

October 30, 2024

Invitation for Bid for Food Service Equipment

Papillion La Vista Community Schools requests bid prices for food service equipment item, including removal and disposal of existing units and installation of the new units, as described in the attached specifications. Call Julie Denker, Director of Food Service, at 402-537-6250 if you have questions about this request.

All deliveries are to be F.O.B. to the Papillion La Vista South High School, 10799 Hwy 370, Papillion, NE 68046. If any special conditions affect your bid, these conditions must be stated at the time of submission of your bid on the Price Request Form.

Hand deliver sealed bid marked '**Food Service Equipment Bid**' to Julie Denker, Director of Food Service, Papillion La Vista Community Schools, 420 S. Washington Street, Papillion, NE 68046 on or before November 12, 2024, at 1:30 p.m. which time an opening will be held in the Administrative Office Conference Room.

On behalf of Papillion La Vista Community Schools, I thank you for your consideration of this bid invitation.

Sincerely,



Julie Denker
Director of Food Service

**Papillion La Vista Community Schools
Food Service Equipment Bid Conditions**

1. COMPLETION OF PRICE REQUEST FORM FOR FOOD SERVICE EQUIPMENT

Vendors must complete the attached Price Request Form and Signature Page, specifying the price for the total project, including the following:

- a. Disassembly and removal of (2) existing Alto Shaam combi ovens, (2) existing three compartment Market Forge pressure steamer/boilers, (1) 2-section pass-thru hot cabinet, and (1) – 1-section pass-thru hot cabinet.
- b. Delivery, uncrating, setting in place and installation of (2) Roll-in Combination Oven/Steamer with Water Treatment System. See Roll-in Combination Oven/Steamer Specifications.
- c. Delivery, uncrating, setting in place and installation of (1) Reach-in Combination Oven/Steamer with Water Treatment System. See Reach-in Combination Oven/Steamer Specifications.
- d. Delivery, uncrating, setting in place and installation of (2) Three Compartment Pressure Steamer/Boiler with Cabinet Base and Water Treatment System. See Three Compartment Pressure Steamer/Boiler with Cabinet Base Specifications.
- e. Delivery, uncrating, setting in place and installation of (1) 2-Section Pass-thru Hot Cabinet. See 2-Section Pass-thru Hot Cabinet Specifications.
- f. Delivery, uncrating, setting in place and installation of (1) 1-Section Pass-thru Hot Cabinet. See 1-Section Pass-thru Hot Cabinet Specifications.

Hand deliver Bid Packet containing the following items to Julie Denker, Director of Food Service, Papillion La Vista Community Schools, 420 S. Washington St. Papillion, NE 68046 by November 12, 2024, at 1:30 p.m.

- a. Invitation to Bid Signature Page
- b. Price Request Form and Signature Page
- c. Debarment Certification
- d. Certification Regarding Lobbying

2. BID AWARD

Bid will be awarded to the vendor offering the lowest total price for ALL the food service equipment requested with removal of existing equipment, delivery, uncrating, and installation per Section 1. In the event of that two or more vendors submit the same total price; a random drawing will be conducted to determine the award of the bid.

3. BIDDING EQUAL OR ALTERNATE BRANDS

A specific brand and item number has been specified for items in the bid invitation. No alternate brands will be accepted.

4. DELIVERY INFORMATION

Prices must include shipment to the following location within the timelines outlined below unless otherwise specified in the Price Request Form.

LOCATION

Papillion La Vista South High School
10799 Hwy 370
Papillion, NE 68046

DATE/TIME

TBD (Before end of 2024)

5. DELIVERY SCHEDULE

The notice of bid award and purchase order for all equipment will be placed immediately following bid opening and completed analysis. Delivery and installation schedule for items will be coordinated with the Director of Food Service.

6. DELIVERY CONDITION OF EQUIPMENT

Vendors agree to comply with all local and state standards of sanitation in their operations. All items are to be delivered in clean, pest-free vehicles. The district reserves the right to refuse items which are damaged in any way.

7. SUBSTITUTIONS

The School District will not accept product substitutions on delivery after the bid has been awarded. Unauthorized substitutions may be grounds for termination of the contract and may jeopardize any future business with the School District.

8. INVOICES

An invoice must be furnished with delivery and must be signed by a designated employee of the Papillion La Vista Community Schools.

9. PRICING ERRORS

It is the responsibility of the vendor to make sure that invoice pricing is consistent with bid pricing. The School District reserves the right to pay invoices with pricing errors short in accordance with bid pricing or to hold invoices for payment until a written credit memo is received. All credit memos should be mailed to the attention of the Director of Food Service, Papillion La Vista Community Schools, 420 South Washington, Papillion, NE 68046. Sending credit memos directly to schools will delay payment of invoices to which they relate.

10. PAYMENT

Payment is made from invoices for items received by the 25th of a calendar month following approval from the Papillion La Vista Community Schools Board of Education which is usually by the 15th of the following month.

11. FUEL SURCHARGE ALLOWANCES

All fuel surcharge proposals must be submitted by vendors with their bid. Proposals must outline specific rates and detail how they will be charged. Fuel surcharges not submitted and approved at the time of the bid will not be paid by the district.

GENERAL BID CONDITIONS

SUBMISSION OF BIDS

Bids must be submitted in a sealed envelope, with the bid name and due date noted on the lower left-hand corner of the envelope. Bids that arrive late will not be accepted. It is the vendor's responsibility to ensure that bids are received prior to the bid opening.

TAX EXEMPT STATUS

The Papillion La Vista School District is a tax-exempt organization (05-0601969). Vendors are not to include any local or state sales taxes in their bid prices.

FEDERAL EXCISE TAX

Papillion La Vista Community Schools, a governmental subdivision, is exempt from the payment of Federal excise tax. Bidders should exclude excise tax on all taxable items in their bid submissions. A Federal Excise Tax Certificate will be furnished for all taxable items. Please indicate on your bid the items requiring the exemption certificate.

BUY AMERICAN PROVISION

Food service equipment, paper products and packaging are excluded from this provision.

DEBARMENT CERTIFICATION-COMPLETION OF DOCUMENT REQUIRED

Vendors must submit a completed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions form with their bid. Refer to form included with instructions.

CERTIFICATION REGARDING LOBBYING-COMPLETION OF DOCUMENT REQUIRED

Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Refer to the form included.

EQUAL OPPORTUNITY

Papillion La Vista Community Schools is an equal opportunity employer and actively recruits a well-qualified and diverse staff including minority applicants and does not discriminate against any employee or applicant for employment, and/or any contractor or subcontractor by reason of race, color, national origin, sex (including gender identity and sexual orientation), disability, age, or reprisal or retaliation for prior civil rights activity in any program or activity conducted or funded by USDA. Vendor agrees, by signing this Proposal, to actively continue and implement this policy throughout any awarded project or contract.

CIVIL RIGHTS

The successful bidder agrees to comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352) and all requirements imposed by or pursuant to the Regulations of the Department of Education (34 C.F.R. Part 100) issued pursuant to the title, to the end that, in accordance with Title VI of that Act and Regulation, no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which Papillion La Vista Community Schools receives federal financial assistance from the department; and hereby gives assurance that the successful bidder will take any measures necessary to effectuate this agreement. The successful bidder further agrees to comply with all applicable requirements of state and local laws, ordinances, and regulations regarding nondiscrimination in employment.

CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS

As required by 2 C.F.R. 200.321, it is the intent of Papillion La Vista Community Schools to provide the maximum practical opportunities in its solicitations to small businesses, minority firms, women's enterprises, and labor surplus area firms.

LAWS AND REGULATIONS

The selected Vendor and all employees, agents or independent contractors shall be at all times be fully licensed and authorized under all state and federal law to provide the contracted products/services and shall all at all times comply with rules and regulations when providing contracted products/services. The selected Vendor shall also comply with all Papillion La Vista Community Schools policies, rules, regulations, practices, directives, and procedures applicable to any of the contracted products/services.

EXCLUSION OF PERSONS WITH CRIMINAL RECORDS

Papillion La Vista Community Schools requires that firms agree to not assign any individual or agent to any work on an awarded project, requiring work on a PLCS school site, with a criminal record of a serious nature as defined by PLCS policy, regulations, practices or directives, including but not limited to any of the following: (a) a felony; (b) rape, including statutory rape, or any other sexual assault; (c) sexual conduct with a minor of any kind; (d) abuse of a minor or child of any kind; (e) endangerment of a child or debauching a minor; (f) public indecency; (g) prostitution, pandering, or keeping a place of prostitution; (h) assault or battery; (i) kidnapping, false imprisonment or abduction; (j) child pornography; or (k) any offense in which a minor was a victim or a witness.

The Vendor shall certify that it shall not assign any individual or agent to work on any PLCS property with a criminal record of a serious nature as defined by PLCS policy, regulations, practices, or directives. Vendor authorizes and gives consent and agrees to cooperate in obtaining any additional authorization or consent necessary to assure compliance with this requirement; to actively continue and implement this policy throughout the contract period and to require implementation of this policy by any subcontractors and/or agents involved by the Vendor in the performance of the contract. Vendor authorizes and gives consent and agrees to cooperate in obtaining any additional background check authorization or consent necessary to assure compliance with this requirement.

ASSURANCE OF NON-COLLUSION

The bidder's submission of its bid response is the bidder's representation and guarantee to the Papillion La Vista School District that the prices quoted have been arrived at without collusion with any other eligible bidders and without an attempt to preclude Papillion La Vista School District from obtaining the lowest possible competitive price, influencing the prices quoted by any other eligible bidder or discouraging other potential bidders from bidding.

ASSIGNMENT OF CONTRACT

Successful bidder shall not assign the contract to another vendor without prior consent of the School District.

SUBCONTRACTING

If the vendor intends to subcontract any part of the contract or services, it is the vendor's responsibility to supervise the subcontractor's performance and to ensure that the subcontractor meets all bid requirements. Failure to do so may result in termination of the bid.

FAILURE TO PERFORM

In the event the successful bidder fails to perform in good faith or in accordance with the terms and conditions of this bid, the bid shall be terminated, and the School District may award the bid to another vendor.

OWNER'S RIGHTS

The School District reserves the right to accept or reject any or all bids and any part thereof and to waive all technicalities. Awards will be made in the best interest of the district.

Papillion La Vista Community Schools
Invitation to Bid Signature Page

Title of Bid: Food Service Equipment

Time and Date Due: 1:30 p.m. on November 12, 2024

Hand deliver sealed Bid Packet containing the following items to: Julie Denker, Director of Food Service, Papillion La Vista Community Schools, 420 S. Washington St, Papillion, NE 68046

1. Invitation to Bid Signature Page
2. Price Request Form for Food Service Equipment
3. Debarment Certification
4. Certification Regarding Lobbying

Submitted By:

Company Name

Address

Printed Name

Signature

Phone Number

E-mail address

Fax Number

**PAPILLION LA VISTA COMMUNITY SCHOOLS
FOOD SERVICE EQUIPMENT
PRICE REQUEST FORM**

We propose to remove all existing food service equipment as specified in the Bid Conditions at Papillion La Vista South High School and install all new Food Service Equipment, including all connections, in accordance with all conditions, terms and specifications, except for noted exceptions, as outlined in this Request for Pricing. Please see additional drawings and specifications for all equipment requested below.

EQUIPMENT	BRAND	MODEL	QTY
Roll-in Combination Oven/Steamer	Rational	iCombi Pro 20-full size G	2
Water Filtration Products	Rational	R295-CLX	2
Mobile Oven Rack	Rational	20-2/1 – Standard, 20 racks	4
Reach-in Combination Oven/Steamer	Rational	iCombi Pro 10-full size E	1
Water Filtration Products	Rational	R195-CLX	1
Gas Steam Compartment Cooker with Cabinet Base	Crown	GC-3	2
Two Section Full Stainless Pass-Thru Heated Cabinet	Hoshizaki	HC2A-HGE-HS	1
One Section Stainless Pass-Thru Heated Cabinet	Hoshizaki	HC1A-HGE-HS	1

Total Cost of Project _____

Company Name _____

Address: _____

Phone: _____ Email: _____

Name (Please Print) _____

Signature: _____

Title: _____ Date: _____

Statement of Reservation or Qualification:

**Certification Regarding Debarment, Suspension, Ineligibility
And Voluntary Exclusion – Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7CFR Part 3017, Section 3017.510, Participant's responsibilities. The regulations were published as Part IV of the January 30, 1989, Federal Register (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency with which this transaction originated.

**(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS
ON THE FOLLOWING PAGE)**

- (1) The prospective lower tier participation certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall each attach an explanation to this proposal.

Company Name

Name and Title of Authorized Company Representative

Signature

Date

Instructions for Debarment Certification

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on the reverse side in accordance with these instructions.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions,” without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

CERTIFICATION REGARDING LOBBYING

The undersigned, on behalf of the Vendor, certifies to the best of his or her knowledge and belief that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Vendor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Proposer shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The Vendor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Date: _____

Vendor: _____

Signature: _____

Title: _____

Name: _____

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SECTION 11 40 00
FOODSERVICE EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Foodservice Equipment indicated on the Drawings and specified herein.

1.2 RELATED REQUIREMENTS

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

1.3 SUMMARY

- A. Foodservice Equipment Contractor to coordinate the installation dates/times of the new foodservice equipment with Papillion La Vista Community Schools, to prevent conflicts during School operation.
- B. Existing foodservice equipment to be reused and remain:
1. Items 8 through 12 shall remain in existing kitchen, as shown on Sheet FS2.
- C. Existing foodservice equipment to be removed and disposed of by the Foodservice Equipment Contractor:
1. Alto-Shaam Roll-in Combination Oven/Steamers: two units
 - a. Including Water Treatment System(s)
 2. Market Forge Three Compartment Steamer/Boilers: two units
 - a. Including Water Treatment System(s)
 3. Hobart 2-Section Pass-thru Hot Cabinet: one unit
 4. Hobart 1-Section Pass-thru Hot Cabinet: one unit
- D. Work by Others:
1. Existing foodservice equipment to be removed and disposed of by Foodservice Equipment Contractor (as noted on Sheet FS1), shall be disconnected and new foodservice equipment to be connected under Divisions 22 and 26.
 2. Plumbing materials, including traps, grease traps, steam traps, stops, and shutoffs, shall be furnished under Division 22.
 3. Gas pressure regulator for gas supply at cooking exhaust hood shall be furnished under Division 22.
 4. Electrical devices, including switches, current protection devices, circuit disconnects, motor starters and fittings shall be furnished under Division 26, unless specified otherwise herein.
 5. Roughing-in and connecting, including material and labor for roughing-in to points shown on Mechanical and Electrical Drawings and final connections from rough-in points to equipment items, shall be furnished under Divisions 22, 23 and 26, unless specified otherwise herein.

1.4 REFERENCE STANDARDS

- A. NSF International. Construct equipment in compliance with the standards of the NSF International and in full compliance with applicable Public Health Regulations. Each piece of equipment shall have the "seal of approval" label of the NSF International.
- B. Regulations and standards. Construct equipment in compliance with the following applicable codes, regulations, and standards. In case of conflict between the following standards, the most stringent requirements shall govern:
 - 1. American National Standards Institute (ANSI)
 - 2. American Society of Mechanical Engineers (ASME)
 - 3. American Society for Testing and Materials (ASTM)
 - 4. National Electrical Manufacturers Association (NEMA)
 - 5. National Fire Protection Association (NFPA)
- C. NFPA 70 - National Electrical Code.
- D. UL (DIR) - Online Certifications Directory.

1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Submit shop drawings to the Engineer, within 5 days after award of Contract, in accord with the General Conditions and General Requirements.
 - 1. Shop drawings include plans, elevations, and sections drawn at a minimum scale of 3/4 inch and 1-1/2 inches equal to 1 foot respectively.
 - 2. Shop drawings shall show complete details of each item of fabricated equipment; locations, heights, sizes, and capacities of mechanical and electrical rough-ins; special wall openings required where items of equipment extend through walls, concrete base, and quarry tile base.
- C. Equipment Booklet:
 - 1. Submit to the Engineer, within 5 days after award of Contract, electronic files of product data accompanied by a typewritten sheet listing item number, item description, quantity, manufacturer's name, model number, accessories, and pertinent notes relative to the item being furnished.
- D. Closeout documents:
 - 1. Submit to the Engineer three sets of dimensional prints, maintenance manuals, operating instructions, replacement parts, lists, serial numbers, and warranty and registry cards for each applicable item of equipment. Label and bind in hardback binder.

1.6 QUALITY ASSURANCE

- A. Qualifications of Fabricators:
 - 1. Fabricated equipment, such as food serving units, tables, sinks, countertops, etc., described in the following specifications other than by name and catalog

numbers, shall be manufactured by an equipment fabricator who has the plant, personnel, and engineering facilities to properly design, detail, and manufacture high quality foodservice equipment. The fabricator is subject to the approval of the Architect-Engineer.

2. All work in the above category shall be manufactured by one manufacturer, and shall be of standard unit assembly and uniform design and finish.
3. For the past ten years, the fabricator of this equipment shall be engaged in the manufacture or distribution of equipment, as required under the Contract, as his principal product.

B. Qualifications of Installers:

1. A competent foreman or supervisor and qualified workmen shall be provided for installation of equipment and to counsel with other trades in regard to installation and connections.

C. Copies of Documents at Project Site:

1. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Store and protect equipment, when delivered, in a dry and ventilated space to prevent corrosion or other damage.
- B. Store materials a minimum of 6 inches above floor on blocking adequate to prevent warpage to equipment.

1.8 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Unless stated otherwise herein, all warranties shall be for the duration stated by equipment manufacturer (including parts and labor) from the date of start-up and acceptance by the Owner.
- C. Fill out all warranty forms and enclose copies in operations manuals.

1.9 SUBSTITUTIONS

- A. All unspecified products will not be considered/accepted.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Fabricated equipment, such as trim strips and pipe chases, etc. described in the following specifications other than by manufacturer and model, shall be manufactured by one of the following fabricators:
 1. Nichols Custom Stainless Mfg. Kansas City, MO (816/413-0616)

2. Russco Custom Fabrications Inc. Kansas City, MO (816/241-8787)
www.russcofab.com

2.2 MATERIALS AND GAUGES FOR FABRICATED ITEMS

- A. Stainless Steel:
1. Type 304 stainless steel having a standard analysis of 18 percent chrome and 8 percent nickel.
 2. Exposed surfaces shall have a No. 4 or No. 180 grit finish.
 3. Where manufacturing process and welding disturb the original finish, carefully regrind stainless steel, polish, and restore to match balance of surface.
- B. Stainless Steel Gauges:
1. 18 gauge: Trim strips/angles and pipe chases

2.3 PLUMBING DEVICES

- A. Faucets, valves, fittings, temperature regulators, and similar items shall be furnished and installed on equipment by the Foodservice Equipment Contractor as specified in the Itemized Specifications, ready for final connections by the Mechanical Contractor.
- B. Gas pressure regulators shall be furnished by the Foodservice Equipment Contractor for gas appliances, as specified herein.

2.4 ELECTRICAL EQUIPMENT AND DEVICES

- A. Receptacles, switches, starters, and controls in fabricated equipment items shall be factory installed and of the proper type in accordance with the National Electrical Code.
1. All devices shall be listed or recognized by Underwriters' Laboratories, Inc.
 2. Set controls, that are mounted on vertical surfaces of fabricated fixtures, into recessed die-stamped stainless steel cups or otherwise indent to prevent damage.
- B. Internal wiring for fabricated equipment items shall be factory installed, with all items wired complete to a junction box within the fixture, or to devices as specified in the preceding paragraph, ready for final connections by the Electrical Contractor to building lines.
1. Protect internal wiring in metal enclosures which meet the requirements of National Electrical Code.
 2. All receptacles shall be grounded type, listed by Underwriters' Laboratories and approved for use by the National Electrical Code.

2.5 GENERAL REQUIREMENTS FOR FABRICATED EQUIPMENT

- A. Welding:
1. Welded parts shall be nonporous, free of imperfections, pits, cracks, or discoloration.
 2. Welds of galvanized metal shall be ground smooth, sandblasted, and sprayed with molten zinc at 1,200°F to a thickness of .004 inch.
 3. Thinning of welds is not acceptable.

4. Grind and polish welds of stainless steel to the original finish.
- B. Field Joints:
1. Locate field joints for practical construction consistent with sizes convenient for shipping and accessibility into the building.
 2. Carefully shear field joints in tops so they are tightly butted and fully welded on the job, with welds ground and polished smooth, to match the balance of equipment.
- C. Pipe Chases:
1. Enclosed cabinets to conceal supply and waste piping in suitable pipe chases below ceiling.
 2. Enclosed pipeAccess panels held in place with stainless steel screws.

2.6 ITEMIZED SPECIFICATIONS

- A. ITEM 1 ROLL-IN COMBINATION OVEN / STEAMER (TWO REQUIRED)
1. Rational iCombi Pro 20-Full Size NG with iCareSystem
 2. Programmable Controls: 1,200 menu items
 3. HACCP Data Memory: output via integral USB interface
 4. USB Memory Stick: 42.00.162, one per oven
 5. Automatic Cleaning System
 6. Mobile Oven Racks: 60.22.490, one standard and one extra per oven (see Item 2 below)
 7. Stainless Steel Grid Shelves: 6010.2101, ten (twenty total including free racks) per rack, for 18 x 26 pans
 8. CombiFry Baskets: 6019.1150, ten per oven, 12 x 20
 9. Core Temperature Probe
 10. Triple Glass Door: hinged inside pane for easy cleaning
 11. Hand Shower with Retractable Hose: switchable spray / jet function
 12. LED Lighting
 13. Floor Fixing Set: install stainless steel foot lock plates below two front legs with open side facing northeast (front).
 14. Active Green Cleaner Tablets: 56.01.535, one bucket of 150 per oven
 15. Care Tablets: 56.00.562, one bucket of 150 per oven
 16. Installation Kit: 8720.1561US, one per oven, for gas unit
 17. K-12 Extended Warranty: 9999.4105, additional one year (three years parts and labor)
 18. Unit to be used at 1,032 foot altitude
 19. Natural Gas: 303,500 Btu
 20. Direct Wired Electrical Connection
 21. Energy Star Qualified
 22. 208 volt, single phase, 2.2 kw, 10.6 amps
 23. Factory Certified Installation: 9999.2212
 24. Factory Demonstration / Instruction: CAP, 4 hours minimum
 25. Special K-12 Education Offer: includes the following free items per oven
 - a. Stainless Steel Grid Shelves: 6010.2101, ten shelves
 - b. CombiFry Baskets: 6019.1150, ten baskets

- B. ITEM 1A WATER TREATMENT SYSTEM (TWO REQUIRED)
1. Rational R295-CLX (1900.1158US)
 2. Factory Certified Installation: 9999.2271
 3. Mount units to 1'-8" high wall.
 4. Units for Item 1.
- C. ITEM 2 ROLL-IN COMBI OVEN RACK (TWO REQUIRED)
1. Rational iCP 20-2/1 Mobile Oven Rack (Part No. 60.22.490)
 2. Stainless Steel Grid Shelves: 6010.2101, twenty per rack (for 18 x 26 pans)
 3. Tandem Casters: set of four, two with brakes
 4. Removable Handle
 5. Removable Drip Tray
 6. This extra rack is in addition to the standard rack furnished with each Item 1.
- D. ITEM 3 REACH-IN COMBINATION OVEN / STEAMER (ONE REQUIRED)
1. Rational iCombi Pro 10-Full Size E with iCareSystem
 2. Programmable Controls: 1,200 menu items
 3. HACCP Data Memory: output via integral USB interface
 4. USB Memory Stick: 42.00.162, one
 5. Automatic Cleaning System
 6. Stainless Steel Stationary Stand III: 60.31.092, one
 7. Stainless Steel Grid Shelves: 6010.2101, five (ten total including free racks), for 18 x 26 pans
 8. CombiFry Baskets: 6019.1150, five, 12 x 20
 9. Core Temperature Probe
 10. Triple Glass Door: hinged inside pane for easy cleaning
 11. Hand Shower with Retractable Hose: switchable spray / jet function
 12. LED Lighting
 13. Active Green Cleaner Tablets: 56.01.535, one bucket of 150
 14. Care Tablets: 56.00.562, one bucket of 150
 15. Installation Kit: 8720.1551US, one, for electric unit
 16. K-12 Extended Warranty: EXTWARRANTY, additional one year (three years parts and labor)
 17. Factory Certified Installation: 9999.2201
 18. Factory Demonstration / Instruction: CAP, 4 hours minimum
 19. Direct Wired Electrical Connection
 20. Energy Star Qualified
 21. 480 volt, 3 phase, 37.4 kw
 22. Special K-12 Education Offer: includes the following free items per oven
 - a. Stainless Steel Grid Shelves: 6010.2101, five shelves
 - b. CombiFry Baskets: 6019.1150, five baskets
- E. ITEM 3A WATER TREATMENT SYSTEM (ONE REQUIRED)
1. Rational R195-CLX (1900.1159US)
 2. Factory Certified Installation: 9999.2271
 3. Mount unit to 1'-8" high wall.
 4. Unit for Item 3.

F. ITEM 4 THREE COMPARTMENT PRESSURE STEAMER / BOILER (TWO REQUIRED)

1. Crown GC-3
2. Three Compartment
3. Exterior Finish: stainless steel
4. Water Treatment System: TruH2O (71528211), one for each unit
5. Automatic Boiler Blowdown
6. CSD-1 Boiler Controls
7. Electronic Ignition
8. Split Water Line
9. Secondary Low Water Cut-off
10. Automatic Timer Controls
11. Pull-out Shelves: SSR-PC, six, two per compartment
12. Cold Water Spray Hose and Bracket: SP-RSH, one per unit
13. K-12 Extended Warranty: for three years
14. Control Wiring: 115 volt, single phase, 6 amps
15. Unit to be used at 1,032 foot altitude
16. Natural Gas: 300,000 Btu (B25-30)

G. ITEM 4A WATER TREATMENT SYSTEM (TWO REQUIRED)

1. Units furnished with Item 4.
2. Mount units to 1'-8" high wall.
3. Units for Item 4.

H. ITEM 5 TWO-SECTION PASS-THRU HOT CABINET (ONE REQUIRED)

1. Hoshizaki HC2A-HGE-HS
2. Pass-thru
3. Doors: field reversible, all with locks
 - a. four hinged half height glass @ west (Hot Prep) side
 - b. four hinged half height solid @ east (Servery) side
4. Stainless Steel Universal Pan Slides: HS-3557, ten pair total (five pair per section), upper section
5. Stainless Steel Wire Shelves: HS-3553, six total shelves (three per section), lower section
6. LED Interior Lighting
7. Exterior Digital Controller / Thermometer: located on west (Hot Prep) side
8. Locks for Items 5 and 6 shall be keyed alike.
9. Exterior Finish: stainless steel
10. Interior Finish: stainless steel
11. Trim Strips: stainless steel, at sides between unit and wall on east and west sides
12. Unit shall be set on 6 inch H concrete base. Omit 4 inch casters.
13. Cord and Plug: NEMA L14-20P
14. 208 volt, single phase, 9 amps

I. ITEM 6 ONE-SECTION PASS-THRU HOT CABINET (ONE REQUIRED)

1. Hoshizaki HC1A-HGE-HS
2. Pass-thru
3. Doors: field reversible, all with locks

- a. two right hinged half height glass @ north (Hot Prep) side
- b. two right hinged half height solid @ south (Servery) side
4. Stainless Steel Universal Pan Slides: HS-3557, five pair total, upper section
5. Stainless Steel Wire Shelves: HS-3553, three total shelves, lower section
6. LED Interior Lighting
7. Exterior Digital Controller / Thermometer: located on north (Hot Prep) side
8. Locks for Items 5 and 6 shall be keyed alike.
9. Exterior Finish: stainless steel
10. Interior Finish: stainless steel
11. Trim Strips: stainless steel, at sides between unit and wall on north and south sides
12. Unit shall be set on 6 inch H concrete base. Omit 4 inch casters.
13. Cord and Plug: NEMA 5-15P
14. 120 volt, single phase, 10 amps

J. ITEM 7 SPARE NUMBER

K. ITEM 8 MOBILE UTILITY RACK – EXISTING (ONE REQUIRED)

1. Existing unit to remain in present location.

L. ITEM 9 TROUGH DRAIN – EXISTING (ONE REQUIRED)

1. Existing unit to remain in present location.

M. ITEM 10 TILTING KETTLE / 40 GALLON – EXISTING (ONE REQUIRED)

1. Existing unit to remain in present location.

N. ITEM 11 KETTLE FILLER / SPRAY STANCHION – EXISTING (ONE REQUIRED)

1. Existing unit to remain in present location.

O. ITEM 12 TWO BURNER RANGE – EXISTING (ONE REQUIRED)

1. Existing unit to remain in present location.

PART 3 EXECUTION

3.1 EXAMINATION

A. Field Measurements:

1. Verify dimensions before fabrication as required at all equipment locations. When checking measurements at jobsite, carefully examine existing conditions and report to the Owner any work performed and planned which would prevent execution of this work.
2. Notify the Owner and Engineer of such conditions in writing before proceeding.

B. Mechanical and Electrical Rough-Ins:

1. Examine roughed-in mechanical and electrical services, and installation of floors, walls, columns and other conditions under which the work is to be installed.
2. Notify the Owner and Engineer of unsatisfactory conditions for proper installation of foodservice equipment.

3. Do not proceed with fabrication and installation until unsatisfactory dimensions and conditions have been corrected in a manner acceptable to the Engineer.
- C. Thoroughly review Architectural, Mechanical, and Electrical drawings, and visit the project site as necessary to coordinate construction of all partitions prior to delivery of foodservice equipment.

3.2 PREPARATION

- A. Schedule time of installation to prevent damage to equipment by other trades.
- B. Protect countertops, exposed surfaces, and plumbing fixtures from damage during and after installation until project closeout.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Assemble and erect equipment items in the locations shown on the drawings. Set up items plumb and level, ready for final plumbing, electrical, and ventilating connections.
- C. Caulk between walls and all trim strips. Caulking shall be CLEAR silicone, applied in a narrow smooth bead.
- D. Install closure panels and trim strips where required with matching metal.
- E. Tag and label all keys with plastic identification note and deliver to the Owner.

3.4 CLEANING

- A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.
- B. Remove protective covering from equipment after completion of all major work by all trades in the foodservice areas. Thoroughly clean interior and exterior of equipment and service all parts, leaving all items free from defects and completely ready for operation.
- C. Keep working area free from debris throughout the progress of the work, and remove all rubbish resulting from the installation of foodservice equipment from the premises.

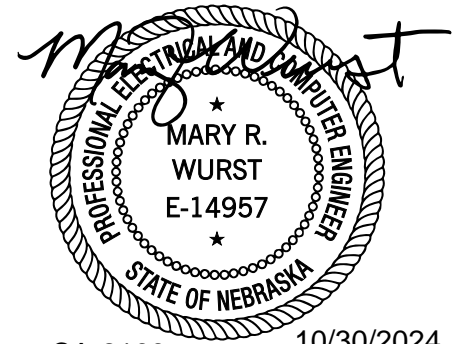
3.5 TESTING AND DEMONSTRATING EQUIPMENT

- A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.
- B. See Section 01 79 00 - Demonstration and Training, for additional requirements.
- C. Demonstrate proper operation of equipment to Owner's designated representative.
- D. Demonstration: Demonstrate operation of equipment to Owner's personnel.
 1. Briefly describe function, operation, and maintenance of each component.

2. Delay start-up of foodservice equipment until service lines have been tested, balanced, and adjusted for pressure, voltage and similar considerations; and until water and steam lines have been cleaned and treated for sanitation.
 3. Test each equipment item to demonstrate that it is operating properly, and that controls and safety devices are functioning. Repair or replace equipment which is found to be defective or operating with excessive noise or vibration.
 4. Final test and demonstration of equipment shall be conducted by the Foodservice Equipment Contractor in the presence of the owner or his representative after all connections have been made.
 - a. Qualified technicians shall instruct Owner personnel in proper function, adjustment methods, maintenance and care of each piece of equipment herein specified, to the complete satisfaction of the Owner.
 - b. All cooking equipment shall be demonstrated by the respective manufacturer's representative.
 5. Schedule demonstration of equipment with Owner.
- E. Training: Train Owner's personnel on operation and maintenance of equipment.
1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.

END OF SECTION

SECTION 26 04 00
COMMON REQUIREMENTS FOR ELECTRICAL



CA-2169

10/30/2024

PART 1 GENERAL

1.1 SUMMARY

- A. This section describes the general requirements of these specifications and shall apply to all phases of the work specified, shown on the drawings, or required to provide for complete installation of all systems for this project.
- B. This Section includes basic materials and methods to complement other Division 26 Sections.

1.2 WARRANTIES

- A. Warrant materials, workmanship and equipment against defects for a period of one year after the date of substantial completion.
- B. Certain equipment shall be warranted beginning at the time of final acceptance or for longer periods of time as specified in those divisions of the Project Manual.
- C. Repair or replace, at no additional cost to the Owner, any item which may become defective within the warranty period.
- D. Any manufacturers' warranties concerning any item installed will run to the benefit of the Owner.
- E. The Contractor agrees not to void or impair, or to allow Sub-Contractors to void or impair, any warranties regarding products or items installed as part of this project.
- F. The repair of faulty workmanship shall be considered to be included in the contract.

1.3 ALTERNATES

- A. Alternates, if required, shall be as described in the "Alternates" section of this Project Manual, as described on the proposal form, or as indicated on the drawings.

1.4 QUESTIONS OF INTERPRETATION DURING BIDDING PHASE

- A. If questions arise during the bidding process regarding the meaning of any portion of the contract documents, the prospective bidder shall submit the questions to the Architect for clarification.
- B. Any definitive interpretation or clarification of the contract documents will be published by addenda, properly issued to each person holding documents, prior to the bid date.
- C. Verbal interpretation or explanation not issued in the form of an addendum shall not be considered part of the bidding documents.

- D. When submitting questions for clarification, adequate time for issuance and delivery of addenda must be allowed.
- E. The Architect shall be the sole judge regarding interpretations of conflicts within contract documents.

1.5 CONTRACT DOCUMENT DISCREPANCIES

- A. If any ambiguities should appear in the contract documents, request clarification from the Architect before proceeding with the work.
- B. If the Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out the work in a manner satisfactory to the Architect.
- C. Should a conflict occur within the contract documents, the Contractor is deemed to have estimated the more expensive way of doing the work unless a written clarification from the Architect was requested and obtained before submission of proposed methods or materials.
- D. The Architect shall be the sole judge regarding interpretations of conflicts within contract documents.

1.6 DEFINITIONS

- A. The following definitions shall apply throughout the contract documents:
 - 1. Architect: Architect or Engineer
 - 2. Code: Applicable national, state and local codes
 - 3. Mechanical: Plumbing, HVAC, and Fire Protection work required by the Contract Documents
 - 4. Electrical: Electrical and Fire Alarm work required by the Contract Documents
 - 5. Contractor: Any Contractor performing work required by the Contract Documents
 - 6. Indicated: Noted, scheduled or specified
 - 7. Selected: Selected by the Architect.
 - 8. Provide: Furnish, install, connect and tested complete and ready for use
 - 9. Furnish: Supply and deliver to the site ready for installation
 - 10. Install: Install complete, per Contract Documents and manufacturer's requirements.
 - 11. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.
 - 12. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
 - 13. Exposed, Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
 - 14. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

15. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
16. Dry Locations: A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.
17. Damp Locations: Locations protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture.
 - a. Examples of such locations include partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns, and some cold storage warehouses.
18. Wet Locations: Installations underground or in concrete slabs or masonry in direct contact with the earth; in locations subject to saturation with water or other liquids, such as vehicle washing areas; and in unprotected locations exposed to weather.

1.7 SYMBOLS

- A. Items of equipment and materials are indicated on the drawings in accordance with the symbols on the plans.

1.8 ABBREVIATIONS

- A. Refer to abbreviations list on the Drawings.
- B. The following abbreviations apply throughout the Contract Documents:
 1. ADA: Americans with Disabilities Act
 2. ANSI: American National Standards Institute
 3. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers
 4. ASME: American Society of Mechanical Engineers
 5. ASTM Specification: Standard specifications of the American Society for Testing Materials
 6. FM: Factory Mutual Engineering Corporation
 7. IRI: Industrial Risk Insurers
 8. NEC: National Electrical Code, latest edition
 9. NEMA: National Electrical Manufacturers Association
 10. NFPA: National Fire Protection Association
 11. UL or Underwriters: Underwriters Laboratories, Inc.

1.9 CODES

- A. The work shall be performed by persons skilled in the trade involved and shall be done in a manner consistent with normal industry standards.
- B. The work shall conform to all applicable sections of currently adopted editions of the following codes, standards, and specifications:

1. International Building Code (IBC)
2. International Fire Code (IFC)
3. International Energy Conservation Code (IECC)
4. Safety and Health Regulations for Construction
5. Occupational Safety and Health Standards (OSHA), National Consensus Standards and Established Federal Standards
6. National Electrical Code (NEC)
7. National Electrical Safety Code (NESC)
8. National Fire Protection Association (NFPA)
9. Life Safety Code (NFPA 101)
10. Factory Mutual Global Engineering (FMG)
11. Underwriters' Laboratories, Inc. (UL)
12. National Electrical Manufacturers Association (NEMA)
13. Institute of Electrical and Electronics Engineers (IEEE)
14. Insulated Power Cable Engineers Association (IPCEA)
15. Telecommunications Industry Association (TIA)
16. Building Industry Consulting Service International (BICSI)
17. Applicable national, state and local codes

C. Where there is a conflict between the code and the Contract Documents, the code shall have precedence only when it is more stringent than the Contract Documents.

1. Items that are allowed by the code but are less stringent than those specified shall not be substituted.

1.10 PERMITS

- A. The Contractors shall familiarize themselves with requirements regarding permits, fees, etc., and shall comply with them.
- B. Permits, licenses, inspections and arrangements required for the work shall be obtained by the Contractor at his expense.
- C. Utilities shall be installed in accordance with the local rules and regulations.

1.11 MATERIALS AND EQUIPMENT MANUFACTURERS

- A. Options in selecting materials and equipment are limited by requirements of the contract documents and governing regulations. They are not controlled by industry traditions or procedures experienced on previous construction projects.
- B. Materials and equipment shall be provided in accordance with the following:
 1. Primary Design Products: Primary design products are those products around which the project was designed in terms of capacity, performance, physical size and quality.
 2. Primary design products are indicated by use of a single manufacturer's name, model number or similar data on drawings or schedules or within the specifications.
 3. Provide primary design products unless substitutions are made in accordance with the following paragraphs.

4. Acceptable Equivalent Substitutions: Acceptable equivalent substitutions are products of manufacturers other than those listed for the primary design products. Equivalent acceptable substitutions shall meet each of the following requirements:
 - a. The product shall be manufactured by one of the acceptable manufacturers listed in the Project Manual, drawings, or addenda.
 - b. The product shall meet or exceed the requirements of the contract documents in terms of quality, performance, suitability, appearance, and physical characteristics.
 - c. The Contractor providing the substitution shall bear the total cost of changes due to substitutions. These costs may include additional compensation to the Architect for redesign and evaluation services, increased cost of work by the Owner or other Contractors, and similar considerations.
 5. Performance Requirements: Where the contract documents list performance requirements or describe a product or assembly generically, provide products that comply with the specific requirements indicated and that are recommended by the manufacturer for the respective application.
 6. Compliance with Standards, Codes and Regulations: Where the specifications require only compliance with an imposed standard, code or regulation, the Contractor has the option of selecting a product that complies with specification requirements, including the standards, codes and regulations.
- C. Proposed substitutions will be judged on the basis of quality, performance, appearance and on the governing space limitations. The reputation of the manufacturer, delivery time requirements, and the availability of repair or replacement parts may also be considered.
- D. The Architect shall be the sole and final judge as to the suitability of substitution items.

1.12 OPERATING TRAINING

- A. Complete operating instructions for each system and item of equipment shall be provided to the Owner's designated personnel.
- B. Operation and Maintenance Manuals must be reviewed and accepted by the Architect and provided to the Owner prior to operating training.
- C. Training shall be scheduled at the convenience of the Owner. A minimum of 4 hours of training shall be provided.
- D. Training shall include instructions on the following:
 1. Startup and shutdown procedures
 2. Periodic maintenance
 3. Emergency operation
 4. Safety
- E. In addition to the instructions required above, wherever possible perform the operations being described in order to fully illustrate system operation.

- F. At the completion of training, turn over to the Owner required keys and special tools for installed equipment. Each key or tool shall be labeled with its use.

1.13 QUALITY ASSURANCE

- A. Conform to the requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories Inc. or testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

1.14 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment.
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. 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.
 - 1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.
- C. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.
- D. Coordinate electrical service connections to components furnished by utility companies.
 - 1. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components.
 - 2. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.
- E. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.
- F. Coordinate electrical testing of electrical, mechanical, or architectural items so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.
- G. Provide offsets and elevation changes in conduit and cable tray as required to complete the Layout and Coordination Process.

1.15 STRUCTURAL COORDINATION

- A. In cases where the Contractor determines that superimposed loads such as suspended or floor mounted electrical system or equipment exist which exceed design loads indicated on structural contract documents, Contractor shall submit load data to Architect for review prior to proceeding with work.
- B. Distribute the maximum load hung from any structural member for mechanical, electrical, plumbing, ductwork, piping, etc. over the member's tributary area in a way that the design superimposed dead loads listed in structural contract documents are not exceeded. The Contractor shall coordinate the loads and provide additional support or distribution framing as required achieving the allowable load distribution.
- C. Connections of systems designed by Contractor's engineer such as, but not limited to mechanical, electrical, plumbing loads are assumed to impose vertical and/or horizontal loads on the base building structural members without generating torsion in the supporting structural members. Contractor is responsible for furnishing and installing all supplementary bracing members as required to prevent torsion on the base building structure.

PART 2 PRODUCTS

2.1 PERFORMANCE, CAPACITIES AND CHARACTERISTICS

- A. See Drawings for Equipment Schedules for Equipment Performance Requirements when capacities and characteristics are not indicated in the specifications.

2.2 EQUIPMENT SHORT CIRCUIT CURRENT RATING

- A. Where the National Electrical Code or applicable codes require equipment to be marked with a Short Circuit Current Rating (SCCR), the equipment shall be manufactured as required such that the SCCR of the equipment meets or exceeds the available short circuit current at the equipment. Acceptable methods of complying with this requirement are as follows:
 - 1. Provide SCCR rating at the equipment that meets or exceeds the available short circuit current at the switchboard or panelboard where the equipment circuit originates.
 - 2. Provide calculations, based on the available short circuit current at the switchboard or panelboard where the equipment circuit originates, that document the actual short circuit current available at the equipment. The SCCR rating of the equipment shall meet or exceed this calculated value.

2.3 MATERIALS

- A. Unless otherwise specified, all materials and equipment shall be new, unused and undamaged. Materials and equipment shall be the current and standard designs of manufacturers regularly engaged in their production.

2.4 MATERIALS AND EQUIPMENT FURNISHED BY OTHERS

- A. Where materials and equipment are indicated as furnished by others and installed or connected under this contract, it shall be the Contractor's responsibility to verify installation details and requirements.

2.5 QUANTITY OF SPECIFIED ITEMS REQUIRED

- A. Wherever in these specifications an article, device or piece of equipment is referred to in the singular number; such reference shall apply to as many such articles as are shown on the drawings or required to complete the installation.

PART 3 EXECUTION

3.1 GENERAL

- A. Fabrication, erection, and installation of the complete electrical system shall be done by qualified personnel experienced in such work and shall proceed in an orderly manner so as not to hold up the progress of the project.
- B. Check areas and surfaces where electrical equipment or materials are to be installed and report any unsatisfactory conditions before starting work.
- C. Commencement of work signifies the Contractor's acceptance of the conditions as fit and proper for the execution of the electrical work.
- D. Install equipment and systems in accordance with manufacturer's instructions, requirements, or recommendations.
- E. Comply with NECA 1.
- F. Unless otherwise noted, measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- G. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- H. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- I. Right of Way: Give to raceways and piping systems installed at a required slope.
- J. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

3.2 DELIVERY AND STORAGE OF MATERIALS

- A. Make provisions for the delivery and safe storage of materials. Make the required arrangements with other contractors for the introduction into the building of equipment too large to pass through finished openings.
- B. Materials shall be delivered at such stages of the work as will expedite the work as a whole and shall be marked and stored in such a way as to be easily checked and inspected.
- C. Adequately protect supplies and equipment during cold weather.
- D. Protect items subject to cold weather damage by covering, insulating, or storing in a heated space.

3.3 COOPERATION WITH OTHER CONTRACTORS

- A. Perform the electrical work in conformance with the construction called for by other trades and afford other contractors reasonable opportunity for the execution of their work.
- B. Properly connect and coordinate the electrical work with the work of other contractors at such time and in such a manner as not to delay or interfere with their work.
- C. Examine the contract documents for the General, Mechanical, and Electrical work and the work of other trades. Coordinate work accordingly.
- D. Promptly report to the Architect any delay or difficulties encountered in the installation of the electrical work which might prevent prompt and proper installation of work required from other trades.

3.4 COORDINATION OF WORK

- A. Plan work so it proceeds with a minimum of interference with other trades.
- B. Inform the General Contractor of all openings required in the building construction for the installation of the electrical work.
- C. Cooperate with other contractors in furnishing material and information, in proper sequence, for the correct location of sleeves, inserts, foundations, wiring, etc.
- D. Make provisions for special frames, openings, and sleeves as required.
- E. The Electrical Contractor shall pay for extra cutting and patching made necessary by his failure to properly direct such work at the correct time.

3.5 LAYING OUT WORK

- A. Carefully lay out work in advance of installation using data and measurements from the site, the appropriate civil, architectural, and structural drawings, and shop drawings.

- B. Confirm code required clearances.
- C. Do not infringe upon space required for operation, maintenance, or clearance for items installed by other contractors.
- D. Prior to installation of any work, make certain the location does not conflict with other items in or near the same location.
- E. If the layouts so prepared indicate that the required conditions cannot be met in the space provided, inform the Architect prior to installation and request clarification.
- F. Failure to properly coordinate and lay out work will require correction by the Contractor at the Contractor's expense

3.6 DATA AND MEASUREMENTS

- A. Mechanical and Electrical drawings are diagrammatic or schematic. Do not scale drawings.
- B. The data given herein and on the drawings is as accurate as could be secured; absolute accuracy is not guaranteed.
- C. Obtain exact locations, measurements, levels, etc., at the site and adapt their work to actual conditions.
- D. Examine the General Construction, Mechanical, Electrical, and other applicable drawings and the Specifications.
- E. Utilize only Architectural drawings, Structural drawings, and site measurements in calculations.
- F. Layout and coordinate work prior to installation to provide clearances for operation, maintenance and codes. Verify non-interference with other work.
- G. Locate outlets and devices mounted on finished surfaces with regard to paneling, furring, trim, etc.
- H. Install outlets and devices with vertical edges of plates plumb.
- I. Install boxes or plaster rings such that the front edge extends to the finished surface of the wall, ceiling or floor without projecting beyond the surface.
- J. Install receptacles, switches, etc., on wood trim, cases, or other fixtures symmetrically and, where necessary, install with the long dimension of the plate horizontal.
- K. Coordinate locations of outlets and devices with other contractors so as not to destroy the aesthetic effect of the surface in which the outlets and devices are mounted. Coordinate the locations of electrical items with work furnished by other trades to avoid interference.

- L. Heights of outlets are measured from finished floor to centerline of device.
- M. Adjust heights as necessary to clear wall-mounted cabinets, fin tube convectors, unit heaters, etc.
- N. Mounting heights shall be in compliance with ADA requirements.
- O. Install outlets at the heights indicated below unless otherwise noted.
 - 1. Wall switches: 46 inches.
 - 2. Receptacle outlets (general): 18 inches.
 - 3. Receptacle outlets (kitchen, utility room, workbenches, etc.): 46 inches.
 - 4. Communications outlets: 18 inches.
 - 5. Communications outlets (wall phones): 46 inches.
 - 6. TV outlets: 18 inches.
 - 7. Pushbuttons: 46 inches.
 - 8. Clock outlets: 98 inches when possible Allow space below ceiling to service or replace. Above doors, center between door trim and ceiling.
 - 9. Bells, buzzers, chimes: 8 inches below ceiling (field verify with Architect unless noted otherwise).
 - 10. Fire alarm station: 46 inches.
 - 11. Fire alarm visual signals and audible/visual signals, wall-mounted: 80 inches to the bottom of the lens unless local code or ADA requirement mandates a lower mounting height.
 - 12. Fire alarm audible signals, wall-mounted: Match height of audible/visual signals.
 - 13. Exit lights: 4 inches between top of door frame and bottom of exit sign where possible.
- P. The mounting heights of disconnect switches, circuit breakers, motor controllers, pushbutton stations and other similar devices and equipment may vary depending upon location and whether individually or group mounted.
- Q. For convenience and safety, mount equipment with the center of operating levers, handles or buttons no more than 72 inches above the finished floor.
- R. Locate individual devices or pieces of equipment, unless otherwise specified, so the operating handle, lever or button is located approximately 5 feet above finished floor. Coordinate heights of electrical items with work furnished by other trades to avoid interferences.
- S. Improperly located devices or outlets shall be relocated by the Contractor at the Contractor's expense including necessary patching.

3.7 PROTECTION OF APPARATUS

- A. Take necessary precautions to properly protect apparatus, fixtures, appliances, material, equipment, and installations from damage.
- B. Failure to provide such protection to the satisfaction of the Architect shall be sufficient cause for the rejection of any particular piece(s) of material, apparatus, equipment, etc.,

concerned.

3.8 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to maintain fire-resistance rating of assembly.

3.9 WORK IN EXISTING BUILDINGS

- A. Execute work in the existing building, indicated on the drawings or specified herein, with a minimum amount of interference with the normal activities of the occupants of the building.
- B. Schedule work in advance with the Owner and proceed only with the Owner's written approval.
- C. Utilities:
 - 1. Do not interrupt utilities without the Owner's prior written approval regarding the time and duration of such interruptions.
 - 2. Do not disconnect utilities to existing facilities until new or temporary facilities are installed except for short periods of interruption which are necessary for the performance of the new work and which are approved by the Owner.
 - 3. Storm water may be temporarily diverted to surface drainage provided such drainage is arranged to prevent flooding of structures, basements and excavations for construction.
- D. Fire Alarm System:
 - 1. As a minimum, maintain the existing degree of protection for all areas throughout construction.
 - 2. Coordinate required outages with the Owner and the Fire Marshal.
 - 3. After any additions or modifications to the fire alarm system, a re-acceptance test shall be performed by a licensed party in accordance with NFPA 72.
- E. Welding:
 - 1. Notify the Owner before starting welding or cutting.
 - 2. Fire extinguishers shall be immediately accessible when welding or cutting with an open flame or arc.
 - 3. Stop operations involving welding or cutting with an open flame or arc not less than one hour before leaving the premises.
- F. Noisy Operations:
 - 1. Schedule noisy operations, such as those involving use of air hammers, etc., in demolition or cutting of openings, with the Owner.
- G. Occupancy:
 - 1. The Owner will continue to occupy the building and carry on normal activity.
 - 2. Protect the occupied areas from dust, smoke, etc., by a method reviewed by the Architect.

- H. Owner's Right to Direct Work: The Owner shall have the right to direct the places of beginning work, its prosecution, and the manner in which all work under this contract is to be conducted, insofar as may be necessary to secure the safe and proper progress and quality of the work.
- I. Existing Conduits or Electrical Equipment:
 - 1. Remove or relocate, as required, or as directed by the Architect, existing conduit or electrical equipment which would interfere with the proper installation of new work.
 - 2. Modify existing work in conformance with these specifications.
 - 3. Use the same materials as for new work unless otherwise specified.

3.10 DEMOLITION AND REMODEL

- A. Protect existing electrical equipment and installations indicated to remain.
- B. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- C. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.
- D. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.
- E. Remove demolished material from Project site.
- F. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.
- G. Remove existing lights, receptacles, switches, etc., indicated on plans or which are not indicated but must be removed to accommodate demolition or new remodeling.
- H. Where existing walls are indicated to be removed, disconnect power to electrical devices and associated appurtenances relating to the walls.
- I. Maintain circuit continuity up and down stream from removed outlets.
- J. Extend circuiting to up and downstream devices and reconnect as required.
- K. Where existing site lighting fixtures are removed, verify the routing of existing circuits. Maintain circuit continuity between existing fixtures which remain.
- L. In areas which are remodeled, replace existing wire with new wire. No existing wire is permitted to remain unless noted.
- M. Existing concealed conduit and boxes may be reused.

N. Verify existing conditions in field prior to bid date.

3.11 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations.

B. Perform cutting by skilled mechanics of trades involved.

C. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces.

D. Install new fireproofing where existing firestopping has been disturbed.

E. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.12 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work. Repair as necessary.

3.13 CLEANING AND PROTECTION

A. Remove burrs, dirt, paint spots, and construction debris from electrical items.

B. Protect electrical items so that finishes are without damage or deterioration at time of Substantial Completion.

C. All cables and wiring shall be protected from paint. This includes but is not limited to power conductors and feeders, lighting control wiring, and fire alarm cabling. Painted cables shall be replaced in their entirety.

END OF SECTION

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Single conductor building wire.
- B. Wiring connectors.
- C. Electrical tape.
- D. Heat shrink tubing.
- E. Oxide inhibiting compound.
- F. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire.
- G. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
- H. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes.
- I. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation.
- J. ASTM B800 - Standard Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes - Annealed and Intermediate Tempers.
- K. ASTM B801 - Standard Specification for Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy for Subsequent Covering or Insulation.
- L. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape.
- M. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- N. NECA 104 - Standard for Installing Aluminum Building Wire and Cable.
- O. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.
- P. NFPA 70 - National Electrical Code.
- Q. UL 44 - Thermoset-Insulated Wires and Cables.
- R. UL 83 - Thermoplastic-Insulated Wires and Cables.

- S. UL 486A-486B - Wire Connectors.
- T. UL 486C - Splicing Wire Connectors.
- U. UL 486D - Sealed Wire Connector Systems.
- V. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 3. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.3 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductor Material:

1. Provide copper conductors except where aluminum conductors are specifically indicated. Substitution of aluminum conductors for copper is not permitted.
Conductor sizes indicated are based on copper unless specifically indicated as aluminum. Conductors designated with the abbreviation "AL" indicate aluminum.
 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 3. Tinned Copper Conductors: Comply with ASTM B33.
 4. Aluminum Conductors (only where specifically indicated or permitted for substitution): AA-8000 series aluminum alloy conductors recognized by ASTM B800 and compact stranded in accordance with ASTM B801 unless otherwise indicated.
- H. Minimum Conductor Size:
1. Branch Circuits: 12 AWG.
 2. Control Circuits: 14 AWG.
- I. Conductor Color Coding:
1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 2. Color Coding Method: Integrally colored insulation.
 - a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
 3. Color Code:
 - a. 480Y/277 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Brown.
 - 2) Phase B: Orange.
 - 3) Phase C: Yellow.
 - 4) Neutral/Grounded: Gray.
 - b. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - c. Equipment Ground, All Systems: Green.
 - d. For control circuits, comply with manufacturer's recommended color code.

2.2 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid.
 - b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.

- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN, THHN/THWN-2, or XHHW-2, except as indicated below.
 - a. Installed Underground: Type XHHW-2 or THHN/THWN-2.

2.3 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- C. Wiring Connectors for Terminations:
 - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 - 2. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
- D. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- E. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- F. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- G. Mechanical Connectors: Provide bolted type or set-screw type.
- H. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.4 ACCESSORIES

- A. Electrical Tape:
 - 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
 - 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.

- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.3 INSTALLATION

- A. Circuiting Requirements:
 - 1. When circuit destination is indicated without specific routing, determine exact routing required.
 - 2. Install service and feeder conductors unspliced unless otherwise indicated.
 - 3. Arrange branch circuiting to minimize splices.
 - 4. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
 - 5. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
 - 6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:
 - a. Provide no more than 6 #12 AWG current-carrying conductors in 1/2 inch conduit; 9 #12 AWG current-carrying conductors in 3/4 inch conduit.
 - b. Provide no more than 6 #10 AWG current-carrying conductors in 3/4 inch conduit; 9 #10 AWG current-carrying conductors in 1 inch conduit.
 - c. Provide no more than 4 #8 AWG current-carrying conductors in 3/4 inch conduit; 6 #8 AWG current-carrying conductors in 1 inch conduit; 9 #8 AWG current-carrying conductors in 1-1/4 inch conduit.
 - 7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits of different phases installed in

the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Install aluminum conductors in accordance with NECA 104.
- E. Installation in Raceway:
 - 1. Pull all conductors and cables together into raceway at same time.
 - 2. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 3. Use suitable wire pulling lubricant where necessary, except as below:
 - a. Do not use when lubricant is not recommended by the conductor manufacturer.
- F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- G. Install conductors with a minimum of 6 inches of slack at each outlet.
- H. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- I. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- J. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminants. Do not use wire brush on plated connector surfaces.
 - 5. Connections for Aluminum Conductors: Fill connectors with oxide inhibiting compound where not pre-filled by manufacturer.
 - 6. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 7. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- K. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
 - 1. Dry Locations: Use insulating covers specifically designed for the connectors or heat shrink tubing.

2. Damp Locations: Use insulating covers specifically designed for the connectors or heat shrink tubing.
 - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
 3. Wet Locations: Use heat shrink tubing.
- L. Insulate ends of spare conductors using vinyl insulating electrical tape.
- M. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.
- N. Identify conductors and cables in accordance with Section 26 05 53.
- O. Install firestopping to preserve fire resistance rating of partitions and other elements.
- P. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- E. NFPA 70 - National Electrical Code.
- F. UL 467 - Grounding and Bonding Equipment.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Notify Architect of any conflicts with or deviations from Contract Documents.
Obtain direction before proceeding with work.

1.3 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 GROUNDING AND BONDING REQUIREMENTS

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Bonding and Equipment Grounding:

1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.

2.2 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 05 26:

1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare tinned copper conductors where installed underground in direct contact with earth.
 - 2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:

1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections, high-pressure compression connections, or high-pressure compression connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use compression connectors for accessible connections. For #6 AWG and smaller, use one-hole lugs. For #4 AWG and larger, use two-hole lugs.
 - a. Exceptions:
 - 1) Use exothermic welded connections or high-pressure compression connections for connections to metal building frame.
4. Manufacturers - High-Pressure Compression Connectors:
 - a. Burndy: www.burndy.com; Hyground System
 - b. Thomas & Betts: www.tnb.com.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Make grounding and bonding connections using specified connectors.
 - 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 - 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 - 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 - 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

3.3 FIELD QUALITY CONTROL

- A. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
- B. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

END OF SECTION

SECTION 26 05 29
HANGERS AND SUPPORTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- D. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
- E. MFMA-4 - Metal Framing Standards Publication.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- G. NFPA 70 - National Electrical Code.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with actual equipment and components to be installed.
 - 2. Coordinate work to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at installed locations.
 - 4. Coordinate arrangement of supports with ductwork, piping, equipment and other potential conflicts.
 - 5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
1. Comply with the following. Where requirements differ, comply with most stringent.
 - a. NFPA 70.
 - b. Requirements of authorities having jurisdiction.
 2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
 3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
 4. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
 5. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 6. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
 7. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
1. Conduit Straps: One-hole or two-hole type; steel.
 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.
- D. Metal Channel/Strut Framing Systems:
1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
 2. Comply with MFMA-4.
 3. Channel Material:
 - a. Indoor Dry Locations: Use painted steel, zinc-plated steel, or galvanized steel.
 - b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel.
- E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.
- F. Anchors and Fasteners:

1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.
 2. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.
 3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
 4. Hollow Masonry: Use toggle bolts, expansion anchors, or expansion anchors.
 5. Hollow Stud Walls: Use toggle bolts.
 6. Steel: Use beam clamps, machine bolts, or welded threaded studs.
 7. Sheet Metal: Use sheet metal screws.
 8. Wood: Use wood screws.
- G. Cable Supports for Vertical Conduit: Factory-fabricated body with insulated wedging plug, appropriately sized for conductors being supported.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install hangers and supports in accordance with NECA 1.
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
 1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on walls when wall strength is not sufficient to resist pull-out.
 3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 4. Unless otherwise indicated, mount floor-mounted equipment on properly sized 3-1/2 inch high concrete pad.

5. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
 6. Install surface-mounted cabinets and panelboards with minimum of four anchors.
- H. Secure fasteners in accordance with manufacturer's recommended torque settings.
- I. Remove temporary supports.
- J. Identify independent electrical component support wires above accessible ceilings, where permitted, with color distinguishable from ceiling support wires in accordance with NFPA 70.

END OF SECTION

SECTION 26 05 33.13

CONDUIT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Flexible metal conduit (FMC).
- B. Liquidtight flexible metal conduit (LFMC).
- C. Galvanized steel electrical metallic tubing (EMT).
- D. Stainless steel electrical metallic tubing (EMT).
- E. Rigid polyvinyl chloride (PVC) conduit.
- F. Accessories.
- G. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S).
- H. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- I. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC).
- J. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.
- K. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit.
- L. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing.
- M. NFPA 70 - National Electrical Code.
- N. UL 1 - Flexible Metal Conduit.
- O. UL 360 - Liquid-Tight Flexible Metal Conduit.
- P. UL 514B - Conduit, Tubing, and Cable Fittings.
- Q. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings.
- R. UL 797 - Electrical Metallic Tubing-Steel.
- S. UL 797A - Electrical Metallic Tubing - Aluminum and Stainless Steel.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
 - 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
 - 4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
 - 5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.
- B. In Slab Above Grade or Beneath Slab-on-Grade:
 - 1. Use rigid non-metallic conduit.
- C. Dry Locations:
 - 1. Concealed: Use electrical metallic tubing.
 - 2. Exposed: Use electrical metallic tubing.
- D. Connection to Motors: Use liquid-tight flexible metal conduit, except use flexible metal conduit in air plenums.
- E. Connection to Vibrating Equipment (including transformers):
 - 1. Indoors: Use flexible metal conduit.
 - 2. Outdoors: Use liquid-tight flexible metal conduit.

2.2 CONDUIT - GENERAL REQUIREMENTS

- A. Comply with NFPA 70.

- B. Provide conduit, fittings, supports, and accessories required for complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for purpose intended.
- D. Minimum Conduit Size, Unless Otherwise Indicated:
 - 1. Branch Circuits: 1/2-inch trade size.
 - 2. Telecommunications Pathways: 1 inch trade size.
- E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.3 FLEXIBLE METAL CONDUIT (FMC)

- A. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel, malleable iron, or die cast zinc.

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360; rated for use with conductors rated 75 degrees C.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel, malleable iron, or die cast zinc.

2.5 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)

- A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel, malleable iron, or die cast zinc.
 - 3. Connectors and Couplings: Use compression/gland or set-screw type.
 - a. Do not use indenter type connectors and couplings.
 - 4. Damp or Wet Locations, Where Permitted: Use fittings listed for use in wet locations.

2.6 STAINLESS STEEL ELECTRICAL METALLIC TUBING (EMT)

- A. Description: NFPA 70, Type EMT stainless steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797A.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Connectors and Couplings: Use compression/gland or set-screw type.

2.7 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
- B. Fittings:
 - 1. Manufacturer: Same as manufacturer of conduit to be connected.
 - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.8 ACCESSORIES

- A. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- B. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 200 lbf.
- C. Foam Conduit Sealant:
 - 1. Removable, two-part, closed-cell foam, specifically designed for sealing conduit openings against water, moisture, gases, and dust.
 - 2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
 - 3. Rated to hold minimum of 10 ft water head pressure.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in accordance with NECA 1.
- C. Rigid Polyvinyl Chloride (PVC) Conduit: Install in accordance with NECA 111.
- D. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal conduits unless specifically indicated to be exposed.
 - 4. Conduits in the following areas may be exposed, unless otherwise indicated:
 - a. Electrical rooms.
 - b. Mechanical equipment rooms.
 - 5. Unless otherwise approved, do not route exposed conduits:
 - a. Across floors.
 - b. Across roofs.
 - c. Across top of parapet walls.
 - d. Across building exterior surfaces.
 - 6. Conduits installed underground or embedded in concrete may be routed in shortest possible manner unless otherwise indicated. Route other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
 - 7. Arrange conduit to maintain adequate headroom, clearances, and access.
 - 8. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
 - 9. Exterior Branch Circuits: Route conduits adjacent to curbs. Push or directional bore conduits beneath paved areas; otherwise, sawcut and remove pavement. Replace removed pavement to match existing.
 - 10. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 - 11. Maintain minimum clearance of 12 inches between conduits and hot surfaces.
 - 12. Group parallel conduits in same area on common rack.
- E. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 05 29.
 - a. Support PVC conduit within 3 feet of termination points and at intervals not exceeding those listed below in accordance with NFPA 70 Table 352.30.
 - 1) 1/2" to 1" trade size = 3 feet spacing between supports.
 - 2) 1-1/4" to 2" trade size = 5 feet spacing between supports.
 - 3) 2-1/2" to 3" trade size = 6 feet spacing between supports.
 - 4) 3-1/2" to 5" trade size = 7 feet spacing between supports.

2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
 4. Use of spring steel conduit clips for support of conduits is permitted only as follows:
 - a. Support of electrical metallic tubing (EMT) 1-1/2 inch trade size concealed above accessible ceilings and within hollow stud walls.
 5. Use of wire for support of conduits is permitted only as follows:
 - a. For suspending conduits supported by spring steel conduit clips, where specifically indicated or permitted.
- F. Connections and Terminations:
1. Use suitable adapters where required to transition from one type of conduit to another.
 2. Provide insulated bushings on box connectors 1-inch and larger, on conduits stubbed above an accessible ceiling, and on conduits used for telecommunications pathways.
 3. Secure joints and connections to provide mechanical strength and electrical continuity.
- G. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 3. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 4. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
 5. Install firestopping to preserve fire resistance rating of partitions and other elements.
- H. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where change in length, calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground, is expected to be 1/4 inch or greater between securely mounted items such as boxes, cabinets, elbows, or other conduit terminations, which includes the following conditions:
 - a. 100 foot intervals within spaces that have an ambient temperature range of 0-5 degrees Fahrenheit or less.
 - b. 60 foot intervals within spaces that have an ambient temperature range of 5-10 degrees Fahrenheit or less.

- c. 40 foot intervals within spaces that have an ambient temperature range of 10-15 degrees Fahrenheit or less.
 - 3. Where conduits are subject to earth movement by settlement or frost.
- I. Conduit Sealing:
 - 1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
 - a. Where conduits enter building from outside.
 - b. Where service conduits enter building from underground distribution system.
 - c. Where conduits enter building from underground.
 - d. Where conduits may transport moisture to contact live parts.
 - 2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant, junction box, or type C conduit at accessible point near penetration to prevent condensation. This includes, but is not limited to:
 - a. Where conduits pass from outdoors into conditioned interior spaces.
 - b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- J. Provide pull string in each empty conduit and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- K. Provide grounding and bonding; see Section 26 05 26.
- L. Identify conduits; see Section 26 05 53.

3.3 FIELD QUALITY CONTROL

- A. Correct deficiencies and replace damaged or defective conduits.

3.4 CLEANING

- A. Clean interior of conduits to remove moisture and foreign matter.

3.5 PROTECTION

- A. Immediately after installation of conduit, use suitable caps to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 26 05 33.16

BOXES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.2 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- D. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.
- E. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- F. NFPA 70 - National Electrical Code.
- G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations.
- H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations.
- I. UL 508A - Industrial Control Panels.
- J. UL 514A - Metallic Outlet Boxes.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
 - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.

5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.4 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.1 BOXES

- A. General Requirements:
 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 3. Use suitable concrete type boxes where flush-mounted in concrete.
 4. Use suitable masonry type boxes where flush-mounted in masonry walls.
 5. Use raised covers suitable for the type of wall construction and device configuration where required.
 6. Do not use "through-wall" boxes designed for access from both sides of wall.
 7. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
 8. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 9. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
 10. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.

11. Minimum Box Size, Unless Otherwise Indicated:
 - a. Wiring Devices (Other Than Communications Systems Outlets): 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size.
 - b. Communications Systems Outlets: 4 inch square by 2-1/8 inch deep trade size.
 - c. Ceiling Outlets: 4 inch octagonal or square by 1-1/2 inch deep (100 by 38 mm) trade size.
 12. Wall Plates: Comply with Section 26 27 26.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
 2. NEMA 250 Environment Type, Unless Otherwise Indicated:
 - a. Indoor Clean, Dry Locations: Type 1, painted steel.
 - b. Outdoor Locations: Type 3R, painted steel.
 3. Junction and Pull Boxes Larger Than 100 cubic inches:
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
 - b. Include cable supports if any dimension of the box is greater than 48 inches.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- E. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- F. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.

- G. Box Locations:
1. Locate boxes to be accessible. Provide access panels as required where approved by the Architect.
 2. Unless dimensioned, box locations indicated are approximate.
 3. Locate boxes as required for devices installed under other sections or by others.
 4. Locate boxes so that wall plates do not span different building finishes.
 5. Locate boxes so that wall plates do not cross masonry joints.
 6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
 7. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated.
 8. Acoustic-Rated Walls: Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches horizontal separation.
 9. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
 - a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
 10. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 05 33.13.
 11. Locate junction and pull boxes in the following areas, unless otherwise indicated or approved by the Architect:
 - a. Concealed above accessible suspended ceilings.
 - b. Within joists in unfinished areas with no ceiling.
 - c. Electrical rooms.
 - d. Mechanical equipment rooms.
- H. Box Supports:
1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
 3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
 4. Use far-side support to secure flush-mounted boxes supported from single stud in hollow stud walls. Repair or replace supports for boxes that permit excessive movement.
- I. Install boxes plumb and level.
- J. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from

- finished surface more than 1/4 inch or does not project beyond finished surface.
2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
 3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.
- K. Install boxes as required to preserve insulation integrity.
- L. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- M. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified.
- N. Close unused box openings.
- O. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- P. Provide grounding and bonding in accordance with Section 26 05 26.
- Q. Identify boxes in accordance with Section 26 05 53.
- R. Orient boxes to accommodate wiring devices oriented as specified in Section 26 27 26.
- S. Orient each box located above an accessible ceiling so the box opening faces down or to one side.
- T. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
- U. Locate outlet boxes to allow luminaires positioned as shown on reflected ceiling plan.
- V. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.

3.3 CLEANING

- A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

END OF SECTION

SECTION 26 05 83
WIRING CONNECTIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical connections to equipment.
- B. NEMA WD 6 - Wiring Devices - Dimensional Specifications.
- C. NFPA 70 - National Electrical Code.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
 - 2. Determine connection locations and requirements.
- B. Sequencing:
 - 1. Install rough-in of electrical connections before installation of equipment is required.
 - 2. Make electrical connections before required start-up of equipment.

1.3 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Cords and Caps: NEMA WD 6; match receptacle configuration at outlet provided for equipment.
 - 1. Cord Construction: NFPA 70, Type SO, multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
 - 2. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 ELECTRICAL CONNECTIONS

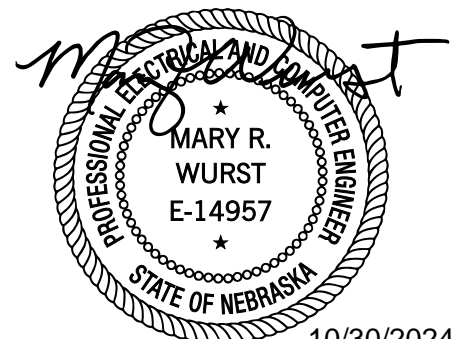
- A. Make electrical connections in accordance with equipment manufacturer's instructions.

- B. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- C. Provide receptacle outlet to accommodate connection with attachment plug.
- D. Provide cord and cap where field-supplied attachment plug is required.
- E. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- F. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.
- G. Provide final power and control connections for equipment furnished under other Divisions of this specification and for Owner-furnished equipment. Where not specified in mechanical sections of this specification, connect motor controls and associated mechanical equipment as required for a complete and functional control system.
- H. Provide interlocks and wiring to and between controls for Owner-furnished equipment, boilers, chillers, pumps, air handling units, fans, rooftop units, furnaces, humidifiers, condensing units, heat pumps, hoods, water treatment systems, chemical feed systems, unit heaters, fan coil units, unit coolers, heat reclaim systems, energy management system, product refrigeration, kitchen equipment, and elevator life safety panels.
- I. Verify control wiring requirements with manufacturer certified shop drawings for each piece of equipment or control system and install accordingly. Install control wiring in conduit.

3.3 EQUIPMENT REQUIREMENTS

- A. Kitchen Fire Suppression Systems:
 - 1. Provide shunt trip breakers for electrical sources located under kitchen hoods that are provided with fire suppression system. Wire to shut off power to equipment and receptacles under the hood upon activation of the fire suppression system.
- B. Kitchen Equipment:
 - 1. Verify rough-in and connection requirements from drawings provided by the equipment supplier. Make final connection to equipment.
 - 2. Conceal conduit stub-ups for equipment connections in walls behind equipment. Install boxes flush in wall with flush cover plates. Keep exposed conduits, boxes and flexible connections to a minimum length and exposure in order to meet health department regulations.

END OF SECTION



PAPILLION LA VISTA COMMUNITY SCHOOLS

SOUTH HIGH SCHOOL FOODSERVICE EQUIPMENT REPLACEMENT

10799 NE-370
PAPILLION, NE

INDEX OF DRAWINGS

FOODSERVICE

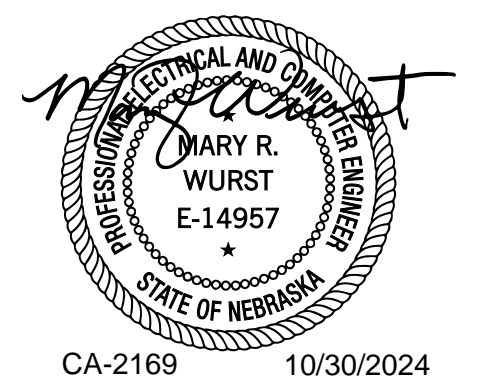
SHEET NUMBER	DESCRIPTION
FS1	FOODSERVICE EQUIPMENT DEMOLITION PLAN
FS2	FOODSERVICE EQUIPMENT PLAN

MECHANICAL AND ELECTRICAL

SHEET NUMBER	DESCRIPTION
ME1	KITCHEN PLAN - MECHANICAL AND ELECTRICAL

PROJECT DRAWINGS

10/30/2024
20241467



CA-2169 10/30/2024

I, MARY WURST, AM THE COORDINATING PROFESSIONAL FOR THE PLCS SOUTH HIGH SCHOOL FOODSERVICE EQUIPMENT REPLACEMENT PROJECT.

TITLE	FIRM	INDIVIDUAL
COORDINATING DESIGN PROFESSIONAL	ALVINE ENGINEERING	MARY WURST
MECHANICAL	ALVINE ENGINEERING	MATTHEW SARGENT
ELECTRICAL	ALVINE ENGINEERING	MARY WURST

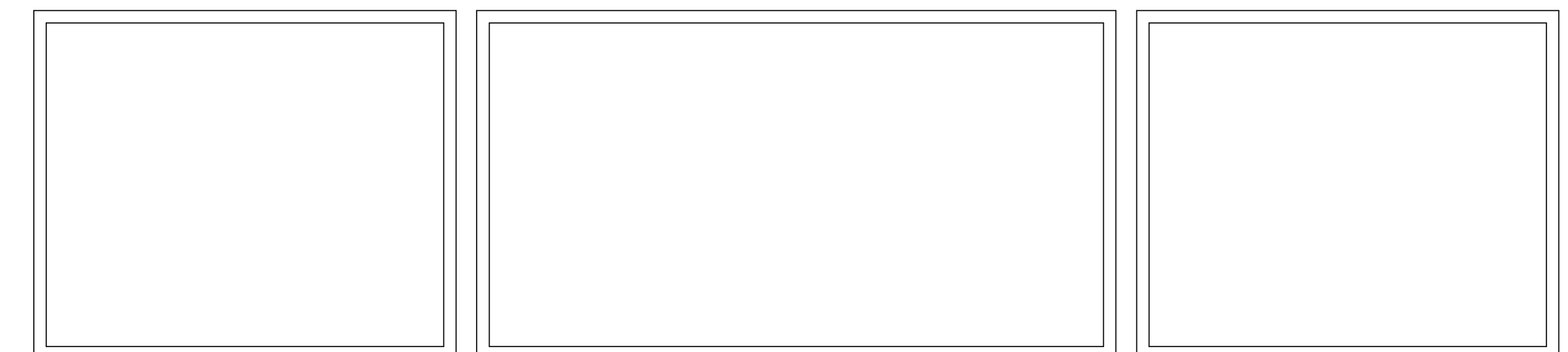
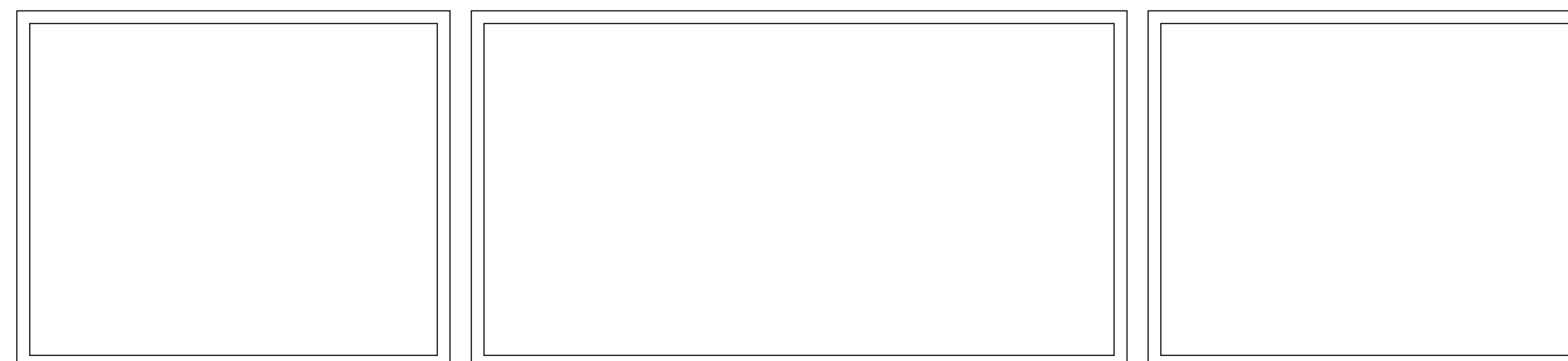


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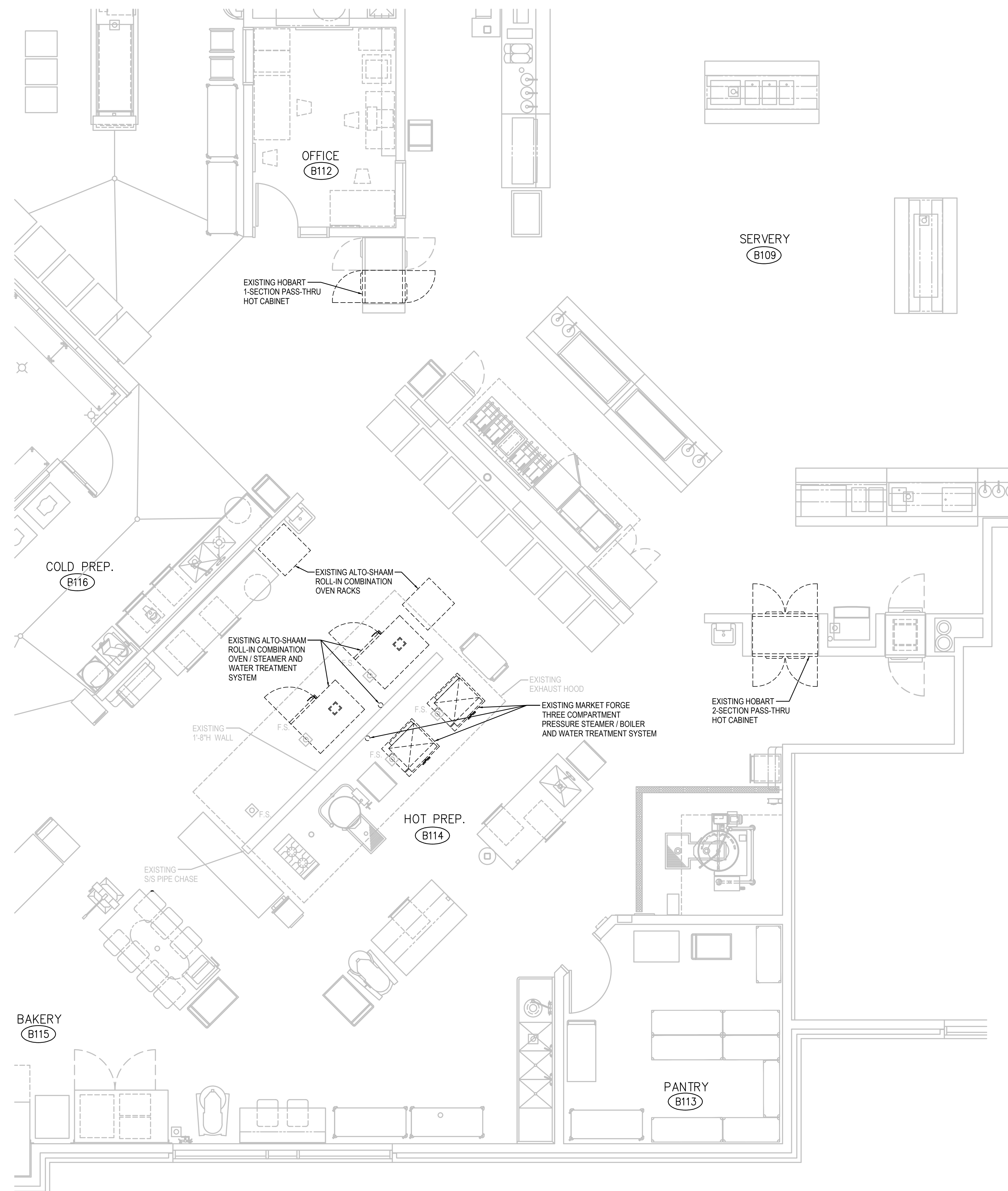


GENERAL DEMOLITION NOTES

- A. ALL EXISTING FOODSERVICE EQUIPMENT SHOWN FULL-TONE, DASHED AND CALLED OUT IN DEMOLITION PLAN ON THIS SHEET SHALL BE REMOVED AND DISPOSED OF BY THE FOODSERVICE EQUIPMENT CONTRACTOR.
- B. ALL EXISTING FOODSERVICE EQUIPMENT DESCRIBED IN GENERAL DEMOLITION NOTE 'A' ABOVE SHALL BE DISCONNECTED BY ELECTRICAL AND MECHANICAL CONTRACTORS, PRIOR TO REMOVAL BY THE FOODSERVICE EQUIPMENT CONTRACTOR.
- C. FOODSERVICE EQUIPMENT CONTRACTOR SHALL COORDINATE THE DISCONNECTION / REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION / CONNECTION OF NEW EQUIPMENT WITH ELECTRICAL AND MECHANICAL CONTRACTORS.

GENERAL NOTES

- 1. INFORMATION PERTAINING TO THE EXISTING BUILDING HAS BEEN OBTAINED THROUGH THE BUILDING'S ORIGINAL DRAWINGS WHERE AVAILABLE. REPORT DISCREPANCIES TO THE OWNER/ENGINEER PRIOR TO ANY DEMOLITION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- 2. CONTRACTOR TO VISIT SITE AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING PROJECT.
- 3. REGISTER ITEM #4 (THREE COMPARTMENT PRESSURE STEAMER / BOILER) WITH THE STATE BOILER INSPECTOR. PROVIDE THE FOLLOWING INFORMATION:
 - A. COPY OF THE INSTALLATION TESTING REPORT.
 - B. COPY OF THE MANUFACTURER'S DATA REPORT.
 - C. CONFIRMATION OF INSTALLATION AND PERMANENT LABEL FOR AN ELECTRICAL EMERGENCY SHUTDOWN FOR THE BOILER.
 - D. SUBMIT THE REQUIRED BOILER AND PRESSURE VESSEL INSTALLATION NOTICE FORM.



1 FOODSERVICE EQUIPMENT DEMOLITION PLAN
 FS1 1/4" = 1'-0" 0' 1' 2' 3' 4' 5' 6'



No Revisions Date

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, MEP and other appropriate drawings or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes. Verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

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FOODSERVICE EQUIPMENT DEMOLITION PLAN

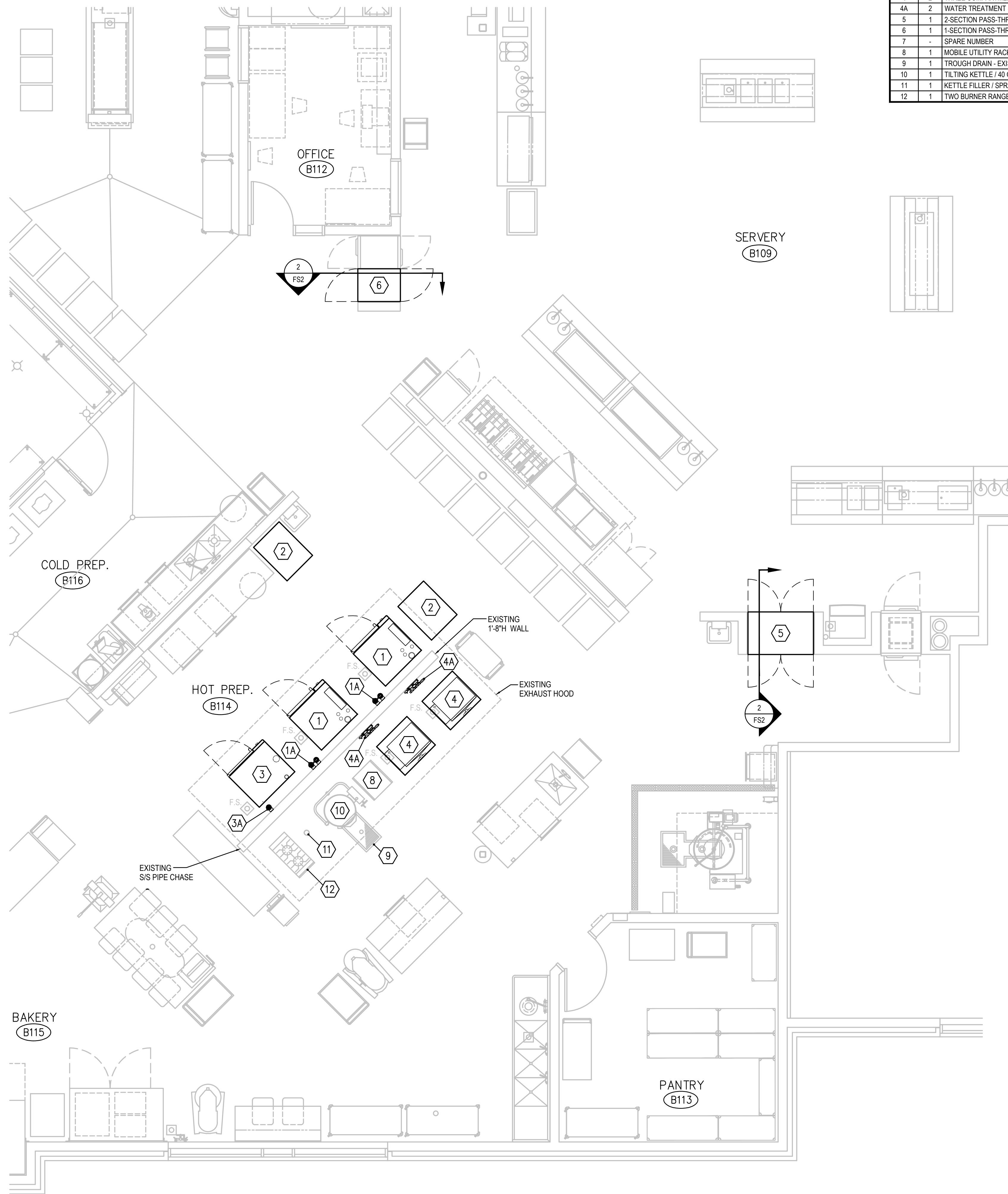
PLCS SOUTH HIGH SCHOOL FOODSERVICE EQUIPMENT REPLACEMENT

PAPILLION NE



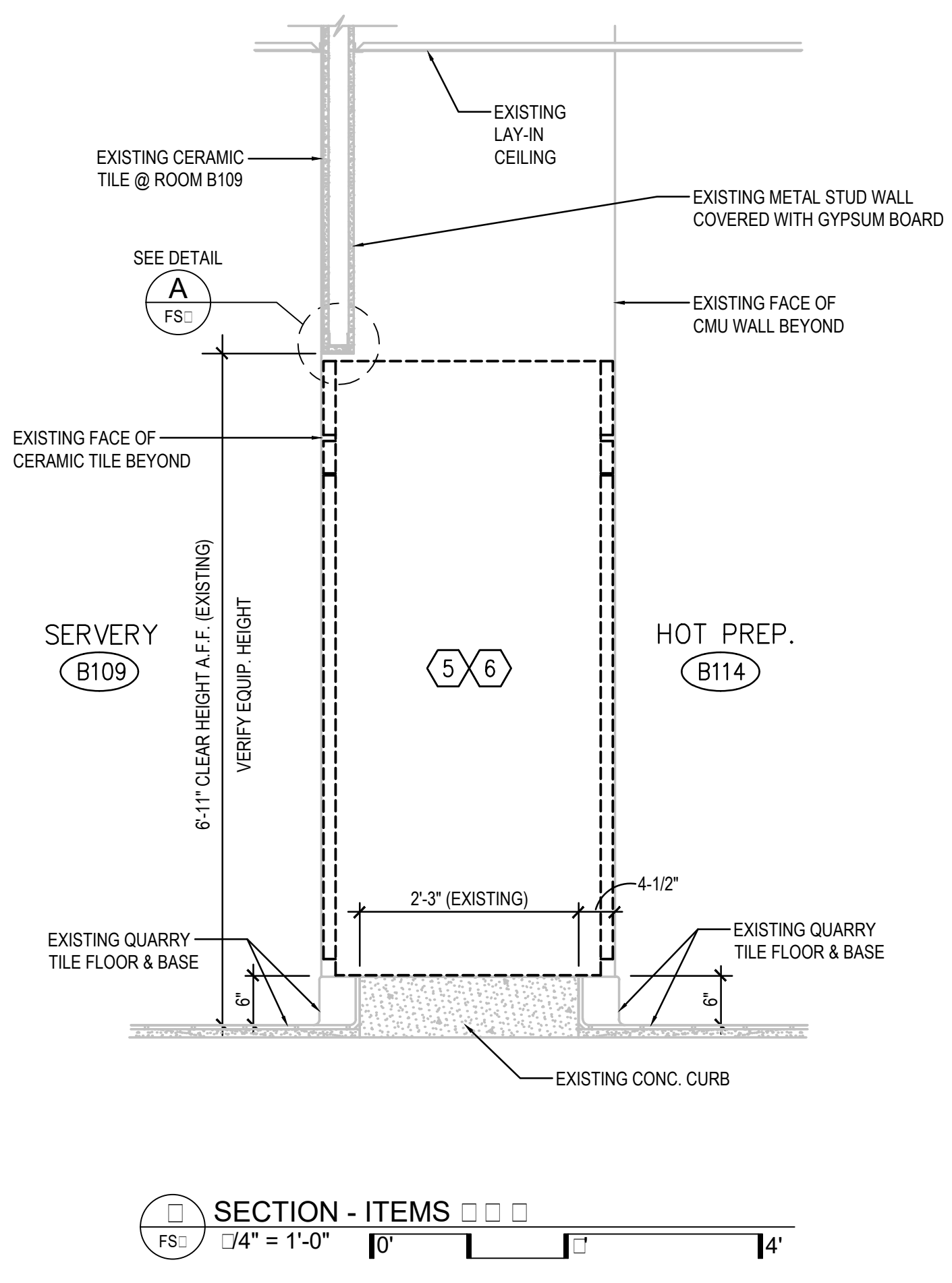
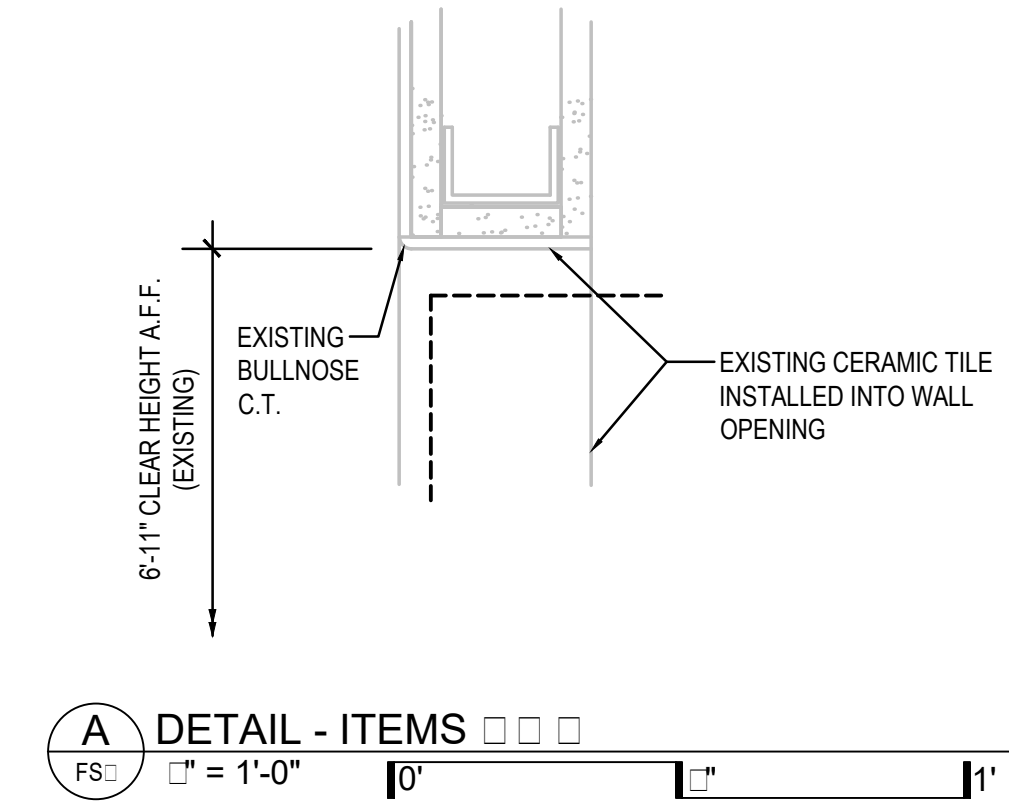
Omaha: 1201 Cass Street, Omaha, NE 68102, Phone: (402) 442-7070
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Designed	File Name
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Drawn	Project No.
JMK	20241467
Checked	Drawing No.
JMK	FS1
Date	10/30/2024

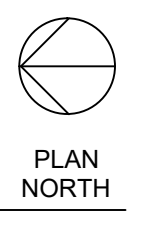


FOODSERVICE EQUIPMENT CONNECTION SCHEDULE													
NO.	QTY.	DESCRIPTION	ELECTRICAL				CW	HW	WASTE	GAS	REMARKS		
			AMPS	KW	HP	VOLTS							
1	2	ROLL-IN COMBINATION OVEN / STEAMER	10.6	2.2		208	1	X	3/4"				
1A	2	WATER TREATMENT SYSTEM							3/4"				
2	2	ROLL-IN COMBI OVEN RACK											
3	1	REACH-IN COMBINATION OVEN STEAMER	45	37.4		480	3	X	3/4"				
3A	1	WATER TREATMENT SYSTEM							3/4"				
4	2	THREE COMPARTMENT PRESSURE STEAMER / BOILER	6			120	1	X	1/2"				
4A	2	WATER TREATMENT SYSTEM							3/4"	300,000			
5	1	2-SECTION PASS-THRU HOT CABINET	9			208	1	X	1/2"				
6	1	1-SECTION PASS-THRU HOT CABINET	10			120	1	X					
7	-	SPARE NUMBER											
8	1	MOBILE UTILITY RACK - EXISTING											
9	1	TROUGH DRAIN - EXISTING											
10	1	TILTING KETTLE / 40 GALLON - EXISTING	29	24		480	3	X					
11	1	KETTLE FILLER / SPRAY STANCHION - EXISTING							1/2"	1/2"	140"	60	
12	1	TWO BURNER RANGE - EXISTING									3/4"	60,000	EXISTING TO REMAIN

- GENERAL NOTES**
- INFORMATION PERTAINING TO THE EXISTING BUILDING HAS BEEN OBTAINED THROUGH THE BUILDING'S ORIGINAL DRAWINGS WHERE AVAILABLE. REPORT DISCREPANCIES TO THE OWNER/ENGINEER PRIOR TO ANY DEMOLITION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
 - CONTRACTOR TO VISIT SITE AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING PROJECT.
 - REGISTER ITEM #4 (THREE COMPARTMENT PRESSURE STEAMER / BOILER) WITH THE STATE BOILER INSPECTOR. PROVIDE THE FOLLOWING INFORMATION:
 - COPY OF THE INSTALLATION TESTING REPORT.
 - COPY OF THE MANUFACTURER'S DATA REPORT.
 - CONFIRMATION OF INSTALLATION AND PERMANENT LABEL FOR AN ELECTRICAL EMERGENCY SHUTDOWN FOR THE BOILER.
 - SUBMIT THE REQUIRED BOILER AND PRESSURE VESSEL INSTALLATION NOTICE FORM.



1 FOODSERVICE EQUIPMENT PLAN
FS: 1/4" = 1'-0" 0' 1' 2' 4' 8'



No	Revisions	Date

FOODSERVICE EQUIPMENT PLAN
PLCS SOUTH HIGH SCHOOL
FOODSERVICE EQUIPMENT REPLACEMENT
PAPILLION NE



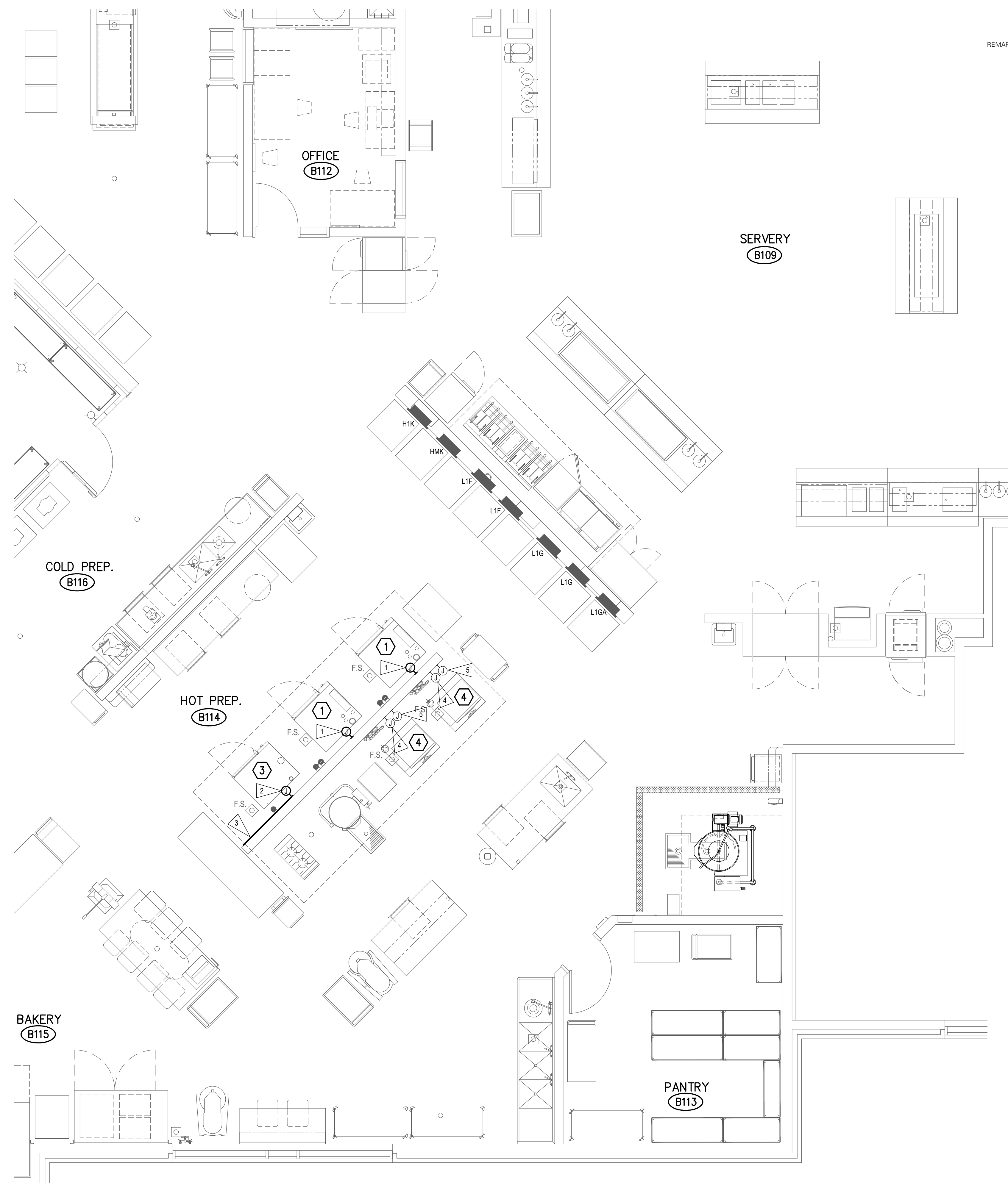
Overseer: 1201 Cass Street, Okmulgee, NE 68601, Phone: (405) 242-7070
 Lincoln: 1200 Lincoln Blvd, Suite 200, Okmulgee, NE 68608, Phone: (405) 877-0101
 Oklahoma City: Oklahoma City, Oklahoma, OK 73116, Phone: (405) 916-3900
 Dallas: 495 East Court Avenue, Suite 110, DeSoto, TX 75628, Phone: (214) 241-9569

Designed	File Name
JMK	20241467_FS2
Drawn	Project No.
JMK	20241467
Checked	Drawing No.
JMK	FS2
Date	10/30/2024

FOOD SERVICE EQUIPMENT CONNECTION SCHEDULE										
MARK	DESCRIPTION	VOLTAGE	PH	LOAD	CONNECTION	NEMA CONFIGURATION	MOUNTING HEIGHT	PANEL - CIRCUIT NO.	WIRE & CONDUIT	REMARKS
1	ROLL-IN COMBINATION OVEN / STEAMER	208	1	2.2 KW	DIRECT	JB	14"	L1F-43.45	2 #12, #12 GND, 1/2" C.	1.3
1	ROLL-IN COMBINATION OVEN / STEAMER	208	1	2.2 KW	DIRECT	JB	14"	L1F-51.53	2 #12, #12 GND, 1/2" C.	1.3
3	REACH-IN COMBINATION OVEN / STEAMER	480	3	37.4 KW	DIRECT	JB	10"	HMK-31.33.35	3 #6, #10 GND, 1" C.	3.4
4	THREE COMPARTMENT PRESSURE STEAMER / BOILER	120	1	6 A	DIRECT	JB	10"	L1G-18	2 #12, #12 GND, 1/2" C.	2
4	THREE COMPARTMENT PRESSURE STEAMER / BOILER	120	1	6 A	DIRECT	JB	10"	L1G-26	2 #12, #12 GND, 1/2" C.	2

- GENERAL NOTES**
- ROUGH-IN FOR FOOD SERVICE EQUIPMENT SHALL BE IN ACCORDANCE WITH APPROVED FOOD SERVICE EQUIPMENT ROUGH-IN SHOP DRAWINGS.
 - ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT.
 - INSTALL ELECTRICAL ACCESSORIES AND FITTINGS FURNISHED LOOSE WITH THE FOOD SERVICE EQUIPMENT.
 - CONNECTIONS FOR FOOD SERVICE EQUIPMENT SHALL BE PROVIDED WITH LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
 - ROUGH-IN REQUIREMENTS FOR EQUIPMENT 'BY OWNER' SHALL BE VERIFIED WITH OWNER BEFORE INSTALLATION.
- REMARKS**
- REMOVE EXISTING BREAKER FOR REMOVED COMBINATION OVEN / STEAMER. PROVIDE NEW 15A/2P BREAKER IN SPACE. MATCH EXISTING BREAKER TYPE AND A.I.C. RATING. PROVIDE NEW WIRE IN EXISTING CONDUIT.
 - CONNECT TO EXISTING CIRCUIT FOR REPLACED STEAMER. EXTEND EXISTING WIRING AS REQUIRED.
 - PROVIDE SHUNT-TRIP CIRCUIT BREAKER FOR CIRCUIT SERVING THIS EQUIPMENT. PROVIDE 1/2" WITH CONTROL WIRES FROM SHUNT-TRIP BREAKER TO EXISTING EXHAUST HOOD PANEL.
 - FIRE SUPPRESSION SYSTEM.
 - PROVIDE NEW 60A/2P BREAKER IN PANEL INDICATED. MATCH EXISTING BREAKER TYPE AND A.I.C. RATING.

- FLAG NOTES**
- REMOVE EXISTING DUPLEX RECEPTACLE. PROVIDE NEW COVER ON BOX FOR HARDWARE CONNECTION TO FOOD SERVICE EQUIPMENT.
 - PROVIDE NEW SURFACE MOUNTED JUNCTION BOX.
 - ROUTE 1" CONDUIT ALONG SURFACE OF WALL TO DEVICE INDICATED. ROUTE VERTICALLY ALONG EXISTING STAINLESS STEEL CHASE TO ABOVE CEILING.
 - REMOVE CONNECTION TO EXISTING STEAMER. CONNECT NEW EQUIPMENT TO CIRCUIT CONTROLLED VIA EMERGENCY SHUT-OFF SWITCH.
 - EXISTING JUNCTION BOX FOR CONNECTION TO STEAMER. DISCONNECT EXISTING STEAMER. PROVIDE NEW CONNECTION TO NEW EQUIPMENT.



1 KITCHEN PLAN - MECHANICAL AND ELECTRICAL
FS1 1/4" = 1'-0"



ELECTRICAL GENERAL NOTES

- INSTALL GREEN INSULATED GROUND WIRE WITH EACH EQUIPMENT BRANCH CIRCUIT.
- PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.
- CONCEAL CONDUITS INSTALLED IN NEW WALLS, EXISTING STUD WALLS AND IN AREAS WITH SUSPENDED CEILINGS.
- WHERE BRANCH CIRCUIT OR SPECIAL SYSTEMS WIRING IS INSTALLED ON A WALL WHERE RACEWAYS CANNOT BE CONCEALED, USE SURFACE METAL RACEWAY, WIREMOLD V700 OR V2400 SERIES WITH FACTORY IVORY FINISH.
- REPAIR OR REPLACE BUILDING ELEMENTS THAT ARE DAMAGED AS PART OF ELECTRICAL WORK.
- SPECIFICATIONS LIST ACCEPTABLE WIRING METHODS AND MATERIALS. OTHER WIRING METHODS AND MATERIALS NOT LISTED IN THE SPECIFICATIONS (SUCH AS MC CABLE, ETC.) ARE NOT ACCEPTABLE.
- SEAL ELECTRICAL PENETRATIONS IN MECHANICAL AND ELECTRICAL ROOMS ABOVE OCCUPIED SPACES TO REDUCE NOISE TRANSMISSION.
- SEAL PENETRATIONS IN FIRE RATED CONSTRUCTION TO MAINTAIN RATINGS.
- LABELLING FOR PANELBOARD DIRECTORIES, FIRE ALARM PANEL PROGRAMMING, ETC. SHALL USE ROOM NUMBERS ASSIGNED BY OWNER AND NOT ROOM NUMBERS LISTED ON DRAWINGS. LABELS ON PANELBOARD DIRECTORY SHALL INCLUDE A DESCRIPTION OF LOAD SUCH AS LIGHTS, RECEPTACLES, MECHANICAL UNIT LOCATIONS, ETC.
- REFER TO FOOD SERVICE DRAWINGS FOR KITCHEN EQUIPMENT REQUIREMENTS.
- LABEL BACK OF RECEPTACLE WALL PLATES WITH THE CORRESPONDING PANEL AND CIRCUIT NUMBER.

ELECTRICAL DEMOLITION NOTES

- THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO ALL FIXTURES, DEVICES AND EQUIPMENT REMOVED. COORDINATE WITH OWNER PRIOR TO DEMOLITION.
- REPAIR OR REPLACE BUILDING ELEMENTS WHICH ARE DAMAGED AS PART OF DEMOLITION WORK.
- DISCONNECT FOOD SERVICE EQUIPMENT BEING REMOVED BY FOOD SERVICE CONTRACTOR. COORDINATE EQUIPMENT REMOVAL LOCATIONS WITH FOOD SERVICE DRAWINGS.
- POWER TO EXISTING AREAS NOT BEING REMODELED SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR SHORT TERM OUTAGES NECESSARY FOR RECONNECTION OF EXISTING CIRCUITS. COORDINATE AND SCHEDULE OUTAGES WITH THE OWNER.
- REMOVE DEMOLISHED ITEMS FROM PROJECT SITE. PROPERLY DISPOSE OF ITEMS INCLUDING LAMPS AND BALLASTS.

MECHANICAL GENERAL NOTES

- RECONNECT ITEM #1 TO EXISTING 3/4" COLD WATER PIPES. PROVIDE NEW 1" SCHEDULE 40 BLACK STEEL NATURAL GAS PIPE FROM ITEM #1 BACK TO THE 2" MAIN. PROVIDE NEW 2" TYPE L COPPER INDIRECT WASTE PIPE WITH SOLDERED JOINTS AND DWV FITTINGS TO EXISTING FLOOR SINK.
- RECONNECT ITEM #4 TO EXISTING 1" NATURAL GAS PIPE, 1/2" COLD WATER PIPE, 3/8" 140" HOT WATER PIPE, AND 2" INDIRECT WASTE PIPE.

MECHANICAL DEMOLITION NOTES

- DISCONNECT EXISTING ITEM #1 FROM COLD WATER PIPES, NATURAL GAS PIPE, AND INDIRECT DRAIN PIPE. REMOVE EXISTING 3/4" NATURAL GAS PIPE FROM ITEM #1 BACK TO THE 2" MAIN AND PREPARE FOR RECONNECTION OF NEW LARGER PIPE. REMOVE EXISTING 1-1/2" INDIRECT WASTE PIPE BACK TO EXISTING FLOOR SINK.
- DISCONNECT EXISTING ITEM #4 FROM NATURAL GAS PIPE, COLD WATER PIPE, 140" HOT WATER PIPE, AND INDIRECT WASTE PIPE.

MECHANICAL KITCHEN GENERAL NOTES

- REFER TO FOOD SERVICE PLANS FOR ROUGH-IN LOCATIONS.
- PLUMBING SUBCONTRACTOR SHALL FURNISH AND INSTALL SHUT-OFF VALVES FOR WATER SUPPLY AT ALL EQUIPMENT ITEMS.
- KITCHEN EQUIPMENT FURNISHED BY KITCHEN EQUIPMENT CONTRACTOR. PLUMBING CONTRACTOR TO ROUGH-IN AND MAKE FINAL CONNECTIONS TO ALL UTILITIES REQUIRED AND PROVIDE ALL PIPING, STOPS, VACUUM BREAKERS, WATER HAMMER ARRESTERS, PRESSURE REDUCING VALVES, TRAPS AND ALL FITTINGS NECESSARY FOR EQUIPMENT TO BE IN OPERATING ORDER. COORDINATE WITH KITCHEN EQUIPMENT CONTRACTOR AND SEE KITCHEN EQUIPMENT.
- PLUMBING CONTRACTOR TO PROVIDE ALL PIPING AND FITTINGS FOR CONNECTING INDIRECT WASTE FROM EQUIPMENT DRAINS TO FLOOR SINKS.

NO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawings or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes. Verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

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KITCHEN PLAN - MECHANICAL AND ELECTRICAL

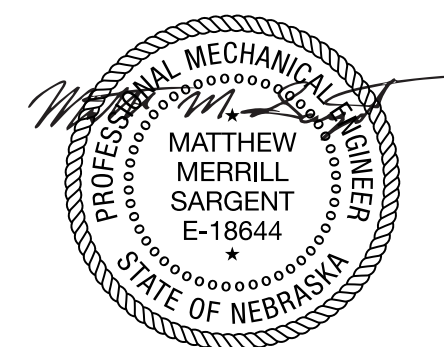
PLCS SOUTH HIGH SCHOOL FOODSERVICE EQUIPMENT REPLACEMENT

PAPILLION NE



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MREUCB	20241467_E1
Drawn	Project No.
MRG	20241467
Checked	Drawing No.
MRWIMS	ME1
Date	10/30/2024



CA-2169 10/30/2024
MATTHEW SARGENT IS RESPONSIBLE FOR THE MECHANICAL AND PLUMBING SCOPE ON THIS DRAWING.



CA-2169 10/30/2024
MARY WURST IS RESPONSIBLE FOR THE ELECTRICAL SCOPE ON THIS DRAWING.