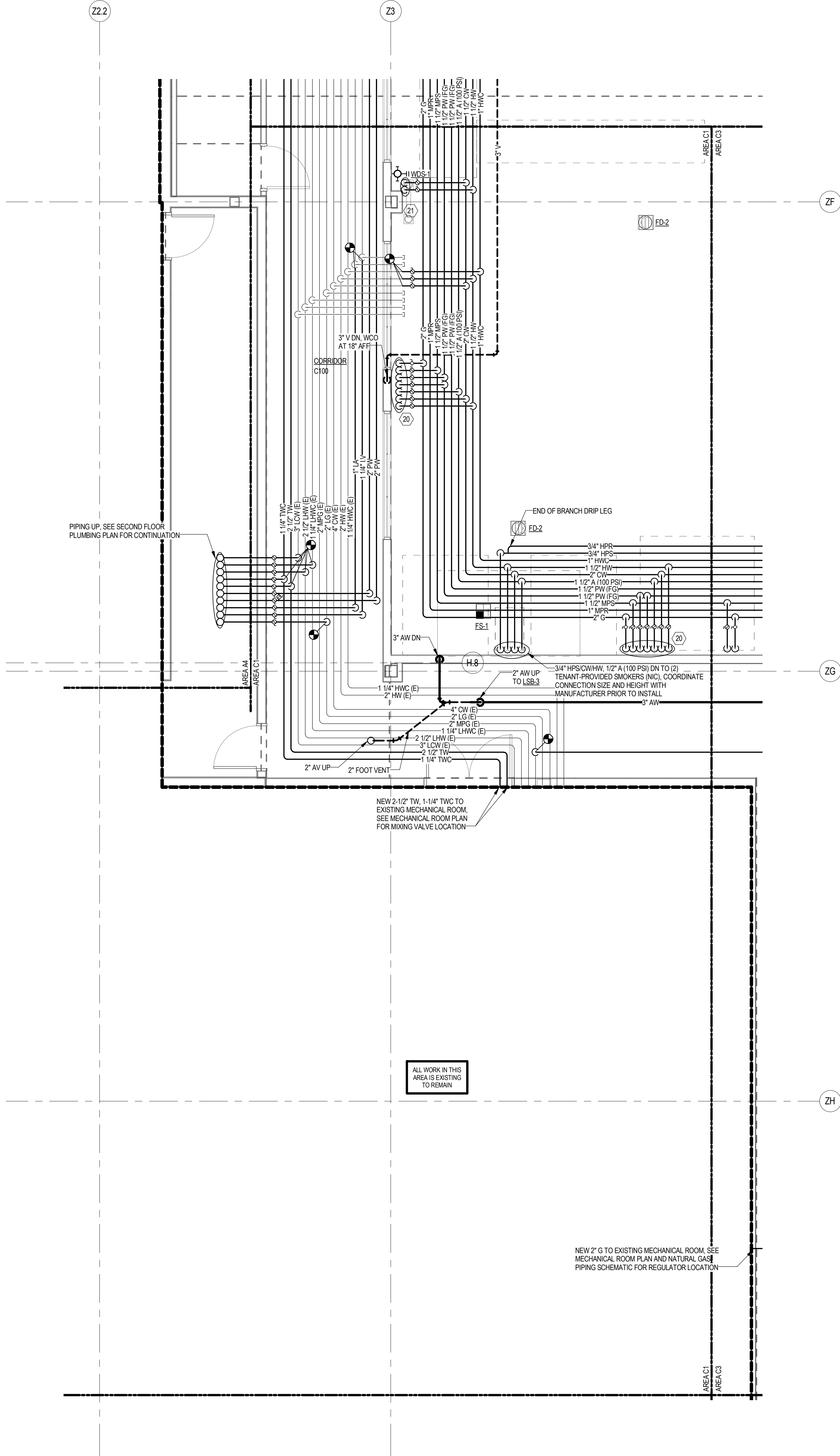
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First Floor Plumbing Plan -  
Area C1

P1.15



GENERAL NOTES:

- ALL NEW MECHANICAL WORK IS SHOWN AS HEAVY LINEWEIGHT. MECHANICAL WORK TO REMAIN AS EXISTING IS SHOWN AS LIGHT LINEWEIGHT.
- PROVIDE BYPASS WITH BALL VALVE FOR ALL PURE WATER BRANCHES.
- REFER TO PLUMBING RISER DIAGRAMS FOR ADDITIONAL PIPE SIZE AND ROUTING INFORMATION.

KEY NOTES:

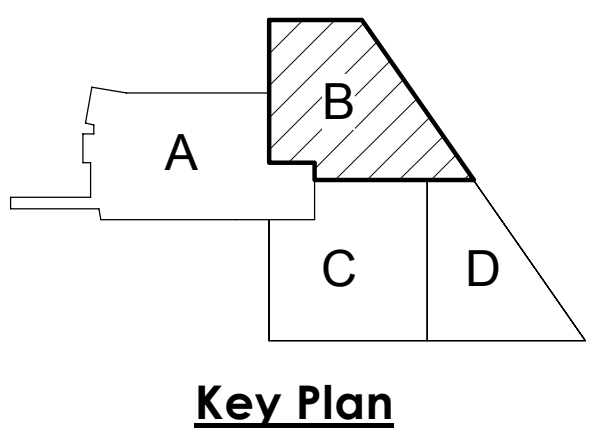
- CUP SINK - 1/2\"/>



FIRST FLOOR PLUMBING PLAN - AREA C1

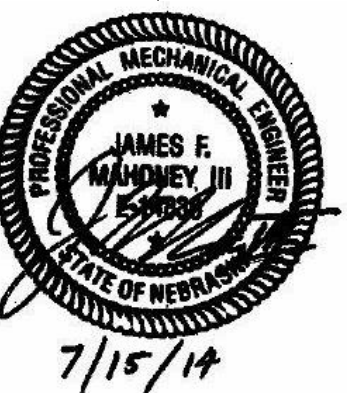
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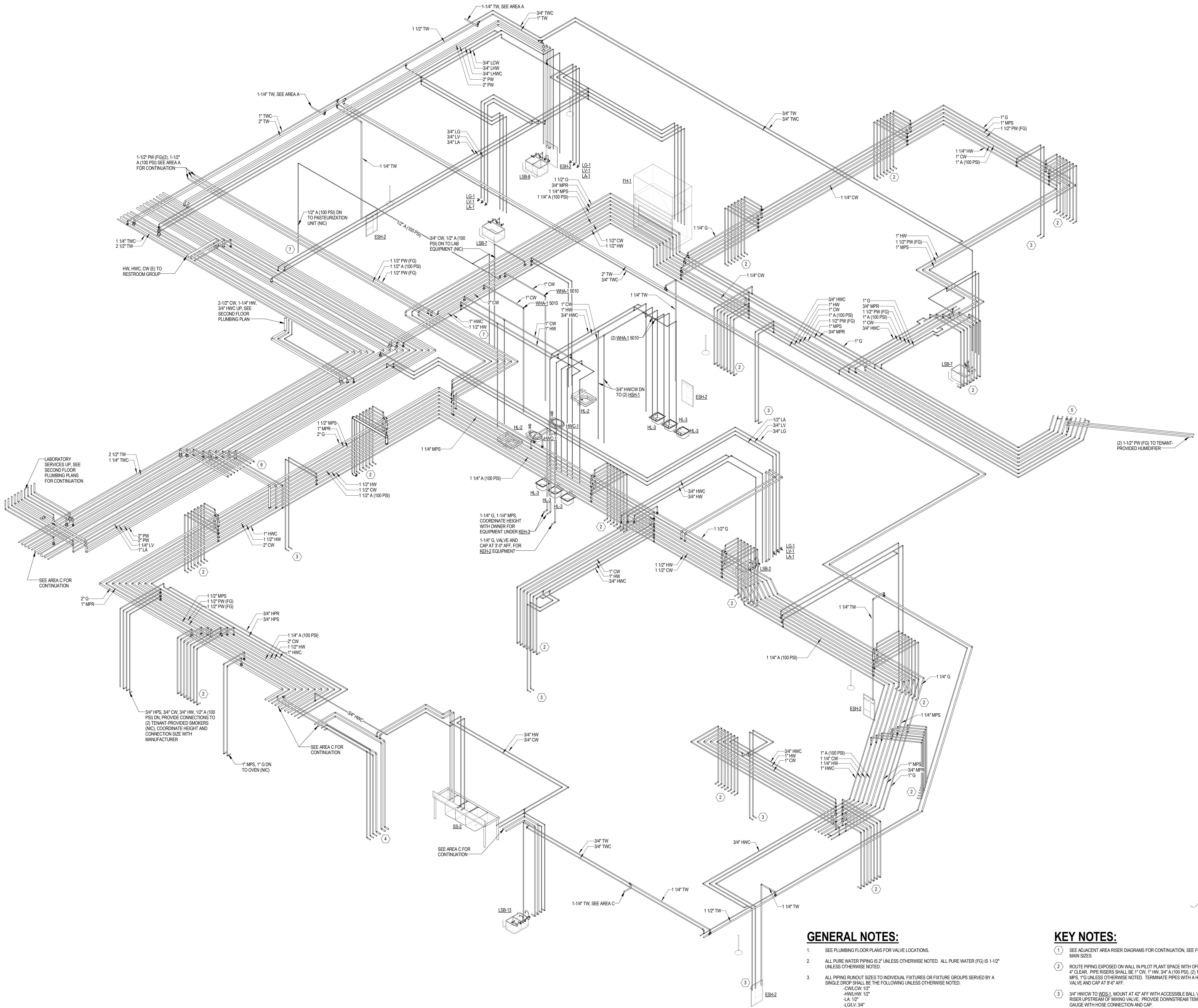
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First Floor Water Supply  
Riser Diagram - Area B

**P2.08**



**1 FIRST FLOOR WATER SUPPLY RISER DIAGRAM - AREA B**

SCALE:

**GENERAL NOTES:**

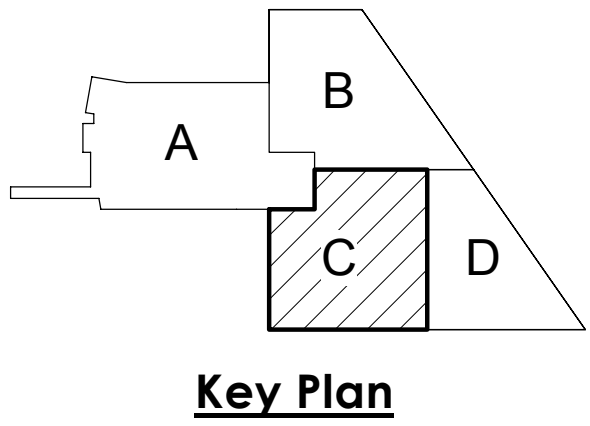
- SEE PLUMBING FLOOR PLANS FOR VALVE LOCATIONS.
- ALL PURE WATER PIPING IS 2" UNLESS OTHERWISE NOTED. ALL PURE WATER (FG) IS 1-1/2" UNLESS OTHERWISE NOTED.
- ALL PIPING RUNOUT SIZES TO INDIVIDUAL FIXTURES OR FIXTURE GROUPS SERVED BY A SINGLE DROP SHALL BE THE FOLLOWING UNLESS OTHERWISE NOTED.  
C/W/L/W: 1/2"  
H/W/L/W: 1/2"  
L/A: 1/2"  
L/G/L/V: 3/4"  
T/W: 3/4" (TO SINK EYEWASHES)  
G: 3/4"

**KEY NOTES:**

- SEE ADJACENT AREA RISER DIAGRAMS FOR CONTINUATION. SEE FLOOR PLANS FOR MAIN SIZES.
- ROUTE PIPING EXPOSED ON WALL IN PILOT PLANT SPACE WITH OFFSET BRACKET, 4" CLEAR. PIPE RISERS SHALL BE 1" CW, 1" HW, 3/4" A (100 PSI), (2) 1-1/2" PW (FG), 1" MPS, 1" G UNLESS OTHERWISE NOTED. TERMINATE PIPES WITH A HORIZONTAL BALL VALVE AND CAP AT 8'-6" AFF.
- 3/4" HW CW TO JDS-1, MOUNT AT 42" AFF WITH ACCESSIBLE BALL VALVES ON EACH RISER UPSTREAM OF MIXING VALVE. PROVIDE DOWNSTREAM TEMPERATURE GAUGE WITH HOSE CONNECTION AND CAP.
- (2) 1-1/2" PW (FG), 1" MPR, 1-1/2" MPS, 3/4" HPR, 1" HPS DN TO CLEAN STEAM GENERATOR.
- ROUTE 1" CW, 1" HW, 3/4" HWC, 3/4" A (100 PSI), (2) 1-1/2" PW (FG), 1" MPS, 3/4" MPR, 1" G ABOVE CEILING INTO MILLING ROOM, PROVIDE BALL VALVE AND CAP.
- CONNECT TO EXISTING 2" CW, 1-1/2" HW, 1" HWC, CAP OTHER SERVICES ABOVE CEILING.
- TERMINATE PIPING AT 4'-0" AFF WITH BALL VALVE AND CAP, COORDINATE EQUIPMENT LOCATIONS WITH TENANT PRIOR TO INSTALLATION.



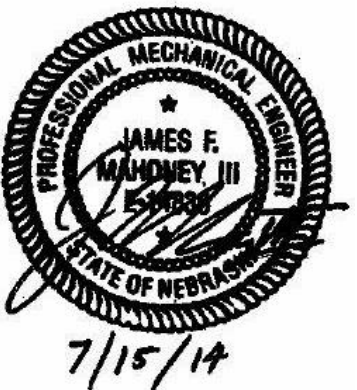
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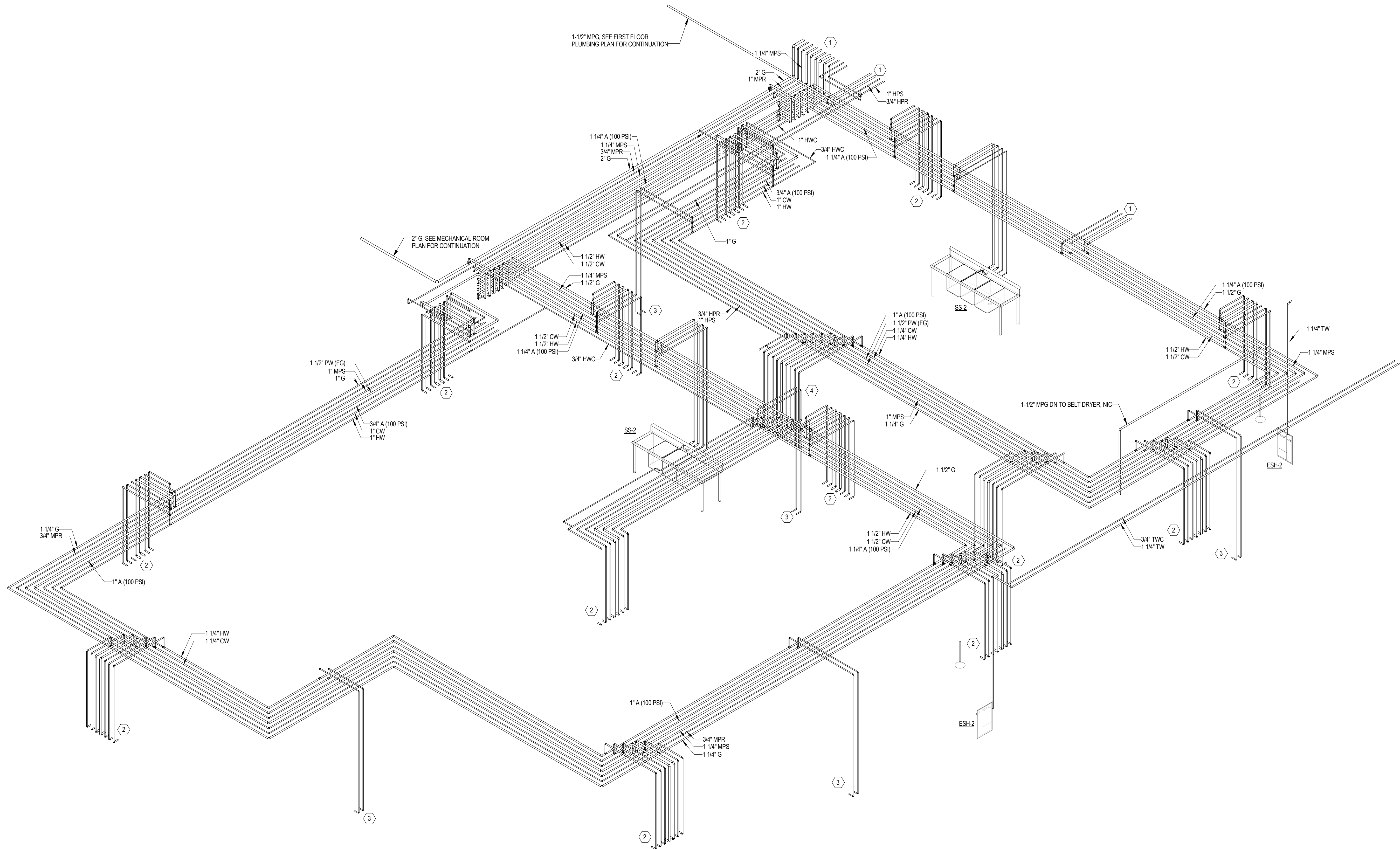
1910 N Antelope Valley  
Parkway  
Lincoln, Nebraska  
TCEP No.: 716-006-13

July 15, 2014



First Floor Water Supply  
Riser Diagram - Area C

**P2.09**



**FIRST FLOOR WATER SUPPLY RISER DIAGRAM - AREA C**  
SCALE:

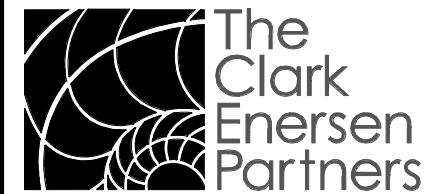
**GENERAL NOTES:**

- SEE PLUMBING FLOOR PLANS FOR VALVE LOCATIONS.
- ALL PURE WATER PIPING IS 2" UNLESS OTHERWISE NOTED. ALL PURE WATER (FG) IS 1-1/2" UNLESS OTHERWISE NOTED.
- ALL PIPING RUNOUT SIZES TO INDIVIDUAL FIXTURES OR FIXTURE GROUPS SERVED BY A SINGLE DROP SHALL BE THE FOLLOWING UNLESS OTHERWISE NOTED:  
-CW/LCW: 1/2"  
-HWLHW: 1/2"  
-L.A.: 1/2"  
-L.GLV: 3/4"  
-TW: 3/4" (TO SINK EYEWASHES)  
-G: 3/4"

**KEY NOTES:**

- SEE ADJACENT AREA RISER DIAGRAMS FOR CONTINUATION. SEE FLOOR PLANS FOR MAIN SIZES.
- ROUTE PIPING EXPOSED ON WALL IN PILOT PLANT SPACE WITH OFFSET BRACKET, 4" CLEAR. PIPE RISERS SHALL BE 1" CW, 1" HW, 3/4" A (100 PSI), (2) 1-1/2" PW (FG), 1" MPS, 1" G UNLESS OTHERWISE NOTED. TERMINATE PIPES WITH A HORIZONTAL BALL VALVE AND CAP AT 6'-6" AFF.
- 3/4" HWCW TO WDS-1, MOUNT AT 42" AFF WITH ACCESSIBLE BALL VALVES ON EACH RISER UPSTREAM OF MIXING VALVE. PROVIDE DOWNSTREAM TEMPERATURE GAUGE WITH HOSE CONNECTION AND CAP.
- 1" HPS, 3/4" HPR, 1" MPS, 3/4" MPR, 1" G, 3/4" A (100 PSI), (2) 1-1/2" PW (FG), 1" CW, 1" HW DN WALL TERMINATE AT 6'-6" AFF WITH BALL VALVE AND CAP. CONNECT EXTRUSION EQUIPMENT AT THIS LOCATION, COORDINATE WITH OWNER.



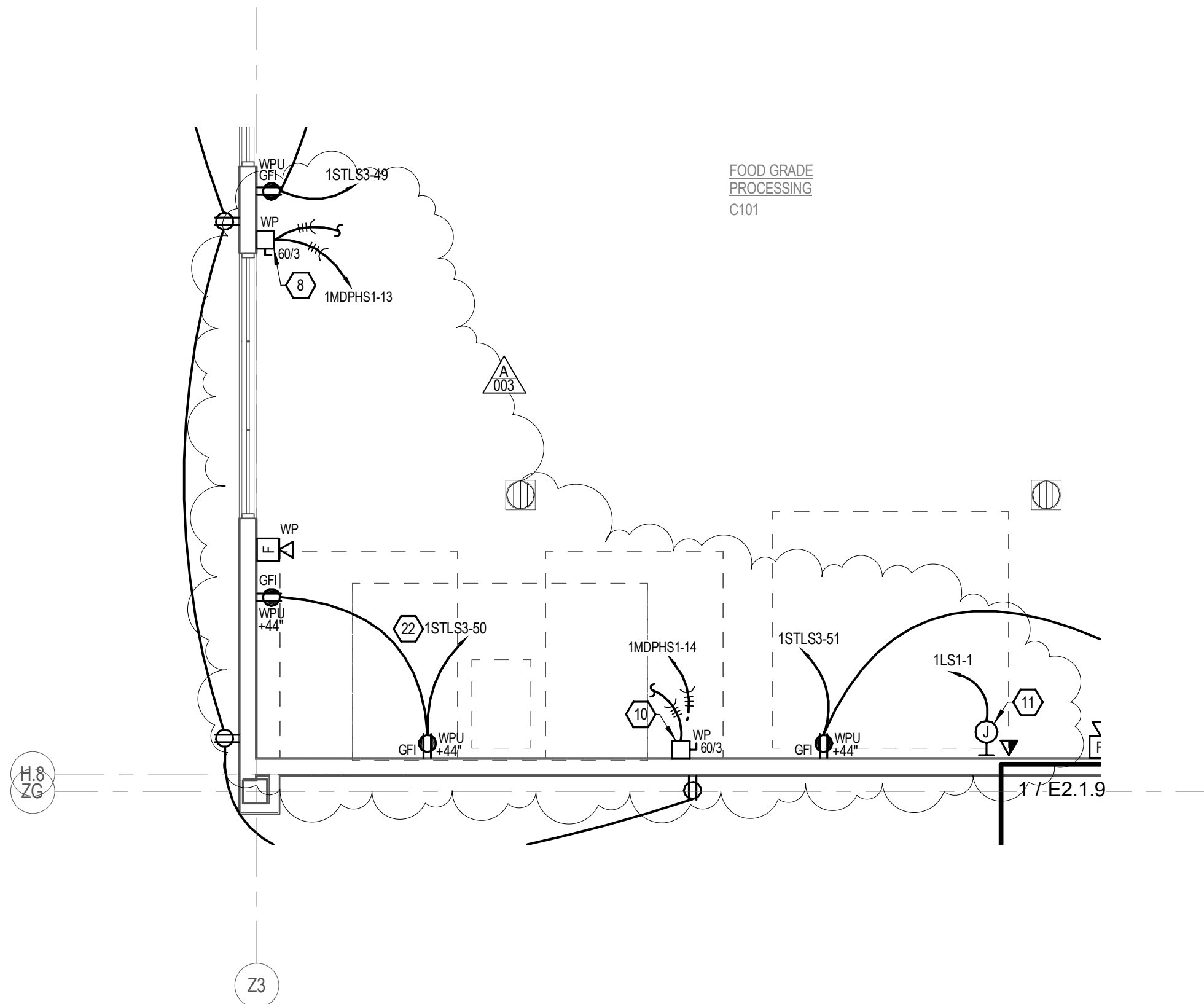


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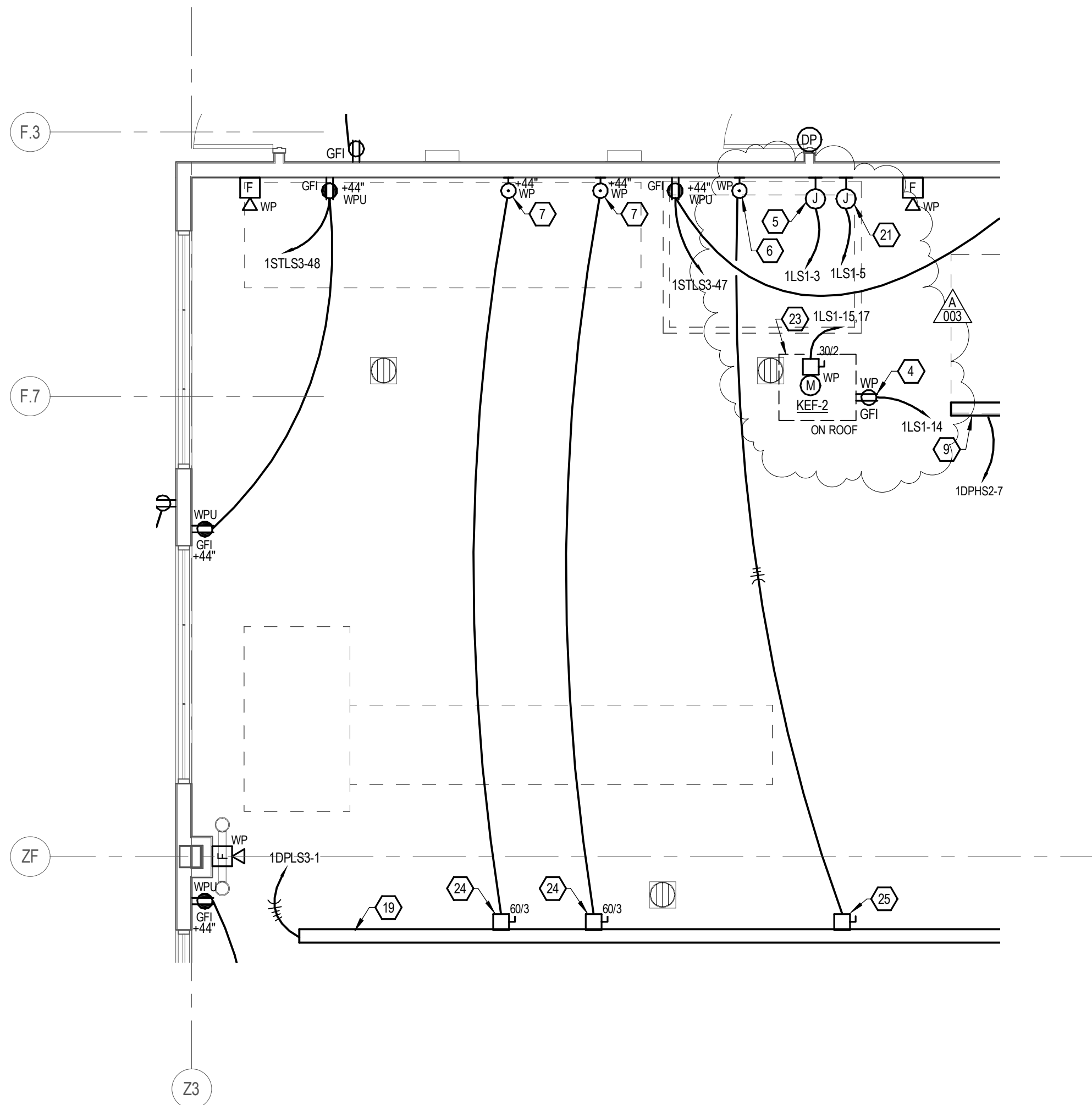
Lincoln, Nebraska  
1010 Lincoln Mall, Suite 200  
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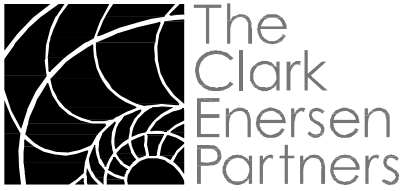
Kansas City, Missouri  
Fairway, Kansas



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Food Science and Technology  
Project City and State  
TCEP No.: 716-006-13

ADDENDUM #3  
Supplemental Drawing: SDE-01  
Revision of Sheet: E2.1.7  
Date: 08/01/14



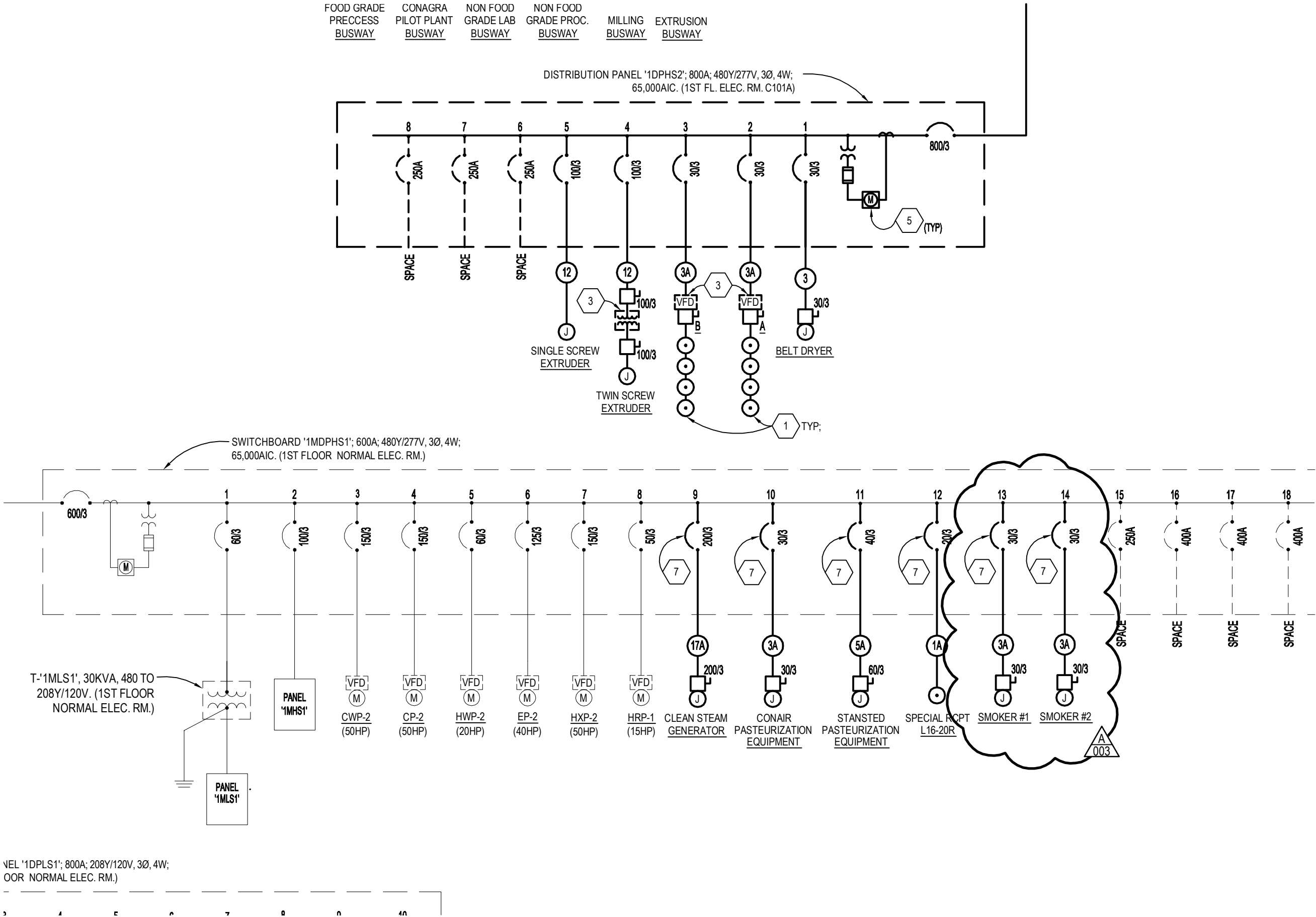


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# ELECTRICAL ONE-LINE DIAGRAM - NORMAL - SOUTH BUILDING

NO SCALE

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Addendum #03  
Supplemental Drawing: SDE-03  
Revision of Sheet: E3.01  
Date: August 1st, 2014