

BCA Studios - Tenant Fit-Up

405 Pine Street, Burlington, VT 05401

Owner/Client:
Burlington City Arts
135 Church St., Burlington, VT 05401

Architect:
TruexCullins Architecture
209 Battery Street, Burlington, VT 05401

truexcullins
W O R K P L A C E

209 BATTERY STREET, BURLINGTON, VERMONT 05401 USA
Phone 802.658.2775 800.227.1076

ARCHITECTURE + INTERIOR DESIGN | TRUEXCULLINS.COM

Project Specification

Bid Documents

Date: 18 November 2016

Chapin Spencer
PUBLIC WORKS DIRECTOR

Norman J. Baldwin, P.E.
CITY ENGINEER



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**Request for Proposal
FOR CONSTRUCTION SERVICES**

**Tenant Fit-up
BCA Studios, 405 Pine Street, Burlington, Vermont**

Date of Issuance: November 18, 2016

Issued by: City of Burlington Department of Public Works

Due Date for Proposals: **December 9, 2016**

Issuing Point of Contact:

Martha Q. Keenan, CIP Manager, Burlington Public Works
645 Pine Street, Burlington, VT 05401
802.540-0701 (w) or 802.557-2988 (c)
mkeenan@burlingtonvt.gov

INTRODUCTION AND GENERAL SCOPE OF WORK

The City of Burlington is seeking bids from qualified contractors to provide construction services for tenant fit-up of BCA studio space at 405 Pine Street, Burlington, Vermont.

The City is looking in general for the following tasks to be included in the proposal's scope of work:

- 1) Project Timeline: All Work must be performed between Tuesday, January 3rd, 2017 and Friday, May 12th, 2017.
- 2) Demolish and renovate space according to Consultant Architectural Specifications (Appendix A).
- 3) Provide Mechanical, Electrical and Plumbing renovation per MEP design (Appendix B).
- 4) Provide all labor and materials to renovate the space according to Consultant Architectural Specifications (Appendix A).
- 5) Coordinate with Consultant during renovation of space.
- 6) Perform work in accordance with applicable rules, regulations, codes, and ordinances of local, state and federal authorities, and in accordance with the requirements of public utility corporations having jurisdiction over the work.
- 7) City will provide building permit and pay permit fees for electrical and mechanical directly.

- 8) Conduct operations with minimum interference to the employees of the building, building will be open to the public during the time of construction.
- 9) Coordinate work with CIP Manager and manager of Farrell Vending to minimize discomfort of employees in the building. The Farrell Vending side of the building will be occupied at all times during this contract.

ADDITIONAL CITY SUPPLIED DATA/EFFORT

Appendix A: Architectural Specifications, Appendix B: MEP specifications and drawings, and Appendix C: Architectural drawings are provided regarding this system.

DEADLINE FOR RECEIPT OF PROPOSALS

All replies and proposals in response to the Invitation for Bids must be received in a sealed envelope clearly marked **405 Pine Street Fit-up** to the address and point of contact no later than **2:00 p.m.** on the above due date at which time all submitted proposals will be publicly opened and recorded. Late proposals will not be accepted. Electronic proposals are preferred as long as they are received by the point of contact by the required deadline.

ANSWERS TO QUESTIONS AND REVISIONS TO REQUEST FOR PROPOSAL

Any revisions, addendums and answers to questions received by the due date for questions will be sent to contractors who directly received this proposal via email. In addition, revisions will be posted on the City's RFP web page <http://burlingtonvt.gov/RFP/>. It is advised that contractors sign up for the GovDelivery notification so that they will be notified of any changes to the RFP page. The due date for questions is set for November 30th, and responses provided no later than December 2nd.

SITE VISIT

There will be a mandatory pre-proposal site visit on November 29, 2016 at 9 AM at 405 Pine Street. Please meet by the main door on Pine Street.

PARTNERSHIPS

Contractors may team up with other firms, local or otherwise, in order to provide whatever diversity is deemed necessary for completing the project tasks.

PROPOSAL FORMAT

Contractors are encouraged to be concise. All proposals must include, but are not limited to the following:

1. Letter of Transmittal and two (2) copies of the proposal (preferably double-sided) if sent through the mail. If sent electronically, all documents shall be in pdf format.
2. Proposed scope of work.
3. Completed bid form including price for each item, estimated start/end dates, and signature by authorized representative for the firm
4. Signed and notarized attachments D,E & F from draft agreement
5. A brief description of your firm's history and experience with commercial renovation. If your firm intends to partner with another company, also provide pertinent information on the partner.
6. A work history of three (3) related renovations within the last five years serving as the Prime Contractor showing for each:
 - a. Name, address and phone number for each client.
 - b. Brief project description.

- c. Statement as to whether project was completed on time and within budget.
7. Location of the office from which the management of the project will take place.

PROPOSAL EVALUATION

Proposals will be reviewed and evaluated by Department staff, the Consultant Architect and the Mechanical Engineer based on the information provided in the proposal. Additional information may be requested prior to final selection. It is anticipated that a decision will be made within 10 days of the due date.

REJECTION OF PROPOSALS

The City of Burlington reserves the right to reject any or all proposals, to negotiate with one or more parties, or to award the contract in the City's best interests, including proposed contractor's schedule. The City reserves the right to re-advertise for additional proposals and to extend the deadline for submission of the proposals.

CONTRACT REQUIREMENTS

Contractors are advised that a Draft Agreement will be provided as an Addendum to this request for proposals. Contractors are also advised to review ~~the Draft Agreement example (Attachment B)~~, the City's Livable Wage, Outsourcing Policy, and Union Deterrence Ordinances and their certifications in advance of submitting a proposal. The ordinances and certifications are attached to this request for proposals. The City of Burlington reserves the right to alter or amend the provisions of the Draft Agreement in the project contract.

INDEMNIFICATION

The Contractor will act in an independent capacity and not as officers or employees of the Municipality. The Contractor shall indemnify, defend and hold harmless the Municipality and its officers and employees from liability and any claims, suits, expenses, losses, judgments, and damages arising as a result of the Contractor's acts and/or omissions in the performance of this contract.

The Municipality is responsible for its own actions. The Contractor is not obligated to indemnify the Municipality or its officers, agents and employees for any liability of the Municipality, its officers, agents and employees attributable to its, or their own, negligent acts, errors or omissions.

LIMITATIONS OF LIABILITY

The City of Burlington, Vermont assumes no responsibility and liability for costs incurred by parties responding to this RFP or responding to any further requests for interviews, additional data, etc., prior to the issuance of the contract.

OWNERSHIP OF DOCUMENTS

Proposals, plans, specifications, basis of designs, electronic data, designs and reports prepared under any agreement between the selected contractor or consultant and the city shall become the property of the City. Records shall be furnished to the City by the Contractor upon request at any time, however the Contractor or Consultant may retain copies of the original documents.

PUBLIC RECORDS

Any and all records submitted to the City, whether electronic, paper, or otherwise recorded, are subject to the Vermont Public Records Act. The determination of how those records must be handled is solely within the purview of City. All records considered to be trade secrets, as that term is defined by subsection 317(c)(9) of the Vermont Public Records Act, shall be identified, as shall all other records considered to be exempt under the Act. It is not sufficient to merely state generally that the proposal is proprietary or a trade secret or is otherwise exempt.

Particular records, pages or section which are believed to be exempt must be specifically identified as such and must be separated from other records with a convincing explanation and rationale sufficient to justify each exemption from release consistent with Section 317 of Title 1 of the Vermont Statutes Annotated.

ATTACHMENT A – BID FORM

PROJECT: 405 Pine Street Tenant Fit-Up

Contractor: _____ Address: _____

Contact: _____ Telephone/Email: _____

Start Date: January 3rd, 2017 End Date: May 12th, 2017

ITEM	UNIT	SUBTOTAL
Cost to renovate warehouse space into art studio space per specifications	Lump Sum	\$

TOTAL BID: \$ _____

BY SIGNING THIS BID FORM, THE CONTRACTOR AGREES TO ABIDE BY ALL SPECIFICATIONS AND CONDITIONS IN THE CONTRACT DOCUMENTS.

SIGNATURE

NAME

TITLE

WITH THIS BID, THE CONTRACTOR MUST INCLUDE SIGNED CERTIFICATES OF COMPLIANCE WITH LIVABLE WAGE (for projects over \$15K), OUTSOURCING AND UNION DETERRENCE. THESE FORMS ARE INCLUDED IN ATTACHMENT D, E AND F.

ATTACHMENT B – RESERVED FOR Draft Agreement

(to be provided by Addendum)

ATTACHMENT C – RESERVED FOR CONTRACT PROVISIONS

(to be provided by Addendum)

ATTACHMENT D/E/F – BURLINGTON ORDINANCE REQUIREMENTS

CITY OF BURLINGTON

10.

revised version

ORDINANCE _____
Sponsor: Councilors Mason,
Bushor, Paul: Ordinance Com.
Public Hearing Dates _____
First reading: 09/23/13
Referred to: Ordinance Committee
Rules suspended and placed in all
stages of passage: _____
Second reading: 10/21/13
Action: adopted
Date: 10/21/13
Signed by Mayor: 10/30/13
Published: 11/06/13
Effective: 11/27/13

In the Year Two Thousand Thirteen

An Ordinance in Relation to

OFFENSES AND MISCELLANEOUS PROVISIONS--
ARTICLE VI - Livable Wages

It is hereby Ordained by the City Council of the City of Burlington, as follows:

That Chapter 21, Offenses and Miscellaneous Provisions, of the Code of Ordinances of the City of Burlington be and hereby is amended by amending Sections 21-80 through 21-87 thereof and adding new Sections 21-88 and 21-89 thereto to read as follows:

Sec. 21-80. - Findings and purpose.

In enacting this article, the city council states the following findings and purposes:

- (a) Income from full-time work should be sufficient to meet an individual's basic needs;
- (b) The City of Burlington is committed to ensuring that its ~~year-round employees (full and part-time)~~ have an opportunity for a decent quality of life and are compensated, ~~and such that they are not dependent on public assistance, to meet their basic needs;~~
- (c) ~~The city~~ City of Burlington is committed, through its contracts with vendors and provision of financial assistance, to encourage the private sector to pay its employees a livable wage and contribute to employee health care benefits;
- (d) The creation of jobs that pay livable wages promotes the prosperity and general welfare of the ~~city~~ City of Burlington and its residents, increases consumer spending with local businesses, improves the economic welfare and security of affected employees and reduces expenditures for public assistance;
- (e) It is the intention of the city council in passing this article to provide a minimum level of compensation for ~~city employees of the City of Burlington~~ and employees of entities that enter into service contracts or receive financial assistance from the City of Burlington.

Sec. 21-81. - Definitions.

As used in this article, the following terms shall be defined as follows:

a) Contractor or vendor is a person or entity that has a service contract with the City of Burlington primarily for the furnishing of services (as opposed to the purchasing of goods) ~~where Burlington where~~ the total amount of the service contract or service contracts exceeds fifteen thousand dollars (\$15,000.00) for any twelve-month period, including any subcontractors of such contractor or vendor. ~~A person or entity that has a contract with the City of Burlington for the use of property under the jurisdiction of the board of airport commissioners, or any person or entity that has a sublease or other agreement to perform services on such property, shall also be considered a contractor under this article.~~

(b) Grantee is a person or entity that is the recipient of financial assistance from the City of Burlington in the form of grants ~~administered by the city~~, including any contractors or ~~subcontractor~~ grantees of the grantee, that exceeds fifteen thousand dollars (\$15,000.00) for any twelve-month period.

(c) Covered employer means the City of Burlington ~~(except that the Burlington School Department shall not be considered a covered employer)~~, a contractor or vendor or a grantee as defined above. The primary contractor, vendor, or grantee shall be responsible for the compliance of each of its subcontractors (or of each subgrantee) that is a covered employer.

(d) Covered employee means an "employee" as defined below, who is employed by a "covered employer," subject to the following:

(1) An employee who is employed by a contractor or vendor is a "covered employee" during the period of time he or she expends on furnishing services under a service contract with the City of Burlington ~~funded by the city~~, notwithstanding that the employee may be a temporary or seasonal employee;

(2) An employee who is employed by a grantee who expends at least half of his or her time on activities funded by the ~~city~~ City of Burlington is a "covered employee."

(e) Designated accountability monitor shall mean a nonprofit corporation which has established and maintains valid nonprofit status under Section 501(c)(3) of the United States Internal Revenue Code of 1986, as amended, and that is independent of the parties it is monitoring.

OFFENSES AND MISCELLANEOUS PROVISIONS--
ARTICLE VI - Livable Wages

(ef) Employee means a person who is employed on a full-time or part-time regular basis (i.e., nonseasonal). In addition, commencing with the next fiscal year, a seasonal or temporary employee of the City of Burlington who works ten (10) or more hours per week and has been employed by the City of Burlington for a period of four years shall be considered a covered employee commencing in the fifth year of employment. "Employee" shall not refer to volunteers working without pay or for a nominal stipend, persons working in an approved apprenticeship program, persons who are hired for a prescribed period of six months or less to fulfill the requirements to obtain a professional license as an attorney, persons who are hired through youth employment programs or student workers or interns participating in established educational internship programs.

(fg) Employer-assisted health care means health care benefits provided by employers for employees (or employees and their dependents) at the employer's cost or at an employer contribution towards the purchase of such health care benefits, provided that the employer cost or contribution consists of at least one dollar and twenty cents (\$1.20) per hour. (Said amount shall be adjusted every two (2) years for inflation, by the chief administrative officer of the city.)

(gh) Livable wage has the meaning set forth in section 21-82.

(i) Retaliation shall mean the denial of any right guaranteed under this article, and any threat, discipline, discharge, demotion, suspension, reduction of hours, or any other adverse action against an employee for exercising any right guaranteed under this article. Retaliation shall also include coercion, intimidation, threat, harassment, or interference in any manner with any investigation, proceeding, or hearing under this article.

(j) Service contract means a contract primarily for the furnishing of services to the City of Burlington (as opposed to the purchasing or leasing of goods or property) A contract involving the furnishing of financial products, insurance products, ~~and~~ or software, even if that contract also includes some support or other services related to the provision of the products, shall not be considered a service contract.

Sec. 21-82. - Livable wages required.

(a) Every covered employer shall pay each and every covered employee at least a livable wage ("Livable Wage") as established under this article, no less than:

OFFENSES AND MISCELLANEOUS PROVISIONS--
ARTICLE VI - Livable Wages

(1) For a covered employer that provides employer assisted health care, the livable wage shall be at least ~~nine dollars and ninety cents~~ thirteen dollars and ninety four cents (\$~~13.949~~13.94) per hour on the effective date of the ~~amendments is to this article~~ amendments to this article [~~Dec. 19, 2001~~].

(2) For a covered employer that does not provide employer assisted health care, the livable wage shall be at least ~~eleven dollars and sixty eight cents~~ fifteen dollars and eighty three cents (\$~~15.834~~15.83) per hour on the effective date of the amendments to this article [~~Dec. 19, 2001~~].

(3) ~~Tipped covered employees and other ee~~ Covered employees whose wage compensation consists of more or other than hourly wages, including, but not limited to, tips, commissions, flat fees or bonuses, shall be paid so that the total of all wage an hourly wage which, when combined with the other compensation, will at least equal the Livable wWage as established under this article.

(b) The amount of the Livable wWage established in this section shall be adjusted by the chief administrative officer of the city, as of July ~~1st~~first of each year based upon a report of the Joint Fiscal Office of the State of Vermont that describes the basic needs budget for a single person but utilizes a model of two (2) adults residing in a two-bedroom living unit in an urban area with the moderate cost food plan. Should there be no such report from the joint fiscal office, the chief administrative officer shall obtain and utilize a basic needs budget that applies a similar methodology. The livable wage rates derived from utilizing a model of two (2) adults residing in a two-bedroom living unit in an urban area with a moderate cost food plan shall not become effective until rates meet or exceed the 2010 posted livable wage rates. Prior to the first day of May preceding any such adjustment and prior to the first day of May of each calendar year thereafter, the chief administrative officer will provide public notice of this adjustment by ~~publishing a notice in a newspaper of general circulation, by posting a written notice in a prominent place in City Hall, by sending written notice to the city council and, in the case of covered employers that have requested individual notice and provided contact information an address of record to the chief administrative officer, by notice written letter to each such covered employer. However, once a Livable Wage is applied to an individual employee, no reduction in that employee's pay rate is permissible due to this annual adjustment.~~

OFFENSES AND MISCELLANEOUS PROVISIONS--
ARTICLE VI - Livable Wages

(c) Covered employers shall provide at least twelve (12) compensated days off per year for full-time covered employees, and a proportionate amount for part-time covered employees, for sick leave, vacation, ~~or personal~~, or combined time off leave.

Sec. 21-83. - Applicability.

(a) This article shall apply to any service contract or grant, as provided by this article that is awarded or entered into after the effective date of the article [~~Dec. 19, 2001~~]. After the effective date of the article, entering into any agreement or an extension, renewal or amendment of any contract or grant as defined herein shall be subject to compliance with this article.

(b) The requirements of this article shall apply during the term of any service contract subject to the article. Covered employers who receive grants shall comply with this article during the period of time the ~~city's~~ funds awarded by the City of Burlington are being expended by the covered employer.

Sec. 21-84. - Enforcement.

(a) ~~The City of Burlington shall require, as a condition of any~~ Each service contract or grant covered by this article section, shall contain provisions requiring that the affected-covered employer or grantee submit a written certification, under oath, during each year during the term of the service contract or grant, that the covered employer or grantee (including all of its subcontractors and subgrantees, if any) is in compliance with this article. The failure of a contract to contain such provisions does not excuse a covered employer from its obligations under this ordinance. ~~confirming payment of a livable wage as a condition of entering into said contract or grant.~~ The affected-covered employer shall agree to post a notice regarding the applicability of this section in any workplace or other location where employees or other persons contracted for employment are working. The ~~affected-covered~~ employer shall agree to provide payroll records or other documentation for itself and any subcontractors or subgrantees, as deemed necessary by the chief administrative officer of the City of Burlington within ten (10) business days from receipt of the City of Burlington~~city's~~ request.

(b) The chief administrative officer of the City of Burlington may require that a covered employer submit proof of compliance with this article at any time, including but not limited to

(1) verification of an individual employee's compensation,

(2) production of payroll, health insurance enrollment records, or other relevant documentation, or

(3) evidence of proper posting of notice.

If a covered employer is not able to provide that information within ten (10) business days of the request, the chief administrative officer may turn the matter over to the city attorney's office for further enforcement proceedings.

(c) The City of Burlington shall appoint a designated accountability monitor that shall have the authority:

(i) To inform and educate employees of all applicable provisions of this article and other applicable laws, codes, and regulations;

(ii) To create a telephonic and electronic accountability system under this article that shall be available at all times to receive complaints under this article;

(iii) To establish and implement a system for processing employees' complaints under this article, including a system for investigating complaints and determining their legitimacy; and

(iv) To refer credible complaints to the City Attorney's office for potential enforcement action under this article.

The designated accountability monitor shall forward to the City of Burlington all credible complaints of violations within ten (10) days of their receipt.

(ed) Any covered employee who believes his or her covered employer is not complying with this article may file a complaint in writing with the City Attorney's office within one (1) year after the alleged violation. The City Attorney's office shall conduct an investigation of the complaint, during which it may require from the covered employer evidence such as may be required to determine whether the covered employer has been compliant, and shall make a finding of compliance or noncompliance within a reasonable time after receiving the complaint. Prior to ordering any penalty provided in subsections (e), (f), or (g) below, the City Attorney's office shall give notice to the covered employer. The covered employer may request a hearing within thirty (30) days of receipt of such notice. The hearing shall be conducted by a hearing

OFFENSES AND MISCELLANEOUS PROVISIONS--
ARTICLE VI - Livable Wages

officer appointed by the City Attorney's office, who shall affirm or reverse the finding or the penalty based upon evidence presented by the City Attorney's office and the covered employer.

(eeb) The City of Burlington shall have the right to modify, terminate and/or seek specific performance of any contract or grant with an-affecteda covered employer from any court of competent jurisdiction, if the affected-covered employer has not complied with this article.

(fde) Any covered employer who violates this article may be barred from receiving a contract or grant from the city for a period up to two (2) years from the date of the finding of violation.

(edg) A violation of this article shall be a civil offense subject to a civil penalty of from two hundred dollars (\$200.00) to five hundred dollars (\$500.00). All law enforcement officers and any other duly authorized municipal officials are authorized to issue a municipal complaint for a violation of this article. Each day any covered employee is not compensated as required by this article shall constitute a separate violation.

(h) If a complaint is received that implicates any City of Burlington employee in a possible violation of this ordinance, that complaint will be handled through the City's personnel procedures, not through the process outlined in this ordinance.

(fi-) Any covered employee aggrieved by a violation of this article may bring a civil action in a court of competent jurisdiction against the covered employer within two (2) years after discovery of the alleged violation. The court may award any covered employee who files suit pursuant to this section, as to the relevant period of time, the following:

- (i) The difference between the livable wage required under this article and the amount actually paid to the covered employee;
- (ii) Equitable payment for any compensated days off that were unlawfully denied or were not properly compensated;
- (iii) Liquidated damages in an amount equal to the amount of back wages and/or compensated days off unlawfully withheld or of \$50 for each employee or person whose rights under this article were violated for each day that the violation occurred or continued, whichever is greater;
- (iv) Reinstatement in employment and/or injunctive relief; and
- (v) Reasonable attorneys' fees and costs.

(gj) It shall be unlawful for an employer or any other person to interfere with, restrain, or deny the exercise of, or the attempt to exercise, any right protected under this article. No person

shall engage in retaliation against an employee or threaten to do so because such employee has exercised rights or is planning to exercise rights protected under this article or has cooperated in any investigation conducted pursuant to this article.

Sec. 21-85. - Other provisions.

(a) No affected-covered employer shall reduce the compensation, wages, fringe benefits or leave available to any covered employee in order to pay the livable wage required by this article. Any action in violation of this paragraph shall be deemed a violation of this article subject to the remedies of section 21-84.

(b) No covered employer with a current contract, as of the effective date of this provision, with the City of Burlington for the use of property located at the Burlington International Airport may reduce, during the term of that contract, the wages of a covered employee below the Livable Wage as a result of amendments to this ordinance.

(bc) Where pursuant to a contract for services with the city, the contractor or subcontractor incurs a contractual obligation to pay its employees certain wage rates, in no case except as stated in subsection 21-85(ed), shall the wage rates paid pursuant to that contract be less than the minimum livable wage paid pursuant to this article.

(ed) Notwithstanding subsection 21-85(bc), where employees are represented by a bargaining unit or labor union pursuant to rights conferred by state or federal law and a collective bargaining labor agreement is in effect governing the terms and conditions of employment of those employees, this chapter shall not apply to those employees, and the collective bargaining labor agreement shall control.

(ée) Covered employers shall inform employees making less than twelve dollars (\$12.00) per hour of their possible right to the Earned Income Tax Credit under federal and state law.

(ef) The chief administrative officer of the city shall have the authority to promulgate rules as necessary to administer the provisions of this article, which shall become effective upon approval by the city council.

Sec. 21-86. - Exemptions.

An partial or complete exemption from the any requirement of this article may be requested for a period not to exceed two (2) years:

- (a) By a covered employer where payment of the livable wage authorized based upon a determination that compliance with the livable wage requirement would cause substantial economic hardship; and
- (b) By the City of Burlington where application of this article to a particular contract or grant is found to violate specific state or federal statutory, regulatory or constitutional provision or provisions or where granting the exemption would be in the best interests of the City.

A covered employer or grantee granted an exemption under this Section 21-86 may reapply for an exemption upon the expiration of the exemption.

Requests for exemption may be granted by majority vote of the City Council. All requests for exemption shall be submitted to the chief administrative officer. The finance committee board of the city City of Burlington shall first consider such request and make a recommendation to the City Council. The decision of the City Council shall be final. shall consider the request for exemption with prior notice provided to the city council. A unanimous decision by the finance board shall be final. A split decision by the finance board is reviewable by the city council not later than the next meeting of the city council which occurs after the date of the finance board decision.

Sec. 21-87. - Severability.

If any part or parts or application of any part of this article is held invalid, such holding shall not affect the validity of the remaining parts of this article.

Section 21-88. Annual Reporting.

On or before April 15th of each year, the City Attorney's office shall submit a report to the City Council that provides the following information:

An Ordinance in Relation to

(a) a list of all covered employers broken down by department;

(b) a list of all covered employers whose service contract did not contain the language required by this article; and

(c) all complaints filed and investigated by the City Attorney's office and the results of such investigation.

Sec. 21-89. Effective Date.

The amendments to this ordinance shall take effect on January 1, 2014, and shall not be retroactively applied.

* Material stricken out deleted.

** Material underlined added.

ATTACHMENT D

Certification of Compliance with the City of Burlington's Livable Wage Ordinance

I, _____, on behalf of _____
(Contractor/Consultant) and in connection with the Leddy Arena Refrigeration System project, hereby certify under oath that (1) Contractor shall comply with the City of Burlington's Livable Wage Ordinance; (2) as a condition of entering into this contract or grant, Contractor confirms that all covered employees, as defined by Burlington's Livable Wage Ordinance, shall be paid a livable wage for the term of the contract as determined and adjusted annually by the City of Burlington's Chief Administrative Officer, (3) a notice regarding the applicability of the Livable Wage Ordinance shall be posted in the workplace or other location where covered employees work, and (4) payroll records or other documentation, as deemed necessary by the Chief Administrative Officer, shall be provided within ten (10) business days from receipt of the City's request.

Dated at _____, Vermont this ____ day of _____, 2016.

By: _____
Duly Authorized Agent

Subscribed and sworn to before me: _____
Notary

BURLINGTON'S OUTSOURCING ORDINANCE

ARTICLE VII. OUTSOURCING

21-90 Policy.

It is the policy of the City of Burlington to let service contracts to contractors, subcontractors and vendors who perform work in the United States.

(Ord. of 11-21-05/12-21-05)

21-91 Definitions.

(a) *Contractor or vendor.* A person or entity that has a contract with the City of Burlington primarily for the furnishing of services (as opposed to the purchasing of goods), including any subcontractors of such contractor or vendor.

(b) *Government funded project.* Any contract for services which involves any city funds and the total amount of the contract is fifty thousand dollars (\$50,000.00) or more. Burlington School Department contracts shall not be considered government funded projects under this article.

(c) *Outsourcing.* The assigning or reassigning, directly, or indirectly through subcontracting, of services under a government funded project to workers performing the work outside of the United States.

(Ord. of 11-21-05/12-21-05)

21-92 Implementation.

(a) No contract for a government funded project shall be let to any contractor, subcontractor, or vendor who is outsourcing, or causing the work to be performed outside of the United States or Canada.

(b) Prior to the commencement of work on a government funded project a contractor, subcontractor or vendor shall provide written certification that the services provided under the contract will be performed in the United States or Canada.

(Ord. of 11-21-05/12-21-05)

21-93 Exemption.

An exemption from requirements of this article may be authorized by the chief administrative officer based upon a determination that the services to be performed for the government funded project are not available in the United States or Canada at a reasonable cost. Any such exemption decision by the chief administrative officer shall be reported to the board of finance in writing within five (5) days. The board of

finance may, if it should vote to do so, override the exemption decision if such vote occurs within fourteen (14) days of the date of the chief administrative officer's communication to such board.

(Ord. of 11-21-05/12-21-05)

21-94 Enforcement.

(a) Any contractor, subcontractor or vendor who files false or materially misleading information in connection with an application, certification or request for information pursuant to the provisions of this article or outsources work on a government funded project shall be deemed to be in violation of this article.

(b) A violation of this article shall be a civil offense subject to a civil penalty of from one hundred dollars (\$100.00) to five hundred (\$500.00). All law enforcement officers and any other duly authorized municipal officials are authorized to issue a municipal complaint for a violation of this article. Each day any violation of any provision of this article shall continue shall constitute a separate violation.

(c) The City of Burlington shall have the right to modify, terminate and or seek specific performance of any contract for a government funded project if the contractor, subcontractor or vendor has not complied with this article.

(Ord. of 11-21-05/12-21-05)

21-95—21-99 Reserved.

ATTACHMENT E

Certification of Compliance with the City of Burlington's Outsourcing Ordinance

I, _____, on behalf of _____

(Contractor) and in connection with the Leddy Arena Refrigeration System project, hereby certify under oath that (1) Contractor shall comply with the City of Burlington's Outsourcing Ordinance (Ordinance §§ 21-90 – 21-93); (2) as a condition of entering into this contract or grant, Contractor confirms that the services provided under the above-referenced contract will be performed in the United States or Canada.

Dated at _____, Vermont this ____ day of _____, 2016.

By: _____
Duly Authorized Agent

Subscribed and sworn to before me: _____
Notary

BURLINGTON'S UNION DETERRENCE ORDINANCE

ARTICLE VIII. UNION DETERRENCE

21-100 Policy.

It is the policy of the City of Burlington to limit letting contracts to organizations that provide union deterrence services to other companies.

(Ord. of 3-27-06/4-26-06)

21-101 Definitions.

(a) *Contractor or vendor.* A person or entity that has a contract with the City of Burlington primarily for the furnishing of services (as opposed to the purchasing of goods), including any subcontractors of such contractor or vendor.

(b) *Government funded project.* Any contract for services which involves any City funds and the total amount of the contract is fifteen thousand dollars (\$15,000.00) or more. Burlington School Department contracts shall not be considered government funded projects under this article.

(c) *Union deterrence services.* Services provided by a contractor, subcontractor or vendor that are not restricted to advice concerning what activities by an employer are prohibited and permitted by applicable laws and regulations, but extend beyond such legal advice to encouraging an employer to do any of the following:

- 1) Hold captive audience, (i.e., mandatory) meetings with employees encouraging employees to vote against the union;
- 2) Have supervisors force workers to meet individually with them to discuss the union;
- 3) Imply to employees, whether through written or oral communication, that their employer may have to shut down or lay people off if the union wins the election;
- 4) Discipline or fire workers for union activity;
- 5) Train managers on how to dissuade employees from supporting the union.

(d) *Substantial portion of income.* For the purposes of this article, substantial portion of income shall mean greater than ten (10) percent of annual gross revenues or one hundred thousand dollars

(\$100,000.00), whichever is less.

(Ord. of 3-27-06/4-26-06)

21-102 Implementation.

(a) No contract for a government funded project shall be let to any contractor, subcontractor, or vendor who

- 1) Advises or has advised an employer to conduct any illegal activity in its dealings with a union.
- 2) Advertises union deterrence services as specialty services;
- 3) Earns a substantial portion of its income by providing union deterrence services to other companies in order to defeat union organizing efforts.

(b) Prior to the commencement of work on a government funded project a contractor, subcontractor or vendor shall provide written certification that it has not advised the conduct of any illegal activity, it does not currently, nor will it over the life of the contract provide union deterrence services in violation of this article.

(Ord. of 3-27-06/4-26-06)

21-103 Enforcement.

(a) Any contractor, subcontractor or vendor who files false or materially misleading information in connection with an application, certification or request for information pursuant to the provisions of this article or provided union deterrence services during the life of a contract for a government funded project shall be deemed to be in violation of this article.

(b) The City of Burlington shall have the right to modify, terminate and or seek specific performance of any contract for a government funded project if the contractor, subcontractor or vendor has not complied with this article.

(Ord. of 3-27-06/4-26-06)

21-104—21-110 Reserved.

ATTACHMENT F

Certification of Compliance with the City of Burlington's
Union Deterrence Ordinance

I, _____, on behalf of _____ (Contractor) and in connection with Leddy Arena Refrigeration System project, hereby certify under oath that _____ (Contractor) has not advised the conduct of any illegal activity, and it does not currently, nor will it over the life of the contract advertise or provide union deterrence services in violation of the City's union deterrence ordinance.

Dated at _____, Vermont this ___ day of _____, 2016.

By: _____
Duly Authorized Agent

APPENDIX A: ARCHITECTURAL SPECIFICATIONS

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**SECTION 01 2000
PRICE AND PAYMENT PROCEDURES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

- A. See City of Burlington Contract requirements and General Conditions for additional and specific requirements.

1.03 SCHEDULE OF VALUES

- A. Form to be used: AIA G703.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Form to be used: AIA G702 and G703.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- D. Forms filled out by hand will not be accepted.
- E. Execute certification by signature of authorized officer.
- F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- H. Submit three copies of each Application for Payment.
- I. Include the following with the application:
 - 1. Partial release of liens from major Subcontractors and vendors.
 - 2. Affidavits attesting to off-site stored products.

1.05 MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
- B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 2. Promptly execute the change.
- C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 7 days.
- D. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
- E. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Application for Final Payment will not be considered until the following have been accomplished:
1. All closeout procedures specified in Section 01 7000.

END OF SECTION

**SECTION 01 2300
ALTERNATES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Description of Alternates.

1.02 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.03 SCHEDULE OF ALTERNATES

- A. Deduct Alternate No. 1 - Air Conditioning condensing units, associated piping and building penetrations. See Mechanical performance specifications. Also included: new concrete condenser pad, bollards and extension of chain link enclosure.:
- B. Deduct Alternate No. 2 - Tubular skylights. See specification section -08 62 23. Also includes structural framed opening, roof penetration and flashing curb.:
- C. Deduct Alternate No. 3 - Arbor- located on east exterior facade includes steel structure, concrete footings, metal deck roof at door.:

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Site mobilization meeting.
- C. Progress meetings.
- D. Construction progress schedule.
- E. Submittals for review, information, and project closeout.
- F. Number of copies of submittals.
- G. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.
- B. General Conditions

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. Owner will schedule a meeting after Notice of Award.
- B. Attendance Required:
 - 1. Owner.
 - 2. Architect.
 - 3. Contractor.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties to Contract and Architect.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Identify long lead time items and expected delivery dates.
 - 9. Identify significant critical path items.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.02 SITE MOBILIZATION MEETING

- A. Owner will schedule a meeting at the Project site prior to Contractor occupancy.
- B. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Architect.

4. Contractor's Superintendent.
 5. Major Subcontractors.
- C. Agenda:
1. Use of premises by Owner and Contractor.
 - a. Location of parking and staging areas.
 - b. Location of Contractor office trailer and storage trailers.
 2. Owner's requirements and occupancy prior to completion.
 3. Construction facilities and controls provided by Owner.
 4. Temporary utilities provided by Owner.
 5. Survey and building layout.
 6. Security and housekeeping procedures.
 7. Schedules.
 8. Application for payment procedures.
 9. Procedures for testing.
 10. Procedures for maintaining record documents.
 11. Requirements for start-up of equipment.
 12. Inspection and acceptance of equipment put into service during construction period.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum one week intervals.
- B. Make arrangements for meetings, prepare minutes and agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.
- D. Agenda:
1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems that impede, or will impede, planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of outstanding Contractor Requests for Information
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Maintenance of quality and work standards.
 11. Effect of proposed changes on progress schedule and coordination.
 12. Review of proposed change orders and proposal requests.
 13. Other business relating to Work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 180 days of Work, with a general outline for remainder of Work.

- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Identify long lead time items and expected order and delivery dates. Identify significant critical path items.
- F. Submit updated schedule with each Application for Payment.
- G. Schedule Requirements
 - 1. Preliminary Schedule
 - a. Prepare preliminary schedule in the form of a horizontal bar chart.
 - 2. Schedule Content
 - a. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
 - b. Identify each item by specification section number.
 - c. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
 - d. Provide legend for symbols and abbreviations used.
 - 3. Bar Charts:
 - a. Include a separate bar for each major portion of Work or operation.
 - b. Identify the first work day of each week.
 - 4. Updating the Schedule
 - a. Maintain schedules to record actual start and finish dates of completed activities.
 - b. Indicate progress of each activity to date of revision, with projected completion date of each activity.
 - c. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
 - d. Indicate changes required to maintain Date of Substantial Completion.
 - 5. Distribution of Schedule:
 - a. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, and other concerned parties.
 - b. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

3.05 SUBMITTAL SCHEDULE

- A. Provide a schedule of submittals which includes:
 - 1. Specification section number and name
 - 2. Scheduled date for first submittal in section
 - 3. Indication of urgency required to maintain progress of the work
 - 4. Indication of request for expedited review.
- B. Submit two copies of schedule with 15 days of execution of Agreement.

3.06 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data- complete product description.
 - a. Cut sheets- mark all applicable options and features
 - 2. Shop drawings.

- a. Do not submit copies of the Architect's drawings.
 3. Samples for selection.
 4. VOC Content report.
 5. Urea Formaldehyde report.
 6. Material Safety Data Sheets
 7. Engineering Data or calculations
 8. On site testing reports
 9. Manufacturer or Installer's acceptance reports (e.g. substrate acceptance)
 10. Sample warranties
 11. Maintenance information
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.
- E. Delegated Design
1. Where a delegated design submittal is required, the contractor is responsible to provide professional design services by a design professional licenced to practice in the State where the project is Permitted and Constructed. Submittals shall bear a signed Professional Engineers stamp.
 2. Submittal to include shop drawings and engineering calculations.
 3. Design shall conform with all applicable building codes and standards.

3.07 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
1. Design data.
 2. Certificates.
 3. Test reports.
 4. Inspection reports.
 5. Manufacturer's instructions.
 6. Manufacturer's field reports.
 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.08 SUBMITTALS FOR PROJECT CLOSEOUT

- A. When the following are specified in individual sections, submit them at project closeout:
1. Project record documents.
 2. Operation and maintenance data.
 3. Warranties.
 4. Bonds.
 5. Other types as indicated.
- B. Submit for Owner's benefit during and after project completion.

3.09 NUMBER OF COPIES OF SUBMITTALS

- A. Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

1. Architectural, Civil, Structural, Mechanical, Electrical, Plumbing and other specialty consultant submittals will be sent directly and simultaneously to these respective consultants with Circulate Copy (CC) to the Architect, and the Owner.
 2. Contractor shall print one full size hard copy of each submittal and sample returned "No Exceptions Taken", or "Make Corrections Noted" and keep a copy on hand in the construction field office.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
1. Retained samples will not be returned to Contractor unless specifically so stated.

3.10 SUBMITTAL PROCEDURES

- A. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
 2. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.
- B. Transmit each submittal with a copy of approved submittal form.
- C. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- D. Include a specification section and paragraph reference number on each submittal.
- E. Do not combine and submit multiple products from different specification sections under one section number. Maintain distinct submittal packages for each specification section.
- F. Do not submit partial submittals. Submittals must include everything requested under that specification section.
- G. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- H. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- I. Schedule submittals to expedite the Project, and coordinate submission of related items.
- J. For each submittal for review, allow 14 days excluding delivery time to and from the Contractor.
- K. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- L. Provide space for Contractor and Architect review stamps.
- M. When revised for resubmission, identify all changes made since previous submission.
- N. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- O. Submittals not requested will not be recognized or processed.

3.11 ARCHITECT'S ACTION

- A. Submittals without Contractor's review stamp will be returned stamped "rejected".
- B. Submittals which do not clearly identify the project will be returned stamped "rejected".
- C. Architect's Action: Submittals will be returned stamped with the following disposition:
1. No Exceptions Taken: Work covered in the submittal may proceed provided it complies with the contract documents.

2. Make Corrections Noted: Work covered in the submittal may proceed provided it complies with the contract documents and complies with the notations and/ or corrections made by the Architect. Submittals shall be revised to incorporate notations and corrections for the closeout record submittal.
3. Amend and Resubmit: Work covered in the submittal shall not proceed. Revise and resubmit in accordance with the Architect's notations and/ or corrections.
4. Rejected: Work covered in the submittal shall not proceed. Contact Architect for corrective measures.
5. No Action: Where a submittal is provided for record purposes or not required by the specifications.

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. References and standards.
- B. Quality assurance submittals.
- C. Control of installation.
- D. Tolerances.
- E. Testing and inspection services.
- F. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittal procedures.
- B. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Owner will contract directly with Testing Agency and the following information is included for coordination purposes only.
- C. Testing Agency Qualifications:
 - 1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time specialist and responsible officer.
 - 2. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.
- D. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- E. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Type, date, and results of test/inspection.
 - g. When requested by Architect, provide interpretation of results.
 - 2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
 - 1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.04 REFERENCES AND STANDARDS

1.05 TESTING AND INSPECTION AGENCIES

- A. Owner will employ and pay for services of an independent testing agency to perform specified testing:
 - 1. Structural special inspections - see Structural drawings
- B. Contractor shall employ and pay for services of an independent testing agency to perform other specified testing:
 - 1. Floor preparation moisture testing, wall substrate moisture testing and air sealing system testing.
- C. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 3 EXECUTION

2.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

2.02 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.
- D. Tolerances: 1/8 inch in 10 feet , flat, level or plumb, unless otherwise indicated. See individual specification sections for more stringent required tolerances.

2.03 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.

5. Perform additional tests and inspections required by Architect.
 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency may not approve or accept any portion of the Work.
 3. Agency may not assume any duties of Contractor.
 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
1. Deliver to testing agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 5. Notify Architect and Owner's representative 10 days prior to air sealing system testing.
 6. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 7. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.
- E. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

2.04 SCHEDULE OF TESTING AND INSPECTIONS

- A. See Structural drawings for a schedule of required Special Inspections.
- B. See other specification sections for additional required testing.

2.05 INSPECTIONS

- A. Contractor shall be aware of required inspections by code officials, Architects, consulting Engineers. Contractor shall allocate resources and personnel as required to facilitate inspections and provide access to the work.

2.06 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of Architect and Owner, it is not practical to remove and replace the Work, Architect and Owner will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Vehicular access and parking.
- G. Waste removal facilities and services.
- H. Field offices.

1.02 RELATED REQUIREMENTS

- A. Section 01 5100 - Temporary Utilities.
- B. Section 01 5213 - Field Offices and Sheds.
- C. Section 01 5500 - Vehicular Access and Parking.

1.03 TEMPORARY UTILITIES - SEE SECTION 01 5100

- A. Owner will provide the following:
 - 1. Electrical power and metering, consisting of connection to existing facilities.
 - 2. Water supply, consisting of connection to existing facilities.

1.04 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

1.05 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.
- C. Contractor will not be permitted to use adjacent tenant facilities.

1.06 INTERIOR ENCLOSURES

- A. Provide temporary partitions between the work area and the adjacent tenant spaces to prevent dust migration from the work area into the tenant spaces. Temporary partitions shall be air-tight.
- B. Construction: Wood Framing covered with reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces and penetrations
- C. Temporary partitions are not shown on the floor plans. Existing walls may be used as part of the dust migration prevention system. Contractor is responsible for meeting the performance intent of this section.

1.07 SECURITY - SEE SECTION 01 3553

- A. Provide security and facilities to protect Work, existing facilities, adjacent tenant and Owner's operations from unauthorized entry, vandalism, or theft.

1.08 VEHICULAR ACCESS AND PARKING - SEE SECTION 01 5500

- A. Owner will provide limited on- site parking for contractor vehicles. Contractor is responsible for providing off- site parking beyond what the owner provides.
- B. Coordinate access and haul routes with governing authorities and Owner.
- C. Provide and maintain access to fire hydrants, free of obstructions.

1.09 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.10 FIELD OFFICES - SEE SECTION 01 5213

- A. Option #1: Contractor may use space within the work space as a temporary field office. Contractor is responsible if necessary for moving the office to a different location within the work area to facilitate the progress of the work.
- B. Option #2: Site trailer provided by the Contractor.
 - 1. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.
 - 2. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations and procedures.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.
- B. Section 01 30 00 - Administrative Requirements

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS- GENERAL REQUIREMENTS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.05 QUALITY ASSURANCE

- A. Recycled content: Contractor is encouraged to use materials with recycled content whenever feasible.
- B. Sustainably Harvested Wood: Solid wood, wood chips, and wood fiber certified or labeled by an organization accredited by one of the following:
 - 1. The Forest Stewardship Council, The Principles for Natural Forest Management; visit <http://www.fscus.org>.

1.06 ADMINISTRATIVE REQUIREMENTS

- A. Lead time scheduling: Schedule adequate time to perform coordination, prepare submittals, ordering, manufacturing, fabrication, delivery and installation.
 - 1. Product selection will not be limited, and Contract Time will not be extended, as a result of failure to perform scheduling activities necessary to furnish products.

PART 2 PRODUCTS

2.01 OWNER-SUPPLIED PRODUCTS

- A. Contractor will be responsible for installing some of the owner's existing equipment. See schedule in the drawings for owner supplied equipment to be installed by Contractor.

- B. Owner will be responsible for moving and delivering to the work area, owner's existing equipment from the owner's current facility.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products beyond labeled expiration date.
- C. DO NOT USE products having any of the following characteristics:
 - 1. Made of wood from newly cut old growth timber.
 - 2. Containing asbestos, PCB's or other recognized hazardous materials.
 - 3. Containing added urea formaldehyde
- D. Where all other criteria are met, Contractor shall give preference to products that:
 - 1. If used on interior, have lower emissions, as defined in Section 01 6116.
 - 2. If wet-applied, have lower VOC content, as defined in Section 01 6116.
 - 3. Are extracted, harvested, and/or manufactured closer to the location of the project.
 - 4. Have longer documented life span under normal use.
 - 5. Result in less construction waste.
 - 6. Are made of recycled materials.
 - 7. If made of wood, are made of sustainably harvested wood, wood chips, or wood fiber.
- E. Compatibility: Contractor shall give preference to products which are chemically and physically compatible with products previously selected.
 - 1. See 07 90 05 Joint Sealants
- F. Provide products that are complete with accessories, trim, fasteners, and other items needed for a complete installation.
- G. Where warranties are required, provide products complying with warranty requirements indicated elsewhere.

2.03 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
 - 1. Product substitutions shall be made only during the bidding period. After this period no substitution requests shall be made.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

- C. A request for substitution constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 5. Will reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitution Submittal Procedure:
 - 1. Submit electronic pdf file of request for substitution for consideration. Limit each request to one proposed substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 - 3. The Architect will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.

- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.
- L. Store materials in a manner that will not damage building structure.

END OF SECTION

SECTION 01 6116

VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for VOC-Content-Restricted products.
- B. Requirement for installer certification that they did not use any non-compliant products.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittal procedures.
- B. Section 01 4000 - Quality Requirements: Procedures for testing and certifications.
- C. Section 01 6000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

1.03 DEFINITIONS

- A. VOC-Content-Restricted Products: All products in the following product categories, when installed or applied on site in the building interior:
 - 1. Paint, coatings, sealers
 - 2. Joint sealants
 - 3. Adhesives and chemical cements
 - 4. Composite wood or agrifiber products
 - 5. Other products when specifically stated in the specifications.
- B. Interior of Building: Anywhere inside the exterior weather barrier.

1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; current edition.
- B. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005 (Reapproved 2013).
- C. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2007.
- D. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2011.
- E. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113; current edition; www.aqmd.gov.
- F. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.
- C. Installer Certifications Regarding Prohibited Content: Require each installer of any type of product (not just the products for which VOC restrictions are specified) to certify that either 1) no adhesives, joint sealants, paints, coatings, or composite wood or agrifiber products have been used in the installation of his products, or 2) that such products used comply with these requirements.

1.06 QUALITY ASSURANCE

- A. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.
 - 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Report of laboratory testing performed in accordance with requirements.
 - b. Published product data showing compliance with requirements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. VOC-Content-Restricted Products: VOC content not greater than required by the following:
 - 1. Adhesives, Including Flooring Adhesives: SCAQMD Rule 1168.
 - 2. Aerosol Adhesives: GreenSeal GS-36.
 - 3. Joint Sealants: SCAQMD Rule 1168.
 - 4. Paints and Coatings: Each color; most stringent of the following:
 - a. 40 CFR 59, Subpart D.
 - b. SCAQMD Rule 1113.
 - c. CARB (SCM).

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.
- B. All additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

END OF SECTION

**SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Cutting and patching.
- C. Surveying for laying out the work.
- D. Cleaning and protection.
- E. Demonstration and instruction of Owner personnel.
- F. Closeout procedures, except payment procedures.
- G. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures.
- B. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- C. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures.
- D. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.
- E. Section 01 9113 - General Commissioning Requirements: Contractor's responsibilities in regard to commissioning.
- F. Section 07 8400 - Firestopping.

1.03 REFERENCE STANDARDS

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- D. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.05 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.

- C. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Coordinate specific requirements described in product data or shop drawings with other related work.
- E. Coordinate portions of the work shown on the drawings indicated to be "V.I.F" or "Verify" with the requirements of the submittals related to the work.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean-up of work of separate sections.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 3 EXECUTION

2.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify compatibility of substrates with finishes and primers.
- C. Verify the existence of any underground utilities.
- D. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- E. Examine and verify specific conditions described in individual specification sections.
- F. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- G. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- H. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

2.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.
- D. For materials sensitive to temperature, moisture or humidity, condition the space as required to comply with manufacturer's installation requirements.
- E. Ensure that all required blocking has been installed prior to installing gypsum board.

2.03 GENERAL INSTALLATION REQUIREMENTS

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

- B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Tolerances: 1/8 inch in 10 feet , flat, level or plumb, unless otherwise indicated. See individual specification sections for more stringent required tolerances.
- E. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- F. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- G. Make neat transitions between different surfaces, maintaining texture and appearance.
- H. Make joints of the same type uniform in width. Where no joint width is indicated or shown, fit work together tightly with flush hairline joints.
- I. Provide adequate lighting levels in areas to receive interior finish work.

2.04 CUTTING AND PATCHING (OF NEW WORK)

- A. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- B. Restore work with new products in accordance with requirements of Contract Documents.
- C. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- D. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.
- E. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

2.05 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

2.06 CONSTRUCTION WASTE MANAGEMENT

- A. Collect and remove waste materials, debris, and trash/rubbish from site periodically and lawfully dispose off-site; do not burn or bury.
- B. Comply with all Local, State and Federal Regulations.
- C. See Owner's detailed requirements for Construction Waste Management and Recycling.

2.07 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, drywall dust, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

2.08 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

2.09 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

2.10 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.
- B. Where possible, use cleaning products that comply with Green Seal's GS -37.
- C. Clean all surfaces of existing roof bar joists and structural beams and columns.
- D. Clean and mop existing concrete floors.
- E. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- F. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- G. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- H. Clean filters of operating equipment.
- I. Clean site; sweep paved areas, rake clean landscaped surfaces.
- J. Wipe clean all surfaces of walls, millwork, doors and frames. Vacuum all carpets. Mop all resilient flooring and tile.
- K. Clean all light fixtures. Remove debris, dust and insects from above fixture lens.
- L. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

2.11 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Notify Architect when work is considered ready for Substantial Completion.
- C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.
- D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- E. Notify Architect when work is considered finally complete.
- F. Complete items of work determined by Architect's final inspection.

2.12 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Record Submittals
- C. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
 - 4. Submit two sets of revised final documents in final form within 10 days after final inspection.
- D. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 3 EXECUTION

2.01 PROJECT AS-BUILT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.

- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings : Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Field changes of dimension and detail.
 - 4. Details not on original Contract drawings.
- G. Deliverables: Provide one full size hard copy and one scanned bookmarked and indexed pdf file stored on USB thumb drive(s).

2.02 RECORD SUBMITTALS

- A. Provide one copy of every submittal for record- both product data and shop drawings.
- B. Record submittals shall be updated and revised to reflect all comments and corrections.
- C. Provide a schedule of record submittals indexed for use in future retrieval.
- D. Deliverables:
 - 1. Provide one full size hard copy, organize submittals in scheduled order. Deliver submittals stored in standard sized cardboard bankers boxes. Gently fold full size shop drawings into format which will fit into a standard bankers box.
 - 2. Provide the same information as above on a bookmarked and indexed pdf file(s) stored on USB thumb drive(s).

2.03 OPERATION AND MAINTENANCE DATA- GENERAL

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

2.04 CONTENT OF OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 - 1. Description of unit or system, and component parts.
 - 2. Identify function, normal operating characteristics, and limiting conditions.
 - 3. Include performance curves, with engineering data and tests.
 - 4. Complete nomenclature and model number of replaceable parts.

- B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- C. Prepare instructions and data by personnel experienced in maintenance and operation of products and systems.
- D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- E. Provide servicing and lubrication schedule, and list of lubricants required.
- F. Include manufacturer's printed operation and maintenance instructions.
- G. Include sequence of operation by controls manufacturer.
- H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
- J. Include test and balancing reports.
- K. Additional Requirements: As specified in individual product specification sections.

2.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.
- F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- H. Deliverables: Provide one full size hard copy as described above, and provide the same information as above on a bookmarked and indexed pdf file(s) stored on USB thumb drive(s).

2.06 WARRANTIES AND BONDS (SEPARATE BINDER)

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.

- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Manual: Bind in commercial quality 8-1/2 by 11 inch (216 by 279 mm) three D side ring binders with durable plastic covers.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- I. Deliverables: Provide one full size hard copy as described above, and provide the same information as above on a bookmarked and indexed pdf file(s) stored on USB thumb drive.

END OF SECTION

**SECTION 02 4100
DEMOLITION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes.
- B. Abandonment and removal of existing utilities and utility structures.

1.02 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.04 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.
 - 1. Minimum of 3 years of experience.

PART 3 EXECUTION

2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 3. Provide, erect, and maintain temporary barriers and security devices.
 - 4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 6. Do not close or obstruct roadways or sidewalks without permit.
 - 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- D. Perform demolition in a manner that maximizes salvage and recycling of materials.
 - 1. Dismantle existing construction and separate materials.

2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

2.02 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.03 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation only.
 1. Verify that construction and utility arrangements are as shown.
 2. Report discrepancies to Architect before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 .
- C. Remove existing work as indicated and as required to accomplish new work.
 1. Remove items indicated on drawings.
- D. Protect existing work to remain.
 1. Prevent movement of structure; provide shoring and bracing if necessary.
 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
 4. Patch as specified for patching new work.
- E. Concrete slab cutting: Cutting of concrete slab on grade for plumbing trenches shall be done with a concrete cutting saw. Trenches shall be straight, and of uniform width. Trenches shall be parallel / orthogonal to building structural grid.

2.04 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 05 5000
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tube steel millwork support post
- B. Steel bollards

1.02 REFERENCE STANDARDS

- A. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- C. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2013.
- D. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.
- E. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric); 2014.
- F. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.
- G. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.
- H. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- B. Plates: ASTM A283/A283M.
- C. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- D. Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, plain.
- E. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.

- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

- A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; galvanized finish.
- B. Millwork support: Steel tube, with welded steel base plate

2.04 FINISHES - STEEL

- A. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.05 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).
- C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).
- D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).
- E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Obtain approval prior to site cutting or making adjustments not scheduled.

3.02 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION

SECTION 05 5100
METAL STAIRS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

- A. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2015.
- B. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015 (Errata 2016).

PART 2 PRODUCTS

2.01 METAL STAIRS - GENERAL

- A. Metal Stairs: Provide stairs of the design specified, complete with landing platforms, vertical and horizontal supports, railings, and guards, fabricated accurately for anchorage to each other and to building structure.
 - 1. Regulatory Requirements: Provide stairs and railings complying with the most stringent requirements of local, state, and federal regulations; where requirements of the contract documents exceed those of regulations, comply with the contract documents.
 - 2. Dimensions: As indicated on drawings.
 - 3. Shop assemble components; disassemble into largest practical sections suitable for transport and access to site.
 - 4. No sharp or rough areas on exposed travel surfaces and surfaces accessible to touch.
 - 5. Separate dissimilar metals using paint or permanent tape.
- B. Metal Jointing and Finish Quality Levels:
 - 1. Industrial: All joints made neatly.
 - a. Welded Joints: Welded on back side wherever possible.
 - b. Welds Exposed to Touch: Ground smooth.
 - c. Bolts Exposed to Touch in Travel Area: No nuts or screw threads exposed to touch.
- C. Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.
- D. Anchors and Related Components: Same material and finish as item to be anchored, except where specifically indicated otherwise; provide all anchors and fasteners required.

2.02 PREFABRICATED STAIRS

- A. Alternating Tread Stairs: Welded metal unit; factory fabricated to the greatest degree possible.
 - 1. Design Requirements:
 - a. Stair Load capacity, guardrail and handrail capacity to meet VT State Building code requirements.
 - 2. Materials: Carbon steel; ASTM A1011/A1011M, Grade 36 minimum.
 - a. Stair Angle: 68 degrees,
 - b. Components: Manufacturer's standard handrails, guardrails, non-skid treads and stringers.
 - c. Finish: Manufacturer's standard iron gray powder coat.
 - d. Accessories: Manufacturer's standard foot divider with rubber bumper strip.
 - 3. Products:
 - a. Lapeyre Stair, Inc; Alternating Tread Stair: www.lapeyrestair.com.
 - b. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 INSTALLATION

- A. Install components plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Provide welded field joints where specifically indicated on drawings. Perform field welding in accordance with AWS D1.1/D1.1M.
- D. Other field joints may be either welded or bolted provided the result complies with the limitations specified for jointing quality levels.
- E. Obtain approval prior to site cutting or creating adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.03 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

END OF SECTION

**SECTION 06 1000
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Blocking under roof-mounted HVAC curbs.
- B. Communications and electrical room mounting boards.
- C. Concealed wood blocking, nailers, and supports.
- D. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- A. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.
- B. PS 1 - Structural Plywood; 2009.
- C. PS 20 - American Softwood Lumber Standard; 2010.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
 - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch (19 mm) thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.

- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.02 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. Provide the following specific non-structural framing and blocking:
 1. Cabinets and shelf supports.
 2. Wall brackets.
 3. Handrails.
 4. Grab bars.
 5. Towel and bath accessories.
 6. Wall-mounted door stops.
 7. Chalkboards and marker boards.
 8. Wall paneling and trim.

3.03 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where specifically indicated otherwise. Form corners by alternating lapping side members.

3.04 INSTALLATION OF CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches (610 mm) on center on all edges and into studs in field of board.
 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
 3. Install adjacent boards without gaps.

END OF SECTION

SECTION 06 2000
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Window Stools
- B. Wall caps and trim
- C. Peg boards- hardboard and prefabricated metal types

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- C. Section 07 62 00 - Sheet metal Flashing and Trim
- D. Section 09 9000 - Painting and Coating: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Custom Grade.
- B. Interior Finish Carpentry Items:
 - 1. Window stools: exterior grade medium density fiberboard, poplar trim, field primed and painted.
 - 2. Wall caps: same as window stools
- C. WOOD-BASED COMPONENTS
 - 1. Wood fabricated from old growth timber is not permitted.
 - 2. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000.

2.02 LUMBER MATERIALS

- A. Board Wood Lumber: Yellow Poplar species, Plain sawn, maximum moisture content of 9 percent; with vertical grain, .
 - 1. Selection: greenish yellow heartwood
 - a. Grade: D Select, MC-15 / NeLMA, not grade stamped
 - 2. Surface: S4S
 - 3. Finish: Site or shop primed and painted
 - 4. FSC Certified

2.03 SHEET MATERIALS

- A. Preservative Pressure Treated Plywood : Any face species, veneer core; glue type as recommended for application.

1. Grade: Exterior A-C / DOC PS 1
 2. Rating: face grade 303 - OL APA rated siding
 3. Preservative treated, AWPA Use category UC2 and UC3 Commodity Specification F (Treatment 9) where in contact with roofing flashing, waterproofing, masonry, concrete or where indicated.
 4. Thickness: 3/4 inch.
 5. Ripped into 2 inch wide strips for furring behind exterior wood siding.
- B. Medium Density Fiberboard
1. Moisture resistant type - suitable for high moisture interior applications
 2. Thickness: 3/4 inch
 3. Formaldehyde free
 4. FSC Certified
 5. Meets ANSI A208.2-2009 Grade 155 MR50
 6. Flame spread: Class 3 (C)
 7. Density: 48 lb/ cubic foot
 8. Manufacturer:
 - a. SierraPine, Product: medEX
 9. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Perforated MDF Hardboard (for peg boards)
1. 9/32 inch holes, 1 inch spaced grid pattern
 2. Thickness: 1/4"
 3. Formaldehyde Free
 4. Moisture resistant
 5. Factory finished gloss white
 6. Flame Spread Class C minimum ASTM E84

2.04 METAL UNIT PEG BOARDS

- A. Pre-manufactured unit peg board
- B. Material and Finish: Painted aluminum
- C. Dimension - see drawings
- D. Integral perimeter frame
- E. Accessories: Wire grid peg shelf with front edge lip
 1. Chrome finish
 2. Layout and quantity - see drawings
- F. Accessories: peg hooks
 1. Quantity: twelve
- G. Manufacturer: Diamond Life Pegboard X2 www.diamondlifegear.com

2.05 FASTENINGS

- A. Glue: Exterior grade, waterproof, suitable for application
 1. No added urea formaldehyde
 2. VOC content: to comply with specified restrictions
- B. Interior Fasteners: Of size and type to suit application.

2.06 ACCESSORIES

- A. Wood Filler: Solvent base, tinted to match surface finish color.

2.07 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. See Section 06 10 00 Rough Carpentry for installation of recessed wood blocking.

3.02 INTERIOR FINISH CARPENTRY INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work with no gaps.
- D. Gaps between wood and wall surfaces fill with joint sealant. 1/16 inch gap width maximum.
- E. No exposed fasteners. Recess all fasteners, fill holes and sand smooth.
- F. At window stools, countersink recess screw heads and fill recess with solvent based filler, sand smooth.
- G. Install finish carpentry with minimum number of joints possible, using full length pieces from maximum lengths of material available.
- H. Metal peg board installation:use manufacturers self sticking plastic bushings. Mount to face of wall with exposed screws supported from rear side of peg board by plastic bushing.

3.03 TOLERANCES

- A. Maximum Variation from True Position: 1/32 inch (0.79 mm).
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION

SECTION 06 4100
ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cabinets- base and upper cabinets
- B. Countertops
- C. Built-in storage racks
- D. Shelves (not on standards)
- E. Coat hooks and benches
- F. Cabinet hardware

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- C. Section 07 90 05 Joint Sealers

1.03 REFERENCE STANDARDS

- A. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.
- B. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.
- C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.
- D. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
- C. Product Data: Provide data for Medium density fiberboard, plywood, adhesives and hardware accessories.
- D. Include urea formaldehyde and VOC content reports.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.

1.07 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 CABINETS

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI Architectural Woodwork Standards (AWS) for Custom Grade.

- B. Wood Cabinets :
 - 1. Adjustable Shelf Loading: 50 lbs. per sq. ft..
 - a. Deflection: L/144.
 - 2. Cabinet Style: Flush overlay.
 - 3. Cabinet Doors and Drawer Fronts: Flush style.
 - 4. Drawer Construction Technique: As recommended by fabricator.
 - 5. Finish:
 - a. Exposed surfaces and backs of cabinets doors: decorative laminate- shop finished
 - b. Cabinet and drawer interiors: Melamine
 - 6. Edging for doors and drawers: Solid PVC- adhered, 1/16 inch thick.

2.02 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.
- B. Dimensional hardwood lumber:
 - 1. Poplar- clear vertical grain
 - 2. Thickness: 3/4"
 - 3. Width varies
 - 4. Finish: S4S
 - 5. FSC Certified wood
- C. Medium Density Fiberboard:
 - 1. Class MD/ ANSI A208.2
 - 2. Grade 140, 150 or 160
 - 3. Moisture resistance: MR 30
 - 4. No added urea formaldehyde
 - 5. Thickness: 3/4 inch
 - 6. FSC Certified wood
 - 7. Faces sanded smooth
 - 8. Melamine faced at cabinet and drawer interiors
 - 9. Manufacturer: SierraPine Limited
 - 10. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Straw Board (optional)
 - 1. Grade M3 / ANSI A208.2
 - 2. Moisture resistance: MR 30 ANSI A208.3
 - 3. No added urea formaldehyde
 - 4. Thickness: 3/4 inch
 - 5. Faces sanded smooth
 - 6. Manufacturer: Environ Biocomposites-Product: Microstrand Wheat
 - 7. Substitutions: See Section 01 60 00 - Product Requirements.
- E. Wood Lumber (for concealed cabinet blocking and reinforcing)
 - 1. Any softwood species permitted by the referenced standards.
 - 2. FSC Certified wood
- F. Hardwood Veneer Plywood:
 - 1. Grade: Grade A , Panel A / Section 200 Panel Products AWI QSI
 - 2. Species: Maple
 - 3. Panel thickness: 3/4"
 - 4. Veneer Thickness: 1/32 inch
 - 5. Plain sliced flat cut

- 6. Faces sanded smooth
- G. Hardwood Edgebanding: Use 1/8 inch thick solid hardwood edgebanding matching veneer species, color, grain, and grade for exposed portions of cabinetry.

2.03 LAMINATE MATERIALS

- A. Manufacturers:
 - 1. Formica Corporation: www.formica.com.
 - 2. Panolam Industries International, Inc\Nevamar: www.nevamar.com.
 - 3. Wilsonart International, Inc: www.wilsonart.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.
 - 1. Style and color to be selected by Architect from standard palette.

2.04 COUNTERTOPS

- A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.
- B. Thickness: substrate: 1 1/2 inches
- C. Integral cove backsplash

2.05 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
 - 1. No added urea formaldehyde
 - 2. Comply with VOC restrictions
- B. Plastic Edge Banding: Extruded PVC, flat shaped; smooth finish; self locking serrated tongue; of width to match component thickness.
 - 1. Color: As selected by Architect from manufacturer's standard range.
 - 2. Use at all plastic laminate panel edges.
- C. Fasteners: Size and type to suit application.
- D. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

2.06 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Adjustable Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch (25 mm) spacing adjustments.
- C. Drawer and Door Pulls: "U" shaped wire pull, steel with chrome finish, 4 inch centers ("U" shaped wire pull, steel with chrome finish, 100 mm centers).
- D. Cabinet Locks: Keyed cylinder, two keys per lock, master keyed, steel with chrome finish.
- E. Catches: Magnetic.
- F. Drawer Slides:
 - 1. Type: Full extension.
 - 2. Static Load Capacity: Heavy Duty grade.
 - 3. Mounting: Side mounted.
 - 4. Stops: Integral type.

- 5. Features: Provide self closing/stay closed type.
- 6. Products:
 - a. Accuride International, Inc: www accuride.com.
 - b. Grass America Inc: www.grassusa.com.
 - c. Hettich America, LP: www.hettichamerica.com.
 - d. Knape & Vogt Manufacturing Company: www.knapeandvogt.com.
- G. Hinges: Butt self-closing type, full wrap, Heavy duty grade, steel with polished finish.
 - 1. Use three hinges per cabinet door leaf.
- H. Coat hooks- 3" projection, chrome finish.

2.07 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

2.08 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. On items to receive transparent finishes, use wood filler matching or blending with surrounding surfaces and of types recommended for applied finishes.
- C. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards (AWS), Section 5 - Finishing for Grade specified and as follows:
 - 1. Transparent:
 - a. System - 11, Polyurethane, Catalyzed.
 - b. Sheen: Semigloss.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch (1 mm). Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- G. Install all adjustable shelves and hardware.
- H. Scribe filler pieces tight to adjacent surfaces.
- I. Leave keys in drawer.
- J. Install silicone joint sealant between counter top and adjacent walls.

- K. Bed sink flanges in silicone sealant to countertop surface.

3.03 ADJUSTING

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.
- C. Gaps between cabinets doors and drawers shall be uniform 1/8 inch wide. All gaps to align with adjacent gaps.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures, inside and outside,

END OF SECTION

**SECTION 06 8200
GLASS FIBER REINFORCED PLASTIC**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Glass fiber reinforced panels

1.02 RELATED REQUIREMENTS

- A. Section 01 61 16 VOC Content Restrictions
- B. Section 09 21 16 Gypsum Board Assemblies

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified component products.
- C. Adhesive: Include VOC content
- D. Trim: components and profiles

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fiberglass Reinforced panels
 - 1. Crane Composites, Product: Kemlite
 - 2. Marlite
 - 3. Nudo Products
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Gelcoat finished glass fiber reinforced plastic panels
 - 1. ASTM D 5319
 - 2. Class A - ASTM E84
 - 3. Thickness: 0.075 inch
 - 4. Finish texture: molded pebble texture, high gloss
 - 5. Color: white
 - 6. Trim: manufacturer's standard vinyl extrusions designed to retain and cover edges, including panel divison bars. inside / outside corners and caps
- B. Adhesive:
 - 1. As recommended by FRP panel manufacturer
 - 2. Comply with VOC restrictions
- C. Sealant: As recommended by FRP panel manufacturer.
 - 1. Comply with VOC restrictions

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work and dimensions are as instructed by the fabricator.

3.02 INSTALLATION

- A. Install fabrications in accordance with drawings and fabricator's instructions.

- B. Install panels with full spread of adhesive and/ or special water tight fasteners as recommended by panel manufacturer.
- C. Install trim with adhesive and fasteners
- D. Fill groove in trim with sealant before installing trim to edge of panels.

3.03 CLEANING

- A. Clean components of foreign material without damaging finished surface.

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at exterior wall behind gypsum board wall finish.

1.02 RELATED REQUIREMENTS

- A. Section 07 2119 - Foamed-In-Place Insulation: Plastic foam insulation other than boards.
- B. Section 09 2116 - Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.04 QUALITY ASSURANCE

- A. Foil faced insulation at exterior walls in addition to providing thermal R- value is intended to perform as both air and vapor barrier.

PART 2 PRODUCTS

2.01 APPLICATIONS

- A. Insulation at perimeter of foundation walls, inside cavity walls, continuous wall insulation outboard of building sheathing. under slab-on-grade: Extruded polystyrene board.
- B. Insulation over steep slope roof deck: Nailbase type polyisocyanurate board board.

2.02 FOAM BOARD INSULATION MATERIALS

- A. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with ASTM C1289; Type I, aluminum foil both faces; Class 1, non-reinforced foam core.
 - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
 - 3. Compressive Strength: 16 psi (110 kPa)
 - 4. Board Size: 48 by 96 inch (1220 by 2440 mm).
 - 5. Board Thickness: 3 inches (76.2 mm).
 - 6. Board Edges: Square.
 - 7. Manufacturers:
 - a. Atlas Roofing Corporation; ACFoam-II Polyiso Roof Insulation: www.atlasroofing.com/sle.
 - b. Hunter Panels, LLC: www.hpanels.com.
 - c. Johns Manville; AP Foil-Faced: www.jm.com/sle.
 - d. Rmax Inc; ECOMAXci: www.rmax.com.
 - 8. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

- A. Tape: Bright aluminum self-adhering type, 2 inch (50 mm) wide.
- B. Adhesive: Construction adhesive type type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT EXTERIOR WALLS

- A. Install boards horizontally , using adhesive, to face of existing exterior metal stud framing.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Tape insulation board joints and edges at perimeter, and at all window openings.

3.03 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Do not install gypsum board / metal stud furring until all joint taping is completed and inspected by Architect.

3.04 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2119
FOAMED-IN-PLACE INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Foamed-in-place insulation.
 - 1. For filling gaps and joints at perimeter of foil face insulation board.
- B. Thermal Barrier: Spray applied protective cementitious or intumescent overcoat.

1.02 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.
- B. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2012.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2013.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, insulation properties, overcoat properties, VOC content, urea formaldehyde content, and preparation requirements.
- C. Manufacturer's installation instructions .

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing work of the type specified, with minimum three years documented experience. Approved by foamed insulation manufacturer.

1.05 FIELD CONDITIONS

- A. Do not apply foam when temperature is below that specified by the manufacturer for ambient air and substrate.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Foamed-In-Place Insulation:
 - 1. BASF Corporation; WALLTITE US Series Closed Cell: www.spf.basf.com.
 - 2. Demilec LLC; DEMILEC APX: www.demilec.com/sle.
 - 3. Gaco Western: www.gaco.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Foamed-In-Place Insulation: ASTM C 1029 Type II closed cell polyurethane foam; foamed on-site, using blowing agent.
 - 1. Thermal Resistance (R-value): 5 (deg F hr sq ft)/Btu (0.9 (K sqm)/W), minimum, when tested at 1 inch (25.4 mm) thickness in accordance with ASTM C518 after aging for 180 days at 41 degrees F (23 degrees C).
 - 2. Water Vapor Permeance: Vapor retarder; 2 perm (115 ng/(Pa s sqm)), maximum, when tested at intended thickness in accordance with ASTM E96/E96M, desiccant method.

3. Water Absorption: Less than 2 percent by volume, maximum, when tested in accordance with ASTM D2842.
4. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, maximum, when tested in accordance with ASTM E84.
5. Products:
 - a. Demilec (USA) LLC; HEATLOK SOY 200: www.demilecusa.com.
 - b. BASF Corporation: www.spf.basf.com)
 - c. Johns Manville; JM Corbond III Closed Cell Spray Polyurethane Foam: www.jm.com/sle.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Thermal Barrier- Water based, Intumescent coating for covering exposed spray foam not protected by gypsum wall board, as recommended by spray foam manufacturer.
 1. Thickness: 11 mil dry film
 2. Flame Spread <25, Smoke developed < 50
 3. VOC content: < 50 g/L
 4. Products: Demilec BlazeLok TBX

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify work within construction spaces or crevices is complete prior to insulation application.
- B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.
- C. Installer's Site Field Report: report conditions of substrate, temperature, weather. Include installation instructions.

3.02 PREPARATION

- A. Mask and protect adjacent surfaces from over spray or dusting.
- B. Apply primer in accordance with manufacturer's instructions.

3.03 APPLICATION

- A. Apply insulation in accordance with manufacturer's instructions.
- B. Apply insulation by spray method, to a uniform monolithic density without voids.
- C. Apply in layers not to exceed 120 degrees F maximum.
- D. Apply in layers not to exceed temperatures detrimental to substrates or flashing components.
- E. Allow each layer to cool to within 10 degree F of ambient air temperature
- F. Limit layer thickness to 1" at areas with adhered flashing.
- G. Apply thermal barrier to all foamed-in-place insulation not covered by gypsum board including over foamed in place insulation located above suspended ceilings or in any other concealed locations.
- H. Apply thermal barrier where required to manufacturer's recommended thickness to achieve fire rating.
- I. Apply thermal barrier in accordance with manufacturer's instructions

END OF SECTION

**SECTION 07 8400
FIRESTOPPING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not.

1.02 REFERENCE STANDARDS

- A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2012.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a.
- C. ASTM E1966 - Standard Test Method for Fire Resistive Joint Systems; 2007 (Reapproved 2011).
- D. ASTM E2837 - Standard Test Method for Determining Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies; 2011.
- E. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems; Underwriters Laboratories Inc.; 2004.
- F. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. UL Fire resistance design which reflects specific product being used and specific application.
- E. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Installer Qualification: Submit qualification statements for installing mechanics.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum Five years documented experience.

1.05 FIELD CONDITIONS

PART 2 PRODUCTS

2.01 FIRESTOPPING - GENERAL REQUIREMENTS

- A. Manufacturers:
 - 1. A/D Fire Protection Systems Inc: www.adfire.com.
 - 2. 3M Fire Protection Products: www.3m.com/firestop.
 - 3. Hilti, Inc: www.us.hilti.com.
 - 4. Specified Technologies, Inc: www.stifirestop.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

2.02 FIRESTOPPING ASSEMBLY REQUIREMENTS

- A. Head-of-Wall Firestopping at Joints Between Non-Rated Floor and Fire-Rated Wall: Use any system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of floor or wall, whichever is greater.
- B. Floor-to-Floor, Wall-to-Wall, and Wall-to-Floor Joints, Except Perimeter, Where Both Are Fire-Rated: Use any system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.
- C. Through Penetration Firestopping: Use any system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
 - 1. Temperature Rise: In addition, provide systems that have been tested to show T Rating as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.

3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

3.04 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

- A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 07 9005
JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.

1.02 RELATED REQUIREMENTS

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 07 84 00 - Fire Stopping

1.03 REFERENCE STANDARDS

- A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- B. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics.
- C. Submit VOC content documentation for all non-preformed sealants and primers.
- D. Manufacturer's Installation Instructions: Indicate special procedures.
- E. Submit standard color samples

PART 2 PRODUCTS

2.01 SEALANTS

- A. Sealants and Primers - General: Provide products having volatile organic compound (VOC) content as specified in Section 01 6116.
- B. General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25 minimum; Uses M, G, and A; single component, non sag, Type S
 - 1. Color: To be selected by Architect from manufacturer's standard range.
 - 2. Applications: Use for:
 - a. Control, expansion, and soft joints in masonry.
 - b. Joints between concrete and other materials.
 - c. Joints between metal frames and other materials.
 - d. Other exterior joints for which no other sealant is indicated.
 - 3. Polyurethane Products:
 - a. Pecora Corporation; DynaTrol I-XL General Purpose One Part Polyurethane Sealant: www.pecora.com.
 - b. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
 - c. TremcoDymonic.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
 - 1. Color: Intended to be painted over
 - 2. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Joints between interior wood trim and wall surfaces

- d. Other interior joints for which no other type of sealant is indicated.
- 3. Products:
 - a. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
 - b. Sherwin-Williams Company; 850A Acrylic Latex Caulk: www.sherwin-williams.com.
 - c. Tremco- Product; Tremflex 834: www.tremcosealants.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- D. Bathtub/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
 - 1. Applications: Used for:
 - 2. Products:
 - a. Pecora Corporation; 898NST Sanitary Silicone Sealant - Class 50: www.pecora.com.
 - b. Sika Corporation; Sikasil GP: www.usa-sika.com.
 - c. Tremco Global Sealants: www.tremcosealants.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- E. Acoustical / Smoke Sealant:
 - 1. Composition: Acrylic latex emulsion sealant.
 - 2. Products:
 - a. Tremco-Product; TremStop Smoke and Sound Sealant: www.tremcosealants.com.
 - b. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com.
 - c. Rector Seal: ProducSmoke and Acoustic Sealant.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- F. Floor Joint Sealant: Polyurethane, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A; single component.
 - 1. Color: To be selected by Architect from manufacturer's standard range.
 - 2. Applications: Use for:
 - a. Expansion joints and large cracks in interior concrete slab on grade.
 - b. Expansion and soft joints at concrete sidewalks, and between sidewalk and foundation walls.
 - 3. Products:
 - a. Pecora Corporation; NR-201 Self-Leveling Traffic and Loop Sealant: www.pecora.com.
 - b. Tremco.
 - c. Sika- Sikaflex -1c SL
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- G. Butyl Sealant: ASTM C1311; single component, solvent release, non-skinning, non-sagging.
 - 1. Color: concealed applications only - match adjacent finished surface
 - 2. Applications: Use for:
 - a. Concealed joints not formed by masonry or concrete.
 - b. Under exterior door thresholds.
 - c. Concealed lap joints in metal
 - 3. Products:
 - a. Pecora Corporation; BC-158: www.pecora.com.
 - b. Tremco- Product; Tremco Butyl Sealant: www.tremcosealants.com.
 - c. Substitutions: See Section 01 6000 - Product Requirements.
- H. Silicone Sealant: ASTM C920, Grade P, Type M, Class 50 minimum; Uses NT, A, G, M, O; two-component, neutral curing, non-staining.

1. Color: To be selected by Architect from manufacturer's standard range.
 2. Movement Capability: Plus 50% percent, minus 50% percent.
 3. Applications:
 - a. Exterior envelope joints other than those formed by concrete or masonry
 4. Products:
 - a. Sika Corporation; Sikasil WS-290 FPS: www.usa-sika.com.
 - b. Tremco - Product: Spectrum 2.
 - c. Pecora- Product: 895NST.
- I. Silicone Sealant: ASTM C920, Grade NS, Class 100/50 minimum; Uses NT, A, G, M, O; single component, neutral curing, non-sagging, non-staining, fungus resistant, non-bleeding.
1. Color: Concealed N/A
 2. Applications: Use for:
 - a. Sealing joints and transitions in air barrier system- See Section 07 25 00 Weather Barriers.
 3. Products:
 - a. Tremco Global Sealants: www.tremcosealants.com. Product: Spectrum 1
 - b. Substitutions: See Section 01 6000 - Product Requirements. See substitution requirements in Section 07 25 00 Weather Barriers
- J. Foamed -in -Place Joint Sealant- low expansion: minimal expanding, single component, closed cell polyurethane foam sealant.
1. Rated for interior use
 2. Proven not to bow or damage window frames.
 3. Applications: Use for:
 - a. Sealing perimeter of doors, windows and aluminum storefront.
 4. Products:
 - a. Dow Chemical Company- Great Stuff Pro Window and Door.
 - b. Convenience Products-Touch n' Foam Window and Door.
 - c. Pur Fill WF
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- K. Foamed -in -Place Joint Sealant- high expansion: triple expanding, single component, closed cell polyurethane foam sealant.
1. Rated for interior use
 2. Applications: Use for: large gaps
 3. Products:
 - a. Dow Chemical Company- Product: Great Stuff Big Gap Filler.
 - b. Convenience Products:Touch n' Foam Triple expanding sealant.
 - c. Pur Fill 1G
 - d. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Backing: Round foam rod compatible with sealant; closed cell polyethylene; foam with a skin like outer texture, oversized 30 to 50 percent larger than joint width.
- C. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Clean non-porous with chemical cleaners that do not harm substrate or interfere with sealant adhesion.
- B. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Install bond breaker where joint backing is not used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Install foam rod backers to produce cross sectional shapes and depths as required by sealant manufacturer and that allow for optimal sealant movement capability.
- G. Foamed -in-place sealants: install sealant to fill gaps around doors and windows. Face of foam to be held back from face of window or door to allow for final sealant to adject wall surface. Trim and remove excess sealant from all surfaces.

3.04 CLEANING

- A. Clean adjacent surfaces soiled by excess or unwanted sealant material.

3.05 PROTECTION

- A. Protect sealants until cured.

**SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-fire-rated steel doors and frames.
- B. Steel frames for wood doors.
- C. Smoke-rated steel frames for wood doors
- D. Thermally insulated steel doors.

1.02 RELATED REQUIREMENTS

- A. Section 08 7100 - Door Hardware.
- B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.
- C. Section 09 9000 - Painting and Coating: Field painting.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003 (R2008).
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2011).
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2013.
- E. ICC A117.1 - Accessible and Usable Buildings and Facilities; International Code Council; 2009 (ANSI).
- F. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
- C. Schedule: indicating type, dimensions, materials, handing, hardware sets and other designations indicated on door schedule.
- D. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

1.05 QUALITY ASSURANCE

- A. Comply with ANSI / ICC A117.1 (Accessibility Standard)
- B. Thermal Performance: Provide door assemblies (door and frame) with or without insulated glazing vision panel which have a maximum U-value of 0.37.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with NAAMM HMMA 840.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Steel Doors and Frames:
 - 1. Assa Abloy Ceco or Curries: www.assaabloydss.com.
 - 2. De La Fontaine Inc: www.delafontaine.com.
 - 3. Republic Doors: www.republicdoor.com.
 - 4. Steelcraft, an Allegion brand: www.allegion.com/us.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DOORS AND FRAMES

- A. Accessibility: Comply with ICC A117.1 and ADA Standards.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL DOORS

- A. Exterior Doors:
 - 1. Grade: ANSI A250.8 - SDI-100; Level 2 - Heavy-Duty, Physical Performance Level B, Model 2 - Seamless.
 - 2. Core: Polystyrene. Or manufacturer's standard foam type.
 - 3. Top Closures for Outswinging Doors: Flush with top of faces and edges.
 - 4. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.
 - 5. Texture: Smooth faces.
 - 6. Weatherstripping: Separate, see Section 08 7100.
 - 7. Finish: Factory primed, and field finished.
 - 8. Bottom recess for concealed recessed door shoe (bottom sweep)

2.04 STEEL FRAMES

- A. General:
 - 1. Comply with the requirements of grade specified for corresponding door.
- B. Exterior Door Frames: Fully welded. Thickness: 16 GA.
 - 1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.
 - 2. Finish: Factory primed, for field finishing.
 - 3. Thermally broken profile, foam insulated
 - 4. Thermal resistance rating: Assembly U-Value: 0.35 maximum
 - 5. Weatherstripping: Separate, see Section 08 7100.
- C. Interior Door Frames, Non-Fire-Rated: Knockdown type.
 - 1. Finish: Factory primed, for field finishing.
 - 2. Grade for frames for wood doors: ANSI A250.8 Level 1, 18 Gauge
- D. Interior Door Frames Smoke "S" label for non-rated doors: Knockdown type.
 - 1. Fire Rating: Same as door, labeled.
 - 2. Finish: Factory primed, for field finishing.
 - 3. Grade for frames for wood doors: ANSI A250.8 Level 1
 - 4. Thickness: 18 Gauge

2.05 ACCESSORY MATERIALS

- A. Glazing: As specified in Section 08 8000, factory installed.
- B. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish. Use galvanized fasteners at exterior doors.
- C. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
- D. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.06 FINISH MATERIALS

- A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

- A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
- B. Coordinate frame anchor placement with wall construction.
- C. Coordinate installation of hardware.
- D. Coordinate installation of glazing.
- E. Coordinate installation of electrical connections to electrical hardware items.

3.03 TOLERANCES

- A. Clearances Between Door and Frame: As specified in ANSI A250.8 - SDI-100.
- B. Maximum Diagonal Distortion: 1/16 in (1.5 mm) measured with straight edge, corner to corner.

3.04 ADJUSTING

- A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 08 1416
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors
- B. Flush wood doors with non- fire rated smoke label

1.02 RELATED REQUIREMENTS

- A. Section 08 1113 - Hollow Metal Doors and Frames.
- B. Section 08 7100 - Door Hardware.
- C. Section 08 8000 - Glazing.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
- D. Specimen warranty.
- E. Test Reports: Show compliance with specified requirements for the following:
 - 1. Fire rated doors
- F. Sample Warranty, executed in Owner's name.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.
- D. Storage conditions: store doors in an environment which will not cause harm to the door. This includes temperature and humidity.
- E. Conditioning: allow door to acclimatize to ambient conditons before installation.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Wood Veneer Faced Doors:

1. Eggers Industries: www.eggersindustries.com.
2. Graham Wood Doors: www.grahamdoors.com.
3. Algoma Hardwoods.
4. VT Industries

2.02 DOORS

- A. All Doors: .
 1. Quality Level: Custom Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS).
 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
 3. Core: solid, bonded.
 4. Urea formaldehyde: none added.
- B. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; flush construction.
 1. Provide solid core doors at all locations.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.04 DOOR FACINGS

- A. Veneer Facing for Factory Transparent Finish: Natural birch, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
- B. Facing Adhesive: Type I - waterproof.

2.05 ACCESSORIES

- A. Glazing: As specified in Section 08 8000.
- B. Glazing Stops: Wood, of same species as door facing, mitered corners; prepared for countersink style tamper proof screws.

2.06 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
- C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- E. Provide edge clearances in accordance with the quality standard specified.

2.07 FACTORY FINISHING - WOOD VENEER DOORS

- A. Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5 - Finishing for Grade specified and as follows:
 1. Transparent:
 - a. Manufacturer's standard clear finish.
 - b. Sheen: Satin.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.

- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

3.03 TOLERANCES

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

END OF SECTION

**SECTION 08 3100
ACCESS DOORS AND PANELS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall access door and frame units.
- B. Ceiling access door and frame units.

1.02 RELATED REQUIREMENTS

- A. Section 09 21 16- Gypsum Board assemblies: Openings in partitions.
- B. Section 09 9000 - Painting and Coating: Field paint finish.

1.03 REFERENCE STANDARDS

- A. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

PART 2 PRODUCTS

2.01 ACCESS DOOR AND PANEL APPLICATIONS

- A. Walls and Ceilings, Unless Otherwise Indicated:
 - 1. Size: 18 x18 inches (457 mm), unless otherwise required for access.
 - 2. Standard duty, piano hinged door.
 - 3. Tool-operated spring or cam lock; no handle.
 - 4. In Gypsum Board: flanged frame
 - 5. Finish: Factory primed, site finished.
 - 6. Manufacturers:
 - a. Larsens
 - b. Acudor
 - c. J.L. Industires
 - d. Jensen Industires
 - e. Access Panel solutions
 - 7. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that rough openings are correctly sized and located.

3.02 INSTALLATION

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings. Secure rigidly in place.
- C. Install unit flush with top of concrete.
- D. Position units to provide convenient access to the concealed work requiring access.

END OF SECTION

**SECTION 08 3436
DARK ROOM DOORS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Rotary dark room door.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.
- B. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance (O&M) data, warranties and bonds.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product data
- C. Shop drawings
- D. Specimen Warranty.

1.04 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide two year manufacturer warranty for factory defect in parts or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Basis of Design Manufacturer: ESECO Speedmatic Revolving darkroom door.
- B. Description:
 - 1. Sliding Door: Optional metal door
 - 2. Housing: metal framework and cylindrical sliding door track.
 - 3. Interior handrail
 - 4. ADA accessible
 - 5. Floor: 3/4 inch plywood with non-slip ABS finish
 - 6. Non-slip ABS wheel chair ramp
 - 7. Interior luminescent fluorescent wayfinding markers
 - 8. Safety hardware: Pop-out type breakaway egress system
 - 9. Model #: 2W54 - 36 inch wide ADA accessible entrance

PART 3 EXECUTION

3.01 PREPARATION

- A. Ensure that blocking is place for unit mounting. Coordinate with requirements shown in the product shop drawing.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

END OF SECTION

SECTION 08 4313
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum entrance doors and frames.

1.02 RELATED REQUIREMENTS

- A. Section 07 2500 - Weather Barriers: Sealing framing to weather barrier installed on adjacent construction.
- B. Section 07 9005 - Joint Sealers: Perimeter sealant and back-up materials.
- C. Section 08 8000 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 2012.
- B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2013.
- C. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.
- D. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- E. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.
- F. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, internal drainage details .
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.
- D. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer and Installer Qualifications: Company specializing in manufacturing aluminum glazing systems with minimum 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Handle products of this section in accordance with AAMA CW-10.

- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.07 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F (5 degrees C). Maintain this minimum temperature during and 48 hours after installation.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
- C. Provide 10 year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

- A. Entrances:
 - 1. Basis of Design: EFCO Corporation, Series D502 Wide Stile Therma Stile Entrance Door and Frame
- B. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below:

2.02 MANUFACTURERS

- A. Aluminum-Framed Storefront and Doors:
 - 1. EFCO Corporation: www.efcocorp.com.
 - 2. Kawneer North America: www.kawneer.com.
 - 3. YKK AP America Inc: www.ykkap.com.

2.03 STOREFRONT

- A. Entrance Performance Requirements:
 - 1. Air Leakage: Maximum of 0.50 cu ft/min/sq ft of wall area, when tested in accordance with ASTM E283 at [1.57] pounds per square foot pressure differential across assembly.
 - 2. Overall U-value Including Glazing: [0.65] Btu/(hr sq ft deg F), maximum.

2.04 COMPONENTS

- A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system, thermally broken.
 - 1. Thermal Break: structural type, polyurethane.
 - 2. Framing members for interior applications need not be thermally broken
 - 3. Extruded Aluminum: 6063- T6 alloy and temper
 - 4. Glazing stops: Flush.
 - 5. Glazing method: Dry glazed with gaskets on both exterior and interior side of glass.
 - 6. Cross-Section: 2 by 4 1/2 inch (51x114 mm) nominal dimension.
- B. Glazing: As specified in Section 08 8000.
- C. Swing Doors: Glazed aluminum.
 - 1. Thickness: 2 inches (50 mm).
 - 2. Top Rail: 5 inches (127 mm) wide.
 - 3. Vertical Stiles: 5 inches (127 mm) wide.
 - 4. Bottom Rail: 10 inches (254 mm) wide.

5. Glazing Stops: Square.
6. Extruded Aluminum: 6063- T6 alloy and temper
7. Finish: Same as storefront.

2.05 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Fasteners: Stainless steel.
- C. Perimeter Sealant: Type as specified in Section 07 9005.
- D. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.06 HARDWARE

- A. See Section 08 71 00 Door Hardware for door hardware.

2.07 FABRICATION

- A. Provide internal reinforcing for door hardware where required.
- B. Prepare doors for hardware. Comply with ANSI/DHI A115 Series
- C. Joints between framing members to be flush, hairline and water tight.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.
- H. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- I. Install hardware using templates provided.
- J. Install glass and infill panels in accordance with Section 08 8000, using glazing method required to achieve performance criteria.
- K. Install perimeter sealant in accordance with Section 07 9005.
- L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inches every 3 ft (1.5 mm/m) non-cumulative or 1/16 inches per 10 ft (1.5 mm/3 m), whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch (0.8 mm).

3.04 ADJUSTING

- A. Adjust operating hardware and sash for smooth operation.

3.05 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

END OF SECTION

SECTION 08 6223
TUBULAR SKYLIGHTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tubular skylights, consisting of skylight dome, reflective tube, and diffuser assembly; configuration as indicated on the drawings.
- B. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 5300 - Elastomeric Membrane Roofing: Flashing-in of skylight base.

1.03 REFERENCE STANDARDS

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for windows, doors, and skylights; 2011.
- B. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position; 2014.
- C. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- D. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

1.04 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Skylights: Manufacturer's standard warranty for 10 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Solatube International, Inc; 330 DC Open Ceiling model: www.solatube.com.

2.02 TUBULAR SKYLIGHTS

- A. Tubular Skylights: Transparent roof-mounted skylight dome and curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces.
 - 1. Components shall be made and assembled by one manufacturer.
 - 2. Non-Metal Parts: Flammability less than the following.
 - a. Roof-Top Components: Class B when tested in accordance with ASTM E108 or UL 790.
 - b. Combustibility - Light Transmitting Parts: Minimum 2.5 inches/min (64 mm/min) (ICC Class CC-2), when tested in accordance with ASTM D635.
- B. Performance Requirements: Provide products that comply with the following:
 - 1. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific tubular skylight:
 - a. Product Type: Tubular Daylighting Device, Closed Ceiling (TDDCC).
 - 2. Design Pressure (DP): In accordance with applicable codes.
 - 3. Air Infiltration: Maximum 0.10 cu ft/min sq ft (0.5 L/sec sq m) per unit area of outside frame dimension at 6.27 psf (300 Pa) pressure differential when tested in accordance with ASTM E283.

4. Water Resistance: No uncontrolled water leakage at 6.27 psf (300 Pa) pressure differential with water rate of 5 gallons/h/sf (206 L/h/sq m), when tested in accordance with ASTM E331; design to ensure that water will not accumulate inside assembly.
- C. Roof Assemblies: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.
 1. Glazing: Acrylic plastic, 1/8 inch (3.2 mm) minimum thickness.
 2. Dome Ring: Attached to top of base section; 0.090 inch (2.3 mm) nominal thickness injection molded high impact ABS; to prevent thermal bridging between base flashing and tubing and channel condensed moisture out of tubing; weather seal of medium density pile weather stripping.
- D. Reflective Tube: ASTM B209 (ASTM B209M) aluminum sheet, thickness between 0.015 inch (0.4 mm) and 0.020 inch (0.5 mm).
- E. Diffuser Assemblies: Supporting light transmitting surface at bottom termination of tube, with compression seal to minimize condensation and bug or dirt infiltration.
 1. Ceiling Ring: Edge trim for ceiling opening; injection molded high impact ABS.
 2. Diffuser Trim: Edge and attachment trim for diffuser lens; injection molded high impact ABS.
 3. Lens: Flush frosted lens.
 4. Lens Material: Acrylic plastic.
 5. Visible Light Transmission: 90 percent, minimum.
 6. Seal: Closed cell EPDM foam rubber.

2.03 ACCESSORIES

- A. Fasteners: Same material as metals being fastened, non-magnetic steel, non-corrosive metal of type recommended by manufacturer, or injection molded nylon.
- B. Self mount roof flashing ring.
- C. Sealant: Elastomeric, silicone or polyurethane; compatible with materials being sealed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's written instructions.
- B. Set roof assembly flashing in continuous bead of sealant.
- C. Seal joints exposed to weather in accordance with sealant manufacturer's written instructions.
- D. Conduct field test for water tightness; conduct water test in presence of Architect. Correct defective work and re-test until satisfactory.

END OF SECTION

**SECTION 08 7100
DOOR HARDWARE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood and hollow steel doors.
- B. Hardware for fire-rated doors.
- C. Electrically operated and access controlled hardware.
- D. Thresholds.
- E. Weatherstripping, seals and door gaskets.

1.02 RELATED REQUIREMENTS

- A. Section 08 1113 - Hollow Metal Doors and Frames.
- B. Section 08 1416 - Flush Wood Doors.
- C. Section 09 30 00 Tiling - Marble Thresholds
- D. Access Control Specification

1.03 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- C. BHMA A156.3 - American National Standard for Exit Devices; Builders Hardware Manufacturers Association; 2008 (ANSI/BHMA A156.3).
- D. BHMA A156.18 - American National Standard for Materials and Finishes; Builders Hardware Manufacturers Association, Inc.; 2012 (ANSI/BHMA A156.18).
- E. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.
- F. NFPA 101 - Life Safety Code; National Fire Protection Association; 2012.
- G. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- C. Conduct Owner's keying requirement meeting.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- C. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
- D. Keying Schedule: Submit for approval.

- E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in owner's name and registered with manufacturer.
- G. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Lock Cylinders: One for each master keyed group.

1.06 QUALITY ASSURANCE

- A. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with 5 years of experience.
- B. Hardware Quality Standards: Comply with BHMA A156 series standards Grade 1
- C. Accessibility Standard: Comply with ADAAG and ANSI/ ICC A117.1
- D. Egress Door Standard: Comply with NFPA 101 Life Safety Code
- E. Fire Rated Door Assemblies: Comply with NFPA 80
- F. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. See door and hardware schedule.
- C. Provide all items of a single type of the same model by the same manufacturer.
- D. Provide products that comply with the following:
 - 1. Accessibility: ADA Standards and ICC A117.1.
 - 2. Applicable provisions of NFPA 101, Life Safety Code.
 - 3. Fire-Rated Doors: NFPA 80.
 - 4. All Hardware on Fire-Rated Doors : Listed and classified by UL as suitable for the purpose specified and indicated.
 - 5. Hardware for Smoke and Draft Control Doors : Provide hardware that enables door assembly to comply with air leakage requirements of the applicable code.
 - 6. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.
- E. Function: Lock and latch function numbers and descriptions of manufactures series as listed in hardware schedule.
- F. Finishes: All door hardware the same finish unless otherwise indicated.

1. Primary Finish: Satin chrome plated over nickel on brass or bronze, 626 (approx US26D). Unless noted otherwise
2. Exceptions:
 - a. Where base metal is specified to be different, provide finish that is an appearance equivalent according to BHMA A156.18.
 - b. Hinges for Fire-Rated Doors: Steel base metal with plated finish.
- G. Hardware Schedule designations: Capitalized abbreviations following each hardware type below corresponds to the hardware schedule. Example: (THERMAL)

2.02 LOCKS AND LATCHES

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
 1. If no hardware set is indicated for a swinging door provide an office lockset.
 2. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
 3. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
 1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying: Grand master keyed.
 1. Conduct meeting with owner to determine specific master key requirements.
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.03 HINGES

- A. Interior Butt Hinges: INTERIOR BUTT Interior Ball Bearing Hinge
 1. Grade 1 BHMA A156.1
 2. Ball bearing- 5 knuckle
 3. Single acting - full mortise
 4. 4 1/2 x 4 1/2 inch dimension
 5. Product: Hager BB 1191 Standard weight
 6. Product: Hager BB 1196 Heavy weight at 4'-0" wide doors
- B. Exterior Butt Hinges: (EXTERIOR BUTT) Exterior Ball Bearing hinge
 1. Same as Interior butt hinge except Stainless Steel - satin Finish
 2. Non-removable pin
 3. Product: Hager BB 1191 Standard weight
 4. Product: Hager BB 1199 Heavy weight at 4'-0" wide doors
- C. Continuous Hinge:
 1. Extruded aluminum, edge mounted
 2. Full height paired and geared leaves and channel cap
 3. Delrin / teflon bearings
 4. Grade HD1: 2-150, 1-300
 5. Compatible with aluminum storefront entrance door
 6. Finish to match door and frame
- D. Hinges: Provide hinges on every swinging door.
 1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
 2. Provide ball-bearing hinges at all doors having closers.
 3. Provide hinges in the quantities indicated.

4. Provide non-removable pins on exterior outswinging doors.
- E. Quantity of Hinges Per Door:
 1. Doors From 60 inches (1.5 m) High up to 90 inches (2.3 m) High: Three hinges.
 2. Doors 90 inches (2.3 m) High up to 120 inches (3 m) High: Four hinges.
- F. Manufacturers - Hinges:
 1. Assa Abloy McKinney: www.assaabloydss.com.
 2. Hager Companies: www.hagerco.com.
 3. Ives: Allegion Brand

2.04 PUSH/PULLS

- A. Push/Pulls: PUSH PULL
- B. Push/Pulls: Comply with BHMA A156.6.
 1. Plate: 4 by 16 inch dimension, 0.050 inch thickness
 2. Brushed Stainless Steel Finish
 3. 1 inch diameter Stainless steel pull handle on pull plate
 4. Install push plate and pull plates aligned on opposite faces.
 5. Door to have push plate on push side and pull plate on pull side of door
- C. Manufacturers - Push/Pulls:
 1. Ives
 2. Rockwood
 3. National Guard Products

2.05 KICK PLATE

- A. Kick Plate: (KICK)
 1. 10 inches tall by door width less 1 1/2 inches. 0.050 inch thickness
 2. Brushed Stainless Steel Finish
 3. Install 2 inches from bottom on push side of door
- B. Manufacturers:
 1. Ives
 2. Rockwood
 3. National Guard Products

2.06 LOCKSETS AND CYLINDERS

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
 1. Hardware Sets indicate locking functions required for each door.
 2. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
 3. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders:
 1. BHMA A156.30 Level A
 2. Match owner's existing cylinders.
 3. Cylinders to be interchangeable
 4. Provide three cylinder change keys
 5. Provide three extra cylinder locks
 6. Finish to match lockset
 7. Include project key feature during construction
 8. Manufacturer: Falcon

- C. Keying: Grand master keyed.
- D. Cylinder Lock
 - 1. BHMA ANSI A156.2-2011, Grade 1
 - 2. Finish- brushed chrome
 - 3. Includes, strike and latch plate, lever trim, rosette, and fasteners for complete installation
 - 4. See schedule for functions, options, features and additional information.
 - 5. Manufacturers:
 - a. Schlage ND Series

2.07 CYLINDRICAL LOCKSETS

- A. Cylindrical Locksets - Basis of Design: Schlage ND Series.
- B. Includes, strike and latch plate, lever trim, rosette, and fasteners for complete installation
- C. Finish- brushed chrome
- D. See schedule for functions, options, features and additional information.
- E. Manufacturers - Cylindrical Locksets:
 - 1. Assa Abloy Brands; Corbin Russwin, Sargent, or Yale: www.assaabloydss.com.
 - 2. Schlage, an Allegion brand; ND Series: www.allegion.com/us.

2.08 ACCESS CONTROL LOCK SET

- A. Stand alone access control lock.
 - 1. ANSI/ BHMA A156.25 Grade 1
 - 2. Magnetic stripe Card reader and key pad pin operation
 - 3. Compatible with exit device
 - 4. Brushed chrome finish
 - 5. Power supply 12 or 24 VDC - see Power supply spec
 - 6. Keyway compatible with other project locksets.

2.09 POWER SUPPLY (PS)

- A. Power Supply: (PS)- For electric strikes and locks, electromechanical closer / holders
 - 1. Options and features compatible with and appropriate for component being supplied with power.
 - 2. ANSI / UL 294 Listed
 - 3. Powder coated steel enclosure
 - 4. Locate above ceiling adjacent to door.
 - 5. Voltage: Either 24 or 12 VDC output - coordinate with equipment power requirements
 - 6. Amperage- to suit application
 - 7. Battery backup - provide unless building is provided with UPS system.
- B. Manufacturers:
 - 1. Same as for Access control lock

2.10 POWER TRANSFER (PT)

- A. Electric Power Transfer Door Loop
 - 1. 3/8 inch armoured stainless steel loop with surface mounted wire termination box
- B. Manufacturers:
 - 1. SDC
 - 2. Securitron
 - 3. Von Duprin

2.11 EXIT DEVICES

- A. Exit Devices: (RIM EXIT)
- B. BHMA A156.3 Grade 1, heavy duty
- C. Locking Functions: Functions as defined in BHMA A156.3- see schedule.
- D. Finish: Brushed stainless steel
- E. UL Fire and Panic Listed
- F. Includes rim strike, lever trim and rosette
- G. 15 pound operating force maximum.
- H. Manufacturers:
 - 1. Assa Abloy Corbin Russwin, Sargent, or Yale: www.assaabloydss.com.
 - 2. DORMA Group North America: www.dorma-usa.com/usa.
 - 3. Von Duprin, an Allegion brand: www.allegion.com/us.

2.12 CLOSERS

- A. Closers: (STANDARD)- Standard Closer
 - 1. Accessibility: Comply with ADAAG and ANSI A117.1 opening force requirements.
 - 2. Egress: Closers on egress doors: Comply with NFPA 101 Life safety Code
 - 3. Closing Strength: coordinate closer strength with door size, weight, exterior location, and frequency of anticipated use.
 - 4. Complying with BHMA A156.4
 - 5. Grade 1 heavy duty
 - 6. Rack and pinion hydraulic operation
 - 7. Adjustable speed controlled by key operated valves.
 - 8. Metal cover (not plastic)
 - 9. All weather fluid option for exterior doors
 - 10. Provide surface-mounted, door-mounted closers unless otherwise indicated.
- B. Manufacturers - Closers:
 - 1. Assa Abloy Corbin Russwin, Norton, Rixson, Sargent, or Yale: www.assaabloydss.com.
 - 2. DORMA Group North America: www.dorma-usa.com/usa.
 - 3. LCN, an Allegion brand: www.allegion.com/us.

2.13 STOPS AND HOLDERS

- A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
- B. Wall Stop (WALL)
 - 1. 2 1/2 inch diameter, solid cast brass with rubber bumper,
 - 2. Finish: Brushed chrome
 - 3. Fasteners suitable for application
 - 4. At Gypsum board walls, ensure solid blocking is installed prior to installation.
- C. Floor Stop (FLOOR)
 - 1. Low dome floor stop, solid cast brass with rubber bumper
 - 2. Finish: Brushed chrome
 - 3. Fasteners suitable for application
- D. Manufacturers -
 - 1. Ives.
 - 2. Rockwood

2.14 GASKETING AND THRESHOLDS

- A. Gaskets: Complying with BHMA A156.22.
 - 1. On each door in smoke partition, provide smoke gaskets; top, sides, and meeting stile of pairs. If fire/smoke partitions are not indicated on drawings, provide smoke gaskets on each door identified as a "smoke door" and 20-minute rated fire doors.
 - 2. On wood doors with fire rating more than 20-minutes, provide frame-applied intumescent gaskets.
- B. Gaskets- for weatherstripping at exterior doors: (EXTERIOR) Provide the following at each exterior hollow metal door:
 - 1. Head and Jamb Seals: Surface mounted extruded aluminum with silicone or neoprene bulb seal. 1/4 by 7/8 inch, slotted screw holes for adjustment.
 - a. Field adjust to fit snug to backside of door without hindering closer and latch operation.
 - b. Install with stainless steel screws only.
 - 2. Door shoe- bottom sweep- finned or smooth bulb type, silicone or neoprene:
 - a. Sweep mounted in aluminum extrusion,
 - b. Recessed concealed mounting into channel along bottom of door leaf
 - c. Coordinate with aluminum storefront or hollow metal door manufacturer door bottom edge profile.
 - d. Use only at raised thresholds or at outswinging doors- do not use at inswinging doors where finish floor is flush with top of threshold.
 - e. Install with stainless steel screws only.
 - 3. Manufacturers:
 - a. Zero
 - b. National Guard Products
 - c. Pemko
- C. Threshold - (THERMAL)
 - 1. Thermally broken aluminum threshold.
 - 2. Mill finish aluminum
 - 3. Slip resistant non-skid SIA finish and with linear groove profile
 - 4. ADA compliant beveled edge.
 - 5. Provide non-beveled square edge one side when threshold is flush with finish floor material
 - 6. Height: 1/2 inch maximum total height
 - 7. Vinyl foot seal
 - 8. Thermal break- rigid black vinyl dovetailed key
 - 9. Widths: available in 4,5,6,7,8,9,and 10 inches
 - 10. Product: NGP Models 8424 through 8430
 - 11. Install full width of door, bed in sealant
 - 12. Includes fasteners, type suitable for application
 - 13. Manufacturers:
 - a. National Guard Products (NGP)
 - b. Zero
 - c. Pemko

2.15 HARDWARE- OTHER

- A. Fire department key lock box
 - 1. 1/4 inch thick, factory finished steel housing

2. 1/2 inch thick, gasketed stainless steel hinged door
3. 10 key capacity
4. Recessed mounting, flanged
5. Color: Silver powder coated
6. Anchorage: internal security mounting to solid wall blocking
7. Include optional UL listed door tamper switch for connection to building security system.
8. Product: Knox Box Model #3200 Series

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available to power operated devices and of the correct characteristics.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.
- D. Mounting heights for hardware from finished floor to center line of hardware item: As listed in Schedule, unless otherwise noted:

3.03 ADJUSTING

- A. Adjust work under provisions of Section 01 7000.
- B. Adjust hardware for smooth operation.

END OF SECTION

SECTION 08 8000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Glass for Aluminum Storefront Entrance Door

1.02 RELATED REQUIREMENTS

- A. Section 08 4313 - Aluminum-Framed Storefronts

1.03 REFERENCE STANDARDS

- A. ASTM C1036 - Standard Specification for Flat Glass; 2011e1.
- B. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- C. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2012a.
- D. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

1.05 QUALITY ASSURANCE

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Sealed Insulating Glass Units: Provide a five (5) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.

PART 2 PRODUCTS

2.01 INSULATING GLASS UNITS

- A. G-1(S)Sealed Insulating Glass Units:double glazed, with Safety Glass
 1. Application: Glazing for Aluminum Storefront System with safety glass.
 2. Outboard Lite: Fully tempered float glass, 1/4 inch (6 mm) thick, minimum.
 - a. Tint: Clear.
 - b. Coating: Low-E (passive type), on #2 surface.
 3. Air Space: 1/2 inch, Argon gas filled
 4. Edge spacer: Per manufacturer's recommendation to meet performance requirements
 5. Inboard Lite: Fully tempered float glass, 1/4 inch (6 mm) thick, minimum.
 - a. Tint: Clear.
 6. Total Thickness: 1 inch (25 mm).
 7. Winter Night time U-Factor: 0.24 Btu/hr- sq. ft. F
 8. Total Visible Light Transmittance: [0.62] percent, nominal.
 9. Total Solar Heat Gain Coefficient: [0.26] percent, nominal.

2.02 EXTERIOR GLAZING ASSEMBLIES

- A. Performance Criteria: Select type and thickness of glass to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of glass.

1. Use the procedure specified in ASTM E1300 to determine glass type and thickness.
2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
3. Glass thicknesses listed are minimum.

2.03 GLASS MATERIALS

- A. Float Glass Manufacturers:
 1. Guardian Industries Corp: Product: SunGuard SNX62/27 www.sunguardglass.com.
 2. Pilkington North America Inc: www.pilkington.com/na.
 3. PPG Industries, Inc: Product: SolarBan 70XL
 4. Viracon.
- B. Insulating Unit Manufacturers:
 1. OldCastle Glass
- C. Float Glass: All glazing is to be float glass unless otherwise indicated.
 1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048. Where required.
 3. Tinted Types: Clear
 4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

2.04 SEALED INSULATING GLASS UNITS

- A. Sealed Insulating Glass Units: Types as indicated.
 1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
 2. Edge Seal: Glass to elastomer with supplementary silicone sealant.

2.05 GLAZING ACCESSORIES

- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) x width of glazing rabbet space minus 1/16 inch (1.5 mm) x height to suit glazing method and pane weight and area.
- B. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; hardness range of 5 to 30 cured Shore A durometer; coiled on release paper; black color.
- C. Glazing Sealants
 1. Butyl Sealant: single component, ASTM C 920, Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20: Color: black, non-skinning
 2. Silicone Sealant: single component, neutral curing, capable of water immersion without loss of performance properties, non-staining, ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G, cured Shore A hardness of 15 to 25 Color: black

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.

- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.

3.03 INSTALLATION

- A. Coordinate the specific type of glazing method with the requirements of the selected aluminum storefront system.

3.04 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

3.05 PROTECTION

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

END OF SECTION

SECTION 09 2116
GYP SUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Acoustic insulation.
- D. Gypsum wallboard.
- E. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Building framing and sheathing.
- B. Section 07 2100 - Thermal Insulation: Acoustic insulation.
- C. Section 07 8400 - Firestopping: Sealing top-of-wall assemblies and through-wall penetrations at fire rated walls.
- D. Section 07 9005 - Joint Sealers: Acoustic sealant.

1.03 REFERENCE STANDARDS

- A. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2014).
- B. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.
- C. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2011.
- D. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
- E. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2011.
- F. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.
- G. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2014a.
- H. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.
- I. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2013.
- J. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2012.
- K. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, joint finishing system, and acoustic batt insulation.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 5 years of documented experience.

- B. Perform work in accordance with ASTM C 840. Comply with requirements of GA-600 for fire rated assemblies..

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Fire Rated Assemblies: Provide completed assemblies complying with applicable code.
 - 1. Provide materials and construction matching those tested in assembly indicated according to ASTM E 119 by and independent testing agency.
 - 2. Where UL or GA assembly design numbers are indicated, construct the assembly in accordance with the complete requirements of the UL or GA assembly.
 - 3. Provide completed assemblies complying with ASTM C 840 and GA - 216.

2.02 METAL FRAMING MATERIALS

- A. Non-Loadbearing Wall, Soffit / Fascia Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 10 psf (480 Pa).
- B. Gauge and spacing : sized to meet deflection/ load criteria
- C. Wall stud size: see drawings. All other areas- sized to meet deflection criteria.
- D. Framing members:
 - 1. Studs: "C" shaped with flat or formed webs .
 - 2. Runners (Tracks): U shaped, sized to match studs.
 - 3. Furring: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).
 - 4. Resilient Furring Channels: 1/2 inch (12 mm) depth, for attachment to substrate through one leg only.
- E. Shaft Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.
- F. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and screwed to secondary deflection channel set inside but unattached to top track.

2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. American Gypsum: www.americangypsum.com.
 - 2. CertainTeed Corporation: www.certainteed.com.
 - 3. Georgia-Pacific Gypsum: www.gpgypsum.com.
 - 4. National Gypsum Company: www.nationalgypsum.com.
 - 5. USG Corporation: www.usg.com.
 - 6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
 - 3. Thickness:
 - a. Vertical Surfaces: 5/8 inch (16 mm).
 - b. Ceilings: 1/2 inch (13 mm).

- C. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
1. Application: Bathroom walls and adjacent to countertops with sinks.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
 4. Type X Thickness: 5/8 inch (16 mm).
 5. Regular Board Thickness: 5/8 inch (16 mm).
 6. Edges: Tapered.
 7. Products:
 - a. Georgia-Pacific Gypsum; ToughRock Mold-Guard Gypsum Board.
 - b. US Gypsum, Sheetrock Brand Mold Tough.
 - c. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

- A. Acoustic Insulation: preformed glass fiber, friction fit type, unfaced.
1. Thickness: to match stud width- wall cavity to be entirely filled.
 2. Install cross blocking within stud cavity at vertical spacing sufficient to support batt weight and to prevent batts from sagging with in stud cavity.
 3. Formaldehyde free
 4. ASTM E84 Class A
 5. Product specifically labelled for sound control applications.
 6. Manufacturers
 - a. Johns Manville, Product:JM Formaldehyde Free Thermal and Acoustical Fiber Glass Insulation
 7. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- C. Acoustic Sealant: As specified in Section 07 9005.
- D. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
1. Types:
 - a. Corner bead: galvanized steel, ASTM C 1047
 - b. L - bead and J-bead: galvanized steel, ASTM C 1047 with raised edge flange to receive tapered joint compound
 - c. Tear -away masking type type PVC expansion joint bead ASTM E84-10 Class A. For use in non- fire rated assemblies only.
- E. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
1. Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners.
 2. Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners.
 3. Ready-mixed vinyl-based joint compound.
 4. Powder-type vinyl-based joint compound.
- F. High Build Drywall Surfacers: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

- G. Screws for Attachment to Steel Members Less Than 0.033 inch (0.84 mm) In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium plated for exterior locations.
- H. Screws for Attachment to Steel Members From 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.
- I. Nails for Attachment to Wood Members: ASTM C514.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 SHAFT WALL INSTALLATION

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
- B. Shaft Wall Liner: Cut panels to accurate dimension and install sequentially between special friction studs.

3.03 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Studs: Space studs at 16 inches (406 mm) on center.
 - 1. Extend partition framing to structure in all locations.
 - 2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging. Use deep top deflection track.
- C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- D. Standard Wall Furring: Install at concrete walls scheduled to receive gypsum board, not more than 4 inches (100 mm) from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches (600 mm) on center.

3.04 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Friction fit batts between studs.
- C. Thickness of acoustic insulation batt to fill stud cavity entirely.
- D. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place one bead continuously on substrate before installation of perimeter framing members.
 - 2. Place continuous bead at perimeter of each layer of gypsum board.
 - 3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.05 BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board perpendicular to framing, with ends and edges occurring over firm bearing.

- C. Double-Layer Non-Rated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- D. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- E. Installation on Framing: Use screws for attachment of all gypsum board .
- F. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority.

3.06 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
 - 1. Not more than 30 feet (10 meters) apart on walls and ceilings over 50 feet (16 meters) long. Control joints required as noted even if not shown on drawings. Architect to approve proposed locations.
 - 2. At exterior soffits, not more than 30 feet (10 meters) apart in both directions.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.07 JOINT TREATMENT

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated. Including all closets and janitor's closets.
 - 2. Level 5: Only at walls located at 90 degree angle to corner windows or corner skylights.
 - 3. Level 2: Mechanical rooms
 - 4. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction. Also referred to as " Fire taping".
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).
 - 2. Taping, filling and sanding is not required at base layer of double layer applications.
- C. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.08 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

SECTION 09 5100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical panels.

1.02 REFERENCE STANDARDS

- A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.
- B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2013.
- C. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2008e1.
- D. CAL (CHPS LEM) - Low-Emitting Materials Product List; California Collaborative for High Performance Schools (CHPS); current edition at www.chps.net/.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on suspension system components.
- C. Product Data: Provide data and cut sheet on acoustical panels.
- D. Warranty sample.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acoustic Panels:
 - 1. Armstrong World Industries, Inc: www.armstrong.com.
 - 2. CertainTeed Corporation: www.certainteed.com.
 - 3. USG: www.usg.com.
 - 4. Chicago Metallic.

2.02 ACOUSTICAL UNITS

- A. Acoustical Units - General: ASTM E1264, Class A.
- B. Acoustical Panels: Factory finished mineral fiber, ASTM E1264 Type III, with the following characteristics:
 - 1. VOC Content: Certified as Low Emission by one of the following :
 - a. Product listing in the CHPS Low-Emitting Materials Product List at; www.chps.net/manual/lem_table.htm.
 - 2. Fire rating: Class A, ASTM E84
 - 3. Anti Mold / Mildew treated
 - 4. Size: 24 x 24 inches (600 x 600 mm).

5. Thickness: 3/4 inches (____ mm).
6. For installation in 15/ 16" grid
7. NRC Range: 0.70 to 0.70, determined in accordance with ASTM E1264.
8. Ceiling Attenuation Class (CAC): 35, determined in accordance with ASTM E1264.
9. Edge: Reveal edge. (Also referred to as "Angled Tegular" edge)
10. Surface Color: White.
11. Texture: Medium
12. Warranty : 30 years
13. Products:
 - a. Armstrong, Product: Cirrus, Tegular.
 - b. Substitutions: See Section 01 6000 - Product Requirements.

2.03 SUSPENSION SYSTEM(S)

- A. Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components- main beams and cross tees, with stabilizer bars, clips, splices, perimeter moldings, hold down clips, and hanger wire as required.
- B. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled.
 1. Profile: Tee; 15/16 inch (24 mm) wide face.
 2. Wall angle molding: 7/8" hemmed
 3. Construction: Double web.
 4. Duty Classification: Heavy duty
 5. Finish: Baked polyester, Color: White.
 6. Products:
 - a. Armstrong, Product: Prelude XL.
 - b. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.
 1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- D. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

- E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- G. Support fixture loads using supplementary hangers located within 6 inches (150 mm) of each corner, or support components independently.
- H. Do not eccentrically load system or induce rotation of runners.
- I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Use longest practical lengths.
 - 2. Overlap and rivet corners.

3.03 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after above-ceiling work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
 - 1. Make field cut edges of same profile as factory edges.

3.04 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

**SECTION 09 6500
RESILIENT FLOORING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient base.
- B. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

1.04 DELIVERY, STORAGE, AND HANDLING

PART 2 PRODUCTS

2.01 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove.
 - 1. Manufacturers:
 - a. Burke Flooring: www.burkemerger.com.
 - b. Johnsonite, a Tarkett Company: www.johnsonite.com.
 - c. Roppe Corp: www.roppe.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
 - 2. Height: 4 inch (100 mm).
 - 3. Thickness: 0.125 inch (3.2 mm) thick.
 - 4. Finish: Satin.
 - 5. Length: Roll.
 - 6. Color: Color as selected from manufacturer's standards.

2.02 ACCESSORIES

- A. Resilient base adhesive: water based, low- VOC type as recommended by resilient base manufacturer

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

3.02 INSTALLATION

3.03 RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

END OF SECTION

**SECTION 09 6710
FLUID-APPLIED FLOORING**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes the following:
 - 1. Resinous flooring system as shown on the drawings and in schedules.
 - 2. Moisture testing by Contractor.

1.03 SYSTEM DESCRIPTION

- A. The work shall consist of preparation of the substrate, the furnishing and application of a moisture reduction primer, pigmented epoxy based floor coating system with urethane topcoat. The system shall have the color and texture as specified by the Architect with a nominal thickness of 35 mils. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.

1.04 SUBMITTALS

- A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
- B. Manufacturer's Material Safety Data Sheet (MSDS) for each product being used.
- C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.

1.05 QUALITY ASSURANCE

- A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.
 - 1. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in
 - 2. all phases of surface preparation and application of the product specified.
- B. No requests for substitutions shall be considered that would change the generic type of the specified System.
- C. A pre-installation conference shall be held between Applicator, General Contractor and the Architect and Owner to review the requirements of this specification, application procedures, quality control, inspection and acceptance criteria and production schedule.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping
 - 1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.
- B. Storage and Protection
 - 1. The Applicator shall be provided with a storage area for all components. The area shall be between 60 F and 90 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.
 - 2. Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Engineer or other personnel.

- C. Waste Disposal
 - 1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.

1.07 PROJECT CONDITIONS

- A. Site Requirements
 - 1. Application may proceed while air, material and substrate temperatures are between 60 F and 90 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
 - 2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.
 - a. The Applicator shall ensure that adequate ventilation is available for the work area.
- B. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
- C. Conditions of new concrete to be coated with epoxy material.
 - 1. Concrete shall be moisture cured for a minimum of 7 days and have fully cured a minimum of twenty eight days in accordance with ACI-308 prior to the application of the coating system pending moisture tests.
 - 2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary or desirable).
 - 3. Sealers and curing agents should not to be used.
- D. Safety Requirements
 - 1. All open flames and spark-producing equipment shall be removed from the work area prior to commencement of application.
 - 2. "No Smoking" signs shall be posted at the entrances to the work area.
 - 3. Non-related personnel in the work area shall be kept to a minimum.

1.08 WARRANTY

- A. Dur-A-Flex, Inc. warrants that material shipped to buyers at the time of shipment substantially free from material defects and will perform substantially to Dur-A-Flex, Inc. published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.
- B. Dur-A-Flex, Inc. liability with respect to this warranty is strictly limited to the value of the material purchase.

PART 2 – PRODUCTS

2.01 FLOORING

- A. Dur-A-Flex, Inc, Dur-A-Gard, Epoxy-Based seamless flooring system
 - 1. System Materials:
 - a. Primer: Dur-A-Flex, Inc, Dur-A-Glaze #4 WB Primer
 - b. Topcoat: Dur-A-Glaze #4 plus water clear hardener additive
 - c. Patch Materials:
 - 1) Shallow Fill and Patching: Use Dur-A-Flex, Inc. Dur-A-Glaze #4 and No Sag #2.
 - 2) Deep Fill and Sloping Material (over ¼ inch): Use Dur-A-Flex, Inc. Dur-A-Crete.

2.02 MANUFACTURER

- A. Dur-A-Flex, Inc., 95 Goodwin Street, East Hartford, CT 06108, Phone: (860) 528-9838, Fax: (860) 528-2802
- B. Manufacturer of Approved System shall be single source and made in the USA.

2.03 PRODUCT REQUIREMENTS

- A. Primer: Dur-A-Glaze #4 WB Primer
 - 1. Percent Solids: 56 %
 - 2. VOC: 2 g/L
 - 3. Hardness, ASTM D-3363 3H
- B. Topcoat Dur-A-Glaze #4
 - 1. Percent Solids 100 %
 - 2. VOC 0 g/L
 - 3. Tensile Strength, ASTM D 2370 2100 psi
 - 4. Hardness, ASTM D-2240 80-85
 - 5. Abrasion Resistance, ASTM D4060 Gloss Satin
 - a. CS 17 wheel (1,000 g load) 1,000 cycles 4 8
 - 6. Additive : Special propose hardener formulation additive: water clear hardener
 - 7. Coefficient of friction: > 0.6

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.
- B. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.

3.02 PREPARATION

- A. General
 - 1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.
 - 2. Moisture Testing: Perform tests recommended by manufacturer and as follows.
 - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
 - b. There shall be no visible moisture present on the surface at the time of application of the system. Compressed oil-free air and/or a light passing of a propane torch may be used to dry the substrate.
 - c. Contractor shall pay for moisture testing services.
 - 3. Mechanical surface preparation
 - a. Option #1 :Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 3-4 as described by the International Concrete Repair Institute.
 - 1) Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
 - 2) Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/8 inch key cut shall be made to properly seat the system, providing a smooth transition between areas.

- (a) The detail cut shall also apply to drain perimeters and expansion joint edges.
- 3) Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.
- 4) At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufactures recommendations.
- b. Option # 2: diamond grinding

3.03 APPLICATION

- A. Install per manufacturer's instructions.
 - 1. Primer
 - a. The primer shall be applied by 3/16 inch notched squeegee and back rolled at the rate of 100 sf/gal to yield a dry film thickness of 16mils.
 - 2. Topcoat
 - a. The topcoat shall be comprised of a liquid resin, hardener and grit that is mixed per the manufacturer's instructions.
 - b. The finish floor will have a nominal thickness of 35 mils.

3.04 FIELD QUALITY CONTROL

- A. Tests, Inspection
 - 1. The following tests shall be conducted by the Applicator:
 - a. Temperature
 - 1) Air, substrate temperatures and, if applicable, dew point.
 - 2) Coverage Rates
 - (a) Rates for all layers shall be monitored by checking quantity of material used against the area covered.

3.05 CLEANING AND PROTECTION

- A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.
- B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

END OF SECTION

SECTION 09 9000
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior and Exterior painting.
- B. Surface preparation.
- C. Field application of paints and other coatings.
- D. Concrete floor sealer

1.02 RELATED REQUIREMENTS

- A. Section 09 21 16 - Gypsum Board Assemblies
- B. Section 06 20 00 - Finish Carpentry
- C. Section 07 90 05 - Joint Sealants

1.03 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. Painting and Decorating Contractors of America Standard PDCA P4-04 Responsibility for Inspection and Acceptance of Surfaces Prior to Painting and Staining.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- D. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.
- E. Master Painters Institute (MPI)- Architectural Painting Specification Manual.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
 - 3. VOC content information.
 - 4. Manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience.
- B. Substrate Testing Agency - moisture meter operator shall be trained and experienced in moisture meter use.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F (7 degrees C) for interiors; 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Paints:
 - 1. Glidden Professional, a product of PPG Architectural Coatings: www.gliddenprofessional.com.
 - 2. Benjamin Moore & Co: www.benjaminmoore.com.
 - 3. PPG Architectural Finishes, Inc: www.ppgaf.com.
 - 4. Sherwin-Williams Company: www.sherwin-williams.com.
 - 5. ICI Dulux.
 - 6. AFM - American Formulating & Manufacturing
 - 7. L&M Construction Chemicals Division of Laticrete
 - 8. Prosoco
 - 9. Ametco TWP 1500

2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 3. Supply each coating material in quantity required to complete entire project's work from a single production run.
 - 4. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: As follows unless other primer is required or recommended by manufacturer of top coats; where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:

1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Colors:
1. Provide a minimum of three colors for each type of coating specified.
 2. Architect to select colors from manufacturer's standard palette.

2.03 PAINT SYSTEMS - INTERIOR

- A. Gypsum Board Wall Paint: Interior Latex
 1. Sheen: eggshell
 2. Product: Sherwin Williams ProMar 200 Zero VOCLatex
- B. Gypsum Board Ceiling Paint: Interior Latex
 1. Sheen: flat
 2. Product: Sherwin Williams ProMar 200 Zero VOCLatex
- C. Gypsum Board Primer: Interior Latex
 1. Product: Sherwin Williams ProMar 200 Zero VOCLatex Primer
- D. Metal (Ferrous- Shop Primed) Paint: Latex Enamel
 1. Sheen: semi-gloss
 2. Product: Sherwin Williams ProClassic Waterborne Acrylic Semi gloss Enamel
- E. Interior Wood Paint: Latex Enamel
 1. Sheen: semi-gloss
 2. Product: Sherwin Williams ProClassic Waterborne Acrylic Semi gloss Enamel
- F. Interior Wood Primer: Latex
 1. Product: Sherwin Williams Premium Wall and Wood Primer
- G. Concrete Floor Sealer:
 1. Bottom coat: Silane / Siloxane Densifier and Water / Salt resistant penetrating sealer
 - a. Product: L&M Construction Chemicals (Laticrete), Aquapel Plus
 2. Top Coat: Silane / Siloxane Oil resistant sealer
 - a. Product: L&M Construction Chemicals (Laticrete), Petrotex

2.04 PAINT SYSTEMS- EXTERIOR

- A. Paint for exterior metal siding: Sherwin Williams Pro Industrial DTM (Direct to Metal) Acrylic.
 1. Two coats- spray applied

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Substrate examination: comply with PDCA P4-04

- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
- F. Maintain Installer's field report recording daily ambient and substrate conditions for temperature, humidity and moisture content.
- G. Required Substrate Temperature Conditions:
 - 1. Water based finishes: 50 - 90 degrees F
 - 2. Solvent based finishes: 45 - 90 degrees F
 - 3. 5 degrees F over dew point minimum
- H. Do not apply finishes over surfaces where mold or mildew is detected. Notify Architect immediately if mold or mildew is detected.
 - 1. If mold or mildew is detected, remove affected substrate and replace with new substrate.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Prepare substrates as recommended by the MPI Architectural Painting Specification Manual.
- D. Clean substrates of substances that could impair bond of finishes, including dirt, oil, grease and incompatible coatings.
- E. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- F. Seal surfaces that might cause bleed through or staining of topcoat.
- G. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry. (does not apply to Gypsum board)
- H. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- I. Concrete floor surface to be sealed: substrates to be vacuum clean, structurally sound, grease and oil- free and dry. Allow concrete to cure 28 days minimum.
- J. Exterior metal siding: remove any chalking or dusting of the original finish and any other dirt by power washing with a de-greaser agent.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Protect other building items, site finished or not, against damage from site finishing.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied and cured.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- I. Concrete Sealer: follow manufacturer's installation instructions.
- J. Exterior wall painted graphic: Font vector file available from Architect. Mask off lettering and paint lettering with contrasting paint color. Color to be determined,
- K. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Sprinkler heads of any type, life safety devices, plastic electrical cover plates such as for switches and outlets.
 - 5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
 - 6. Manufactured Flooring and Tiling
 - 7. Ceramic and other tiles.
 - 8. Glass.
 - 9. Concealed pipes, ducts, and conduits.
 - 10. Acoustic tile ceilings and suspension systems

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. After painting, clean glass and adjacent surfaces of all unwanted paint and paint spatters. Do not damage surfaces in the cleaning process.

3.05 PROTECTION

- A. Protect finished coatings until completion of project.

3.06 SCHEDULE - PAINT SYSTEMS

- A. Interior Gypsum Board Walls and Ceilings: Two paint coats over one primer coat
- B. Interior Wood: Two paint coats over one primer coat
- C. Interior Metal (Ferrous- Shop Primed):Two paint coats
- D. Exterior Wood Siding: One coat all sides including field cuts, two coats weather exposed side
- E. Concrete floor sealer: install per manufacturer's instructions.

SECTION 10 2113.19
PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Solid plastic toilet compartments.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Blocking and supports.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.
- C. Product Data: Provide data on panel construction, hardware, and accessories.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Solid Plastic Toilet Compartments:
 - 1. Bradley- Bradmar Partitions
 - 2. ASI - Global Partitions or Accurate Partitions
 - 3. Scranton Products (Santana/Comtec/Capital): www.scrantonproducts.com.
 - 4. Substitutions: Section 01 6000 - Product Requirements.

2.02 SOLID PLASTIC TOILET COMPARTMENTS

- A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid molded high density polyethylene (HDPE), tested in accordance with NFPA 286, floor-mounted headrail-braced.
- B. Doors:
 - 1. Thickness: 1 inch (25 mm).
 - 2. Width: 24 inch (610 mm).
 - 3. Width for Handicapped Use: 36 inch (915 mm), out-swinging.
 - 4. Height: 55 inch (1397 mm).
- C. Panels:
 - 1. Thickness: 1 inch (25 mm).
 - 2. Height: 55 inch (1397 mm).
- D. Pilasters:
 - 1. Thickness: 1 inch (25 mm).
 - 2. Width: As required to fit space; minimum 3 inch (76 mm).

2.03 ACCESSORIES

- A. Pilaster Shoes: Formed ASTM A666, Type 304 stainless steel with No. 4 finish, 3 in (75 mm) high, concealing floor fastenings.
- B. Head Rails: Hollow anodized aluminum, 1 by 1-1/2 inch (25 by 38 mm) size, with anti-grip profile and cast socket wall brackets.
- C. Pilaster Brackets: Natural anodized aluminum.
- D. Wall Brackets: Continuous type, natural anodized aluminum.

- E. Attachments, Screws, and Bolts: Stainless steel, tamper proof type.
- F. Hardware: Natural anodized aluminum:
 - 1. Pivot hinges, gravity type, adjustable for door close positioning; two per door.
 - 2. Door Latch: Slide type with exterior emergency access feature.
 - 3. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
 - 4. Coat hook with rubber bumper; one per compartment, mounted on door.
 - 5. Provide door pull for outswinging doors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify correct spacing of and between plumbing fixtures.
- C. Verify correct location of built-in framing, concealed wall blocking, anchorage, and bracing.

3.02 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 to 1/2 inch (9 to 13 mm) space between wall and panels and between wall and end pilasters.
- C. Attach panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

3.03 ADJUSTING

- A. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.

END OF SECTION

SECTION 10 2800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Accessories for toilet rooms and utility rooms.
- B. Grab bars.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Concealed supports for accessories, including in wall framing and plates.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- C. Product Schedule

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Toilet Accessories:
 - 1. American Specialties, Inc: www.americanspecialties.com.
 - 2. Bradley Corporation: www.bradleycorp.com.
 - 3. AJW
 - 4. Bobrick.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Stainless Steel Sheet: ASTM A666, Type 304, Alloy 18-8
- C. Mirror Glass: Tempered safety glass, ASTM C1048; and ASTM C1036 Type I, Class 1, Quality Q2, with silvering as required.
- D. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.03 FINISHES

- A. Stainless Steel: No. 4 Brushed finish, unless otherwise noted.

2.04 TOILET ROOM ACCESSORIES

- A. Unit Mirrors: Stainless steel framed, 1/4 inch (6 mm) thick tempered safety glass; ASTM C1048.
 - 1. Size: 18 by 36 inches.
 - 2. Frame: 18-8 Type 304 18 gauge stainless steel, satin finish, unitized all welded construction
 - 3. Adjustable Tilt Mirrors: Stainless steel piano hinge full width of base and elbow hinges at sides of mirror, for minimum tilt forward from top of 6 inches (150 mm).
 - 4. Product: 0600T manufactured by ASI.
- B. Grab Bars: Type 304 Stainless steel, nonslip grasping surface finish.
 - 1. Standard Duty Grab Bars:

- a. Push/Pull Point Load: 250 pound-force (1112 N), minimum.
 - b. Meets ADA, ADAAG, ANSI A117.1 requirements
 - c. Concealed mounting.
 - d. Dimensions: 1-1/4 inch (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, exposed flange mounting, 1-1/2 inch (38 mm) clearance between wall and inside of grab bar.
 - e. Length and Configuration: 36 inches behind toilets, 42 inches adjacent to toilet- see drawings for location.
 - f. Product: ASI, Model 3100
- C. Under- Lavatory ADA Pipes Guard
1. Pre- molded enclosure
 2. Material : Rigid high impact PVC
 3. Meets ADA, ADAAG, ANSI A117.1 requirements
 4. Color: White
 5. Mounting : wall mounted
 6. Also conceals power unit for automatic faucets.
 7. Product: Truebro IPS, Product- Lav Shield

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.

3.02 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Remove temporary labels
- D. Clean exposed surfaces
- E. Ensure that surface mounted covers fit snugly against wall surface.
- F. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.03 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

**SECTION 10 4400
FIRE PROTECTION SPECIALTIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

1.03 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide extinguisher operational features.
- C. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 WARRANTY

- A. Provide fire extinguisher manufacturer's standard written warranty for failure due to defects in material and or workmanship
 - 1. Failure includes failure of hydrostatic test and faulty valve and release lever operation.
 - 2. Warranty period: 6 years

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer's:
 - 1. J.L. Industries
 - 2. Larsens Manufacturing
 - 3. Kidde
 - 4. Amerex
 - 5. Potter Roemer
 - 6. Pyro-Chem
- B. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
- B. Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gage.
 - 1. Class: UL Rated 4-A:60-B-C.
 - 2. Size: 10 pound (4.54 kg).
 - 3. Finish: Baked polyester powder coat, Red color.
- C. Drawing designations:
 - 1. "F.E.C" - indicates fire extinguisher and fire extinguisher cabinet.

2.03 FIRE EXTINGUISHER CABINETS

- A. Cabinet body: heavy gauge steel with white baked enamel finish, welded construction

- B. Cabinet Door: 1/2 inch thick hollow metal type 304 Stainless steel with #4 finish, one piece welded construction, two butt or piano hinge, pull handle, nylon catch.
- C. Cabinet door glazing: clear tempered glass set in resilient glazing gasket, vertical style, justified to pull side.
- D. Cabinet Configuration: Semi-recessed type , with rolled edge.
 - 1. Sized to accommodate fire extinguisher.
- E. Weld, fill, and grind components smooth.
- F. Provide Optional Die Cut lettering: Color: Red, lettering written vertically along hinge side of door.
- G. Comparable Product: Larsens Architectural Series - Vertical Duo

2.04 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level in accordance with the requirement of ADA, ADAAG, ANSI A117.7 and NFPA 10.
- C. Secure rigidly in place.
- D. Remove temporary labels and clean.

END OF SECTION

APPENDIX B: MEP SPECIFICATIONS AND DRAWINGS



November 18, 2016

Rolf Kielman
 Joshua Chafe
 Truexcullins Architecture
 209 Battery Street
 Burlington, VT

Burlington City Arts Basis of Design:

L.N. Consulting, Inc. has been retained to provide a basis of design regarding the proposed Burlington City Arts temporary space renovation located in Burlington, Vermont. The building is located at 405 Pine Street. The project consists of the partial renovation of the existing distribution warehouse area.

Outdoor Design Conditions

Elevation	125	ft.
Winter		
Dry bulb	-16	F
Summer		
Dry bulb	84	F
Wet bulb	69	F
Relative Humidity	48	RH
Dew Point	63	F
Moisture	82	grains/lb

Indoor Conditions: Thermostat/Sensor set points. Base bid is heating only. Add alternate provides local cooling with no dehumidification of ventilation air.

Occupied Space Temperature/RH Control Schedules

	Winter Occupied	Winter Unoccupied	Summer Occupied	Summer Unoccupied
Temperature	70 F	68 F	76 F	82 F
RH %	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled



Mechanical:

Based on budget discussions with the architect we have revised the following systems from the originally proposed in order to help reduce overall project cost.

Ventilation:

Note: The proposed ventilation system is heating only for conditioning outdoor air. Dehumidification of ventilation air was, according to the cost estimate provided by Avonda Air Systems (10/21/16), cost prohibitive. It would be recommended to pursue dehumidification of ventilation air if budget allows.

The proposed mechanical system would utilize a plate type heat recovery ventilator (HRV) to provide ventilation air to the spaces within the building. The proposed HRV is a roof mounted Greenheck PVE-55-SC rated for 4,500 cfm. The use of the static plate type HRV is to prevent the possible contamination of any ventilation air from the fumes and other particulates being exhausted from the classroom spaces. The HRV would operate on/off based upon a time clock, and occupancy sensors located throughout the space. The supply and exhaust fans for the HRV would be provided with variable frequency drives (VFDs) and would be set to operate based on duct static pressure. The required static pressure would be set during balancing.

A gas fired duct furnace would be provided on the supply from the HRV. The proposed duct furnace is an Airedale IFS300TMRLN23A1 indoor two stage duct furnace stainless steel burner. Unit is 300 MBtu/hr input, provide with manufacturer's concentric vent kit.

Ventilation air would be fully ducted to all spaces and rates would be determined based upon the requirements of ASHRAE 62.1-2013. Supply of ventilation air in the clay studio would be through laminar flow diffusers located at the ceiling and exhaust would be located at the floor of the classroom. Exhaust for all classrooms would be through sidewall grilles located at the floor. Locate all exhaust for digital lab directly above printers located in corner of room.

All of the HVAC air distribution system ductwork, including all supply, outdoor, and exhaust air distribution systems shall be designed in accordance with the recommended practices of ASHRAE, Chapter 21, "Duct Design", 2013 "Fundamentals" Handbook and SMACNA "HVAC Duct System Design". Supply and return ductwork shall be designed to maintain an air velocity below 800 FPM near duct transitions and take-offs and below 500 FPM near terminal units to minimize noise levels within the rooms. All duct branches would be provided with locking quadrant low leakage volume dampers for balancing. All ductwork would be rated for 4"wg operating pressure. Classrooms that generate fumes and/or dust would be balanced to be slightly negative relative to the adjacent spaces in order to ensure the airflow through the classroom moves in the proper direction to reduce the spread of contaminants.

A dust collection system would be provided for the clay studio. The dust collector would be a Eurovac 30" cyclone dust collector with 10 and 14 gage painted steel housing, support legs for attachment into concrete pad (anchors by other), top mounted 5 HP direct drive fan, 3 phase TEFC motor, 2200 CFM @ 11" s.p. AMCA type B spark proof impeller, 55 gallon drum for dust containment with flexible hose connection,



Four (4) high efficiency polyester/felt tube filters mounted onto support plenum, (no duct required for air recirculation into the facility). The dust collector would be pad mounted outside adjacent to the pottery classrooms.

There would be three arms located in the clay studio connected to the dust collector. These arm locations would be coordinated so that they allowed for user operation at the glaze chemistry room, glaze mixing area, and one other location determined by owner. The proposed arms would be Eurovac fume arms, 6"x12'. The arms would come with cast aluminum adjustable arm joints, 12" painted aluminum capture hood with diverter to increase face velocity, 26 gauge painted steel tubes for minimal friction loss, vacuum damper with adjustable exterior handle threaded arm socket with grease nipple for proper rotation, painted 11 gage steel arm support bracket.

The Jewelry studio would be provided with a wall mounted exhaust fan and three Eurovac fume arms located to serve the acetylene torch locations and the wax kiln location. The Eurovac fan would be a TEFC 2 HP direct drive motor/fan, 3500 RPM 1000 CFM @ 6" static pressure backward inclined impeller non sparking design aluminum impeller 11 gage powder coat steel housing with support bracket for interior or exterior installation.

Three control dampers would be provided on the HRV exhaust system. These control dampers would be on the branches serving the clay studio rooms, the main corridor, and the jewelry studio. When the dust collector is turned on, the exhaust damper to the clay studio would modulate in order to reduce the exhaust from the HRV to match the number of arms being utilized. The positions for the damper would be determined during balancing for 1, 2, or 3 arms operating. When the jewelry studio arms are in operation the jewelry studio exhaust damper would close and the corridor exhaust damper would modulate down, so that the exhaust rate of the fan equals the reduction in exhaust through the HRV. This would be determined during balancing. Because the HRV exhaust fan would be set to maintain constant static pressure, the fan will modulate down as the dampers are closed.

Space Conditioning:

The proposed space conditioning would be achieved utilizing gas fired furnace units with direct expansion (DX) cooling coils. The furnaces would be located on the existing mezzanines above the spaces they serve, or as close as can be achieved in order to reduce the length of ductwork runs. The proposed model furnace is a Lennox EL296 series gas fired unit. All units would require combustion intake and vent piping to be installed.

Zone	Space(s) Served	Unit	Add Alt Cooling
1	Administration and Kitchenette	Lennox EL296UH045XE36B	Lennox XC14 030
2	Entry Vestibule	Modine gas fired unit heater Hot Dawg 30	
3	Clay Classrooms, Glazing, Jewelry	Lennox EL296UH0090XE48C	Lennox XC14 060



	Classroom		
4	Digital, Drawing and Painting, Print, Corridor 102, Emergency exit Vestibule 103	Lennox EL296UH135XE60D	Lennox XC14 060
5	Photography Classroom, Film, Darkroom, Bathrooms, Sinks 119	Lennox EL296UH070XE36B	Lennox XC14 048
6	Kiln Room	Modine gas fired unit heater Hot Dawg 30	

Note that revised zoning reduces overall number of control zones and can lead to inconsistent room temperatures between rooms on the same zone with varying occupancies. The proposed zoning was provided based cost reduction from the originally proposed systems. The proposed systems are not designed for future expansion.

IN the base bid design, each gas fired furnace would be provided with the associated Lennox direct expansion DX cooling coil. Provide each furnace with manufacturer's concentric inlet/vent. Install manufacturer's concentric intake and vent for gas fired unit heaters.

Install returns in Clay, Jewelry, Film Processing, Darkroom, and Print at the floor. Provide laminar supply diffusers in all clay classroom and glaze locations, Nailor 92LFD or equal. Supply diffusers in all other locations are Nailor RNS. All exhaust and return sidewall grilles are Nailor 6145 surface mount. Ceiling returns in other locations Nailor 4360. In locations without ceilings utilize duct mounted 6300R supply diffusers.

The kiln room would be provided with an exhaust fan and intake louver. The intake louver would be provided with insulated control damper Ruskin CDTI-50 or equal. The exhaust fan would be a Twin City T1500L rated for 1051 cfm at 0.25" wg. Provide fan with backdraft damper and 45 degree exhaust hood with bird screen. The intake louver would be 36"x24". Provide the exhaust fan with factory speed controller and enable fan based on reverse acting thermostat in the room.

Each kiln will require the installation of Skutt Envirovent2 exhausts through exterior wall.

A 4" round aluminum dryer duct would be run from the dryer location to the east exterior wall and provided with a wall cap and backdraft damper. If duct exceeds manufacturer's exhaust length requirements alert architect that booster fan will be required.

Mechanical Materials:

Ductwork Materials: All ductwork shall be G-90 galvanized steel. Duct insulation shall meet the requirements of the 2015 Vermont Commercial Building Energy Standards.



All outdoor air intake plenums shall be insulated to meet the requirements of the 2015 Vermont Commercial Building Energy Standards.

All furnace intake and exhaust piping shall be schedule 40 solid core PVC pipe, and shall meet all manufacturer's installation and exhaust heat requirements.

All refrigerant piping to be type K copper piping, insulated with a minimum of 1" closed cell insulation equal to Aerocell. Insulation shall be rated for temperatures above the highest temperature refrigerant line and provided with UV and weather protectant skin.

Mechanical Add Alternate:

Install associated condensing units and refrigeration piping from condensing units to DX cooling coils for furnaces. The proposed condensing units are Lennox XC14s. Units to be located on concrete pad adjacent to the building. See unit sizing in table above.

Plumbing:

Gas piping from regulator to furnaces, water heaters, and unit heaters would be threaded black steel schedule 40 pipe. The mechanical contractor shall design, furnish and install a new natural gas distribution system to support the fit up area. The natural gas entrance shall be designed, sized and installed in accordance with the International Plumbing Code, NFPA 54, and the local utility company's requirements.

Bathroom toilets would be American Standard Right Height Cadet 1.6 gpf tank type, floor mount fixtures. Urinal would be American Standard Washbrook 0.125 gpm per flush with manual flushometer. Lavatories would be American Standard Lucerne with Moen 8810 wrist blade ADA faucets.

Sink faucets at the two sink stations would be Elkay model LKD208513C.

Relocate the existing domestic water heater (located in Ferrel kitchen) to the east mezzanine. Relocate existing Ferrel domestic water heater to east mezzanine. Provide stainless steel drain pans under water heaters and provide 1" drain down to blow out sink. Install domestic water piping to all fixtures and provide domestic hot water recirculation as required by 2015 Vermont Commercial Energy Code.

In clay glazing, the existing Ferrel Vending stainless steel sink would be re-used and the existing pump station reused. Provide add alternate cost to install waste piping from sink location to main. *Note that we do not recommend re-use of sump pump, as glaze and clay sink waste will contain particulates that could jam pump impeller and will likely cause maintenance issues over time. The condition of the existing sump pump has not been verified. It is recommended that all new waste lines be gravity drained.*

The mechanical contractor shall connect to waste exit(s) coordinated with civil engineer, general contractor, and site contractor.



Install water saver EW1041 eye wash station in Darkroom 110c. All other required eye wash stations to be bottle type with saline solution.

Contractor shall install silver reclaim unit, owner provided, at darkroom sink. Contractor to install clay filter units, owner provided, at clay classroom sinks.

The mechanical contractor shall design, furnish and install washer/dryer outlet box for each washing machine location. The washer box shall include a Watts Intelliflow automatic washing machine shut-off valve.

The mechanical contractor shall design, furnish and install condensate piping system, including condensate removal pumps if required, for all DX cooling systems. The condensate removal system shall be designed, sized and installed in accordance with the International Plumbing Code Requirements.

Plumbing Materials:

Piping Materials: Domestic cold, hot, and hot water return piping shall be Type L copper. Hot water supply and return branch piping may be Type L copper or Oxygen barrier PEX. Water supply and return piping insulation shall meet the requirements of the 2015 Vermont Commercial Building Energy Standards.

All components in contact with the domestic water system shall meet the no lead requirements.

All waste and vent piping: schedule 40, Solid-Wall PVC Pipe ASTM D 2665, drain, waste, and vent with ASTM D 2665, socket type, PVC Socket Fittings made to ASTM D 3311, drain, waste, and vent patterns.

Fire Protection:

Modify existing fire protection piping and heads to accommodate new floor plan changes. Perform all necessary hydraulic calculations. Receive approval from local authority having jurisdiction.

1.1 SYSTEM PERFORMANCE REQUIREMENTS

- A. Design sprinklers and obtain approval from authorities having jurisdiction.
- B. Design sprinkler piping according to the following and obtain approval from authorities having jurisdiction:
 - 1. Include 10 percent margin of safety for available water flow and pressure.
 - 2. Include losses through water-service piping, valves, and backflow preventers.
 - 3. Sprinkler Occupancy Hazard Classifications: As follows:



- C. Design sprinkler piping according to the following and obtain approval from authorities having jurisdiction:
 - 1. Include 10 percent margin of safety for available water flow and pressure.
 - 2. Include losses through water-service piping, valves, and backflow preventers.
 - 3. Sprinkler Occupancy Hazard Classifications: As follows:
 - 1. NFPA 13
 - 4. Minimum Density for Automatic-Sprinkler Piping Design: As follows:
 - 1. NFPA 13
 - 5. Maximum Protection Area per Sprinkler: As follows:
 - 1. NFPA 13
- D. Components and Installation: Capable of producing piping systems with 175-psig minimum working-pressure rating, unless otherwise indicated.

1.2 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has designed and installed fire-suppression piping similar to that indicated for this Project and obtained design approval and inspection approval from authorities having jurisdiction.
- B. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by a qualified professional engineer. Base calculations on results of fire-hydrant flow test.
- C. Design Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of fire-suppression piping that are similar to those indicated for this Project in material, design, and extent. Design engineer must possess a Vermont State PE stamp in fire protection systems design at minimum.

1.3 PIPES AND TUBES

- A. Standard-Weight Steel Pipe: ASTM A 53, ASTM A 135, or ASTM A 795; Schedule 40 in NPS 2" and smaller, and Schedule 10 in NPS 2 1/2" and larger.

1.4 PIPE AND TUBE FITTINGS



- A. Malleable-Iron Threaded Fittings: ASME B16.3.
- B. Steel, Grooved-End Fittings: UL-listed and FM-approved, ASTM A 47, malleable iron or ASTM A 536, ductile iron; with dimensions matching steel pipe and ends factory grooved according to AWWA C606.
- C. Steel, Grooved Couplings: ASTM A 865.
- D. Steel, Threaded Couplings: ASTM A 865.
- E. Steel Welding Fittings: ASTM A 234/A 234M, ASME B16.9, or ASME B16.11.
- F. Steel Flanges and Flanged Fittings: ASME B16.5.

1.5 JOINING MATERIALS

- A. Steel, Keyed Couplings: UL 213 and AWWA C606, for steel-pipe dimensions. Include ASTM A 536, ductile-iron housing, rubber gaskets, and steel bolts and nuts. Include listing for dry-pipe service for couplings for dry piping.

1.6 SPRINKLERS

- A. Automatic Sprinklers: With heat-responsive element complying with the following:
 - 1. UL 1767, for early suppression, fast-response applications.
- B. Sprinkler Types and Categories: Nominal 1/2-inch orifice for "Ordinary" temperature classification rating, unless otherwise indicated or required by application.
- C. Sprinkler types, features, and options include the following:
 - 1. Quick-response sprinklers.
 - 2. Concealed sprinklers, including escutcheon.
 - 3. Upright sprinklers.
- D. Sprinkler Finishes: Chrome-plated, bronze, and painted.
- E. Special Coatings: Wax, lead, and corrosion-resistant paint.
- F. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.
 - 1. Ceiling Mounting: Chrome-plated steel, two piece, with 1-inch vertical adjustment.



- G. Sprinkler Guards: Wire-cage type, including fastening device for attaching to sprinkler.

Sincerely,

LN Consulting Inc.
Derek Siegler, PE

Requirements for Electrical and Telecommunications Infrastructure Construction and Coordination Services

1. Request To Bidders

Bidders shall refer to project manual for information on submission of electrical construction bids.

2. Project Overview

The project consists of a renovation to the existing Farrell Distributors facility on Pine St, in Burlington, VT. To accommodate the fit-up of the relocated Burlington City Arts space from its existing location at the basement of Memorial Auditorium. The project will be constructed as a design-build effort with Contractors providing materials and labor to complete under the following project requirements and goals. Contractors shall provide accurate and complete as-built documents as part of requirements for a complete installation.

a. Electrical Basis of Design

The following outline shall constitute the basis of design intent for this project:

Power Systems:

Building Service – This is an existing site that has a 208/120 volt, 400 amp, three phase service installed. The present building appears to have some limited air conditioning, based upon historic electric load demands (peak in summer months), but these peak loads are in the 125 amp range. This leaves an adequate amount of capacity left to serve the proposed BCA spaces. There already is a 200 amp rated, two section (feed-through style) panel located in the area where BCA will lease and fit up (near exterior wall where new kiln room is to be). It was used for commercial kitchen equipment in the vicinity of where BCA will be taking over. There will not be the establishment of a new dedicated meter for the BCA occupancy; therefore, electric use will be included as part of the BCA lease agreement with Farrell.

Although new AC is proposed (see additional comments below), it is estimated that the 400 amp service can still accommodate the proposed new system and existing loads; However, in order to support the additional loads expected in the BCA area for HVAC and BCA equipment loads, the Electrical Contractor shall provide an additional 100 amp dedicated feed to one half of the existing twin, feed-through style panel already installed in the BCA area. This feed shall originate at the building's main service distribution panel located in the main electric room, located approximately 20 feet from column K3 at the corner of new Admin Office 104b. A new matching 100 amp, 3-pole circuit breaker shall be provided in this panel and brought to these existing panels in the BCA space. In addition, these panels shall be relocated to the mezzanine space above. Both the existing 200 amp circuit feeding these panels now and the new 100 amp feeder circuit to one of these panels will need to be extended to the new panels' location. Coordinate with BCA

for exact location that will meet all NEC clearance requirements. There is only one (or two) small 20 amp circuit that serves existing Farrell condensers on the outer wall of the building that will need to be maintained and also extended from the new panel location. All other circuits and circuit breakers from these panels can be reallocated to the new circuiting needs of the BCA fit-up.

Building Distribution – As mentioned above, there is a service entrance panel rated at 400 amps and which also serves some other remote panels in the building. The 200 amp panel in the BCA area is one of those remote panels. While BCA will be able to reuse most all of the spaces and circuit breakers in these two side-by-side panels, there are a couple circuits which must be maintained for existing cooler/freezer compressors that Farrell needs to continue use of. There should be enough circuit breaker spaces for the BCA needs; however specific new circuit breaker sizes and types may be needed for the various BCA equipment fit-ups. This shall include (3) 60 amp, 3 phase circuits for kilns, and those circuits needed for new mechanical system equipment (see mechanical system plans and specs). Most or all of the remaining circuits shall be 120 volt, 20 amp; therefore, many of the existing circuit breakers in these existing power panels may be reused.

Emergency Power – There is no requirement for emergency power other than for egress and exit lighting, which will be provided by individual battery pack units, where and as required. At this time there will be no provisions for emergency stand-by generator, unless desired by BCA. Individual plug-in type UPS battery backup can be provided at desired work stations for any sensitive work areas and equipment.

HVAC Loads – HVAC loads for ventilation and heating will not be a burden to the building's electrical system. Refer to mechanical system plans for specific equipment circuit requirements and provide as needed.

Lighting Systems: With the exception of the Clay Throwing Workshop (reuse existing as is), all existing lighting shall be removed and replaced with new as shown on Architects RCP drawing and as described below. All new lighting shall comply with the latest Vermont Energy Code in effect. BED has been notified of this project and is familiar with what is planned for this space. All lighting fixtures shall be Energy Star or DLC listed, with 5000K color temperature for exterior fixtures and 4000K color temperature for indoor fixtures.

Interior Spaces – All areas will receive new highly efficient LED based lighting systems. Occupancy sensors shall be utilized where applicable. Dimming shall be employed in many of the spaces to maximize on local control. Light fixture locations are proposed on the architectural reflected ceiling plan. Fixture types are identified on that plan and are anticipated to be as described following:

LT-1: These shall be basic energy efficient industrial type low-bay LED style fixtures, with a prismatic type globe for ambient side and up lighting. Use a 16" shade for classroom areas and 12" shade for corridors. Generally design

lumen levels to achieve an average 50 fc available for all classroom and 20 fc for corridors. All areas shall have dimming controls, per individual space.

LT-2: These fixtures shall be an LED based downlight, in the 6 inch range. These shall come with an open aperture for general use spaces.

LT-3: These fixtures will be track style (twin lines depicting length) with multiple heads shown in proposed quantities (circles shown on twin lines). Head style will be fairly plain, small form, black housing, with spot and/or medium diameter distribution. These will be used for highlighting wall art or for specific duty stations on floor, depending upon location. A single circuit track is anticipated with dimming capabilities on each track system location. Use Spectrum Powertrack SRTS series or approved equivalent.

LT-4: These fixtures denote skylights for natural lighting during daytime hours. Non electric.

LT-5: Dark sky friendly, sharp cut-off style wall packs will be utilized. These shall also be controlled with a photoeye to automatically shut off during daytime hours. E-conolight Slim Wall Pack E-WF1 or approved equivalent.

Occupancy sensors would be used for each individual space for required energy code control management. All lighting fixtures shall be DLC qualified by the manufacturer so that local BED energy program incentives can be taken.

Life Safety and Security Systems:

Fire Alarm System – The building does not have an existing fire alarm system and will require one as an Educational occupancy. Only a manual system is required, but this system will only need to be installed throughout the BCA space and not the entire building facility. A new fire alarm panel would need to be installed along with a radio call box for automatic alarm notification to the Burlington Fire Department. Specific system elements and components are identified as follows:

Manual pull stations will be required at every exit and at any stairs leading from a second level space. A minimum of one pull station per 100 feet of egress corridor is also a minimum requirement, but there should be enough exit locations to meet this requirement.

A smoke detector is also required at the fire alarm panel location. Duct smoke detectors will be required for any HVAC unit with greater than 2,000 CFM capacity. Sprinkler system will have flow and tamper switches that get tied into fire alarm system.

New horn/strobe units will be required for alarm notification throughout the building. Quantities will be needed to meet audible levels required for minimum code compliance. Approximately 20 horn/strobes will be required for the BCA space.

Egress/Emergency Lighting – Emergency egress lighting and exit signage will be required in main corridors, stairwells, and egress paths on all floors as required by code. Typically exit signs must be placed so that two exit routes can be seen from any point on designated egress pathways. Battery powered ballasts in lighting fixtures or stand-alone battery powered emergency light packs will be specified under this design strategy. All egress paths must be illuminated with an average minimum of 1 footcandle level under emergency power conditions. A central inverter battery type system could also be specified, which would eliminate the need for individual battery pack type units installed throughout (which then uses the regular space lighting system); however, this is likely to be a costlier solution.

Security Systems – An intrusion detection system is already installed at this facility for Farrell needs and will remain. Consult with Farrell Distributors as for the location of all existing associated detectors and wiring so that this system can remain undisturbed through the construction period and not be compromised in any location as a result of new construction.

Communications Systems –

Data Network – The data network for this space will need to be installed completely new. However, it is anticipated that these needs will be relatively little, except for the digital lab area, which would anticipate a more robust level of infrastructure. A good majority of the spaces could be served by wireless delivery. The exceptions being the work desks at the admin office and the digital lab work areas. BCA will need to determine the level of connectivity needed to the site from a telecom provider. BCA shall notify Contractor as to chosen provider and where the service demarcation point will be. CAT6 cabling should be sufficient for a cost effective level of cabling to the desktop from the server. Open cabling could be accomplished with relatively small sized trunk cable tray (6-inch) and simple j-hook support from this system to individual workstation drops. Plan for one data drop for each workspace desk area, plus an additional 3 drops for the administration area, and 6 drops for the digital lab area. Verify exact locations to bring outlets with BCA, as well as the desired spot for server equipment to bring data cable home runs back to.

Telephone/CATV/Internet Services – Internet and voice service is anticipated to be the driving need for BCA program support. It is not anticipated that CATV service would be required for BCA.

b. HVAC systems

The electrical contractor shall be responsible for providing power circuiting for any and all mechanical system equipment requiring 100 volts or more for operation, including but not limited to boilers, fans, pumps, motors, and motor operated dampers. Control wiring, for systems under 100 volts, shall be the responsibility of the Mechanical Contractor under his required controls work; however, the Electrical contractor shall be responsible for providing a dedicated 120 VAC circuit to the control panel or panels for control system power. The Electrical Contractor may provide separate pricing to the Mechanical

Contractor to complete this low voltage controls work that is not part of the Electrical Contractor's base bid requirements.

c. Exterior and Site Work

Exterior and site electrical work shall be limited in nature. There shall be exterior lighting for the entry areas, and mechanical equipment feeders and connections.

3. Electrical System Specifications

Design and performance parameters will include all of the following:

16000 GENERAL PROVISIONS

16010 SCOPE OF WORK

1. The Contractor shall design, furnish, and install, but not limited to, the following complete systems for each building according to the design criteria specified herein:
 - a. Electrical panelboards and branch circuiting system.
 - b. Wiring devices.
 - c. Interior lighting system.
 - d. Exit and emergency lighting meeting Vt State and Burlington City's life safety requirements.
 - e. Mechanical system equipment power conduit and wiring only.
 - f. Sprinkler system supervision and annunciation alarm equipment, meeting Vt State and Burlington City's life safety requirements.
 - g. Provisions for data/communications system outlets, as noted herein.
 - h. Exterior building mounted perimeter lighting.
 - i. Fire alarm systems, meeting Vt State and Burlington City's life safety requirements.
 - j. Provide for testing of all installed equipment and systems.

16030 CODES, STANDARDS, PERMITS, AND FEES

1. All materials, equipment, sizes, capacities and installation of electrical work shall conform to the latest requirements of the National Electric Code, National Electrical Safety Code, the National Electrical Manufacturers Association, the Board of Fire Underwriters, the Underwriter's Laboratories, Inc., the Institute of Electrical and Electronics Engineers and the prevailing State and Local Electrical Codes.
2. Secure and pay for all permits and inspections required. The electrical inspection shall be made and approved by the State and/or Local authority having jurisdiction. All certificates shall be in duplicate and shall be delivered to the Construction Manager and become the property of the Owner.

3. All electrical work shall be performed by duly licensed electricians who are qualified to do such work, and who are normally engaged in this type of work. Because of the complexity of the electrical work, unskilled labor is not permitted.
4. Unless otherwise shown or specified, all enclosures, motors, wiring, and other materials and all construction methods shall conform to the following:
 - a. Indoor, Above Ground, Dry Areas: NEMA 1, General Purpose, for general-purpose applications where atmospheric conditions are normal. Enclosures shall be sheet steel, treated to resist corrosion, prime painted and finished with a gray baked on enamel.
 - b. Outdoors, Moist Areas: NEMA 4, Water-tight.
5. Electrical systems servicing the building and the site shall be provided by the electrical systems Contractor. The Contractor shall **not** carry utility systems charges related to this building in their bid price. The Owner shall pay all electrical and telephone Utility charges

16040 SUBMITTALS

1. Provide standard manufacturer's catalog cuts and shop Drawings of all materials and equipment, including but not limited to light fixtures, lamps, panels, disconnect switches, circuit breakers, receptacles, coverplates, light switches, fire alarm and sprinkler monitoring system.
2. Provide installation instructions and operation and maintenance manuals for all equipment. All instructions, charts, and list of all emergency telephone numbers shall be bound in appropriate hard cover binders, properly indexed, identified and titled. Provide three complete manuals.
3. Provide copies of all required permits.
4. Provide duplicate copies of electrical inspection certificates.
5. Provide separate copies of invoices for all equipment eligible for Burlington Electric Department incentives.
6. Provide complete listing of all tests performed and copies of the test results.
7. Provide as-built wiring diagrams and circuit directories. Drawings may be provided as neatly produced and accepted hand drawings or electronic

based CAD drawings on CD format. CAD base plans will be made available by the Architect, if desired.

16050 TESTS

1. Provide all labor, materials, testing equipment, electricity, fuel, lights, lubricants, equipment instruments and all other materials required for conducting all tests.
2. Check for proper phase sequence and test all parts of the electrical system before placing them in service. All equipment shall show proper neutral connections.
3. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show insulation resistance between phase conductors and ground of not less than that required by NEC, or as specified herein.
4. Check all motors for proper rotation and all starters for proper overload protective elements.
5. Test all electrical devices for proper control of motors and equipment. Verify proper operation with mechanical system Designer / Installer and Owner.
6. Lamp all fixtures with lamps of designated rating, color and check operation.
7. Check amperage in all circuits and compare to nameplate data.
8. Conduct all other tests required to secure approval of the work from all agencies having jurisdiction.

16060 GUARANTEE

1. Contractor shall guarantee all equipment and workmanship is free from mechanical and electrical defects for a period of one year form the date of final acceptance. Any replacement of parts or adjustments, including labor made necessary by such defects or adjustments, shall be rectified without cost to the Owner, to the satisfaction of the Owner.

16070 COORDINATION WITH OTHER TRADES

1. The Contractor shall be responsible for reviewing all Contract Drawings and Specifications relating to the project to insure the fact that all related electrical work associated with other trades has been accounted for. No extra compensation will be allowed for lack of compliance herewith.
2. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
3. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work.
4. Coordinate telecom and data services requirements furnished by Owner.

16080 AS BUILT DOCUMENTS

1. Contractor shall mark set of field prints with all changes made during construction. Keep a record set on site to track changes as they occur.
2. Contractor shall provide a full set of as-build documents as outlined and required in 16040 SUBMITTALS.

16100 BASIC MATERIALS AND METHODS

16110 GENERAL

1. Provide and install all materials for a complete and thorough electrical system installation. Install all equipment to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
2. If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.
3. Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated. Verify all equipment locations with Owner prior to installation.

16120 GROUNDING AND BONDING

1. Provide grounding that complies with NFPA 70, Article 250, for types, sizes, and quantities of electrical service and equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

2. Install insulated equipment grounding conductor with circuit conductors for the following items, in addition to those required by NEC:
 - a. Feeders and branch circuits.
 - b. Lighting circuits.
 - c. Receptacle circuits.
 - d. Motor and equipment branch circuits.
4. Use only copper conductors for both insulated and bare grounding conductors for all grounding requirements.

16130 CONDUCTORS AND CABLES

1. Feeders to panels: Type THHN/THWN insulated copper or aluminum conductors in raceway or MC cable construction.
2. Branch Circuits: Type THW or THHN/THWN insulated copper conductors in raceway where exposed. Conduit or MC cable shall be used for exposed cables in interior non-finished spaces. Surface wiremold system or painted conduit shall be used for all exposed circuits in finished spaces.
3. Fire Alarm Circuits: Wiring type shall be a power limited fire protection signaling circuit multi-conductor cable, 105 degree Celsius, Type FAPL, 300 volt rated, red jacket.

16140 RACEWAYS AND BOXES

1. Provide a code compliant, complete system of raceways, boxes, enclosures, and cabinets, according to manufacturer's written instructions for materials used.
2. Minimum Raceway Size: 3/4-inch trade size, if needed and used. Conceal conduit or NMC cable, unless otherwise indicated, within finished walls, ceilings, and floors.
3. Outdoors: Use the following wiring methods:
 - a. Exposed: Rigid galvanized steel
 - b. Concealed: Rigid galvanized steel
 - c. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): Liquidtight Flexible Metal Conduit (LFMC)
4. Indoors: Use the following wiring methods:
 - a. Exposed: EMT or wiremold raceway system.

- b. Concealed: EMT, or MC cable assemblies.
- c. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except in wet or damp locations, use LFMC.
 - 1. Damp or Wet Locations: Rigid galvanized steel conduit.
 - 2. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
 - A) Damp or Wet Locations: NEMA 250, Type 4

16150 WIRING DEVICES

1. Provide a complete set of wiring devices as coordinated with Owner for quantities and locations. All devices shall be commercial grade construction with minimum circuit capacities for all device rated for 20 amperes.
2. Receptacles: Provide the following as required for building function and code compliance.
 - a. Straight-Blade and Locking Receptacles: Commercial grade, general-duty. Duplex receptacles shall be 20 amp rated, unless other wise noted.
 - b. GFCI Receptacles: 20 amp rated feed-through type, with integral NEMA WD 6, Configuration 5-20R duplex receptacle arranged to protect connected downstream receptacles on same circuit. Design units for installation in a 2-3/4-inch-deep outlet box without an adapter.
 - c. Specialty Receptacles: Provide any specialty receptacles to match BCA equipment as required.
3. Snap Switches: General-duty, quiet type.
4. Wall Plates: Single and combination types that match corresponding wiring devices. All plates shall be stainless steel for all locations, with matching screws.
5. Quantities and Locations:

The following circuits, at a minimum, shall be provided:

- Use 2014 NEC for all areas.
- General duty receptacles in all classroom and administration spaces with minimum quantities of one receptacle per 12 linear feet of wall space in open areas and minimum of (1) receptacle per work station.

- Dedicated outlets for BCA specific equipment.
- Provide GFCI outlets for bathrooms.
- Provide (1) duplex receptacle per 50 feet of corridor for cleaning purposes.
- Provide (4) outlets in the mezzanine space, as directed by BCA.

16160 IDENTIFICATION AND LABELING

1. Contractor shall provide labeling for all installed panels, disconnects, and electrical equipment cabinets. Provide materials for labeling as listed below.
2. Engraved-Plastic Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch minimum thickness. Engraved legend in black letters on white background.
3. Provide typed written panel directories for all branch circuits installed in power panels.
4. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Design Build Documents, with Owner, or required by codes and standards. Use consistent designations throughout each building facility.

16400 ELECTRICAL SERVICE AND DISTRIBUTION

16410 ELECTRICAL SERVICE

1. Electrical service is existing and adequate for renovation occupancy. No new metering is required.

16430 PANELBOARDS

1. All panelboards are existing and shall be reused. Relocate and refeed as described in above Basis of Design.
2. All panels shall have typewritten directories on inside of door to identify load served. Update all schedules with new typewritten directories.
3. Circuit breakers shall be molded case, thermal/magnetic trip-type meeting or exceeding UL Standard 489, NEMA Standard AB-1-1964 and Federal spec. E-V 375A. Circuit breakers are to have adequate interrupting capacities and are to be chosen for selective tripping to prevent unnecessary shutdown of equipment not directly involved in the fault.

16440 DISCONNECT SWITCHES AND CIRCUIT BREAKERS

1. Provide fused disconnect switches for site sewage equipment as design by others. Provide NEMA 4 disconnects for all exterior located switches, NEMA 1 for all interior dry locations.
2. All mechanical system disconnects and starters shall be furnished by Mechanical Contractor, installed by Electrical contractor.
3. Switches shall be enclosed, fusible, type HD, clips to accommodate specified fuses, enclosure consistent with environment where located, handle lockable with 2 padlocks, and interlocked with cover in CLOSED position.
4. Switches shall be sized per code and provided with overcurrent protection sized per manufacturer's recommendations for specific equipment.
5. All circuit breakers shall be bolt-on type and match panelboard they are installed in, and with AIC withstand ratings sized per calculated AIC available at locations installed. Provide calculations to Owner with drawing documents for all AIC ratings above 10,000 Amps.

16460 COORDINATION WITH MECHANICAL SYSTEMS

1. Heating system—with combined hot water system shall be propane fired boiler units. The electrical contractor must provide power for all components in these systems.
2. Ventilation system— shall be designed and installed by others. The electrical contractor must provide power for these units.

16470 COORDINATION WITH WATER AND SEWAGE SYSTEMS

1. The building is served by city water and sewage systems. Electrical Contractor is not expected to be required to provide any services for the installation of these systems.

16480 COORDINATION WITH OWNER PROVIDED EQUIPMENT

1. The Owner shall be providing all BCA listed equipment. Coordinate exact circuiting requirements prior to the rough-in of any BCA circuits, and provide appropriate circuiting and associated devices for a complete installation.

16500 LIGHTING

16510 INTERIOR SPACE LIGHTING

1. All interior area lighting shall be LED type, utilizing 4000 degree Kelvin color temperature, CRI <80, and matching electronic dimmable drivers.
2. All fixtures shall be designed to be compatible with ceiling types installed in each area.

16520 EMERGENCY AND LIFE SAFETY LIGHTING

1. Provide emergency lighting of exit ways, and general floor areas in common public spaces only, as required by the State Fire Code and any local codes.
2. Power for emergency lighting shall be derived from the local lighting circuit, per code.
2. Exit lights shall be provided for all egress pathways in common public spaces as required by State and local codes, utilizing LED lamps and self-contained battery backup.

16530 EXTERIOR LIGHTING

1. Provide sharp cutoff, LED type wall pack type fixtures over or adjacent to each unit doorway. Provide fixtures with minus 20°F ballasts. See section 16515 above.
2. Exterior entrance lights shall be controlled with motion sensor to turn fixtures on when movement is detected. Provide local off switching to selected fixtures to override automatic control as directed by Owner.
3. Exterior building and parking lot luminaires shall meet 2016 Vermont Guidelines for Energy Efficient Commercial Construction.
 - a. Parking Lots = .15w/sf
 - b. Luminaires operating at more than 100watts shall contain lmaps having a minimum efficacy of 100lumens/watt.
 - c. Max/min ratio = 20:1 (footcandles)
 - d. Avg/min ratio = 4:1 (footcandles)

16540 COORDINATION WITH BURLINGTON ELECTRIC DEPARTMENT

1. The Owner shall coordinate with Burlington Electric Department to establish program incentives and use of accepted products and techniques.

16600 FIRE ALARM SYSTEMS

- Provide connections to sprinkler system flow and tamper switches.

- A system smoke detector must be installed within 5 feet of fire alarm panel and circuited to it.
- Provide manual pull stations at every exit from the BCA space.
- Provide all power and fire alarm circuit conduit and wiring for completely installed and tested systems.
- Provide radio call box per Burlington Fire Department requirements
- Provide strobe and horn annunciation devices for complete audible and visible requirements per NFPA 72.

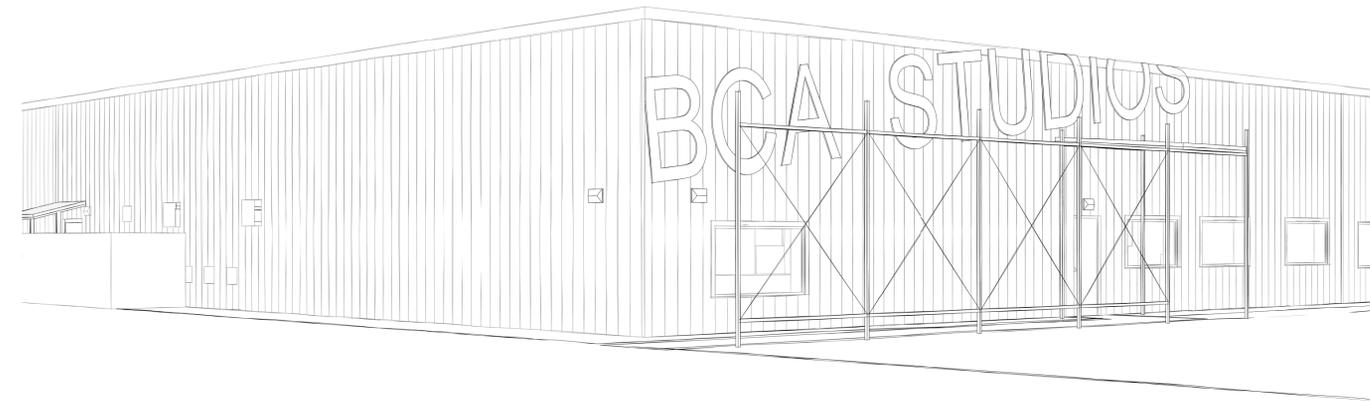
16700 TELEPHONE AND DATA COMMUNICATIONS SYSTEMS

1. Provide Tele/Data jack outlets and CAT6 cable runs back to data system server location from each outlet in quantities and locations indicated below. Verify exact termination locations with Owner.
 - Provide one (1) jack outlet per outlet location
2. Each jack shall be located within 16" to a power receptacle.

16910 INSTRUCTION SERVICES

1. Provide a competent instructor, when requested by Construction Manager to instruct Owner and his representatives in the proper operation and maintenance of the electrical systems.
2. Include in the Contract Base Price, the cost of the instructor on-site time minimum of 4 hours training, which may be broken down into several days during the period commencing near the date of final installations and extending through one year guarantee period.
3. The instructor's time is totally independent of any time necessarily required of Contractor to return to the project during the guarantee period for repairs, corrective work or for any other reasons.

APPENDIX C: ARCHITECTURAL DRAWINGS ARE PROVIDED REGARDING THIS SYSTEM



BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT-UP AT 405 PINE STREET
BURLINGTON, VERMONT

BID DOCUMENTS

FRIDAY NOVEMBER 18, 2016

TC_DRAWING LIST

A-001	LEGENDS, ABBREVIATIONS & NOTES
A-010	LIFE SAFETY
A-020	SITE PLAN
A-050	DEMOLITION PLAN
A-101	FIRST FLOOR PLAN
A-102	MEZZANINE PLAN
A-103	ROOF PLAN
A-121	EQUIPMENT PLAN - A
A-151	RCP - FIRST FLOOR
A-201	EXTERIOR ELEVATIONS
A-301	SECTIONS
A-401	WALL TYPES & DETAILS
A-501	ENLARGED PLANS & ELEVATIONS
A-601	SCHEDULES
A-602	EQUIPMENT SCHEDULE
A-701	INTERIOR ELEVATIONS
A-702	DETAILS
A-703	DETAILS
A-704	DETAILS
S-000	GENERAL NOTES
S-001	GENERAL NOTES AND SPECIAL INSPECTIONS
S-100	FOUNDATION PLAN
S-101	ROOF FRAMING PLAN
S-200	BUILDING SECTIONS
S-300	FOUNDATION DETAILS
S-301	FOUNDATION DETAILS
S-400	FRAMING DETAILS
S-500	TAKEOFFS

**NOT FOR
CONSTRUCTION**

No.	Description	Date
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AERIAL VIEW OF 405 PINE STREET, BURLINGTON, VERMONT

BURLINGTON CITY ARTS

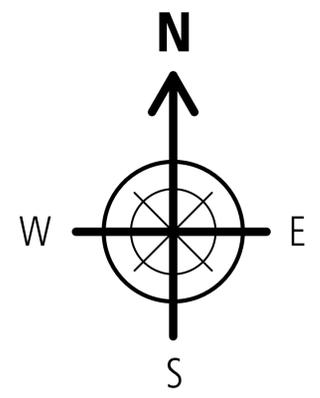
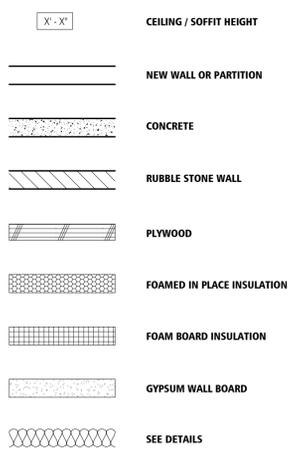
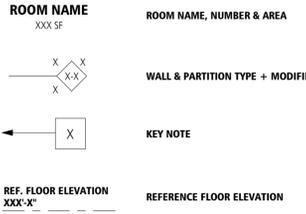
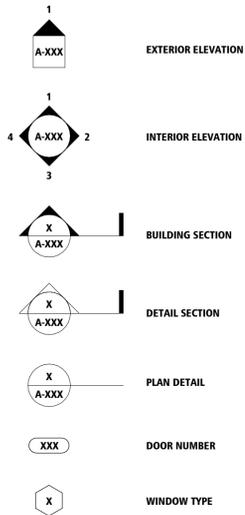
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

CONTENTS

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-000

Scale :



PROJECT NORTH
NOTE: PROJECT NORTH IS AS INDICATED FOR ALL PLANS

1. DIMENSIONS:

A. DIMENSIONS ON PLANS ARE TO THE OUTSIDE FACE OF STUD UNLESS NOTED OTHERWISE.

B. DOOR AND CASED OPENINGS WITHOUT LOCATION DIMENSIONS OR DETAILS ARE TO BE CENTERED BETWEEN ADJACENT WALLS UNLESS NOTED OTHERWISE. DOORS ADJACENT TO ONE WALL BUT NOT DIMENSIONED SHALL BE LOCATED 5" (±1/8") FROM FACE OF WALL FINISH UNLESS.

C. SEE OVERALL FLOOR PLANS AND ENLARGED FLOOR PLANS FOR DIMENSIONS AND WALL TYPES.

2. CODES:

A. ALL WORK SHALL CONFORM TO APPLICABLE BUILDING CODES, LABOR LAW, AND ORDINANCES. SEE LIFE SAFETY SHEETS.

3. DRAWINGS AND SPECIFICATIONS:

A. SEE A-000 FOR PROJECT NORTH - ALL PLANS ORIENTED AS INDICATED.

B. FOR ALL DRAWING SHEETS, THE PUBLIC INFORMATION CENTER IS INDICATED AS 'P.I.C.' AND THE MAINTENANCE BUILDING IS INDICATED AS 'M.B.'

C. ALL DRAWINGS ARE FOR THE BUILDING SPECIFIED IN THE DRAWING TITLE. ALL DRAWING TITLES INDICATED AS 'GENERAL' ARE FOR BOTH BUILDINGS.

D. THE CONTRACTOR SHALL USE DIMENSIONS SHOWN ON THE DRAWINGS AND ACTUAL FIELD MEASUREMENTS. NOTIFY THE ARCHITECT FOR DIRECTION IF ANY DISCREPANCIES ARE FOUND.

E. PARTITIONS SHALL BE FULL HEIGHT ASSEMBLY TO FLOOR OR ROOF DECK ABOVE. UNLESS NOTED OTHERWISE. PARTITIONS SHALL BE CONSTRUCTED TO ACCOMMODATE DEFLECTION.

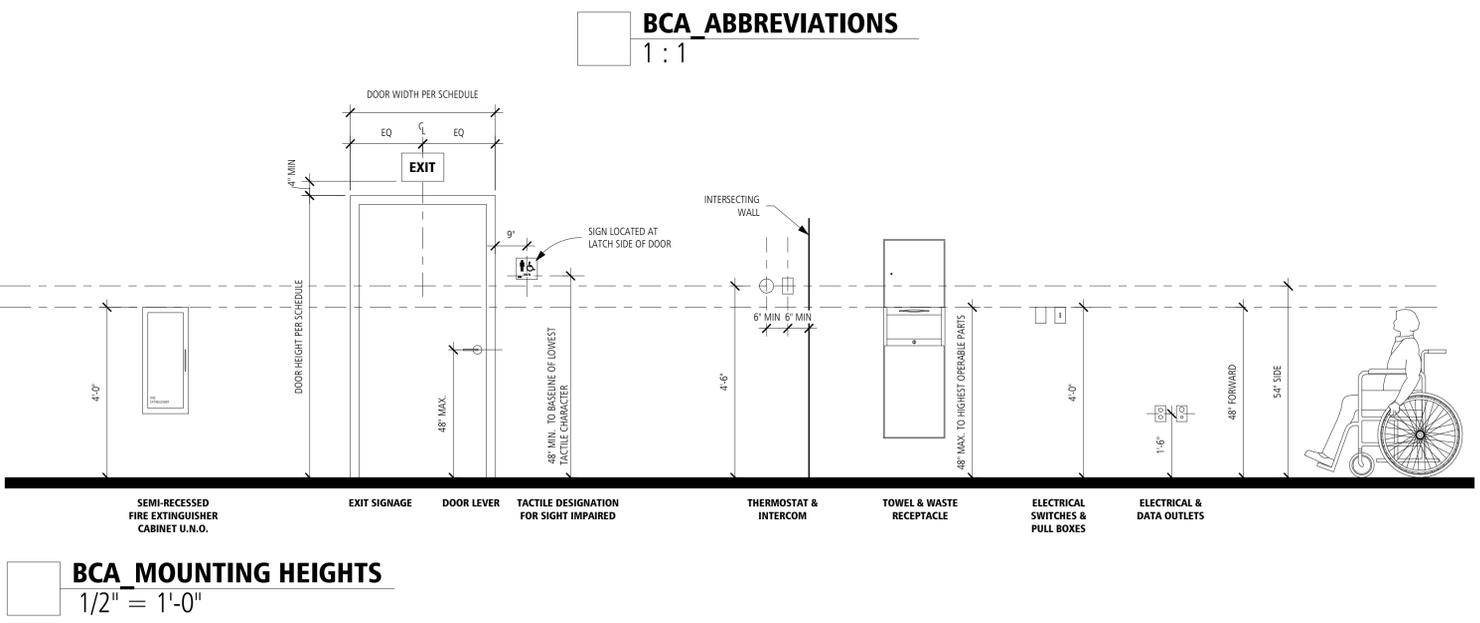
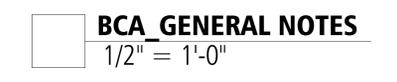
F. PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND COORDINATE WITH THE ARCHITECTURAL DRAWINGS BEFORE THE INSTALLATION OF THEIR WORK. ANY DISCREPANCY BETWEEN THE ARCHITECTURAL AND THE CONSULTING ENGINEER(S) DRAWINGS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION BY WRITTEN REQUEST FOR CLARIFICATION. ANY WORK INSTALLED IN CONFLICT WITH THE ARCHITECTURAL DRAWINGS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR THE ARCHITECT.

4. COORDINATION:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION AND COORDINATION OF THE WORK TO ASSURE COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS, AND THE ACCURATE LOCATION OF STRUCTURAL MEMBERS AND OPENINGS FOR MECHANICAL WORK.

B. THE CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL OPENINGS FOR EQUIPMENT WITH MECHANICAL AND ELECTRICAL SUBCONTRACTOR(S) BEFORE PROCEEDING WITH THE WORK.

C. THE CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL EQUIPMENT PADS AND BASES AS WELL AS POWER AND WATER OR DRAIN INSTALLATION WITH EQUIPMENT MANUFACTURERS BEFORE PROCEEDING WITH THE WORK.



&	AND	EL	ELEVATION DATUM	M PARTN	MOVABLE PARTITION	SCH	SCHEDULE
@	AT	ELEC	ELECTRICAL	M.E.	MATCH EXISTING	SCN	SCREEN
?	CENTERLINE	ELEV	ELEVATOR	M.O.	MASONRY OPENING	SECT	SECTION
(E)	EXISTING	EMER	EMERGENCY	MAACH	MACHINE	SIM	SIMILAR
'	FEET	ENCL	ENCLOSURE	MAX	MAXIMUM	SOFT	SOFT
•	INCHES)	ENT	ENTRANCE	MB	MARKERBOARD	SPEC	SPECIFICATION
#	NUMBER	EQ	EQUAL	MECH	MECHANICAL	SPKR	SPEAKER
/	PER	EQUIP	EQUIPMENT	MEMB	MEMBRANE	SS	SOLID SURFACE
%	PERCENT	EXIST	EXISTING	MEZZ	MEZZANINE	ST	STREET
±	PLUS/MINUS	EXP	EXPANSION	MFR	MANUFACTURER	ST PART.	ST. PART.
A.B.	ANCHOR BOLT	EXTD	EXPOSED	MIN	MINIMUM	ST-SSL	STAINLESS STEEL
A.D.	AREA DRAIN	EXT	EXTERIOR	MISC	MISCELLANEOUS	ST.S.	STORM SEWER
A.P.	ACCESS PANEL	F.A.	FIRE ALARM	ML	MATCH LINE	STC	SOUND TRANSMISSION CLASS
A.C.	AIR CONDITIONING	F.A.A.	FIRE ALARM ANNUNCIATOR	MLDG	MOULDING	STD	STANDARD
ABV	ABOVE	F.D.	FLOOR DRAIN	MOD	MODULAR	STER	STERILIZER
AC	ACOUSTICAL	F.D.C.	FIRE DEPARTMENT CONNECTION	MOV	MOVABLE	STL	STEEL
ACC	ACCESS	F.E.	FIRE EXTINGUISHER	MTD	MOUNTED	STR	STRUCTURAL
ACT	ACOUSTICAL CEILING TILE	F.E.C.	FIRE EXTINGUISHER CABINET	MTG.	MOUNTING	SUB	SUBSTITUTE
AD	ACCESS DOOR	F.E.C. S.R.	FIRE EXTINGUISHER CABINET SEMI-RECESSED	MTG. HT.	MOUNTING HEIGHT	SUP	SUPPORT
ADD	ADDENDUM	GEN	GENERAL	MUL	MULLION	SUR	SURFACE
ADDL	ADDITIONAL	FINISH	FINISH FLOOR	MULT	MULTIPLE	SUSP	SUSPENDED
ADH	ADHESIVE	F.F.	FACE OF	FACE OF	FACE OF	SUSP.CLG.	SUSPENDED CEILING
ADJ	ADJUSTABLE	F.O.	FACE OF	F.O.	FACE OF	SW	SWITCH
AFF	ABOVE FINISHED FLOOR	FBD	FIBERBOARD	N	NORTH	T	TREAD
AL	ALUMINUM	F.D.	FIRE DEPARTMENT	N.C.	NONCORROSIIVE	T&B	TOP & BOTTOM
ALT	ALTERNATE	FDN	FOUNDATION	N.I.C.	NOT IN CONTRACT	T&G	TONGUE & GROOVE
ANOD	ANODIZED	FIN	FINISH	N.S.	NONSLIP	T.B.	TACK BOARD
AUTO	AUTOMATIC	FIXT	FIXTURE	N.T.S.	NOT TO SCALE	T.G.L.	TEMPERED GLASS
B.M.	BENCH MARK	FLG	FLOORING	NPPA	NATIONAL FIRE PROTECTION ASSOCIATION	T.O.	TOP OF
B.O.	BY OTHERS	FLR	FLOOR MOUNTED	FLR.MTD.	FLOOR MOUNTED	T.O.C.	TOP OF CONCRETE
B.U.	BUILT-UP	FLR.MTD.	FLOOR MOUNTED	FRFR	FIREPROOFING	T.O.M.	TOP OF MASONRY
BB	BASE BOARD	FTG	FOOTING	FTG	FOOTING	T.O.S.	TOP OF STEEL
BCA	BURLINGTON CITY ARTS	FUR	FURNING	FURN	FURNITURE	T.O.W.	TOP OF WALL
BD	BOARD	G.B.	GRAB BAR	G.C.	GENERAL CONTRACTOR	T.P.	TOP OF PAVEMENT
BITUM	BITUMINOUS	G.I.	GALVANIZED IRON	G.R.	GUARDRAIL	T.S.	TUBE STEEL
BLDG	BUILDING	G.S.	GALVANIZED STEEL	GA	GAUGE	TEL	TELEPHONE
BLKG	BLOCKING	GEN	GENERAL	GALV	GALVANIZED	TEMP	TEMPORARY
BOT	BOTTOM	GEN	GENERAL	GRFC	GLASS FIBER REINFORCED CONCRETE	TERO	TERRAZZO
BR	BRASS	GL	GLASS	GLZ. TILE	GLAZED TILE	THK	THICK
BSMT	BASEMENT	C.I.	CAST IRON	C.I.	CONSTRUCTION JOINT	THR	THROUGH
C.F.C.I.	CONTRACTOR FURNISH CONTRACTOR INSTALL CORNER GUARD	C.G.	CORNER GUARD	C.L.F.	CHAIN LINK FENCE	TYP	TYPICAL
C.G.	CAST IRON	C.I.	CONSTRUCTION JOINT	C.W.	COLD WATER	U.N.O.	UNLESS NOTED OTHERWISE
C.I.	CONSTRUCTION JOINT	C.L.F.	CHAIN LINK FENCE	CO	CASED OPENING	UC	UNDERCUT
C.L.F.	CHAIN LINK FENCE	CO	CASED OPENING	CH	CHROME	UG	UNDERGROUND
C.W.	COLD WATER	CH	CHROME	CIR	CIRCLE	UL	UNDERWRITERS
CO	CASED OPENING	CIR	CIRCLE	CJ	CONTROL JOINT	UNF	UNFINISHED
CH	CHROME	CJ	CONTROL JOINT	CL.GL	CLEAR GLASS	V.B.	VAPOR BARRIER
CIR	CIRCLE	CL.GL	CLEAR GLASS	CLG	CLEAR WIRE GLASS	V.C.T.	VINYL COMPOSITION TILE
CJ	CONTROL JOINT	CLG	CLEAR WIRE GLASS	CLR	CLEAR	V.I.F.	VERIFY IN FIELD
CL.GL	CLEAR GLASS	CLR	CLEAR	CMU	CONCRETE MASONRY UNIT	V.W.C.	VINYL WALL COVERING
CL.W.GL	CLEAR WIRE GLASS	CMU	CONCRETE MASONRY UNIT	COL	COLUMN	VAR	VARIABLES
CLG	CLEAR	COL	COLUMN	CONC.	CONCRETE	VENT	VENTILATION
CLR	CLEAR	CONC.	CONCRETE	CONC. FL	CONCRETE FLOOR	VERT	VERTICAL
CMU	CONCRETE MASONRY UNIT	CONC. FL	CONCRETE FLOOR	COND	CONDITION	VWB	VINYL WALL BASE
COL	COLUMN	COND	CONDITION	CONST	CONSTRUCTION	W	WEST
CONC.	CONCRETE	CONST	CONSTRUCTION	CONT	CONTINUOUS	W.GL	WEST GLASS
CONC. FL	CONCRETE FLOOR	CPT	CARPET	CT	CERAMIC TILE	W	WOOD
COND	CONDITION	CT	CERAMIC TILE	CTR	CENTER	W.C.	WATER CLOSET
CONST	CONSTRUCTION	CTR	CENTER	CW	CURTAIN WALL	W.H.	WATER HEATER
CONT	CONTINUOUS	CW	CURTAIN WALL	D.F.	DRINKING FOUNTAIN	W.P.	WORKING POINT
CPT	CARPET	D.F.	DRINKING FOUNTAIN	D.O.	DOOR OPENING	W.R.	WATER-RESISTANT
CT	CERAMIC TILE	D.O.	DOOR OPENING	DEG	DEGREE	W.S.	WEATHER STRIPPING
CTR	CENTER	DEG	DEGREE	DEMO	DEMOLITION	W.T.W.	WALL TO WALL
CW	CURTAIN WALL	DEMO	DEMOLITION	DET	DETAIL	W.P.	WATERPROOFING
D.F.	DRINKING FOUNTAIN	DET	DETAIL	DIA	DIAMETER	W.SCT	WAINSCOT
D.O.	DOOR OPENING	DIA	DIAMETER	DIF	DIFFUSER	X	BY (AS 6x8) OR A 'VALUE' INDICATOR (AS XXXX SF)
DEG	DEGREE	DIF	DIFFUSER	DIM	DIMENSION	R.H.	RIGHT HAND
DEMO	DEMOLITION	DIM	DIMENSION	DIST	DISTANCE	R.H.R.	RIGHT HAND REVERSE
DET	DETAIL	DIST	DISTANCE	DIV	DIVISION	R.O.	ROUGH OPENING
DIA	DIAMETER	DIV	DIVISION	DN	DOWN	RD	ROAD
DIF	DIFFUSER	DN	DOWN	DOC	DOCUMENTS	REF	REFER
DIM	DIMENSION	DOC	DOCUMENTS	DP	DAMP/PROOFING	REF	REFERENCE
DIST	DISTANCE	DP	DAMP/PROOFING	DR	DOOR	REFG	REFRIGERATOR
DIV	DIVISION	DR	DOOR	DS	DOWNSPOUT	REINF	REINFORCED
DN	DOWN	DS	DOWNSPOUT	DW	DISHWASHER	REQD	REQUIRED
DOC	DOCUMENTS	DW	DISHWASHER	DWG	DRAWING	RESL	RESILIENT
DP	DAMP/PROOFING	DWG	DRAWING	E	EAST	REV	REVISION
DR	DOOR	E	EAST	E. TO E.	END TO END	RFG	ROOFING
DS	DOWNSPOUT	E. TO E.	END TO END	E.B.	EXPANSION BOLT	RM	ROOM
DW	DISHWASHER	E.B.	EXPANSION BOLT	E.J.	EXPANSION JOINT	S	SINK
DWG	DRAWING	E.J.	EXPANSION JOINT	E.P.	ELECTRICAL PANEL	S.C.	SOLID CORE
E	EAST	E.P.	ELECTRICAL PANEL	E.P.B.	ELECTRICAL PANEL BOARD	S.D.	STORM DRAIN
E. TO E.	END TO END	E.P.B.	ELECTRICAL PANEL BOARD	E.T.R.	EXISTING TO REMAIN	S.F.	SQUARE FOOT
E.B.	EXPANSION BOLT	E.T.R.	EXISTING TO REMAIN	EA	EACH	S.V.	SHEET VINYL
E.J.	EXPANSION JOINT	EA	EACH	EIS	EXTERIOR INSULATION AND FINISH SYSTEM		
E.P.	ELECTRICAL PANEL	EIS	EXTERIOR INSULATION AND FINISH SYSTEM				
E.P.B.	ELECTRICAL PANEL BOARD						
E.T.R.	EXISTING TO REMAIN						
EA	EACH						
EIS	EXTERIOR INSULATION AND FINISH SYSTEM						

BURLINGTON CITY ARTS

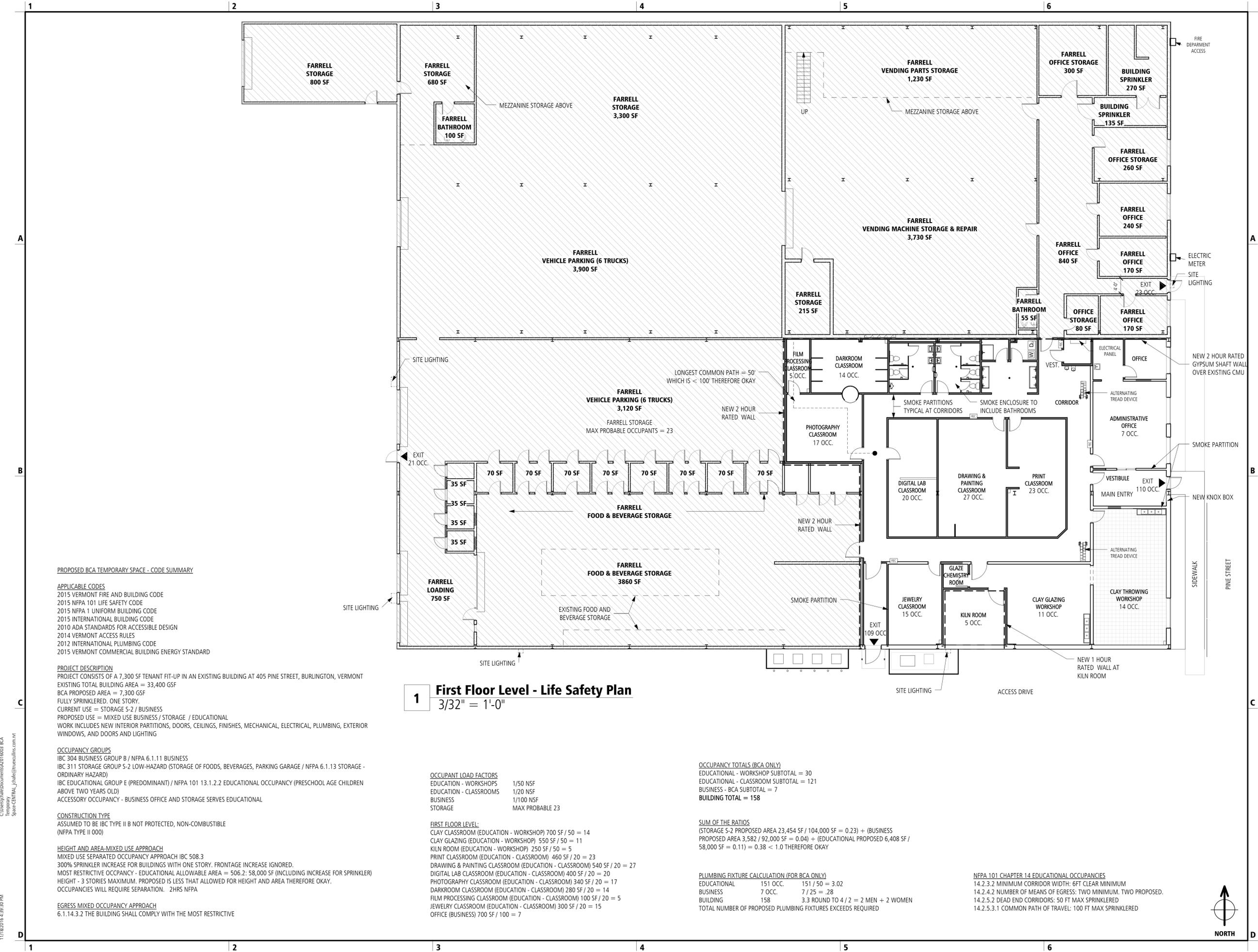
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

LEGENDS, ABBREVIATIONS & NOTES

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-001

Scale : As indicated



1 First Floor Level - Life Safety Plan
3/32" = 1'-0"

PROPOSED BCA TEMPORARY SPACE - CODE SUMMARY

- APPLICABLE CODES**
 2015 VERMONT FIRE AND BUILDING CODE
 2015 NFPA 101 LIFE SAFETY CODE
 2015 NFPA 1 UNIFORM BUILDING CODE
 2015 INTERNATIONAL BUILDING CODE
 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
 2014 VERMONT ACCESS RULES
 2012 INTERNATIONAL PLUMBING CODE
 2015 VERMONT COMMERCIAL BUILDING ENERGY STANDARD

PROJECT DESCRIPTION
 PROJECT CONSISTS OF A 7,300 SF TENANT FIT-UP IN AN EXISTING BUILDING AT 405 PINE STREET, BURLINGTON, VERMONT
 EXISTING TOTAL BUILDING AREA = 33,400 GSF
 BCA PROPOSED AREA = 7,300 GSF
 FULLY SPRINKLERED, ONE STORY.
 CURRENT USE = STORAGE S-2 / BUSINESS
 PROPOSED USE = MIXED USE BUSINESS / STORAGE / EDUCATIONAL
 WORK INCLUDES NEW INTERIOR PARTITIONS, DOORS, CEILING, FINISHES, MECHANICAL, ELECTRICAL, PLUMBING, EXTERIOR WINDOWS, AND DOORS AND LIGHTING

OCCUPANCY GROUPS
 IBC 304 BUSINESS GROUP B / NFPA 6.1.1.1 BUSINESS
 IBC 311 STORAGE GROUP S-2 LOW-HAZARD (STORAGE OF FOODS, BEVERAGES, PARKING GARAGE / NFPA 6.1.1.3 STORAGE - ORDINARY HAZARD)
 IBC EDUCATIONAL GROUP E (PREDOMINANT) / NFPA 101 13.1.2.2 EDUCATIONAL OCCUPANCY (PRESCHOOL AGE CHILDREN ABOVE TWO YEARS OLD)
 ACCESSORY OCCUPANCY - BUSINESS OFFICE AND STORAGE SERVES EDUCATIONAL

CONSTRUCTION TYPE
 ASSUMED TO BE IBC TYPE II B NOT PROTECTED, NON-COMBUSTIBLE
 (NFPA TYPE II 000)

HEIGHT AND AREA-MIXED USE APPROACH
 MIXED USE SEPARATED OCCUPANCY APPROACH IBC 508.3
 300% SPRINKLER INCREASE FOR BUILDINGS WITH ONE STORY. FRONTAGE INCREASE IGNORED.
 MOST RESTRICTIVE OCCUPANCY - EDUCATIONAL ALLOWABLE AREA = 506.2: 58,000 SF (INCLUDING INCREASE FOR SPRINKLER)
 HEIGHT - 3 STORIES MAXIMUM. PROPOSED IS LESS THAN ALLOWED FOR HEIGHT AND AREA THEREFORE OKAY.
 OCCUPANCIES WILL REQUIRE SEPARATION. 2HRS NFPA

EGRESS MIXED OCCUPANCY APPROACH
 6.1.14.3.2 THE BUILDING SHALL COMPLY WITH THE MOST RESTRICTIVE

OCCUPANT LOAD FACTORS

EDUCATION - WORKSHOPS	1/50 NSF
EDUCATION - CLASSROOMS	1/20 NSF
BUSINESS	1/100 NSF
STORAGE	MAX PROBABLE 23

FIRST FLOOR LEVEL:
 CLAY CLASSROOM (EDUCATION - WORKSHOP) 700 SF / 50 = 14
 CLAY GLAZING (EDUCATION - WORKSHOP) 550 SF / 50 = 11
 KILN ROOM (EDUCATION - WORKSHOP) 250 SF / 20 = 12.5
 PRINT CLASSROOM (EDUCATION - CLASSROOM) 460 SF / 20 = 23
 DRAWING & PAINTING CLASSROOM (EDUCATION - CLASSROOM) 540 SF / 20 = 27
 DIGITAL LAB CLASSROOM (EDUCATION - CLASSROOM) 400 SF / 20 = 20
 PHOTOGRAPHY CLASSROOM (EDUCATION - CLASSROOM) 340 SF / 20 = 17
 DARKROOM CLASSROOM (EDUCATION - CLASSROOM) 280 SF / 20 = 14
 FILM PROCESSING CLASSROOM (EDUCATION - CLASSROOM) 100 SF / 20 = 5
 JEWELRY CLASSROOM (EDUCATION - CLASSROOM) 300 SF / 20 = 15
 OFFICE (BUSINESS) 700 SF / 100 = 7

OCCUPANCY TOTALS (BCA ONLY)

EDUCATIONAL - WORKSHOP SUBTOTAL	= 30
EDUCATIONAL - CLASSROOM SUBTOTAL	= 121
BUSINESS - BCA SUBTOTAL	= 7
BUILDING TOTAL	= 158

SUM OF THE RATIOS
 (STORAGE S-2 PROPOSED AREA 23,454 SF / 104,000 SF = 0.23) + (BUSINESS PROPOSED AREA 3,582 / 92,000 SF = 0.04) + (EDUCATIONAL PROPOSED 6,408 SF / 58,000 SF = 0.11) = 0.38 < 1.0 THEREFORE OKAY

PLUMBING FIXTURE CALCULATION (FOR BCA ONLY)

EDUCATIONAL	151 OCC.	151 / 50 = 3.02
BUSINESS	7 OCC.	7 / 25 = .28
BUILDING	158	3.3 ROUNDED TO 4 / 2 = 2 MEN + 2 WOMEN

TOTAL NUMBER OF PROPOSED PLUMBING FIXTURES EXCEEDS REQUIRED

NFPA 101 CHAPTER 14 EDUCATIONAL OCCUPANCIES
 14.2.3.2 MINIMUM CORRIDOR WIDTH: 6FT CLEAR MINIMUM
 14.2.4.2 NUMBER OF MEANS OF EGRESS: TWO MINIMUM. TWO PROPOSED.
 14.2.5.2 DEAD END CORRIDORS: 50 FT MAX SPRINKLERED
 14.2.5.3.1 COMMON PATH OF TRAVEL: 100 FT MAX SPRINKLERED

No.	Description	Date
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BURLINGTON CITY ARTS
 BCA STUDIOS TENANT FIT UP
 405 Pine Street
 Burlington, VT 05401

LIFE SAFETY

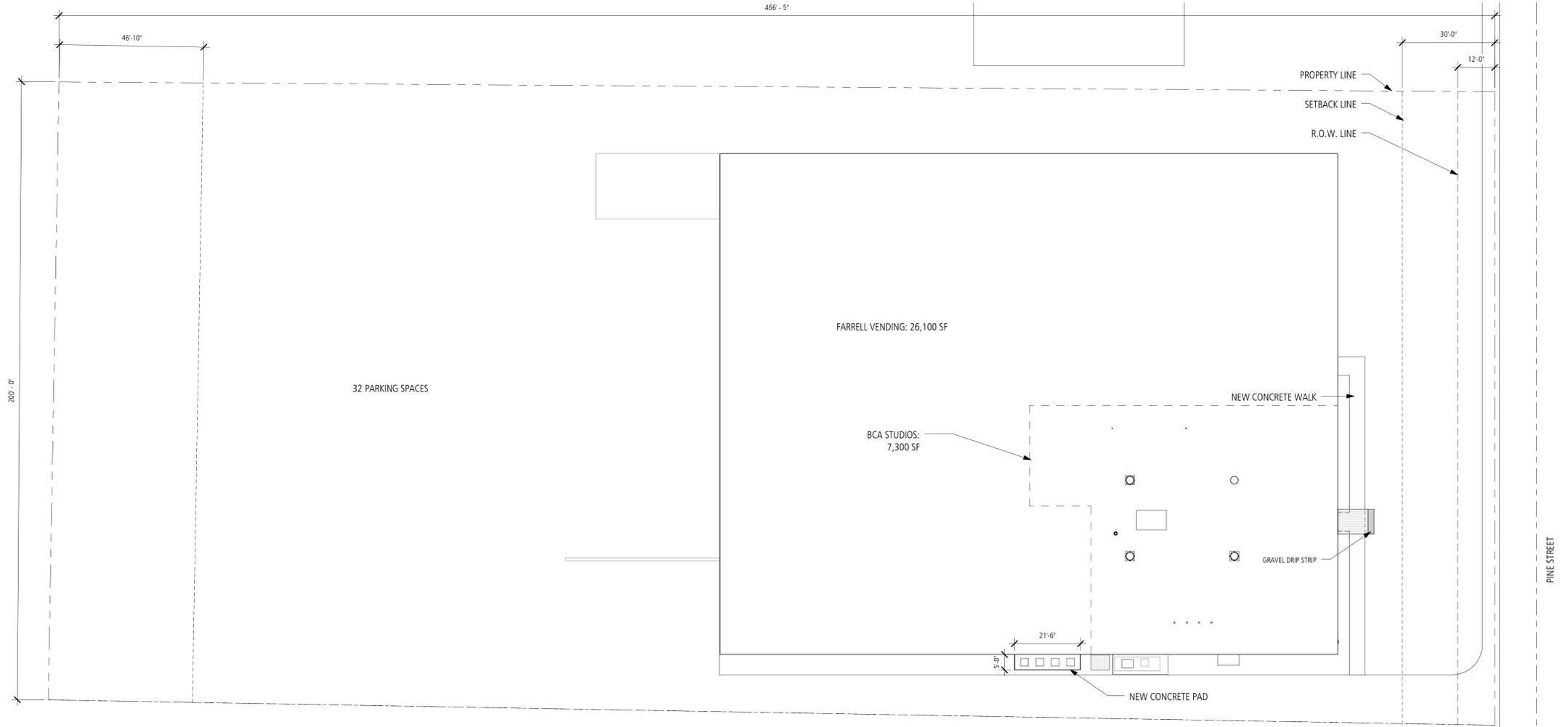
Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-010

Scale : 3/32" = 1'-0"



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ZONING TABULAR DATA:

ZONING DISTRICT = ENTRPRISE - LIGHT MANUFACTURING
 MAX. LOT COVERAGE = 80%
 BUILDING SETBACKS: FRONT=5' / SIDE=0' / REAR=10% (LOT DEPTH)
 MAX. HEIGHT = 45'
 PARKING DISTRICT = SHARED USE
 MINIMUM PARKING = 23 SPACES TOTAL (GENERAL OFFICE=14 (2 PER 1000SF) / WAREHOUSE=9 (.35 PER 1000SF))
 MAXIMUM PARKING = 35 SPACES
 PROPERTY AREA = 2.18 AC (94,809.89 SF)
 TOTAL BUILDING AREA = 33,400 GSF
 PROPOSED BCA FITUP AREA = 7,300 GSF

2 SITE PLAN
1" = 20'-0"

No.	Description	Date
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BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

SITE PLAN

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	Author
Checked by :	Checker
Project Phase :	BID DOCUMENTS

A-020

Scale : 1" = 20'-0"



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No.	Description	Date
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BURLINGTON CITY ARTS

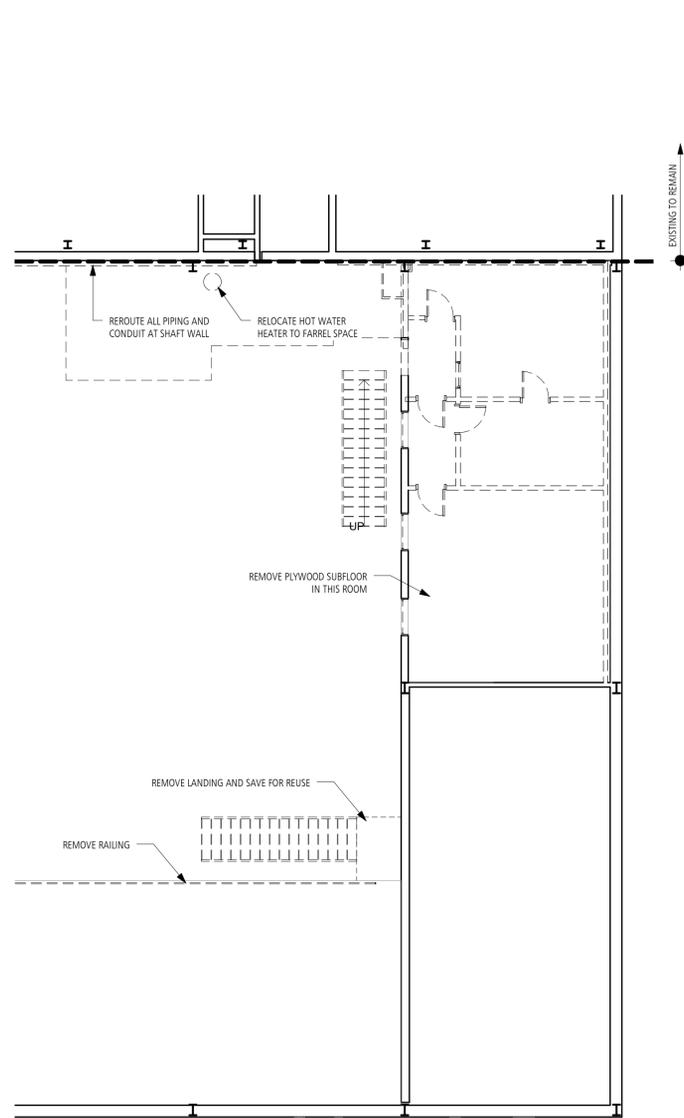
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

DEMOLITION PLAN

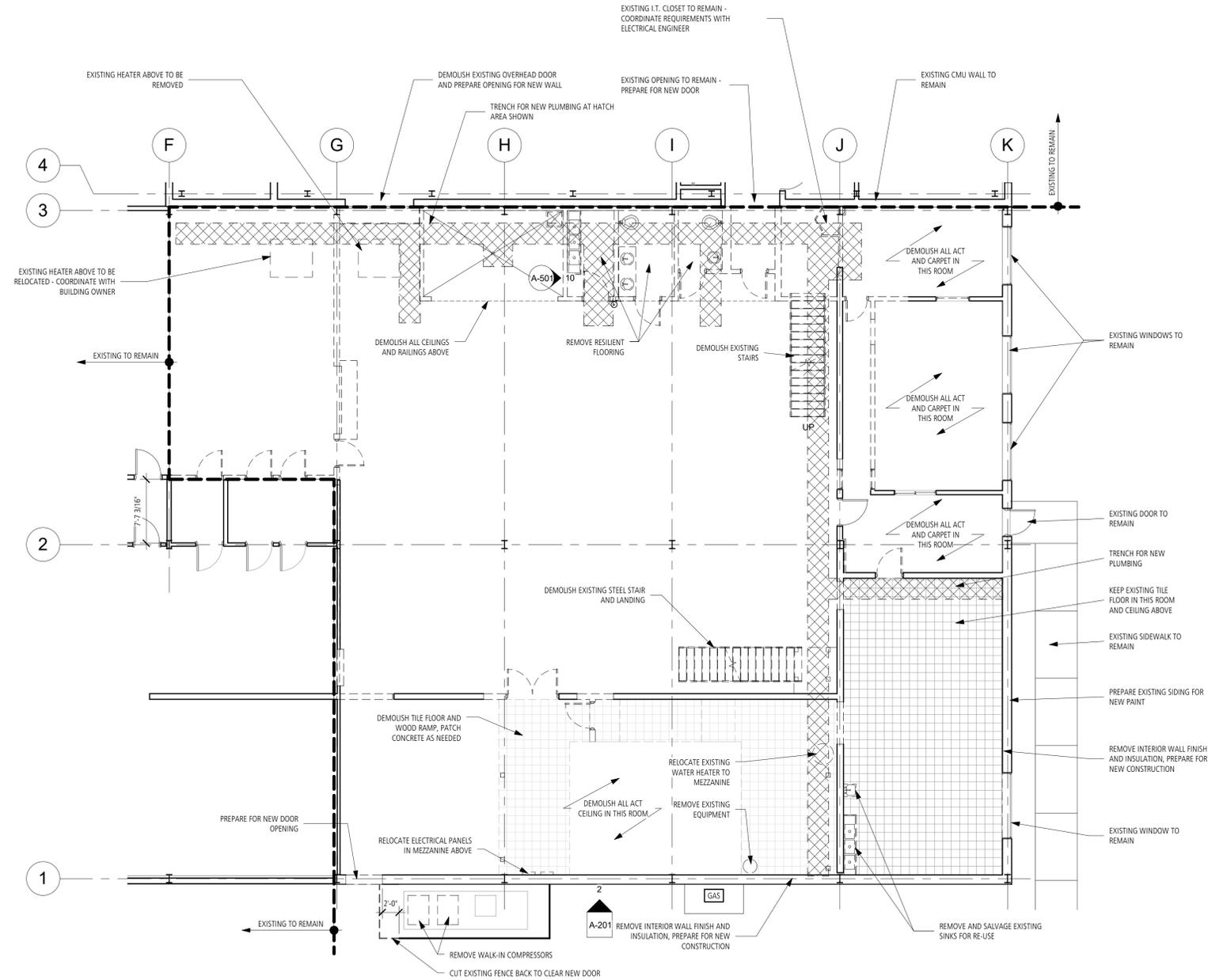
Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-050

Scale : As indicated



2 PLAN - DEMOLITION - LEVEL 2
1/8" = 1'-0"

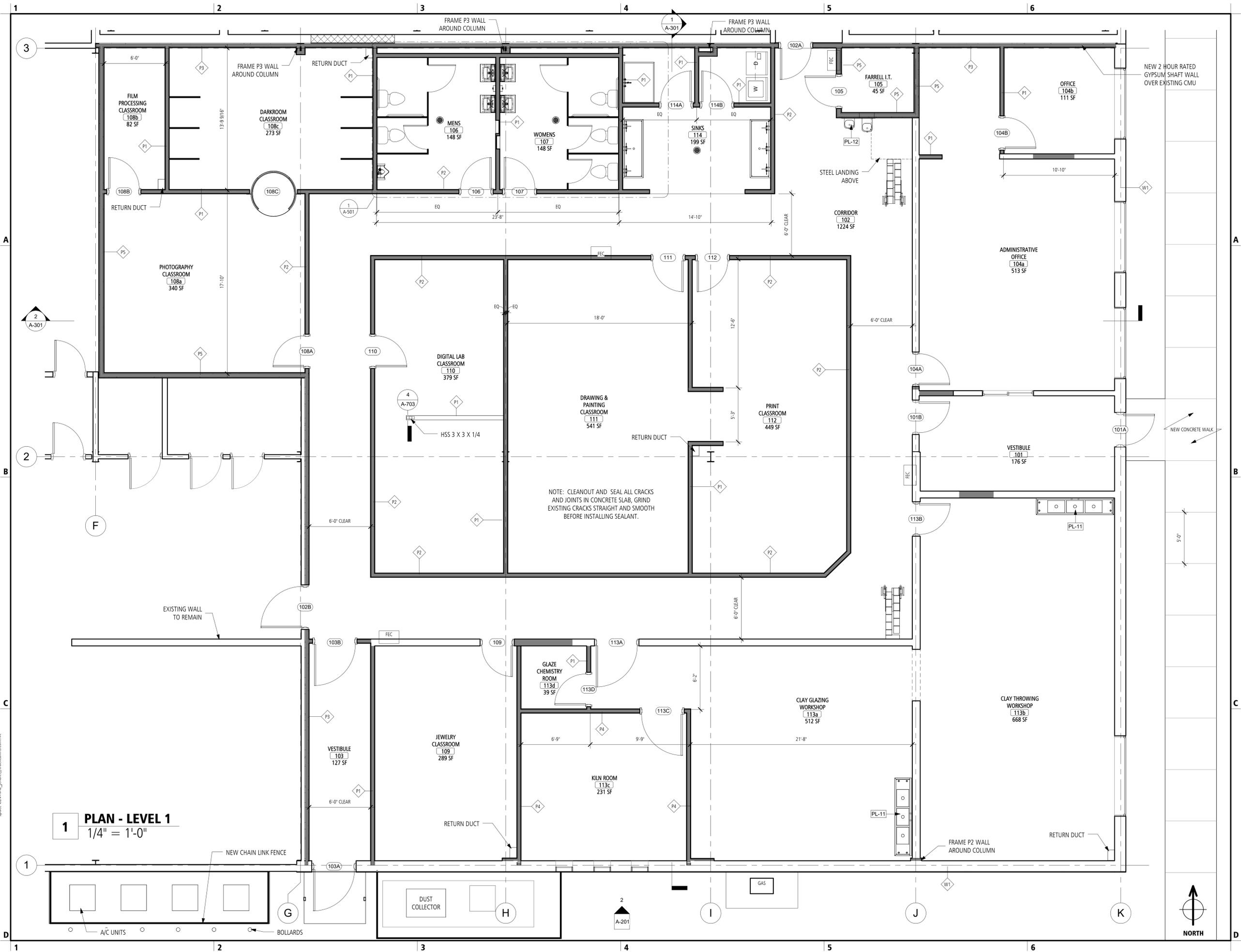


1 PLAN - DEMOLITION - LEVEL 1
1/8" = 1'-0"

WALL LEGEND & NOTES

	EXISTING WALLS TO REMAIN
	EXISTING WALLS OR ELEMENTS TO BE DEMOLISHED





No.	Description	Date
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BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

FIRST FLOOR PLAN

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-101

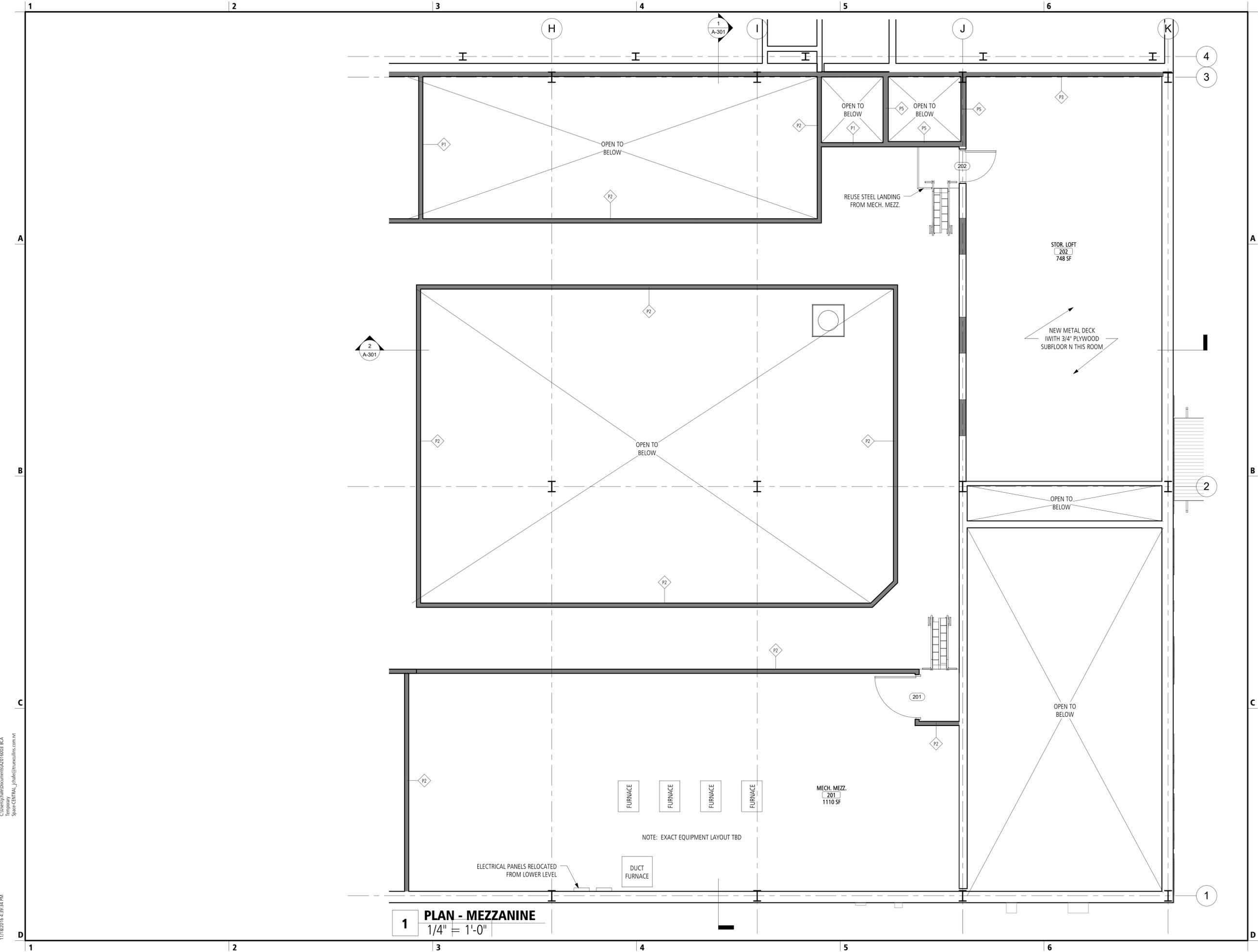
Scale : 1/4" = 1'-0"

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1 PLAN - LEVEL 1
1/4" = 1'-0"





No.	Description	Date
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BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

MEZZANINE PLAN

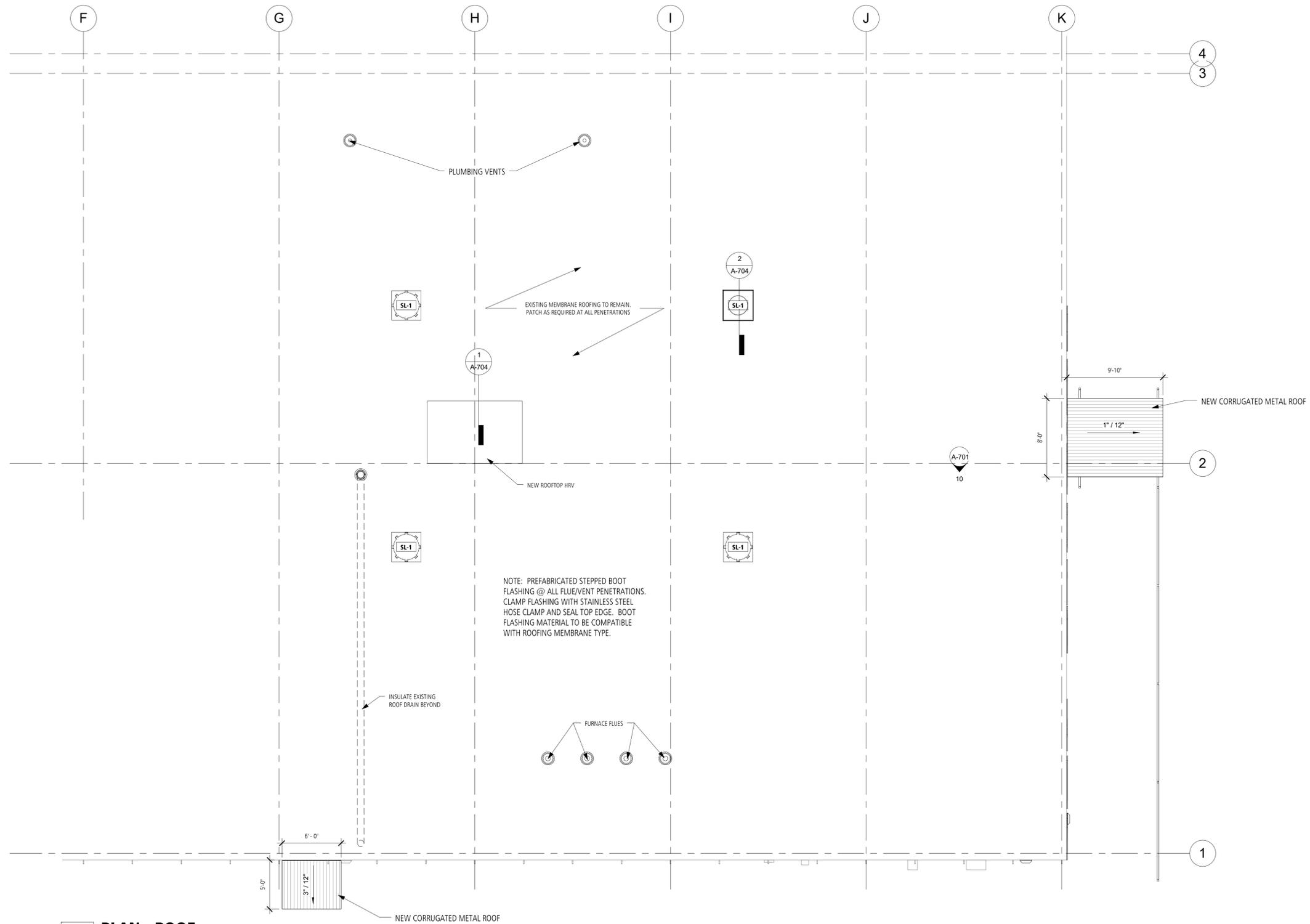
Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	Author
Checked by :	Checker
Project Phase :	BID DOCUMENTS

A-102

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

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1 PLAN - MEZZANINE
1/4" = 1'-0"



1 PLAN - ROOF
3/16" = 1'-0"

No.	Description	Date
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BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
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Burlington, VT 05401

ROOF PLAN

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-103

Scale : 3/16" = 1'-0"





No.	Description	Date
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BURLINGTON CITY ARTS

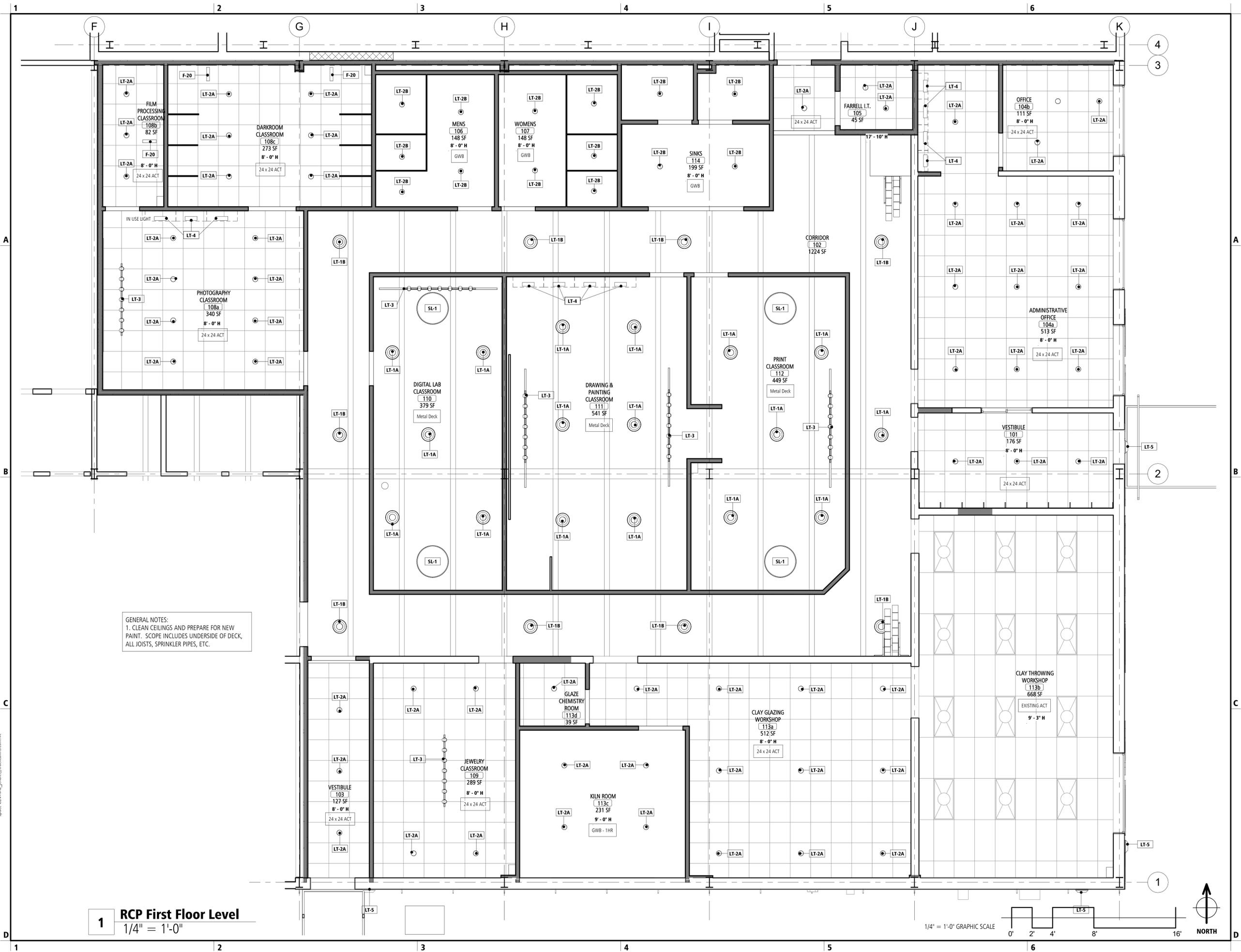
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

EQUIPMENT PLAN - A

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	TXC
Checked by :	TXC
Project Phase :	BID DOCUMENTS

A-121

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



GENERAL NOTES:
1. CLEAN CEILINGS AND PREPARE FOR NEW PAINT. SCOPE INCLUDES UNDERSIDE OF DECK, ALL JOISTS, SPRINKLER PIPES, ETC.

No.	Description	Date

BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

RCP - FIRST FLOOR

Project number : A2016003-00
Date : 18 NOV. 2016
Drawn by : JC
Checked by : RK
Project Phase : BID DOCUMENTS

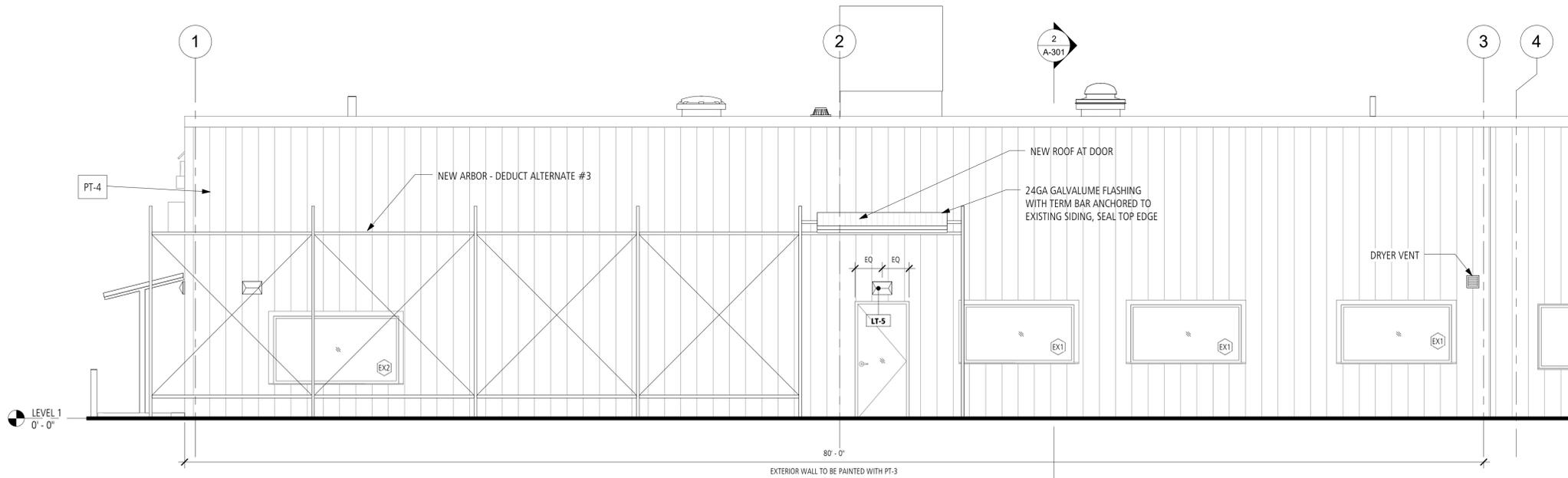
A-151

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

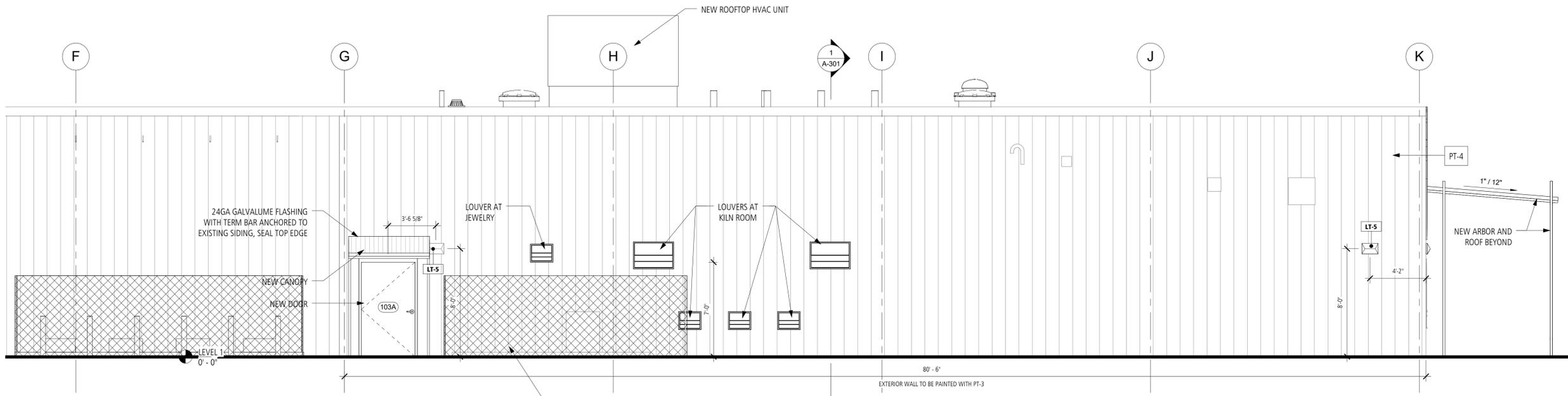
1 RCP First Floor Level
1/4" = 1'-0"



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1 ELEVATION EAST
1/4" = 1'-0"



2 ELEVATION - SOUTH
1/4" = 1'-0"

No.	Description	Date
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BURLINGTON CITY ARTS

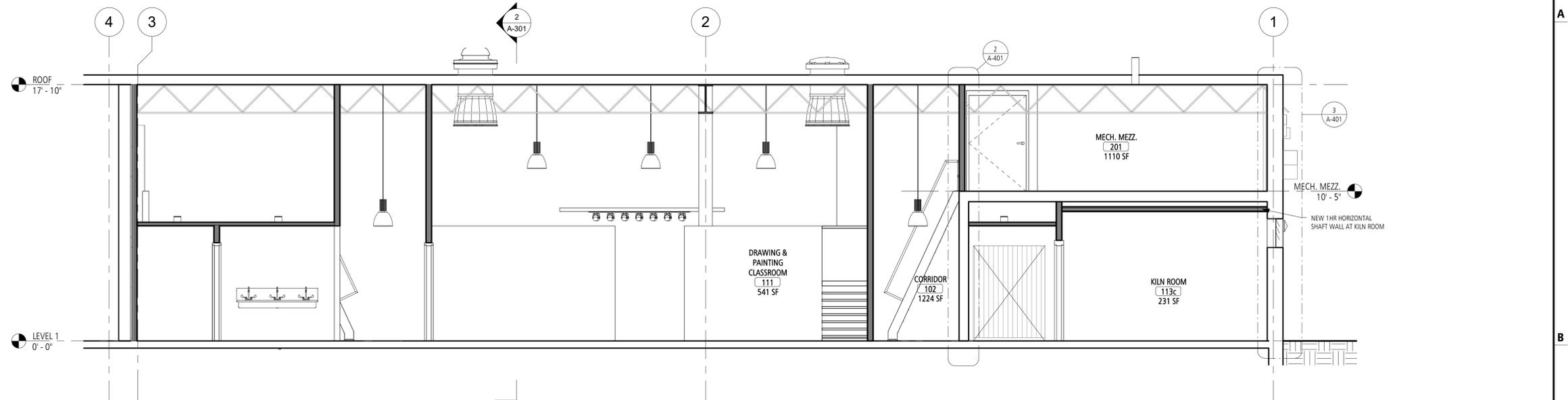
BCA STUDIOS TENANT FIT UP
405 Pine Street
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EXTERIOR ELEVATIONS

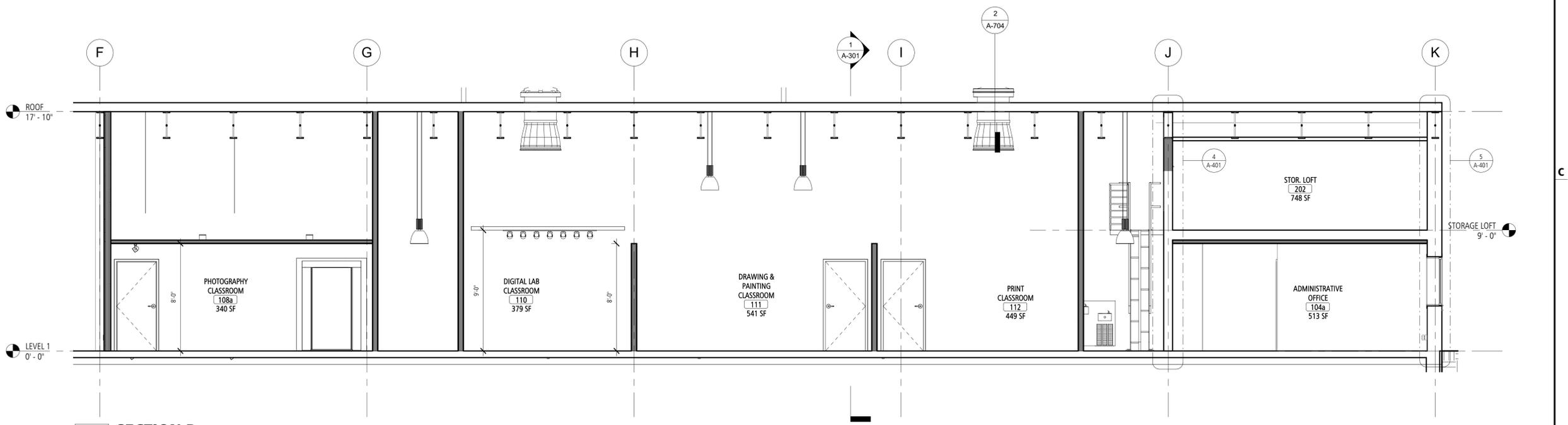
Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-201

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



1 SECTION A
1/4" = 1'-0"



2 SECTION B
1/4" = 1'-0"

No.	Description	Date
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BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

SECTIONS

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-301

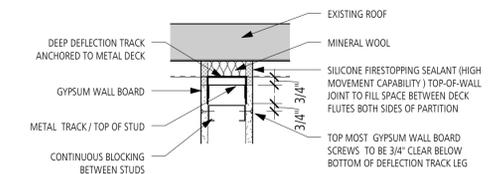
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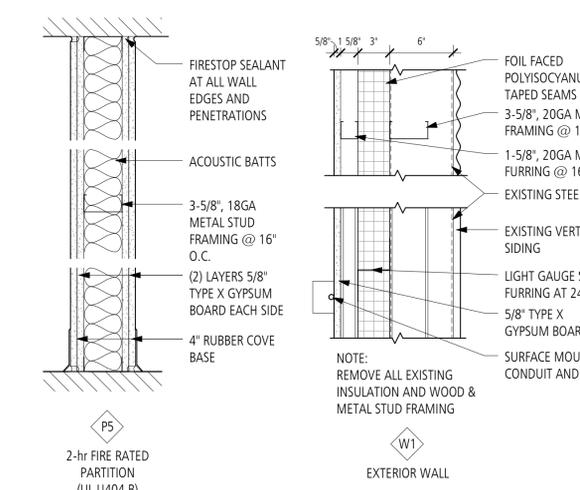
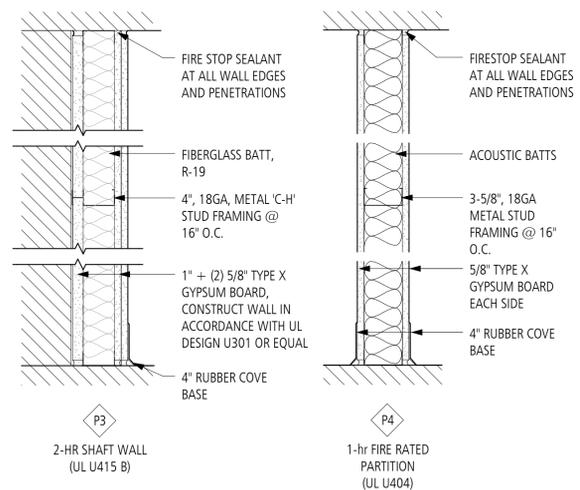
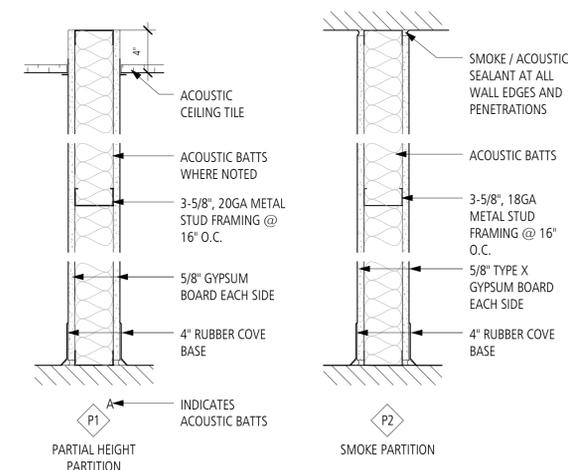
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INTERIOR PARTITION TYPE GENERAL NOTES

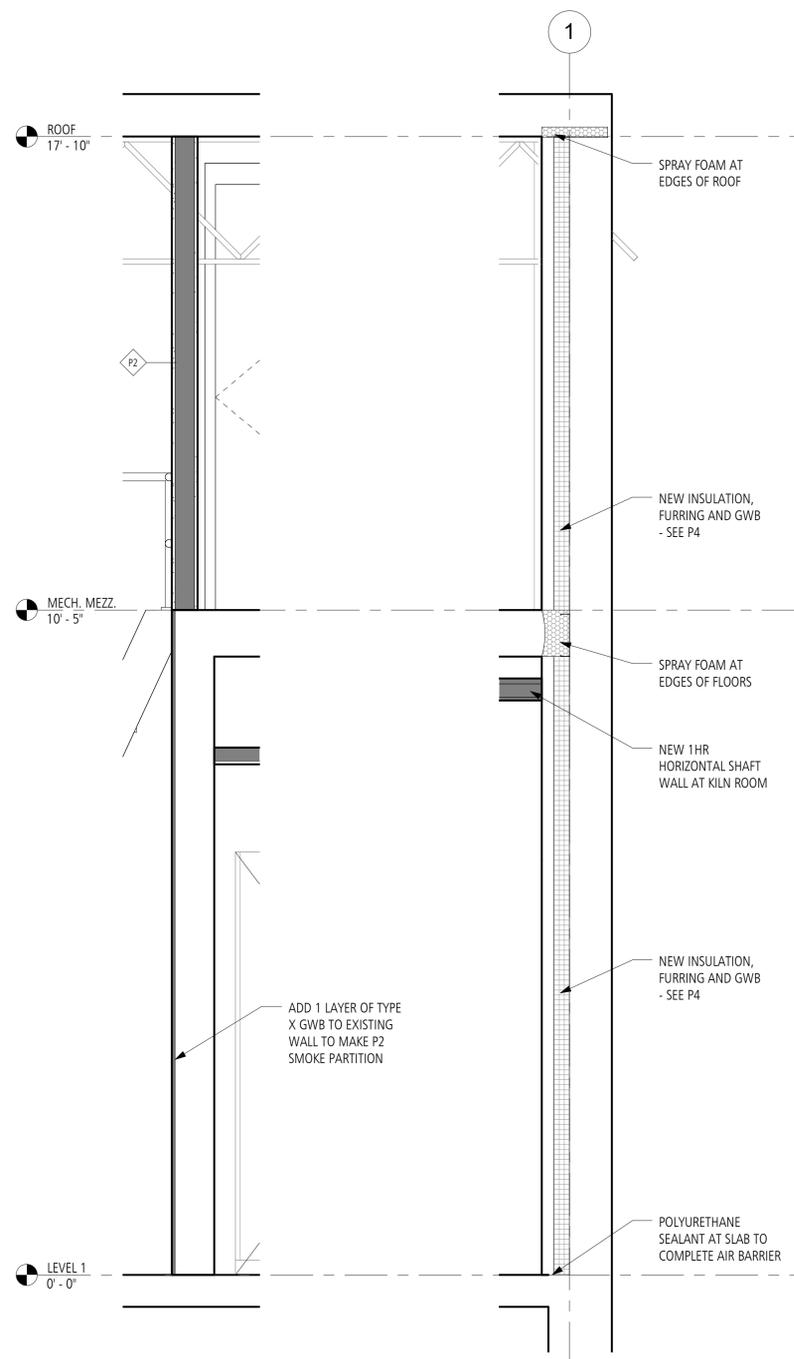
1. ALL PARTITIONS ARE TO EXTEND FROM THE FLOOR TO THE UNDERSIDE OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE.
2. SEE THE FINISH SCHEDULE AND INTERIOR ELEVATIONS / SECTIONS FOR ADDITIONAL INFORMATION ON FINISHES.
3. WHERE A UL DESIGN IS REFERENCED, CONSTRUCT PARTITION IN ACCORDANCE WITH THE TESTED DESIGN ASSEMBLY.
4. USE MOISTURE AND MOLD RESISTANT TYPE GYPSUM BOARD IN ALL BATHROOMS AND JANITOR CLOSETS UNLESS NOTED OTHERWISE.



DETAIL TYPICAL AT HEAD OF ALL FIRE AND SMOKE RATED WALLS AT UNDERSIDE OF METAL DECK.

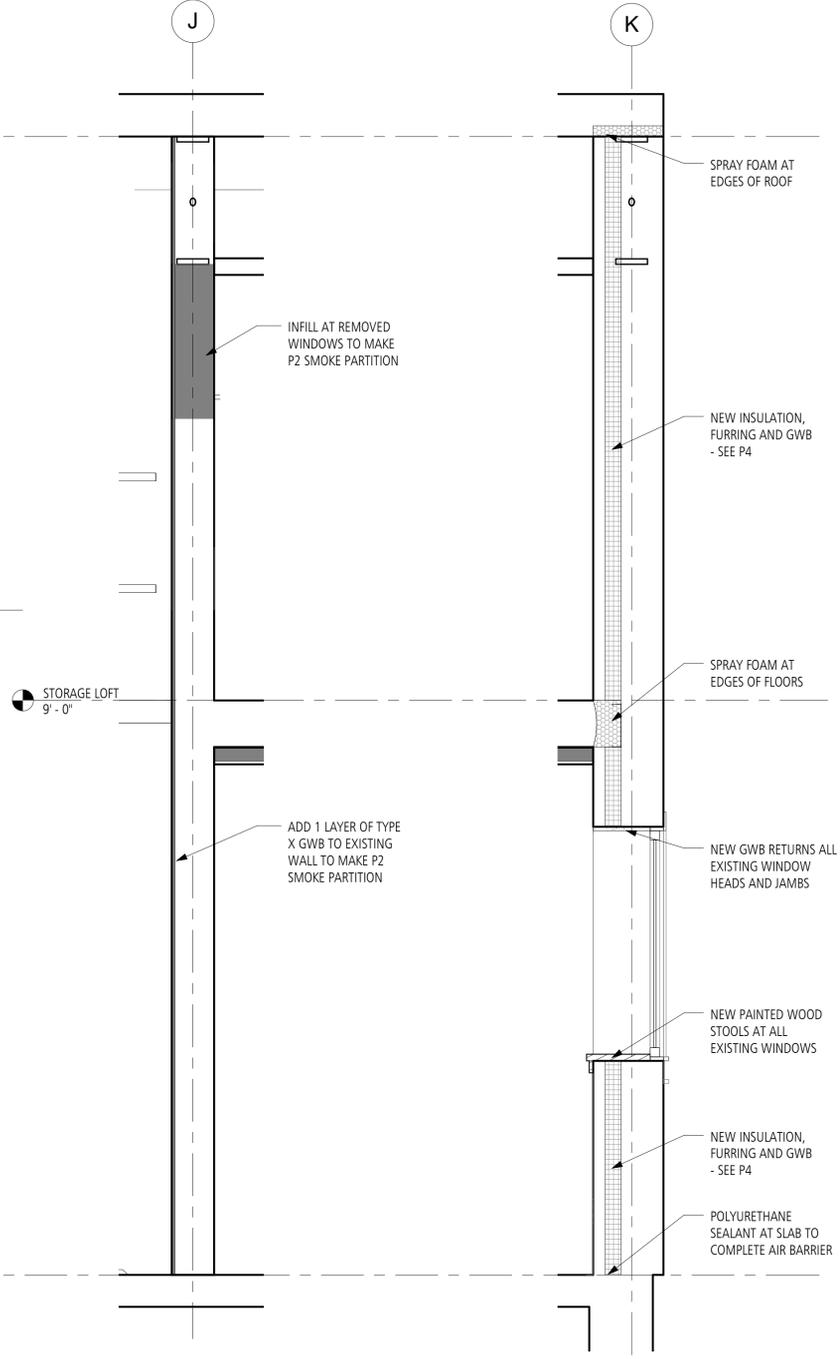


1 TYPICAL PARTITION TYPES
1 1/2" = 1'-0"



2 WALL SECTION - A
3/4" = 1'-0"

3 WALL SECTION - B
3/4" = 1'-0"



4 WALL SECTION - C
3/4" = 1'-0"

5 WALL SECTION - D
3/4" = 1'-0"

No.	Description	Date

BURLINGTON CITY ARTS
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

WALL TYPES & DETAILS

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-401
Scale : As indicated

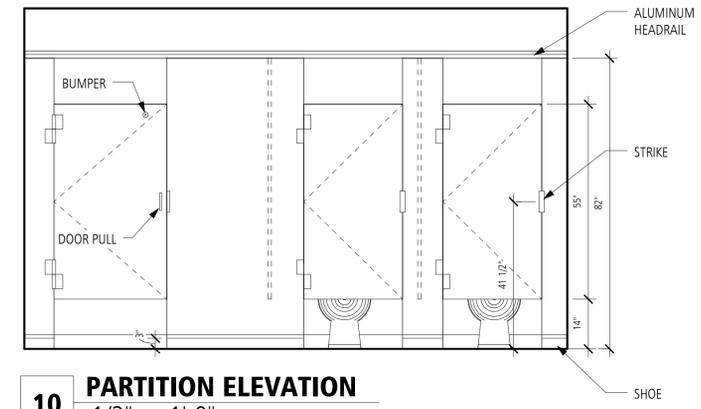
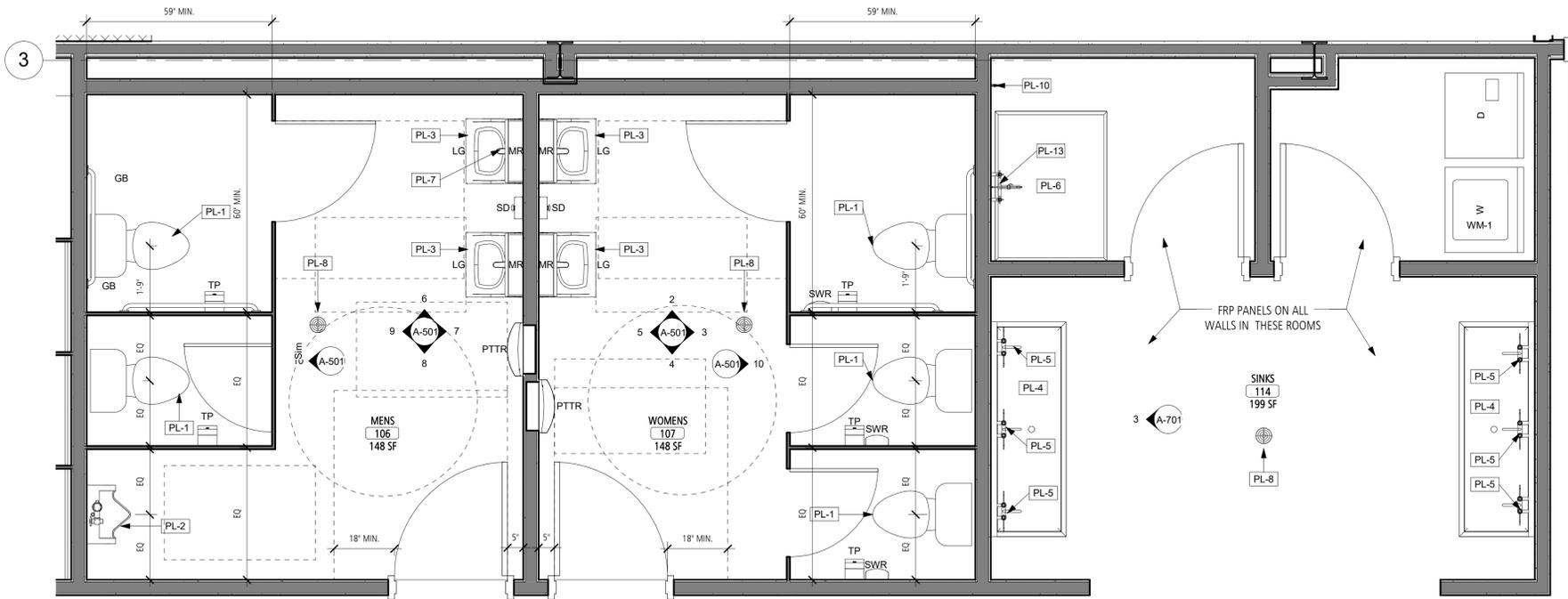
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NOTES:

1. USE MOISTURE AND MOLD RESISTANT TYPE GYPSUM BOARD IN ALL BATHROOMS AND JANITOR CLOSETS UNLESS NOTED OTHERWISE.
2. ALL STANDARDS PER 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (DOI SEPT. 15, 2010)
3. G.C. TO PROVIDE BLOCKING FOR ALL ACCESSORIES AS REQUIRED
4. ALL ACCESSORY DIMENSIONS AND ADA CLEARANCES FROM FINISH FACE OF WALL OR FLOOR
5. SEE SPECIFICATIONS FOR FINAL ACCESSORY COORDINATION

BATHROOM ACCESSORIES LEGEND

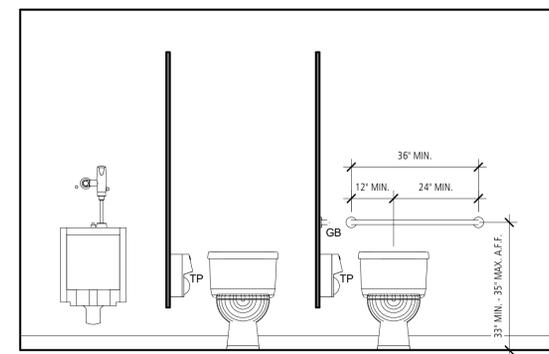
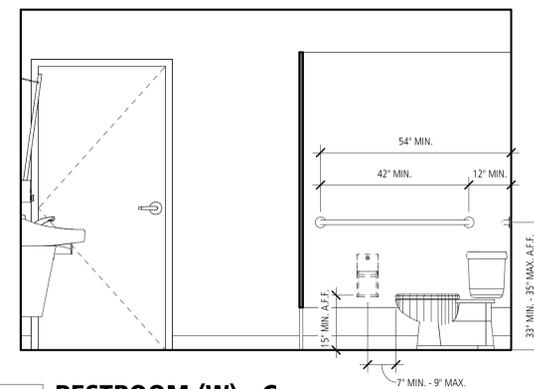
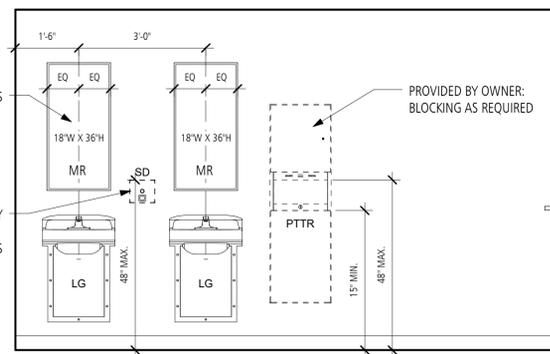
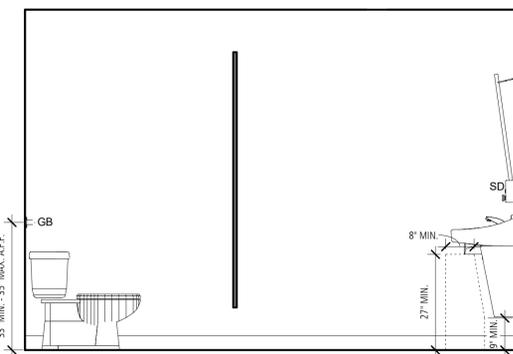
- GB** GRAB BAR
- SD** SOAP DISPENSER
- TP** TOILET PAPER DISPENSER
- PTTR** COMBINATION PAPER TOWEL DISPENSER WASTE RECEPTACLE
- MR** TILT-TYPE MIRROR
- LG** UNDER LAVATORY PIPE-GUARD
- SWR** SANITARY WASTE RECEPTACLE



1 Enlarged Bathroom Plans
1/2" = 1'-0"

10 PARTITION ELEVATION
1/2" = 1'-0"

No.	Description	Date
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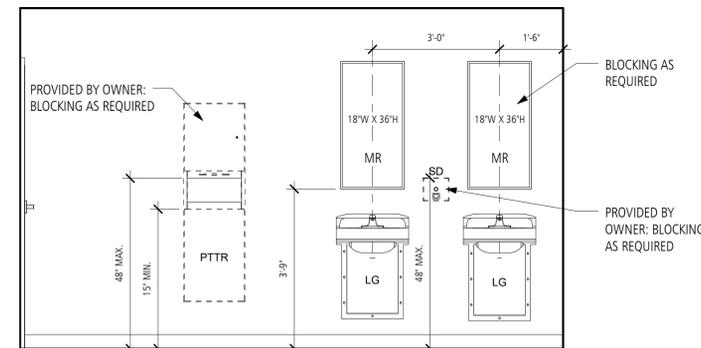
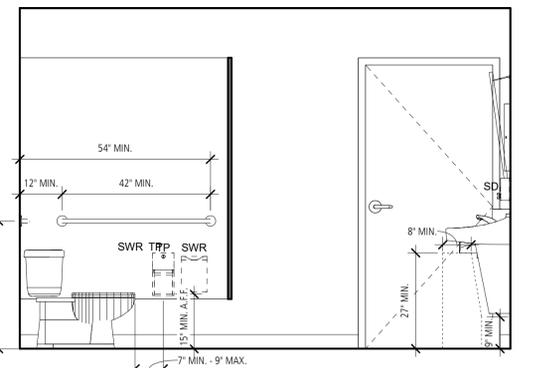
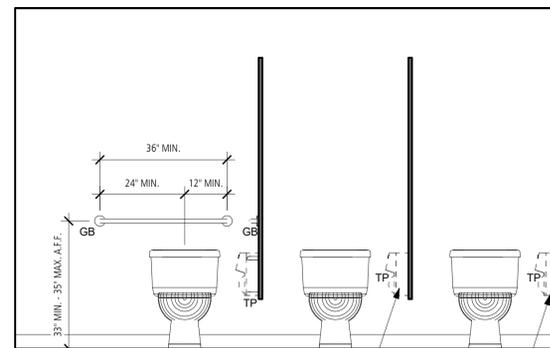
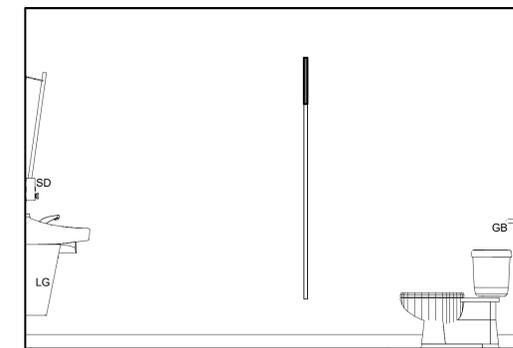


6 RESTROOM (W) - A
1/2" = 1'-0"

7 RESTROOM (W) - B
1/2" = 1'-0"

8 RESTROOM (W) - C
1/2" = 1'-0"

9 RESTROOM (W) - D
1/2" = 1'-0"



2 RESTROOM (M) - A
1/2" = 1'-0"

3 RESTROOM (M) - B
1/2" = 1'-0"

4 RESTROOM (M) - C
1/2" = 1'-0"

5 RESTROOM (M) - D
1/2" = 1'-0"

BURLINGTON CITY ARTS

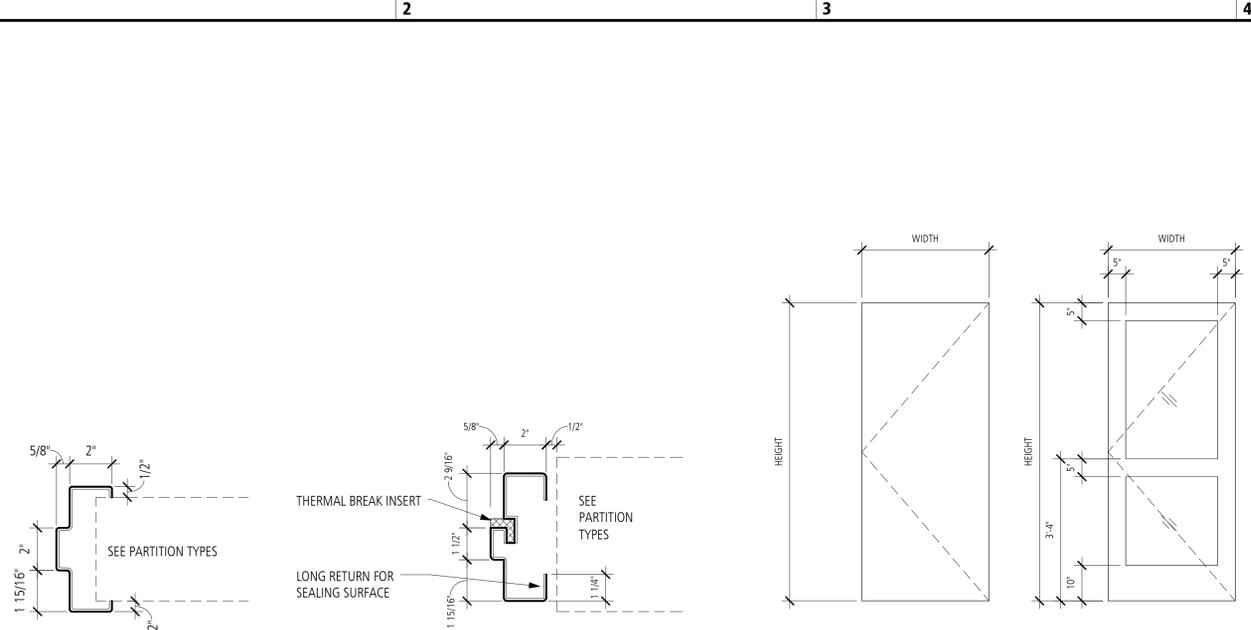
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

ENLARGED PLANS & ELEVATIONS

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-501

Scale : As indicated



PROFILE TYPE A
TYPICAL HM INTERIOR
DOOR, HEAD, JAMB

PROFILE TYPE B
TYPICAL HM EXTERIOR
DOOR, HEAD, JAMB

TYPE A
FLUSH

TYPE B
FULL LITE

1 HOLLOW METAL FRAME TYPES
3" = 1'-0"

2 DOOR ELEVATIONS
1/2" = 1'-0"

- DOOR NOTES:**
1. ALL EXTERIOR DOOR FRAMES SHALL BE WELDED HOLLOW METAL.
 2. ALL INTERIOR DOOR FRAMES SHALL BE KNOCK-DOWN HOLLOW METAL.
 3. ALL ENTRY DOORS SHALL HAVE 'SCHLAGE AD400' KEYLESS LOCK CYLINDERS
 4. ALL INTERIOR DOORS TO BE FLUSH WOOD
 5. 3 SILENCERS ON ALL INTERIOR DOORS, TYP.
 6. DOOR 101A - ALUMINUM
 7. DOOR 103A - HOLLOW METAL
 8. ALL INTERIOR DOOR FRAMES FIELD PAINTED

TC_DOOR SCHEDULE						
NUMBER	RATING	HEIGHT	WIDTH	LOCKSET	HARDWARE	COMMENTS
101A		7' - 0"	3' - 0"	ENTRY	CONT. HINGE, RIM EXIT, CLOSER, THERMAL, EXTERIOR WEATHERSTRIP	ALUMINUM ENTRANCE, RIM EXIT INCLUDES ACCESS CONTROL, PT. PS.
101B		6' - 8"	3' - 0"	PASSAGE		REUSE AND PAINT EXISTING
102A	90 MIUNUTE	6' - 8"	3' - 0"	PASSAGE	HINGES, LOCKSET, CLOSER, WALL STOP	
102B	90 MIUNUTE	6' - 8"	4' - 0"		HINGES, LOCKSET, CLOSER, WALL STOP	
103A		7' - 0"	4' - 0"	ENTRY	HINGES, RIM EXIT, CLOSER, THERMAL, EXTERIOR WEATHER STRIP	EXTERIOR DOOR
103B		6' - 8"	4' - 0"	PASSAGE	HINGES, LOCKSET, CLOSER	
104A	NON-RATED SMOKE	6' - 8"	3' - 0"	ENTRY	HINGES, LOCKSET, CLOSER, WALL STOP	
104B		6' - 8"	3' - 0"	OFFICE	HINGES, LOCKSET, WALL STOP	
105	90 MIUNUTE	6' - 8"	3' - 0"	STOREROOM	HINGES, LOCKSET, CLOSER	
106		6' - 8"	3' - 0"		HINGES, CLOSER, PUSH/ PULL, KICK	
107		6' - 8"	3' - 0"		HINGES, CLOSER, PUSH/ PULL, KICK	
108A	NON-RATED SMOKE	6' - 8"	3' - 0"	CLASSROOM ANSI F05	HINGES, LOCKSET, WALL STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
108B		6' - 8"	3' - 0"	PASSAGE	HINGES, LOCKSET, WALL STOP	
108C		6' - 8"	4' - 8"	-	-	ADA ACCESSIBLE ROTARY DARKROOM DOOR
109	NON-RATED SMOKE	6' - 8"	3' - 0"	CLASSROOM ANSI F84	HINGES, LOCKSET, WALL STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
110	NON-RATED SMOKE	6' - 8"	3' - 0"	CLASSROOM ANSI F84	HINGES, LOCKSET, FLOOR STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
111	NON-RATED SMOKE	6' - 8"	3' - 0"	CLASSROOM ANSI F84	HINGES, LOCKSET, WALL STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
112	NON-RATED SMOKE	6' - 8"	3' - 0"	CLASSROOM ANSI F84	HINGES, LOCKSET, WALL STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
113A	NON-RATED SMOKE	6' - 8"	4' - 0"	CLASSROOM ANSI F84	HINGES, LOCKSET, WALL STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
113B	NON-RATED SMOKE	6' - 8"	3' - 0"	CLASSROOM ANSI F84	HINGES, LOCKSET, WALL STOP	CLOSER NOT REQUIRED PER 101.14.3.6 (2)(b)
113C	45 MINUTE	6' - 8"	4' - 0"	PASSAGE	HINGES, LOCKSET, CLOSER, WALL STOP	
113D		6' - 8"	3' - 0"	PASSAGE	HINGES, LOCKSET, WALL STOP	
114A	NON-RATED SMOKE	6' - 8"	3' - 0"	PASSAGE	HINGES, LOCKSET, CLOSER	
114B	NON-RATED SMOKE	6' - 8"	3' - 0"	PASSAGE	HINGES, LOCKSET, CLOSER	
201	NON-RATED SMOKE	6' - 8"	4' - 0"	STOREROOM	HINGES, LOCKSET, CLOSER	
202	NON-RATED SMOKE	6' - 8"	3' - 0"	STOREROOM	HINGES, LOCKSET, CLOSER	

LIGHTING FIXTURE SCHEDULE				
TAG	FIXTURE TYPE	MANUFACTURER	MODEL	COMMENTS
LT-1A	HIGH BAY	ATLANTIC LIGHTING	LHB16	
LT-1B	LOW BAY	ATLANTIC LIGHTING		
LT-2A	RECESSED CAN, WET/GWB	PRESCOLITE	LF8LEDG4	
LT-2B	RECESSED CAN, DRY/ACT	PRESCOLITE		
LT-3	TRACK LIGHTING	SPECTRUM LIGHTING	POWER TRACK SRYS	
LT-4	UNDER CABINET	JUNO	UPLD22	
LT-5	EXTERIOR WALL PACK	LITHONIA	OLWX1	
SL-1	SKYLIGHT	SOLATUBE	SOLAMASTER OPEN CEILING 330 DS	DEDUCT ALTERNATE #2

PLUMBING FIXTURE SCHEDULE			
TAG	DESCRIPTION	MANUFACTURER	MODEL
PL-1	TOILET	AMERICAN STANDARD	CADET RIGHT HEIGHT
PL-2	URINAL	AMERICAN STANDARD	WASHBROOK FLOWISE
PL-3	LAVATORY	AMERICAN STANDARD	LUCERNE
PL-4	WALL MOUNTED STAINLESS STEEL TROUGH SINK		
PL-5	WALL MOUNTED FAUCET		
PL-6	UTILITY SINK		
PL-7	FAUCET	MOEN	8820
PL-8	FLOOR DRAIN		
PL-9	BAR SINK		
PL-10	HOSE BIB		
PL-11	EXISTING 3-BAY SINK	N/A	N/A
PL-12	DAUL ADA WATER FOUNTAIN		
PL-13	MOP SINK FAUCET		

MATERIALS LEGEND	
TAG	DESCRIPTION
ACT	24" X 24" ACOUSTIC CEILING TILE
CN-1	EXISTING CONCRETE
CN-2	EXISTING CONCRETE - GRIND AND SEAL AT REMOVED CARPET / TILE / LINOLEUM
EPX	CLEAR EPOXY COATING
FRP	FIBER REINFORCED PLASTIC PANELS
PT-1	PAINT - WHITE
PT-2	PAINT - BLACK
PT-3	EXTERIOR PAINT
RB-1	4" RUBBER COVE BASE
WD-1	3/4" TONGUE & GROOVE PLYWOOD

ROOM FINISH SCHEDULE								
#	ROOM NAME	FLOOR	BASE	WALLS			CEILING	COMMENTS
				NORTH	EAST	SOUTH		
101	VESTIBULE	CN-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
102	CORRIDOR	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	-
103	VESTIBULE	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
104a	ADMINISTRATIVE OFFICE	CN-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
104b	OFFICE	CN-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
105	FARRELL I.T.	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
106	MENS	EPX	RB-1	PT-1	FRP	PT-1	PT-1	PT-1
107	WOMENS	EPX	RB-1	PT-1	PT-1	PT-1	FRP	PT-1
108a	PHOTOGRAPHY CLASSROOM	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT / PT-2
108b	FILM PROCESSING CLASSROOM	CN-1	RB-1	PT-2	FRP / PT-2	PT-2	PT-2	ACT / PT-2
108c	DARKROOM CLASSROOM	CN-1	RB-1	FRP / PT-2	PT-2	PT-2	PT-2	ACT
109	JEWELRY CLASSROOM	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
110	DIGITAL LAB CLASSROOM	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	-
111	DRAWING & PAINTING CLASSROOM	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	-
112	PRINT CLASSROOM	CN-1	RB-1	PT-1	PT-1	PT-1	PT-1	-
113a	CLAY GLAZING WORKSHOP	CN-2	RB-1	PT-1	FRP / PT-1	PT-1	PT-1	ACT
113b	CLAY THROWING WORKSHOP	-	-	-	-	-	-	EXISTING FRP AND ACT TO REMAIN
113c	KILN ROOM	CN-2	RB-1	PT-1	PT-1	PT-1	PT-1	PT-1
113d	GLAZE CHEMISTRY ROOM	CN-2	RB-1	PT-1	PT-1	PT-1	PT-1	ACT
114	SINKS	EPX	RB-1	FRP	FRP	FRP	FRP	PT-1
115	CLAY STORAGE	CN-1	-	-	-	-	-	UNFINISHED GWB
116	ART STOR.	CN-1	-	-	-	-	-	UNFINISHED GWB
201	MECH. MEZZ.	WD-1	-	-	-	-	-	UNFINISHED GWB
202	STOR. LOFT	WD-1	-	-	-	-	-	UNFINISHED GWB

No.	Description	Date
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BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

SCHEDULES

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-601

Scale : As indicated

C:\Users\jchelle\Documents\A2016003-00 BCA
 Temporary
 Space-CENTRAL_jchelle@truexcollins.com

EQUIPMENT SCHEDULE							
MARK	DESCRIPTION	DATA	VENT.	PLUM.	ELEC.	Provided By (O/C) (Owner/Contractor)	Installed By (O/C) (Owner/Contractor)
ADMINISTRATIVE OFFICE							
A-01	RECEPTION WORKSTATION	X				CONTRACTOR	CONTRACTOR
A-02	STAFF WORKSTATION-SIT STAND	X				CONTRACTOR	CONTRACTOR
A-03	INTERN-CAMP COORDINATOR WORKSTATION	X				CONTRACTOR	CONTRACTOR
A-04	PRINTER	X				BCA	BCA
A-05	OFFICE STORAGE-CABINET					BCA	BCA
A-10	DIRECTOR WORKSTATION	X				TBD	BCA
A-11	EDUCATION DIRECTOR BOOKCASE					BCA	BCA
A-12	EDUCATION DIRECTOR FILE CAB					BCA	BCA
A-13	EDUCATION FILE CAB					BCA	BCA
A-14	STAFF WORKSTATION (3)	X				BCA	BCA
A-15	STAFF WORKSTATION	X				TBD	BCA
A-17	COPIER PRINTER	X			X	BCA	BCA
A-18	AIR CONDITIONER (2)				X	BCA	BCA
A-20	SMALL STAFF FRIDGE				X	BCA	BCA
PRINT							
B-01	FIRE CABINET					BCA	BCA
B-02	WOODEN SUPPLY CABINET					BCA	BCA
B-04	PRINTING PRESS TABLE					BCA	BCA
B-05	TACKACH PRINTING PRESS					BCA	BCA
B-09	FLAT FILE SIZE 4					BCA	BCA
B-10	FLAT FILE SIZE 5 WOODEN					BCA	BCA
B-11	PRINT DRYING TABLE					BCA	BCA
B-12	SS STORAGE CABINETS MOUNTED ON WALL				X	BCA	CONTRACTOR
B-13	PRINT DRYING RACK					BCA	BCA
B-14	INKING TABLES (2)					BCA	BCA
B-17	COMPUTER DESK FOR IMAC	X			X	BCA	BCA
B-18	EXPOSURE UNIT TABLE					BCA	BCA
B-19	SILKSCREEN EXPOSURE UNIT				X	BCA	BCA
B-22	SILKSCREEN STORAGE RACK 1					CONTRACTOR	CONTRACTOR
B-23	SILKSCREEN STORAGE RACK 2					CONTRACTOR	CONTRACTOR
B-24	FIBERGLASS SINK-PAPER WETTING SINK					BCA	BCA
B-27	HORIZONTAL PAPER DISPENSER					BCA	BCA
B-28	WALL MOUNTED PEG BOARD					BCA	BCA
B-29	BOOK CASE					BCA	BCA
CLAY							
C-01	TABLE FOR PUGMILL				x	BCA	BCA
C-02	KILN (3)		x		x	BCA	BCA / City Electrician
C-03	POTTERY WHEEL (12)				x	BCA	BCA
C-04	POTTERY WHEEL				x	BCA	BCA
C-05	POTTERY WHEEL				x	BCA	BCA
C-06	WHEEL POD TABLE - REBUILT?					?	?
C-07	SLAB ROLLER					BCA	BCA
C-08	SS GLAZING TABLE					BCA	BCA
C-09	WOOD GLAZING TABLE					BCA	BCA
C-10	HAND BUILDING TABLE 1 - CUSTOM BUILT					BCA	BCA
C-11	HAND BUILDING TABLE 2 - CUSTOM BUILT					BCA	BCA
C-12	COMMUNITY POTTERY TOOL STORAGE					BCA	BCA
C-15	WALL-MOUNTED EXTRUDER					BCA	BCA
C-16	TO BE FIRED ROLLING RACKS (3)					BCA	BCA
C-17	INDUSTRIAL SHELVING UNIT SIZE 1					BCA	BCA
C-18	INDUSTRIAL SHELVING UNIT SIZE 2					BCA	BCA
C-19	INDUSTRIAL SHELVING UNIT SIZE 3					BCA	BCA
C-20	INDUSTRIAL SHELVING UNIT SIZE 4					BCA	BCA
C-21	INDUSTRIAL SHELVING UNIT SIZE 5					BCA	BCA
C-22	INDUSTRIAL SHELVING UNIT SIZE 6					BCA	BCA
C-23	INDUSTRIAL SHELVING UNIT SIZE 7					BCA	BCA
C-24	INDUSTRIAL SHELVING UNIT SIZE 8					BCA	BCA
C-26	TRACK SHELVING					BCA	CONTRACTOR
C-28	GLAZE BUCKETS SHELVING - CUSTOM BUILT					CONTRACTOR	CONTRACTOR
C-29	CLAY RECYCLING SHELVING BUILT IN					CONTRACTOR	CONTRACTOR
C-30	WEDGING TABLE 1 - CUSTOM BUILT					BCA	BCA
C-31	WEDGING TABLE 2 - CUSTOM BUILT					BCA	BCA
C-32	WEDGING TABLE 3 - CUSTOM BUILT					BCA	BCA
C-33	SS GLAZING MIXING TABLE					BCA	BCA

DIGITAL							
D-01	Workspace for 8 Mac Workstations						CONTRACTOR
D-02	21 IN IMAC COMPUTER					X	BCA
D-03	EPSON P800						BCA
D-04	EPSON 7800					X	BCA
D-05	EPSON 9800 44 IN					X	BCA
D-06	HP LASER JET PRO 400 PRINTER					X	BCA
D-07	EPSON V700 FLATBED					X	BCA
D-08	MAC MINI					X	BCA
D-10	INSTRUCTOR LECTERN					X	BCA
D-14	60" MONITOR WALL MOUNTED						BCA
D-15	MAGNETIC CRITIQUE WALL						CONTRACTOR
JEWELRY							
E-01	WORK TABLE (3)					X	BCA
E-02	TOOL CABINET						BCA
E-03	FORMING TABLE						BCA
E-04	STEEL TOP CABINET						BCA
E-05	SMALL DRILL PRESS CABINET					X	BCA
E-06	SOLDERING TABLE				X	X	CONTRACTOR
E-07	WORK STATION TABLE FOR PMC KILN					X	CONTRACTOR
E-08	WORK STATION TABLE FOR BUFFING WHEEL					X	CONTRACTOR
DARKROOM							
F-01	COUNTER FOR ENLARGERS - CUSTOM BUILT					X	CONTRACTOR
F-02	SAUNDERS OMEGA LPL ENLARGER (4)					X	BCA
F-03	NIKON ENLARGER					X	BCA
F-04	BESELER 45 ENLARGER					X	BCA
F-05	ENLARGER TIMER GRALAB					X	BCA
F-06	ENLARGER TIMER TIME-O-LIGHT					X	BCA
F-07	COUNTER SPACE						CONTRACTOR
F-08	PAPER CUTTER						BCA
F-10	STAINLESS STEEL SINK				X		CONTRACTOR
F-11	STORAGE FOR PER-MIXED CHEMICALS						CONTRACTOR
F-13	16X20 ARCHIVAL PRINT WASHER				X		BCA
F-14	8X10 ARCHIVAL PRINT WASHER				X		BCA
F-15	GRALAB TIMERS OVER SINK					X	BCA
F-18	EMERGENCY EYEWASH STATION						BCA
F-19	PRINT DRYING RACKS						BCA
F-20	DUPLEX SUPER-SAFE LIGHT					x	CONTRACTOR
F-21	FLAMMABLE LIQUID SAFETY CABINET						BCA
F-22	SILVER RECOVERY UNIT						BCA
F-24	COUNTER SPACE FOR LOADING FILM						CONTRACTOR
F-25	HEATED FILM DRYING CABINET					x	BCA
F-29	SMALL SUPPLY DESK						BCA
F-30	LIGHT TABLE					x	BCA
F-31	MATT CUTTER						BCA
F-32	DRY MOUNT PRESS					x	BCA
F-33	MAGNETIC CRITIQUE WALL						BCA
F-37	TABLE & CHAIRS FOR 8 STUDENTS						BCA
F-38	LOCKER STORAGE						BCA
DRAWING / PAINTING							
G-06	SAFETY FIRST AID STORAGE						CONTRACTOR
G-07	PRESCHOOL DROP IN CLASS CABINET						CONTRACTOR
G-08	ARTWORK DRYING RACK						CONTRACTOR
G-09	STORAGE CLOSET						CONTRACTOR
G-11	PAINT TABLE SMALL						BCA
G-12	EASEL						BCA
G-13	MODEL STAND						CONTRACTOR
G-14	TABLE						BCA
G-15	CHAIR						BCA
G-16	SMALL FIRE BUCKET						BCA
G-18	CHALKBOARD						BCA
G-22	PAPER & CANVAS SHELVES						CONTRACTOR
G-23	CLASS SUPPLY STORAGE DRAWERS						CONTRACTOR
G-24	GENERAL SUPPLY STORAGE						CONTRACTOR
G-25	GLASS PALETTE & DRAWING BOARD STORAGE						CONTRACTOR

No.	Description	Date
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BURLINGTON CITY ARTS

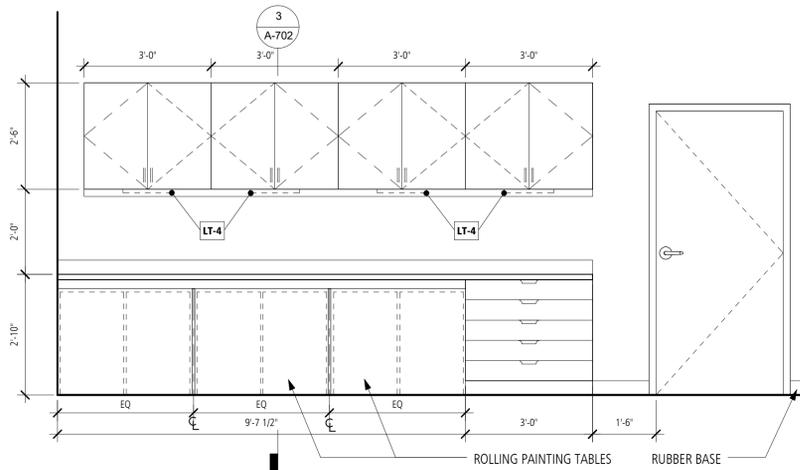
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

EQUIPMENT SCHEDULE

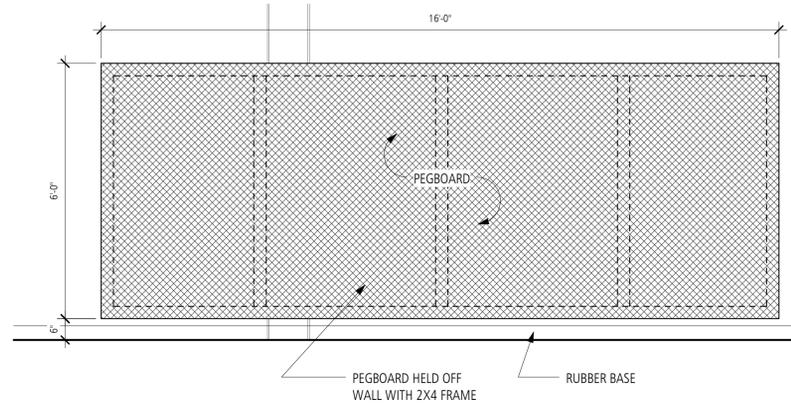
Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	Author
Checked by :	Checker
Project Phase :	BID DOCUMENTS

A-602

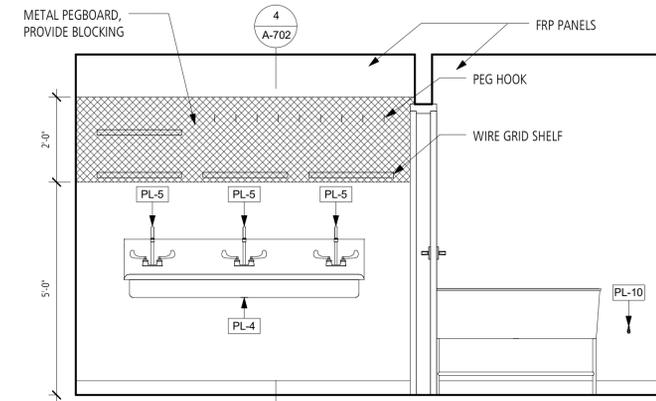
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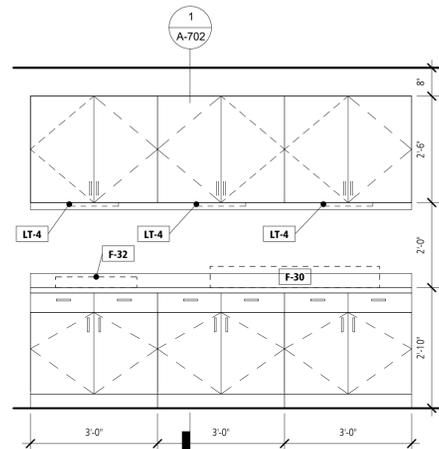
1 DRAWING & PAINTING - A
1/2" = 1'-0"



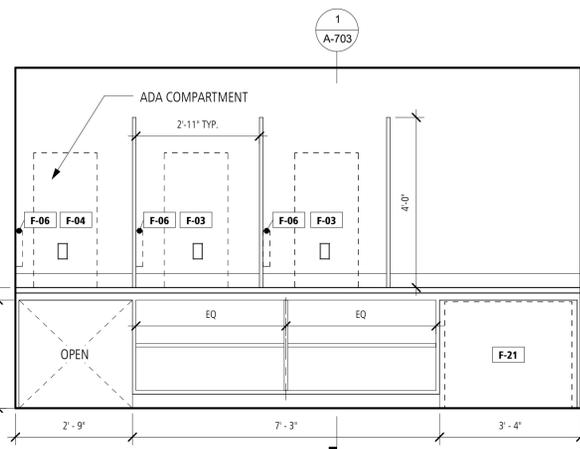
2 DRAWING & PAINTING - C
1/2" = 1'-0"



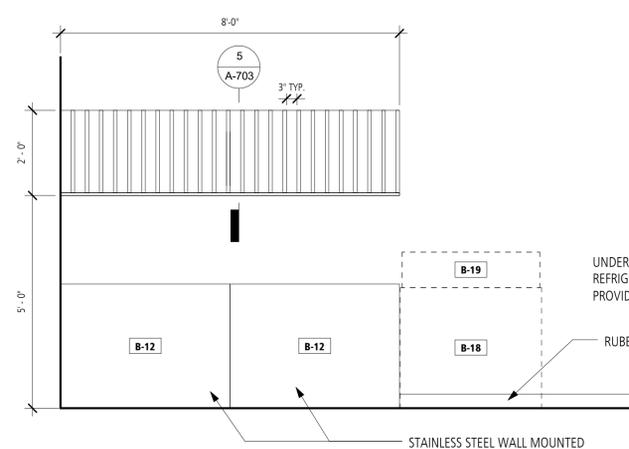
3 SINK ROOM
1/2" = 1'-0"



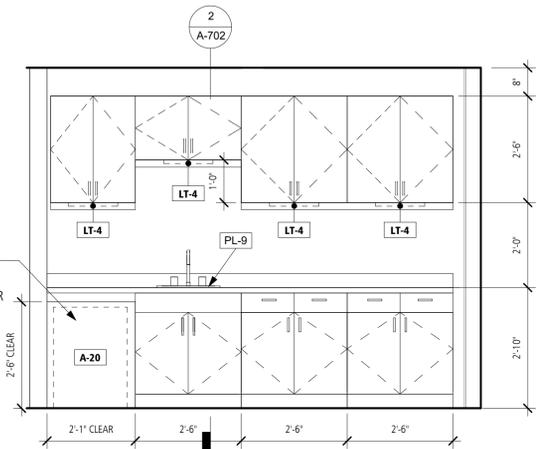
4 PHOTOGRAPHY - A
1/2" = 1'-0"



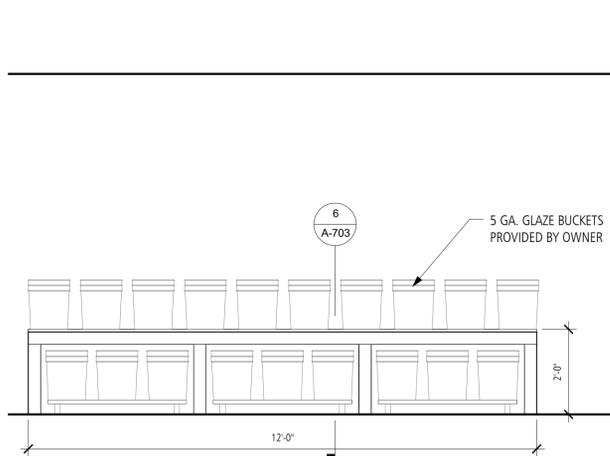
5 DARKROOM - A
1/2" = 1'-0"



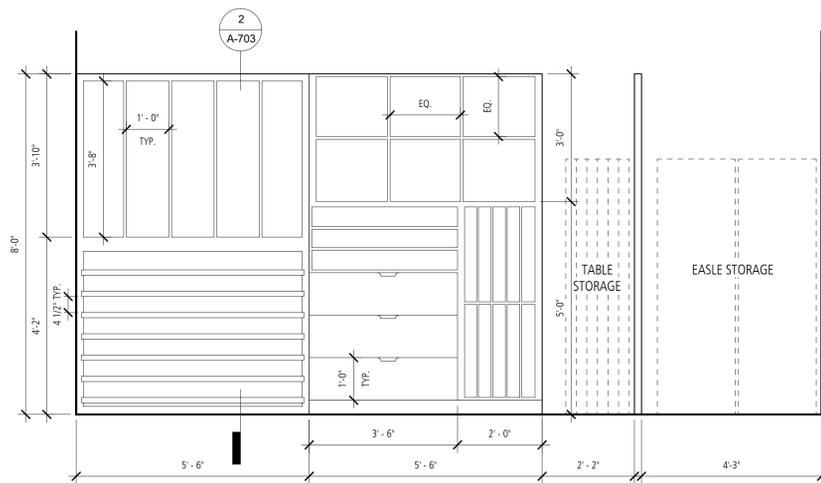
6 PRINT - A
1/2" = 1'-0"



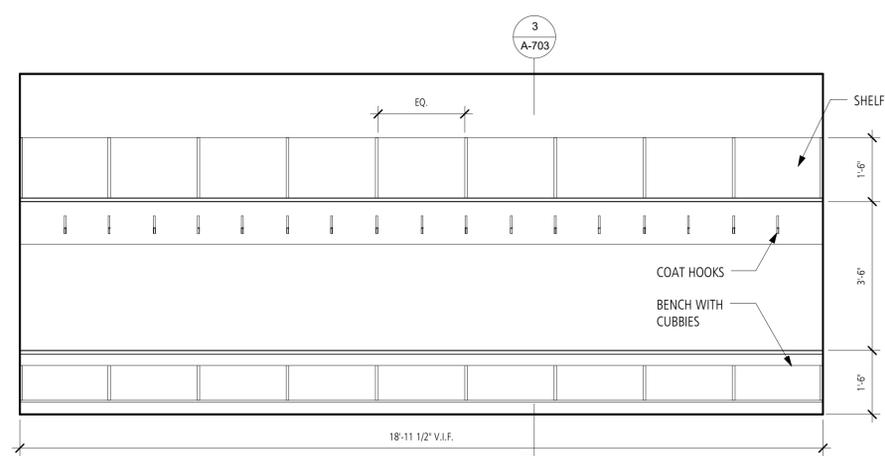
7 KITCHENETTE - A
1/2" = 1'-0"



8 CLAY - A
1/2" = 1'-0"



9 DRAWING & PAINTING - B
1/2" = 1'-0"



10 VESTIBULE - A
1/2" = 1'-0"

No.	Description	Date
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BURLINGTON CITY ARTS

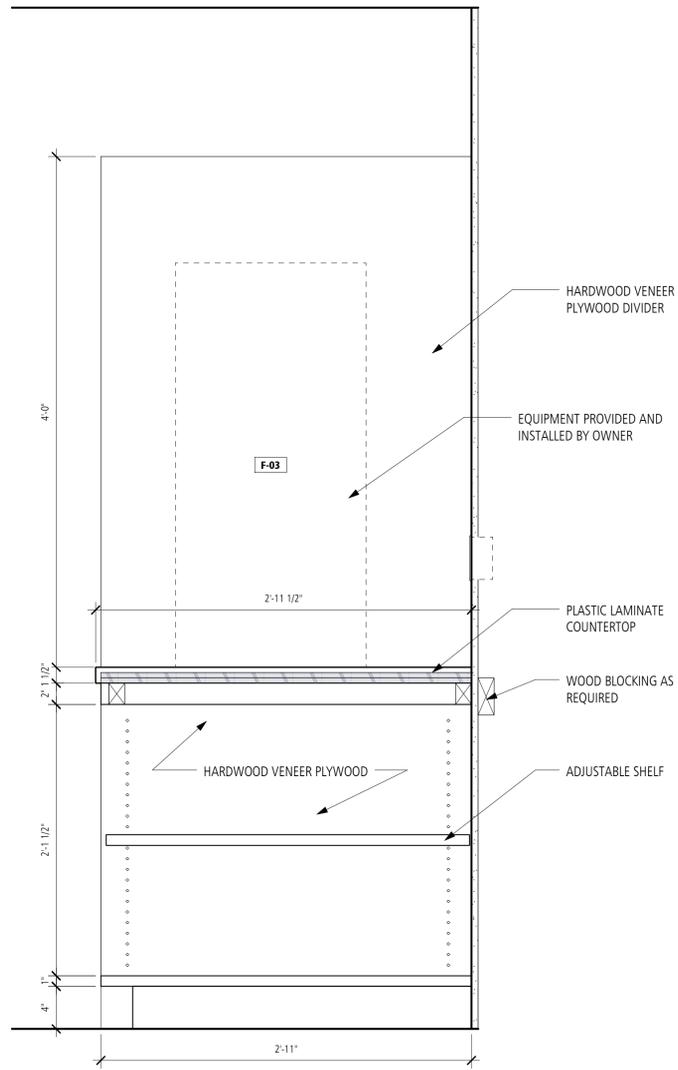
BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

INTERIOR ELEVATIONS

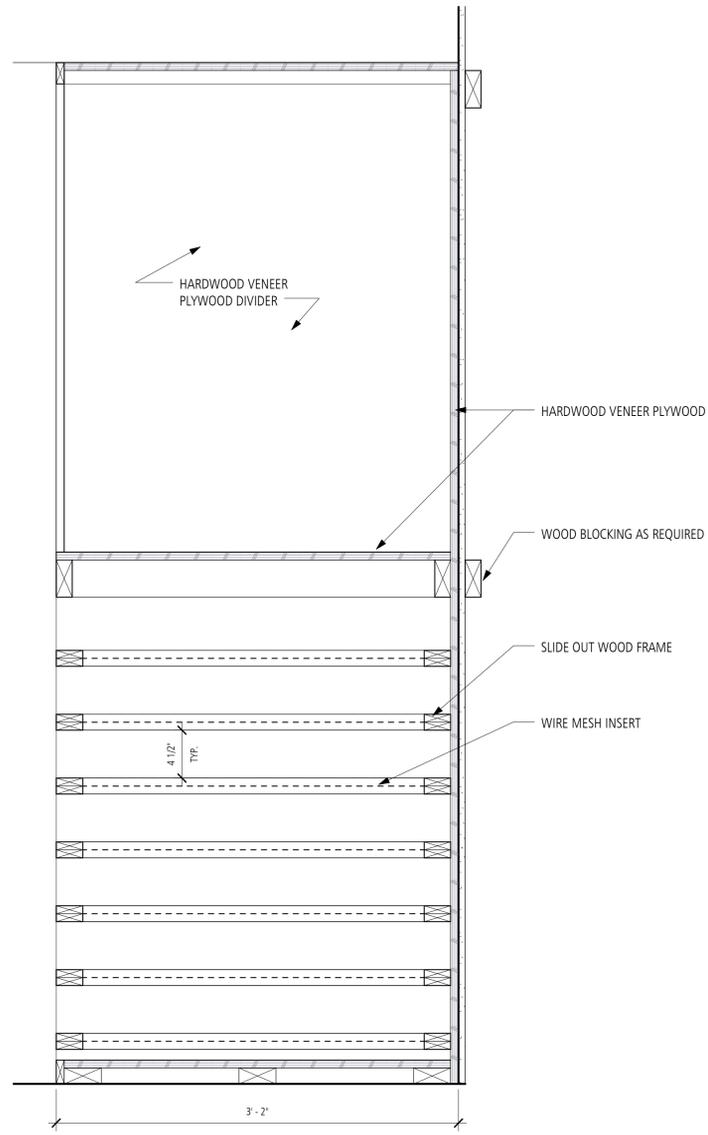
Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	AC
Checked by :	RK
Project Phase :	BID DOCUMENTS

A-701

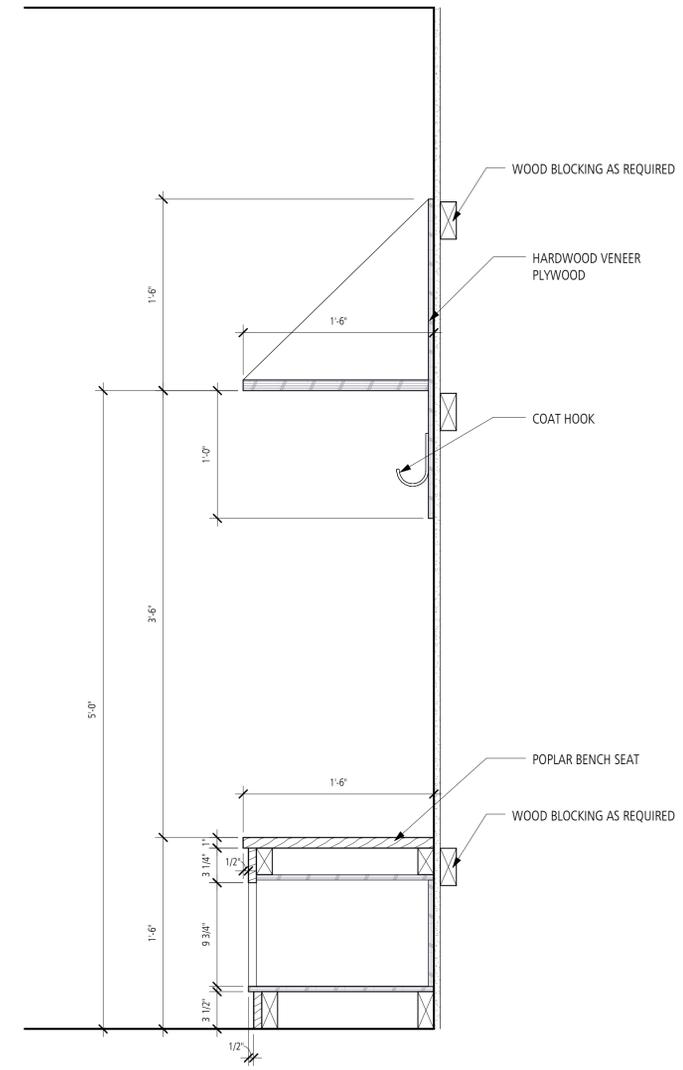
Scale : 1/2" = 1'-0"



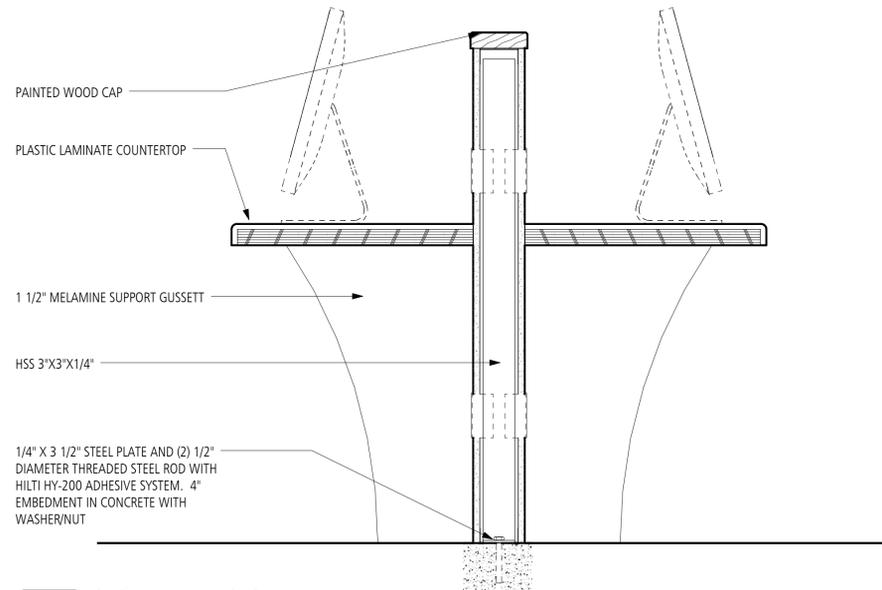
1 DARKROOM DETAIL
1 1/2" = 1'-0"



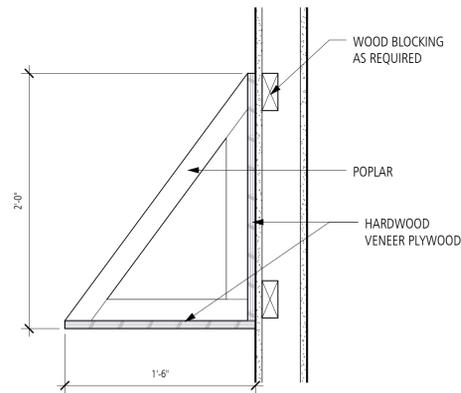
2 DRAWING PAINTING DETAIL
1 1/2" = 1'-0"



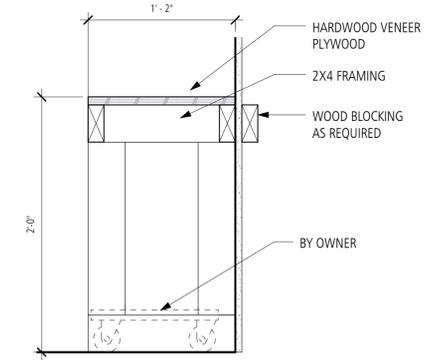
3 COAT BENCH DETAIL
1 1/2" = 1'-0"



4 DIGITAL LAB DETAIL
1 1/2" = 1'-0"



5 SCREEN RACK DETAIL
1 1/2" = 1'-0"



6 GLAZING SHELF DETAIL
1 1/2" = 1'-0"

No.	Description	Date

BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

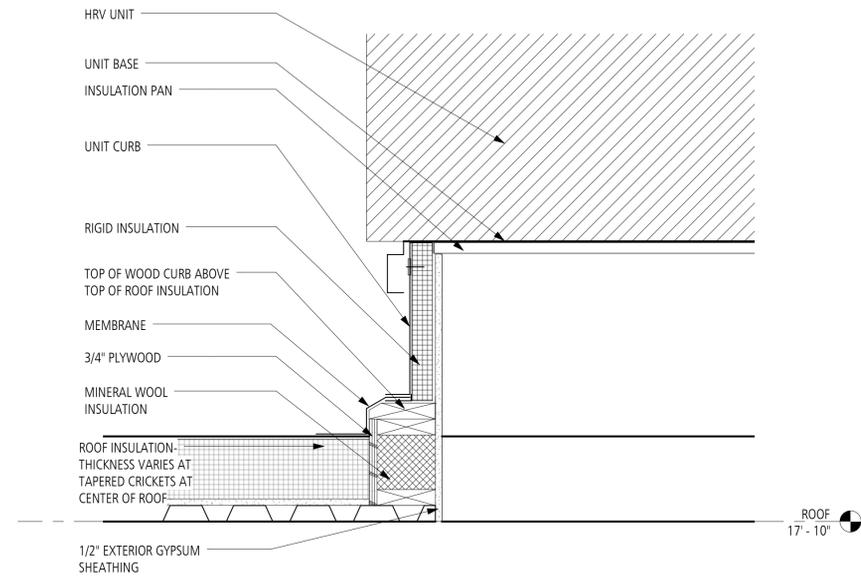
DETAILS

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	Author
Checked by :	Checker
Project Phase :	BID DOCUMENTS

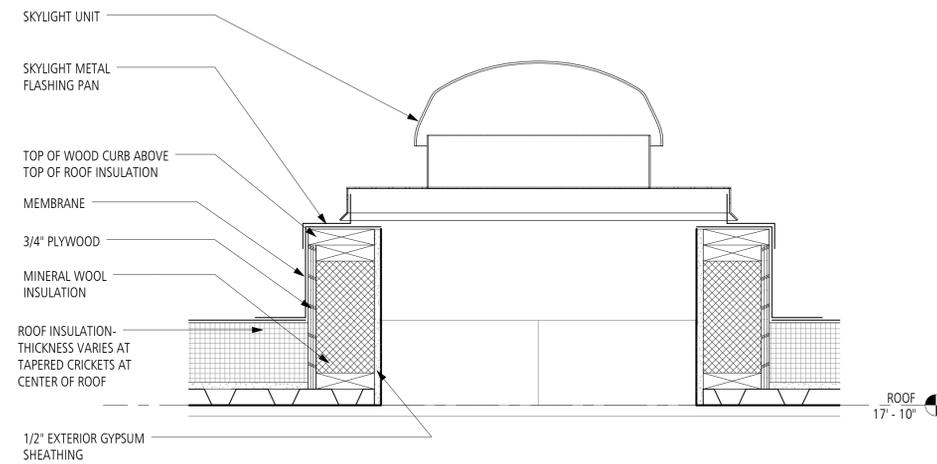
A-703

Scale : 1 1/2" = 1'-0"

No.	Description	Date
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1 **DETAIL - ROOF CURB**
1 1/2" = 1'-0"



2 **DETAIL - SKYLIGHT**
1 1/2" = 1'-0"

BURLINGTON CITY ARTS

BCA STUDIOS TENANT FIT UP
405 Pine Street
Burlington, VT 05401

DETAILS

Project number :	A2016003-00
Date :	18 NOV. 2016
Drawn by :	Author
Checked by :	Checker
Project Phase :	BID DOCUMENTS

A-704

Scale : 1 1/2" = 1'-0"

POST-INSTALLED ANCHORAGES:

- 1. EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI, INC. CONTACT HILTI AT (800) 874-8000 FOR PRODUCT CATALOGS.
A. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE
1. HILTI HIT-RE 300 VS EPOXY ADHESIVE ANCHORING SYSTEM PER ICC ESR-3014 FOR SLOW CURE APPLICATIONS
2. HILTI HIT-HY 200-A ADHESIVE ANCHORING SYSTEM PER ICC ESR-3101 FOR FAST CURE APPLICATIONS
3. HILTI HIT-HY 200-A ADHESIVE ANCHOR SYSTEM (UNCRACKED CONCRETE ONLY) PER ICC ESR-3107 FOR FAST CURE APPLICATIONS
4. STEEL ANCHOR ELEMENT SHALL BE HILTI HS-N INTERNALLY THREADED INSERTS (USED WITH RE 300 VS AND HY 200-A ONLY), HILTI HAS-E CONTINUOUSLY THREADED ROD, OR CONTINUOUSLY DEFORMED STEEL REBAR.
b. MEDIUM DUTY MECHANICAL ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE
1. HILTI KVK HUS E2 AND KVK HUS E2-I SCREW ANCHORS PER ICC ESR-3027
2. HILTI KVK BOLT-T2 EXPANSION ANCHORS PER ICC ESR-1917
3. HILTI KVK BOLT 3 EXPANSION ANCHORS (UNCRACKED CONCRETE ONLY) PER ICC ESR-2002
c. HEAVY DUTY MECHANICAL ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE
1. HILTI HDA UNDERGUT ANCHORS PER ICC ESR 1546
2. HILTI HSL-3 EXPANSION ANCHORS PER ICC ESR 1545
B. ANCHORAGE TO SOLID GROUTED MASONRY
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-2682)
2. STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
C. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
2. STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
3. THE APPROPRIATE SIZE SCREW TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS
b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
D. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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b. MECHANICAL ANCHORS USE
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E. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
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b. MECHANICAL ANCHORS USE
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3. THE APPROPRIATE SIZE SCREW TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS
b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
G. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
H. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
I. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
a. ADHESIVE ANCHORS USE
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
J. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
K. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
L. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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3. THE APPROPRIATE SIZE SCREW TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS
b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
M. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
2. STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
3. THE APPROPRIATE SIZE SCREW TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS
b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
N. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
2. STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
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b. MECHANICAL ANCHORS USE
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
P. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
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Q. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
R. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
2. STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
S. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
T. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
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U. ANCHORAGE TO HOLLOW / MULTI-HY THE MASONRY
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
V. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
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b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935
Z. ANCHORAGE TO CONCRETE
a. ADHESIVE ANCHORS USE
1. HILTI HIT-HY 10 MASONRY ADHESIVE ANCHORING SYSTEM (ICC ESR-3342)
2. STEEL ANCHOR ELEMENT SHALL BE HILTI HAS-E CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
3. THE APPROPRIATE SIZE SCREW TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATIONS
b. MECHANICAL ANCHORS USE
1. HILTI KVK BOLT-3 EXPANSION ANCHORS PER ICC ESR 1935

STRUCTURAL NOTES:

- 1. GENERAL DRAWING NOTES
A. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SITE, ARCHITECTURAL, AND MEP DRAWINGS AND SPECIFICATIONS.
B. EXISTING CONSTRUCTION INFORMATION HAS BEEN TAKEN FROM RECORD DRAWINGS MADE AVAILABLE TO THE ENGINEER AND LIMITED FIELD INVESTIGATION BY ENGINEER.
C. CONTRACTOR SHALL VERIFY ALL ELEVATIONS, DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING WORK.
D. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
E. CHANGING ASTM GRADE TYPE A - WATER REDUCING.
F. BONDING AGENT SIKA ARMATAC 110 EPOXY BONDING AGENT, NO-SOLVENT THREE COMPONENT EPOXY AS MANUFACTURED BY SIKA OR EQUIVALENT.
G. NON-SHRINK GROUT PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS, CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 2,400 PSI IN 48 HOURS AND 1,000 PSI IN 28 DAYS, MANUFACTURED BY FIVE STAR PRODUCTS, INC. OR APPROVED EQUIVALENT.
H. ARCHITECT SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
I. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
J. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
K. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
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R. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
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V. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
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Y. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
Z. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.

CAST IN PLACE CONCRETE NOTES:

- 1. PERFORM WORK IN ACCORDANCE WITH ACI 301 STANDARDS AND RECOMMENDED PRACTICES.
2. ACQUIRE CEMENT AND AGGREGATE FROM SAME SOURCE FOR ALL WORK.
3. CONFORM TO ACI 308 WHEN CONCRETING DURING HOT WEATHER.
4. CONFORM TO ACI 308 WHEN CONCRETING DURING COLD WEATHER.
5. CEMENT ASTM C150, TYPE I, GRAY - NORMAL; DO NOT CHANGE SOURCE OF MANUFACTURER OF CEMENT DURING THE COURSE OF THE WORK.
6. FINE AND COARSE AGGREGATES ASTM C33.
7. WATER CLEAN, POTABLE AND NOT DETRIMENTAL TO CONCRETE.
8. AIR ENTRAINMENT ASTM C260.
9. CHEMICAL ASTM C494 TYPE A - WATER REDUCING.
10. BONDING AGENT SIKA ARMATAC 110 EPOXY BONDING AGENT, NO-SOLVENT THREE COMPONENT EPOXY AS MANUFACTURED BY SIKA OR EQUIVALENT.
11. NON-SHRINK GROUT PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS, CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 2,400 PSI IN 48 HOURS AND 1,000 PSI IN 28 DAYS, MANUFACTURED BY FIVE STAR PRODUCTS, INC. OR APPROVED EQUIVALENT.
12. ARCHITECT SHALL NOTIFY ARCHITECT/ENGINEER OF ALL DISCREPANCIES FOR REMEDIAL ACTION IF NECESSARY PRIOR TO CONTINUING WITH WORK.
13. MIX CONCRETE IN ACCORDANCE WITH ACI 304. DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94.
14. THE MIX DESIGN SHALL MEET THE REQUIREMENTS OF ACI 318, CHAPTER 5, INCLUDE THE WATER-CEMENT RATIO, AIR CONTENT, SLUMP, ADMIXTURES, AND THE PLAN TO BE USED.
15. CONCRETE MIXTURES SHALL CONSIST OF THE APPROPRIATE PROPORTIONS OF PORTLAND CEMENT, WATER, COARSE AND FINE AGGREGATE, AIR ENTRAINING AGENT AND WATER REDUCING AGENT FOR THE INTENDED APPLICATION.
16. PROVIDE CONCRETE TO THE FOLLOWING CRITERIA
A. COMPRESSIVE STRENGTH AT 28 DAYS
a. FOUNDATION WALLS, INTERNAL PIERS AND FOOTINGS = 3,000 PSI
b. ELEVATED SLABS AND SLABS ON GRADE = 4,000 PSI
c. SLUMP 2-4 INCHES BEFORE ADDITION OF WATER REDUCER, 6-8 INCHES AFTER THE ADDITION OF WATER REDUCER
d. MAXIMUM WATER TO CEMENT RATIO: 0.5
e. USE ACCELERATING ADMIXTURES IN COLD WEATHER ONLY WHEN APPROVED BY ARCHITECT/ENGINEER. USE OF ADMIXTURES WILL NOT RELAX COLD WEATHER PLACEMENT REQUIREMENTS.
f. USE CALCIUM CHLORIDE SHALL NOT BE PERMITTED.
g. USE SET RETARDING ADMIXTURES DURING HOT WEATHER ONLY WHEN APPROVED BY ARCHITECT/ENGINEER.
h. ADD AIR ENTRAINING AGENT TO NORMAL WEIGHT CONCRETE MIX FOR WORK EXPOSED TO EXTERIOR. DO NOT ADD AIR ENTRAINMENT TO INTERIOR SLABS.
i. L. LIQUID CURING AGENT, TYPE I, AND ACI 304.
j. ENSURE REINFORCEMENT, INSERTS, EMBEDDED PARTS, FORMED EXPANSION AND CONTRACTION JOINTS, ARE NOT DISTURBED DURING CONCRETE PLACEMENT.
k. VAPOR RETARDER - 12 MIL.
l. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND METHODS.
m. REPAIR VAPOR RETARDER DAMAGED DURING PLACEMENT OF CONCRETE REINFORCING.
n. REPAIR WITH VAPOR RETARDER MATERIAL, LAP OVER DAMAGED AREAS MINIMUM 6 INCHES AND SEAL WATER TIGHT PER MANUFACTURER'S RECOMMENDATIONS.
o. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO THE BOARD OR RIGID INSULATION SEE ARCHITECTURAL DRAWINGS.
p. PLACE JOINT FILLER IN FLOOR SLAB PATTERN PLACEMENT SEQUENCE. SET TOP TO REQUIRED ELEVATIONS. SECURE TO RESIST MOVEMENT BY NET CONCRETE.
q. RIGID INSULATION UNDER SLABS SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH:
A. RESIDENTIAL, OFFICE USE, AND RESIDENTIAL GARAGE - 25 PSI
B. COMMERCIAL GARAGE - 40 PSI
C. JOINT SEALER - ONE PART ZERO MOISTURE CURING SILICONE JOINT SEALANT SUITABLE FOR HIGH MOVEMENT BUILDING JOINT APPLICATIONS.
D. DO NOT INTERRUPT SUCCESSIVE PLACEMENT; DO NOT PERMIT COLD JOINTS TO OCCUR.
E. SCHEDULE SLABS ON GRADES SHALL BE FINISHED WITH MAXIMUM 1/4 INCH IN 10 FT. FLOOR SLABS SHALL BE FINISHED AS FOLLOWS IN ACCORDANCE WITH ACI 301 AS FOLLOWS:
A. INTERIOR OR EXTERIOR SURFACES TO RECEIVE QUARRY TILE OR CERAMIC TILE WITH A FULL SETTING BED + WOOD FLOAT FINISH
B. INTERIOR SURFACES TO RECEIVE CARPETING, RESILIENT FLOORING, SEAMLESS FLOORING, OR THIN SET CERAMIC TILE + STEEL TROWEL FINISH
C. EXTERIOR SURFACES - BROOM FINISH PERPENDICULAR TO PEDESTRIAN TRAFFIC.
D. IN AREAS WITH FLOOR DRAINS, MAINTAIN FLOOR ELEVATION AT WALLS; PITCH SURFACES UNIFORMLY TO DRAINS AS INDICATED ON DRAWINGS.
E. WALLS AND PIERS
F. EXPOSED HORIZONTAL SURFACES = FLOAT AND HAND TROWEL
G. EXPOSED VERTICAL SURFACES = FILL THE SURFACES WITH GROUT SLURRY AFTER REMOVAL OF FORMS TO THE SATISFACTION OF THE ARCHITECT/ENGINEER. RUB FINISH TO A SMOOTH AND UNIFORM TEXTURE.
H. IMMEDIATELY AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL AND CHEMICAL INJURY.
I. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
J. CURE FLOOR SURFACES IN ACCORDANCE WITH ACI 308, ACI 309, AND ACI 304.
K. LIQUID MEMBRANE FORMING CURING COMPOUNDS SHALL NOT BE USED ON FLOOR SLABS WHERE PAINT OR FLOORING IS SCHEDULED WITHOUT DEMONSTRATION THAT THE MEMBRANE CAN BE REMOVED OR THAT THE MEMBRANE CAN SERVE AS A SATISFACTORY BASE FOR THE LATER APPLICATION.
L. BENTONITE WATERSTOP SHALL BE PARASTOP II OR SUPERSTOP BY TREMCO. A MULTIPLE COMPOSITE WATERSTOP WHICH COMBINES THE STRENGTH AND TOUGHNESS OF CONVENTIONAL WATERSTOP WITH THE SELF-SEALING ABILITY OF BENTONITE, DO NOT APPLY IN STANDING WATER OR OVER SNOOW WHENEVER AGED, ALKALI OR SALT BLENDE EXIST, CONSPICUOUS. INSTALL 2 INCHES FROM OUTER FACE OF WALL.
M. BENTONITE WATERSTOP SHALL BE PARASTOP II OR SUPERSTOP BY TREMCO. A MULTIPLE COMPOSITE WATERSTOP WHICH COMBINES THE STRENGTH AND TOUGHNESS OF CONVENTIONAL WATERSTOP WITH THE SELF-SEALING ABILITY OF BENTONITE, DO NOT APPLY IN STANDING WATER OR OVER SNOOW WHENEVER AGED, ALKALI OR SALT BLENDE EXIST, CONSPICUOUS. INSTALL 2 INCHES FROM OUTER FACE OF WALL.

BASIS OF DESIGN:

- 1. DESIGN CODES
A. VERMONT FIRE AND SAFETY CODE 2015
B. IBC (INTERNATIONAL BUILDING CODE) 2015
C. ASCE 7-10 (MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES)
2. DESIGN DEAD LOADS
A. ROOF DEAD LOAD - 20 psf
B. FLOOR DEAD LOAD - 20 psf
C. MECHANICAL/ELECTRICAL UNIT WEIGHTS - PER UNIT LOADING DESIGN
3. DESIGN LIVE LOADS
A. SC000-5
a. CLASSROOMS - 40 psf
b. CORRIDORS ABOVE FIRST FLOOR - 60 psf
c. FIRST FLOOR CORRIDORS - 100 psf
B. SIDEWALKS, DRIVEWAYS, AND YARDS SUBJECT TO TRUCKS - 250 psf
4. SNOW LOAD
A. GROUND SNOW LOAD - 40 psf
B. ROOF SNOW LOAD USE 40 PSF FLAT ROOF
C. SNOW EXPOSURE FACTOR, Cs - 1.0
D. SNOW LOAD IMPORTANCE FACTOR, Is - 1.0
E. THERMAL FACTOR, Gt - 1.0
F. FLUX DRIFTING AS APPLICABLE
5. WIND LOAD
A. ULTIMATE DESIGN WIND SPEED Vult - 115 mph
B. NOMINAL DESIGN WIND SPEED Vult - 90 mph
C. RISK CATEGORY - II
D. WIND EXPOSURE - C
E. BASIC DESIGN WIND PRESSURE - 24.4 psf
F. THERMAL PRESSURE COEFFICIENT - +/- 0.18
6. EARTHQUAKE LOADS
A. SEISMIC IMPORTANCE FACTOR, Is - 1.00
B. SEISMIC USE GROUP - II
C. WAPPED SPECTRAL RESPONSE ACCELERATIONS - Sa - 0.35, 0.5g, S1 - 10.6%g
D. SITE CLASS - D
E. SPECTRAL RESPONSE COEFFICIENTS, Sps AND Spv, 0.350 AND 0.160
F. BASIC SEISMIC FORCE RESISTING SYSTEM - STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
G. DESIGN BASE SHEAR - V=0.114 * WEIGHT
H. SEISMIC RESPONSE COEFFICIENT - 0.114
I. RESPONSE MODIFICATION FACTOR, R - 3
J. ANALYSIS PROCEDURE - EQUIVALENT LATERAL FORCE
K. FOUNDATION BEARING CAPACITY - 2,000 PSF ASSUMED
L. STRUCTURAL MATERIAL MANUFACTURERS UTILIZED FOR DESIGN
A. POWDER ACTUATED FASTENERS, EXPANSION BOLTS, ADHESIVE ANCHORING SYSTEM - HILTI, INC.
B. LIGHT GAGE METAL FRAMING - MARINO/MARE
C. STEEL FLOOR OR ROOF DECK - VULCRAFT

ABBREVIATIONS and LEGEND

Table with 2 columns: Abbreviation and Description. Includes symbols for North Arrow, Elevation Callout, Footings Elevation, Slope Direction and Pitch, Roof Pitch, Schedule Marker, Section Number Sheet Number, and various material patterns like Concrete, CMU, Rigid Insulation, Crushed Stone, Grating, Opening, Undisturbed Subgrade, and Compacted Granular Fill.

STRUCTURAL STEEL NOTES:

- 1. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE.
MATERIALS
A. STRUCTURAL STEEL MEMBERS: ASTM A992, GRADE 50 FOR ALL WIDE FLANGE MEMBERS AND ASTM A50 FOR ALL CHANNELS AND ANGLES.
B. STRUCTURAL TUBING: ASTM A500, GRADE B.
C. PIPE: ASTM A83, GRADE B.
D. BOLTS, NUTS, AND WASHERS: ASTM A325 BOLTS, ASTM A563 NUTS, GALVANIZED TO ASTM A153 FOR GALVANIZED STRUCTURAL MEMBERS. ASTM A490 BOLTS REQUIRED WHERE NOTED ON DRAWINGS.
E. ANCHOR BOLTS: ASTM F1554-06 FOR HEADED BOLTS AND HOOKED BOLTS.
F. WELDING MATERIALS: AWS D1.1 TYPE REQUIRED FOR MATERIALS BEING WELDED.
G. GROUT: NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 1,000 PSI AT 28 DAYS AS MANUFACTURED BY FIVE STAR PRODUCTS, INC., FAIRFIELD, CT, OR APPROVED EQUIVALENT.
H. SHOP AND TOUCH-UP PRIMER: TITANIC SERIES 8045 GREY OR APPROVED EQUIVALENT. TOUCH-UP PRIMER FOR GALVANIZED SURFACES: TITANIC SERIES 37, ZINC RICH OR APPROVED EQUIVALENT.
I. FABRICATION
A. CONTINUOUSLY SEAL EXPOSED STEEL MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
B. FABRICATE CONNECTIONS FOR BOLT, NUT, AND WASHER CONNECTORS.
C. DEVELOP REQUIRED CAMBER FOR MEMBERS.
D. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-2 FOR ENCLOSED STEEL TO RECEIVE STANDARD PRIMER AND SSPC SP-6 FOR STEEL TO RECEIVE ZINC-RICH PRIMER.
E. SHOP PRIME STRUCTURAL STEEL MEMBERS. DO NOT PRIME SURFACES THAT WILL BE FIREPROOFED, FIELD WELDED, IN CONTACT WITH CONCRETE.
F. WHERE INDICATED, STRUCTURAL STEEL MEMBERS ARE TO BE GALVANIZED IN ACCORDANCE WITH ASTM A123. PROVIDE MINIMUM 1,250Z/FT² GALVANIZING COATING.
J. EXECUTION
A. VERIFY IF EXISTING CONDITIONS PRIOR TO BEGINNING WORK. BEGINNING WORK INDICATES ACCEPTANCE OF EXISTING CONDITIONS.
B. ALLOW FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY BRACING TO MAINTAIN STRUCTURE SAFE, PLUMB, AND IN TRUE ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRACING.
C. FIELD WELD COMPONENTS INDICATED ON DRAWINGS AND SHOP DRAWINGS. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF ARCHITECT/ENGINEER.
D. AFTER ERECTION, PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, EXCEPT SURFACES TO BE IN CONTACT WITH CONCRETE.
E. ERECTION TOLERANCES
A. MAXIMUM VARIATION FROM PLUMB: 1/4 INCH PER STORY, NON-CUMULATIVE.
B. MAXIMUM OFFSET FROM TRUE ALIGNMENT: 1/4 INCH.

STEEL FLOOR & ROOF DECK NOTES:

- 1. SUBMIT SHOP DRAWINGS FOR REVIEW.
A. INDICATE DECK PLAN, SUPPORT LOCATIONS, PROJECTIONS, OPENINGS, PERTINENT DETAILS, AND ACCESSORIES.
B. PRODUCT DATA: PROVIDE DECK PROFILE CHARACTERISTICS AND DIMENSIONS, STRUCTURAL PROPERTIES, AND FINISHES.
2. DELIVERY, STORAGE, AND HANDLING
A. TRANSPORT, HANDLE, STORE, AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. CUT PLASTIC WRAP TO ENCLOSE VENTILATION.
C. STORE DECK ON DRY WOOD SLEEPERS; SLOPE FOR POSITIVE DRAINAGE.
3. PRODUCTS
A. ROOF DECK - 1 1/2" DEEP, TYPE B, 18 GAGE, 33 KSI ROOF DECK.
B. FLOOR DECK - 9/16" DEEP, 26 GAGE, 50 KSI FLOOR DECK.
C. SHEET STEEL: ASTM A446, GRADE A STRUCTURAL QUALITY; WITH 660 GALVANIZED COATING CONFORMING TO ASTM A525.
D. BEARING PLATES AND ANGLES: ASTM A36 STEEL, UNFINISHED.
E. WELDING MATERIALS: AWS D1.1.
F. TOUCH-UP PRIMER FOR GALVANIZED SURFACES: SSPC 20 TYPE II - ORGANIC.
4. MANUFACTURERS
A. VULCRAFT, FLORENCE, SC
B. APPROVED EQUIVALENT PRODUCT.
5. ACCESSORIES
A. FLUTE CLOSURES: CLOSED CELL 1 INCH THICK FOAM RUBBER PROFILED TO FIT TIGHT TO THE DECK.
B. CLOSURE ANGLES: LIGHT GAGE STEEL ANGLES OF PROFILE AND SIZE REQUIRED.
C. FLUTE NET CONCRETE STOP FASTENERS: METAL CLOSURE STRIPS, NET CONCRETE STOPS, COVER PLATES, GANT STRIPS, 20 GAGE GALVANIZED SHEET STEEL, OF PROFILE AND SIZE AS INDICATED.
D. FLOOR DRAIN PAN: FABRICATE OF 14 GAGE SHEET STEEL, FLAT BOTTOM, SLOPED SIDES, RECESSED 1/2 INCHES BELOW FLOOR DECK SURFACE, BEARING FLANGE 3 INCHES WIDE, SEALED WATER TIGHT.
E. FASTENERS: GALVANIZED HARDENED STEEL, SELF TAPPING.
6. EXECUTION
A. VERIFY THAT FIELD CONDITIONS ARE ACCEPTABLE AND ARE READY TO RECEIVE WORK. BEGINNING OF INSTALLATION INDICATES INSTALLER ACCEPTANCE OF EXISTING CONDITIONS.
7. INSTALLATION
A. ERECT METAL DECK IN ACCORDANCE WITH SDI MANUAL AND MANUFACTURER'S INSTRUCTIONS.
B. BEAR DECK ON STEEL SUPPORTS WITH 3 INCH MINIMUM BEARING. ALIGN AND LEVEL. FASTEN DECK TO STEEL SUPPORT MEMBERS AT ENDS AND INTERMEDIATE SUPPORTS WITH FLUTE NET CONCRETE STOP FASTENERS AT 12 INCHES OR MAXIMUM PARALLEL WITH THE DECK FLUTE AND AT EVERY OTHER TRANSVERSE FLUTE EXCEPT AS NOTED ON DRAWINGS.
C. WELD IN ACCORDANCE WITH AWS D1.1.
D. MECHANICALLY FASTEN OR WELD MALE/FEMALE SIDE LAPS AT 24 INCHES OR MAXIMUM. REINFORCE STEEL DECK OPENINGS FROM 6 TO 18 INCHES WITH 3 X 3 X 1/4 INCH STEEL ANGLES. PLACE ANGLES PERPENDICULAR TO FLUTES; EXTEND MINIMUM TWO FLUTES BEYOND EACH SIDE OF OPENING AND FASTENERS AT 12 INCHES OR MAXIMUM PARALLEL WITH THE DECK FLUTE AND AT EVERY OTHER TRANSVERSE FLUTE EXCEPT AS NOTED ON DRAWINGS.
E. INSTALL 6 INCH MINIMUM WIDE SHEET STEEL COVER PLATES, OF SAME THICKNESS AS DECK, WHERE DECK CHANGES DIRECTION AND RIDGE. FUSION WELDS 12 INCHES OR MAXIMUM. FASTEN NET CONCRETE STOP FASTENERS TO TOP SURFACE OF SLAB, TO CONTAIN NET CONCRETE. PROVIDE STOPS OF SUFFICIENT STRENGTH TO REMAIN STATIONARY WITHOUT DISTORTION.
F. IMMEDIATELY AFTER WELDING DECK AND OTHER METAL COMPONENTS IN POSITION, COAT WELDS, BURNED AREAS, AND DAMAGED SURFACE COATINGS, WITH TOUCH-UP PRIME PAINT.

FOUNDATION RELATED EARTHWORK:

- 1. EXCAVATION, BACKFILL AND COMPACTION FOR WITHIN BUILDING FOOTPRINT AND 5 FEET AROUND BUILDING FOUNDATIONS.
2. ALL MATERIAL SHALL BE REASONABLY FREE FROM SILT, LOAM, CLAY, OR ORGANIC MATTER MEETING THE FOLLOWING REQUIREMENTS
A. COMPACTED GRANULAR FILL
a. 3 INCH, 90 - 100 % BY WEIGHT PASSING SIEVE
b. NO. 4: 80 - 75 % BY WEIGHT PASSING SIEVE
c. NO. 100: 0 - 12 % BY WEIGHT PASSING SIEVE
d. NO. 200: 0 - 6 % BY WEIGHT PASSING SIEVE
B. WASHED CRUSHED STONE
a. 1-1/2 INCH, 90 - 100 % BY WEIGHT PASSING SIEVE
b. 3/4 INCH, 0 - 10 % BY WEIGHT PASSING SIEVE
c. NO. 4: 0 - 6 % BY WEIGHT PASSING SIEVE
C. SUITABLE NATIVE SOIL
a. ON SITE SAND OR GRAVEL REASONABLY FREE OF LOAM, SILT, CLAY, OR ORGANIC MATTER
b. MAXIMUM 15% BY WEIGHT PASSING NO. 200 SIEVE
3. EXCAVATE SUBSOIL TO ACCOMMODATE BUILDING FOUNDATIONS. HAND TRIM EXCAVATIONS. REMOVE LOOSE MATERIAL.
4. NOTIFY ENGINEER A MINIMUM OF 24 HOURS PRIOR TO EXCAVATIONS TO SCHEDULE A REVIEW OF NATIVE SOIL CONDITIONS. SEE BASIS OF DESIGN FOR MINIMUM FOOTING BEARING CAPACITY DESIGN.
5. CONTACT DISTURBED LOAD - BEARING SOIL IN DIRECT CONTACT WITH FOUNDATIONS TO ORIGINAL BEARING CAPACITY. PLACE 12 INCHES OF CRUSHED STONE BENEATH BUILDING FOOTINGS IF LOOSE OR NET SOILS ARE ENCOUNTERED.
6. IF OVER-EXCAVATION OCCURS, REPLACE MATERIAL WITH CRUSHED STONE. OVER-EXCAVATION MAY ALSO BE REPLACED WITH CONCRETE WITH ENGINEER'S APPROVAL.
7. PLACE AND COMPACT BACKFILL IN EQUAL CONTINUOUS LAYERS NOT EXCEEDING 8" OF COMPACTED DEPTH FOR HAND HELD COMPACTION EQUIPMENT AND A MAXIMUM OF 12" INCHES COMPACTED DEPTH FOR VIBRATORY ROLLERS AT EACH FLUTE.
8. MAINTAIN OPTIMUM MOISTURE CONTENT OF BACKFILL MATERIALS TO ATTAIN COMPACTION DENSITY.
9. BACKFILL SIMULTANEOUSLY ON EACH SIDE OF FOUNDATION WALLS.
10. BACKFILL REQUIREMENTS
A. FILL WITHIN BUILDING ENVELOPE -
a. MATERIAL COMPACTED GRANULAR FILL
b. COMPACTION 95% MODIFIED PROCTOR
c. TESTING EVERY OTHER LIFT, EVERY 1000 SF
B. BACKFILL ALONG EXTERIOR OF BUILDING AT FROST WALLS, AND IN FRONT OF RETAINING STRUCTURES -
a. MATERIAL SUITABLE NATIVE SOIL
b. COMPACTION 90% MODIFIED PROCTOR
c. TESTING EVERY OTHER LIFT, EVERY 1000 SF
C. BACKFILL BEHIND RETAINING AND/OR BASEMENT WALLS, OUTSIDE BUILDING ENVELOPE -
a. MATERIAL COMPACTED GRANULAR FILL
b. COMPACTION 90% MODIFIED PROCTOR
c. TESTING EVERY OTHER LIFT, EVERY 1000 SF
11. GRAVEL BELOW SLABS -
A. MATERIAL COMPACTED GRANULAR FILL
B. COMPACTION 95% MODIFIED PROCTOR
C. TESTING EVERY 1000 SF

CONCRETE REINFORCING NOTES:

- 1. REINFORCING STEEL ASTM A615, 60 KSI YIELD GRADE, DEFORMED BILLET STEEL BARS.
2. STRUUP STEEL ASTM A62.
3. WELDED STEEL WIRE FABRIC ASTM A105 PLAIN TYPE, IN FLAT SHEETS.
4. TIE WIRE MINIMUM 16 GAGE ANNEALED TYPE.
5. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS SIZED AND SHAPED FOR STRENGTH AND SUPPORT OF REINFORCEMENT DURING CONCRETE PLACEMENT CONDITIONS INCLUDING LOAD BEARING PAD ON BOTTOM TO PREVENT PUNCTURING VAPOR RETARDER.
6. MAINTAIN CONCRETE COVER AROUND REINFORCING AS FOLLOWS
A. WALLS (EXPOSED TO WEATHER OR BACKFILL) - 1 1/2 INCHES
B. FOOTINGS AND CONCRETE FORMED AGAINST EARTH - 3 INCHES
C. SLABS ON FILL - 1 1/2 INCHES
D. ELEVATED SLABS, BEAMS AND INTERIOR COLUMNS - 1 INCH
7. SYNTHETIC STRUCTURAL FIBER REINFORCEMENT PROVIDE SYNTHETIC STRUCTURAL FIBERS COMPLYING WITH THE FOLLOWING REQUIREMENTS
A. SYNTHETIC STRUCTURAL FIBERS SHALL MEET THE REQUIREMENTS OF ASTM C 1116
B. SYNTHETIC STRUCTURAL FIBERS SHALL BE MADE OF POLYPROPYLENE AND POLYETHYLENE
C. SYNTHETIC STRUCTURAL FIBERS SHALL HAVE A MINIMUM LENGTH OF 15'
D. SYNTHETIC STRUCTURAL FIBERS SHALL HAVE AN ASPECT RATIO (LENGTH DIVIDED BY THE EQUIVALENT DIAMETER OF THE FIBER) BETWEEN 60 AND 100
E. SYNTHETIC STRUCTURAL FIBERS SHALL BE GRADE STRUX 90/40 SYNTHETIC FIBER REINFORCEMENT.
F. THE MINIMUM ADDITION RATE OF THE SYNTHETIC FIBER REINFORCEMENT SHALL BE 4 POUNDS PER CUBIC YARD
G. ADDITIONAL CONCRETE ADMIXTURES ADDITIONAL CONCRETE ADMIXTURES CONFORMING TO ASTM C 494 MAY BE USED AS REQUIRED INCLUDING THE FOLLOWING
a. TYPE A WATER-REDUCING ADMIXTURE,
b. TYPE ACCELERATING ADMIXTURE,
c. TYPE D WATER-REDUCING AND RETARDING ADMIXTURE,
d. TYPE F OR G WATER-REDUCING, HIGH-RANGE ADMIXTURE,
e. SHRINKAGE REDUCING ADMIXTURE
H. STRUX 90/40 FIBERS CAN BE ADDED DIRECTLY TO THE CONCRETE MIXER DRUM, CENTRAL MIXER OR PAN MIXER. F

1704.6 STRUCTURAL OBSERVATIONS

1704.6 - STRUCTURAL OBSERVATIONS WHERE REQUIRED BY THE PROVISIONS OF SECTION 1704.6.1 OR 1704.6.2 THE OWNER OR OWNER'S AUTHORIZED AGENT SHALL EMPLOY A REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR HAVE THE RESPONSIBILITY FOR THE INSPECTIONS IN SECTION 110 OR THE SPECIAL INSPECTIONS IN SECTION 1705 OR OTHER SECTIONS OF THIS CODE.

PRIOR TO THE COMMENCEMENT OF OBSERVATIONS, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT IDENTIFYING THE FREQUENCY AND EXTENT OF STRUCTURAL OBSERVATIONS.

AT THE CONCLUSION OF THE WORK INCLUDED IN THE PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

1704.6.1 - STRUCTURAL OBSERVATIONS FOR SEISMIC RESISTANCE. STRUCTURAL OBSERVATIONS SHALL BE PROVIDED FOR THOSE STRUCTURES INCLUDED IN SEISMIC DESIGN CATEGORY D, E OR F WHERE ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:

- 1. THE STRUCTURE IS CLASSIFIED AS RISK CATEGORY III OR IV.
2. THE HEIGHT OF THE STRUCTURE IS GREATER THAN 75 FEET (22,860 mm) ABOVE THE BASE AS DEFINED IN ASCE 7.
3. THE STRUCTURE IS ASSIGNED TO SEISMIC DESIGN CATEGORY E, IS CLASSIFIED AS RISK CATEGORY I OR II AND IS GREATER THAN TWO STORIES ABOVE GRADE.
4. WHEN SO DESIGNATED BY THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THE STRUCTURAL DESIGN.
5. WHEN SUCH OBSERVATION IS SPECIFICALLY REQUIRED BY THE BUILDING OFFICIAL.

1704.6.2 - STRUCTURAL OBSERVATIONS FOR WIND REQUIREMENTS. STRUCTURAL OBSERVATIONS SHALL BE PROVIDED FOR THOSE STRUCTURES SITED WHERE V_w AS DETERMINED IN ACCORDANCE WITH SECTION 1609.3.1 EXCEEDS 110 MPH (48 m/s), WHERE ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:

- 1. THE STRUCTURE IS CLASSIFIED AS RISK CATEGORY III OR IV.
2. THE BUILDING HEIGHT IS GREATER THAN 75 FEET (22,860 mm).
3. WHEN SO DESIGNATED BY THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THE STRUCTURAL DESIGN.
4. WHEN SUCH OBSERVATION IS SPECIFICALLY REQUIRED BY THE BUILDING OFFICIAL.

A

1704.5 SUBMITTALS TO THE BUILDING OFFICIAL

1704.5 - SUBMITTALS TO THE BUILDING OFFICIAL. IN ADDITION TO THE SUBMITTAL OF REPORTS OF SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH SECTION 1704.2.4, REPORTS AND CERTIFICATES SHALL BE SUBMITTED BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL FOR EACH OF THE FOLLOWING:

- 1. CERTIFICATES OF COMPLIANCE FOR THE FABRICATION OF STRUCTURAL LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES ON THE PREMISES OF A REGISTERED AND APPROVED FABRICATOR IN ACCORDANCE WITH SECTION 1704.2.5.1.
2. CERTIFICATES OF COMPLIANCE FOR THE SEISMIC QUALIFICATION OF NONSTRUCTURAL COMPONENTS, SUPPORTS AND ATTACHMENTS IN ACCORDANCE WITH SECTION 1705.19.
3. CERTIFICATES OF COMPLIANCE FOR DESIGNATED SEISMIC SYSTEMS IN ACCORDANCE WITH SECTION 1705.19.3.
4. REPORTS OF PRECONSTRUCTION TESTS FOR SHOTCRETE IN ACCORDANCE WITH SECTION 1705.19.5.
5. CERTIFICATES OF COMPLIANCE FOR OPEN WEB STEEL JOISTS AND JOIST GIRDERS IN ACCORDANCE WITH SECTION 2207.5.
6. REPORTS OF MATERIAL PROPERTIES VERIFYING COMPLIANCE WITH THE REQUIREMENTS OF A573 D1.4 FOR WELDABILITY AS SPECIFIED IN SECTION 26.6.4 OF ACI 318 FOR REINFORCING BARS IN CONCRETE COMPLYING WITH A STANDARD OTHER THAN ASTM A706 THAT ARE TO BE WELDED; AND REPORTS OF MILL TESTS IN ACCORDANCE WITH SECTION 20.2.2.5 OF ACI 318 FOR REINFORCING BARS COMPLYING WITH ASTM A615 AND USED TO RESIST EARTHQUAKE-INDUCED FLEXURAL OR AXIAL FORCES IN THE SPECIAL MOMENT FRAMES, SPECIAL STRUCTURAL WALLS OR COUPLING BEAMS CONNECTING SPECIAL STRUCTURAL WALLS OR SEISMIC RESISTING SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, D, E OR F.

B

1704.2.5 INSPECTION OF FABRICATORS

1704.2.5 - SPECIAL INSPECTION OF FABRICATED ITEMS WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION.

- EXCEPTIONS:
1. SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE FABRICATOR MAINTAINS APPROVED DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND THIS CODE. APPROVAL SHALL BE BASED UPON REVIEW OF FABRICATION AND QUALITY CONTROL PROCEDURES AND PERIODIC INSPECTION OF FABRICATION PRACTICES BY THE BUILDING OFFICIAL.
2. SPECIAL INSPECTIONS ARE NOT REQUIRED WHERE THE FABRICATOR IS REGISTERED AND APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.1.

1704.2.5.1 - FABRICATOR APPROVAL: SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE WORK IS TO BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER OR THE OWNER'S AUTHORIZED AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL AS SPECIFIED IN SECTION 1704.5 STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

C

ADDITIONAL INSPECTIONS

Table with 3 columns: VERIFICATION AND INSPECTION, REQUIRED, NOT APPLICABLE. Rows include 1704.3 - STATEMENT OF SPECIAL INSPECTIONS, 1704.6.1 - STRUCTURAL OBSERVATIONS FOR SEISMIC RESISTANCE, 1704.6.2 - STRUCTURAL OBSERVATIONS FOR WIND REQUIREMENTS, 1705.1.1 - SPECIAL CASES, 1705.12 - SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE, 1705.13 - TESTING FOR SEISMIC RESISTANCE, 1705.14 - SPRAYED FIRE-RESISTANT MATERIALS, 1705.15 - MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS, 1705.16 - EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS), 1705.17 - FIRE-RESISTANT PENETRATIONS AND JOINTS, 1705.18 - TESTING FOR SMOKE CONTROL.

D

1705.2 STEEL CONSTRUCTION

Table with 3 columns: VERIFICATION AND INSPECTION, CONTINUOUS, PERIODIC. Rows include 1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS; 2. INSPECTION OF HIGH-STRENGTH BOLTING; 3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK; 4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS; 5. INSPECTION OF WELDING; 6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE.

1705.2 - STEEL CONSTRUCTION THE SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STEEL CONSTRUCTION IN BUILDINGS, STRUCTURES, AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THIS SECTION.

EXCEPTION: SPECIAL INSPECTION OF THE STEEL FABRICATION PROCESS SHALL NOT BE REQUIRED WHERE THE FABRICATOR DOES NOT PERFORM ANY WELDING, THERMAL CUTTING OR HEATING OPERATION OF ANY KIND AS PART OF THE FABRICATION PROCESS. IN SUCH CASES, THE FABRICATOR SHALL BE REQUIRED TO SUBMIT A DETAILED PROCEDURE FOR MATERIAL CONTROL THAT DEMONSTRATES THE FABRICATOR'S ABILITY TO MAINTAIN SUITABLE RECORDS AND PROCEDURES SUCH THAT, AT ANY TIME DURING THE FABRICATION PROCESS, THE MATERIAL SPECIFICATION AND GRADE FOR THE MAIN STRESS-CARRYING ELEMENTS ARE CAPABLE OF BEING DETERMINED. MILL TEST REPORTS SHALL BE IDENTIFIABLE TO THE MAIN STRESS-CARRYING ELEMENTS WHEN REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.

1705.2.1 - STRUCTURAL STEEL SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF ASCE 360. EXCEPTION: SPECIAL INSPECTION OF RAILING SYSTEMS COMPOSED OF STRUCTURAL STEEL ELEMENTS SHALL BE LIMITED TO WELDING INSPECTION OF WELDS AT THE BASE OF CANTILEVERED RAIL POSTS.

1705.2.2 - COLD-FORMED STEEL DECK SPECIAL INSPECTIONS AND QUALIFICATION OF WELDING SPECIAL INSPECTORS FOR COLD-FORMED STEEL FLOOR AND ROOF DECK SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI QAWCC.

1705.6 SOILS

Table with 3 columns: VERIFICATION AND INSPECTION, CONTINUOUS, PERIODIC. Rows include 1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY; 2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL; 3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS; 4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL; 5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.

1705.6 - SOILS SPECIAL INSPECTIONS AND TESTS OF EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION AND TABLE 1705.6. THE APPROVED GEOTECHNICAL REPORT, AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE DURING FILL PLACEMENT. THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT.

EXCEPTION: WHERE SECTION 1803 DOES NOT REQUIRE REPORTING OF MATERIALS AND PROCEDURES FOR FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL VERIFY THAT THE IN-PLACE DRY DENSITY OF COMPACTED FILL IS NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT DETERMINED IN ACCORDANCE WITH ASTM D1557.

1705.3 CONCRETE CONSTRUCTION

Table with 3 columns: VERIFICATION AND INSPECTION, CONTINUOUS, PERIODIC. Rows include 1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT; 2. REINFORCING BAR WELDING; 3. INSPECTION OF ANCHORS CAST IN CONCRETE; 4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS; 5. VERIFYING USE OF REQUIRED DESIGN MIX; 6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE; 7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES; 8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES; 9. INSPECT PRESTRESSED CONCRETE FOR; 10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS; 11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS; 12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.

1705.03 - CONCRETE CONSTRUCTION SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION AND TABLE 1705.3

EXCEPTION: SPECIAL INSPECTIONS SHALL NOT BE REQUIRED FOR: 1. ISOLATED SPREAD CONCRETE FOOTINGS OF BUILDINGS THREE STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK; 2. CONTINUOUS CONCRETE FOOTINGS SUPPORTING WALLS OF BUILDINGS THREE STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK WHERE: 1. THE FOOTINGS SUPPORT WALLS OF LIGHT-FRAME CONSTRUCTION; 2. THE FOOTINGS ARE DESIGNED IN ACCORDANCE WITH TABLE 1804.1; 3. THE STRUCTURAL DESIGN OF THE FOOTING IS BASED ON A SPECIFIED COMPRESSIVE STRENGTH, F_c, NO GREATER THAN 2,500 POUNDS PER SQUARE INCH (psi) (17.2 MPa), REGARDLESS OF THE COMPRESSIVE STRENGTH SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS OR USED IN THE FOOTING CONSTRUCTION; 3. NONSTRUCTURAL CONCRETE SLABS SUPPORTED DIRECTLY ON THE GROUND, INCLUDING PRESTRESSED SLABS ON GRADE, WHERE THE EFFECTIVE PRESTRESS IN THE CONCRETE IS LESS THAN 150 (psi) (1.03 MPa); 4. CONCRETE FOUNDATION WALLS CONSTRUCTED IN ACCORDANCE WITH TABLE 1807.1.6.2; 5. CONCRETE PATIOS, DRIVEWAYS AND SIDEWALKS, ON GRADE.

1705.3.1 - WELDING OF REINFORCING BARS SPECIAL INSPECTIONS OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF A573 D1.4 FOR SPECIAL INSPECTION AND OF THE A573 D1.4 FOR SPECIAL INSPECTOR QUALIFICATIONS.

1705.3.2 - MATERIAL TESTS IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATIONS PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS IN CHAPTERS 19 AND 20 OF ACI 318, THE BUILDING OFFICIAL SHALL REQUIRE TESTING OF MATERIALS IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR MATERIALS IN CHAPTER 19 AND 20 OF ACI 318.

STRUCTURAL SUBMITTALS:

- 1. THE STRUCTURAL SHOP DRAWINGS REVIEW IS INTENDED TO HELP THE ENGINEER VERIFY THEIR DESIGN CONCEPT. THIS REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE DESIGN DRAWINGS & SPECIFICATIONS ALL OF WHICH HAVE A PRIORITY OVER THESE SHOP DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING A CORRELATION OF DIMENSIONS, FABRICATION PROCESSES, MEANS, METHODS, TECHNIQUES, SAFETY, AND COORDINATION OF THE WORK WITH OTHER DRAWINGS AND THOSE OF HIS SUBCONTRACTORS.
2. THE STRUCTURAL SHOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF NOT REVIEWED AND STAMPED BY CONTRACTOR OR IF MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S REVIEW ALL SHOP DRAWINGS SHALL INCLUDE PLAN LAYOUTS SHOWING LOCATIONS OF ITEMS DETAILED ON THE SHOP DRAWINGS, ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM THE SHOP DRAWINGS SHALL BE CLOUDED BY VENDOR SUBMITTING THE SHOP DRAWINGS. ANY OF THE FOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES, SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW UNLESS NOTED ACCORDINGLY.
3. THE FOLLOWING SHOP DRAWING MATERIALS & CALCULATIONS, WHEN APPLICABLE, ARE REQUIRED FOR SUBMITTAL FOR REVIEW BY STRUCTURAL ENGINEER:
A. SOILS
a. SIEVE ANALYSIS (ASTM D422 & D1140) AND MOISTURE DENSITY CURVE FOR MODIFIED PROCTOR TESTS (ASTM D1557) OF EACH SOURCE OF FILL MATERIAL TO BE USED WITHIN BUILDING FOOTPRINT, AND NATIVE SOILS TO BE USED AS FILL OUTSIDE THE BUILDING FOOTPRINT.
b. TEST DENSITY OF EACH LIFT OF FILL BY NUCLEAR METHODS (ASTM D2922) ONE TEST PER 1,000 SF OF AREA.
B. CAST IN PLACE CONCRETE
a. MIX DESIGN FOR EACH CONCRETE MIX TO BE USED, INCLUDING ALL APPLICABLE ADMIXTURE DATA SHEETS, SUBMIT IN ACCORDANCE WITH ACI 318 SECTION 5.4.2.
b. CURING COMPOUND, EXPANSION JOINT MATERIAL, AND EPOXY ANCHORING SYSTEMS
c. COMPRESSIVE STRENGTH TEST RESULTS DURING CONSTRUCTION ACTIVITIES
d. SUBMIT REINFORCING STEEL PLACEMENT DRAWINGS SHOWING FABRICATION DIMENSIONS AND LOCATIONS FOR PLACEMENT OF REINFORCEMENT, CLEAR COVER AND REINFORCEMENT SUPPORTS, INCLUDE SPLICE LENGTHS AND ANY PROPOSED MECHANICAL SPLICES, BEFORE FABRICATION AND EXECUTION.
C. POST INSTALLED ANCHORAGES
a. ADHESIVE ANCHORS AND MECHANICAL ANCHORS, ETC. INCLUDING MANUFACTURER (MILL) DATA SHEETS.
D. STRUCTURAL STEEL
a. SUBMITTALS SHOP DRAWINGS FOR REVIEW PER AISC STANDARDS
b. INDICATE PROFILES, SIZES, SPACING, AND LOCATION OF STRUCTURAL MEMBERS, OPENINGS, ATTACHMENTS, AND FASTENERS.
c. SHOW ALL CONNECTION DETAILS, PROVIDE DESIGN OF CONNECTIONS NOT DETAILED ON DRAWINGS.
d. INDICATE WELDED CONNECTIONS WITH A573 A2.0 WELDING SYMBOLS. INDICATE NET WELD LENGTHS.
e. MANUFACTURER'S MILL CERTIFICATE CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
f. MILL TEST REPORTS SUBMIT INDICATING STRUCTURAL STRENGTH, DESTRUCTIVE AND NONDESTRUCTIVE TEST ANALYSIS.
g. WELDERS CERTIFICATES PER A573 STANDARDS CERTIFY WELDERS EMPLOYED ON THE WORK, VERIFYING A573 QUALIFICATION WITHIN THE PREVIOUS 12 MONTHS.
h. SUBMIT DRAWINGS FOR REVIEW FOR METAL PAN STAIR SYSTEMS, SIZES ARE SCHEMATICALLY SHOWN ON AND DETAILED ON ARCHITECTURAL DRAWINGS, STAMPED BY A PROFESSIONAL ENGINEER.
E. STEEL FLOOR AND ROOF DECK
a. INDICATE DECK PLAN, SUPPORT LOCATIONS, PROJECTIONS, OPENINGS, PERTINENT DETAILS, AND ACCESSORIES.
b. PRODUCT DATA: PROVIDE DECK PROFILE CHARACTERISTICS AND DIMENSIONS, STRUCTURAL PROPERTIES, AND FINISHES.

STATEMENT OF SPECIAL INSPECTIONS IBC SECTION 1704.3

PROJECT: BURLINGTON CITY ARTS - STUDIOS AT 405 PINE STREET
LOCATION: 405 PINE STREET, BURLINGTON VT 05401
OWNER: BURLINGTON CITY ARTS
OWNER'S ADDRESS: BURLINGTON, VT
ARCHITECT OF RECORD: TRUDEX CULLINS ARCHITECTURE
STRUCTURAL ENGINEER OF RECORD: ARTISAN ENGINEERING, PC
BUILDING CODE: ASCE 7-10 (MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES) IBC (INTERNATIONAL BUILDING CODE) 2015

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL INSPECTION SERVICES APPLICABLE TO THIS PROJECT AS WELL AS THE NAME OF THE SPECIAL INSPECTIONS ADMINISTRATOR AND THE IDENTITY OF OTHER APPROVED AGENCIES INTENDED TO BE RETAINED FOR CONDUCTING THESE INSPECTIONS.

THE SPECIAL INSPECTIONS ADMINISTRATOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, STRUCTURAL ENGINEER OF RECORD AND ARCHITECT OF RECORD. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL, STRUCTURAL ENGINEER OF RECORD AND ARCHITECT OF RECORD. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES.

INTERIM REPORTS SHALL BE SUBMITTED ON A MONTHLY BASIS TO THE BUILDING OFFICIAL, OWNER/OWNERS AUTHORIZED AGENT, STRUCTURAL ENGINEER OF RECORD AND ARCHITECT OF RECORD.

A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY.

JOB SITE SAFETY AND MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

Table with 2 columns: PREPARED BY, OWNERS AUTHORIZATION. Includes signature lines for JOHN P. HIGGINS, PE and ARTISAN ENGINEERING, PC.

SCHEDULE OF SPECIAL INSPECTIONS IBC SECTION 1704.3

THE CONSTRUCTION DIVISIONS WHICH REQUIRE SCHEDULE OF SPECIAL INSPECTIONS FOR THIS PROJECT ARE LISTED HEREIN ON THE DRAWING SHEETS.

Table with 3 columns: INSPECTION AGENTS, FIRM, ADDRESS. Lists structural engineer, special inspector, testing agency, geotechnical engineer, and other.

NOTE: THE QUALIFICATIONS OF ALL PERSONNEL PERFORMING SPECIAL INSPECTION ACTIVITIES ARE SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL.

THE SPECIAL INSPECTOR AND TESTING AGENT SHALL BE ENGAGED BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT, AND NOT BY THE CONTRACTOR OR SUBCONTRACTOR WHOSE WORK IS TO BE INSPECTED OR TESTED. ANY CONFLICT OF INTEREST MUST BE DISCLOSED TO THE BUILDING OFFICIAL, PRIOR TO COMMENCING WORK.

THE CREDENTIALS OF ALL INSPECTORS, ADMINISTRATORS AND TESTING TECHNICIANS SHALL BE PROVIDED IF REQUESTED.

IT IS RECOMMENDED THAT THE PERSON ADMINISTERING THE SPECIAL INSPECTIONS PROGRAM BE A PROFESSIONAL ENGINEER EXPERIENCED IN THE DESIGN OF BUILDINGS.

- MINIMUM QUALIFICATIONS OF INSPECTION AGENTS
PE PROFESSIONAL ENGINEER - A LICENSED PE SPECIALIZING IN THE DESIGN OF BUILDING STRUCTURES
GEOTECHNICAL ENGINEER - A LICENSED PE SPECIALIZING IN SOIL MECHANICS AND FOUNDATIONS
EIT ENGINEERING IN TRAINING
ACI-CFTT AMERICAN CONCRETE INSTITUTE CERTIFIED CONCRETE FIELD TESTING TECHNICIAN - GRADE 1
ACI-COI AMERICAN CONCRETE INSTITUTE CERTIFIED CONCRETE CONSTRUCTION INSPECTOR
ACI-LTI AMERICAN CONCRETE INSTITUTE CERTIFIED LABORATORY TESTING TECHNICIAN - GRADES 1 AND 2
AWS-CWI AMERICAN WELDING SOCIETY CERTIFIED WELDING INSPECTOR
AWS/ASCC-SSI AMERICAN WELDING SOCIETY/AMERICAN INSTITUTE OF STEEL CONSTRUCTION STRUCTURAL STEEL INSPECTOR
ICC-SFSI INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED SPRAY-APPLIED FIREPROOFING SPECIAL INSPECTOR
EDH-EIFS EXTERIOR DESIGN INSTITUTE - EIFS THIRD PARTY INSPECTOR
ASNT AMERICAN SOCIETY OF NON-DESTRUCTIVE TESTING - LEVEL II OR III

QUALIFICATIONS OF INSPECTION AGENTS MAY BE INDICATED ON THE SCHEDULE IN INSTANCES WHERE THE STRUCTURAL ENGINEER OF RECORD DEEMS SUCH REQUIREMENTS ARE APPROPRIATE. INDIVIDUAL INSPECTOR QUALIFICATION REQUIREMENTS MAY BE WAIVED AT THE DISCRETION OF THE SPECIAL INSPECTOR IF THE INSPECTIONS ARE PERFORMED UNDER THE SUPERVISION OF A LICENSED PE.

1704.4 CONTRACTOR RESPONSIBILITY

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND- OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER OR OWNER'S AUTHORIZED AGENT PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.



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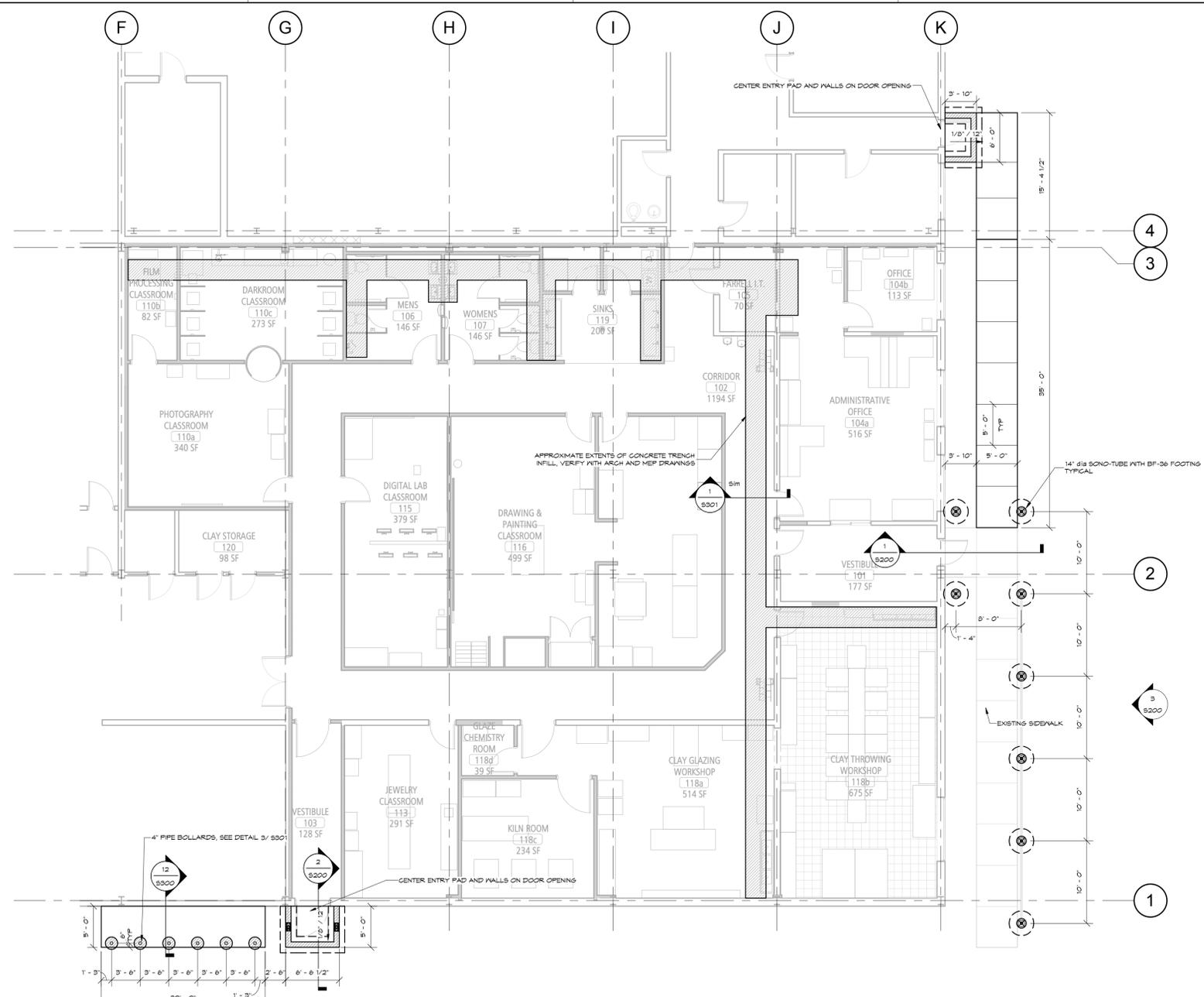
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A

B

C

D



FOUNDATION PLAN

- SCALE: 1/8" = 1'-0"
- NOTES:
- 1. TOP OF WALL (TOW) = 88'-0" U.N.O.
 - 2. TOP OF SLAB (TOS) = 100'-0"
 - 3. TOP OF FOOTING (TOF) (XX-YY) = 98'-0"
 - 4. TOP OF PIER (TOP) (XX-YY) = 100'-4"
 - 5. CONTROL JOINTS (CJ) ARE TO BE SAWCUT CONTROL JOINTS OR CONSTRUCTION JOINTS. SEE DETAIL.

FOOTING SCHEDULE			
PLAN MARK	FOOTING DIMENSIONS		REINFORCING
	LENGTH	WIDTH	
BF-36	3'-0"	3'-0"	12"

PIER SCHEDULE			
PLAN MARK	DIMENSIONS		REINFORCING
	LENGTH	WIDTH	
14" dia SONOTUBE BOLLARD FOOTING			14"
			#4 DOWEL HOOKED INTO FOOTING
			10"

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No.	Description	Date

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Burlington, VT 05401

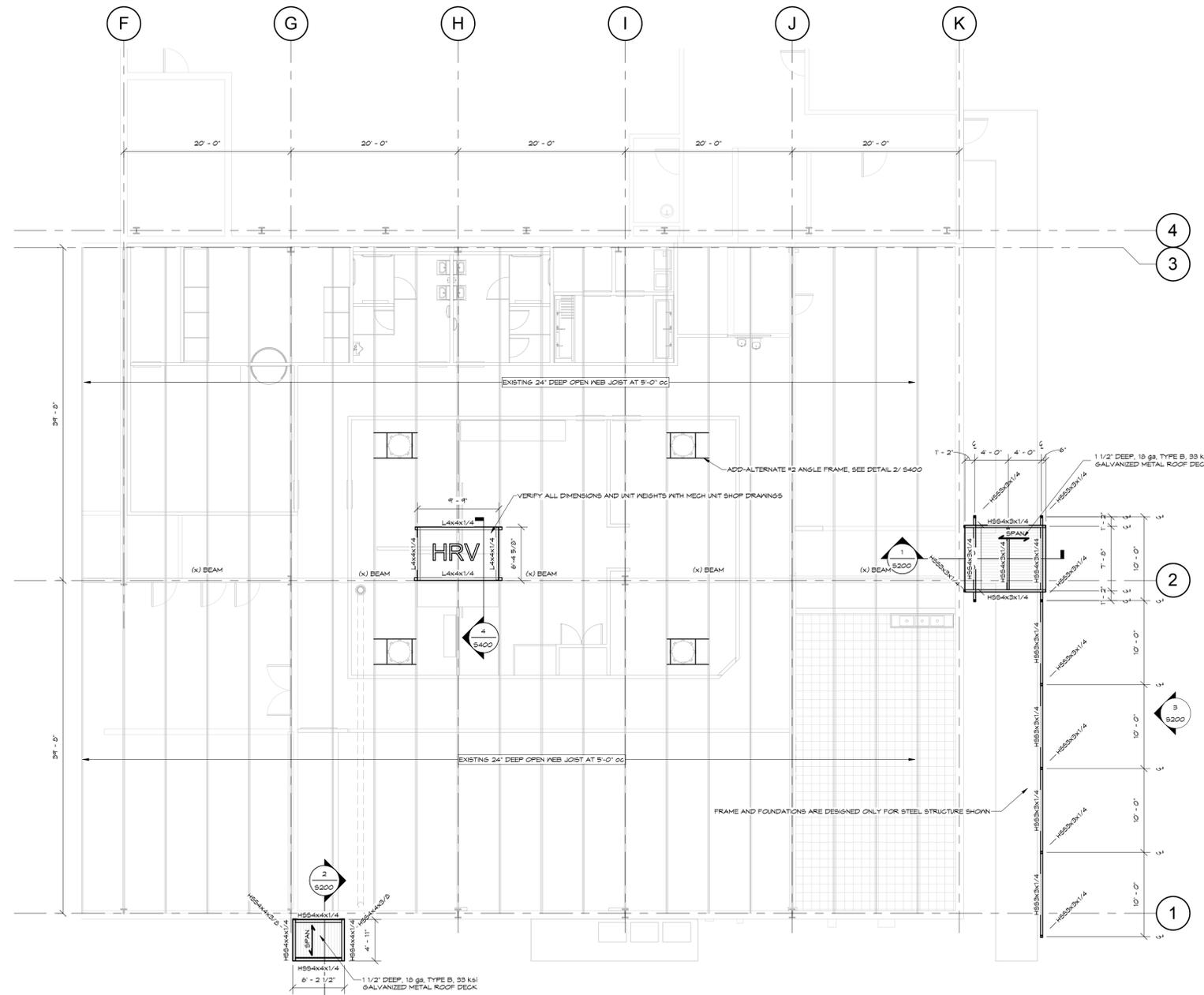
FOUNDATION PLAN

Project number : 16268
Date : 18 November 2016
Drawn by : Moore
Checked by : Higgins
Project Phase : BID SET - NOT FOR CONSTRUCTION

S100

Scale : 1/8" = 1'-0"

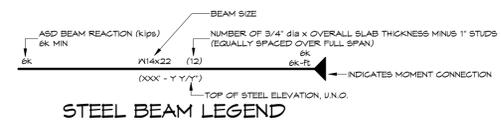
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ROOF FRAMING

SCALE: 1/8" = 1'-0"

- NOTES:
1. ALL WALLS, COLUMNS, AND HEADERS SHOWN ARE BELOW THIS FLOOR PLAN
2. MECHANICAL EQUIPMENT SUPPORTS AND OPENINGS TO BE COORDINATED WITH MECH UNIT SUBMITTALS.



BURLINGTON CITY ARTS

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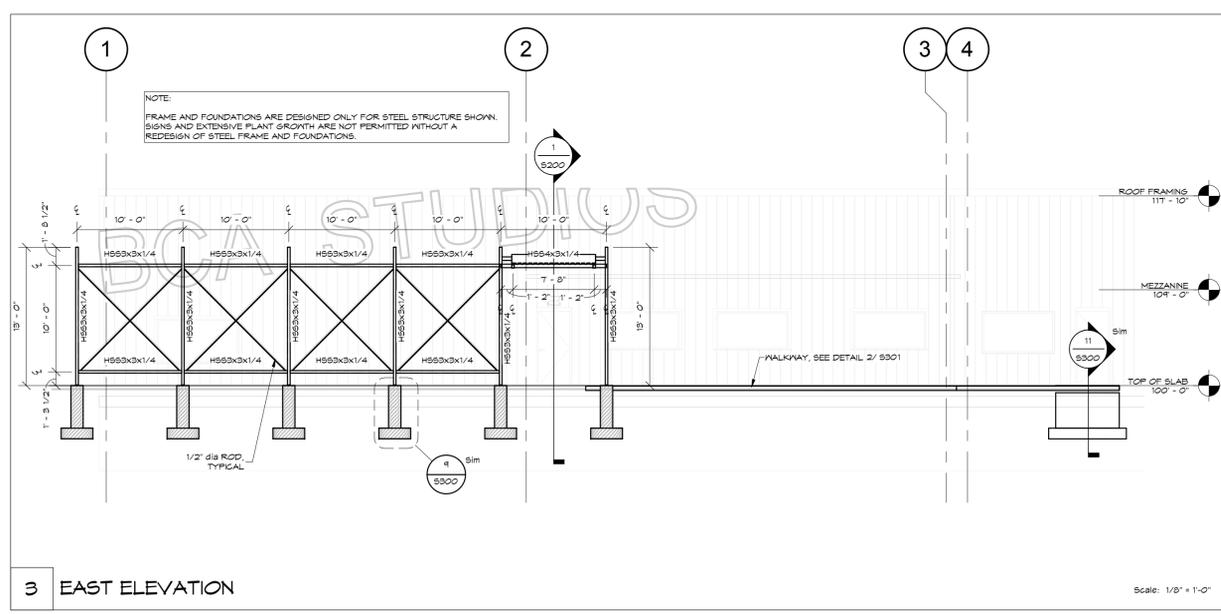
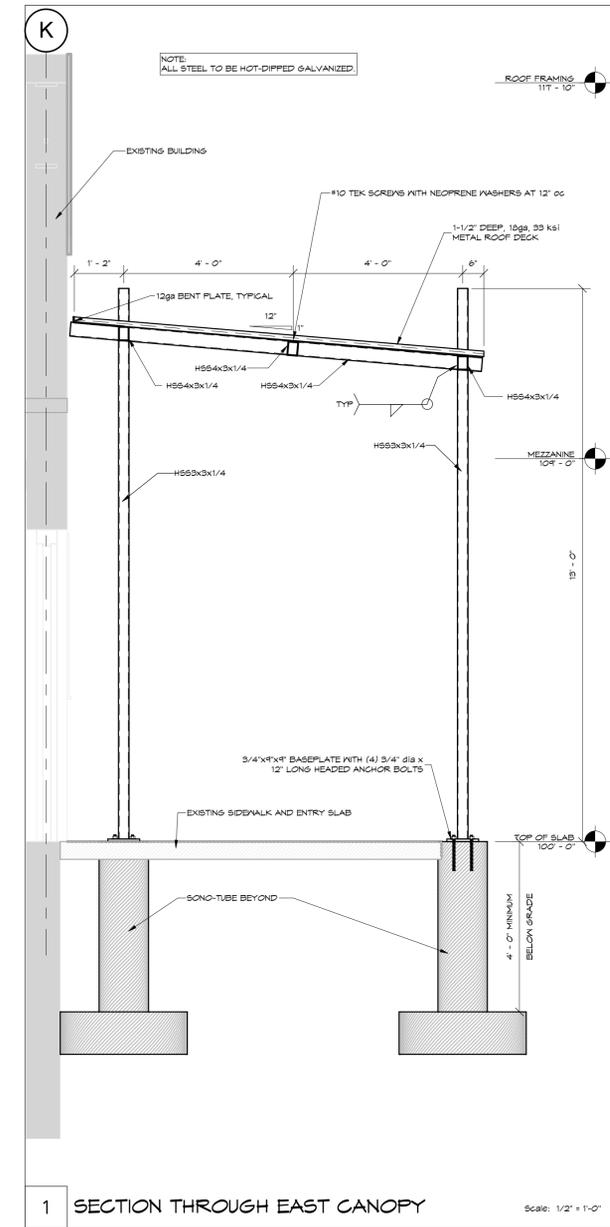
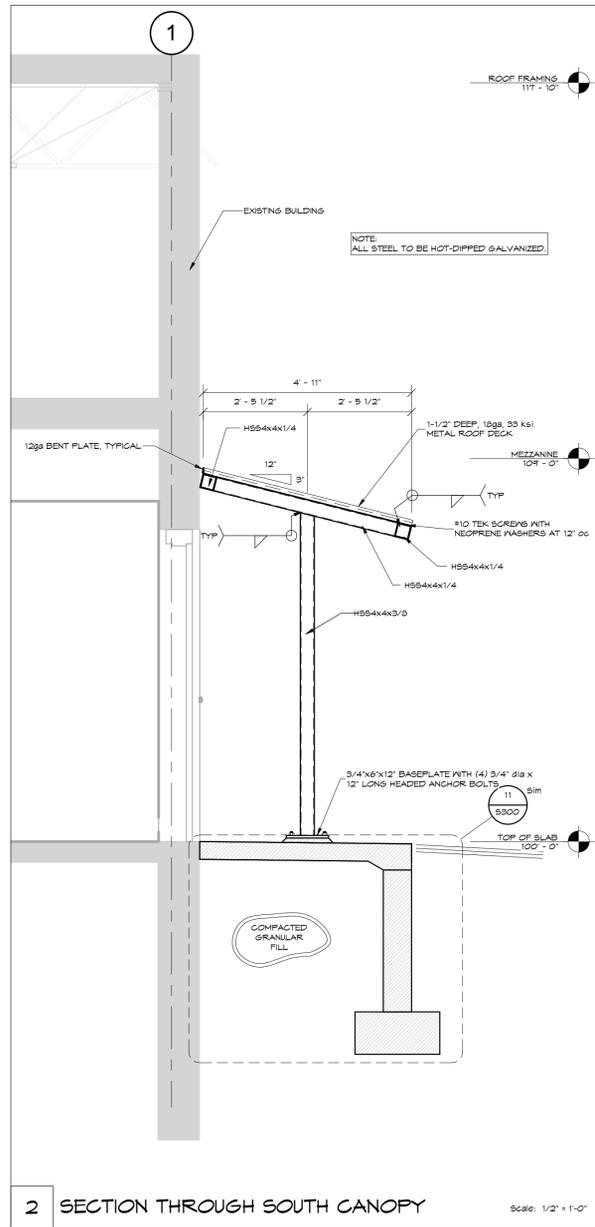
ROOF FRAMING PLAN

Project number :	16268
Date :	18 November 2016
Drawn by :	Moore
Checked by :	Higgins
Project Phase :	BID SET - NOT FOR CONSTRUCTION

S101

Scale: 1/8" = 1'-0"

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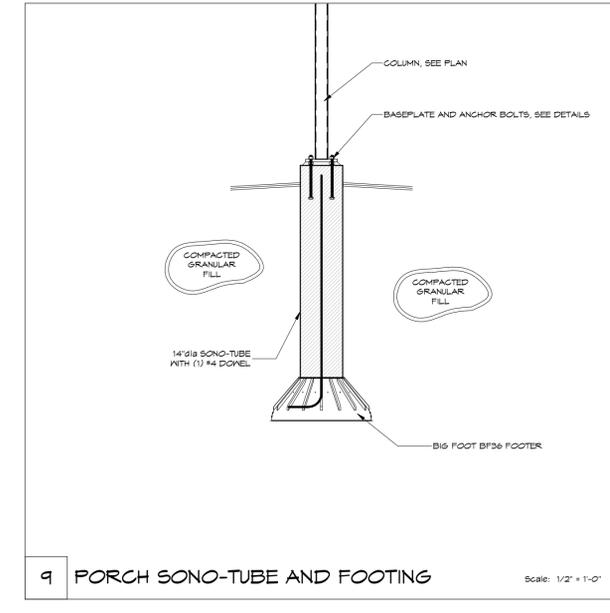
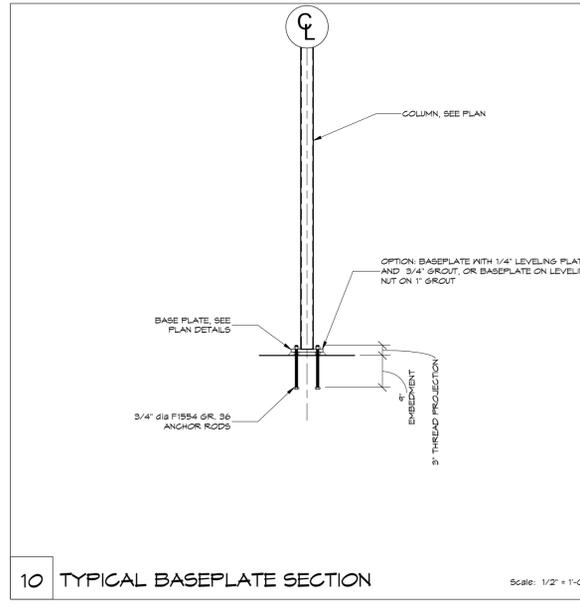
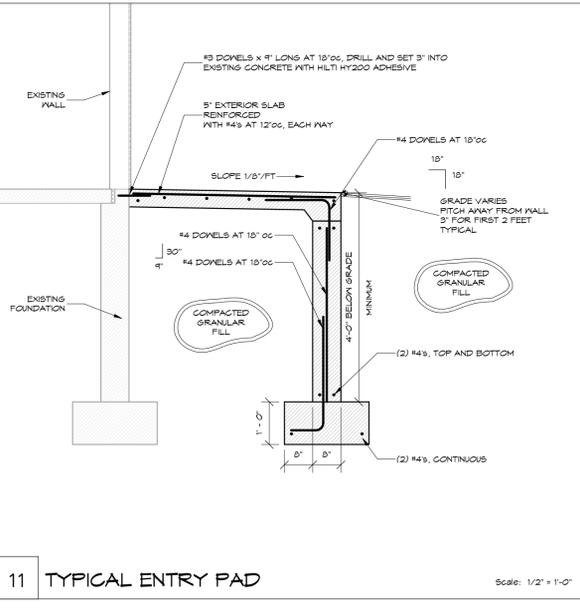
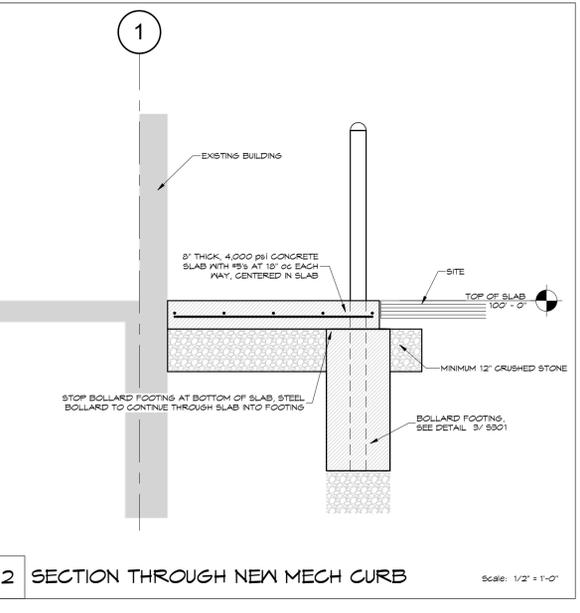
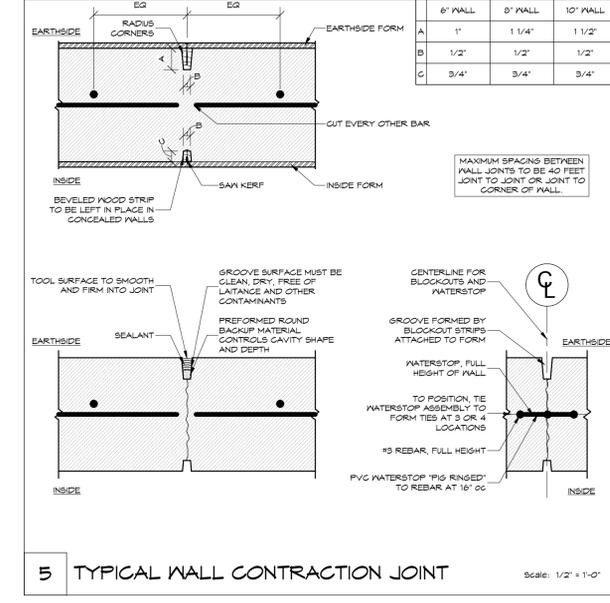
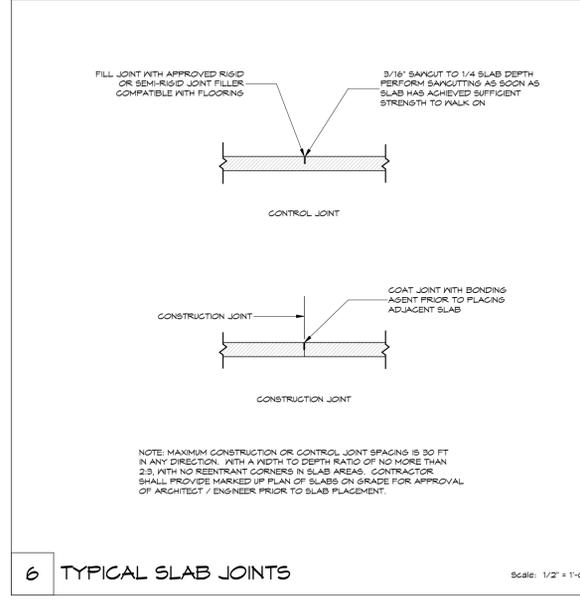
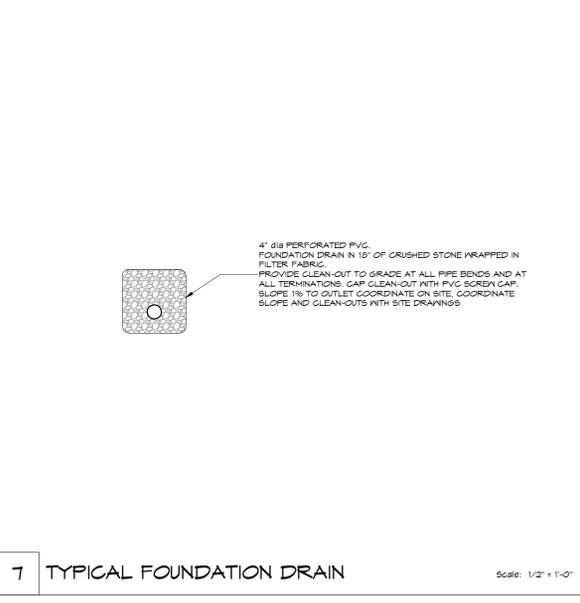
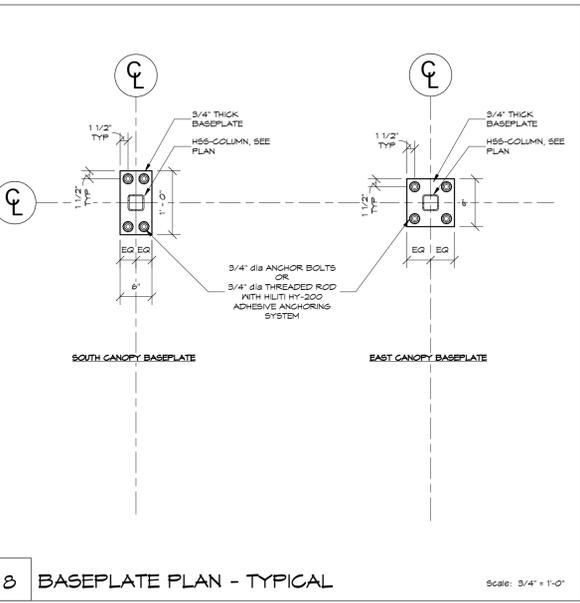
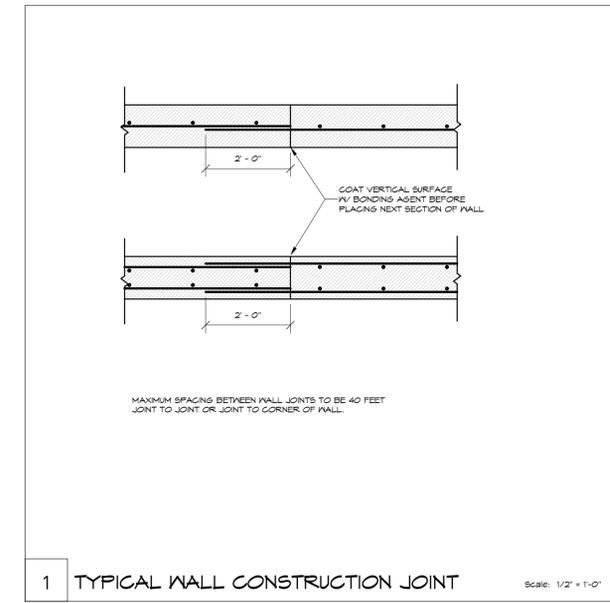
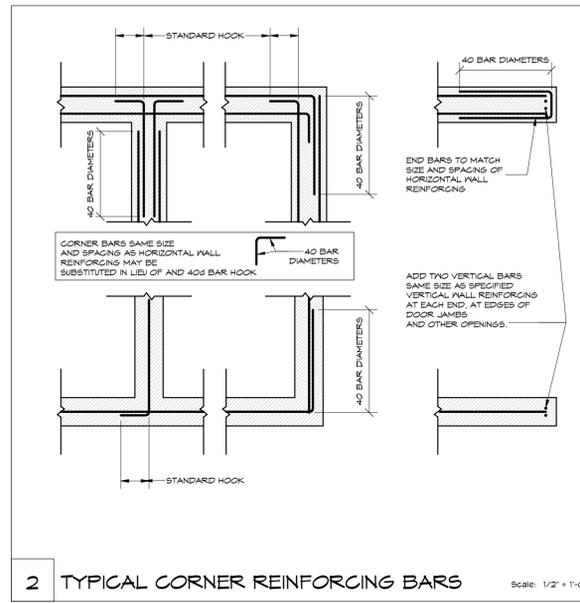
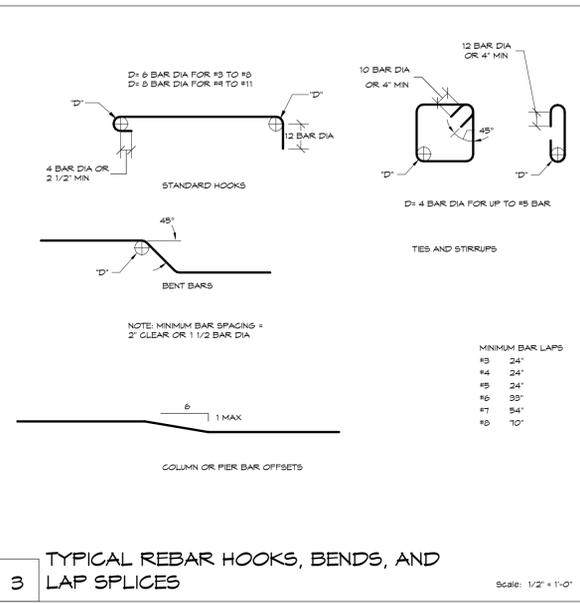
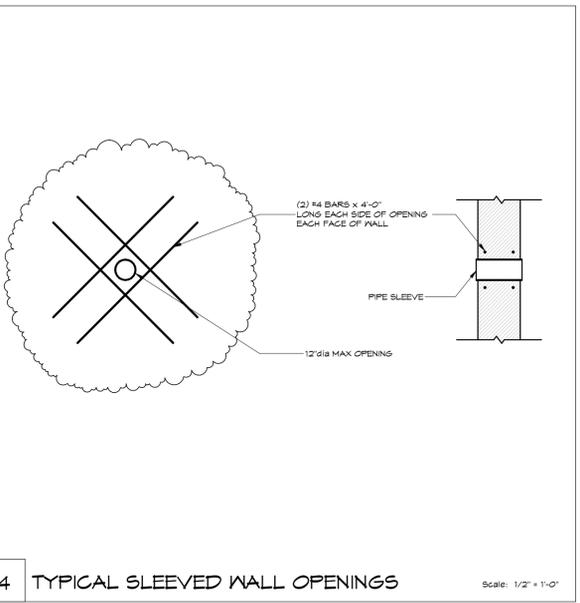
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BUILDING SECTIONS

Project number :	16268
Date :	18 November 2016
Drawn by :	Moore
Checked by :	Higgins
Project Phase :	BID SET - NOT FOR CONSTRUCTION

S200

Scale: As indicated



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BURLINGTON CITY ARTS

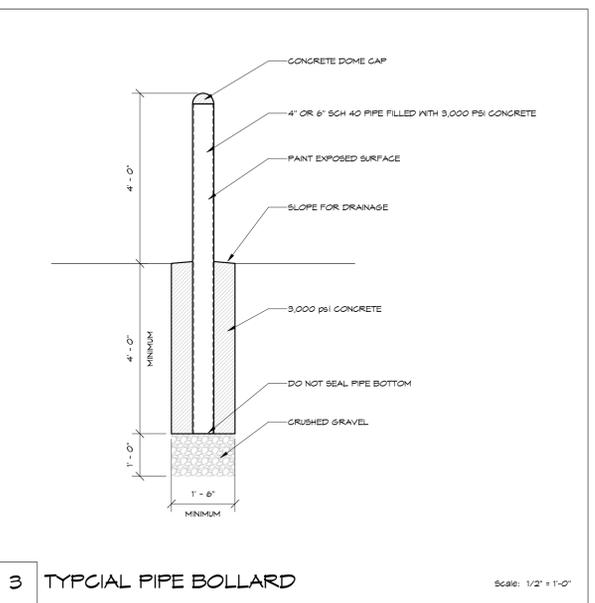
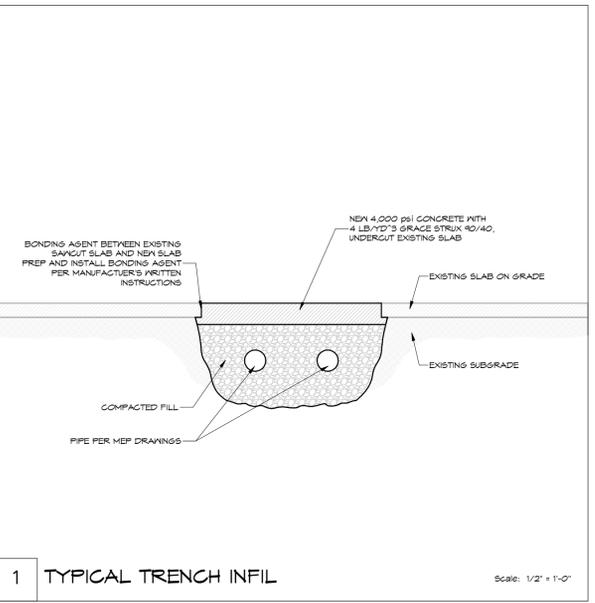
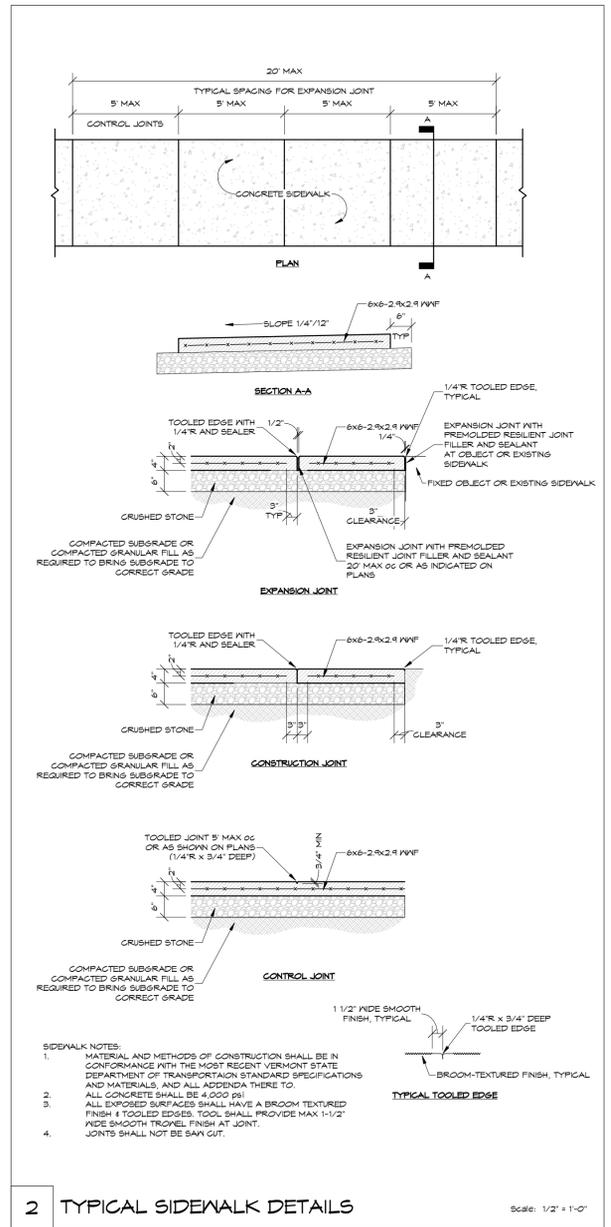
STUDIOS AT 405 PINE STREET
405 Pine Street
Burlington, VT 05401

FOUNDATION DETAILS

Project number :	16268
Date :	18 November 2016
Drawn by :	Moore
Checked by :	Higgins
Project Phase :	BID SET - NOT FOR CONSTRUCTION

S300

Scale: As indicated



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No.	Description	Date
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BURLINGTON CITY ARTS

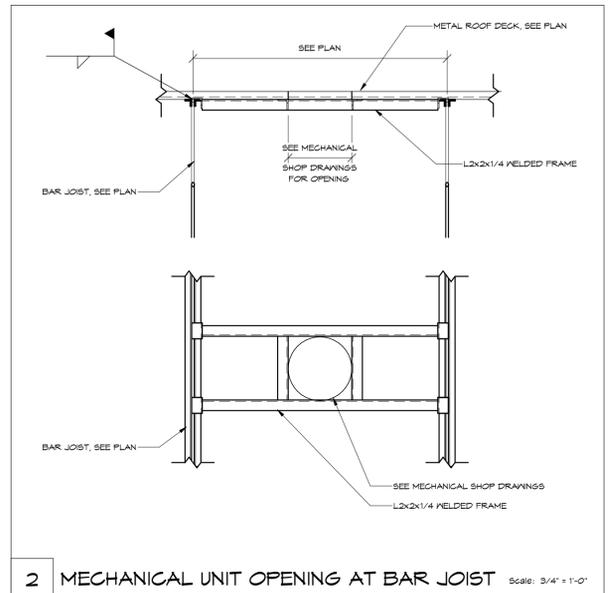
STUDIOS AT 405 PINE STREET
405 Pine Street
Burlington, VT 05401

FOUNDATION DETAILS

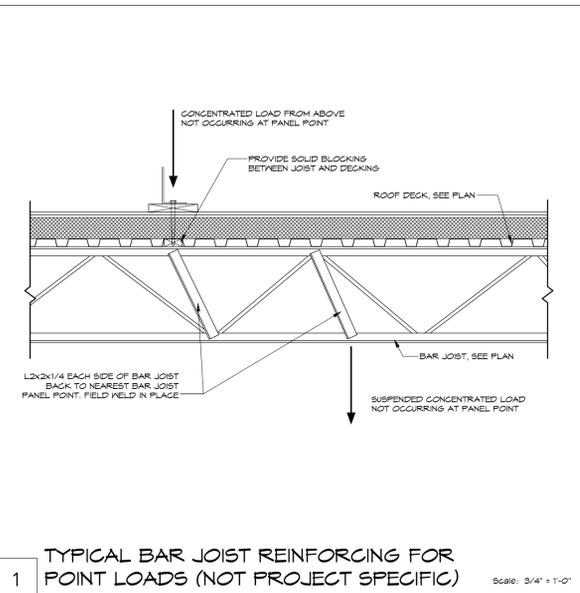
Project number :	16268
Date :	18 November 2016
Drawn by :	Moore
Checked by :	Higgins
Project Phase :	BID SET - NOT FOR CONSTRUCTION

S301

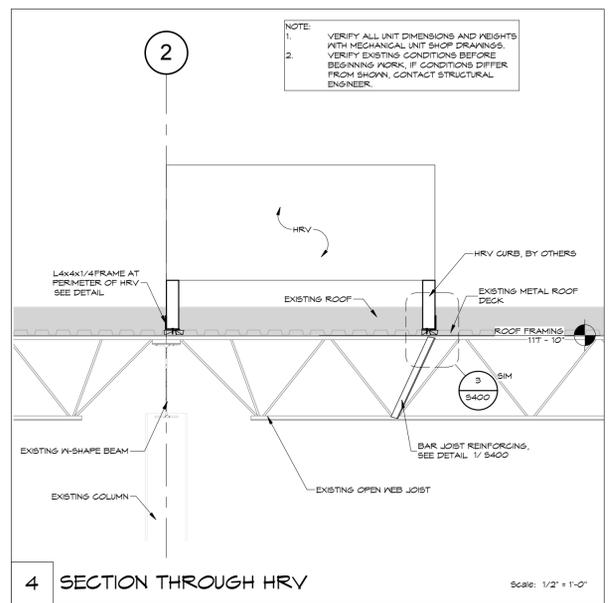
Scale: 1/2" = 1'-0"



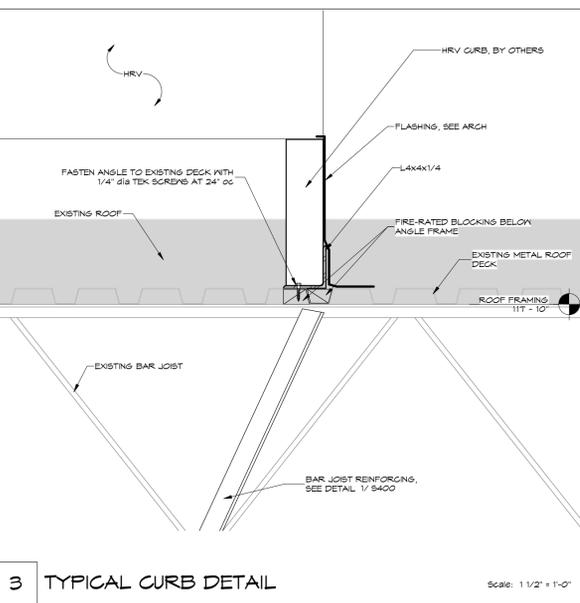
2 MECHANICAL UNIT OPENING AT BAR JOIST Scale: 3/4" = 1'-0"



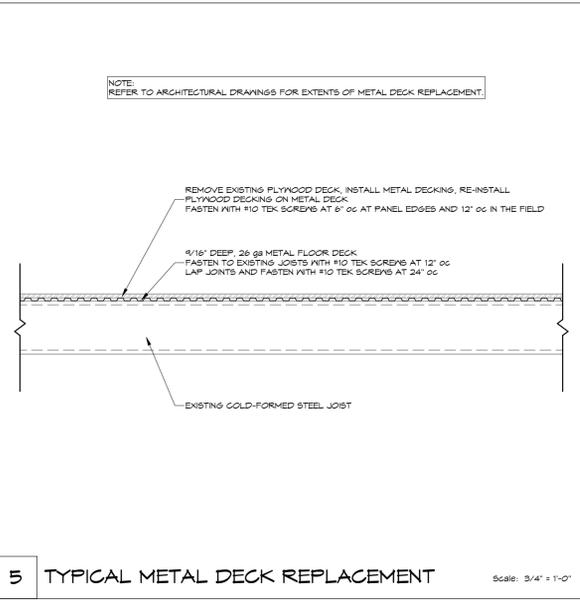
1 TYPICAL BAR JOIST REINFORCING FOR POINT LOADS (NOT PROJECT SPECIFIC) Scale: 3/4" = 1'-0"



4 SECTION THROUGH HRV Scale: 1/2" = 1'-0"



3 TYPICAL CURB DETAIL Scale: 1 1/2" = 1'-0"



5 TYPICAL METAL DECK REPLACEMENT Scale: 3/4" = 1'-0"

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BURLINGTON CITY ARTS

STUDIOS AT 405 PINE STREET
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Burlington, VT 05401

FRAMING DETAILS

Project number : 16268
Date : 18 November 2016
Drawn by : Moore
Checked by : Higgins
Project Phase : BID SET - NOT FOR CONSTRUCTION

S400

Scale : As indicated

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A

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NOTE:

1. TAKEOFFS SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND QUANTITIES.
3. TAKEOFFS DO NOT INCLUDE MISCELLANEOUS METALS, CONNECTIONS, AND DIAPHRAGM BRACING MEMBERS

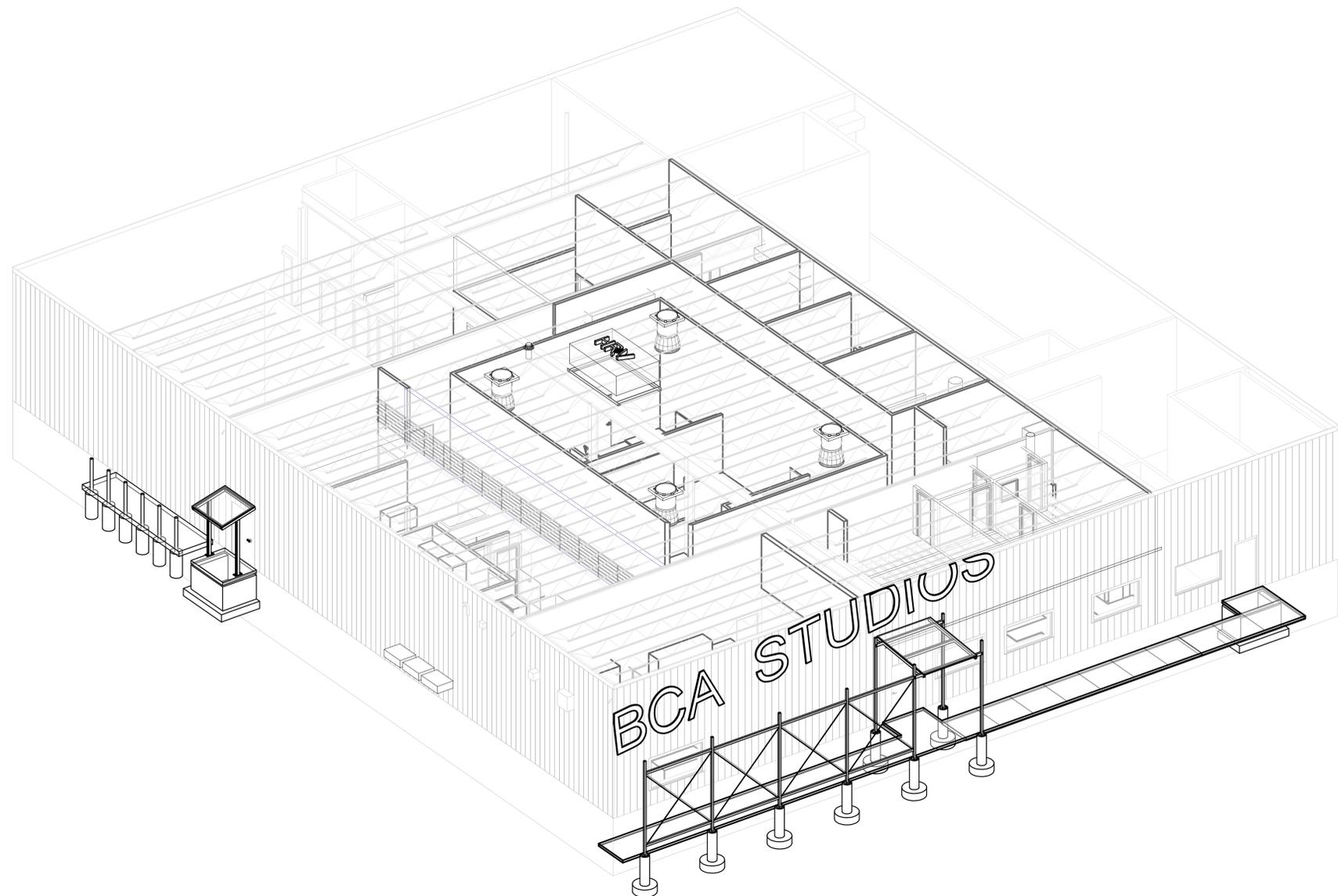
STRUCTURAL COLUMN TAKEOFF (ROUGH)				
SHAPE	# OF PIECES	TOTAL LENGTH	TOTAL WEIGHT (KIPS)	GRADE
4" STD PIPE	5	45' - 0"	0.5	Steel - ASTM A53
HSS3x3x1/4	5	103' - 0"	0.4	Steel ASTM A500, Grade B, 46 ksi
HSS4x4x3/8	2	15' - 11 13/256"	0.3	Steel ASTM A500, Grade B, 46 ksi
TOTALS:	12	163' - 5 13/256"	1.17	

STRUCTURAL STEEL FRAMING TAKEOFF (ROUGH)				
SIZE	# OF PIECES	LENGTH	TOTAL WEIGHT (KIPS)	GRADE
1/2" dia ROD	5	113' - 1 5/8"	0.0	Steel ASTM A36
HSS3x3x1/4	5	80' - 0"	0.1	Steel ASTM A500, Grade B, 46 ksi
HSS4x3x1/4	5	43' - 6 11/16"	0.3	Steel ASTM A500, Grade B, 46 ksi
HSS4x4x1/4	4	21' - 11 1/8"	0.3	Steel ASTM A500, Grade B, 46 ksi
L4x4x1/4	4	31' - 6 5/16"	0.2	Steel ASTM A36
TOTALS:	24	240' - 2 1/16"	1.6	

STRUCTURAL FOOTING TAKEOFF					
TYPE	COUNT	LENGTH	WIDTH	THICKNESS	VOLUME
Bearing Footing - 24" x 12"	5	2' - 0"	2' - 0"	1' - 0"	2.04 CY
BF-36	9	3' - 0"	3' - 0"	1' - 0"	2.09 CY
TOTALS:	14				4.13 CY

STRUCTURAL PIER TAKEOFF (ROUGH)			
SHAPE	# OF PIECES	TOTAL LENGTH	VOLUME
1/4" dia SONOTUBE	5	52' - 0"	1.21 CY
BOLLARD FOOTING	9	20' - 0"	1.31 CY
TOTALS:	14	52' - 0"	2.55 CY

STRUCTURAL DECKS AND SLABS (ROUGH)		
TYPE	AREA	VOLUME
1 1/2" DEEP, 10 ga. TYPE B, 33 ksi GALVANIZED METAL ROOF DECK	11 SF	4.60 CF
1 1/2" DEEP, 10 ga. TYPE B, 33 ksi GALVANIZED METAL ROOF DECK	31 SF	9.43 CF
8" THICK, 4,000 PSI CONCRETE, REINFORCED WITH W#6x6-2x2.4	33 SF	13.63 CF
8" THICK, 4,000 PSI CONCRETE, REINFORCED WITH W#6x6-2x2.4	175 SF	72.42 CF
8" THICK, 4,000 PSI CONCRETE, REINFORCED WITH W#6x6-2x2.4	23 SF	4.58 CF
8" THICK, 4,000 PSI CONCRETE, REINFORCED WITH W#6x6-2x2.4	11 SF	32.03 CF
8" CONCRETE MECHANICAL PAD	100 SF	66.67 CF
PLUMBING TRENCH INFILL	552 SF	278.55 CF



PRELIMINARY DRAWINGS NOTE:

1. THIS SET OF DRAWINGS IS PRODUCED TO INDICATE THE DESIGN DIRECTION AND EFFORT PERFORMED TO DATE. PRELIMINARY DESIGN CONCEPTS ARE OUTLINED, AND COMPLEXITIES ARE STILL BEING WORKED THROUGH WITH THE DESIGN TEAM. THE DRAWINGS ARE NOT FULLY DEVELOPED, AND ARE NOT "BID" QUALITY, EVEN IF THEY LOOK COMPLETE "ENOUGH".
2. COORDINATION MEETINGS AND REVIEWS WITH ARCHITECT, MEP, AND SITE ENGINEERS HAVE NOT BEEN COMPLETED.
3. PRELIMINARY LATERAL CONCEPTS MAY BE SHOWN (SHEAR WALLS, CONCRETE OR MASONRY SHAFTS, BRACED FRAMES AND MOMENT FRAMES), BUT ARE NOT FULLY DEVELOPED.
4. PRELIMINARY FOUNDATIONS MAY BE SHOWN BUT ARE NOT FULLY DEVELOPED. TOP OF FOUNDATION WALLS MAY BE SHOWN SQUARE AND FLAT, THEY MAY NOT BE IN THE FINAL DESIGN AFTER COORDINATING ARCHITECTURAL INTENT. TYPICAL SECTIONS MAY BE INCLUDED, THAT ARE NOT INTENDED TO BE REPRESENTATIVE OF THIS BUILDING.
5. PRICING THESE DOCUMENTS IS NOT RECOMMENDED, COMMITTING TO A BID FROM THESE DOCUMENTS IS HIGHLY DISCOURAGED.
6. GENERAL CONTRACTORS AND OWNERS REVIEWING THESE DOCUMENTS, SHOULD DEVELOP QUESTIONS, REQUEST CLARIFICATIONS TO INTENT, AND PURSUE FAMILIARITY WITH THE STRUCTURAL DESIGN TO REFINER THEIR "BUDGET" PRICING. APPROPRIATE CONTINGENCIES MUST BE CARRIED BY ANYONE DEVELOPING A STRUCTURAL BUDGET FOR THIS SET OF DOCUMENTS.

BY NO MEANS IS THIS SET INTENDED TO BE A "BID" DOCUMENT.

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