This contract is entered into, in duplicate, by and between TILLAMOOK COUNTY, a political subdivision of the State of Oregon, hereafter called "county", and COLUMBIA CASCADE-CONSTRUCTION, INC., hereafter called "contractor", for the project entitled "DISTRICT ATTORNEY OFFICE REMODEL", hereinafter called "contract". The mutual promises of each are given in exchange and as consideration for, the promises of the other.

Contractor and county mutually covenant and agree as follows:

- 1. The GRAND TOTAL PRICE for services provided by contractor to county shall be in the amount quoted in the "Bid Form" which is the cost to county of Three Hundred Thirty Seven Six Hundred and 00/100 Dollars (\$337,600.00), unless otherwise adjusted in accordance with the terms of this contract.
- 2. The time of completion for this project is June 30, 2024.
- Contract documents:
 - 3.1 The following "contract documents" are attached and are specifically incorporated herein in their entirety by reference:
 - 3.1.1. This Contract;
 - 3.1.2. General Conditions:
 - 3.1.3. Public Contract Provisions:
 - 3.1.4. Bid Form;
 - 3.1.5. Invitation to Bid;
 - 3.1.6. Specifications and Plans;
 - 3.1.7. Addendum #1; and
 - 3.1.8. Performance Bond.
 - 3.2 The following contract documents are specifically incorporated herein by reference in their entirety:
 - 3.2.1. Oregon Prevailing Wage Rate Bulletin dated July 5, 2023.

Contractor agrees as follows:

- In consideration of the sums to be paid by county in the manner and at the times provided and in consideration of the other covenants and agreements contained herein, contractor agrees to perform and complete the work herein described. This contract shall be binding upon the contractor's heirs, executors, administrators, successors and assigns.
- 5. Contractor shall faithfully complete and perform all of the obligations of the Contract and in particular, shall promptly, as due, make payment of all just debts, dues, demands and obligations incurred in the performance of said contract; and shall not permit any lien or claim to be filed or prosecuted against the county, its agents or employees.

6. Contractor shall not permit any lien or claim to be filed or prosecuted against the county and shall hold the county harmless for any liens, claims, damages or other liabilities of the contractor related to the performance of this contract. Contractor shall indemnify and save harmless the county from any claims, costs, damages or expenses of any kind, including attorney's fees and other costs and expenses of litigation for personal or property damage to contractor or to third parties arising out of contractor's performance of the duties required by this contract.

County agrees as follows:

7. In consideration of the faithful performance of all of the obligations, general and special, herein set out and in consideration of the faithful performance of the work as set forth in the contract documents in accordance with the county and to its satisfaction, the county agrees to pay to the contractor the amount earned and to make such payments in the manner and at the times provided in the applicable specifications and schedule of contract prices.

The parties mutually agree as follows:

8. Miscellaneous

8.1 Integration

This contract supersedes all prior oral or written agreements between contractor and county regarding this project. It represents the entire agreement between the parties.

8.2 Savings

Should any clause or section of this contract be declared by a court to be void or voidable, the remainder of this contract shall remain in full force and effect.

8.3 Waiver: Modification

Failure to enforce any provision of this contract does not constitute a continuing waiver of that provision, any other provision or of the entire contract. The rights and duties under this contract shall not be modified, delegated, transferred or assigned, except upon the written-signed consent of both parties.

8.4 Jurisdiction; Law

This contract is executed in the State of Oregon and is subject at all times to Tillamook County Ordinances and Oregon law and jurisdiction. Venue shall be in Tillamook County, unless otherwise agreed by the parties.

8.5 Attorney Fees

Attorney fees, costs and disbursements necessary to enforce this contract through mediation, arbitration and/or litigation, including appeals, shall be awarded to the prevailing party, unless otherwise specified herein or agreed.

8.6 Notices

Any notice required or permitted under this contract shall be in writing and deemed given when:

- 8.6.1. Actually delivered, or
- 8.6.2. Three (3) days after deposit in the United States Mail, certified, postage prepared, addressed to the other party at their last known address.

8.7 Breach

Contractor agrees to immediately notify county of any potential unauthorized breach, use or disclosure of data or information, and to take all actions reasonably necessary to prevent further unauthorized use or disclosure thereof.

ACKNOWLEDGEMENT: EACH PARTY REPRESENTS TO THE OTHER BY THEIR SIGNATURES BELOW THAT EACH HAS READ, UNDERSTANDS AND AGREES TO ALL COVENANTS, TERMS AND CONDITIONS OF THIS CONTRACT. EACH PARTY REPRESENTS BY THEIR SIGNATURES BELOW TO HAVE THE ACTUAL AND/OR APPARENT AUTHORITY TO BIND THEIR RESPECTIVE PARTY IN CONTRACT.

Approved as to form this 24th day of October 2023.

Contract Officer	
Dated this day of	, 2023.
CONTRACTOR:	COLUMBIA-CASCADE CONSTRUCTION, INC.
Randall Bauer 10115 SE Schacht Boring, Oregon 97089 503-665-7767 columbiacascade@yahoo.o	

111

Dated this day of	, 2023.			
THE BOARD OF COMMISSIONERS FOR TILLAMOOK COUNTY, OREGON				
		Aye	Nay	Abstain/Absent
				/
Erin D. Skaar, Chair				
				/
Mary Faith Bell, Vice-Chair				
				/
David Yamamoto, Commissioner				
ATTEST: Christy Biggs, County Clerk		APP	ROVED	AS TO FORM:
By:				
Special Deputy			ım K. S ıty Cou	argent,
		Outil	ity OUU	11361

GENERAL CONDITIONS

1. <u>CONFLICTS</u>

In case of conflict between the general conditions and the project specifications (also known as "special provisions"), the project specifications shall govern.

2. START OF WORK

- 2.1 The contractor is not authorized to go onto the property on which the work is to be done, nor move materials, equipment or workers onto that property, nor to start on-site work until the contract with the county is signed, the county sends the contractor written notice to proceed with the work and the contractor has filed the public works bonds required in the invitation to bid.
- 2.2 The contractor shall coordinate with the county's designated representative in accordance with the project specifications.

3. <u>TIME OF COMPLETION</u>

The contract completion date for this project shall be June 30, 2024.

4. <u>DESCRIPTION OF WORK</u> (also known as project special provisions or specifications)

Contractor shall execute details of the contract in accordance with the attached project specifications.

5. <u>LIQUIDATED DAMAGES</u>

If the contractor fails to have all the work completed by the contract completion date, the contractor shall be assessed liquidated damages. The actual cost to the public for the failure of the contractor to complete the work on time will be difficult and/or impractical to determine. Therefore, it is agreed the contractor pay the county, not as a penalty but as liquidated damages, Four Hundred Dollars (\$400) per calendar day for each day after the contract completion date until all of the contract work is completed.

6. PROGRESS PAYMENTS

6.1 The contractor shall receive progress payments for the work completed at the end of each month; less a five percent (5%) retainage. Additional retainage of twenty-five percent (25%) of amounts earned will be withheld and released according to ORS 279C.845 when the contractor fails to file the certified statements required in ORS 279C.845.

- 6.2 Progress payments will be based upon estimates of the work completed, that are approved by the county's designated representative, as of the end of the month.
- 6.3 Progress payments will include payment for materials delivered to the site, but not incorporated into the work. To receive progress payments for these materials the contractor shall provide the county with statements or invoices by the supplier stating the type, quantity and cost of the materials. Progress payments shall not be considered acceptance or approval of any work or waiver of any defects therein.
- 6.4 Contractor requests for progress payments shall be in a format following the bid line items to facilitate project cost tracking.
- 6.5 The payments will be made within thirty (30) days after the receipt of the contractor's invoice. Monthly invoices shall be submitted simultaneously to:

Board of Commissioners' Office Attn: Rachel Hagerty 201 Laurel Avenue Tillamook, Oregon 97141

7. PERFORMANCE BOND

The successful bidder will be required to furnish a Performance and Labor & Material Bond in the amount of one hundred percent (100%) of the contract as security for the faithful performance of this contract and as security for payment of all persons performing labor under this contract and furnishing materials in connection with this contract.

8. PUBLIC WORKS BOND

Before starting work, the contractor and sub-contractors shall each file with the Construction Contractors Board and maintain in full force and effect, a separate public works bond, in the amount of Thirty Thousand Dollars (\$30,000) unless otherwise exempt, under ORS 279C.836(7) or (8). The contractor shall verify sub-contractors have filed a public works bond before the sub-contractor begins work.

9. LIABILITY INSURANCE

The contractor shall obtain and maintain such public liability and damage insurance as will protect the contractor for any and all claims for damage or

personal injury, including death, which may arise from the operations under the contract. Such insurance shall provide coverage for not less than the following:

Property Damage: \$1,000,000 (one claimant)

\$2,000,000 (all claimants)

Personal Injury or Death: \$2.000,000 (one claimant)

\$2,000,000 (all claimants)

Such insurance shall be on an occurrence basis only and be evidenced by a certificate of insurance provided to the county, indicating coverages, limits and effective dates, by an insurance company licensed to do business in the State of Oregon. An endorsement shall be issued by the company showing the county as an additional insured on all coverages, excepting medical/professional malpractice insurance. The endorsement shall also contain a notice of cancellation provision.

10. RECYCLING

- 10.1 If the project proposal includes demolition, the contractor is required to salvage or recycle construction and demolition debris, if feasible and cost-effective in accordance with ORS 279C.510(1).
- 10.2 If the project proposal includes lawn and landscape maintenance, the contractor is required to compost or mulch yard waste material at an approved site, if feasible and cost effective.

11. WORK BY OTHERS

County's representative will track contractor progress. Details of county's representative involvement with the contractor are outlined in the project specifications.

12. WARRANTY

- 12.1 Contractor shall warrant all project work, labor and materials performed in accordance with these contract documents for one (1) year after the date of substantial completion of the work subject to the following, if applicable:
 - 12.1.1. Terms of an applicable special warranty required by the contract documents, or
 - 12.1.2. Extension of start of the one (1) year warranty time period based upon completion of portions of outstanding work to be completed after notice of substantial completion. The specific details of what comprises substantial completion shall be prepared and submitted by the contractor to the owner for approval/concurrence.

13. CORRECTION OF WORK

For any portion of project work found not to be in accordance with the contract documents, the contractor shall correct it promptly after receipt of written notice from the owner to do so unless the owner has previously given the contractor a written acceptance of such condition. Owner will give such notice promptly after discovery of the condition. The one (1) year warranty on such corrected work will begin when the correction has been made.

14. <u>SCHEDULES & INSPECTIONS</u>

- 14.1 All work is to be inspected during construction by the county's representative.
- 14.2 Schedules and inspections coordination with the county's representative shall be in accordance with the project specifications.

15. PERMITS

- 15.1 The contractor shall obtain and pay for all permits and connection fees pertaining to the construction of this project as required with the following exception:
 - 15.1.1. The county has obtained the required environmental clearance permit for the project construction as outlined in the plans.
- 15.2 The contractor shall pay all other permit fees including utility connection fees and monthly invoices related to utilities usage for project work. See project specifications for more information.
- 15.3 All contractor paid permit and connection fees shall be incorporated into the Bid Form Part I Quote (except as noted above) under the general requirements bid item.

END OF GENERAL CONDITIONS

PUBLIC CONTRACT PROVISIONS

- Contractor shall pay promptly, as due, all persons supplying labor or materials for the prosecution of the work provided for in the contract, and shall be responsible for such payment of all persons supplying such labor or material to any subcontractor.
- 2. The contractor shall include in each sub-contract for property or services entered into by the contractor and a first-tier sub-contractor, including a material supplier, for the purpose of performing this contract:
 - 2.1 A payment clause that obligates the contractor to pay the first-tier subcontractor for satisfactory performance under its sub-contract within ten (10) days out of such amounts as are paid to the contractor by the county under this contract: and
 - 2.2 An interest penalty clause that obligates the contractor, if payment is not made within thirty (30) days after receipt of payment from the county, to pay to the first-tier sub-contractor an interest penalty on amounts due in the case of each payment not made in accordance with the payment clause included in the sub-contract pursuant to ORS 279C.580. A contractor or first-tier sub-contractor shall not be obligated to pay an interest penalty if the only reason that the contractor or first-tier sub-contractor did not make payment when payment was due is that the contractor or first-tier sub-contractor did not receive payment from the county or contractor when payment was due. The interest penalty shall be:
 - 2.2.1. For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and
 - 2.2.2. Computed at the rate specified in ORS 279C.515(2).
 - 2.3 A provision requiring the sub-contractor to have a public works bond filed with the Construction Contractors' Board before starting work on the project, unless exempt.
 - 2.4 A provision requiring that the workers shall be paid not less than the specified minimum hourly rate of wage.
- 3. The contractor shall include in each of its sub-contracts, for the purpose of performance of such contract condition, a provision requiring the first-tier sub-contractor to include a payment clause and an interest penalty clause conforming to the standards of ORS 279C.580(4) in each of its sub-contracts and to require each of its sub-contractors to include such clauses in their sub-contracts with each lower-tier sub-contractor or supplier.
- 4. If the contractor or a sub-contractor fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with a public contract, the

person may file a complaint with the Construction Contractors' Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580.

- 5. A dispute between the contractor and a sub-contractor relating to the amount of entitlement of a sub-contractor to a payment or a late payment interest penalty under a clause including in the sub-contract, pursuant to this section, does not constitute a dispute to which the county is a party. The county shall not be included as a party in any administrative or judicial proceedings involving such a dispute.
- 6. The rights, duties and obligations of the contractor, sub-contractors and county with respect to relations with the contractor shall be as set forth in ORS 279C.580 incorporated herein by reference.
- 7. Contractor shall promptly pay all contributions or amounts due the Industrial Accident Fund from such contractor or sub-contractor incurred in the performance of the contract, and shall be responsible that all sums due the State Unemployment Compensation Fund from contractor or any sub-contractor in connection with the performance of the contract shall promptly be paid.
- 8. Contractor shall not permit any lien or claim to be filed or prosecuted against the county on account of any labor or materials furnished and agrees to assume responsibility for satisfaction of any such lien so filed or prosecuted.
- 9. Contractor and any sub-contractor shall pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.
- 10. Contractor shall demonstrate to the county, within ten (10) days of receiving a notice of award, that contractor has an employee drug testing program pursuant to ORS 279C.505(2).
- 11. If contractor fails, neglects or refuses to make prompt payment of any claim for labor or materials furnished to the contractor or a sub-contractor by any person in connection with the contract as such claim becomes due, the owner may pay such claim to the persons furnishing the labor or materials and charge the amount of payment against funds due or to become due contractor by reason of the contract. The payment of a claim in the manner authorized hereby shall not relieve the contractor or contractor's surety from contractor's or surety's obligation with respect to any unpaid claim. If the owner is unable to determine the validity of any claim for labor or materials furnished, the owner may withhold from any current payment due contractor an amount equal to said claim until its validity is determined and the claim, if valid, is paid.
- 12. If the contractor or a first-tier sub-contractor fails, neglects, or refuses to make payment to a person furnishing labor or materials in connection with the public contract for a public improvement within thirty (30) days after receipt of payment

from the public contracting agency or contractor, the contractor or first-tier subcontractor shall owe the person the amount due plus interest charges commencing at the end of the ten (10) day period that payment is due under ORS 279C.580 and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest charged to contractor or first-tier sub-contractor on the amount due is nine percent (9%) annum. The amount of interest may not be waived.

- 13. Contractor shall promptly, as due, make payment to any person, co-partnership, association, or corporation furnishing medical surgical and hospital care or other needed care and attention, incident to sickness or injury, to employees of such contractor, of all sums which the contractor agrees to pay for such services and all monies and sums which the contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.
- 14. Contractor shall employ no person for more than ten (10) hours in any one (1) day, or forty (40) hours in any one (1) week, except in cases of necessity, emergency, or where public policy absolutely requires it, and in such cases, contractor shall pay the employee at least time and one-half (1 and 1/2) pay for all overtime in excess of eight (8) hours a day or forty (40) hours in any one (1) week when the work is five (5) consecutive days, Monday through Friday; or for all overtime in excess of ten (10) hours a day or forty (40) hours in any one (1) week when the work week is four (4) consecutive days, Monday through Friday, and for all work performed on Saturday and on any legal holidays as specified in ORS 279C.540.
- 15. The contractor must give notice to employees who work on this contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and the days per week that the employees may be required to work.
- 16. This is a contract subject to prevailing wage rates. Contractor shall comply with the provisions of ORS 279C.840 to 279C.870. Workers shall be paid not less than the specified minimum hourly rate of wage in accordance with ORS 279C.838. Every sub-contract shall contain a provision imposing the requirements of this program.
- 17. All employers including contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors complies with these requirements.

- 18. All sums due the State Unemployment Compensation Fund from the contractor or any sub-contractor in connection with the performance of the contract shall be promptly paid.
- 19. The contract may be cancelled at the election of owner for any willful failure on the part of contractor to faithfully perform the contract according to its terms.
- 20. Contractor must give notice to employees, in writing, that they cannot be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing information that the employee reasonably believes is evidence of gross mismanagement of a Federal contract or grant, a gross waste of Federal funds, an abuse of authority relating to a Federal contract or grant, a substantial and specific danger to public health or safety, or a violation of a law, rule, or regulation related to a Federal contract or grant.
- 21. Various federal, state and local agencies have enacted ordinances or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the performance of this contract. These agencies include, but are not limited to:

FEDERAL AGENCIES:

Agriculture, Department of

Forest Service

Natural Resources Conservation Service

Defense, Department of

Army Corps of Engineers

Environmental Protection Agency

Interior, Department of

US Fish and Wildlife Service

Bureau of Land Management

Bureau of Indian Affairs

Bureau of Reclamation

Labor, Department of

Occupational Safety and Health Administration

STATE AGENCIES:

Agriculture, Department of
Environmental Quality, Department of
Fish and Wildlife, Department of
Forestry, Department of
Land Conservation and Development Commission
Soil and Water Conservation Commission

LOCAL AGENCIES:

City Council County Court

County Commissioners, Board of Port Districts County Service Districts Sanitary Districts Water Districts Fire Protection Districts

Pursuant to ORS 279C.525(1). If the successful bidder awarded the project is delayed or must undertake additional work by reason of existing regulations or ordinances of agencies not cited in the public contract or due to the enactment or new or the amendment of existing statutes, ordinance or regulations relating to the prevention of environmental pollution and the preservation of natural resources occurring after the submission of the successful bid, the public contracting agency may:

- 21.1 Terminate the contract:
- 21.2 Complete the work itself;
- 21.3 Use non-agency forces already under contract with the public contracting agency;
- 21.4 Require that the underlying property owner be responsible for cleanup;
- 21.5 Go out to bid for a new contractor to provide the necessary services under the competitive bid requirements of ORS 279C.335; or
- 21.6 Issue the successful bidder a change order setting forth the additional work that must be undertaken.

END OF PUBLIC CONTRACT PROVISIONS

SECTION 00030 BID DOCUMENTS PART I (BID FORM)

Bid Closing:

€:00 km. on Monday, September 25, 2023

Bid Form Part I due at bid closing 🧳

Bid Form Part II due not later than 2:00 p.m. on Monday,

September 25, 2023 (i.e. within two (2) working hours of the above

bid due date/time).

Submission location indicated on the Part II Bid Form.

Bid Opening:

19:05 a.m. on Monday, September 25, 2023

Submitted to:

Tillamook County Board of Commissioners' Office, Attention: Isabel

Gilda, 201 Laurel Avenue, Tillamook, Oregon 97141

BID FORM

ITEM NO. ITEM QUANTITY UNIT TOTAL PRICE 1 DA Office Remodel 1 Lump Sum \$337,600 Total Project (Alpha):	1			
1	DA Office Remodel	1	Lump Sum	\$337.600
Total Proje	ect (Alpha):			337,600-

Proposed Performance Schedule (for county informational purposes only)

WORK PERIOD	# OF CALENDAR DAYS
From Notice to Proceed to Submittals and Material Procurement	90
For On-site Execution of Work to Substantial Completion	90
From Substantial Completion to Final Completion	30
Total (Full Contract Execution)	210

Bid Form (Part I) not complete without all 2 pages.

Initials (same person signing page 2 of this Bid Form)

13 of 46 - CALL FOR BIDS - PREVAILING WAGE RATE CONTRACT FOR CONSTRUCTION (2/2023) DISTRICT ATTORNEY OFFICE REMODEL

I have examined copies of all project bid documents and the following addenda:
DATE: ADDENDUM # DATE: ADDENDUM #
I certify that I will comply with the Prevailing Wage Laws as required in ORS 279C.800 to 279C.870 or 40 USC 276a. I certify that I will comply with the Oregon Workers' Compensation Laws as required in ORS 656.017. I certify that this company is a resident bidder, as defined by ORS 279A.120, of the State of Oregon. I certify that this company has a valid certificate of registration with the Oregon Construction Contractors' Board. Registration No
QUOTE BY: Mandell & R. (Signature) Columbia Cascade Corret The (Company)
(Company) 10115 SE Schacht, Dignascus, 02 97069 (Address, City, State, Zip) 503-665-7767-503-750-7348 Cell (Phone Number)
, , , , , , , , , , , , , , , , , , , ,

* Quote may also be called "bid schedule" elsewhere in project documents.

14 of 46 - CALL FOR BIDS – PREVAILING WAGE RATE CONTRACT FOR CONSTRUCTION (2/2023) DISTRICT ATTORNEY OFFICE REMODEL

SECTION 00040

BID DOCUMENTS PART II (FIRST-TIER SUB-CONTRACTOR DISCLOSURE FORM)

In accordance with OAR 137-049-0360:

PROJECT NAME:

DISTRICT ATTORNEY OFFICE REMODEL

BID CLOSING:

10:00 a.m. on Monday, September 25, 2023

DISCLOSURE FORM

SUBMISSION DEADLINE:

12:00 p.m. on Monday, September 25, 2023 (i.e.

within 2 working hours of the above bid due date/time)

This form must be submitted not later than the DISCLOSURE FORM SUBMISSION DEADLINE stated above.

List below the name and category of work that each sub-contractor will be performing. List of all sub-contractors that will be furnishing labor or labor and materials that are required to be disclosed. Enter "NONE" if there are no sub-contractors that need to be disclosed. (IF NEEDED, ATTACH ADDITIONAL SHEETS)

NAME	CATEGORY OF WORK	VALUE OF SUB- CONTRACT
Bartel Contracting	Francis Dryispil	25,000 -
NW Endequois	Phoring	12,900 -
INLAND ELEC.	Electrical	143,439

The above listed first-tier sub-contractor(s) are providing labor or labor and materials where a dollar value would be equal to or greater than:

- Five percent (5%) of the total contract price, but at least Fifteen Thousand Dollars (\$15,000) (including all alternates). If the dollar value is less than Fifteen Thousand Dollars (\$15,000), do not list the sub-contractor above, or
- Three Hundred Fifty Thousand Dollars (\$350,000) regardless of the percentage of the total contract price.

Bids which are submitted by bid closing, but for which the separate and sealed disclosure submittal has not been submitted by the specified deadline, are not responsive and shall not be considered for contract award.

Form Submitted by:

(Bidder Name)

Bidder Signature (same as Part I Bid Form):

n: RaiduM & S -

15 of 46 - CALL FOR BIDS - PREVAILING WAGE RATE CONTRACT FOR CONSTRUCTION (2/2023) DISTRICT ATTORNEY OFFICE REMODEL

DISTRICT ATTORNET OFFICE REMODEL
Contact Name: Randall H. Baller Phone: 503-750-7348
Deliver Form to: Tillamook County Commissioners' Office Person Designated to Receive Form: Isabel Gilda Phone: (503) 842-3403 Owner's Address: 201 Laurel Avenue, Tillamook, Oregon 97141
Unless otherwise stated in the original solicitation, this document shall not be faxed. It is the responsibility of the bidders to separately submit this disclosure form and any additional sheets (if required), with the project name clearly marked, at the location indicated in the invitation to bid by the specified disclosure deadline. See invitation to bid for further details.
END OF BID FORM PART II
STATE OF Oregon) COUNTY OF Clackumas)
The undersigned hereby certifies to the truth and accuracy of all statements, answers and data contained in this bid and application and hereby authorizes Tillamook County to make any necessary examinations or inquiries in order to make a determination to the qualifications and responsibility of the bidder. The undersigned has examined all parts of the Call for Bids and understands that it is completely discretionary with the county whether to accept or reject its bidder submitted pursuant thereto.
OFFICIAL STAMP REBECCA BAUER NOTARY PUBLIC - OREGON COMMISSION NO. 999415 MY COMMISSION EXPIRES MAY 20, 2024 MY Title
Sworn before me this 25 day of 5ept , 2023.
Buce Daus

Notary Public for the State of Oregon

My commission expires on 5 20 2024

16 of 46 - CALL FOR BIDS - PREVAILING WAGE RATE CONTRACT FOR CONSTRUCTION (2/2023) DISTRICT ATTORNEY OFFICE REMODEL

LOCATION:

Tillamook County Courthouse 201 Laurel Avenue, Tillamook, Oregon 97141

August 28, 2023 INITIAL ADVERTISEMENT DATE:

SECTION 00010	2
CALL FOR BIDS	
SECTION 00020	
INVITATION TO BID	
GENERAL	3
SECTION 00030	
BID DOCUMENTS	13
PART I (BID FORM)	13
SECTION 00040	15
BID DOCUMENTS	15
PART II (FIRST-TIER SUB-CONTRACTOR DISCLOSURE FORM)	15
SAMPLE CONTRACT WITH GENERAL CONDITIONS	
PUBLIC CONTRACT PROVISIONS	
SPECIFICATIONS AND PLANS	

SECTION 00010 CALL FOR BIDS

This project consists of demolition, patching, wall construction, door construction, floor finishes, painting, millwork and cabinets, plumbing work, electrical work, data raceways and ceiling fans.

Specifications and bid forms may be viewed at the Tillamook County Courthouse, Attention: Isabel Gilda, 201 Laurel Avenue, Tillamook, Oregon 97141, between 8:00 a.m. and 4:00 p.m., Monday through Friday. The specifications and bid forms may be obtained electronically, at no charge, by e-mailing igilda@co.tillamook.or.us. Each prospective contractor must provide full company name, address, contact name, phone and e-mail address at the time of request.

Bidders will not be required to be pre-qualified under ORS 279B.120.

This contract is for a project that is subject to ORS 279C.800 to 279C.870 (Prevailing Wage Law).

Sealed bids shall be submitted to: Tillamook County Board of Commissioners' Office, Attention: Isabel Gilda, 201 Laurel, Tillamook, Oregon 97141. Sealed bids shall be marked "DISTRICT ATTORNEY OFFICE REMODEL" and be submitted no later than Monday, September 25, 2023 at 10:00 a.m. Bids received after this time shall be returned unopened. Bids may be withdrawn at any time, prior to opening, upon written request of the bidder. NO BIDS WILL BE ACCEPTED BY WAY OF FAX OR ELECTRONIC DATA INTERCHANGE.

All bids will be opened and read aloud in the Nestucca Room in the basement of the Tillamook County Courthouse on Monday, September 25, 2023 at 10:05 a.m.

SECTION 00020 INVITATION TO BID

GENERAL

1.1 STATEMENT OF WORK

- 1.1.1 This project consists of demolition, patching, wall construction, door construction, floor finishes, painting, millwork and cabinets, plumbing work, electrical work, data raceways and ceiling fans. Work is to be completed in all respects and in full conformity with the contract documents.
- 1.1.2 The project site is located at the Tillamook County Courthouse, 201 Laurel Avenue, Tillamook, Oregon 97141. Contact Kevin Jolly, Maintenance Supervisor, at kevin.jolly@tillamookcounty.gov or 503-812-8769 to schedule a site inspection outside of the non-mandatory pre-bid conference.

1.2 NOTICE TO BIDDERS

- 1.2.1 Sealed bids for this DISTRICT ATTORNEY OFFICE REMODEL will be received by the Tillamook County Board of Commissioners' Office, Attention: Isabel Gilda, 201 Laurel Avenue, Tillamook, Oregon 97141, no later than Monday, September 25, 2023 at 10:00 a.m. Bid opening will be conducted in the Nestucca Room in the basement of the Tillamook County Courthouse, 201 Laurel Avenue, Tillamook, Oregon 97141. Bids will be publicly opened and read aloud on Monday, September 25, 2023 at 10:05 a.m.
- 1.2.2 In accordance with state law, Tillamook County uses and incorporates portions of the Oregon Attorney General's Model Public Contract Rules (Oregon Administrative Rules, Chapter 137, Division 46 (Public Contracting), Division 47 (Procurements for Goods or Services) and Division 49 (Public Contracts for Construction Services).
- 1.2.3 Vendors shall use recyclable products to the maximum extent economically feasible in the performance of the contract work set forth in this document. Bidder shall specify the minimum, if not exact, percentage of recycled paper in paper products or recycle product in products offered and both the post-consumer and secondary waste content regardless of whether the product meets what percentage of recycled material specified for recycled paper or recycled products in ORS 279A.010 and ORS 279A.125. For paper products the bidder shall also specify the fiber type. The contractor may certify a zero percent (0%) recycled paper or product.

1.3 PRE-QUALIFICATIONS

- 1.3.1 For the purpose of this project the county elects not to request prequalifications of bidders. The submittal of a bid bond, a performance bond and a public works bond shall be required as specified within the contract documents.
- 1.3.2 The contractor and all sub-contractors who will perform work on this project will not be required to be licensed under ORS 468A.720 for asbestos abatement.

1.4 NON-MANDATORY PRE-BID CONFERENCE

1.4.1 A non-mandatory pre-bid conference will be held at the project site on Tuesday, September 12, 2023 at 10:00 a.m. Convene in the hallway outside the District Attorney's office on the top floor of the courthouse.

1.5 CONSTRUCTION DOCUMENTS

- 1.5.1 Construction documents, consisting of those components outlined in the Table of Contents (Section 00010), may be examined at: Tillamook County Courthouse, Attention: Isabel Gilda, 201 Laurel Avenue, Tillamook, Oregon 97141, between 8:00 a.m. and 4:00 p.m., Monday through Friday.
- 1.5.2 Copies of construction documents may be obtained electronically, at no charge, by e-mailing igilda@co.tillamook.or.us. Bona-fide prime bidders MUST register their business name, address and telephone/fax number when obtaining documents in order to receive any addenda or other pertinent information.

FAILURE TO REGISTER IS SOLELY THE RESPONSIBILITY OF THE PROSPECTIVE BIDDER.

1.6 BID SUBMITTAL REQUIREMENTS

1.6.1 No bid will be considered unless fully completed in the manner provided in the invitation to bid upon the Bid Form provided by the county and accompanied by a bid bond, cashier's check or certified check executed in favor of Tillamook County, Oregon, in an amount not less than ten percent (10%) of the total amount of the bid. Bid bonds will be accompanied by power of attorney bearing the same date as the bond. Bid bond, cashier's check or certified check to be forfeited as a fixed and liquidated damage should bidder neglect or refuse to enter into a contract and provide suitable bond for the faithful performance of the work in the event the contract is awarded to them.

1.6.2 No bid will be considered unless the first-tier sub-contractor disclosure Form (Bid Form Part II) is submitted no later than Monday, September 25, 2023 at 12:00 p.m. to the bid submission location indicated above (i.e. within two (2) working hours of the scheduled bid due date and time). The lunch hour is not considered a working hour as related to first-tier subcontractor disclosure. It is the responsibility of the bidder to submit the disclosure form and any additional sheets, with the project name clearly marked, at the location indicated by the specified disclosure deadline.

1.7 BID FORM

- 1.7.1 Bid Form (Part I) includes any attachments that may be required with the Bid Form.
- 1.7.2 Bids shall be submitted on the forms provided by the county.
- 1.7.3 All blanks on the Bid Form shall be filled in by typewriter or manually in ink.
- 1.7.4 Any interlineation, alteration or erasure must be initialed by the signer of the bid.
- 1.7.5 BIDDER SHALL MAKE NO ADDITIONAL STIPULATIONS ON THE BID FORM NOR QUALIFY THE BID IN ANY OTHER MANNER.
- 1.7.6 Each copy of the bid shall include the legal name of the bidder and shall be signed by the person or persons legally authorized to bind the bidder to a contract.
- 1.7.7 A bid submitted by an Agent shall have a current power of attorney attached certifying agent's authority to bind bidder.

1.8 BID SECURITY

- 1.8.1 Each bid shall be accompanied with either a cashier's check, certified check or bid bond payable to Tillamook County in a specific amount not less than ten percent (10%) of the total proposed bid price. Bid bond shall be furnished by a bonding company licensed to do business in the State of Oregon. Bid bond shall be accompanied by power of attorney bearing the same date as the bond.
- 1.8.2 Security of the successful bidder to whom the contract is awarded will be returned when the bidder's formal written contract, performance and payment bond and certificate of insurance have been properly executed, delivered to and accepted by the county.

- 1.8.3 The county reserves the right to retain the bid security of the next two (2) lowest bidders until the low bidder enters into a contract with the county or until no more than forty-five (45) calendar days after the bid opening, whichever is shorter. Bid security of all other bidders will be returned as soon as practicable after the bid opening.
- 1.8.4 Any bidder with whom a contract is offered, who defaults in executing the contract or in furnishing the performance and payment bond and certificate of insurance within the time and in the manner required shall forfeit its bid security, in whole or in part, as liquidated damages, but not as a penalty, up to the full amount of the bid security or the difference between the low bid and the next acceptable bid, whichever is greater. In addition, the county shall be entitled to payment for damages and expenses, including attorney fees, with or without action, to enforce the county's rights hereunder.

1.9 SUBMISSION OF BIDS

- 1.9.1 All copies of the bid, the bid security and any other documents required to be submitted with the bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the county and shall be identified with the project name and the bidder's name and address.
- 1.9.2 If the bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof.
- 1.9.3 Bids shall be sent to/deposited at or received by the Tillamook County Commissioners' Office prior to the time and date for receipt of bids indicated in the invitation to bid for bids or any extension thereof made by addendum. Hand delivered bids shall be presented to: Tillamook County Board of Commissioners' Office, Attention: Isabel Gilda, 201 Laurel, Tillamook, Oregon 97141.
- 1.9.4 Bids received after the time and date for receipt of bids (bid closing) will be returned unopened.
- 1.9.5 Bidders shall assume full responsibility for timely delivery at location designated for receipt of bids.
- 1.9.6 Oral, telephone, facsimile or telegraph bids are invalid and will not receive consideration.

1.9.7 A bid may not be modified, withdrawn or cancelled by the bidder for forty-five (45) days following the time and date designated for the receipt of bids and bidder so agrees in submitting a bid.

1.10 ADDENDA

1.10.1 Addenda are written or graphic instruments issued by the county or engineer prior to the execution of the contract which modify or interpret the bidding documents, by additions, deletions, clarifications or corrections. Addenda will become part of the contract documents when the construction contract is executed.

1.11 ADDITIVE ALTERNATE BID

1.11.1 An <u>additive</u> alternate bid (authorized by the county, if any) is an amount stated in the bid to be added to the amount of the base bid if the c<u>ounty, in its sole discretion, elects to authorize</u> the corresponding change in project scope or materials or methods of construction described in the bidding documents.

1.12 PREVAILING WAGE RATES

- 1.12.1 If this contract is for a public work subject to ORS 279C.800 to 279C.870:
 - 1.12.1.1 No bid will be received or considered by the county unless the bid contains a statement by the bidder as part of its bid that the provisions of ORS 279C.840 or 40 USC 276a are to be complied with.
 - 1.12.1.2 The successful bidder and all subsequent subcontractors shall comply with ORS 279C.845 wage rate requirements and produce appropriate certificates that they have complied.
 - 1.12.1.3 Oregon Prevailing Wage Rate Bulletin dated July 5, 2023, applies to this project.

1.13 RESIDENT BIDDER

1.13.1 The county will not consider a bid proposal unless it contains a statement as to whether a bidder is a resident bidder as defined in ORS 279A.120.

1.14 CONTRACTOR REGISTRATION

1.14.1 The county will not receive or consider a bid proposal for a construction contract unless the bidder is registered with the Oregon Construction Contractors Board or licensed by the State Landscape Contractors Board as required by ORS 671.530.

1.15 PUBLIC WORKS BOND

1.15.1 Before starting work, the contractor and sub-contractors shall each file with the Oregon Construction Contractors Board (CCB) and maintain in full force and effect, a separate public works bond, in the amount of Thirty Thousand Dollars (\$30,000) unless otherwise exempt, as required by Oregon Laws 2005, Chapter 360 and OAR 839-025-0015. The contractor shall verify subcontractors have filed a public works bond before the subcontractor begins work.

1.16 LOWEST RESPONSIBLE BIDDER

1.16.1 In determining the lowest responsible bidder, the county will utilize standards of responsibility as outlined in ORS 279C.375. This may include referencing the CCB website to determine "contractors not qualified to hold or bid upon public contracts or public improvement projects". The internet URL for the CCB home page is: http://www.oregon.gov/CCB. Verification of current list information may be followed up with telephone contact with the CCB Office.

1.17 RIGHTS OF THE BOARD

- 1.17.1 It is the intent of the Tillamook County Board of Commissioners to award a contract to the lowest responsible bidder provided the bid has been submitted in accordance with the requirements of the bidding documents and does not exceed the funds available. The Tillamook County Board of Commissioners shall have the right to waive informalities or irregularities in a bid received and to accept the bid which, in the board's judgment, is in the county's own best interests.
- 1.17.2 The county may reject any bid not in compliance with all prescribed public contracting procedures, requirements and other applicable laws including the requirement to demonstrate the bidder's responsibility under ORS 279C.375(3)(b). The county may reject for good cause, any or all bids upon a finding of the county that it is in the public interest to do so.

1.18 EXISTING CONDITIONS AND DIMENSIONS

- 1.18.1 Field verify existing conditions prior to bid opening. Request clarification from the engineer for conditions found that are in conflict with information shown on the drawings or specified PRIOR TO BID OPENING.
- 1.18.2 Field verify existing dimensions prior to bid opening. Do not scale measurements or dimensions from the drawings. Bid errors resulting from scaled measurements/dimensions shall be solely the responsibility of the bidder.

- 1.18.3 Field verify dimensions of new openings, new construction and new equipment/devices prior to ordering any material components subject to field dimensions. Successful bidder is responsible for dimensions which shall be confirmed and correlated at the project site for compatibility with project components intended to be a part of the work.
- 1.18.4 Failure to field verify existing conditions and new or existing dimensions by the bidder will not be reason to change the contract sum after award of a contract to the successful bidder.
- 1.18.5 Field verify existing structure materials prior to bid opening. Request clarification from the engineer for materials found that are in conflict with the information shown on the drawings or specified prior to bid opening. Bid errors resulting from failure to field verify existing structure materials shall be solely the responsibility of the successful bidder.
- 1.18.6 Failure to field verify existing conditions by the bidder will not be reason to change the contract sum after award of a contract to the successful bidder.

1.19 BIDDER'S REPRESENTATIONS

- 1.19.1 Each bidder, by making their bid, represents that they have read and understand ALL the bidding documents as outlined in the table of contents (Section 00010) and their bid is made in accordance therewith. The bidder, by making their bid represents that they have visited the site and familiarized themselves with the local conditions under which the work is to be performed. The bidder, by making their bid, represents that the bid is based upon the products, systems and equipment described in the bidding documents WITHOUT EXCEPTIONS.
- 1.19.2 Documents are available as specified herein. Neither the county nor engineer will be responsible for distribution of those documents. CONTRACTOR IS ADVISED TO EXAMINE ALL PORTIONS OF THE DOCUMENTS AS THEY FORM THE CONTRACT. Neither county nor engineer will be responsible for use by the contractor or sub-contractor of partial or incomplete sets of documents.

1.20 DISCREPANCIES AND AMBIGUITIES

1.20.1 Discrepancies between drawings and specifications, omissions, doubt as to meaning and other questions should be brought to the attention of the county or engineer not less than seven (7) days prior to bid opening and they will be answered by addendum addressed to all prime bidders of

- record. Questions received less than seven (7) days before the bid opening date cannot be answered by addendum.
- 1.20.2 Protests of bid specifications shall be presented, in writing, to the Tillamook County Counsel, 201 Laurel Avenue, Tillamook, Oregon 97141, at least seven (7) calendar days prior to the bid closing. No protests against the award because of the content of bid specifications shall be considered after this deadline. Any written protest shall include the reason(s) for protest and any proposed changes to the specifications.
- 1.20.3 All addenda issued during time of bidding will be incorporated into the contract. NEITHER THE COUNTY NOR ENGINEER WILL BE RESPONSIBLE FOR ORAL INTERPRETATIONS. The engineer shall make all decisions regarding discrepancies between drawings and specifications, based upon the engineer's determination as to which of the contract documents represents the original intent.
- 1.20.4 Addenda will be issued to the prime bidders of record registered as signing for bid documents. Neither the county nor engineer will be responsible for the distribution of Addenda to sub-contractors.

1.21 PRODUCT SUBSTITUTIONS

1.21.1 Discussion of product substitutions is outlined in the project specifications, if applicable.

1.22 NOTICE OF INTENT TO AWARD CONTRACT

- 1.22.1 When a decision is made regarding to whom the county intends to award the contract, the county will provide written notice to all project bidders of the county's intent to award the contract in accordance with OAR 137-047-0610.
- 1.22.2 This notice shall constitute a final decision of Tillamook County, if no written protest of the notice of intent to award, if filed with Tillamook County at Tillamook County Counsel, 201 Laurel Avenue, Tillamook, Oregon 97141, within seven (7) calendar days of the date of this notice of intent to Award pursuant to local contracting rules.

1.23 INSTRUCTIONS FOR FIRST-TIER SUB-CONTRACTOR DISCLOSURE

1.23.1 The disclosure deadline for submission of the first-tier sub-contractor disclosure form is stated on the Bid Form (Part II): 12:00 p.m. on Monday, September 25, 2023 (i.e., within two (2) working hours of the scheduled bid due date and time). Submission location is indicated on the Part II Bid Form.

The following is copied verbatim from OAR 137-049-0360: "Instructions for First-Tier Sub-contractor Disclosure." Bidders are required to disclose information about certain first-tier sub-contractors when the contract value for a public improvement is greater than One Hundred Thousand Dollars (\$100,000) (see ORS 279C.370). Specifically, when the contract amount of a first-tier sub-contractor furnishing labor or labor and materials would be greater than or equal to: (i) five percent (5%) = of the project bid, but at least Fifteen Thousand Dollars (\$15,000), or (ii) Three Hundred Fifty Thousand Dollars (\$350,000) regardless of the percentage, the bidder must disclose the following information about that subcontract either in its bid submission, or within two (2) hours after bid closing:

The sub-contractor's name;

The category of work that the sub-contractor would be performing; and The dollar value of the sub-contract. If the bidder will not be using any sub-contractors that are subject to the above disclosure requirements, the bidder is required to indicate "NONE" on the accompanying form. THE CONTRACTING AGENCY MUST REJECT A BID IF THE BIDDER FAILS TO SUBMIT THE DISCLOSURE FORM WITH THIS INFORMATION BY THE STATED DEADLINE (SEE OAR 137-049-0360).

- 1.23.2 Submission. A bidder shall submit the disclosure form required by this rule either in its bid submission, or within two (2) working hours after bid closing in the manner specified by the ITB.
- 1.23.3 Responsiveness. Compliance with the disclosure and submittal requirements of ORS 279C.370 and this rule is a matter of responsiveness. Bids that are submitted by bid closing, but for which the disclosure submittal has not been made by the specified deadline, are not responsible and shall not be considered for contract award.

1.24 WORKERS' COMPENSATION INSURANCE

- 1.24.1 The successful bidder and all subsequent sub-contractors shall comply with ORS 656.017, Oregon Workers' Compensation Law and produce appropriate certificates that they have complied.
- 1.24.2 All subject employers working under this contract shall either be employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126.

END OF INVITATION TO BID

Approved as to form and content this 18th day of August, 2023.

TILLAMOOK COUNTY CIRCUIT COURTHOUSE CONSTRUCTION DOCUMENTS

AUGUST 7, 2023



APPLICABLE CODES

OREGON STRUCTURAL SPECIALTY CODE 2022 OREGON PLUMBING SPECIALTY CODE 2021 **OREGON MECHANICAL SPECIALTY CODE 2019**

OREGON ELECTRICAL SAFETY CODE 2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE 2021

INDEX OF DRAWINGS

SPECIFICATIONS

SPECIFICATIONS

LEVEL 2 FLOOR PLAN - DISTRICT ATTORNEY'S OFFICE EVEL 2 REFLECTED CEILING PLAN - DISTRICT ATTORNEY'S OFFICE

SCHEDULES & FINISH FLOOR PLAN

MECHANICAL

ECHANICAL SYMBOLS, ABBREVIATIONS & NOTES **LEVEL 02 - HVAC PLAN**

LEVEL 02 - PLUMBING PLAN LEVEL 02 - PLUMBING DEMOLITION PLAN

ELECTRICAL

LEVEL 02 - ELECTRICAL PLANS

ELECTRICAL DIAGRAMS & SCHEDULES LEVEL 02 - DEMOLITION PLANS

TILLAMOOK CO. COURTHOUSE - DISTRICT ATTORNEY (DA) OFFICE REMODEL **201 LAUREL AVENUE 97141** TILLAMOOK, OREGON

OWNER'S REPRESENTATIVE

TILLAMOOK COUNTY COURTHOUSE 201 LAUREL AVENUE TILLAMOOK, OR 97141 (503) 842-3404

RACHEL HAGERTY RHAGERTY@CO.TILLAMOOK.OR.US

29 of 66 - PAREMADANENDINGAGERRATANLONDENTWAKGE IRASTECCOONSTIRACOTRONR(C/CONSSTRUCTION (2/2023)

DISTANCONTOORNEY OFFICE REMBIADEASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL

FACILITIES SUPERVISOR

TILLAMOOK COUNTY COURTHOUSE 201 LAUREL AVENUE TILLAMOOK, OR 97141 (503) 842-3404

KEVIN JOLLY KJOLLY@CO.TILLAMOOK.OR.US

ARCHITECTURE

DLR GROUP 110 SW YAMHILL STREET PORTLAND, OR 87204 (503)-200-3303

KENT LARSON, AIA, LEED AP KLARSON@DLRGROUP.COM

MECHANICAL

DLR GROUP 110 SW YAMHILL STREET PORTLAND, OR 87204 (503) 575-3441

KEITH MILLER. PE KMILLER@DLRGROUP.COM

ELECTRICAL

DLR GROUP 110 SW YAMHILL STREET PORTLAND, OR 87204 (503) 575-3450

ALEX RIDLEY, PE ARIDLEY@DLRGROUP.COM

MECHANICAL CONTRACTOR.

REFLECTED CEILING PLAN **GENERAL NOTES**

REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.

1. FACE OF FINISHED WALL 2. FACE OF FINISHED BULKHEADS

MASONRY EXTENDS MIN. 4" ABOVE FINISHED CEILING.

PAINT ALL EXISTING VENEER PLASTER (VP) CEILINGS WITH FIELD PAINT. MATCH FIELD PAINT INDICATED IN FINISH SCHEDULE - VERIFY WITH OWNER.

ROOM FINISH SCHEDULE **GENERAL NOTES**

A. ROOM FINISH SCHEDULE GENERAL NOTES APPLY TO ALL ROOM SEE SPECIFICATIONS FOR PAINTING OF ITEMS NOT NOTED IN TH

ROOM FINISH SCHEDULE CEILING HEIGHTS, AS NOTED ON THE REFLECTED CEILING PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.

CONTRACTOR SHALL FURNISH AND INSTALL WALL BASE AROUND SET JOINT OF THE MATERIALS AT THE CENTER OF THE COMMUNICATING DOOR. TYPICAL UNLESS NOTED OTHERWISE.

DEMOLITION GENERAL NOTES

COORDINATE DEMOLITION AND PHASING EFFORTS WITH PROVIDE BUILDING USER'S SAFETY. EXCESSIVE NOISE OR

OWNER'S REPRESENTATIVE COORDINATE DISRUPTION OF UTILITY SERVICES WITH OWNER AND AS SPECIFIED. AND NOTIFY ARCHITECT OF DISCREPANCIES. FIXTURES, CEILINGS, SOFFITS, MARKERBOARDS, ETC. IN THEIR

ENTIRETY AND AS REQUIRED TO EXECUTE DEMOLITION AND CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS

DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH OTHERWISE OR AS AUTHORIZED BY ARCHITECT.

VERIFY AND MAINTAIN LOCATION OF EXISTING POWER,

SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR

EXISTING ADJACENT SURFACES. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FO FURTHER SEQUENCING AND SCOPE OF WORK. . WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY

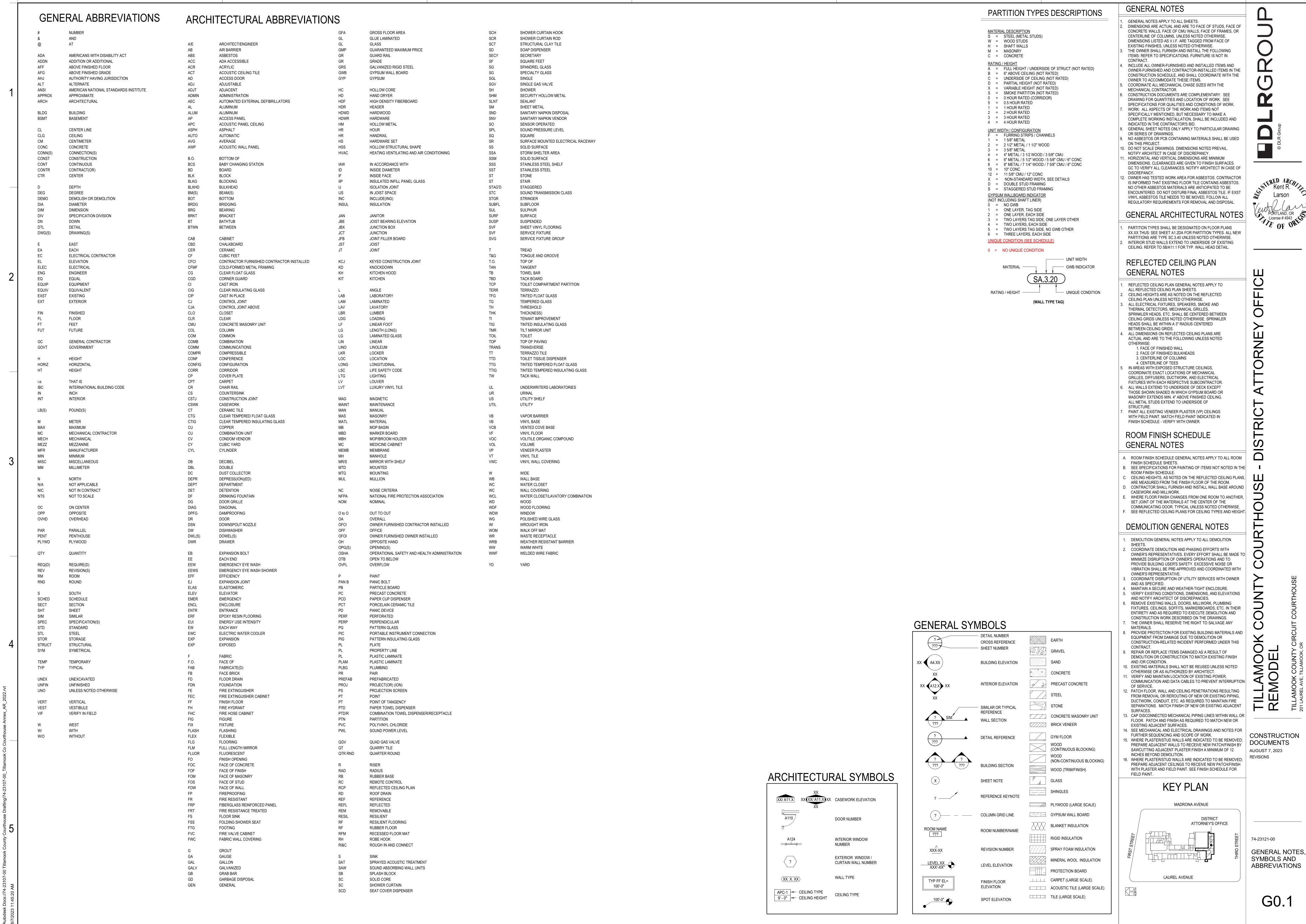
SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12 INCHES BEYOND DEMOLITION PREPARE ADJACENT CEILINGS TO RECEIVE NEW PATCH/FINISH WITH PLASTER AND FIELD PAINT, SEE FINISH SCHEDULE FOR

KEY PLAN

MADRONA AVENUE DISTRICT ATTORNEY'S OFFICE N E R

74-23121-00 **COVER SHEET**

G0.0



30 of 66 - PREMADENBIDISAGERRAVALLONDS VANGE IRATECCONSTIRACT FOR (2/2023)

DISTRICTORITY SHEFFECE REMINISTRATE CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL



CONTRACTOR SHALL MAINTAIN, ON THE SITE, ONE RECORD COPY OF THE RECORD DRAWINGS, RECORD SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND SIMILAR REQUIRED SUBMITTALS FOR REFERENCE. G7.4 NOT USED

KEY AND KEYING SCHEDULE

THE OWNER.

SECTION 013500 - SPECIAL PROCEDURES

REPLACED WITH WHOLE UNITS.

EVIDENCE OF PAYMENT AND RELEASE OF LIENS

CERTIFICATES OF INSURANCE FOR PRODUCTS AND COMPLETED OPERATIONS.

ACCORDINGLY IN WRITING. UPON INSPECTION, THE ARCHITECT SHALL PREPARE A FINAL PUNCH LIST

ITEMS WITHIN TWO (2) WEEKS OF RECEIPT OF PUNCH LIST. THE PROJECT WILL NOT BE

OUTLINING INCOMPLETE OR UNACCEPTABLE WORK. CONTRACTOR SHALL COMPLETE ALL PUNCH LIST

DRAWINGS, WARRANTIES AND OPERATING INSTRUCTIONS HAVE BEEN RECEIVED AND REVIEWED BY

G20.1 WHEN CONTRACTOR IS NEARING COMPLETION, HE SHALL NOTIFY THE OWNER AND ARCHITECT

1.01 REQUIREMENTS APPLY TO ALTERATION WORK SHOWN ON DRAWINGS AND SPECIFICATIONS.

CONTRACTOR SHALL BE REMOVED AND REPLACED AS APPROVED.

1.02 PERFORM REMOVAL WORK, INCLUDING WRECKING AND CUTTING NECESSARY TO ALTERATION WORK

1.03 NEATLY REPLACE, PATCH AND FINISH IN KIND, ADJACENT SURFACES OR FEATURES DISPLACED OR

1.04 MATCH EXISTING ADJOINING WORK. PREPARE EXISTING WORK TO RECEIVE NEW WORK

WORK SHALL BE DISPOSED OF OFF PREMISES AT CONTRACTOR'S EXPENSE.

OTHER IMPROVEMENTS IN AND ABOUT ALTERED AREAS.

CONTRACTOR MAY BE REQUIRED TO WORK OVERTIME.

BE KEPT CLEAR OF BUILDING MATERIALS, REFUSE AND THE LIKE.

1.15 PROVIDE OWNER WITH 3% ATTIC STOCK OF ALL FINISH MATERIALS UNO.

WHICH THIS PROJECT IS LOCATED, AS REFERENCED ON COVER SHEET.

A. OREGON STRUCTURAL SPECIALTY CODE 2022

OREGON PLUMBING SPECIALTY CODE 2021

OREGON ELECTRICAL SPECIALTY CODE 2021

OREGON MECHANICAL SPECIALTY CODE 2019

E. OREGON ENERGY EFFICIENCY SPECIALTY CODE 2021

SHALL BE REMOVED AS IT ACCUMULATES.

OF CONSTRUCTION.

SECTION 014100 - REGULATORY REQUIREMENTS

STRINGENT REQUIREMENTS.

1.06 ESTABLISH EXACT LAYOUTS, LOCATIONS, LINES AND ELEVATIONS OF WORK IN RELATION TO

CHANGING OR ELIMINATION OF OLD FEATURES, INSTALLATION OF NEW WORK, OR JOINING AND

DISTURBED IN PERFORMANCE OF ALTERATION WORK. MAKE CONNECTION OF NEW AND EXISTING

WORK AS INCONSPICUOUS AS POSSIBLE. UPON COMPLETION OF WORK THERE SHALL BE NO

DISCREPANCY BETWEEN NEW WORK AND EXISTING WORK. BROKEN AND CUT UNITS SHALL BE

WHEN SPECIFICALLY INDICATED, SALVAGABLE ITEMS REMOVED IN ALTERATION WORK MAY BE

EXISTING WORK. OBTAIN AND VERIFY MEASUREMENTS FOR NEW WORK IN EXISTING AREAS.

PROVIDE PROTECTION AGAINST WEATHER AND CONSTRUCTION OPERATIONS FOR EXISTING

1.08 PROVIDE TEMPORARY SUPPORT FOR WORK AS REQUIRED BY CONSTRUCTION OPERATIONS AND TO

1.09 INTERFERENCE WITH OR INCONVENIENCE TO OCCUPANTS SHALL BE KEPT TO A MINIMUM.

WITH OWNER RULES AND REGULATIONS. VERIFY WORK TO BE DONE AFTER HOURS.

EQUIPMENT, FINISHES, FLOORS AND FLOOR COVERINGS, FURNITURE, FIXTURES, HARDWARE AND

MAJOR NOISY MOTORS, CUTTING, DRILLING, AND FASTENING EQUIPMENT MUST BE COORDINATED

TEMPORARY DUST-RETARDING PARTITIONS AND BARRICADES SHALL BE BUILT BETWEEN WORK

CORRIDORS AND ENTRANCES FOR USE OF OCCUPANTS AND REASONABLE ACCESS THERETO SHALL

MATERIALS AND EQUIPMENT SHALL BE DELIVERED AND RUBBISH REMOVED THROUGH PASSAGES AS

1.14 CONTRACTOR'S EMPLOYEES, EQUIPMENT AND THE LIKE SHALL BE RESTRICTED TO IMMEDIATE AREA

1.01 UNLESS OTHERWISE INDICATED OR SPECIFIED. PERFORM THE WORK IN CONFORMANCE WITH THE

1.02 IN CASE OF CONFLICT BETWEEN REFERENCED REGULATORY REQUIREMENTS COMPLY WITH THE

ONE ESTABLISHING THE MORE STRINGENT REQUIREMENTS; BETWEEN REFERENCED REGULATORY

REQUIREMENTS AND CONTRACT DOCUMENTS COMPLY WITH THE ONE ESTABLISHING THE MORE

APPLICABLE CODES, STANDARDS AND REGULATORY REQUIREMENTS FOR THE JURISDICTION IN

AREAS AND OCCUPIED AREAS. PREMISES SHALL BE KEPT CLEAN AND IN A SAFE CONDITION. RUBBISH

REUSED; OTHERWISE NEW ITEMS SHALL BE PROVIDED. SALVAGED ITEMS OF VALUE NOT INDICATED

TO BE REUSED IN THE WORK SHALL REMAIN OWNER'S PROPERTY; STORE ON PREMISES WHERE

DIRECTED. REMOVED ITEMS AND MATERIALS NOT OF VALUE TO OWNER AND NOT REUSED IN THE

KEYING OF NEW WORK TO EXISTING WORK. ITEMS REMOVED TEMPORARILY FOR CONVENIENCE OF

CONSENT OF SURETY AND FINAL PAYMENT

G8 TOILET FACILITIES AND DRINKING WATER

UPON THE APPROVAL OF THE OWNER, THE USE OF DESIGNATED TOILET FACILITIES AND DRINKING FOUNTAINS WITHIN THE BUILDING SHALL BE AVAILABLE FOR THE USE OF ALL WORKERS FOR THE DURATION OF THE PROJECT. IF, AT ANY TIME, THE OWNER FEELS THAT ANY OF THE WORKMEN ARE RESPONSIBLE FOR LEAVING A TOILET ROOM OR DRINKING FOUNTAIN UNNECESSARILY DIRTY, OR ARE RESPONSIBLE FOR CAUSING ANY DAMAGE TO EXISTING TOILET FACILITIES OR DRINKING FOUNTAINS, THE OWNER MAY HOLD THE CONTRACTOR RESPONSIBLE FOR THE COST OF CLEANUP

G9 PROTECTION OF PERSONS AND PROPERTY

CONTRACTOR SHALL PROTECT AREAS AND NEW OR EXISTING MATERIALS AND FINISHES FROM DAMAGE WHICH MAY OCCUR FROM CONSTRUCTION, DEMOLITION, DUST, WATER, ETC., AND SHALL PROVIDE AND MAINTAIN TEMPORARY BARRICADES, CLOSURE WALLS, ETC., AS REQUIRED TO PROTECT THE PUBLIC DURING THE PERIOD OF CONSTRUCTION. DAMAGE TO NEW AND EXISTING MATERIAL, FINISHES, STRUCTURES, AND EQUIPMENT SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER AT THE EXPENSE OF THE CONTRACTOR.

G9.2 CONTRACTOR SHALL ERECT DUST-PROOF BARRIERS, AT THE DIRECTION OF THE OWNER.

G10 INTERRUPTION OF SERVICES

G10.1 CONTRACTOR SHALL COOPERATE WITH OWNER IN REGARD TO ANY INTERRUPTIONS OR SHUTDOWN OF ELECTRICAL, MECHANICAL, PLUMBING, OR TELEPHONE SERVICE. OWNER SHALL BE NOTIFIED AS REQUIRED BUT NOT LESS THAN 48 HOURS IN ADVANCE BEFORE SHUTDOWN OCCURS.

CONTRACTOR SHALL OBTAIN THROUGH OWNER, THE REQUIRED SECURITY CLEARANCES, ACCESS ARRANGEMENTS, PASSES, OR BADGES NECESSARY FOR ALL WORKERS, SUBCONTRACTORS, AND SUPPLIERS WHO MAY REQUIRE ACCESS TO THE FACILITY DURING CONSTRUCTION, AND SHALL

COOPERATE WITH THE OWNER IN REGARD TO ANY AREAS OF LIMITED ACCESS. 12 DEBRIS CONTROL AND CLEANING G12.1 THE CONTRACTOR SHALL REMOVE ALL RUBBISH AND WASTE MATERIAL ON A REGULAR BASIS, AND

SHALL EXERCISE STRICT CONTROL OVER JOB CLEANING TO PREVENT ANY DIRT, DEBRIS, OR DUST FROM AFFECTING, IN ANY WAY, FINISHED AREAS INSIDE OR OUTSIDE JOB SITE. THE BUILDING REFUSE FACILITIES SHALL NOT BE USED FOR THIS PURPOSE.

G12.2 AT COMPLETION, THE CONTRACTOR SHALL LEAVE PREMISES AND ALL SURFACES AND FIXTURES FINISHED, CLEANED, ORDERLY, AND READY FOR MOVE-IN.

G13.1 AT THE OWNERS REQUEST, THE CONTRACTOR SHALL SCHEDULE REGULAR AND PERIODIC MEETINGS TO REVIEW THE PROJECT.

G13.2 THE CONTRACTOR SHALL PREPARE AGENDAS OF THE MEETING AND DISTRIBUTE COPIES TO PARTIES IN ATTENDANCE. IN GENERAL, THESE MEETINGS SHOULD BE ATTENDED BY: THE CONTRACTOR, THE OWNER OR OWNER'S REPRESENTATIVE, THE SUBCONTRACTORS OR SUPPLIERS AS MAY BE APPROPRIATE TO THE AGENDA, AND OTHERS.

G13.3 THE CONTRACTOR SHALL RECORD MINUTES OF THE PROJECT MEETINGS INCLUDING SIGNIFICANT PROCEDURES AND DECISIONS. COPIES OF THESE MINUTES SHALL BE DISTRIBUTED WITHIN FOUR DAYS AFTER EACH MEETING TO ALL PARTICIPANTS.

G14 WORKMANSHIP AND MATERIALS

G14.1 ALL WORK SHALL BE DONE IN THE FINEST QUALITY/WORKMANSHIP - LIKE MANNER. IN ACCORDANCE WITH THE INDUSTRY STANDARD FOR CONSTRUCTION, FABRICATION AND INSTALLATION FOR EACH TRADE. UNLESS OTHERWISE NOTED, USE ONLY NEW, HIGHEST QUALITY MATERIALS CONSISTENT WITH SPECIFICATIONS AS INDICATED.

WITHIN FIVE (5) DAYS FROM AWARD OF THE CONTRACT, CONTRACTOR SHALL SUBMIT TO THE OWNER, A DETAILED SHOP DRAWING SUBMITTAL AND SAMPLE SCHEDULE.

G15.2 THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE OWNER FOR ALL FABRICATED ITEMS INCLUDING MECHANICAL AND ELECTRICAL EQUIPMENT, CUT SHEETS FOR ALL FIXTURES AND EQUIPMENT AND SAMPLES OF ALL FINISHES TO THE ARCHITECT PRIOR TO TIMELY ORDERING. A SUMMARY OF (BUT NOT LIMITED TO) SUBMITTALS REQUIRED UNDER THE ARCHITECTURAL SCOPE OF WORK ARE AS

NOTE: SOME OF THE SECTIONS BELOW MAY NOT BE APPLICABLE TO THIS PROJECT

			DRAWINGS	SAMPLE	DATA
ΑM	064000	ARCHITECTURAL WOODWORK	Χ	Χ	X
	066116	SOLID SURFACE FABRICATIONS		Χ	Χ
:45:20	081400	WOOD DOORS		Χ	Χ
:45	087100	DOOR HARDWARE			Χ
7	096500	RESILIENT FLOORING		Χ	Χ
23	096800	CARPETING		Χ	Χ
/2023	099000	PAINTING AND COATING		Χ	Χ

32 of 66 - BREMADINIBIONAGERREAVALIDIONIVIANGE IRAFECCONSTITRACTION (2/2003) RUCTION (2/2023)

DISTANCOCKTOORNEY & FORCE REMBIADEASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL

SECTION 017329 - CUTTING AND PATCHING

1.01 SECTION INCLUDES REQUIREMENTS FOR CUTTING, FITTING AND PATCHING OF THE WORK TO MAKE SEVERAL PARTS FIT PROPERLY.

1.02 UNCOVER WORK TO PROVIDE FOR INSTALLATION, INSPECTION, OR BOTH, OF OUT-OF-SEQUENCE WORK; REMOVE AND REPLACE WORK NOT CONFORMING TO REQUIREMENTS OF CONTRACT DOCUMENTS: REMOVE AND REPLACE DEFECTIVE WORK.

2.01 FOR REPLACEMENT OF WORK REMOVED, USE MATERIALS WHICH MATCH AND ARE COMPATIBLE WITH CONSIDERED COMPLETE UNTIL ALL ITEMS ON THE PUNCH LIST HAVE BEEN RESOLVED AND ALL RECORD

3.01 INSPECT EXISTING CONDITIONS, INCLUDING ELEMENTS SUBJECT TO MOVEMENT OR DAMAGE DURING

CUTTING, EXCAVATING, BACK FILLING AND PATCHING. PERFORM CUTTING AND PATCHING IN A MANNER TO PREVENT DAMAGE TO OTHER WORK AND TO PROVIDE PROPER SURFACES FOR THE INSTALLATION OF MATERIALS, EQUIPMENT AND REPAIRS. DO

FINISH OR REFINISH AS REQUIRED, CUT AND PATCHED SURFACES TO MATCH ADJACENT FINISHES. PAINT OVER COMPLETE SURFACE PLANE, UNLESS OTHERWISE INDICATED. OVER PATCHED WALL OR CEILING SURFACES, PAINT TO NEAREST CUTOFF LINE FOR ENTIRE SURFACE, SUCH AS INTERSECTION WITH ADJACENT WALL OR CEILING, BEAM, PILASTERS OR TO NEAREST OPENING FRAME, UNLESS OTHERWISE INDICATED. PAINTED SURFACES SHALL NOT PRESENT A SPOTTY, TOUCHED-UP APPEARANCE.

NOT CUT OR ALTER STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL.

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

1.01 COMPLY WITH ANSI A10.6: "AMERICAN NATIONAL STANDARD SAFETY REQUIREMENTS FOR

1.02 SUBMIT A DEMOLITION PLAN INDICATING AND DESCRIBING SEQUENCE, METHODS AND EQUIPMENT PROPOSED FOR ACCOMPLISHING DEMOLITION. DEMOLITION SHALL NOT COMMENCE UNTIL THE DEMOLITION PLAN HAS BEEN ACCEPTED. COORDINATE DEMOLITION SCHEDULE WITH OWNER'S

1.03 ERECT AND MAINTAIN TEMPORARY BRACING, SHORING, LIGHTS, BARRICADES, SIGNS AND OTHER MEANS TO PROTECT THE PUBLIC, WORKERS AND OTHER PERSONS; FINISHES AND IMPROVEMENTS TO REMAIN; AND ADJOINING PROPERTY FROM DAMAGE FROM DEMOLITION WORK; IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS.

2.01 MATERIALS FORMING PORTIONS OF THE PERMANENT STRUCTURE DESIGNATED FOR DEMOLITION SHALL BECOME THE CONTRACTOR'S PROPERTY; REMOVE AND DISPOSE OF SUCH MATERIALS UNLESS OTHERWISE INDICATED OR SPECIFIED.

2.02 CAREFULLY DISCONNECT AND REMOVE ITEMS TO BE SALVAGED, STORE AND PROTECT ITEMS REMOVED AND INDICATED FOR REUSE IN THE WORK. 2.03 REMOVAL OF ITEMS NOT INDICATED FOR REMOVAL ON THE DRAWINGS SHALL BE APPROVED BY THE

ARCHITECT PRIOR TO REMOVAL. 3.01 PRIOR TO STARTING DEMOLITION, MAKE INSPECTION AND REPORT OBSERVABLE DEFECTS AND

STRUCTURAL WEAKNESSES OF CONSTRUCTION DESIGNATED FOR DEMOLITION, OF ADJACENT STRUCTURES AND OF OTHER IMPROVEMENTS TO REMAIN.

BETWEEN EXISTING AND NEW MATERIALS. 3.03 PROTECT EXISTING STRUCTURES, FACILITIES, AND EQUIPMENT FROM DAMAGE. ITEMS DAMAGED AS A RESULT OF DEMOLITION OPERATIONS SHALL BE REPAIRED OR REPLACED AT NO INCREASE IN

3.02 REMOVE MATERIALS CAREFULLY, PROVIDING FOR NEAT AND STRUCTURALLY SOUND JUNCTIONS

3.04 PERFORM DEMOLITION TO PROVIDE THE LEAST INTERFERENCE AND MOST PROTECTION TO EXISTING FACILITIES AND IMPROVEMENTS TO REMAIN.

3.05 CLEAN REMAINING SURFACES OF LOOSE PARTICLES AND DUST.

REGULATIONS.

3.06 REMOVE DEACTIVATED MECHANICAL, PLUMBING AND SPRINKLER PIPING, DUCT AND ELECTRICAL CONDUIT, INCLUDING FASTENINGS, CONNECTIONS AND OTHER RELATED APPURTENANCES AND ACCESSORIES WHICH WOULD OTHERWISE BE EXPOSED IN THE COMPLETED WORK OR INTERFERE WITH CONSTRUCTION OPERATIONS. CAP DEACTIVATED PIPING SYSTEMS AT POINTS OF CUTOFF.

REGULARLY REMOVE DEBRIS FROM THE SITE SO THAT ITS PRESENCE WILL NOT DELAY THE PROGRESS OF THE WORK, CLEAN SURFACES ON WHICH NEW MATERIALS WILL BE APPLIED. REMOVING ADHESIVES AND OTHER ADHERING MATERIALS, AS NECESSARY TO FURNISH ACCEPTABLE SUBSTRATES FOR NEW MATERIALS.

3.08 REFRIGERANT SHALL BE REMOVED BY AN EPA APPROVED TECHNICIAN AND DISPOSED OF PER EPA 3.01 PREPARATION: MASKING WHERE NECESSARY. TAKE NECESSARY PRECAUTIONS TO PREVENT DIRT, GRIT, DUST AND DEBRIS FROM OTHER TRADES FROM CONTACTING THE SURFACE.

2.01 LAMINATED PLASTIC SHALL BE NEMA LD-3, HORIZONTAL GRADE A. COLOR AND PATTERN (PLAM): SEE FINISH SCHEDULE FOR SPECIFICATIONS

2.02 FINISH HARDWARE SHALL COMPLY WITH AWI MANUAL. A. HINGES: CONCEALED EURO-STYLE; SELF CLOSING B. DRAWERS SLIDES: BALL BEARING TYPE FULL EXTENSION SLIDES BY ACCURIDE OR APPROVED

C. PULLS: (HW) - SEE FINISH SCHEDULE FOR SPECIFICATIONS

MATERIALS AND FINISHES AS ASSOCIATED UNITS.

D. GROMMET: (G) - SEE FINISH SCHEDULE FOR SPECIFICATIONS E. ADJUSTABLE SHELVING HARDWARE: 5 MM DIAMETER METAL L-SHAPED SHELF SUPPORTS 2.03 ADJUST DRAWERS, DOORS AND MOVEABLE SHELVES FOR SMOOTH, TIGHT NON-BINDING OPERATION. 2.04 SHOP FABRICATE IN WHOLE OR PARTIAL UNITS FOR MANAGEABLE HANDLING. ASSEMBLE PARTIAL UNIT IN PLACE TO PROVIDE A UNIFIED VISUAL WHOLE. FABRICATE FILLERS AND SCRIBE STRIPS OF SAME

2.05 FABRICATE CASEWORK TO BE INSTALLED IN WET AREAS WITH WATER RESISTANT CORE MATERIALS AND WATERPROOF ADHESIVES. COMPOSITE WOOD AND AGRI-FIBER PRODUCTS, INCLUDING CORE MATERIALS, MUST CONTAIN NO

APPLIED ASSEMBLIES CONTAINING THESE LAMINATE ADHESIVES MUST CONTAIN NO UREA-FORMALDEHYDE. 3.01 MAINTAIN PROTECTIVE WRAPPINGS AS LONG AS POSSIBLE DURING HANDLING AND INSTALLATION.

ADDED UREA-FORMALDEHYDE RESINS. LAMINATE ADHESIVES USED TO FABRICATE ON-SITE AND SHOP

3.02 INSTALL PRODUCTS PLUMB AND LEVEL. SECURELY FASTEN MATERIALS TO SUPPORTING SUBSTRATE. REMOVE AND REPLACE MATERIALS DAMAGED BEYOND REPAIR OR STAINED BEYOND CLEANING.

3.03 MILLWORKER MUST FIELD VERIFY EXISTING SITE CONDITIONS PRIOR TO FABRICATION/INSTALLATION INCLUDING BUT NOT LIMITED TO: NON-PLUMB WALLS, UNEVEN FLOORS ETC. NOTIFY ARCHITECT OF ANY INCONSISTENCIES ON SITE. SCRIBE MILLWORK AT BUILT-IN APPLICATIONS.

3.04 FLOOR PREPARATION - FLOOR SHALL VARY 1/8" IN 10'-0" MAX BENEATH ALL BASE CABINETS.

A. AS INDICATED ON FINISH SCHEDULE.

1.02 SUBMITTALS: SUBMIT TWO (2) SAMPLES OF PRODUCT LABELED AS TO MANUFACTURER AND COMPOSITION. FURNISH MAINTENANCE MANUAL AND MANUFACTURER'S WARRANTY.

1.03 SHOP DRAWINGS TO SHOW MATERIALS, FINISHES, EDGE AND BACKSPLASH PROFILES, DIMENSIONS, METHODS OF JOINING, FASTENING ATTACHMENTS AND ANY AND ALL CUTOUT.

A. FABRICATORS QUALIFICATIONS: SHOP THAT EMPLOYS SKILLED WORKERS WHO CUSTOM-FABRICATE PRODUCTS SIMILAR TO THOSE REQUIRED FOR THIS PROJECT AND WHOSE PRODUCTS HAVE A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE AND INSTALLATION. B. DELIVERY, STORAGE AND HANDLING: COMPLY WITH MATERIAL MANUFACTURER'S REQUIREMENTS. PACKAGING, SHIPPING, HANDLING AND UNLOADING: OBSERVE

MANUFACTURER'S RECOMMENDATIONS AND HANDLE IN A MANNER TO PREVENT BREAKAGE BRACE PARTS IF NECESSARY. TRANSPORT IN NEAR VERTICAL POSITION WITH FINISHED FACE TOWARD FINISHED FACE. DO NOT ALLOW FINISHED SURFACES TO RUB DURING SHIPPING AND C. STORAGE AND PROTECTION: STORE IN RACKS IN NEAR VERTICAL POSITION. PREVENT WARPAGE AND BREAKAGE. STORE INSIDE AWAY FOR DIRECT EXPOSURE TO SUNLIGHT. STORE

BETWEEN 25 AND 130°F.

2.02 ADHESIVE: MOISTURE RESISTANT TYPE AS RECOMMENDED BY PRODUCT MANUFACTURER.

2.03 PRIMERS AND SEALERS: TYPE AS RECOMMENDED BY MANUFACTURER. 2.04 JOINT FILLER AND NEUTRAL CLEANER: TYPE MADE OR RECOMMENDED BY MANUFACTURER FOR CONDITIONS OF INSTALLATION.

2.05 ALL ADHESIVES TO MEET THE FOLLOWING MINIMUM VOC LIMIT REQUIREMENTS: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 1168. A. MULTI-PURPOSE CONSTRUCTION ADHESIVES - 70 G/L

2.06 ALL PRIMERS AND SEALERS TO MEET THE FOLLOWING MINIMUM VOC LIMIT REQUIREMENTS; SOUTH

B. SPECIALTY PRIMERS - 350 G/L A. PROTECTION OF SURFACES: PROTECT FINISHED SURFACES FROM SCRATCHES. APPLY

PRODUCT - SEE FINISH SCHEDULE FOR SPECIFICATIONS

COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 1133. A. PRIMERS, SEALERS AND UNDERCOATINGS - 200 G/L

C. NON-POROUS ARCHITECTURAL SEALANT PRIMER - 250 G/L 3.05 ALL ARCHITECTURAL COATINGS TO MEET THE FOLLOWING MINIMUM VOC LIMIT REQUIREMENTS; SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 1133.

3.06 ALL AEROSOL ADHESIVES TO MEET THE FOLLOWING MINIMUM VOC LIMIT REQUIREMENTS; GREEN SEAL A. GENERAL PURPOSE MIST SPRAY - 65% VOC'S BY WEIGHT

SECTION 072100 - THERMAL INSULATION

BATT INSULATION SHALL BE FULL FIT FIBERGLASS, THICKNESS TO PROVIDE "R VALUE" INDICATED ON DRAWINGS: UNFACED ASTM C665, TYPE I. SOUND BATTS AT NON-RATED WALLS SHALL BE FULL-FIT FIBERGLASS BATT INSULATION; AT RATE WALLS SOUND BATT SHALL BE DENSE MINERAL WOOL, 4.5 POUND, USG "THERMAFIBER", OR PROVIDE ARCHITECT/DESIGN WITH AN EQUAL RATED MATERIAL FOR APPROVAL, UNO

3.01 INSTALL INSULATION BATTS TO FIT TIGHTLY BETWEEN FRAMING MEMBERS, GAPS SHALL BE STUFFED WITH INSULATION. TRIM INSULATION TO NEATLY FIT AROUND PENETRATIONS AND BETWEEN FRAMING.

SECTION 081416 - FLUSH WOOD DOORS

A. NON-FIRE RATED WOOD DOORS SHALL BE 5-PLY PREMIUM GRADE, BANDED CORE IN ACCORDANCE WITH WINDOW AND DOOR MANUFACTURERS ASSOCIATION "ARCHITECTURAL WOOD FLUSH DOORS" IS 1A-04.

B. AWI - QUALITY STANDARDS OF THE AMERICAN WOODWORK INSTITUTE (AWI). C. FACE SPECIES: DOOR FACE VENEER SPECIES TO BE AWI GRADE AA.

A. MANUFACTURER'S PRODUCT CONSTRUCTION DATA, INCLUDING SPECIFICATIONS, INSTALLATION INSTRUCTIONS, DETAILS OF CORE AND EDGE CONSTRUCTION, TRIM FOR LIGHT OPENINGS, AND SIMILAR COMPONENTS; SHOP DRAWINGS, INCLUDING DOOR TYPE AND SIZE, HARDWARE TYPES, LOCATIONS AND BLOCKING REQUIREMENTS, CUTOUTS, AND PRE-FINISH SYSTEM TYPE AND APPROVED COLOR INCLUDING SCHEDULE.

B. SUBMIT THE FOLLOWING: SHOP DRAWINGS ILLUSTRATING DOOR OPENING CRITERIA ELEVATIONS, SIZES, TYPES, SWINGS, UNDERCUTS REQUIRED, SPECIAL BEVELING ETC. 2. PRODUCT DATA. 3. TWO (2) 8" X 8" SAMPLES OF DOOR FINISH.

SAMPLE OF COLOR SELECTED FOR ARCHITECT'S APPROVAL. ARCHITECT HAS THE OPTION TO FURNISH A COLOR FOR THE MANUFACTURER TO MATCH. 1.03 DOORS SHALL BE WARRANTED BY THE MANUFACTURER TO BE FREE OF MANUFACTURING DEFECTS

4. PROVIDE MANUFACTURER'S STANDARD COLOR CHARTS, FOLLOWED BY A PHYSICAL

FOR THE LIFE OF THE ORIGINAL INSTALLATION. WARRANTY SHALL PROVIDE FOR REPAIR OR REPLACEMENT OF THE DOOR AS ORIGINALLY FURNISHED.

1.04 DELIVER DOOR IN PROTECTIVE WRAPPING. 2.01 PRODUCTS: SUPPLY DOORS FROM ON OF THE FOLLOWING MANUFACTURERS: ALGOMA HARDWOODS INC.; EGGERS INDUSTRIES; MARSHFIELD DOOR SYSTEMS; VT INDUSTRIES OR EQUAL. ALL WOOD DOORS ON THE PROJECT SHALL BE BY ONE MANUFACTURER TO ENSURE UNIFORMITY IN

A. WOOD SPECIES: (WD) MATCH EXISTING WOOD DOORS 2.02 FLUSH DOORS SHALL BE SOLID CORE CONSTRUCTION, VENEER FACING, 1-3/4 INCH THICK.

APPEARANCE AND CONSTRUCTION.

2.03 DOORS SHALL BE FACTORY PREPARED FOR HARDWARE. ALL WOOD DOORS SHALL BE COMPLETELY FACTORY FINISHED USING THE MANUFACTURER'S STANDARD FINISH THAT MEETS OR EXCEEDS THE PERFORMANCE CRITERIA FOR AWI UV CURABLE

3.01 INSTALL DOORS IN ACCORDANCE WITH WDMA IS 1A-04 AND SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTION, FIT TO FRAMES AND PREPARE FOR HARDWARE NOT PRE-FITTED AT FACTORY. DOORS SHALL BE PLUMB IN ALL POSITIONS, FLAT IN THE FRAME AND SHALL OPERATE SMOOTHLY AND QUIETLY.

3.02 PROTECT DOORS FOLLOWING INSTALLATION FROM DAMAGE AS A RESULT OF PROJECT COMPLETION 3.03 UNDERCUT DOORS 1/2" (3/4" AT RESTROOMS) MAX. TO FINISHED FLOOR UNLESS NOTED OTHERWISE.

TOUCH-UP DOOR FINISH AFTER UNDERCUTTING. 3.04 PROVIDE MANUFACTURER'S STANDARD WARRANTY.

POLYESTER URETHANE FINISH SYSTEM OR CONVERSION VARNISH.

SECTION 083113 - ACCESS DOORS & FRAMES

2.01 FRAME SHALL BE MINIMUM 12 GAUGE STEEL WITH MINIMUM 0.75 INCHES STEEL DOOR PANELS. FURNISH DOORS WITH DRYWALL BEAD GALVANIZED STEEL, HARDWARE MANUFACTURER'S STANDARD AND FACTORY APPLIED BAKED ENAMEL PRIME COAT FINISH.

2.02 FABRICATE DOORS WITH CONCEALED, SPRING TYPE HINGES OPENING TO 175 DEGREES AND FLUSH, SCREWDRIVER OPERATED LOCKS WITH METAL CAMS.

INSTALLED FLOOR TO DECK. 3.07 PROVIDE LATERAL WALL BRACING WHERE NECESSARY FOR A RIGID, STABLE INSTALLATION. CEILING FRAMING SHALL BE INSTALLED INDEPENDENT OF WALLS, COLUMNS, AND ABOVE CEILING

INCHES O.C. MAXIMUM IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. 3.09 INSTALL NON-HARDENING/NON-SKINNING ACOUSTICAL SEALANT IN WALLS DESIGNED FOR ACOUSTICAL ATTENUATION PER MANUFACTURER'S REQUIREMENTS. INSTALL ACOUSTICAL INSULATION (FS HH I 521, PRE-FORMED MINERAL WOOL FRICTION FIT WITHOUT VAPOR BARRIER) TIGHT WITHIN SPACES, BEHIND AND AROUND ELECTRICAL AND MECHANICAL ITEMS AND TIGHT TO ITEMS PASSING THROUGH WALL

WORK. COORDINATE LOCATION OF HANGER WIRE WITH OTHER TRADES. INSTALL RC CHANNELS 24

3.10 NOT USED

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

AND WIDTH INDICATED.

1.01 SECTION INCLUDES A. NON-LOAD-BEARING STEEL FRAMING SYSTEMS FOR INTERIOR GYPSUM BOARD ASSEMBLIES.

2.01 PERFORMANCE REQUIREMENTS: A NOT USED B. STC-RATED ASSEMBLIES: PROVIDE MATERIALS AND CONSTRUCTION IDENTICAL TO THOSE TESTED IN ASSEMBLY INDICATED ACCORDING TO ASTM E 90 AND CLASSIFIED ACCORDING

A. STEEL STUDS AND RUNNERS: ASTM C 645. USE EITHER STEEL STUDS AND RUNNERS OR

DIMPLED STEEL STUDS AND RUNNERS. MINIMUM BASE-METAL THICKNESS: 0.033 INCH (0.84 MM). DEPTH: AS INDICATED ON DRAWINGS. B. SLIP-TYPE HEAD JOINTS: WHERE INDICATED, PROVIDE THE FOLLOWING IN THICKNESS NOT LESS THAN INDICATED FOR STUDS AND IN WIDTH TO ACCOMMODATE DEPTH OF STUDS:

1. SINGLE LONG-LEG RUNNER SYSTEM: ASTM C 645 TOP RUNNER WITH 2-INCH- (51-MM-) DEEP FLANGES, INSTALLED WITH STUDS FRICTION FIT INTO TOP RUNNER AND WITH CONTINUOUS BRIDGING LOCATED WITHIN 12 INCHES (305 MM) OF THE TOP OF STUDS TO PROVIDE LATERAL BRACING. C. FLAT STRAP AND BACKING PLATE: STEEL SHEET FOR BLOCKING AND BRACING IN LENGTH

MINIMUM BASE-METAL THICKNESS: 0.033 INCH (0.84 MM). D. COLD-ROLLED CHANNEL BRIDGING: STEEL, 0.053-INCH (1.34-MM) MINIMUM BASE-METAL THICKNESS, WITH MINIMUM 1/2-INCH- (13-MM-) WIDE FLANGES. 1. DEPTH: 1-1/2 INCHES (38 MM) CLIP ANGLE: NOT LESS THAN 1-1/2 BY 1-1/2 INCHES (38 BY 38 MM), 0.068-INCH- (1.72-MM-) THICK, GALVANIZED STEEL.

E. FASTENERS FOR METAL FRAMING: OF TYPE, MATERIAL, SIZE, CORROSION RESISTANCE,

HOLDING POWER, AND OTHER PROPERTIES REQUIRED TO FASTEN STEEL MEMBERS TO 3.01 INSTALLATION, GENERAL A. INSTALLATION STANDARD: ASTM C 754.

GYPSUM BOARD ASSEMBLIES: ALSO COMPLY WITH REQUIREMENTS IN ASTM C 840 THAT APPLY TO FRAMING INSTALLATION. 2. INSTALL SUPPLEMENTARY FRAMING, AND BLOCKING TO SUPPORT FIXTURES, EQUIPMENT SERVICES, HEAVY TRIM, GRAB BARS, TOILET ACCESSORIES, FURNISHINGS.OR SIMILAR CONSTRUCTION.

INSTALL BRACING AT TERMINATIONS IN ASSEMBLIES. 4. DO NOT BRIDGE BUILDING CONTROL AND EXPANSION JOINTS WITH NON-LOAD-BEARING STEEL FRAMING MEMBERS. FRAME BOTH SIDES OF JOINTS INDEPENDENTLY.

A. INSTALL FRAMING SYSTEM COMPONENTS ACCORDING TO SPACINGS INDICATED, BUT NOT GREATER THAN SPACINGS REQUIRED BY REFERENCED INSTALLATION STANDARDS FOR B. WHERE STUDS ARE INSTALLED DIRECTLY AGAINST EXTERIOR MASONRY WALLS OR

DISSIMILAR METALS AT EXTERIOR WALLS, INSTALL ISOLATION STRIP BETWEEN STUDS AND INSTALL STUDS SO FLANGES WITHIN FRAMING SYSTEM POINT IN SAME DIRECTION. D. INSTALL TRACKS (RUNNERS) AT FLOORS AND OVERHEAD SUPPORTS. EXTEND FRAMING FULL HEIGHT TO STRUCTURAL SUPPORTS OR SUBSTRATES ABOVE SUSPENDED CEILINGS. EXCEPT WHERE PARTITIONS ARE INDICATED TO TERMINATE AT SUSPENDED CEILINGS. CONTINUE FRAMING AROUND DUCTS PENETRATING PARTITIONS ABOVE CEILING.

SUPPORTS, INSTALL TO PRODUCE JOINTS AT TOPS OF FRAMING SYSTEMS THAT PREVENT AXIAL LOADING OF FINISHED ASSEMBLIES. . DOOR OPENINGS: SCREW VERTICAL STUDS AT JAMBS TO JAMB ANCHOR CLIPS ON DOOR FRAMES; INSTALL RUNNER TRACK SECTION (FOR CRIPPLE STUDS) AT HEAD AND SECURE TO JAMB STUDS. a. INSTALL TWO STUDS AT EACH JAMB UNLESS OTHERWISE INDICATED.

1. SLIP-TYPE HEAD JOINTS: WHERE FRAMING EXTENDS TO OVERHEAD STRUCTURAL

b. INSTALL CRIPPLE STUDS AT HEAD ADJACENT TO EACH JAMB STUD, WITH A MINIMUM 1/2-INCH (13-MM) CLEARANCE FROM JAMB STUD TO ALLOW FOR INSTALLATION OF CONTROL JOINT IN FINISHED ASSEMBLY. c. EXTEND JAMB STUDS THROUGH SUSPENDED CEILINGS AND ATTACH TO UNDERSIDE OF OVERHEAD STRUCTURE. OTHER FRAMED OPENINGS: FRAME OPENINGS OTHER THAN DOOR OPENINGS THE

SAME AS REQUIRED FOR DOOR OPENINGS UNLESS OTHERWISE INDICATED. INSTALL FRAMING BELOW SILLS OF OPENINGS TO MATCH FRAMING REQUIRED ABOVE DOOR HEADS. 4. SOUND-RATED PARTITIONS: INSTALL FRAMING TO COMPLY WITH SOUND-RATED

E. INSTALLATION TOLERANCE: INSTALL EACH FRAMING MEMBER SO FASTENING SURFACES VARY NOT MORE THAN 1/8 INCH (3 MM) FROM THE PLANE FORMED BY FACES OF ADJACENT

ASSEMBLY INDICATED.

SPECIFICATIONS

74-23121-00

CONSTRUCTION

DOCUMENTS

AUGUST 7, 2023

REVISIONS

32 of 66 - BREMADINIBIONAGERREAVALIDIONIVIANGE IRAFECCONSTITRACTION (2/2003) RUCTION (2/2023)

DISTANCOCKTOORNEY & FORCE REMBIADEASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL

SECTION 220719 - PLUMBING PIPING INSULATION - CONT'D PART 3 - EXECUTION EXAMINE SUBSTRATES AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF INSULATION APPLICATION. 1. VERIFY THAT SYSTEMS TO BE INSULATED HAVE BEEN TESTED AND ARE FREE OF DEFECTS. VERIFY THAT SURFACES TO BE INSULATED ARE CLEAN AND DRY. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. INSTALL INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH, STRAIGHT, AND EVEN SURFACES; FREE OF VOIDS THROUGHOUT THE LENGTH OF PIPING INCLUDING FITTINGS, VALVES, AND INSTALL PER MANUFACTURER'S INSTRUCTIONS. .3 FIELD QUALITY CONTROL 1. INSPECT PIPE, FITTINGS, STRAINERS, AND VALVES, RANDOMLY SELECTED BY ARCHITECT, BY REMOVING FIELD-APPLIED JACKET AND INSULATION IN LAYERS IN REVERSE ORDER OF THEIR INSTALLATION. EXTENT OF INSPECTION SHALL BE LIMITED TO THREE LOCATIONS OF STRAIGHT PIPE AND FITTINGS, TWO LOCATIONS OF STRAINERS, AND THREE LOCATIONS OF VALVES FOR EACH PIPE SERVICE DEFINED IN THE "PIPING INSULATION SCHEDULE, GENERAL" ARTICLE. ALL INSULATION APPLICATIONS WILL BE CONSIDERED DEFECTIVE WORK IF SAMPLE INSPECTION REVEALS NONCOMPLIANCE WITH REQUIREMENTS. .4 PIPING INSULATION SCHEDULE, GENERAL ACCEPTABLE PREFORMED PIPE AND TUBULAR INSULATION MATERIALS AND THICKNESSES ARE IDENTIFIED FOR EACH PIPING SYSTEM AND PIPE SIZE RANGE. IF MORE THAN ONE MATERIAL IS LISTED FOR A PIPING SYSTEM. SELECTION FROM MATERIALS LISTED IS CONTRACTOR'S OPTION. 5 INDOOR PIPING INSULATION SCHEDULE DOMESTIC COLD WATER (POTABLE AND NON-POTABLE RAINWATER.): 1. NPS 1-1/4 AND SMALLER INSULATION SHALL BE: A. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1/2 INCH THICK. 2. NPS 1-1/2 AND LARGER INSULATION SHALL BE: A. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1 INCH THICK. DOMESTIC HOT AND RECIRCULATED HOT WATER: 1. NPS 1-1/4 AND SMALLER INSULATION SHALL BE: A. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1 INCH THICK. 2. NPS 1-1/2 AND LARGER INSULATION SHALL BE: A. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1-1/2 INCH THICK. EXPOSED SANITARY DRAINS, DOMESTIC WATER, DOMESTIC HOT WATER, AND STOPS FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES: 1. ALL PIPE SIZES: INSULATION SHALL BE PROTECTIVE SHIELDING GUARDS. SECTION 221116 - DOMESTIC WATER PIPING DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION. SECTION INCLUDES: 1. UNDER-BUILDING-SLAB AND ABOVEGROUND DOMESTIC WATER PIPES, TUBES, AND FITTINGS INSIDE BUILDINGS. . PRODUCT DATA: FOR THE FOLLOWING PRODUCTS: SPECIALTY VALVES. TRANSITION FITTINGS. DIELECTRIC FITTINGS. FLEXIBLE CONNECTORS. WATER PENETRATION SYSTEMS. WATER SAMPLES: SPECIFIED IN "CLEANING" ARTICLE. COORDINATION DRAWINGS: FOR PIPING IN EQUIPMENT ROOMS AND OTHER CONGESTED AREAS, DRAWN TO SCALE, ON WHICH THE FOLLOWING ITEMS ARE SHOWN AND COORDINATED WITH EACH OTHER, USING INPUT FROM INSTALLERS OF THE ITEMS INVOLVED: 1. FIRE-SUPPRESSION-WATER PIPING. DOMESTIC WATER PIPING 3. HVAC HYDRONIC PIPING. 1.4 QUALITY ASSURANCE PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY. B. COMPLY WITH NSF 61 FOR POTABLE DOMESTIC WATER PIPING AND COMPONENTS. 1.5 COORDINATION COORDINATE SIZES AND LOCATIONS OF CONCRETE BASES WITH ACTUAL EQUIPMENT PROVIDED. INTERRUPTION OF EXISTING WATER SERVICE: DO NOT INTERRUPT WATER SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY WATER SERVICE ACCORDING TO REQUIREMENTS 1. NOTIFY OWNER NO FEWER THAN TWO DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF WATER 2. DO NOT INTERRUPT WATER SERVICE WITHOUT OWNER'S WRITTEN PERMISSION

COMPLY WITH REQUIREMENTS IN "PIPING SCHEDULE" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, FITTING MATERIALS, AND JOINING METHODS FOR SPECIFIC SERVICES, SERVICE LOCATIONS, AND PIPE SIZES. ALL COPPER TUBE, FITTINGS, ETC TO BE AMERICAN MANUFACTURED. HARD COPPER TUBE: ASTM B 88, TYPE L WATER TUBE, DRAWN TEMPER. SOFT COPPER TUBE: ASTM B 88, TYPE K WATER TUBE, ANNEALED TEMPER WROUGHT-COPPER, SOLDER-JOINT FITTINGS: ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS. BRONZE FLANGES: ASME B16.24, CLASS 150, WITH SOLDER-JOINT ENDS. COPPER UNIONS: MSS SP-123. CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY. BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES. SOLDER-JOINT OR THREADED ENDS. COPPER, BRASS, OR BRONZE PRESSURE-SEAL-JOINT FITTINGS 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: A. NIBCO, INC. B. VIEGA, LLC FITTINGS: CAST-BRASS, CAST-BRONZE OR WROUGHT-COPPER WITH EPDM O-RING SEAL IN EACH END. SIZES NPS 2-1/2 AND LARGER WITH STAINLESS STEEL GRIP RING AND EPDM O-RING SEAL. MINIMUM 200-PSIG WORKING-PRESSURE RATING AT 250 DEG F. .3 PEX TUBE AND FITTINGS PEX DISTRIBUTION SYSTEM: PEX-A (ENGLE-METHOD CROSSLINKED POLYETHYLENE) PIPING: ASTM F 1960. FITTINGS IN "FITTINGS FOR PEX TUBE" PARAGRAPH BELOW ARE AVAILABLE IN NPS 3/8 TO NPS 1 (DN 10 TO FITTINGS FOR PEX-A TUBE: ELBOWS, ADAPTERS, COUPLINGS, PLUGS, TEES AND MULTI-PORT TEES (1/2 INCH

THROUGH 2 INCH NOMINAL PIPE SIZE): ASTM F1960 COLD-EXPANSION FITTING MANUFACTURED FROM THE FOLLOWING MATERIAL TYPES: LEAD-FREE (LF) BRASS. REINFORCING COLD-EXPANSION RINGS SHALL BE MANUFACTURED FROM THE SAME SOURCE AS PEX-A PIPING MANUFACTURER AND MARKED "F1960". MULTI-PORT TEES: MULTIPLE-OUTLET FITTING COMPLYING WITH ASTM F 877; WITH ASTM F 1960 INLETS AND 1. ENGINEERED POLYMER BRANCH MULTI-PORT TEE. ENGINEERED POLYMER FLOW-THROUGH MULTI-PORT TEE. ENGINEERED POLYMER COMMERCIAL BRANCH MULTI-PORT TEE. 4. ENGINEERED POLYMER COMMERCIAL BRANCH MULTI-PORT ELBOW ENGINEERED POLYMER COMMERCIAL FLOW-THROUGH MULTI-PORT TEE. MANIFOLDS: MULTIPLE-OUTLET ASSEMBLY COMPLYING WITH ASTM F 877; WITH ASTM F 1960 OUTLETS. ENGINEERED POLYMER VALVED MANIFOLD. ENGINEERED POLYMER VALVELESS MANIFOLD. 3. LEAD - FREE COPPER BRANCH MANIFOLD. 4. LEAD-FREE COPPER VALVED MANIFOLD. 4 TRANSITION FITTINGS A. PEX-TO-METAL TRANSITION FITTINGS: PROVIDE FITTINGS FROM THE SAME MANUFACTURER OF THE PIPING. 2. THREADED BRASS TO PEX-A TRANSITION: ONE-PIECE BRASS FITTING WITH MALE OR FEMALE THREADED ADAPTER AND ASTM F 1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-BRASS SWEAT TO PEX-A TRANSITION: ONE-PIECE BRASS FITTING WITH SWEAT ADAPTER AND ASTM F 1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. PEX-TO-METAL TRANSITION FITTINGS: CPVC OR PP-R TO PEX-A TRANSITION: ONE-PIECE THERMOPLASTIC FITTING WITH MALE OR FEMALE THREADED ADAPTER AND ASTM F 1960 COLD- EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. 5 PIPING JOINING MATERIALS PIPE-FLANGE GASKET MATERIALS: 1. AWWA C110/A21.10, RUBBER, FLAT FACE, 1/8 INCH (3.2 MM) THICK OR ASME B16.21, NONMETALLIC AND ASBESTOS FREE UNLESS OTHERWISE INDICATED. FULL-FACE OR RING TYPE UNLESS OTHERWISE INDICATED METAL, PIPE-FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL UNLESS OTHERWISE INDICATED. SOLDER FILLER METALS: ASTM B 32, LEAD-FREE ALLOYS. FLUX: ASTM B 813, WATER FLUSHABLE. BRAZING FILLER METALS: AWS A5.8/A5.8M, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS FOR GENERAL-DUTY BRAZING UNLESS OTHERWISE INDICATED. 6 TRANSITION FITTINGS d. GENERAL REQUIREMENTS: SAME SIZE AS PIPES TO BE JOINED. PRESSURE RATING AT LEAST EQUAL TO PIPES TO BE JOINED. END CONNECTIONS COMPATIBLE WITH PIPES TO BE JOINED. FITTING-TYPE TRANSITION COUPLINGS: MANUFACTURED PIPING COUPLING OR SPECIFIED PIPING SYSTEM FITTING. PEX-TO-METAL TRANSITION FITTINGS: PROVIDE FITTINGS FROM THE SAME MANUFACTURER OF THE PIPING. THREADED BRASS TO PEX-A TRANSITION: ONE-PIECE BRASS FITTING WITH MALE OR FEMALE THREADED ADAPTER AND ASTM F 1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-3. BRASS SWEAT TO PEX-A TRANSITION: ONE-PIECE BRASS FITTING WITH SWEAT ADAPTER AND

FLANGED JOINTS: SELECT APPROPRIATE ASBESTOS-FREE, NONMETALLIC GASKET MATERIAL IN SIZE, TYPE, AND THICKNESS SUITABLE FOR DOMESTIC WATER SERVICE. JOIN FLANGES WITH GASKET AND BOLTS ACCORDING TO ASME B31.9. JOINTS FOR PEX PIPING: JOIN ACCORDING TO ASTM F 1960. JOINTS FOR DISSIMILAR-MATERIAL PIPING: MAKE JOINTS USING ADAPTERS COMPATIBLE WITH MATERIALS OF BOTH PIPING SYSTEMS. 3.3 TRANSITION FITTING INSTALLATION A. INSTALL TRANSITION COUPLINGS AT JOINTS OF DISSIMILAR PIPING. 3.4 HANGER AND SUPPORT INSTALLATION A. COMPLY WITH REQUIREMENTS FOR SEISMIC-RESTRAINT DEVICES IN SECTION 220548 "VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT." COMPLY WITH REQUIREMENTS FOR PIPE HANGER, SUPPORT PRODUCTS, AND INSTALLATION IN SECTION 220529 "HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT." VERTICAL PIPING: MSS TYPE 8 OR 42, CLAMPS. 2. INDIVIDUAL, STRAIGHT, HORIZONTAL PIPING RUNS: A. 100 FEET AND LESS: MSS TYPE 1. ADJUSTABLE. STEEL CLEVIS HANGERS. B. LONGER THAN 100 FEET: MSS TYPE 43, ADJUSTABLE ROLLER HANGERS. C. LONGER THAN 100 FEET IF INDICATED: MSS TYPE 49. SPRING CUSHION ROLLS. 3. MULTIPLE, STRAIGHT, HORIZONTAL PIPING RUNS 100 FEET OR LONGER: MSS TYPE 44, PIPE ROLLS. SUPPORT PIPE ROLLS ON TRAPEZE. 4. BASE OF VERTICAL PIPING: MSS TYPE 52, SPRING HANGERS. SUPPORT VERTICAL PIPING AND TUBING AT BASE AND AT EACH FLOOR ROD DIAMETER MAY BE REDUCED ONE SIZE FOR DOUBLE-ROD HANGERS, TO A MINIMUM OF 3/8 INCH INSTALL HANGERS FOR COPPER TUBING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS: 1. NPS 3/4 AND SMALLER: 60 INCHES WITH 3/8-INCH ROD. NPS 1 AND NPS 1-1/4: 72 INCHES WITH 3/8-INCH ROD. NPS 1-1/2 AND NPS 2: 96 INCHES WITH 3/8-INCH ROD. NPS 2-1/2: 108 INCHES WITH 1/2-INCH ROD. 5. NPS 3 TO NPS 5: 10 FEET WITH 1/2-INCH ROD. INSTALL SUPPORTS FOR VERTICAL COPPER TUBING EVERY 10 FEET. G. INSTALL VINYL-COATED HANGERS FOR PEX PIPING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS NPS 3 INCH AND BELOW: MAXIMUM SPAN, 32 INCHES. 1-1/4 INCH AND ABOVE: MAXIMUM SPAN, 48 INCHES VERTICAL PEX-A PIPING: SUPPORT PEX-A PIPING WITH MINIMUM SPACING OF 5 FEET 4. HORIZONTAL PEX-A PIPING WITH PEX-A PIPE CHANNEL: INSTALL HANGERS FOR PEX-A PIPING WITH HORIZONTAL SUPPORT CHANNEL IN ACCORDANCE WITH LOCAL JURISDICTION AND MANUFACTURER'S RECOMMENDATIONS, WITH THE FOLLOWING MAXIMUM SPACING: A. 3/4 INCH AND BELOW: MAXIMUM SPAN, 6 FEET. B 1 INCH AND ABOVE: MAXIMUM SPAN 8 FFF PEX-A RISER SUPPORTS: INSTALL CTS RISER CLAMPS AT THE BASE OF EACH FLOOR AND AT THE TOP OF EVERY OTHER FLOOR FOR DOMESTIC HOT-WATER SYSTEMS. INSTALL MID-STORY GUIDES BETWEEN EACH FLOOR. INSTALL CTS RISER CLAMPS AT THE BASE OF EACH FLOOR AND AT THE TOP OF EVERY FOURTH FLOOR FOR DOMESTIC COLD-WATER SYSTEMS. INSTALL MID-STORY GUIDES. DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES. WHEN INSTALLING PIPING ADJACENT TO EQUIPMENT AND MACHINES, ALLOW SPACE FOR SERVICE AND 3.6 FIELD QUALITY CONTROL A. PERFORM THE FOLLOWING TESTS AND INSPECTIONS: PIPING INSPECTIONS: A. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION. B. DURING INSTALLATION, NOTIFY AUTHORITIES HAVING JURISDICTION AT LEAST ONE DAY BEFORE INSPECTION MUST BE MADE. PERFORM TESTS SPECIFIED BELOW IN PRESENCE OF AUTHORITIES HAVING JURISDICTION: 1) ROUGHING-IN INSPECTION: ARRANGE FOR INSPECTION OF PIPING BEFORE 2) FINAL INSPECTION: ARRANGE FOR AUTHORITIES HAVING JURISDICTION TO C. REINSPECTION: IF AUTHORITIES HAVING JURISDICTION FIND THAT PIPING WILL NOT PASS TESTS OR INSPECTIONS, MAKE REQUIRED CORRECTIONS AND ARRANGE FOR D. REPORTS: PREPARE INSPECTION REPORTS AND HAVE THEM SIGNED BY AUTHORITIES HAVING JURISDICTION. A. FILL DOMESTIC WATER PIPING. CHECK COMPONENTS TO DETERMINE THAT THEY ARE NOT AIR BOUND AND THAT PIPING IS FULL OF WATER. B. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT A SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED. C. LEAVE NEW, ALTERED, EXTENDED, OR REPLACED DOMESTIC WATER PIPING JNCOVERED AND UNCONCEALED UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED. D. CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 50 PSIG (345 KPA) ABOVE OPERATING PRESSURE. WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW IT TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE E. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS, AND RETEST PIPING OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED. F. PREPARE REPORTS FOR TESTS AND FOR CORRECTIVE ACTION REQUIRED. B. DOMESTIC WATER PIPING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS. 3.7 ADJUSTING 3.8 CLEANING

SECTION 221116 - DOMESTIC WATER PIPING - CONT'D

COVERING AND ENDS BRAZED TO INNER TUBING.

11. UNIVERSAL METAL HOSE; A HYSPAN COMPANY

1. WORKING-PRESSURE RATING: MINIMUM 200 PSIG

WORKING-PRESSURE RATING: MINIMUM 200 PSIG

BRONZE-HOSE FLEXIBLE CONNECTORS: CORRUGATED-BRONZE TUBING WITH BRONZE WIRE-BRAID

STAINLESS-STEEL-HOSE FLEXIBLE CONNECTORS: CORRUGATED-STAINLESS-STEEL TUBING WITH

DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF

DOMESTIC WATER PIPING. INDICATED LOCATIONS AND ARRANGEMENTS ARE USED TO SIZE PIPE AND

CALCULATE FRICTION LOSS, EXPANSION, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS

INSTALL COPPER TUBING UNDER BUILDING SLAB ACCORDING TO CDA'S "COPPER TUBE HANDBOOK."

INSTALL PIPING CONCEALED FROM VIEW AND PROTECTED FROM PHYSICAL CONTACT BY BUILDING

INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS.

RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNLESS

INSTALL PEX PIPING WITH LOOP AT EACH CHANGE OF DIRECTION OF MORE THAN 90 DEGREES

INSTALL SLEEVES FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FLOORS.

INSTALL SLEEVE SEALS FOR PIPING PENETRATIONS OF CONCRETE WALLS AND SLABS

A. REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS. BEVEL PLAIN ENDS OF STEEL PIPE.

THREADED JOINTS: THREAD PIPE WITH TAPERED PIPE THREADS ACCORDING TO ASME B1.20.1. CUT

APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO EXTERNAL PIPE THREADS.

2. DAMAGED THREADS: DO NOT USE PIPE OR PIPE FITTINGS WITH THREADS THAT ARE

SOLDERED JOINTS FOR COPPER TUBING: APPLY ASTM B 813, WATER-FLUSHABLE FLUX TO END OF

TUBE. JOIN COPPER TUBE AND FITTINGS ACCORDING TO ASTM B 828 OR CDA'S "COPPER TUBE

L. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FLOORS.

H. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.

RESTORE FULL ID. JOIN PIPE FITTINGS AND VALVES AS FOLLOWS:

3. END CONNECTIONS NPS 2-1/2 AND LARGER: FLANGED COPPER ALLOY

END CONNECTIONS NPS 2 AND SMALLER: THREADED STEEL-PIPE NIPPLE.

STAINLESS-STEEL WIRE-BRAID COVERING AND ENDS WELDED TO INNER TUBING.

3. END CONNECTIONS NPS 2-1/2 AND LARGER: FLANGED STEEL NIPPLE.

2. END CONNECTIONS NPS 2 AND SMALLER: THREADED COPPER PIPE OR PLAIN-END COPPER

MERCER RUBBER CO.

PROCO PRODUCTS, INC

SPECIFICALLY INDICATED OTHERWISE.

G. INSTALL PIPING FREE OF SAGS AND BENDS.

CORRODED OR DAMAGED.

INSTALL PIPING TO PERMIT VALVE SERVICING.

9. TOZEN CORPORATION.

METRAFLEX, INC.

10. UNAFLEX.INC.

PART 3 - EXECUTION

INDICATED.

3.2 JOINT CONSTRUCTION

BEFORE ASSEMBLY.

3.1 PIPING INSTALLATION

ASTM F 1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF

PREPARE TEST AND INSPECTION REPORTS. DO NOT EXPOSE PEX PIPING TO DIRECT SUNLIGHT FOR MORE THAN 30 DAYS. IF CONSTRUCTION DELAYS ARE ENCOUNTERED, PROVIDE COVER TO PORTIONS OF PIPING EXPOSED TO DIRECT A. PERFORM THE FOLLOWING ADJUSTMENTS BEFORE OPERATION: OPEN SHUTOFF VALVES TO FULLY OPEN POSITION. OPEN THROTTLING VALVES TO PROPER SETTING. 4. ADJUST BALANCING VALVES IN HOT-WATER-CIRCULATION RETURN PIPING TO PROVIDE ADEQUATE FLOW. A. MANUALLY ADJUST BALL-TYPE BALANCING VALVES IN HOT-WATER-CIRCULATION RETURN PIPING TO PROVIDE HOT-WATER FLOW IN EACH BRANCH. B. ADJUST CALIBRATED BALANCING VALVES TO FLOWS INDICATED. 5. REMOVE PLUGS USED DURING TESTING OF PIPING AND FOR TEMPORARY SEALING OF PIPING DURING INSTALLATION. REMOVE AND CLEAN STRAINER SCREENS. CLOSE DRAIN VALVES AND REPLACE DRAIN PLUGS. REMOVE FILTER CARTRIDGES FROM HOUSINGS AND VERIFY THAT CARTRIDGES ARE AS SPECIFIED FOR APPLICATION WHERE USED AND ARE CLEAN AND READY FOR USE. 8. CHECK PLUMBING SPECIALTIES AND VERIFY PROPER SETTINGS. ADJUSTMENTS. AND OPERATION. A. CLEAN AND DISINFECT POTABLE DOMESTIC WATER PIPING, BOTH NEW AND EXISTING, AS FOLLOWS: 1. PURGE NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED BEFORE USING. 2. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION: IF METHODS ARE NOT PRESCRIBED, USE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR FOLLOW PROCEDURES DESCRIBED BELOW: A. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS. B. FILL AND ISOLATE SYSTEM ACCORDING TO EITHER OF THE FOLLOWING: 1) FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION WITH AT LEAST 50 PPM (50 MG/L) OF CHLORINE. ISOLATE WITH VALVES AND ALLOW TO STAND FOR 24 HOURS.

CONCEALING OR CLOSING IN AFTER ROUGHING IN AND BEFORE SETTING

ENSURE COMPLIANCE WITH REQUIREMENTS.

OBSERVE TESTS SPECIFIED IN "PIPING TESTS" SUBPARAGRAPH BELOW AND TO

SECTION 221116 - DOMESTIC WATER PIPING - CONT'D 200 PPM (200 MG/L) OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR THREE C. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO CHLORINE IS IN WATER COMING FROM SYSTEM AFTER THE STANDING TIME. D. REPEAT PROCEDURES IF BIOLOGICAL EXAMINATION SHOWS CONTAMINATION.

2) FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION WITH AT LEAST

E. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING JURISDICTION. . CLEAN NON-POTABLE DOMESTIC WATER PIPING AS FOLLOWS: PURGE NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OF REPAIRED BEFORE USING.

2. USE PURGING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR; IF METHODS ARE NOT PRESCRIBED, FOLLOW PROCEDURES DESCRIBED BELOW: A. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS.

B. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING JURISDICTION. REPEAT PROCEDURES IF BIOLOGICAL EXAMINATION SHOWS CONTAMINATION. C. LEAVE NEW, ALTERED, EXTENDED, OR REPLACED DOMESTIC WATER PIPING UNCOVERED AND UNCONCEALED UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE

WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED. D. CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 50 PSIG (345 KPA) ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW IT TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. E. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS, AND RETEST PIPING OR PORTION

THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED. F. PREPARE REPORTS FOR TESTS AND FOR CORRECTIVE ACTION REQUIRED. DOMESTIC WATER PIPING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND

OCCUPANTS UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AT PREPARE TEST AND INSPECTION REPORTS. DO NOT EXPOSE PEX PIPING TO DIRECT SUNLIGHT FOR MORE THAN 30 DAYS. IF CONSTRUCTION DELAYS ARE ENCOUNTERED, PROVIDE COVER TO PORTIONS OF PIPING EXPOSED TO DIRECT SUNLIGHT.

INSTALL NIPPLES, UNIONS, SPECIAL FITTINGS, AND VALVES WITH PRESSURE RATINGS THE SAME AS OR 9 PIPING SCHEDULE HIGHER THAN THE SYSTEM PRESSURE RATING USED IN APPLICATIONS BELOW UNLESS OTHERWISE TRANSITION AND SPECIAL FITTINGS WITH PRESSURE RATINGS AT LEAST EQUAL TO PIPING RATING MAY BE USED IN APPLICATIONS BELOW UNLESS OTHERWISE INDICATED. FLANGES AND UNIONS MAY BE USED FOR ABOVEGROUND PIPING JOINTS UNLESS OTHERWISE INDICATED.

FITTING OPTION: EXTRUDED-TEE CONNECTIONS AND BRAZED JOINTS MAY BE USED ON ABOVEGROUND

COPPER TUBING. PEX-A PIPING MAY BE USED WITHIN WALL CAVATIES AND MAY NOT BE SURFACE MOUNTED. ABOVEGROUND DOMESTIC WATER PIPING, NPS 2 AND SMALLER SHALL BE ONE OF THE FOLLOWING: 1. HARD COPPER TUBE, ASTM B 88, TYPE L; CAST- OR WROUGHT-COPPER, SOLDER-JOINT FITTINGS WITH SOLDERED JOINTS.

DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE B. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM INSIDE AND OUTSIDE OF PIPES, TUBES, AND FITTINGS FOLLOWING REQUIREMENTS APPLY: HOT-WATER CIRCULATION PIPING, BALANCING DUTY: CALIBRATED BALANCING VALVES. THREADS FULL AND CLEAN USING SHARP DIES. REAM THREADED PIPE ENDS TO REMOVE BURRS AND

USE CHECK VALVES TO MAINTAIN CORRECT DIRECTION OF DOMESTIC WATER FLOW TO AND FROM

PART 1 - GENERAL SECTION INCLUDES: PIPE, TUBE, AND FITTINGS. SPECIALTY PIPE FITTINGS

SECTION 221316 - SANITARY WASTE AND VENT PIPING

3. ENCASEMENT FOR UNDERGROUND METAL PIPING.

.2 PERFORMANCE REQUIREMENTS COMPONENTS AND INSTALLATION SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING MINIMUM WORKING PRESSURE UNLESS OTHERWISE INDICATED:

 SOIL, WASTE, AND VENT PIPING: 10-FOOT HEAD OF WATER. SEISMIC PERFORMANCE: SOIL, WASTE, AND VENT PIPING AND SUPPORT AND INSTALLATION SHALL WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING TO ASCE/SEI 7.

PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY. COMPLY WITH NSF/ANSI 14. "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS." FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING.

PIPING MATERIALS

COMPLY WITH REQUIREMENTS IN "PIPING SCHEDULE" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, FITTING MATERIALS, AND JOINING METHODS FOR SPECIFIC SERVICES, SERVICE LOCATIONS, AND PIPE SIZES. ALL PVC AND CAST IRON PIPE AND ASSOCIATED FITTINGS TO BE AMERICAN MANUFACTURED. 2 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

PIPE AND FITTINGS: ASTM A 888 OR CISPI 301PIPE AND FITTINGS: ASTM A 888 OR CISPI 301PIPE IN FIRST PARAGRAPH BELOW IS AVAILABLE IN NPS 1-1/2 TO NPS 15 (DN 40 TO DN 375). PIPE AND FITTINGS: ASTM A 888 OR CISPI 301 HEAVY-DUTY, HUBLESS-PIPING COUPLINGS

1. DESCRIPTION: STAINLESS-STEEL SHIELD WITH STAINLESS-STEEL BANDS AND TIGHTENING DEVICES; AND ASTM C 564, RUBBER SLEEVE WITH INTEGRAL, CENTER PIPE STOP. 2. CERTIFICATIONS AND STANDARDS

A. ASTM C 1540. B. FM 1680 CLASS 1 CSA B 602

D. IAPMO FILE 6726 A. TRANSITION COUPLINGS:

GENERAL REQUIREMENTS: FITTING OR DEVICE FOR JOINING PIPING WITH SMALL DIFFERENCES IN OD'S OR OF DIFFERENT MATERIALS. INCLUDE END CONNECTIONS SAME SIZE AS AND COMPATIBLE WITH PIPES TO BE JOINED. 2. FITTING-TYPE TRANSITION COUPLINGS: MANUFACTURED PIPING COUPLING OR SPECIFIED PIPING

3. UNSHIELDED, NON-PRESSURE TRANSITION COUPLINGS: A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: DALLAS SPECIALTY & MFG. CO. FERNCO INC.

MISSION RUBBER COMPANY; A DIVISION OF MCP INDUSTRIES, INC. PLASTIC ODDITIES; A DIVISION OF DIVERSE CORPORATE TECHNOLOGIES, INC. B. STANDARD: ASTM C 1173. DESCRIPTION: ELASTOMERIC, SLEEVE-TYPE, REDUCING OR TRANSITION PATTERN INCLUDE SHEAR RING AND CORROSION-RESISTANT-METAL TENSION BAND AND

TIGHTENING MECHANISM ON EACH END. D. SLEEVE MATERIALS: FOR CAST-IRON SOIL PIPES: ASTM C 564, RUBBER. 4. SHIELDED, NON-PRESSURE TRANSITION COUPLINGS: A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE

PRODUCTS BY ONE OF THE FOLLOWING: CASCADE WATERWORKS MFG. CO. 2) MISSION RUBBER COMPANY; A DIVISION OF MCP INDUSTRIES, INC. B. STANDARD: ASTM C 1460

C. DESCRIPTION: ELASTOMERIC OR RUBBER SLEEVE WITH FULL-LENGTH, CORROSION-RESISTANT OUTER SHIELD AND CORROSION-RESISTANT-METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.

PART 3 - EXECUTION

DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS WERE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS. INSTALL PIPING IN CONCEALED LOCATIONS UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS

INSTALL PIPING TO PERMIT VALVE SERVICING. INSTALL PIPING FREE OF SAGS AND BENDS INSTALL PIPING TO ALLOW APPLICATION OF INSULATION.

INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. MAKE CHANGES IN DIRECTION FOR SOIL AND WASTE DRAINAGE AND VENT PIPING USING APPROPRIATE BRANCHES, BENDS, AND LONG-SWEEP BENDS. SANITARY TEES AND SHORT-SWEEP 1/4 BENDS MAY BE USED ON VERTICAL STACKS IF CHANGE IN DIRECTION OF FLOW IS FROM HORIZONTAL TO VERTICAL. USE LONG-TURN, DOUBLE Y-BRANCH AND 1/8-BEND FITTINGS IF TWO FIXTURES ARE INSTALLED BACK TO BACK OR SIDE BY SIDE WITH COMMON DRAIN PIPE. STRAIGHT TEES, ELBOWS, AND CROSSES MAY BE USED ON VENT LINES. DO NOT CHANGE DIRECTION OF FLOW MORE THAN 90 DEGREES. USE PROPER SIZE OF STANDARD INCREASERS AND REDUCERS IF PIPES OF DIFFERENT SIZES ARE CONNECTED. REDUCING SIZE OF DRAINAGE PIPING IN DIRECTION OF FLOW IS PROHIBITED. INSTALL SOIL AND WASTE DRAINAGE AND VENT PIPING AT THE FOLLOWING MINIMUM SLOPES UNLESS

AND SMALLER; 2 PERCENT DOWNWARD IN DIRECTION OF FLOW FOR PIPING NPS 4 AND LARGER. HORIZONTAL SANITARY DRAINAGE PIPING: 2 PERCENT DOWNWARD IN DIRECTION OF FLOW. 3. VENT PIPING: 1 PERCENT DOWN TOWARD VERTICAL FIXTURE VENT OR TOWARD VENT STACK. INSTALL CAST-IRON SOIL PIPING ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK," CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS." INSTALL ENCASEMENT ON UNDERGROUND PIPING ACCORDING TO ASTM A 674 OR

1. BUILDING SANITARY DRAIN: 2 PERCENT DOWNWARD IN DIRECTION OF FLOW FOR PIPING NPS 3

DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT IS INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION

INSTALL SLEEVES FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FLOORS. INSTALL SLEEVE SEALS FOR PIPING PENETRATIONS OF CONCRETE WALLS AND SLABS. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FLOORS.

.2 JOINT CONSTRUCTION ... JOIN HUBLESS, CAST-IRON SOIL PIPING ACCORDING TO CISPI 310 AND CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK" FOR HUBLESS-PIPING COUPLING JOINTS. THREADED JOINTS: THREAD PIPE WITH TAPERED PIPE THREADS ACCORDING TO ASME B1.20.1. CUT THREADS FULL AND CLEAN USING SHARP DIES. REAM THREADED PIPE ENDS TO REMOVE BURRS AND RESTORE FULL ID. JOIN PIPE FITTINGS AND VALVES AS FOLLOWS: 1. APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO EXTERNAL PIPE THREADS UNLESS DRY

SEAL THREADING IS SPECIFIED. 2. DAMAGED THREADS: DO NOT USE PIPE OR PIPE FITTINGS WITH THREADS THAT ARE CORRODED OR DAMAGED. DO NOT USE PIPE SECTIONS THAT HAVE CRACKED OR OPEN WELDS. JOIN COPPER TUBE AND FITTINGS WITH SOLDERED JOINTS ACCORDING TO ASTM B 828. USE ASTM B 813. WATER-FLUSHABLE. LEAD-FREE FLUX AND ASTM B 32, LEAD-FREE-ALLOY SOLDER. GROOVED JOINTS: CUT GROOVE ENDS OF PIPE ACCORDING TO AWWA C606. LUBRICATE AND INSTALL GASKET OVER ENDS OF PIPES OR PIPE AND FITTING. INSTALL COUPLING HOUSING SECTIONS, OVER

PLASTIC. NON-PRESSURE-PIPING, SOLVENT-CEMENT JOINTS: CLEAN AND DRY JOINING SURFACES. JOIN

PIPE AND FITTINGS ACCORDING TO THE FOLLOWING: 1. COMPLY WITH ASTM F 402 FOR SAFE-HANDLING PRACTICE OF CLEANERS, PRIMERS, AND SOLVENT 2. ABS PIPING: JOIN ACCORDING TO ASTM D 2235 AND ASTM D 2661 APPENDIXES. PVC PIPING: JOIN ACCORDING TO ASTM D 2855 AND ASTM D 2665 APPENDIXES.

GASKET, WITH KEYS SEATED IN PIPING GROOVES. INSTALL AND TIGHTEN HOUSING BOLTS.

74-23121-00 SPECIFICATIONS

CONSTRUCTION

DOCUMENTS

AUGUST 7, 2023

REVISIONS

WAYNE

EXPIRES: 12/31/2024

INSTALL CARBON-STEEL PIPE SUPPORT CLAMPS FOR VERTICAL PIPING IN NONCORROSIVE A. 100 FEET AND LESS: MSS TYPE 1, ADJUSTABLE, STEEL CLEVIS HANGERS. B. LONGER THAN 100 FEET: MSS TYPE 43, ADJUSTABLE ROLLER HANGERS. MULTIPLE, STRAIGHT, HORIZONTAL PIPING RUNS 100 FEET OR LONGER: MSS TYPE 44, PIPE ROLLS. SUPPORT HORIZONTAL PIPING AND TUBING WITHIN 12 INCHES OF EACH FITTING, VALVE, AND COUPLING. ROD DIAMETER MAY BE REDUCED ONE SIZE FOR DOUBLE-ROD HANGERS, WITH 3/8-INCH MINIMUM RODS. INSTALL HANGERS FOR CAST-IRON SOIL PIPING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING WITH UL 44. 4. SPACING FOR 10-FOOT LENGTHS MAY BE INCREASED TO 10 FEET. SPACING FOR FITTINGS IS CONNECT SOIL AND WASTE PIPING TO EXTERIOR SANITARY SEWERAGE PIPING. USE TRANSITION FITTING 1. PLUMBING FIXTURES: CONNECT DRAINAGE PIPING IN SIZES INDICATED, BUT NOT SMALLER THAN INDICATED. BUT NOT SMALLER THAN REQUIRED BY AUTHORITIES HAVING JURISDICTION. PLUMBING SPECIALTIES: CONNECT DRAINAGE AND VENT PIPING IN SIZES INDICATED, BUT NOT INSTALL TEST TEES (WALL CLEANOUTS) IN CONDUCTORS NEAR FLOOR AND FLOOR CLEANOUTS COMPLY WITH REQUIREMENTS FOR CLEANOUTS AND DRAINS SPECIFIED IN DIVISION 22 SECTION EQUIPMENT: CONNECT DRAINAGE PIPING AS INDICATED. PROVIDE SHUTOFF VALVE IF INDICATED AND UNION FOR EACH CONNECTION. USE FLANGES INSTEAD OF UNIONS FOR CONNECTIONS WHERE INSTALLING PIPING ADJACENT TO EQUIPMENT, ALLOW SPACE FOR SERVICE AND MAINTENANCE OF INSTALL UNIONS, IN PIPING NPS 2 AND SMALLER, ADJACENT TO EACH VALVE AND AT FINAL INSTALL FLANGES, IN PIPING NPS 2-1/2 AND LARGER, ADJACENT TO FLANGED VALVES AND AT INSPECTION MUST BE MADE. PERFORM TESTS SPECIFIED BELOW IN PRESENCE OF AUTHORITIES HAVING 1. ROUGHING-IN INSPECTION: ARRANGE FOR INSPECTION OF PIPING BEFORE CONCEALING OR 2. FINAL INSPECTION: ARRANGE FOR FINAL INSPECTION BY AUTHORITIES HAVING JURISDICTION TO OBSERVE TESTS SPECIFIED BELOW AND TO ENSURE COMPLIANCE WITH REQUIREMENTS. 1. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED DRAINAGE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT WAS COVERED OR ROUGHING-IN PLUMBING TEST PROCEDURE: TEST DRAINAGE AND VENT PIPING EXCEPT OUTSIDE LEADERS ON COMPLETION OF ROUGHING-IN. CLOSE OPENINGS IN PIPING SYSTEM AND FILL WITH WATER TO POINT OF OVERFLOW, BUT NOT LESS THAN 10-FOOT HEAD OF WATER. FROM 15 MINUTES BEFORE INSPECTION STARTS TO COMPLETION OF INSPECTION, WATER LEVEL MUST NOT FINISHED PLUMBING TEST PROCEDURE: AFTER PLUMBING FIXTURES HAVE BEEN SET AND TRAPS FILLED WITH WATER, TEST CONNECTIONS AND PROVE THEY ARE GASTIGHT AND WATERTIGHT. PLUG VENT-STACK OPENINGS ON ROOF AND BUILDING DRAINS WHERE THEY LEAVE BUILDING. INTRODUCE AIR INTO PIPING SYSTEM EQUAL TO PRESSURE OF 1-INCH WG. USE U-TUBE OR MANOMETER INSERTED IN TRAP OF WATER CLOSET TO MEASURE THIS PRESSURE. AIR PRESSURE MUST REMAIN CONSTANT WITHOUT INTRODUCING ADDITIONAL AIR THROUGHOUT PERIOD OF INSPECTION. INSPECT PLUMBING FIXTURE CONNECTIONS FOR GAS AND WATER LEAKS. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, PROTECT DRAINS DURING REMAINDER OF CONSTRUCTION PERIOD TO AVOID CLOGGING WITH DIRT AND HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS; HEAVY-DUTY HUBLESS-PIPING COUPLINGS; AND DISSIMILAR PIPE-MATERIAL COUPLINGS: UNSHIELDED OR SHIELDED, NONPRESSURE TRANSITION HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS; HEAVY-DUTY HUBLESS-PIPING COUPLINGS; AND DISSIMILAR PIPE-MATERIAL COUPLINGS: UNSHIELDED OR SHIELDED, NONPRESSURE TRANSITION GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS 1. SURFACE RACEWAYS, CABLE AND WIRE, WIREWAYS AND FITTINGS, BOXES, HINGED-COVER ENCLOSURES, WIRING DEVICES, PLATES, LIGHTING, LIGHTING CONTROL DEVICES AND CABINETS. PANELBOARDS: INCLUDE MATERIALS, SWITCHING AND OVERCURRENT PROTECTIVE DEVICES, SPDS, ACCESSORIES, AND COMPONENTS INDICATED. INCLUDE DIMENSIONS AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL INCLUDE PHYSICAL DESCRIPTION, PROFILES, AND DIMENSIONS OF LUMINAIRES. INCLUDE LIFE, OUTPUT (LUMENS, CCT, AND CRI), AND ENERGY-EFFICIENCY DATA. E. PHOTOMETRIC DATA AND ADJUSTMENT FACTORS BASED ON LABORATORY F. TESTING AGENCY CERTIFIED DATA: FOR INDICATED LUMINAIRES, PHOTOMETRIC DATA CERTIFIED BY A QUALIFIED INDEPENDENT TESTING AGENCY. PHOTOMETRIC DATA FOR REMAINING LUMINAIRES SHALL BE CERTIFIED BY MANUFACTURER. 1. FOR CUSTOM ENCLOSURES AND CABINETS. INCLUDE PLANS, ELEVATIONS, SECTIONS, AND PANELBOARDS: INCLUDE DIMENSIONED PLANS, ELEVATIONS, SECTIONS, AND DETAILS, SHOW TABULATIONS OF INSTALLED DEVICES WITH NAMEPLATES, CONDUCTOR TERMINATION SIZES, EQUIPMENT FEATURES, AND RATINGS. DETAIL ENCLOSURE TYPES INCLUDING MOUNTING AND ANCHORAGE, ENVIRONMENTAL PROTECTION, KNOCKOUTS, CORNER TREATMENTS, COVERS AND DOORS, GASKETS, HINGES, AND LOCKS. DETAIL BUS CONFIGURATION, CURRENT, AND VOLTAGE RATINGS. SHORT-CIRCUIT CURRENT RATING OF PANELBOARDS AND OVERCURRENT PROTECTIVE 1.3 QUALITY ASSURANCE: ELECTRICAL COMPONENTS. DEVICES. AND ACCESSORIES - LISTED AND LABELED AS 2.9 WIRING DEVICES A. GENERAL REQUIREMENTS: 1. WIRING DEVICES, COMPONENTS, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE. COMPLY WITH NFPA 70.

SECTION 260000 - ELECTRICAL SYSTEMS - CONT'D 4 GROUNDING SYSTEM PANELBOARDS APPLICATIONS. 1. THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER. MCCB FEATURES AND ACCESSORIES: a. LUGS: MECHANICAL STYLE, SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND b. PROVIDE GROUND-FAULT PROTECTION ON BREAKERS LARGER THAN 900 AMPS AT 480/277 VOLTS. INTEGRALLY MOUNTED RELAY AND TRIP UNIT WITH ADJUSTABLE PICKUP AND TIME-DELAY SETTINGS, PUSH-TO-TEST FEATURE, AND GROUND-FAULT INDICATOR.

UNLESS OTHERWISE INDICATED. 3 BUILDING WIRE AND CABLE AND CABLE MARKING AND APPLICATION GUIDE." WITH UL 83. STEEL OR ALUMINUM, INTERLOCKED ARMOR. GROUNDING CONDUCTORS GROUNDING CONNECTORS ALUMINUM AND LISTED FOR DIRECT BURIAL. .5 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS FOR TYPES AND SIZES OF RACEWAY OR CABLE TO BE SUPPORTED. STRUCTURAL STEEL FOR FABRICATED SUPPORTS AND RESTRAINTS: ASTM A36/A36M STEEL PLATES, SHAPES, AND BARS; BLACK AND GALVANIZED. MOUNTING, ANCHORING, AND ATTACHMENT COMPONENTS: ITEMS FOR FASTENING ELECTRICAL ITEMS OR THEIR SUPPORTS TO BUILDING SURFACES INCLUDE THE FOLLOWING 1. MECHANICAL-EXPANSION ANCHORS: INSERT-WEDGE-TYPE, ZINC-COATED STEEL, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE, WITH TENSION, SHEAR, AND PULLOUT CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED 2. CLAMPS FOR ATTACHMENT TO STEEL STRUCTURAL ELEMENTS: MSS SP-58 UNITS ARE SUITABLE FOR ATTACHED STRUCTURAL ELEMENT. THROUGH BOLTS: STRUCTURAL TYPE, HEX HEAD, AND HIGH STRENGTH. COMPLY WITH ASTM F3125/F3125M, GRADE A325. 4. TOGGLE BOLTS: ALL-STEEL SPRINGHEAD TYPE. 5. HANGER RODS: THREADED STEEL. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: ABB, EATON, SCHNIEDER ELECTRIC, SIEMENS COMPLY WITH NEMA PB 1 ENCLOSURES: PROVIDE NEMA 250 ENCLOSURES FLUSH MOUNTED AS INDICATED ON THE DRAWINGS. AT INDOOR DRY AND CLEAN LOCATIONS USE TYPE 1. AT OUTDOOR LOCATIONS USE TYPE 3R. AT KITCHEN OR WASH-DOWN AREAS USE TYPE 4X. FOR OTHER WET OR DAMP INDOOR LOCATIONS USE TYPE 4. MAXIMUM HEIGHT - 84 INCHES. PANELS AND TRIM FINISH - STEEL, FACTORY FINISHED WITH MANUFACTURER'S STANDARD TWO-COAT, BAKED-ON FINISH CONSISTING OF PRIME COAT AND THERMOSETTING TOPCOAT. BACK BOXES FINISH - GALVANIZED STEEL DOORS: CONCEALED HINGES; SECURED WITH FLUSH LATCH WITH TUMBLER LOCK; KEYED ALIKE. INCOMING MAINS: CONVERTIBLE BETWEEN TOP AND BOTTOM. MAIN LUG INTERIORS UP TO 400 AMPERES SHALL BE FIELD CONVERTIBLE TO MAIN BREAKER. PHASE, NEUTRAL, AND GROUND BUSES: HARD-DRAWN COPPER. EQUIPMENT GROUND BUS ADEQUATELY SIZED FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUCTORS; BONDED TO BOX. PROVIDE FULL-SIZED NEUTRAL: EQUIPPED WITH FULL-CAPACITY BONDING STRAP FOR SERVICE ENTRANCE CONDUCTOR CONNECTORS: HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVITY. TERMINATIONS SHALL ALLOW USE OF 75 DEG C RATED CONDUCTORS WITHOUT DERATING. LUGS SUITABLE FOR INDICATED CONDUCTOR SIZES, WITH ADDITIONAL GUTTER SPACE, IF REQUIRED, FOR LARGER CONDUCTORS. MECHANICAL TYPE, WITH A LUG ON THE NEUTRAL AND GROUND BAR FOR EACH POLE IN THE PANELBOARD. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS. ASSEMBLY LISTED BY AN NRTL BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS SEISMIC PERFORMANCE: PANELBOARDS SHALL WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING TO ASCE/SEI 7. THE TERM "WITHSTAND" MEANS "THE UNIT WILL REMAIN IN PLACE WITHOUT SEPARATION OF ANY PARTS FROM THE DEVICE WHEN SUBJECTED TO THE SEISMIC FORCES MCCB: COMPLY WITH UL 489, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS. THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS. INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER. SURGE PROTECTION DEVICES SPDS: LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AS COMPLYING WITH UL 1449, TYPE 2. FEATURES AND ACCESSORIES: INTERNAL THERMAL PROTECTION THAT DISCONNECTS THE SPD BEFORE DAMAGING INTERNAL SUPPRESSOR COMPONENTS. INDICATOR LIGHT DISPLAY FOR PROTECTION STATUS. FORM-C CONTACTS RATED AT 2 A AND 24-V AC, ONE NORMALLY OPEN AND ONE NORMALLY CLOSED, FOR REMOTE MONITORING OF PROTECTION STATUS. CONTACTS SHALL REVERSE ON FAILURE OF ANY SURGE DIVERSION MODULE OR ON OPENING OF ANY CURRENT-LIMITING DEVICE. COORDINATE WITH BUILDING POWER MONITORING AND CONTROL SYSTEM. SURGE COUNTER. SCCR - EQUAL OR EXCEED 100 KA. NOMINAL RATING - 20 KA. PEAK SURGE CURRENT RATING: THE MINIMUM SINGLE-PULSE SURGE CURRENT WITHSTAND RATING PER PHASE SHALL NOT BE LESS THAN 200 KA. THE PEAK SURGE CURRENT RATING SHALL BE THE ARITHMETIC SUM OF THE RATINGS OF THE INDIVIDUAL MOVS IN A GIVEN MODE. PROTECTION MODES AND UL 1449 VPR FOR GROUNDED WYE CIRCUITS WITH 208Y/120 V, THREE-PHASE, FOUR-WIRE CIRCUITS SHALL NOT EXCEED THE FOLLOWING: LINE TO NEUTRAL: 700 V FOR 208Y/120 V. 2. LINE TO GROUND: 1200 V FOR 208Y/120 V. LINE TO LINE: 1000 V FOR 208Y/120 V. 2.8 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES MOLDED-CASE CIRCUIT BREAKER (MCCB): COMPLY WITH UL 489, WITH INTERRUPTING CAPACITY TO MEET

ROHS COMPLIANT.

DEVICE COLOR:

COMPLY WITH NEMA WD 1.

BUILDING WIRE.

6. DEVICES FOR OWNER-FURNISHED EQUIPMENT:

SUBSTITUTED UNDER THE FOLLOWING CONDITIONS:

a. RECEPTACLES: MATCH PLUG CONFIGURATIONS.

DEVICES THAT ARE MANUFACTURED FOR USE WITH MODULAR PLUG-IN CONNECTORS MAY BE

b. DEVICES SHALL COMPLY WITH THE REQUIREMENTS IN THIS SECTION.

b. CORD AND PLUG SETS: MATCH EQUIPMENT REQUIREMENTS.

INDICATED OR REQUIRED BY NFPA 70 OR DEVICE LISTING.

WALL PLATE COLOR: FOR PLASTIC COVERS, MATCH DEVICE COLOR.

FROM SINGLE SOURCE FROM SINGLE MANUFACTURER.

a. CONNECTORS SHALL COMPLY WITH UL 2459 AND SHALL BE MADE WITH STRANDING

a. WIRING DEVICES CONNECTED TO NORMAL POWER SYSTEM: WHITE UNLESS OTHERWISE

SOURCE LIMITATIONS: OBTAIN EACH TYPE OF WIRING DEVICE AND ASSOCIATED WALL PLATE

LUMINAIRE OUTLET BOXES: NONADJUSTABLE, DESIGNED FOR ATTACHMENT OF LUMINAIRE WEIGHING 50 LB. OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHING MORE THAN 50 LB SHALL BE . STANDARD-GRADE DUPLEX RECEPTACLES, 125 V, 20 A LISTED AND MARKED FOR THE MAXIMUM ALLOWABLE WEIGHT. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE OF SAME MATERIAL AS DEVICE BOX DIMENSIONS: 4 INCHES SQUARE BY 2-1/8 INCHES DEEP. GANGABLE BOXES ARE ALLOWED. HINGED-COVER ENCLOSURES: COMPLY WITH UL 50 AND NEMA 250, TYPE 1 FOR INDOOR DRY LOCATIONS WALL PLATES AND TYPE 4 FOR WET AND OUTDOOR LOCATIONS WITH CONTINUOUS-HINGE COVER WITH FLUSH LATCH 1. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD 2. INTERIOR PANELS: STEEL; ALL SIDES FINISHED WITH MANUFACTURER'S STANDARD ENAMEL. .10 LIGHTING CONTROL DEVICES . SWITCHBOX-MOUNTED OCCUPANCY AND VACANCY SENSORS COPPER BUILDING WIRE: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS. COMPLY WITH ASTM B3 FOR BARE ANNEALED COPPER AND WITH ASTM B8 FOR STRANDED CONDUCTORS. ROHS ALUMINUM BUILDING WIRE (PERMITTED FOR FEEDERS GREATER THAN 100 AMPS ONLY): FLEXIBLE, INSULATED AND UNINSULATED, DRAWN ALUMINUM CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS. PROVIDE 8000 SERIES ELECTRICAL GRADE ALUMINUM ALLOY, COMPLYING WITH ASTM B800 AND ASTM B801 FOR THE CONDUCTORS. DO NOT USE FOR CONNECTIONS TO ANY EQUIPMENT THAT HAS NOT BEEN UL TESTED WITH ALUMINUM BUILDING WIRE CONNECTIONS OR WHERE SUCH CONNECTION WILL VOID OR REDUCE THE MANUFACTURER'S WARRANTY. SUCH EQUIPMENT MAY INCLUDE HVAC EQUIPMENT AND ELEVATORS. ROHS COMPLIANT. CONDUCTOR AND CABLE MARKING: COMPLY WITH WIRE AND CABLE MARKING ACCORDING TO UL'S "WIRE CONDUCTOR INSULATION: TYPE THHN AND TYPE THWN-2, COMPLY WITH UL 83. TYPE XHHW-2, COMPLY TEMPERATURE RATINGS: CONDUCTORS SHALL BE RATED 90-DEGREE C MINIMUM. METAL-CLAD CABLE, TYPE MC: FACTORY ASSEMBLY OF ONE OR MORE CURRENT-CARRYING INSULATED CONDUCTORS IN AN OVERALL METALLIC SHEATH. UL 1569 AND ROHS COMPLIANT. SINGLE CIRCUIT AND MULTI-CIRCUIT WITH COLOR-CODED CONDUCTORS. PROVIDE SEPARATE NEUTRAL CONDUCTORS FOR EACH CIRCUIT ORIGINATING FROM A UNIQUE OVERCURRENT PROTECTION DEVICE. COPPER CONDUCTORS COMPLYING WITH ASTM B3 FOR BARE ANNEALED COPPER AND WITH ASTM B8 FOR STRANDED CONDUCTORS. INSULATED GROUND CONDUCTOR. CONDUCTOR INSULATION TYPE THHN/THWN-2: COMPLY CONNECTORS AND SPLICES: FACTORY-FABRICATED CONNECTORS, SPLICES, AND LUGS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED; LISTED AND LABELED AS DEFINED IN NFPA 70. FOR STEEL AND ALUMINUM JACKETED CABLES, ZINC DIE-CAST WITH SET SCREWS, DESIGNED TO CONNECT CONDUCTORS SPECIFIED IN THIS SECTION. LUGS: ONE PIECE, SEAMLESS, DESIGNED TO TERMINATE CONDUCTORS SPECIFIED IN THIS SECTION. COMPLY WITH UL 467 FOR GROUNDING AND BONDING MATERIALS AND EQUIPMENT. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: COOPER B-LINE, CHATSWORTH, ERICO, HARGER, LEGRAND ORTRONICS, PANDUIT CONNECTOR LUGS: LUGS FOR CONNECTING TO TELECOMMUNICATIONS GROUNDING BUSBARS SHALL BE UL LISTED TWO-HOLE, LONG BARREL, ELECTRO TINPLATED COMPRESSION LUGS. 1. INSULATED CONDUCTORS: COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION. 2. BARE COPPER CONDUCTORS: STRANDED CONDUCTORS: ASTM B8. a. BONDING CABLE: 28 KCMIL, 14 STRANDS OF NO. 17 AWG CONDUCTOR, 1/4 INCH IN b. BONDING CONDUCTOR: NO. 4 OR NO. 6 AWG, STRANDED CONDUCTOR. c. BONDING JUMPER: COPPER TAPE, BRAIDED CONDUCTORS TERMINATED WITH COPPER FERRULES; 1-5/8 INCHES WIDE AND 1/16 INCH THICK. 1. WELDED CONNECTORS: EXOTHERMIC-WELDING KITS OF TYPES RECOMMENDED BY KIT MANUFACTURER FOR MATERIALS BEING JOINED AND INSTALLATION CONDITIONS. BUS-BAR CONNECTORS: COMPRESSION TYPE, COPPER OR COPPER ALLOY, WITH TWO WIRE BEAM CLAMPS: MECHANICAL TYPE, TERMINAL, GROUND WIRE ACCESS FROM FOUR DIRECTIONS, WITH DUAL, TIN-PLATED OR SILICON BRONZE BOLTS. CABLE-TO-CABLE CONNECTORS: COMPRESSION TYPE, COPPER OR COPPER ALLOY. CONDUIT HUBS: MECHANICAL TYPE, TERMINAL WITH THREADED HUB. WATER PIPE CLAMPS: MECHANICAL TYPE, TWO PIECES WITH ZINC-PLATED BOLTS. TIN-PLATED GROUNDING ELECTRODES: GROUND RODS COPPER-CLAD STEEL SECTIONAL TYPE, 3/4 INCH BY 10 FEET. STEEL SLOTTED SUPPORT SYSTEMS: PREFORMED STEEL CHANNELS AND ANGLES WITH MINIMUM 13/32-INCH-DIAMETER HOLES AT A MAXIMUM OF 8 INCHES O.C. IN AT LEAST ONE SURFACE. MATERIAL FOR CHANNEL, FITTINGS, AND ACCESSORIES: GALVANIZED STEEL. CHANNEL WIDTH: SELECTED FOR APPLICABLE LOAD CRITERIA. METALLIC COATINGS: HOT-DIP GALVANIZED AFTER FABRICATION AND APPLIED ACCORDING TO CONDUIT AND CABLE SUPPORT DEVICES: STEEL HANGERS, CLAMPS, AND ASSOCIATED FITTINGS, DESIGNED

MARKED FOR INTENDED LOCATION AND APPLICATION [, AND MUST COMPLY WITH CALIFORNIA TITLE 24]. B. OCCUPANCY SENSOR OPERATION: UNLESS OTHERWISE INDICATED, TURN LIGHTS ON WHEN COVERAGE AREA IS OCCUPIED, AND TURN LIGHTS OFF WHEN UNOCCUPIED; WITH A TIME-DELAY FOR TURNING LIGHTS OFF, ADJUSTABLE OVER A MINIMUM RANGE OF 1 TO VACANCY SENSOR OPERATION: SAME AS OCCUPANCY SENSOR OPERATION, EXCEPT LIGHTS TURN ON ONLY WHEN OCCUPANT MANUALLY OPERATES THE SWITCH. OPERATING AMBIENT CONDITIONS: DRY INTERIOR CONDITIONS, 32 TO 120 DEG F (0 TO E. SWITCH RATING: NOT LESS THAN 15 A CONSISTING OF LED LIGHTING LOAD. 3. FEATURES AND PERFORMANCE CHARACTERISTICS: A. STANDARD RANGE: 180-DEGREE FIELD OF VIEW, FIELD ADJUSTABLE FROM 180 TO 40 DEGREES; WITH A MINIMUM COVERAGE AREA OF 900 SQ. FT. B. SENSING TECHNOLOGY: PIR, UNLESS INDICATED OTHERWISE ON DRAWINGS. C. SWITCH TYPE: SINGLE-POLE, SINGLE SWITCH-LEG, UNLESS INDICATED OTHERWISE ON D. FIELD-SELECTABLE AUTOMATIC "ON" OR MANUAL "ON". CAPABLE OF CONTROLLING LOAD IN THREE-WAY APPLICATION. VOLTAGE: MATCH THE CIRCUIT VOLTAGE. G. AMBIENT-LIGHT OVERRIDE: WHERE INDICATED ON THE DRAWINGS, PROVIDE CONCEALED. FIELD-ADJUSTABLE, LIGHT-LEVEL SENSOR FROM 10 TO 150 FC (108 TO 1600 LX). THE SWITCH PREVENTS THE LIGHTS FROM TURNING ON WHEN THE LIGHT LEVEL IS HIGHER THAN THE SET POINT OF THE SENSOR. H. CONCEALED, FIELD-ADJUSTABLE, "OFF" TIME-DELAY SELECTOR AT 30 SECONDS AND 5, 10, AND 20 MINUTES. INITIAL SETTING SHALL BE 5 MINUTES. I. ADAPTIVE TECHNOLOGY: SELF-ADJUSTING CIRCUITRY DETECTS AND MEMORIZES USAGE PATTERNS OF THE SPACE AND HELPS ELIMINATE FALSE "OFF" SWITCHING. J. COLOR: WHITE. K. FACEPLATE: COLOR MATCHED TO SWITCH. 2.11 INTERIOR LIGHTING LUMINAIRE ATTACHMENT PROVISIONS: COMPLY WITH LUMINAIRE MANUFACTURERS' MOUNTING REQUIREMENTS. USE STAINLESS-STEEL FASTENERS AND MOUNTING BOLTS UNLESS OTHERWISE AMBIENT TEMPERATURE (INDOOR LIGHTING): 5 TO 104 DEG F (-15 TO +40 DEG C). LUMINAIRE TYPES AND ACCEPTABLE MANUFACTURERS: AS INDICATED ON THE DRAWINGS. REFER TO THE 1. MODEL NUMBERS SHALL NOT BE REGARDED AS COMPLETE OR ENTIRELY ACCURATE. DO NOT ORDER PRODUCTS BASED SOLELY ON A MODEL NUMBER. FOR EACH LUMINAIRE TYPE, THE CONTRACTOR SHALL RECONCILE ITS DESCRIPTION, INCLUDING OPTIONS AND ACCESSORIES, WITH ITS INTENDED APPLICATION DERIVED FROM RELEVANT INFORMATION CONVEYED THROUGHOUT THE ENTIRETY OF CONTRACT DOCUMENTS. THE MANUFACTURER LISTED FIRST FOR EACH LUMINAIRE TYPE SHALL BE REGARDED AS THE BASIS OF DESIGN. ALTERNATIVE PRODUCTS BY OTHER LISTED MANUFACTURERS MUST BE AT LEAST EQUIVALENT IN STYLE, QUALITY, FEATURES, AND PERFORMANCE TO THAT OF THE BASIS OF ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. THEY WILL BE READILY VISIBLE TO SERVICE PERSONNEL, BUT NOT SEEN FROM NORMAL VIEWING ANGLES WHEN LAMPS ARE IN PLACE RECESSED LUMINAIRES SHALL COMPLY WITH NEMA LE 4. ENERGY STAR CERTIFIED. ROHS COMPLIANT. LED LUMINAIRES 1. DELIVERED LUMEN OUTPUT AS INDICATED ON THE LUMINAIRE SCHEDULE. IESNA LM-79 COMPLIANT, LATEST EDITION.

SECTION 260000 - ELECTRICAL SYSTEMS - CONT'D

OF THE FOLLOWING:

STRAIGHT BLADE RECEPTACLES, 125 V, 20A:

DESCRIPTION: TWO POLE, THREE WIRE, AND SELF-GROUNDING.

A. BASIS OF DESIGN: WATT STOPPER / LEGRAND.

B. ACUITY BRANDS, INC. (SENSOR SWITCH).

D. HUBBELL BUILDING AUTOMATION.

CONFIGURATION: NEMA WD 6. CONFIGURATION 5-20R.

4. STANDARDS: COMPLY WITH UL 498 AND FS W-C-596.

d. PASS & SEYMOUR/LEGRAND; WIRING DEVICES & ACCESSORIES (PASS & SEYMOUR)

SINGLE SOURCE: OBTAIN WALL PLATES FROM SAME MANUFACTURER OF WIRING DEVICES.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE

GENERAL REQUIREMENTS FOR SENSORS: AUTOMATIC-WALL-SWITCH OCCUPANCY SENSOR WITH

MANUAL ON-OFF SWITCH, AND 0-10V DIMMER SUITABLE FOR MOUNTING IN A SINGLE GANG

A. LISTED AND LABELED IN ACCORDANCE WITH NFPA 70, BY A QUALIFIED ELECTRICAL

TESTING LABORATORY RECOGNIZED BY AUTHORITIES HAVING JURISDICTION AND

SINGLE AND COMBINATION TYPES SHALL MATCH CORRESPONDING WIRING DEVICES.

PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.

4. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC.

. EATON / GREENGATE / COOPER LIGHTING CONTROLS, INC.

IESNA LM-80 COMPLIANT, LATEST EDITION; 50,000 HOURS MINIMUM, UNLESS OTHERWISE NOTED. CRI AND CCT AS INDICATED ON LUMINAIRE SCHEDULE IN ACCORDANCE WITH ANSI C78.377. 5. NEMA.SSL-1 COMPLIANT FOR OPERATIONAL CHARACTERISTICS AND ELECTRICAL SAFETY OF LED DRIVERS AND POWER SUPPLIES. ANSI/NEMA C82.77 COMPLIANT FOR MAXIMUM ALLOWABLE HARMONIC DISTORTION PRODUCED BY POWER SUPPLIES/DRIVERS. POWER FACTOR > 0.9, UNLESS NOTED OTHERWISE 7. TOTAL HARMONIC DISTORTION (THD) < 20%, UNLESS NOTED OTHERWISE. DOORS, FRAMES, AND OTHER INTERNAL ACCESS: SMOOTH OPERATING, FREE OF LIGHT LEAKAGE UNDER OPERATING CONDITIONS, AND DESIGNED TO PERMIT SERVICING WITHOUT USE OF TOOLS. DESIGNED TO PREVENT DOORS, FRAMES, LENSES, DIFFUSERS, AND OTHER COMPONENTS FROM FALLING ACCIDENTALLY DURING SERVICING AND WHEN SECURED IN OPERATING POSITION. DOORS SHALL BE REMOVABLE FOR CLEANING OR REPLACING LENSES. VERIFY ACTUAL CONDITIONS WITH FIELD MEASUREMENTS PRIOR TO ORDERING PANELBOARDS,

SWITCHBOARDS, DISCONNECTS AND TRANSFORMERS TO VERIFY THAT EQUIPMENT FITS IN ALLOCATED SPACE IN, AND COMPLY WITH, MINIMUM REQUIRED CLEARANCES SPECIFIED IN NFPA 70 AND MANUFACTURER'S WRITTEN INSTRUCTIONS. ENVIRONMENT: ENCLOSURES SHALL BE RATED FOR THE ENVIRONMENT IN WHICH THEY ARE LOCATED. EXAMINE ELECTRICAL MATERIALS BEFORE INSTALLATION. REJECT MATERIALS THAT ARE DAMAGED, RUSTED, OR HAVE BEEN SUBJECTED TO WATER SATURATION. EXAMINE ELEMENTS AND SURFACES TO RECEIVE ELECTRICAL MATERIAL FOR COMPLIANCE WITH INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED: 1. CONCEALED/EXPOSED CONDUIT, ABOVEGROUND: GRC OR IMC. UNDERGROUND CONDUIT: RNC, TYPE EPC-40-PVC. CONNECTION TO VIBRATING EQUIPMENT: LFMC. BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R. 3. INDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED: 1. EXPOSED, NOT SUBJECT TO SEVERE PHYSICAL DAMAGE: EMT. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: GRC OR IMC. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS: EMT. CONNECTION TO VIBRATING EQUIPMENT: FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS. 5. DAMP OR WET LOCATIONS: IMC. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4 STAINLESS STEEL IN

INSTITUTIONAL AND COMMERCIAL KITCHENS AND DAMP OR WET LOCATIONS MINIMUM RACEWAY SIZE: INDOOR AREAS: 1/2-INCH TRADE SIZE MINIMUM. BURIED, BELOW OR IN CONCRETE SLAB: 3/4-INCH TRADE SIZE MINIMUM. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION. 1. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID STEEL CONDUIT FITTINGS UNLESS OTHERWISE INDICATED. COMPLY WITH NEMA FB 2.10. EMT: USE SETSCREW, STEEL FITTINGS. COMPLY WITH NEMA FB 2.10. 3. FLEXIBLE CONDUIT: USE ONLY FITTINGS LISTED FOR USE WITH FLEXIBLE CONDUIT. COMPLY WITH

3.3 INSTALLATION OF RACEWAYS, FITTINGS, BOXES, ENCLOSURES AND CABINETS A. COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER. DO NOT FASTEN CONDUITS ONTO THE BOTTOM SIDE OF A METAL DECK ROOF. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING COMPLETE RACEWAY INSTALLATION BEFORE STARTING CONDUCTOR INSTALLATION ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE FINISHED SLAB. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR CONTROL WIRING CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED. SUPPORT WITHIN 12 INCHES OF CHANGES IN DIRECTION. CONCEAL CONDUIT WITHIN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES. THE FOLLOWING ARE EXCEPTIONS FOR CONCEALING CONDUITS:

WHERE SPECIFICALLY NOTED OR INDICATED ON THE DRAWINGS ELECTRICAL ROOMS WITH SURFACE MOUNTED PANELS MECHANICAL ROOMS 4. IN OPEN CEILINGS WITH EXPOSED STRUCTURE DO NOT INSTALL CONDUITS EXPOSED TO SOLAR HEAT GAIN SUCH AS ROOF TOPS UNLESS INDICATED ON SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO WHICH ATTACHED. STUB-UPS TO ABOVE RECESSED CEILINGS: USE A CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE STUB-UPS NOT TERMINATED IN HUBS OR IN AN ENCLOSURE. K. TERMINATE THREADED CONDUITS INTO THREADED HUBS OR WITH LOCKNUTS ON INSIDE AND OUTSIDE OF BOXES OR CABINETS. INSTALL BUSHINGS ON CONDUITS UP TO 1-1/4-INCH TRADE SIZE AND INSULATED THROAT METAL BUSHINGS ON 1-1/2-INCH TRADE SIZE AND LARGER CONDUITS TERMINATED WITH LOCKNUTS. INSTALL INSULATED THROAT METAL GROUNDING BUSHINGS ON SERVICE CONDUITS. INSTALL RACEWAYS SQUARE TO THE ENCLOSURE AND TERMINATE AT ENCLOSURES WITH LOCKNUTS. INSTALL LOCKNUTS HAND TIGHT PLUS 1/4 TURN MORE. M. DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ASSURE A CONTINUOUS GROUND PATH. CUT CONDUIT PERPENDICULAR TO THE LENGTH. FOR CONDUITS 2-INCH TRADE SIZE AND LARGER, USE

ROLL CUTTER OR A GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE. CAP UNDERGROUND RACEWAYS DESIGNATED AS SPARE ABOVE GRADE ALONGSIDE RACEWAYS IN P. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SOLVENT WELDING RNC AND FITTINGS.). FLEXIBLE CONDUIT CONNECTIONS: COMPLY WITH NEMA RV 3. USE A MAXIMUM OF 72 INCHES OF FLEXIBLE CONDUIT FOR RECESSED AND SEMI-RECESSED LUMINAIRES. EQUIPMENT SUBJECT TO VIBRATION. NOISE TRANSMISSION, OR MOVEMENT, AND FOR TRANSFORMERS AND MOTORS MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CENTER OF CELL OF MASONRY BLOCK AND INSTALL BOX FLUSH WITH SURFACE OF WALL, PREPARE BLOCK SURFACES TO PROVIDE A FLAT SURFACE FOR A RAINTIGHT CONNECTION BETWEEN BOX AND COVER PLATE OR SUPPORTED EQUIPMENT HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS, SO THEY ARE NOT IN THE

SECTION 260000 - ELECTRICAL SYSTEMS - CONT'D SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR THE PURPOSE FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS. V. SET METAL FLOOR BOXES LEVEL AND FLUSH WITH FINISHED FLOOR SURFACE .4 CONDUCTOR AND CABLE APPLICATION AND INSTALLATION CONDUCTOR MATERIAL APPLICATIONS: FEEDERS 100 AMPS AND LESS USE COPPER STRANDED. FEEDERS OVER 100 AMPS USE COPPER OR ALUMINUM, STRANDED. BRANCH CIRCUITS USE SOLID OR STRANDED FOR

10 AWG AND SMALLER; USE STRANDED FOR 8 AWG AND LARGER. USE TYPE XHHW-2, SINGLE CONDUCTORS IN RACEWAY IN THE FOLLOWING APPLICATIONS: SERVICE ENTRANCE, FEEDERS TO DISTRIBUTION EQUIPMENT AND PANELBOARDS. EXTERIOR BRANCH CIRCUITS ROUTED HORIZONTALLY ON ROOFS CIRCUITS DOWNSTREAM OF A DEVICE WITH GFCI OR GFP PROTECTION

FEEDERS CONNECTED FROM THE LOAD-SIDE OF VFDS TO ELECTRIC MOTORS: OTHER APPLICATIONS USE TYPE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY.

METAL CLAD CABLE USES PERMITTED: BRANCH CIRCUITS RATED LESS THAN 30 AMPS 2. IN AREAS THAT HAVE ACCESSIBLE CEILING SPACE METAL CLAD CABLE USES NOT PERMITTED:

HOMERUNS (THAT ARE MORE THAN 50 FEET OF CABLE LENGTH FROM DEVICE TO PANEL. AREAS WHERE THERE IS NO ACCESS TO THE CEILING SPACE AREAS THAT HAVE NO CEILING OR EXPOSED STRUCTURE EXPOSED 6. WET OR DAMP AREAS CONDUCTOR SIZES MINIMUM WIRE SIZE (INTERIOR WORK): NO. 12 AWG, EXCEPT NO. 14 AWG SHALL BE PERMITTED FOR SIGNAL, PILOT CONTROL CIRCUITS AND FIXTURE WHIPS.

MINIMUM WIRE SIZE (EXTERIOR WORK): NO 10 AWG. USE #10 AWG MINIMUM CONDUCTOR SIZE IN LIEU OF #12 AWG MINIMUM FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS WHERE HOMERUNS ARE LONGER THAN 75 FEET AND FOR 20 AMPERE, 277 VOLT BRANCH CIRCUITS WHERE HOMERUNS ARE LONGER THAN 175 FEET. INCREASE IN SIZE AS REQUIRED FOR A MAXIMUM OF 3 PERCENT VOLTAGE DROP FROM PANEL TO LOAD. 4. DERATE CONDUCTORS BASED ON QUANTITY OF CURRENT CARRYING CONDUCTORS IN EACH CONDUIT. REFER TO THE NEC FOR DERATING FACTORS. 5. DERATE CONDUCTORS FOR HIGH AMBIENT TEMPERATURES. REFER TO THE NEC FOR DERATING 5 INSTALLATION OF CONDUCTORS AND CABLES

.. CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DETERIORATE CONDUCTOR OR INSULATION. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES. USE PULLING MEANS, INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS, THAT WILL NOT DAMAGE CABLES OR RACEWAY. INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE. BRANCH CIRCUITS SERVING RECEPTACLES AND LIGHTING LOADS SHALL HAVE DEDICATED NEUTRAL CONDUCTORS AND SHALL NOT SHARE A COMMON NEUTRAL CONDUCTOR. THE USE OF HANDLE TIES ACROSS SINGLE POLE CIRCUIT BREAKERS TO ALLOW THE USE OF A COMMON NEUTRAL IS NOT ACCEPTABLE. DERATING FACTORS SHALL BE APPLIED, PER NEC ARTICLE 310, TO MULTIPLE CURRENT-CARRYING CURRENT-CARRYING CONDUCTORS. WIRE SIZES SHALL BE INCREASED AS NEEDED TO MAINTAIN THE

CONDUCTORS INSTALLED WITHIN THE SAME CONDUIT. NEUTRAL CONDUCTORS SHALL BE REGARDED AS AMPACITY THAT CORRESPONDS TO THE OVERCURRENT PROTECTION DEVICE RATING. WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 6 INCHES OF SLACK. CONNECTIONS: TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B. MAKE SPLICES, TERMINATIONS, AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UN-SPLICED CONDUCTORS. USE OXIDE INHIBITOR IN EACH SPLICE, TERMINATION, AND TAP FOR ALUMINUM CONDUCTORS. 6 SUPPORT INSTALLATION . COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT AS SPECIFIED IN THIS

MAXIMUM SUPPORT SPACING AND MINIMUM HANGER ROD SIZE FOR RACEWAYS: SPACE SUPPORTS FOR EMT, IMC, AND RMC AS REQUIRED BY NFPA 70. MINIMUM ROD SIZE SHALL BE 1/4 INCH IN DIAMETER. MULTIPLE RACEWAYS OR CABLES: INSTALL TRAPEZE-TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED SUPPORT SYSTEM, SIZED SO CAPACITY CAN BE INCREASED BY AT LEAST 25 PERCENT IN FUTURE WITHOUT EXCEEDING SPECIFIED DESIGN LOAD LIMITS. SECURE RACEWAYS AND CABLES TO THESE SUPPORTS WITH SINGLE-BOLT CONDUIT CLAMPS. DAMP OR WET LOCATIONS: UTILIZE HOT DIPPED GALVANIZED STEEL SLOTTED SUPPORT SYSTEMS. APPLY GALVANIZING-REPAIR PAINT TO COMPLY WITH ASTM A780 ON CLIT FDGES STRENGTH OF SUPPORT ASSEMBLIES: WHERE NOT INDICATED, SELECT SIZES OF COMPONENTS SC

STRENGTH WILL BE ADEQUATE TO CARRY PRESENT AND FUTURE STATIC LOADS WITHIN SPECIFIED LOADING LIMITS. MINIMUM STATIC DESIGN LOAD USED FOR STRENGTH DETERMINATION SHALL BE WEIGHT MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS: ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE: TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS.

TO NEW CONCRETE: BOLT TO CONCRETE INSERTS. 3. TO MASONRY: APPROVED TOGGLE-TYPE BOLTS ON HOLLOW MASONRY UNITS AND EXPANSION ANCHOR FASTENERS ON SOLID MASONRY UNITS.

4. TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS 5. TO STEEL: BEAM CLAMPS (MSS SP-58, TYPE 19, 21, 23, 25, OR 27), COMPLYING WITH MSS SP-69. TO LIGHT STEEL: SHEET METAL SCREWS ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES: MOUNT CABINETS, PANELBOARDS, DISCONNECT SWITCHES, CONTROL ENCLOSURES, PULL AND JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE BY MEANS THAT COMPLY WITH SEISMIC-RESTRAINT STRENGTH AND ANCHORAGE REQUIREMENTS.

DRILL HOLES FOR EXPANSION ANCHORS IN CONCRETE AT LOCATIONS AND TO DEPTHS THAT AVOID THE NEED FOR REINFORCING BARS.

REQUIREMENTS IN OTHER SECTIONS REQUIRING IDENTIFICATION APPLICATIONS, DRAWINGS, SHOP DRAWINGS, MANUFACTURER'S WIRING DIAGRAMS, AND OPERATION AND MAINTENANCE MANUAL. USE CONSISTENT DESIGNATIONS THROUGHOUT PROJECT. POWER CONDUCTORS: IDENTIFY AND COLOR-CODE CONDUCTORS AS FOLLOWS: 1. COLORS FOR 208/120-V CIRCUITS: PHASE A- BLACK, PHASE B - RED, PHASE C - BLUE, NEUTRAL -2. COLORS FOR 480/277-V CIRCUITS: PHASE A – BROWN, PHASE B – ORANGE, PHASE C -YELLOW, NEUTRAL – GRAY.

VERIFY AND COORDINATE IDENTIFICATION NAMES, ABBREVIATIONS, COLORS, AND OTHER FEATURES WITH

COLOR FOR EQUIPMENT GROUNDS: GREEN. CABLES/CONDUCTORS: PROVIDE SNAP-AROUND OR SELF-ADHESIVE WRAPAROUND LABELS IDENTIFYING CONDUCTORS, CABLES, AND TERMINALS IN ENCLOSURES AND AT JUNCTIONS, TERMINALS, PULL POINTS, AND LOCATIONS OF HIGH VISIBILITY. IDENTIFY BY SYSTEM AND CIRCUIT DESIGNATION. PROVIDE SELF-ADHESIVE ENGRAVED ACRYLIC/MELAMINE IDENTIFICATION LABELS WITH WHITE FACE AND ½ INCH BLACK TEXT FOR THE FOLLOWING ELECTRICAL EQUIPMENT: PANELBOARDS, SWITCHBOARDS, BREAKERS IN SWITCHBOARDS, TRANSFORMERS, CONTROL PANELS, SAFETY DISCONNECT SWITCHES, AND

CIRCUIT DIRECTORY: COMPUTER-GENERATED CIRCUIT DIRECTORY MOUNTED INSIDE PANELBOARD DOOR WITH TRANSPARENT PLASTIC PROTECTIVE COVER. CIRCUIT DIRECTORY SHALL IDENTIFY SPECIFIC PURPOSE WITH DETAIL SUFFICIENT TO DISTINGUISH IT FROM ALL OTHER CIRCUITS. DEVICE LABELS: ON THE FRONT OF EACH DEVICE PLATE PROVIDE CLEAR VINYL STICK ON PRE-PRINTED TAPE WITH 1/4 INCH MINIMUM BLACK TEXT IDENTIFYING THE PANEL AND CIRCUIT NUMBER THE DEVICE IS JUNCTION BOX LABELS: ON EACH JUNCTION BOX PROVIDE WHITE VINYL STICK ON PRE-PRINTED TAPE WITH ¼ INCH MINIMUM BLACK TEXT IDENTIFYING THE PANEL AND CIRCUIT NUMBERS THAT ARE IN THE

.8 FIRESTOPPING: INSTALL FIRESTOPPING AT PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES. .9 PROTECTION: PROTECT COATINGS, FINISHES, AND CABINETS FROM DAMAGE AND DETERIORATION. REPAIR DAMAGE TO GALVANIZED FINISHES WITH ZINC-RICH PAINT RECOMMENDED BY MANUFACTURER. REPAIR DAMAGE TO PVC COATINGS OR PAINT FINISHES WITH MATCHING TOUCHUP COATING RECOMMENDED BY MANUFACTURER.

.10 GROUNDING SYSTEM APPLICATIONS AND INSTALLATION CONDUCTORS: INSTALL SOLID CONDUCTOR FOR NO. 8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR NO. 6 AWG AND LARGER UNLESS OTHERWISE INDICATED. UNDERGROUND GROUNDING CONDUCTORS: INSTALL BARE TINNED-COPPER CONDUCTOR, NO. 2/0 AWG MINIMUM. BURY AT LEAST 30 INCHES BELOW GRADE. GROUNDING CONDUCTORS: GREEN-COLORED INSULATION WITH CONTINUOUS YELLOW STRIPE. CONDUCTOR TERMINATIONS AND CONNECTIONS:

2. UNDERGROUND CONNECTIONS: WELDED CONNECTORS EXCEPT AT TEST WELLS AND AS OTHERWISE INDICATED CONNECTIONS TO GROUND RODS AT TEST WELLS: BOLTED CONNECTORS CONNECTIONS TO STRUCTURAL STEEL: WELDED CONNECTORS. GROUNDING AT THE SERVICE: EQUIPMENT GROUNDING CONDUCTORS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE CONNECTED TO THE GROUND BUS. INSTALL A MAIN BONDING JUMPER BETWEEN THE NEUTRAL AND GROUND BUSES. GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS: COMPLY WITH IEEE C2 GROUNDING REQUIREMENTS. PROVIDE GROUNDING AS REQUIRED BY THE SERVING UTILITY COMPANY. GROUNDING SHALL BE PROVIDED AT, BUT NOT LIMITED TO, THE FOLLOWING LOCATIONS: TRANSFORMER, AND METER EQUIPMENT GROUNDING: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS

TELECOMMUNICATIONS GROUNDING: PROVIDE GROUNDING IN ACCORDANCE WITH TIA 607 AND AS

PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS: BOLTED CONNECTORS

INDICATED ON THE DRAWINGS. GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE. GROUND RODS: DRIVE RODS UNTIL TOPS ARE 2 INCHES BELOW FINISHED FLOOR OR FINAL GRADE UNLESS OTHERWISE INDICATED. INTERCONNECT GROUND RODS WITH GROUNDING ELECTRODE CONDUCTOR BELOW GRADE AND AS OTHERWISE INDICATED. MAKE CONNECTIONS WITHOUT EXPOSING STEEL OR DAMAGING COATING IF ANY. USE EXOTHERMIC WELDS FOR ALL BELOW-GRADE CONNECTIONS. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT. 1. BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS.

2. BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS: INSTALL BONDING SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT 3. USE EXOTHERMIC-WELDED CONNECTORS FOR OUTDOOR LOCATIONS. METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES: USE A BOLTED CLAMP CONNECTOR OR BOLT A LUG-TYPE CONNECTOR TO A PIPE FLANGE BY USING ONE OF THE LUG BOLTS OF THE FLANGE. WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING. BOND METAL GROUNDING CONDUCTOR CONDUIT OR SLEEVE TO CONDUCTOR AT EACH END. WATER METER PIPING: USE BRAIDED-TYPE BONDING JUMPERS TO ELECTRICALLY BYPASS WATER METERS.

CONNECT TO PIPE WITH A BOLTED CONNECTOR. BOND EACH ABOVEGROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF BONDING INTERIOR METAL DUCTS: BOND METAL AIR DUCTS TO FOUIPMENT GROUNDING CONDUCTORS OF ASSOCIATED FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS. INSTALL TINNED BONDING JUMPER TO BOND ACROSS FLEXIBLE DUCT CONNECTIONS TO ACHIEVE CONTINUITY. CONNECTIONS: MAKE CONNECTIONS SO POSSIBILITY OF GALVANIC ACTION OR ELECTROLYSIS IS MINIMIZED. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS

SECTION 260000 - ELECTRICAL SYSTEMS - CONT'D USE ELECTROPLATED OR HOT-TIN-COATED MATERIALS TO ENSURE HIGH CONDUCTIVITY AND TO MAKE CONTACT POINTS CLOSER IN ORDER OF GALVANIC SERIES. MAKE CONNECTIONS WITH CLEAN, BARE METAL AT POINTS OF CONTACT.

3. MAKE ALUMINUM-TO-STEEL CONNECTIONS WITH STAINLESS-STEEL SEPARATORS AND MECHANICAL CLAMPS.

4. MAKE ALUMINUM-TO-GALVANIZED-STEEL CONNECTIONS WITH TIN-PLATED COPPER JUMPERS AND

MECHANICAL CLAMPS. COAT AND SEAL CONNECTIONS HAVING DISSIMILAR METALS WITH INERT MATERIAL TO PREVENT

3.11 LIGHTING CONTROL INSTALLATION

SUPPORTS:

FUTURE PENETRATION OF MOISTURE TO CONTACT SURFACES.

A. OCCUPANCY AND VACANCY SENSOR SETTINGS AND ADJUSTMENTS 1. POSITION, AIM, AND ADJUST SENSORS TO ACHIEVE NOT LESS THAN 90 PERCENT COVERAGE OF AREAS INDICATED. DO NOT EXCEED COVERAGE LIMITS SPECIFIED IN MANUFACTURER'S WRITTEN 2. LIGHTS SHALL TURN ON IMMEDIATELY AFTER THE LIGHT-SWITCH, DIMMER, OR CONTROL STATION IS ENGAGED. LIGHTS MUST STAY ON WHILE PRESENCE IS DETECTED.

4. LIGHTS SHALL TURN OFF AFTER A PRESET TIME-DELAY COMMENCING FROM THE LAST MOMENT PRESENCE WAS DETECTED (CORRESPONDING TO VACANCY). THE INITIAL TIME-DELAY OFF SETTING SHALL BE 10 MINUTES. COORDINATE FINAL SETTINGS DIRECTLY WITH THE OWNER. PROVIDE A WALK-THOUGH WITH THE OWNER'S REPRESENTATIVE TO CONFIRM FINAL SETTINGS AND OVERALL FUNCTIONALITY.

3.12 LIGHTING INSTALLATION . EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF EXAMINE ROUGHING-IN FOR LUMINAIRE TO VERIFY ACTUAL LOCATIONS OF LUMINAIRE AND ELECTRICAL CONNECTIONS BEFORE LUMINAIRE INSTALLATION.

LUMINAIRES WILL BE INSTALLED. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. COMPLY WITH NECA 1. COMPLY WITH REQUIREMENTS IN SECTION 260519 "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" AND SECTION 260533 "RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS" FOR WIRING

EXAMINE WALLS, ROOFS, CANOPY CEILINGS, AND OVERHANG CEILINGS FOR SUITABLE CONDITIONS WHERE

CONNECTIONS AND WIRING METHODS. COORDINATE LAYOUT AND INSTALLATION OF LUMINAIRES WITH OTHER CONSTRUCTION. DO NOT MODIFY LAYOUT OR LOCATIONS OF LUMINAIRES WITHOUT DOCUMENTED APPROVAL TO DO SO, UNLESS INDICATED OTHERWISE ON THE DRAWINGS. INSTALL LUMINAIRES LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE

ADJUST LUMINAIRES THAT REQUIRE FIELD ADJUSTMENT OR AIMING TO PROVIDE OPTIMUM ILLUMINATION. COORDINATE AND CONFIRM FINAL ADJUSTMENTS WITH OWNER. USE FASTENING METHODS AND MATERIALS SELECTED TO RESIST SEISMIC FORCES DEFINED FOR THE APPLICATION AND APPROVED BY MANUFACTURER. FASTEN LUMINAIRE TO STRUCTURAL SUPPORT.

 SIZED AND RATED FOR LUMINAIRE WEIGHT. ABLE TO MAINTAIN LUMINAIRE POSITION AFTER CLEANING AND SERVICING.

PROVIDE SUPPORT FOR LUMINAIRE WITHOUT CAUSING DEFLECTION OF CEILING OR WALL 4. LUMINAIRE-MOUNTING DEVICES SHALL BE CAPABLE OF SUPPORTING A HORIZONTAL FORCE OF 100 PERCENT OF LUMINAIRE WEIGHT AND A VERTICAL FORCE OF 400 PERCENT OF LUMINAIRE WEIGHT. FLUSH-MOUNTED LUMINAIRES: SECURED TO OUTLET BOX.

2. ATTACHED TO CEILING STRUCTURAL MEMBERS AT FOUR POINTS EQUALLY SPACED AROUND CIRCUMFERENCE OF LUMINAIRE. 3. TRIM RING FLUSH WITH FINISHED SURFACE. WALL-MOUNTED LUMINAIRES:

1. ATTACHED TO STRUCTURAL MEMBERS IN WALLS OR A MINIMUM 20-GAUGE OR 1/8-INCH THICK BACKING PLATE ATTACHED TO WALL STRUCTURAL MEMBERS. ATTACHED USING THROUGH BOLTS AND BACKING PLATES ON EITHER SIDE OF WALL AS RECOMMENDED BY LUMINAIRE MANUFACTURER. DO NOT ATTACH LUMINAIRES DIRECTLY TO GYPSUM BOARD.

SUSPENDED LUMINAIRES: PENDANT MOUNT, WHERE INDICATED, MINIMUM 5/32-INCH-DIAMETER AIRCRAFT CABLE SUPPORTS, ADJUSTABLE, AND QUANTITY OF SUPPORTS AS INDICATED OR AS RECOMMENDED BY LUMINAIRE MANUFACTURER, WHICHEVER IS GREATER. HOOK MOUNT, WHERE APPLICABLE.

RODS: WHERE LONGER THAN 48 INCHES, BRACE TO LIMIT SWINGING. STEM-MOUNTED, SINGLE-UNIT LUMINAIRES: SUSPEND WITH TWIN-STEM HANGERS. SUPPORT WITH APPROVED OUTLET BOX AND ACCESSORIES THAT HOLD STEM AND PROVIDE DAMPING OF LUMINAIRE OSCILLATIONS. SUPPORT OUTLET BOX VERTICALLY TO BUILDING STRUCTURE USING APPROVED DEVICES.

CONTINUOUS ROWS OF LUMINAIRES: USE TUBING OR STEM FOR WIRING AT ONE POINT AND TUBING OR ROD OR WIRE SUPPORT AS INDICATED FOR SUSPENSION FOR EACH UNIT LENGTH OF LUMINAIRE CHASSIS, INCLUDING ONE AT EACH END. 6. DO NOT USE CEILING GRID AS SUPPORT FOR PENDANT LUMINAIRES. CONNECT SUPPORT WIRES

OR RODS TO BUILDING STRUCTURE. . CEILING-GRID-MOUNTED LUMINAIRES: SECURE TO ANY REQUIRED OUTLET BOX. 2. SECURE LUMINAIRE TO THE LUMINAIRE OPENING USING APPROVED FASTENERS IN A MINIMUM OF

FOUR LOCATIONS, SPACED NEAR CORNERS OF LUMINAIRE. . USE APPROVED DEVICES AND SUPPORT COMPONENTS TO CONNECT LUMINAIRE TO CEILING GRID AND BUILDING STRUCTURE IN A MINIMUM OF FOUR LOCATIONS, SPACED NEAR CORNERS OF LUMINAIRE. 3.13 FIELD QUALITY CONTROL

A. TESTS AND INSPECTIONS: AFTER INSTALLING GROUNDING SYSTEM BUT BEFORE PERMANENT ELECTRICAL CIRCUITS HAVE BEEN ENERGIZED, TEST FOR COMPLIANCE WITH REQUIREMENTS. INSPECT PHYSICAL AND MECHANICAL CONDITION. VERIFY TIGHTNESS OF ACCESSIBLE, BOLTED, ELECTRICAL CONNECTIONS WITH A CALIBRATED TORQUE WRENCH ACCORDING TO

MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE LAYOUT AND INSTALLATION OF ELECTRICAL EQUIPMENT WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM, INCLUDING ELECTRICAL AND OTHER TYPES OF EQUIPMENT, RACEWAYS, PIPING, ENCUMBRANCES TO WORKSPACE CLEARANCE REQUIREMENTS, AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR

EQUIPMENT ACCESS DOORS AND PANELS INSTALL FLOOR MOUNTED TRANSFORMERS, AND SWTIF LEVEL AND PLUMB ON A CONCRETE BASE WITH VIBRATION-DAMPENING SUPPORTS. COORDINATE SIZE AND LOCATION OF CONCRETE BASES WITH ACTUAL TRANSFORMER PROVIDED. CAST ANCHOR-BOLT INSERTS INTO BASES. PROVIDE CONCRETE BASE WITH REINFORCEMENT REBAR. SECURE TRANSFORMER TO CONCRETE BASE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS SECURE COVERS TO ENCLOSURE AND TIGHTEN ALL BOLTS TO MANUFACTURER-RECOMMENDED TORQUES

TO REDUCE NOISE GENERATION. REMOVE SHIPPING BOLTS, BLOCKING, AND WEDGES.

TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B. PROVIDE FLEXIBLE CONNECTIONS AT ALL CONDUIT AND CONDUCTOR TERMINATIONS AND SUPPORTS TO ELIMINATE SOUND AND VIBRATION TRANSMISSION TO THE BUILDING STRUCTURE.

VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO ASSIST IN CLEANING.

SECTION 280000 - FIRE ALARM SYSTEMS

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

A. SECTION INCLUDES: 1. MODIFICATIONS TO EXISTING FIRE ALARM AND DETECTION SYSTEM. MANUAL FIRE ALARM PULL-STATIONS. SYSTEM SMOKE DETECTORS.

DUCT SMOKE DETECTORS. CARBON MONOXIDE DETECTORS HEAT DETECTORS. 7. FIRE ALARM NOTIFICATION APPLIANCES.

A. AHJ: AUTHORITIES HAVING JURISDICTION.

8. FIRE ALARM ADDRESSABLE INTERFACE DEVICES. 9. DIGITAL ALARM COMMUNICATOR TRANSMITTERS (DACTS). RELATED REQUIREMENTS: SECTION 260000 "ELECTRICAL SYSTEMS".

DACT: DIGITAL ALARM COMMUNICATOR TRANSMITTER FACP / FACU: FIRE ALARM CONTROL PANEL / UNIT. NAC: NOTIFICATION APPLIANCE CIRCUIT NICET: NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES. SLC: SIGNALING LINE CIRCUIT. G. VOLTAGE CLASS: FOR SPECIFIED CIRCUITS AND EQUIPMENT, VOLTAGE CLASSES ARE DEFINED AS

CONTROL VOLTAGE: LISTED AND LABELED FOR USE IN REMOTE-CONTROL, SIGNALING, AND POWER- LIMITED CIRCUITS SUPPLIED BY A CLASS 2 OR CLASS 3 POWER SUPPLY HAVING RATED OUTPUT NOT GREATER THAN 150 V AND 5 A, ALLOWING USE OF ALTERNATE WIRING METHODS COMPLYING WITH NFPA 70, ARTICLE 725.

2. LOW VOLTAGE: LISTED AND LABELED FOR USE IN CIRCUITS SUPPLIED BY A CLASS 1 OR OTHER POWER SUPPLY HAVING RATED OUTPUT NOT GREATER THAN 1000 V, REQUIRING USE OF WIRING METHODS COMPLYING WITH NFPA 70, ARTICLE 300, PART I. SPECIAL CONDITIONS

... PROVIDE AN APPROVED FIRE WATCH SERVICE UNDER CONDITIONS IN WHICH THE EXISTING FACILITY IS OCCUPIED WHILE THE EXISTING FIRE ALARM SYSTEM IS OUT OF SERVICE DURING CONSTRUCTION. FIRE WATCH SERVICE SHALL BE PROVIDED UNTIL THE FIRE ALARM SYSTEM IS RETURNED TO SERVICE. EXTEND THE EXISTING SYSTEM TO SERVE EXISTING AND NEW AREAS. INCLUDE ALL NECESSARY PROVISION FOR SCOPE OF WORK INDICATED IN THIS SPECIFICATION AND ON THE DRAWINGS IN THIS CONTRACT. NEW DEVICES SHALL BE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM (SEE MANUFACTURER BELOW). FURNISH ONLY NEW DEVICES AND COMPONENTS UNDER THIS CONTRACT VISIT THE SITE TO DETERMINE EXISTING CONDITIONS PRIOR TO BIDDING. VERIFY ALL REQUIREMENTS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONING INTERFACE BETWEEN THE EXISTING FIRE ALARM SYSTEM AND ALL NEW WORK IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS.

.5 ACTION SUBMITTALS SUBMITTALS SHALL BE COMBINED INTO THE FEWEST POSSIBLE SUBMITTALS, AS OPPOSED TO EACH PORTION BEING SUBMITTED SEPARATELY.

APPROVED PERMIT SUBMITTAL: SUBMITTALS MUST BE APPROVED BY AUTHORITIES HAVING JURISDICTION PRIOR TO SUBMITTING THEM TO ARCHITECT/ENGINEER. 1. IN ADDITION TO DISTRIBUTION REQUIREMENTS FOR SUBMITTALS SPECIFIED IN DIVISION 01 SECTION "SUBMITTAL PROCEDURES." PROVIDE AN IDENTICAL SUBMITTAL TO THE AHJ. TO FACILITATE REVIEW. INCLUDE COPIES OF ANNOTATED CONTRACT DRAWINGS AS NEEDED TO DEPICT COMPONENT LOCATIONS. RESUBMIT IF REQUIRED TO MAKE CLARIFICATIONS OR REVISIONS TO OBTAIN APPROVAL. UPON RECEIPT OF COMMENTS FROM THE AHJ, SEND SUBMITTAL TO ARCHITECT/ENGINEER FOR REVIEW.

SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D 2. PROJECT TITLE SHEET WITH CONTACT INFORMATION:

PROJECT NAME AND ADDRESS CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER. INSTALLER'S NAME, ADDRESS, AND TELEPHONE NUMBER. MANUFACTURER'S NAME, ADDRESS, AND TELEPHONE NUMBER.

. DATE SUBMITTED. PRODUCT DATA: FOR EACH TYPE OF PRODUCT, INCLUDING FURNISHED OPTIONS AND ACCESSORIES. SPECIFICALLY INDICATE COMPLETE MODEL NUMBER FOR EACH SYSTEM COMPONENT/DEVICE. INFORMATION AND OPTIONS NOT INCLUDED SHALL BE CROSSED OUT

2. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS, PROFILES, AND

INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, AND ELECTRICAL CHARACTERISTICS. SHOP DRAWINGS: FOR FIRE ALARM SYSTEM. 1. COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS IN "DOCUMENTATION" SECTION OF "FUNDAMENTALS" CHAPTER IN NFPA 72.

2. INCLUDE PLANS, ELEVATIONS, SECTIONS, AND DETAILS, INCLUDING DETAILS OF ATTACHMENTS TO 3. INCLUDE DETAILS OF EQUIPMENT ASSEMBLIES. INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATIONS. INDICATE CONDUCTOR SIZES, INDICATE TERMINATION LOCATIONS AND REQUIREMENTS, AND DISTINGUISH BETWEEN FACTORY AND FIELD WIRING.

4. DETAILS FOR FAA UNITS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION. 5. DETAIL ASSEMBLY AND SUPPORT REQUIREMENTS. INCLUDE VOLTAGE DROP CALCULATIONS FOR NOTIFICATION-APPLIANCE CIRCUITS. INCLUDE BATTERY-SIZE CALCULATIONS AND IDENTIFY SPARE CAPACITY AVAILABLE a. INCLUDE POWER SUPPLY CALCULATIONS AND IDENTIFY SPARE CAPACITY AVAILABLE.

INCLUDE AMPLIFIER CALCULATIONS AND POWER LOSS CALCULATIONS FOR

NOTIFICATION APPLIANCES. INCLUDE INPUT/OUTPUT OPERATIONS MATRIX (SEQUENCE OF OPERATION PER NFPA 72).). INCLUDE WRITTEN STATEMENT FROM MANUFACTURER THAT EQUIPMENT AND COMPONENTS HAVE BEEN TESTED AS A SYSTEM AND COMPLY WITH REQUIREMENTS IN THIS SECTION AND IN NFPA 72. 10. INCLUDE PERFORMANCE PARAMETERS AND INSTALLATION DETAILS FOR EACH DETECTOR. 11. VERIFY THAT EACH DUCT DETECTOR IS LISTED FOR COMPLETE RANGE OF AIR VELOCITY, TEMPERATURE, AND HUMIDITY POSSIBLE WHEN AIR-HANDLING SYSTEM IS OPERATING. 12. PROVIDE CONTROL WIRING DIAGRAMS FOR FIRE ALARM INTERFACE TO HVAC; COORDINATE

LOCATION OF DUCT SMOKE DETECTORS AND ACCESS TO THEM. a. SHOW CRITICAL DIMENSIONS THAT RELATE TO PLACEMENT AND SUPPORT OF SAMPLING TUBES, DETECTOR HOUSING, AND REMOTE STATUS AND ALARM INDICATORS. SHOW FIELD WIRING AND EQUIPMENT REQUIRED FOR HVAC UNIT SHUTDOWN ON ALARM. c. LOCATE DETECTORS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. 13. INCLUDE VOICE/ALARM SIGNALING-SERVICE EQUIPMENT RACK OR CONSOLE LAYOUT, GROUNDING

SCHEMATIC, AND SINGLE-LINE CONNECTION DIAGRAM. 14. FLOOR PLANS: a. SUBMIT DRAWINGS PRODUCED AND PLOTTED VIA ELECTRONIC MEANS (NOT HAND DRAFTED) FOR REVIEW. SEE DIVISION 01 SECTION, "CAD ELECTRONIC MEDIA TRANSFER AGREEMENT" FOR OBTAINING AUTOCAD FILES FROM THE ARCHITECT AND FOR ASSOCIATED REQUEST FORM AND FEES.

b. INCLUDE FLOOR PLANS TO INDICATE FINAL OUTLET LOCATIONS SHOWING ADDRESS OF EACH ADDRESSABLE DEVICE. SHOW SIZE AND ROUTE OF CABLE AND CONDUITS AND POINT- TO-POINT WIRING DIAGRAMS. c. SHOW ROOM NAMES THAT INDICATE ACTUAL ROOM USE AND ACTUAL NUMBER

d. SHOW THE LOCATIONS OF ALL SYSTEM PANELS AND DEVICES, INCLUDING MONITOR MODULES, CONTROL MODULES, AND RELAYS. e. SHOW THE DESIGNATED ADDRESS OF EACH ADDRESSABLE DEVICE. SHOW THE CABLING PATHWAYS BETWEEN CONTROL PANEL(S), SUPERVISING

STATION/ANNUNCIATOR PANELS, VOICE COMMAND, AND SHARED COMMUNICATIONS g. SHOW THE GENERAL ROUTING OF CABLING TO EACH FIRE ALARM DEVICE/NOTIFICATION APPLIANCE. h. SHOW TYPICAL MOUNTING HEIGHT ELEVATIONS FOR WALL-MOUNTED DEVICES AND

INDICATE THE SELECTED CANDELA RATING FOR EACH VISUAL (STROBE) DEVICE. DELEGATED DESIGN SUBMITTAL: FOR NOTIFICATION APPLIANCES AND SMOKE AND HEAT DETECTORS, IN ADDITION TO SUBMITTALS LISTED ABOVE, INDICATE COMPLIANCE WITH PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY A NICET CERTIFIED PROFESSIONAL WHO MEETS THE QUALIFICATIONS LISTED BELOW UNDER THE ARTICLE TITLED "QUALITY

1. DRAWINGS SHOWING LOCATION OF EACH NOTIFICATION APPLIANCE AND SMOKE AND HEAT DETECTOR, RATINGS OF EACH, AND INSTALLATION DETAILS AS NEEDED TO COMPLY WITH LISTING a. INCLUDE DESIGNATION OF ACOUSTICALLY DISTINGUISHABLE SPACES AND METHOD FOR TESTING INTELLIGIBILITY AND AUDIBILITY LEVELS. IN EACH ROOM WHERE VOICE

PRESSURES TO ACHIEVE CODE COMPLIANCE. DESIGN CALCULATIONS: CALCULATE REQUIREMENTS FOR SELECTING SPACING AND SENSITIVITY OF DETECTION, COMPLYING WITH NFPA 72. CALCULATE SPACING AND INTENSITIES FOR STROBE S IGNALS AND SOUND-PRESSURE LEVELS FOR AUDIBLE APPLIANCES.

3. INDICATE AUDIBLE APPLIANCES REQUIRED TO PRODUCE SQUARE WAVE SIGNAL PER NFPA 72. 1.6 CLOSEOUT SUBMITTALS

B. RECORD DRAWINGS: INCLUDE RECORD DOCUMENTS (AS-BUILT DRAWINGS) THAT ACCURATELY REFLECT THE ACTUAL

FIELD QUALITY-CONTROL REPORTS.

COMPLETED INSTALLATION, ACTUAL DEVICES, ACTUAL ROOM NAMES, AND ACTUAL LOCATIONS WITHIN EACH ROOM. REVISE, UPDATE, AND EDIT ALL PRE-INSTALLATION DOCUMENTS AS DEFINED ABOVE, INCLUDING UPDATED RISER DIAGRAMS. 2. ELECTRONIC FILES SHALL BE SHARED VIA ELECTRONIC MEDIA AND RECORDED ON TWO (2) FLASH-DRIVES. HARDCOPIES SHALL BE AS INDICATED ABOVE FOR SHOP DRAWINGS. OPERATION AND MAINTENANCE DATA: FOR FIRE ALARM SYSTEMS AND COMPONENTS TO INCLUDE IN

EMERGENCY, OPERATION, AND MAINTENANCE MANUALS 1. IN ADDITION TO ITEMS SPECIFIED IN SECTION 017823 "OPERATION AND MAINTENANCE DATA," INCLUDE THE FOLLOWING:

A. COMPLY WITH "RECORDS" SECTION OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.

B. PROVIDE "FIRE ALARM AND EMERGENCY COMMUNICATIONS SYSTEM RECORD OF COMPLETION DOCUMENTS" IN ACCORDANCE WITH "COMPLETION DOCUMENTS" ARTICLE IN "DOCUMENTATION" SECTION OF "FUNDAMENTALS" CHAPTER IN NFPA 72. C. COMPLETE WIRING DIAGRAMS SHOWING CONNECTIONS BETWEEN DEVICES AND EQUIPMENT. EACH CONDUCTOR MUST BE NUMBERED AT EVERY JUNCTION POINT WITH INDICATION OF ORIGINATION AND TERMINATION POINTS.

RISER DIAGRAM. DEVICE ADDRESSES RECORD COPY OF SITE-SPECIFIC SOFTWARE PROVIDE "INSPECTION AND TESTING FORM" IN ACCORDANCE WITH "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72, AND INCLUDE THE FOLLOWING:

1) EQUIPMENT TESTED. FREQUENCY OF TESTING OF INSTALLED COMPONENTS. 3) FREQUENCY OF INSPECTION OF INSTALLED COMPONENTS. 4) REQUIREMENTS AND RECOMMENDATIONS RELATED TO RESULTS OF

5) MANUFACTURER'S USER TRAINING MANUALS. H. MANUFACTURER'S REQUIRED MAINTENANCE RELATED TO SYSTEM WARRANTY ABBREVIATED OPERATING INSTRUCTIONS FOR MOUNTING AT FACU AND EACH

ANNUNCIATOR UNIT .7 QUALITY ASSURANCE INSTALLER QUALIFICATIONS 1. PERSONNEL MUST BE TRAINED AND CERTIFIED BY MANUFACTURER FOR INSTALLATION OF UNITS

REQUIRED FOR THIS PROJECT. 2. INSTALLATION MUST BE BY PERSONNEL CERTIFIED BY NICET AS FIRE ALARM LEVEL II OR LEVEL III OBTAIN CERTIFICATION BY NRTL IN ACCORDANCE WITH NFPA 72. 4. LICENSED OR CERTIFIED BY AUTHORITIES HAVING JURISDICTION. 5. SUPPLIER/SERVICE PROVIDER: MUST CONFIRM AND MAINTAIN AN AUTHORIZED SERVICE

REPRESENTATIVE WITHIN 90 MILES TRAVEL DISTANCE FROM THE LOCATION OF THE COMPLIANCE WITH LOCAL CODES AND ORDINANCES: COMPLY WITH ALL APPLICABLE BUILDING CODES, LOCAL ORDINANCES, REGULATIONS, AND THE ALL THE REQUIREMENTS OF THE AHJ. ELECTRICAL WIRING AND EQUIPMENT, INCLUDING CIRCUITS CONTROLLED AND POWERED BY THE FIRE ALARM SYSTEM: COMPLIANCE WITH NFPA 70. THIS CONTRACT SHALL INCLUDE ALL HARDWARE, FIRMWARE, SOFTWARE, PROGRAMMING, ELECTRIC

POWER, CABLING PATHWAYS/RACEWAYS, ELECTRICAL BOXES, CABLING, OUTSIDE PLANT (IF APPLICABLE). AND ALL SYSTEM COMPONENTS TO BE SUPPLIED AND INSTALLED FOR A COMPLETE AND FUNCTIONAL TURNKEY SYSTEM—WITHOUT EXCEPTION. TO ACHIEVE THIS, THIS CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE UNDER THIS CONTRACT FOR DETERMINING—PRIOR TO SUBMITTING BIDS—ANY EXISTING EQUIPMENT OR FIELD CONDITIONS AS APPLICABLE, COMPLETE REQUIREMENTS FOR NEW WORK AND THE DELINEATION OF ALL WORK AMONGST QUALIFIED INSTALLERS AND TECHNICIANS NECESSARY FOR A FULLY FUNCTIONAL AND PROFESSIONAL INSTALLATION. MANUFACTURER'S WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE FIRE ALARM SYSTEM

EQUIPMENT AND COMPONENTS THAT FAIL BECAUSE OF DEFECTS IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. 1. SPECIAL EXTENDED WARRANTY PERIOD: SHALL <u>EXCEED</u> FOUR (4) YEARS STARTING FROM THE DATE OF SUBSTANTIAL COMPLETION. a. IF THE MANUFACTURER'S WARRANTY COMMENCES UPON THE DATE THAT MATERIALS ARE DELIVERED, THEN THE MANUFACTURER'S WARRANTY PERIOD SHALL BE AT LEAST

FIVE (5) YEARS TO MEET THE REQUIREMENT STATED ABOVE. 2. WARRANTY REQUIREMENTS SHALL INCLUDE FURNISHING AND INSTALLING ALL SOFTWARE UPGRADES ISSUED BY THE MANUFACTURER DURING THE WARRANTY PERIOD. WARRANTY SHALL COVER REPAIR OR REPLACEMENT OF SUCH PARTS DETERMINED DEFECTIVE UPON INSPECTION, INCLUDING THE FULL COST OF RELATED MATERIALS AND LABOR. ADDITIONALLY, THERE SHALL BE NO EXPENSE TO THE OWNER DUE TO "OTHER-THAN-NORMAL"

WARRANTY SHALL NOT COVER ANY LABOR EXPENDED OR MATERIALS USED TO REPAIR ANY EQUIPMENT WITHOUT MANUFACTURER'S PRIOR WRITTEN AUTHORIZATION. WARRANTY DOES NOT COVER ANY PRODUCT OR PART OF A PRODUCT SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATION, ABUSE OR MISUSE. WARRANTY DOES NOT COVER ANY ACCESSORIES OR PARTS NOT SUPPLIED UNDER THIS CONTRACT. 4. A SERVICE CONTRACT SHALL BE OFFERED TO THE OWNER PROPOSING REGULAR OR ONGOING

FACTORY- AUTHORIZED SERVICE OF THE INSTALLED SYSTEM.

PART 2 - PRODUCTS

2.1 EXISTING FIRE ALARM SYSTEM TO BE MODIFIED SOURCE LIMITATIONS FOR FIRE ALARM SYSTEM AND COMPONENTS: COMPONENTS MUST BE COMPATIBLE WITH. AND OPERATE AS EXTENSION OF, EXISTING SYSTEM. PROVIDE SYSTEM MANUFACTURER'S CERTIFICATION THAT COMPONENTS PROVIDED HAVE BEEN TESTED AS, AND WILL OPERATE AS, A SYSTEM.

REFER TO "SPECIAL CONDITIONS" ABOVE. 2 MANUFACTURERS

WIRE AND CABLE: COMTRAN CORP. 2. HELIX/HITEMP CABLES, INC. (DRAKA USA CO.). 3. ROCKBESTOS-SUPRENANT CABLE CORP. (MARMON GROUP CO.).

4. WEST PENN WIRE/CDT (CABLE DESIGN TECHNOLOGIES). 2.3 ADDRESSABLE FIRE ALARM AND DETECTION SYSTEM

A. DESCRIPTION: 1. NONCODED, UL-CERTIFIED, ADDRESSABLE, TRUE ANALOG SENSORS, FULLY SUPERVISED.

85154PE

OREGON

RENEWS DECEMBER 31, 2024

CONSTRUCTION DOCUMENTS AUGUST 7, 2023

74-23121-00 SPECIFICATIONS

APPROVED MANUFACTURERS: PROJECT INFORMATION: SHEET METAL OUTLET, PULL BOXES AND DEVICE BOXES: COMPLY WITH NEMA OS 1 AND UL 514A. a. COOPER WIRING DEVICES; A DIVISION OF COOPER INDUSTRIES, INC. (COOPER). AUTOMATIC SENSITIVITY CONTROL OF SMOKE SENSORS, MULTIPLEXED SIGNAL TRANSMISSION 1. DOCUMENTATION OF INSTALLER QUALIFICATIONS: AND VOICE NOTIFICATION-AND-STROBE NOTIFICATION FOR EVACUATION. b. <u>HUBBELL INCORPORATED; WIRING DEVICE-KELLEMS (HUBBELL).</u> SAME VERTICAL CHANNEL. a. TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE ALARM SYSTEM DESIGN. c. <u>LEVITON MFG. COMPANY INC. (LEVITON).</u> SO METALS IN DIRECT CONTACT ARE GALVANICALLY COMPATIBLE. b. FIRE ALARM CERTIFIED BY NICET, MINIMUM LEVEL III. 33 of 66 - PREMADENBIDISAGERRAVALLONDS VANGE IRATECCONSTIRACT FOR (2/2023) DISTANCOCKTOORNEY OFFICE REMDIADEASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL

SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D 4) GENERATE TONES TO BE SEQUENCED WITH AUDIO MESSAGES OF TYPE THE SYSTEM SHALL BE COMPLETE AND FULLY OPERATIONAL. PROVIDE ALL NECESSARY RECOMMENDED BY NFPA 72 AND THAT ARE COMPATIBLE WITH TONE PATTERNS OF AUXILIARY RELAYS, HARDWARE, CONNECTIONS, AND PROGRAMMING TO ACHIEVE THE FUNCTIONS NOTIFICATION-APPLIANCE CIRCUITS OF FACU. REQUIRED HEREIN AND AS INDICATED ON THE FIRE ALARM SYSTEM OPERATIONS MATRIX UNDER R. STATUS ANNUNCIATOR: INDICATE STATUS OF VARIOUS VOICE/ALARM SPEAKER ZONES INDICATE STATUS OF FIREFIGHTER'S MICROPHONE. A. FIRE ALARM COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED BY A S. PREAMPLIFIERS, AMPLIFIERS, AND TONE GENERATORS MUST AUTOMATICALLY NRTL IN ACCORDANCE WITH NFPA 72 FOR USE WITH SELECTED FIRE ALARM SYSTEM AND TRANSFER TO BACKUP UNITS, ON PRIMARY EQUIPMENT FAILURE. T. PRIMARY POWER: 24 V(DC) OBTAINED FROM 120 V(AC) SERVICE AND POWER-SUPPLY MARKED FOR INTENDED LOCATION AND APPLICATION (AND RECOGNIZED BY THE AHJ). MODULE. INITIATING DEVICES, NOTIFICATION APPLIANCES, SIGNALING LINES, TROUBLE A. SITE-SPECIFIC SYSTEM OPERATIONS AND FUNCTIONS: SIGNALS MUST BE POWERED BY 24 V(DC) SOURCE. 1) REFER TO THE DRAWINGS FIRE ALARM SEQUENCE OF OPERATIONS AND FIRE ALARM 1) EQUIPMENT POWER SUPPLIES SHALL BE SERVED FROM A DEDICATED 20A/1P OPERATIONS MATRIX UNDER PART 4 BELOW. CIRCUIT BREAKER. EACH CIRCUIT BREAKER SHALL BE FURNISHED WITH A RED B. AUTOMATIC SENSITIVITY CONTROL OF CERTAIN SMOKE DETECTORS. HANDLE AND LOCK-ON CLIP, AND SHALL BE IDENTIFIED WITH ENGRAVED LABEL THAT C. FIRE ALARM SIGNAL INITIATION MUST BE BY ONE OR MORE OF THE FOLLOWING READS, "FIRE ALARM SYSTEM POWER." **DEVICES AND SYSTEMS** 2) CONVENIENCE RECEPTACLE: FOR MAINTENANCE PURPOSES (WHETHER SHOWN ON MANUAL STATIONS THE POWER PLANS OR NOT) THIS CONTRACTOR SHALL INSTALL A NEMA 5-20R HEAT DETECTORS. DUPLEX RECEPTACLE WITHIN 3 FEET OF THE FACU, CONNECTED TO A 120V 20A SMOKE DETECTORS. BRANCH CIRCUIT. 4) DUCT SMOKE DETECTORS U. ALARM CURRENT DRAW OF ENTIRE FIRE ALARM SYSTEM MUST NOT EXCEED 80 PERCENT 5) CARBON MONOXIDE DETECTORS. OF POWER-SUPPLY MODULE RATING. V. SECONDARY POWER: 24 V(DC) SUPPLY SYSTEM WITH BATTERIES, AUTOMATIC BATTERY AUTOMATIC SPRINKLER SYSTEM WATER FLOW. CHARGER, AND AUTOMATIC TRANSFER SWITCH. D. FIRE ALARM SIGNAL MUST INITIATE THE FOLLOWING ACTIONS: W. BATTERIES: SEALED, MAINTENANCE FREE. CONTINUOUSLY OPERATE ALARM NOTIFICATION APPLIANCES. IDENTIFY ALARM AND SPECIFIC INITIATING DEVICE AT FACU. SYSTEM CIRCUITS B) TRANSMIT ALARM SIGNAL TO REMOTE ALARM RECEIVING STATION. SIGNALING LINE CIRCUITS: NFPA 72, CLASS B, STYLE 4. INITIATING DEVICE CIRCUITS (NON-ADDRESSABLE CIRCUITS): NFPA 72, CLASS B, STYLE B. UNLOCK ELECTRIC DOOR LOCKS IN DESIGNATED EGRESS PATHS. 5) RELEASE FIRE AND SMOKE DOORS HELD OPEN BY MAGNETIC DOOR HOLDERS. NOTIFICATION-APPLIANCE CIRCUITS: NFPA 72, CLASS B, STYLE Y. ACTIVATE VOICE/ALARM COMMUNICATION SYSTEM. ACTUATION OF ALARM NOTIFICATION APPLIANCES, EMERGENCY VOICE ALARM COMMUNICATIONS, SHUTDOWN HVAC EQUIPMENT HAVING CAPACITIES OF 2000 CFM OR GREATER. ANNUNCIATION, AND OTHER SYSTEM OPERATIONS SHALL OCCUR WITHIN 10 SECONDS AFTER THE ACTIVATION OF AN INITIATING DEVICE. 8) CLOSE SMOKE DAMPERS IN AIR DUCTS OF DESIGNATED AIR-CONDITIONING DUCT ELECTRICAL MONITORING FOR THE INTEGRITY OF WIRING EXTERNAL TO THE FACU FOR MECHANICAL EQUIPMENT SHUTDOWN AND MAGNETIC DOOR-HOLDING CIRCUITS IS NOT REQUIRED, 9) RECORD EVENTS IN NON-VOLATILE SYSTEM MEMORY. E. SUPERVISORY SIGNAL INITIATION MUST BE BY ONE OR MORE OF THE FOLLOWING PROVIDED A BREAK IN THE CIRCUIT WILL AUTOMATICALLY CAUSE DOORS TO CLOSE AND **DEVICES AND ACTIONS:** MECHANICAL EQUIPMENT TO SHUT DOWN (FAIL-SAFE CONFIGURATION).) VALVE SUPERVISORY SWITCH. D. SYSTEM CAPACITIES AND CONSTRAINTS. SUPERVISION OF ELEVATOR SHUNT-TRIP MECHANISM, WHERE APPLICABLE. MINIMUM QUANTITY OF ADDRESSABLE POINTS PER SLC (SIGNALING LINE CIRCUIT): 198. MINIMUM QUANTITY OF SLCS WITHOUT EXPANDING OR ADDING ANY HARDWARE OTHER THAN SLC INDEPENDENT FIRE-DETECTION AND -SUPPRESSION SYSTEMS. CARDS/MODULES THAT CAN BE INSERTED INTO AVAILABLE SLOTS: 8 ZONES OR INDIVIDUAL DEVICES HAVE BEEN DISABLED. 5) FACU HAS LOST COMMUNICATION WITH NETWORK. VOICE NOTIFICATION AUDIO AMPLIFIERS: A. TOTAL AMPLIFIER POWER RATING SHALL BE DETERMINED BASED UPON ACTUAL WATT F. SYSTEM TROUBLE SIGNAL INITIATION MUST BE BY ONE OR MORE OF THE FOLLOWING RATING FOR EACH SPEAKER. OPEN CIRCUITS, SHORTS, AND GROUNDS IN DESIGNATED CIRCUITS. B. PROVIDE FULLY REDUNDANT BACK-UP AUDIO AMPLIFIERS. CONTRACTOR MAY ELECT TO SUPPLY AND INSTALL REMOTE NAC EXTENDER PANEL(S). 2) OPENING, TAMPERING WITH, OR REMOVING ALARM-INITIATING AND SUPERVISORY COORDINATE EXACT LOCATION PRIOR TO INSTALLATION. THIS CONTRACTOR SHALL INCLUDE ALL SIGNAL-INITIATING DEVICES. 3) LOSS OF COMMUNICATION WITH ADDRESSABLE SENSOR, INPUT MODULE, RELAY, NECESSARY ELECTRICAL PROVISIONS, SUCH AS 120-VOLT POWER CONNECTIONS TO PANEL(S). CONTROL MODULE, REMOTE ANNUNCIATOR OR ETHERNET MODULE. NAC EXTENDER PANEL SHALL COMPLY WITH NFPA 72 REQUIREMENTS AND THESE 4) LOSS OF PRIMARY POWER AT FACU. SPECIFICATIONS. GROUND OR SINGLE BREAK IN INTERNAL CIRCUITS OF FACU. ACCESSORIES: INSTRUCTIONS: COMPUTER PRINTOUT OR TYPEWRITTEN INSTRUCTION CARD MOUNTED BEHIND ABNORMAL AC VOLTAGE AT FACU. BREAK IN STANDBY BATTERY CIRCUITRY PLASTIC OR GLASS COVER IN STAINLESS STEEL OR ALUMINUM FRAME. INCLUDE INTERPRETATION FAILURE OF BATTERY CHARGING. AND DESCRIBE APPROPRIATE RESPONSE FOR DISPLAYS AND SIGNALS. BRIEFLY DESCRIBE 9) ABNORMAL POSITION OF SWITCH AT FACU OR ANNUNCIATOR. FUNCTIONAL OPERATION OF SYSTEM UNDER NORMAL, ALARM, AND TROUBLE CONDITIONS. 10) VOICE SIGNAL AMPLIFIER FAILURE. G. SYSTEM SUPERVISORY SIGNAL ACTIONS: 2.5 MANUAL FIRE ALARM PULL STATIONS INITIATE NOTIFICATION APPLIANCES. $\mathsf{A}.\quad\mathsf{GENERAL}$ REQUIREMENTS FOR MANUAL FIRE ALARM PULL STATIONS: COMPLY WITH UL 38. BOXES MUST BE IDENTIFY SPECIFIC DEVICE INITIATING EVENT AT FACU. FINISHED IN RED WITH MOLDED, RAISED-LETTER OPERATING INSTRUCTIONS IN WHITE COLOR; MUST SHOW AFTER TIME DELAY OF 200 SECONDS, TRANSMIT TROUBLE OR SUPERVISORY SIGNAL VISIBLE INDICATION OF OPERATION; AND MUST BE MOUNTED ON RECESSED OUTLET BOX. IF INDICATED AS TO REMOTE ALARM RECEIVING STATION. SURFACE MOUNTED, PROVIDE MANUFACTURER'S SURFACE BACK BOX. 1. SINGLE ACTION MECHANISM, [BREAKING-GLASS OR PLASTIC-ROD] PULL-LEVER TYPE; WITH I TRANSMIT SYSTEM STATUS TO BUILDING MANAGEMENT SYSTEM. 5) DISPLAY SYSTEM STATUS ON GRAPHIC ANNUNCIATOR. NTEGRAL ADDRESSABLE MODULE ARRANGED TO COMMUNICATE MANUAL-STATION STATUS H. NETWORK COMMUNICATIONS: (NORMAL, ALARM, OR TROUBLE) TO FACU. 1) PROVIDE NETWORK COMMUNICATIONS FOR FIRE ALARM SYSTEM IN ACCORDANCE INDOOR PROTECTIVE SHIELD: FACTORY-FABRICATED, CLEAR PLASTIC ENCLOSURE HINGED AT TOP WITH FIRE ALARM MANUFACTURER'S WRITTEN INSTRUCTIONS TO PERMIT LIFTING FOR ACCESS TO INITIATE ALARM. LIFTING COVER ACTUATES INTEGRAL BATTERY-POWERED AUDIBLE HORN INTENDED TO DISCOURAGE FALSE ALARM OPERATION. PROVIDE NETWORK COMMUNICATIONS PATHWAY PER MANUFACTURER'S WRITTEN I NSTRUCTIONS AND REQUIREMENTS IN NFPA 72 AND NFPA 70. ABLE TO PERFORM AT UP TO 90 PERCENT RELATIVE HUMIDITY AT 90 DEG F (32 DEG C). 3) PROVIDE INTEGRATION GATEWAY USING EITHER BACNET OR MODBUS FOR 4. MATERIAL: MANUAL STATIONS MADE OF LEXAN POLYCARBONATE. CONNECTION TO BUILDING AUTOMATION SYSTEM. RETAIN "BUILDING AUTOMATION SYSTEM INTERFACE" BELOW IF APPLICABLE. COORDINATE WITH DIVISION 23 2.6 SYSTEM SMOKE DETECTORS SPECIFICATIONS AND BAS SEQUENCE OF OPERATIONS. A. PHOTOELECTRIC SMOKE DETECTORS: PERFORMANCE CRITERIA 1) DESCRIPTION: WELDED WIRE MESH OF SIZE AND SHAPE FOR SMOKE DETECTOR, A. REGULATORY REQUIREMENTS NOTIFICATION APPLIANCE, OR OTHER DEVICE REQUIRING PROTECTION. 1) NFPA 72 a) FACTORY FABRICATED AND FURNISHED BY DEVICE MANUFACTURER. UL 268.) FACTORY FINISH: PAINT OF COLOR TO MATCH PROTECTED DEVICE. GENERAL CHARACTERISTIC J. DOCUMENT STORAGE BOX: DETECTORS SHALL BE TWO-WIRE TYPE. 1) DESCRIPTION: ENCLOSURE TO ACCOMMODATE STANDARD 8-1/2-BY-11-INCH 2) INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR MANUALS AND LOOSE DOCUMENT RECORDS. LEGEND SHEET WILL BE PERMANENTLY STATUS (NORMAL, ALARM, OR TROUBLE) TO FACU. ATTACHED TO DOOR FOR SYSTEM REQUIRED DOCUMENTATION, KEY CONTACTS, 3) BASE MOUNTING: DETECTOR AND ASSOCIATED ELECTRONIC COMPONENTS MUST BE AND SYSTEM INFORMATION. PROVIDE TWO KEY RING HOLDERS WITH LOCATION TO MOUNTED IN TWIST-LOCK MODULE THAT CONNECTS TO FIXED BASE. PROVIDE MOUNT STANDARD BUSINESS CARDS FOR KEY CONTACT PERSONNEL. TERMINALS IN FIXED BASE FOR CONNECTION TO BUILDING WIRING. 2) MATERIAL AND FINISH: 18-GAUGE COLD-ROLLED STEEL; FOUR MOUNTING HOLES. 4) SELF-RESTORING: DETECTORS DO NOT REQUIRE RESETTING OR READJUSTMENT COLOR: RED POWDER-COAT EPOXY FINISH. AFTER ACTUATION TO RESTORE THEM TO NORMAL OPERATION. 4) LABELING: PERMANENTLY SCREENED WITH 1-INCH-HIGH LETTERING "SYSTEM 5) INTEGRAL VISUAL-INDICATING LIGHT: LED TYPE, INDICATING DETECTOR HAS RECORD DOCUMENTS" WITH WHITE INDELIBLE INK. OPERATED AND POWER-ON STATUS. 5) SECURITY: LOCKED WITH 3/4-INCH BARREL LOCK. PROVIDE SOLID 12-INCH STAINLESS 6) DETECTOR ADDRESS MUST BE ACCESSIBLE FROM FACU AND MUST BE ABLE TO IDENTIFY DETECTOR'S LOCATION WITHIN SYSTEM AND ITS SENSITIVITY SETTING. STEEL PIANO HINGE. 7) OPERATOR AT FACU, HAVING DESIGNATED ACCESS LEVEL, MUST BE ABLE TO MANUALLY ACCESS THE FOLLOWING FOR EACH DETECTOR: .4 FIRE ALARM CONTROL PANEL (FACP) OR UNIT (FACU) ... DESCRIPTION: FIELD-PROGRAMMABLE, MICROPROCESSOR-BASED, MODULAR, POWER-LIMITED DESIGN A) PRIMARY STATUS. B) DEVICE TYPE.) PRESENT AVERAGE VALUE REGULATORY REQUIREMENTS: COMPLY WITH NFPA 72 AND UL 864. D) PRESENT SENSITIVITY SELECTED. SENSOR RANGE (NORMAL, DIRTY, ETC.). 8) DETECTOR MUST HAVE FUNCTIONAL HUMIDITY RANGE WITHIN 10 TO 90 PERCENT A. SYSTEM SOFTWARE AND PROGRAMS MUST BE HELD IN NONVOLATILE FLASH, ELECTRICALLY ERASABLE, PROGRAMMABLE, READ-ONLY MEMORY, RETAINING RELATIVE HUMIDITY. INFORMATION THROUGH FAILURE OF PRIMARY AND SECONDARY POWER SUPPLIES B. INCLUDE REAL-TIME CLOCK FOR TIME ANNOTATION OF EVENTS ON EVENT RECORDER. 10) REMOTE CONTROL: UNLESS OTHERWISE INDICATED, DETECTORS MUST BE DIGITAL-C. PROVIDE COMMUNICATION BETWEEN FACU AND REMOTE CIRCUIT INTERFACE PANELS, ADDRESSABLE TYPE, INDIVIDUALLY MONITORED AT FACU FOR CALIBRATION, ANNUNCIATORS, AND DISPLAYS. SENSITIVITY, ALARM CONDITION, AND INDIVIDUALLY ADJUSTABLE FOR SENSITIVITY D. FACU MUST BE LISTED FOR CONNECTION TO THE CENTRAL STATION SIGNALING SYSTEM 11) MULTIPLE LEVELS OF DETECTION SENSITIVITY FOR EACH SENSOR. E. PROVIDE NONVOLATILE MEMORY FOR SYSTEM DATABASE, LOGIC, AND OPERATING 12) MINIMUM ALARM SET-POINT RANGE: 1.0 PERCENT TO 3.7 PERCENT PER FT. SYSTEM AND EVENT HISTORY. SYSTEM MUST REQUIRE NO MANUAL INPUT TO INITIALIZE SENSITIVITY LEVELS BASED ON TIME OF DAY. IN THE EVENT OF COMPLETE POWER DOWN CONDITION. FACU MUST PROVIDE MINIMUM 500-EVENT HISTORY LOG. 2.7 DUCT SMOKE DETECTORS F. ADDRESSABLE INITIATION DEVICE CIRCUITS: FACU MUST INDICATE WHICH DESCRIPTION: PHOTOELECTRIC-TYPE, DUCT-MOUNTED SMOKE DETECTOR COMMUNICATION ZONES HAVE BEEN SILENCED AND MUST PROVIDE SELECTIVE . PERFORMANCE CRITERIA: SILENCING OF ALARM NOTIFICATION APPLIANCE BY BUILDING COMMUNICATION ZONE. REGULATORY REQUIREMENTS: 1) ADDRESSABLE CONTROL CIRCUITS FOR OPERATION OF NOTIFICATION APPLIANCES A. NFPA 72. AND MECHANICAL EQUIPMENT: FACU MUST BE LISTED FOR RELEASING SERVICE. B. UL 268A. G. FAA UNIT (FIRE ALARM ANNUNCIATOR): ARRANGED FOR INTERFACE BETWEEN HUMAN GENERAL CHARACTERISTICS: OPERATOR AT FACU AND ADDRESSABLE SYSTEM COMPONENTS INCLUDING A. DETECTORS SHALL BE TWO-WIRE TYPE. B. INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS ANNUNCIATION AND SUPERVISION. DISPLAY ALARM, SUPERVISORY, AND COMPONENT STATUS MESSAGES AND PROGRAMMING AND CONTROL MENU. (NORMAL, ALARM, OR TROUBLE) TO FACU. ANNUNCIATOR AND DISPLAY: LCD, 80 CHARACTERS, MINIMUM. C. SELF-RESTORING: DETECTORS DO NOT REQUIRE RESETTING OR READJUSTMENT AFTER 2) KEYPAD: ARRANGED TO PERMIT ENTRY AND EXECUTION OF PROGRAMMING ACTUATION TO RESTORE THEM TO NORMAL OPERATION. DISPLAY, AND CONTROL COMMANDS. D. INTEGRAL VISUAL-INDICATING LIGHT: LED TYPE, INDICATING DETECTOR HAS OPERATED H. ALPHANUMERIC DISPLAY AND SYSTEM CONTROLS: ARRANGED FOR INTERFACE BETWEEN AND POWER-ON STATUS. PROVIDE COMBINATION REMOTE STATUS, ALARM INDICATOR, HUMAN OPERATOR AT FACU AND ADDRESSABLE SYSTEM COMPONENTS INCLUDING AND TEST STATION DEVICE UNDER THE FOLLOWING CONDITIONS: ANNUNCIATION AND SUPERVISION. DISPLAY ALARM, SUPERVISORY, AND COMPONENT 1) IF DETECTOR IS INSTALLED ABOVE AN ACCESSIBLE CEILING INSTALL A REMOTE STATUS MESSAGES AND PROGRAMMING AND CONTROL MENU. DEVICE FLUSH IN CEILING TILE DIRECTLY BELOW DETECTOR. PROVIDE WHITE 1) ANNUNCIATOR AND DISPLAY: LCD, THREE LINES OF 80 CHARACTERS, MINIMUM. 2) KEYPAD: ARRANGED TO PERMIT ENTRY AND EXECUTION OF PROGRAMMING, 2) IF DETECTOR IS EXPOSED BUT NOT READILY VISIBLE FROM A FLOOR STANDING DISPLAY, AND TO INDICATE CONTROL COMMANDS TO BE ENTERED INTO SYSTEM POSITION INSTALL A REMOTE DEVICE ON A NEARBY WALL. INSTALL FLUSH IN WALL FOR CONTROL OF SMOKE-DETECTOR SENSITIVITY AND OTHER PARAMETERS. IF REMOTE DEVICE IS LOCATED IN A FINISHED SPACE. E. DETECTOR ADDRESS MUST BE ACCESSIBLE FROM FACU AND MUST BE ABLE TO IDENTIFY I. INITIATING-DEVICE, NOTIFICATION-APPLIANCE, AND SIGNALING-LINE CIRCUITS: DETECTOR'S LOCATION WITHIN SYSTEM AND ITS SENSITIVITY SETTING. PATHWAY CLASS DESIGNATIONS: NFPA 72, CLASS B. PATHWAY SURVIVABILITY: LEVEL 0 OR LEVEL 1. F. ALARM SET-POINT: 2.5 PERCENT PER FT. G. OPERATOR AT FACU, HAVING DESIGNATED ACCESS LEVEL, MUST BE ABLE TO MANUALLY 3) INSTALL NO MORE THAN 125 ADDRESSABLE DEVICES ON EACH SIGNALING-LINE ACCESS THE FOLLOWING FOR EACH DETECTOR: 4) INSTALL FAULT CIRCUIT ISOLATORS TO COMPLY WITH CIRCUIT PERFORMANCE PRIMARY STATUS. REQUIREMENTS OF NFPA 72 OR WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, DEVICE TYPE. 3) PRESENT AVERAGE VALUE WHICHEVER IS MORE CONSERVATIVE. PRESENT SENSITIVITY SELECTED. 1) ONE DEDICATED RS 485 PORT FOR CENTRAL-STATION AND REMOTE-STATION 5) SENSOR RANGE (NORMAL, DIRTY, ETC.). OPERATION USING POINT ID DACT. H. WEATHERPROOF DUCT HOUSING ENCLOSURE: NEMA 250, TYPE 4X; NRTL LISTED FOR USE 2) ONE RS 485 PORT FOR REMOTE ANNUNCIATORS, ETHERNET MODULE, OR MULTI-I WITH SUPPLIED DETECTOR FOR SMOKE DETECTION IN HVAC SYSTEM DUCTS. NTERFACE MODULE EACH SENSOR MUST HAVE MULTIPLE LEVELS OF DETECTION SENSITIVITY. 3) ONE USB PORT FOR PC CONFIGURATION. J. SAMPLING TUBES: DESIGN AND DIMENSIONS AS RECOMMENDED BY MANUFACTURER FOR SPECIFIC DUCT SIZE. AIR VELOCITY. AND INSTALLATION CONDITIONS WHERE APPLIED. 4) ONE RS 232 PORT FOR PC CONFIGURATION. 5) ONE RS 232 PORT FOR VOICE EVACUATION INTERFACE. K. RELAY FAN SHUTDOWN: FULLY PROGRAMMABLE RELAY RATED TO INTERRUPT FAN MOTOR-CONTROL CIRCUIT. SUPERVISED CONTROL RELAY MUST BE LOCATED WITHIN K. SMOKE ALARM VERIFICATION: THREE (3) FEET OF THE FAN CONTROLLER. 1) INITIATE AUDIBLE AND VISIBLE INDICATION OF "ALARM-VERIFICATION" SIGNAL AT 2.8 CARBON MONOXIDE DETECTORS 2) ACTIVATE APPROVED "ALARM-VERIFICATION" SEQUENCE AT FACU AND DETECTOR. 3) RECORD EVENTS BY SYSTEM PRINTER. DESCRIPTION: CARBON MONOXIDE DETECTOR LISTED FOR CONNECTION TO FIRE ALARM SYSTEM. SOUND GENERAL ALARM IF ALARM IS VERIFIED. PERFORMANCE CRITERIA REGULATORY REQUIREMENTS 5) CANCEL FACU INDICATION AND SYSTEM RESET IF ALARM IS NOT VERIFIED. L. NOTIFICATION-APPLIANCE CIRCUIT: A. NFPA 72 1) AUDIBLE APPLIANCES MUST SOUND IN THREE-PULSE TEMPORAL PATTERN, AS B. NFPA 720 DEFINED IN NFPA 72 C. UL 2075. 2) WHERE NOTIFICATION APPLIANCES PROVIDE SIGNALS TO SLEEPING AREAS, ALARM GENERAL CHARACTERISTICS: SIGNAL MUST BE 520 HZ SQUARE WAVE WITH INTENSITY 15 DB ABOVE AVERAGE A. MOUNTING: ADAPTER PLATE FOR OUTLET BOX MOUNTING. TESTABLE BY INTRODUCING TEST CARBON MONOXIDE INTO SENSING CELL AMBIENT SOUND LEVEL OR 5 DB ABOVE MAXIMUM SOUND LEVEL, OR AT LEAST 75 DB(A-WEIGHTED), WHICHEVER IS GREATER, MEASURED AT PILLOW. . DETECTOR MUST PROVIDE ALARM CONTACTS AND TROUBLE CONTACTS. 3) VISUAL ALARM APPLIANCES MUST FLASH IN SYNCHRONIZATION WHERE MULTIPLE D. MINIMUM 8-YEAR LIFESPAN. DETECTOR MUST SEND TROUBLE ALARM WHEN NEARING APPLIANCES ARE IN SAME FIELD OF VIEW, AS DEFINED IN NFPA 72. END-OF-LIFE, POWER SUPPLY PROBLEMS, OR INTERNAL FAULTS. M. DOOR CONTROLS: DOOR HOLD-OPEN DEVICES THAT ARE CONTROLLED BY SMOKE E. SELECTABLE ALARM SET-POINTS: 70 PPM, 150 PPM, AND 400 PPM. DETECTORS AT DOORS IN SMOKE-BARRIER WALLS MUST BE CONNECTED TO FIRE ALARM F. LOCATE, MOUNT, AND WIRE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. N. REMOTE SMOKE-DETECTOR SENSITIVITY ADJUSTMENT: CONTROLS MUST SELECT G. PROVIDE MEANS FOR ADDRESSABLE CONNECTION TO FIRE ALARM SYSTEM. SPECIFIC ADDRESSABLE SMOKE DETECTORS FOR ADJUSTMENT, DISPLAY THEIR H. TEST BUTTON SIMULATES ALARM CONDITION. CURRENT STATUS AND SENSITIVITY SETTINGS. AND CHANGE THOSE SETTINGS. ALLOW CONTROLS TO BE USED TO PROGRAM REPETITIVE, TIME-SCHEDULED, AND AUTOMATED 2.9 HEAT DETECTORS CHANGES IN SENSITIVITY OF SPECIFIC DETECTOR GROUPS. RECORD SENSITIVITY A. COMBINATION-TYPE HEAT DETECTORS: ADJUSTMENTS AND SENSITIVITY-ADJUSTMENT SCHEDULE CHANGES IN SYSTEM 1. PERFORMANCE CRITERIA: A. REGULATORY REQUIREMENTS: NONVOLATILE MEMORY. O. TRANSMISSION TO REMOTE ALARM RECEIVING STATION: AUTOMATICALLY TRANSMIT 1) NFPA 72. ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO REMOTE ALARM STATION. P. VOICE/ALARM SIGNALING SERVICE: CENTRAL EMERGENCY COMMUNICATION SYSTEM B. GENERAL CHARACTERISTICS: WITH REDUNDANT MICROPHONES, PREAMPLIFIERS, AMPLIFIERS, AND TONE 1) TEMPERATURE SENSORS MUST TEST FOR AND COMMUNICATE SENSITIVITY RANGE GENERATORS PROVIDED IN SEPARATE CABINET OR SPECIAL MODULE THAT IS PART OF C. ACTUATED BY FIXED TEMPERATURE OF 135 DEG F (57 DEG C) OR RATE OF RISE THAT Q. INDICATE NUMBER OF ALARM CHANNELS FOR AUTOMATIC, SIMULTANEOUS EXCEEDS 15 DEG F (8 DEG C) PER MINUTE UNLESS OTHERWISE INDICATED. D. MOUNTING: TWIST-LOCK BASE INTERCHANGEABLE WITH SMOKE-DETECTOR BASES. TRANSMISSION OF DIFFERENT ANNOUNCEMENTS TO DIFFERENT ZONES OR FOR MANUAL TRANSMISSION OF ANNOUNCEMENTS BY USE OF CENTRAL-CONTROL MICROPHONE. E. INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM, OR TROUBLE) TO FACU. AMPLIFIERS MUST COMPLY WITH UL 1711. 1) ALLOW APPLICATION OF, AND EVACUATION SIGNAL TO, INDICATED NUMBER OF F. DETECTOR MUST HAVE FUNCTIONAL HUMIDITY RANGE OF 10 TO 90 PERCENT RELATIVE ZONES AND SIMULTANEOUSLY ALLOW VOICE PAGING TO OTHER ZONES G. COLOR: WHITE. SELECTIVELY OR IN COMBINATION. 2) PROGRAMMABLE TONE AND MESSAGE SEQUENCE SELECTION. FIXED-TEMPERATURE-TYPE HEAT DETECTORS: 3) STANDARD DIGITALLY RECORDED MESSAGES FOR "EVACUATION" AND "ALL CLEAR." PERFORMANCE CRITERIA: A. REGULATORY REQUIREMENTS: NFPA 72.

B. GENERAL CHARACTERISTICS: 1) ACTUATED BY TEMPERATURE THAT EXCEEDS FIXED TEMPERATURE OF 190 DEG F (88 2) MOUNTING: TWIST-LOCK BASE INTERCHANGEABLE WITH SMOKE-DETECTOR BASE. 3) INTEGRAL ADDRESSABLE MODULE: ARRANGED TO COMMUNICATE DETECTOR STATUS (NORMAL, ALARM, OR TROUBLE) TO FACU 4) DETECTOR MUST HAVE FUNCTIONAL HUMIDITY RANGE OF 10 TO 90 PERCENT. 5) COLOR: WHITE. 2.10 FIRE ALARM NOTIFICATION APPLIANCES A. FIRE ALARM VOICE/TONE SPEAKER NOTIFICATION APPLIANCES: 1. DESCRIPTION: NOTIFICATION APPLIANCES CAPABLE OF OUTPUTTING VOICE EVACUATION PERFORMANCE CRITERIA: A. REGULATORY REQUIREMENTS: 1) NFPA 72. 2) UL 1480. B. GENERAL CHARACTERISTICS: 1) SPEAKERS FOR VOICE NOTIFICATION: LOCATE SPEAKERS FOR VOICE NOTIFICATION TO PROVIDE INTELLIGIBILITY REQUIREMENTS OF "NOTIFICATION APPLIANCES" AND " EMERGENCY COMMUNICATIONS SYSTEMS" CHAPTERS IN NFPA 72. 2) HIGH-RANGE UNITS: RATED 2 TO 15 W.) LOW-RANGE UNITS: RATED 1 TO 2 W. 4) MATCHING TRANSFORMERS: TAP RANGE MATCHED TO ACOUSTICAL ENVIRONMENT 5) MOUNTING: FACTORY FINISHED FACEPLATE, WALL-MOUNT OR CEILING-MOUNT AS I NDICATED ON THE DRAWINGS; SEMI-RECESSED, EXCEPT WHERE IDENTIFIED AS SURFACE MOUNTED ON THE DRAWINGS; BIDIRECTIONAL, WHERE INDICATED ON THE 6) COLORS: A) WALL-MOUNTED NOTIFICATION DEVICES SHALL BE WHITE OR OFF-WHITE WITH RED LETTERING B) CEILING-MOUNTED NOTIFICATION DEVICES SHALL BE WHITE OR OFF-WHITE WITH RED LETTERING. B. COMBINATION DEVICES: FACTORY-INTEGRATED AUDIBLE AND VISIBLE DEVICES IN SINGLE-MOUNTING ASSEMBLY, EQUIPPED FOR MOUNTING AS INDICATED, AND WITH SCREW TERMINALS FOR SYSTEM CONNECTIONS. C. PROTECTIVE GUARDS: PROVIDE MANUFACTURER'S WIRE-GUARD OR IMPACT RESISTANT ACRYLIC GUARD OVER DEVICES EXPOSED TO A HIGHER-THAN-NORMAL RISK OF DAMAGE, SUCH AS IN GYMNASIUMS, LOCKER ROOMS, AND OTHER AREAS AS INDICATED ON THE D. WET OR DAMP LOCATION DEVICES: PROVIDE DEVICES DESIGNED FOR WET AND DAMP LOCATION APPLICATIONS OR EXTERIOR APPLICATIONS WHEREVER DEVICES MIGHT BE SUBJECTED TO MOISTURE, SUCH AS LOCKER ROOMS, DISHWASHING ROOMS, OUTDOORS, ETC. . FIRE ALARM VISIBLE NOTIFICATION APPLIANCES: 1. DESCRIPTION: STROBE DEVICE WITH POLYCARBONATE LENS MOUNTED ON ALUMINUM A. FIRE ALARM NOTIFICATION: CLEAR POLYCARBONATE LENS. PERFORMANCE CRITERIA: A. REGULATORY REQUIREMENTS: 1) NFPA 72. B. SYNCHRONIZATION: ALL STROBES WITHIN A COMMON AREA MUST BE SYNCHRONIZED. C. GENERAL CHARACTERISTICS: RATED LIGHT OUTPUT: A) INITIAL SETTING SHALL BE ASSUMED TO BE 110 CD. B) 15/30/75/110 CD, SELECTABLE IN FIELD BY CONTRACTOR BASED UPON ACTUAL AREA OF REQUIRED COVERAGE. 2) FOR UNITS WITH GUARDS TO PREVENT PHYSICAL DAMAGE, LIGHT OUTPUT RATINGS MUST BE DETERMINED WITH GUARDS IN PLACE. 3) FLASHING MUST BE IN TEMPORAL PATTERN, SYNCHRONIZED WITH OTHER UNITS. 4) STROBE LEADS: FACTORY CONNECTED TO SCREW TERMINALS. 5) MOUNTING: FACTORY FINISHED FACEPLATE, WALL-MOUNT OR CEILING-MOUNT AS INDICATED ON THE DRAWINGS; SEMI-RECESSED, EXCEPT WHERE IDENTIFIED AS SURFACE MOUNTED ON THE DRAWINGS 6) COLORS: MATCH SAME REQUIREMENTS SPECIFIED FOR SPEAKER NOTIFICATION APPLIANCES ABOVE. COMBINATION DEVICES: FACTORY-INTEGRATED AUDIBLE AND VISIBLE DEVICES IN SINGLE-MOUNTING ASSEMBLY, EQUIPPED FOR MOUNTING AS INDICATED, AND WITH SCREW TERMINALS FOR SYSTEM CONNECTIONS. E. PROTECTIVE GUARDS: PROVIDE MANUFACTURER'S WIRE-GUARD OR IMPACT RESISTANT ACRYLIC GUARD OVER DEVICES EXPOSED TO A HIGHER-THAN-NORMAL RISK OF DAMAGE, SUCH AS IN GYMNASIUMS, LOCKER ROOMS, AND OTHER AREAS AS INDICATED ON THE F. WET OR DAMP LOCATION DEVICES: PROVIDE DEVICES DESIGNED FOR WET AND DAMP LOCATION APPLICATIONS OR EXTERIOR APPLICATIONS WHEREVER DEVICES MIGHT BE SUBJECTED TO MOISTURE, SUCH AS LOCKER ROOMS, DISHWASHING ROOMS, 2.11 FIRE ALARM REMOTE ANNUNCIATORS A. PERFORMANCE CRITERIA: REGULATORY REQUIREMENTS A. NFPA 72. GENERAL CHARACTERISTICS A. ANNUNCIATOR FUNCTIONS MUST MATCH THOSE OF FACU FOR ALARM, SUPERVISORY AND TROUBLE INDICATIONS. MANUAL SWITCHING FUNCTIONS MUST MATCH THOSE OF FACU, INCLUDING ACKNOWLEDGING, SILENCING, RESETTING, AND TESTING. 1) MOUNTING: SEMI-RECESSED CABINET, NEMA 250, TYPE 1, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE ON THE DRAWINGS. B. DISPLAY TYPE AND FUNCTIONAL PERFORMANCE: ALPHANUMERIC DISPLAY AND LED INDICATING LIGHTS MUST MATCH THOSE OF FACU. PROVIDE CONTROLS TO ACKNOWLEDGE, SILENCE, RESET, AND TEST FUNCTIONS FOR ALARM, SUPERVISORY, AND 2.12 FIRE ALARM ADDRESSABLE INTERFACE & MONITOR MODULES A. PERFORMANCE CRITERIA: REGULATORY REQUIREMENTS A. NFPA 72. GENERAL CHARACTERISTICS A. INCLUDE ADDRESS-SETTING MEANS ON MODULE. B. STORE INTERNAL IDENTIFYING CODE FOR CONTROL PANEL USE TO IDENTIFY MODULE A. MONITORING CIRCUIT: END-OF-LINE RESISTOR/RELAY (PER MANUFACTURER) INSTALLED INTEGRAL TO INTERFACE DEVICE WITH 4-WIRE LOOP EXTENDED TO ALL NORMALLY OPEN 4. REFER TO THE FIRE ALARM SEQUENCE OF OPERATIONS AND FIRE ALARM OPERATIONS MATRIX FOR FUNCTIONS MONITORED BY ADDRESSABLE MONITOR MODULES. 2.13 FIRE ALARM ADDRESSABLE CONTROL MODULES A. PERFORMANCE CRITERIA: REGULATORY REQUIREMENTS A. NFPA 72. GENERAL CHARACTERISTICS A. INCLUDE ADDRESS-SETTING MEANS ON MODULE. B. STORE INTERNAL IDENTIFYING CODE FOR CONTROL PANEL USE TO IDENTIFY MODULE

SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D

C. LISTED FOR CONTROLLING HVAC FAN MOTOR CONTROLLERS. D. INTEGRAL OR SLAVE RELAY: CAPABLE OF PROVIDING DIRECT SIGNAL TO ELEVATOR CONTROLLER TO INITIATE ELEVATOR RECALL, TO CIRCUIT-BREAKER SHUNT TRIP FOR POWER SHUTDOWN, TO SMOKE DAMPERS, TO VENTILATION EQUIPMENT FOR FAN SHUTDOWN, DOOR HOLD-OPEN RELEASE, AND OTHER FUNCTIONS AS INDICATED ON THE

> 1) ALLOW CONTROL PANEL TO SWITCH RELAY CONTACTS ON COMMAND. 2) HAVE MINIMUM OF TWO NORMALLY OPEN AND TWO NORMALLY CLOSED CONTACTS AVAILABLE FOR FIELD WIRING PROVIDE ADDRESSABLE CONTROL RELAYS AS NEEDED TO ACHIEVE SYSTEM FUNCTIONS DESCRIBED WITHIN THIS SECTION OR AS INDICATED ON THE DRAWINGS. IF NECESSARY, PROVIDE BOTH AN ADDRESSABLE CONTROL RELAY AND AUXILIARY/SLAVE RELAY(S) DESIGNED AND RATED TO MATCH THE CHARACTERISTICS OF THE ACTUAL ELECTRICAL LOAD SERVED. EACH ADDRESSABLE CONTROL RELAY SHALL BE LOCATED AS NEAR AS POSSIBLE TO THE DEVICE THAT IT CONTROLS, UNLESS OTHERWISE INDICATED. ALL CONTROL RELAYS SHALL BE MOUNTED

IN OR ON A JUNCTION BOX IN AN ACCESSIBLE LOCATION. WHEREVER A CONTROL RELAY IS NOT VISIBLE FROM A FLOOR STANDING POSITION. A REMOTE INDICATOR SHALL BE INSTALLED TO ALLOW INSPECTION OF THE DEVICE STATUS. 6. REFER TO THE FIRE ALARM SEQUENCE OF OPERATIONS AND FIRE ALARM OPERATIONS MATRIX FOR FUNCTIONS CONTROLLED BY ADDRESSABLE CONTROL DEVICES AND SLAVE RELAYS.

2.14 DIGITAL ALARM COMMUNICATOR TRANSMITTERS (DACTS) A. PERFORMANCE CRITERIA:

 REGULATORY REQUIREMENTS: A. NFPA 72. GENERAL CHARACTERISTICS A. DACT MUST BE ACCEPTABLE TO REMOTE CENTRAL STATION AND MUST BE LISTED FOR B. THE SYSTEM SHALL PROVIDE OFF PREMISES COMMUNICATIONS CAPABILITY USING A DACT FOR SENDING SYSTEM EVENTS TO MULTIPLE CENTRAL MONITORING STATION C. FUNCTIONAL PERFORMANCE: UNIT MUST RECEIVE ALARM, SUPERVISORY, OR TROUBLE SIGNAL FROM FACU AND AUTOMATICALLY CAPTURE TWO TELEPHONE LINE(S) AND DIAL

> PRESET NUMBER FOR REMOTE CENTRAL STATION. WHEN CONTACT IS MADE WITH CENTRAL STATION(S), SIGNALS MUST BE TRANSMITTED. IF SERVICE ON EITHER LINE IS INTERRUPTED FOR LONGER THAN 45 SECONDS, TRANSMITTER MUST INITIATE LOCAL TROUBLE SIGNAL AND TRANSMIT SIGNAL INDICATING LOSS OF TELEPHONE LINE TO REMOTE ALARM RECEIVING STATION OVER REMAINING LINE. TRANSMITTER MUST AUTOMATICALLY REPORT TELEPHONE SERVICE RESTORATION TO CENTRAL STATION. IF SERVICE IS LOST ON BOTH TELEPHONE LINES, TRANSMITTER MUST INITIATE LOCAL TROUBLE SIGNAL. 1) CONNECTION TO TELEPHONE SYSTEM: FURNISH AND INSTALL TWO (2) 4-PAIR CATEGORY 3 CABLES IN 3/4-INCH CONDUIT FROM DIGITAL ALARM COMMUNICATOR TRANSMITTER TO TELEPHONE SERVICE DEMARCATION POINT. ALL CABLING. CONNECTORS, AND FIELD TERMINATIONS SHALL BE PROVIDED IN ACCORDANCE

WITH THE MANUFACTURER'S RECOMMENDATIONS AND/OR AS REQUIRED TO ACHIEVE THE SPECIFIED FUNCTIONAL PERFORMANCE OF THE TRANSMITTER. DETERMINE COMPLETE REQUIREMENTS, INCLUDING ROUTING, PRIOR TO BIDDING. 2) POINT-SPECIFIC ALARM REPORTING: INCLUDE THE HARDWARE, SOFTWARE, AND PROGRAMMING NECESSARY TO TRANSMIT A UNIQUE IDENTIFICATION CODE FOR EACH INITIATING DEVICE CORRESPONDING TO ITS DESCRIPTION AND LOCATION USING THE OWNER'S ACTUAL ROOM NAMES, NUMBERS, AND DEFINED ZONES. THIS SIGNAL SHALL BE TRANSMITTED TO THE OWNER'S SECURITY MONITORING AGENCY IN THE FORMAT/PROTOCOL SPECIFIED BY THE LOCAL FIRE DEPARTMENT. THIS CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS DIRECTLY WITH THE LOCAL FIRE DEPARTMENT. ALL LABOR AND MATERIALS REQUIRED FOR FULL COMPLIANCE SHALL BE INCLUDED IN THIS CONTRACT. D. LOCAL FUNCTIONS AND DISPLAY AT DACT MUST INCLUDE THE FOLLOWING: VERIFICATION THAT BOTH TELEPHONE LINES ARE AVAILABLE.

PROGRAMMING DEVICE. 3) LED DISPLAY. 4) MANUAL TEST REPORT FUNCTION AND MANUAL TRANSMISSION CLEAR INDICATION. 5) COMMUNICATIONS FAILURE WITH CENTRAL STATION OR FACU.

SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D E. DIGITAL DATA TRANSMISSION MUST INCLUDE THE FOLLOWING: ADDRESS OF ALARM-INITIATING DEVICE. ADDRESS OF SUPERVISORY SIGNAL. ADDRESS OF TROUBLE-INITIATING DEVICE

LOSS OF AC SUPPLY. LOSS OF POWER.) LOW BATTERY.) ABNORMAL TEST SIGNAL 8) COMMUNICATION BUS FAILURE. F. SECONDARY POWER: INTEGRAL RECHARGEABLE BATTERY AND AUTOMATIC CHARGER. G. PERFORMANCE CRITERIA: 1) SELF-TEST: CONDUCTED AUTOMATICALLY EVERY 24 HOURS WITH REPORT RANSMITTED TO CENTRAL STATION. THE SYSTEM SHALL PROVIDE THE CMS(S) WITH POINT IDENTIFICATION OF SYSTEM EVENTS USING CONTACT ID (SIA DC-05) OR SIA DCS PROTOCOLS.

3) THE DIALER SHALL SUPPORT UP TO 255 INDIVIDUAL ACCOUNTS AND TO SEND ACCOUNT INFORMATION TO EIGHT (8) DIFFERENT RECEIVERS, EACH HAVING A PRIMARY AND SECONDARY TELEPHONE ACCESS NUMBER. SYSTEM EVENTS SHALL BE CAPABLE OF BEING DIRECTED TO ONE OR MORE RECEIVERS DEPENDING ON EVENT TYPE OR LOCATION AS SPECIFIED BY THE SYSTEM DESIGN. 4) IN THE EVENT OF CPU FAILURE OF THE FIRE ALARM CONTROL UNIT DURING A FIRE ALARM CONDITION, THE LOCAL DACT DEGRADE MODE SHALL TRANSMIT A GENERAL FIRE ALARM SIGNAL TO THE CMS. 5) THE SYSTEM SHALL PROVIDE THE CENTRAL MONITORING STATION WITH POINT IDENTIFICATION OF SYSTEM EVENTS USING CONTACT ID PROTOCOLS. 6) UP TO 8 EIGHT COMMUNICATION SERVICES SHALL BE SUPPORTED PER MODULE. UP

TO 10 MODULES SHALL BE SUPPORTED PER SYSTEM. SYSTEM EVENTS SHALL BE CAPABLE OF BEING DIRECTED TO ONE OR MORE RECEIVERS DEPENDING ON EVENT TYPE OR LOCATION AS SPECIFIED BY THE SYSTEM DESIGN. THE TRANSMISSION TO THE CENTRAL STATION SHALL BE OVER CONVENTIONAL TELEPHONE LINES. A. WIRE AND CABLE FOR FIRE ALARM SYSTEMS SHALL BE UL LISTED AND LABELED AS COMPLYING WITH

ALL CABLING AND WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE PLENUM-RATED. ALL CABLING AND WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE INSTALLED IN CONDUIT, UNLESS IT IS SUPPORTED OPEN ABOVE ACCESSIBLE CEILINGS ENTIRELY CONCEALED FROM ALL VIEWING ANGLES BELOW. SIGNALING LINE CIRCUITS: TWISTED, SHIELDED PAIR, SIZE AS RECOMMENDED BY SYSTEM MANUFACTURER. 1. CIRCUIT INTEGRITY CABLE: TWISTED SHIELDED PAIR, NFPA 70 ARTICLE 760, CLASSIFICATION CI, FOR POWER-LIMITED FIRE ALARM SIGNAL SERVICE. UL LISTED AS TYPE FPL AND COMPLYING WITH REQUIREMENTS IN UL 1424 AND IN UL 2196 FOR A 2-HOUR RATING. NON-POWER-LIMITED CIRCUITS: SOLID-COPPER CONDUCTORS WITH 600-V RATED, 75 DEG C, COLOR-CODE INSULATION.

1. LOW-VOLTAGE CIRCUITS: NO. 16 AWG, MINIMUM. 2. LINE-VOLTAGE CIRCUITS: NO. 12 AWG, MINIMUM. MULTICONDUCTOR ARMORED CABLE: NFPA 70 TYPE MC, COPPER CONDUCTORS, TFN/THHN CONDUCTOR INSULATION, COPPER DRAIN WIRE, COPPER ARMOR WITH OUTER JACKET WITH RED IDENTIFIER STRIPE, UL LISTED FOR FIRE ALARM AND CABLE TRAY INSTALLATION, PLENUM RATED, AND COMPLYING WITH REQUIREMENTS IN UL 2196 FOR A 2-HOUR RATING.

PART 3 - EXECUTION

EXAMINE AREAS AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR VENTILATION. TEMPERATURE, HUMIDITY, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK. VERIFY THAT MANUFACTURER'S WRITTEN INSTRUCTIONS FOR ENVIRONMENTAL CONDITIONS HAVE BEEN PERMANENTLY ESTABLISHED IN SPACES WHERE EQUIPMENT AND WIRING ARE INSTALLED

BEFORE INSTALLATION BEGINS. EXAMINE ROUGHING-IN FOR ELECTRICAL CONNECTIONS TO VERIFY ACTUAL LOCATIONS OF CONNECTIONS BEFORE INSTALLATION. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

PREINSTALLATION TESTING: PERFORM VERIFICATION OF FUNCTIONALITY OF INSTALLED COMPONENTS OF EXISTING SYSTEM PRIOR TO STARTING WORK. DOCUMENT EQUIPMENT OR COMPONENTS NOT FUNCTIONING AS DESIGNED. PROTECTION OF IN-PLACE CONDITIONS: PROTECT DEVICES DURING CONSTRUCTION UNLESS DEVICES ARE PLACED IN SERVICE TO PROTECT FACILITY DURING CONSTRUCTION. INTERRUPTION OF EXISTING FIRE ALARM SERVICE: DO NOT INTERRUPT FIRE ALARM SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY GUARD SERVICE IN ACCORDANCE WITH REQUIREMENTS

NOTIFY CONSTRUCTION MANAGER AND OWNER NO FEWER THAN SEVEN DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF FIRE ALARM SERVICE. DO NOT PROCEED WITH INTERRUPTION OF FIRE ALARM SERVICE WITHOUT CONSTRUCTION MANAGER'S AND OWNER'S WRITTEN PERMISSION.

.3 INSTALLATION OF EQUIPMENT .. COMPLY WITH NECA 305, NFPA 72, NFPA 101, AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR INSTALLATION AND TESTING OF FIRE ALARM EQUIPMENT. INSTALL ELECTRICAL WIRING TO COMPLY WITH REQUIREMENTS IN NFPA 70 INCLUDING, BUT NOT LIMITED TO, ARTICLE 760, "FIRE ALARM SYSTEMS." 1. DEVICES PLACED IN SERVICE BEFORE OTHER TRADES HAVE COMPLETED CLEANUP MUST BE DEVICES INSTALLED, BUT NOT YET PLACED, IN SERVICE MUST BE PROTECTED FROM

CONSTRUCTION DUST, DEBRIS, DIRT, MOISTURE, AND DAMAGE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN STORAGE INSTRUCTIONS. CONNECTING TO EXISTING EQUIPMENT: VERIFY THAT EXISTING FIRE ALARM SYSTEM IS OPERATIONAL BEFORE MAKING CHANGES OR CONNECTIONS. 1. CONNECT NEW EQUIPMENT TO EXISTING CONTROL PANEL IN EXISTING PART OF BUILDING. CONNECT NEW EQUIPMENT TO EXISTING MONITORING EQUIPMENT AT SUPERVISING STATION. 3. EXPAND, MODIFY, AND SUPPLEMENT EXISTING CONTROL AND MONITORING EQUIPMENT AS NECESSARY TO EXTEND EXISTING CONTROL AND MONITORING FUNCTIONS TO NEW POINTS. NEW

COMPONENTS MUST BE CAPABLE OF MERGING WITH EXISTING CONFIGURATION WITHOUT DEGRADING PERFORMANCE OF EITHER SYSTEM. INSTALL WALL-MOUNTED EQUIPMENT, WITH TOPS OF CABINETS NOT MORE THAN 78-INCHES ABOVE FINISHED FLOOR, EXCEPT FAA UNITS, WHICH SHALL BE MOUNTED 56-INCHES ABOVE THE FINISHED FLOOR TO THE BOTTOM OF ITS ENCLOSURE. MANUAL FIRE ALARM PULL STATIONS 1. INSTALL MANUAL FIRE ALARM PULL STATIONS IN NORMAL PATH OF EGRESS WITHIN 5'-0" OF EXIT

MOUNT MANUAL FIRE ALARM PULL STATION ON BACKGROUND OF CONTRASTING COLOR. OPERABLE PART OF MANUAL FIRE ALARM PULL STATION MUST BE BETWEEN 42- AND 48-INCHES ABOVE FLOOR LEVEL. DEVICES MUST BE MOUNTED AT SAME HEIGHT UNLESS OTHERWISE

SMOKE- AND HEAT-DETECTOR SPACING: 1. COMPLY WITH "SMOKE-SENSING FIRE DETECTORS" SECTION IN "INITIATING DEVICES" CHAPTER IN NFPA 72, FOR SMOKE-DETECTOR SPACING. 2. COMPLY WITH "HEAT-SENSING FIRE DETECTORS" SECTION IN "INITIATING DEVICES" CHAPTER IN NFPA 72, FOR HEAT-DETECTOR SPACING. SMOOTH CEILING SPACING MUST NOT EXCEED THE RATING OF THE DETECTOR.

4. SPACING OF DETECTORS FOR IRREGULAR AREAS, FOR IRREGULAR CEILING CONSTRUCTION, AND FOR HIGH CEILING AREAS MUST BE DETERMINED IN ACCORDANCE WITH ANNEX A OR ANNEX B IN 5. HVAC: LOCATE DETECTORS NOT CLOSER THAN 36-INCHES FROM AIR-SUPPLY DIFFUSER OR RETURN-AIR OPENING

6. LIGHTING FIXTURES: LOCATE DETECTORS NOT CLOSER THAN 12-INCHES FROM LIGHTING FIXTURE AND NOT DIRECTLY ABOVE PENDANT MOUNTED OR INDIRECT LIGHTING. INSTALL COVER ON EACH SMOKE DETECTOR THAT IS NOT PLACED IN SERVICE DURING CONSTRUCTION. COVER MUST REMAIN IN PLACE EXCEPT DURING SYSTEM TESTING. REMOVE COVER PRIOR TO SYSTEM DUCT SMOKE DETECTORS: COMPLY WITH NFPA 72 AND NFPA 90A. INSTALL SAMPLING TUBES SO THEY EXTEND FULL WIDTH OF DUCT. TUBES MORE THAN 36-INCHES LONG MUST BE SUPPORTED AT BOTH ENDS. 1. DO NOT INSTALL SMOKE DETECTOR IN DUCT SMOKE-DETECTOR HOUSING DURING

VERIFY THAT EACH UNIT IS LISTED FOR THE COMPLETE RANGE OF AIR VELOCITY, TEMPERATURE, AND HUMIDITY POSSIBLE WHEN AIR-HANDLING SYSTEM IS OPERATING. 3. INSTALL SUPPLY-AIR SMOKE DETECTORS AT A SUITABLE LOCATION IN THE DUCT ON THE DOWNSTREAM SIDE OF FILTERS (WHEN PRESENT). 4. INSTALL RETURN-AIR SMOKE DETECTORS AT A SUITABLE LOCATION IN THE DUCT PRIOR TO

CONSTRUCTION. INSTALL DETECTOR ONLY DURING SYSTEM TESTING AND PRIOR TO SYSTEM

EXHAUSTING FROM THE BUILDING OR BEING DILUTED BY OUTSIDE AIR. WHERE POSSIBLE LOCATE DETECTORS AFTER BENDS OR INLETS, WHICH WILL CREATE TURBULENCE, AT, APPROXIMATELY SIX DUCT WIDTHS DOWNSTREAM FROM THE SOURCE OF THE TURBULENCE. CAREFULLY REVIEW THE DETECTOR MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CONSULT WITH THE FACTORY REPRESENTATIVE FOR ADDITIONAL DIRECTION. INSTALL SAMPLING TUBES SO THEY EXTEND THE FULL WIDTH OF THE DUCT. REMOTE STATUS AND ALARM INDICATORS: INSTALL IN VISIBLE LOCATION NEAR EACH SMOKE DETECTOR,

SPRINKLER WATER-FLOW SWITCH, AND VALVE-TAMPER SWITCH THAT IS NOT READILY VISIBLE FROM NORMAL VIEWING POSITION. AUDIBLE ALARM-INDICATING DEVICES: INSTALL WALL-MOUNTED DEVICES NOT LESS THAN 6-INCHES BELOW CEILING, INSTALL DEVICES ON FLUSH-MOUNTED BACK BOXES WITH DEVICE-OPERATING MECHANISM CONCEALED BEHIND GRILLE. INSTALL DEVICES AT SAME HEIGHT UNLESS OTHERWISE INDICATED. VISIBLE ALARM-INDICATING DEVICES: INSTALL WALL-MOUNTED DEVICES ADJACENT TO AUDIBLE NOTIFICATION DEVICE AND AT LEAST 6-INCHES BELOW CEILING. INSTALL DEVICES AT SAME HEIGHT UNLESS CEILING-MOUNTED VOICE/TONE NOTIFICATION SPEAKERS: DEVICES INSTALLED IN A CEILING GRID SHALL

BE RECESSED AND POSITIONED AT THE CENTER OF THE CEILING TILE. CORRIDOR DEVICES SHALL BE MOUNTED IN A STRAIGHT ROW, UNLESS OTHERWISE INDICATED DEVICE LOCATION-INDICATING LIGHTS: LOCATE IN PUBLIC SPACE NEAR DEVICE THEY MONITOR. SMOKE DAMPERS: PROVIDE 120 VAC, 24 VAC, OR 24 VDC POWER, WHICHEVER IS REQUIRED, AND ASSOCIATED INITIATING DEVICES AND CONTROL DEVICES. PROVIDE FIRE ALARM SYSTEM CONTROL AS INDICATED ON THE FIRE ALARM OPERATIONS MATRIX. ADDITIONALLY, THIS CONTRACTOR SHALL COORDINATE THE CONNECTION OF THE SMOKE DAMPER CIRCUIT IHROUGH A BAS CONTROL RELAY (PROVIDED BY TEMPERATURE CONTROL CONTRACTOR), WHICH SHALL CLOSE THE DAMPER (OPEN ITS CIRCUIT) WHENEVER ITS ASSOCIATED AIR-HANDLING UNIT IS SHUT-DOWN

BY THE BAS. DOOR HOLD-OPENS AND SLIDING/COILING FIRE DOORS/SHUTTERS. PROVIDE 120 VAC, 24 VAC, OR 24 VDC POWER, WHICHEVER IS REQUIRED, AND ASSOCIATED INITIATING DEVICES AND CONTROL DEVICES. PRIOR TO BIDDING, THIS CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS WITH FIRE ALARM CONTRACTOR, ELECTRICAL SUBCONTRACTORS, GENERAL CONTRACTOR, AND THE CONTRACTORS FURNISHING THE DOOR HOLD-OPENS AND FIRE DOORS. PROVIDE COMPLETE INTERFACE WITH THE FIRE ALARM SYSTEM AS REQUIRED AND AS INDICATED ON THE FIRE ALARM SEQUENCE OF OPERATIONS.

A. CONNECT WIRING IN ACCORDANCE WITH SECTION 260519 "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES." GROUND EQUIPMENT IN ACCORDANCE WITH SECTION 260526 "GROUNDING AND BONDING FOR ELECTRICAL INSTALL ELECTRICAL DEVICES FURNISHED BY MANUFACTURER, BUT NOT FACTORY MOUNTED, IN ACCORDANCE WITH NFPA 70 AND NECA 1.

INSTALL NAMEPLATE FOR EACH ELECTRICAL CONNECTION, INDICATING ELECTRICAL EQUIPMENT

1. NAMEPLATE MUST BE LAMINATED ACRYLIC OR MELAMINE PLASTIC SIGNS WITH BLACK BACKGROUND AND ENGRAVED WHITE LETTERS AT LEAST 1/2-INCH HIGH. 3.5 CONTROL CONNECTIONS INSTALL CONTROL AND ELECTRICAL POWER WIRING TO FIELD-MOUNTED CONTROL DEVICES. INSTALL NAMEPLATE FOR EACH CONTROL CONNECTION, INDICATING FIELD CONTROL PANEL DESIGNATION

DESIGNATION AND CIRCUIT NUMBER FEEDING CONNECTION.

AND I/O CONTROL DESIGNATION FEEDING CONNECTION.

SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D

3.6 INSTALLATION OF WIRE AND CABLE A. INSTALL WIRING ACCORDING TO THE FOLLOWING:

TIA/EIA 568-A . GENERAL REQUIREMENTS: 1. INSTALL CABLES WITHIN RACEWAYS PER DIVISION 26, EXCEPT ABOVE ACCESSIBLE CEILINGS WHERE OPEN-CABLE INSTALLATION IS ALLOWED, PROVIDED ALL INSTALLATION METHODS ARE STRICTLY FOLLOWED.

INSTALL PLENUM CABLE IN ENVIRONMENTAL AIR SPACES, INCLUDING PLENUM CEILINGS. INSTALL ALL CABLING WITHIN RACEWAYS IN AREAS WITH EXPOSED STRUCTURE. 4. TERMINATE CONDUCTORS; NO CABLE SHALL CONTAIN UNTERMINATED ELEMENTS. MAKE TERMINATIONS ONLY AT OUTLETS AND TERMINALS.

5. SPLICES, TAPS, AND TERMINATIONS: ARRANGE ON NUMBERED TERMINAL STRIPS IN JUNCTION, PULL, AND JUNCTION BOXES; AND TERMINAL CABINETS. CABLES MAY NOT BE SPLICED. BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS WITHOUT EXCEEDING MANUFACTURER'S LIMITATIONS ON BENDING RADII DO NOT INSTALL BRUISED, KINKED, SCORED, DEFORMED, OR ABRADED CABLE. DO NOT SPLICE

CABLE BETWEEN TERMINATION, TAP, OR JUNCTION POINTS. REMOVE AND DISCARD CABLE IF DAMAGED DURING INSTALLATION AND REPLACE IT WITH NEW CABLE 8. COLD-WEATHER INSTALLATION: BRING CABLE TO ROOM TEMPERATURE BEFORE DE-REELING. HEAT LAMPS SHALL NOT BE USED. OPEN-CABLE INSTALLATION ABOVE ACCESSIBLE SUSPENDED CEILINGS:

1. INSTALL SUPPORT FOR FIRE ALARM CABLE NOT IN A WIREWAY OR PATHWAY NOT MORE THAN 48 INCHES APART. INSTALL CABLES ENCLOSED IN RACEWAY IF CABLE CANNOT BE PROPERLY CABLES SHALL NOT BE BENT, KINKED, STRETCHED, OR DEFORMED.

3. CABLE SHALL NOT BE RUN THROUGH STRUCTURAL MEMBERS OR BE IN CONTACT WITH PIPES, DUCTS, OR OTHER POTENTIALLY DAMAGING ITEMS. 4. DO NOT INSTALL CABLES IN DECK FLUTE ABOVE STRUCTURAL MEMBERS. 5. CABLE SHALL BE ROUTED DIRECTLY UP FROM EACH DEVICE TO STRUCTURAL MEMBERS. STRAP

WIRE TO STRUCTURAL MEMBER AND ROUTE DIRECTLY DOWN TO DEVICE, CABLES SHALL RUN PARALLEL AND PERPENDICULAR AND FOLLOW STRUCTURAL MEMBERS 6. CABLES SHALL BE SLEEVED THRU WALLS THROUGH A DEDICATED SLEEVE/CONDUIT. DO NOT INSTALL CABLES IN SLEEVES PROVIDED FOR NETWORK COMMUNICATIONS CABLES AND OTHER

SYSTEM DEVICES AND WIRING SHALL BE INSTALLED IN ACCORDANCE WITH NEC 110.3(B), 300.11(A), 300.15, AND 300.16. INCLUDING CONDUCTORS THAT ARE TERMINATED. SPLICED. OR INTERRUPTED—IN WHICH CASE A JUNCTION BOX OR CONDUIT BODY IS REQUIRED. WHEREVER A DEVICE IS MOUNTED IN OR ONTO AN ACCESSIBLE CEILING, PROVIDE A RECESSED JUNCTION BOX SUPPORTED BY THE CEILING GRID—NOT THE CEILING TILE. THE BOX SHALL BE SECURELY FASTENED TO STEEL BRACING THAT IS DESIGNED/LISTED/LABELED TO BRIDGE THE CEILING GRID. BOXES MUST BE PROVIDED WITH CABLE PROTECTION BUSHINGS AT ALL OPEN KNOCKOUTS (NEC 300.16). CABLES AND RACEWAYS SHALL BE SUPPORTED NEITHER BY CEILING GRIDS NOR THEIR SUPPORT WIRES. LISTED AND LABELED EQUIPMENT, INCLUDING ALL SYSTEM DEVICES. SHALL BE INSTALLED IN ACCORDANCE WITH INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING (NEC 110.3(B))

DEVICES CONTAINING END-OF-LINE RESISTORS SHALL BE APPROPRIATELY LABELED. DEVICES SHOULD BE LABELED SUCH THAT REMOVAL OF THE DEVICE IS NOT REQUIRED TO IDENTIFY THE EOL DEVICE. WIRING METHOD: INSTALL WIRING IN METAL RACEWAY ACCORDING TO DIVISION 26 SECTION "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS.

1. FIRE ALARM CIRCUITS AND EQUIPMENT CONTROL WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE INSTALLED IN A DEDICATED RACEWAY SYSTEM. THIS SYSTEM SHALL NOT BE USED FOR ANY OTHER WIRE OR CABLE CABLES AND RACEWAYS USED FOR FIRE ALARM CIRCUITS, AND EQUIPMENT CONTROL WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM, MAY NOT CONTAIN ANY OTHER WIRE OR CABLE.

FIRE-RATED CABLES: USE OF 2-HOUR FIRE-RATED FIRE ALARM CABLES, NFPA 70 TYPES MI AND CI, 4. ALL SYSTEMS AND SYSTEM COMPONENTS LISTED TO UL864 CONTROL UNITS FOR FIRE PROTECTIVE SIGNALING SYSTEMS MAY BE INSTALLED WITHIN A COMMON CONDUIT RACEWAY SYSTEM, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SYSTEM

COMPONENTS NOT LISTED TO THE UL864 STANDARD SHALL UTILIZE A SEPARATE CONDUIT

RACEWAY SYSTEM FOR EACH OF THE SUB-SYSTEMS. 5. FIBER OPTIC CABLE: ONLY GLASS FILAMENT CABLE PERMITTED. PLASTIC FILAMENT FIBER OPTIC CABLES ARE NOT ACCEPTABLE. LC CONNECTORS SHALL BE USED AT ALL EQUIPMENT CONCRETE FLOORS SHALL BE X-RAYED PRIOR TO CORE DRILLING ON POST TENSION SLABS.

VERIFY WITH OWNER ON TYPE OF SLAB PRIOR TO BID. WIRING WITHIN ENCLOSURES: SEPARATE POWER-LIMITED AND NON-POWER-LIMITED CONDUCTORS AS RECOMMENDED BY MANUFACTURER. INSTALL CONDUCTORS PARALLEL WITH OR AT RIGHT ANGLES TO SIDES AND BACK OF THE ENCLOSURE. BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS. CONNECT CONDUCTORS THAT ARE TERMINATED, SPLICED, OR INTERRUPTED IN ANY ENCLOSURE ASSOCIATED WITH THE FIRE ALARM SYSTEM TO TERMINAL BLOCKS. MARK EACH TERMINAL ACCORDING TO THE SYSTEM'S WIRING DIAGRAMS. MAKE ALL CONNECTIONS WITH APPROVED CRIMP-ON TERMINAL SPADE LUGS, PRESSURE-TYPE TERMINAL BLOCKS, OR PLUG CONNECTORS. H. CABLES AND RACEWAYS SHALL BE SUPPORTED NEITHER BY CEILING GRIDS NOR THEIR SUPPORT WIRES. CABLE TAPS: USE NUMBERED TERMINAL STRIPS IN JUNCTION, PULL, AND OUTLET BOXES, CABINETS, OR EQUIPMENT ENCLOSURES WHERE CIRCUIT CONNECTIONS ARE MADE.

COLOR-CODING: COLOR-CODE FIRE ALARM CONDUCTORS DIFFERENTLY FROM THE NORMAL BUILDING POWER WIRING. USE ONE COLOR-CODE FOR ALARM CIRCUIT WIRING AND A DIFFERENT COLOR-CODE FOR SUPERVISORY CIRCUITS. COLOR-CODE AUDIBLE ALARM-INDICATING CIRCUITS DIFFERENTLY FROM ALARM-INITIATING CIRCUITS. USE DIFFERENT COLORS FOR VISIBLE ALARM-INDICATING DEVICES. PAINT FIRE ALARM SYSTEM JUNCTION BOXES AND COVERS RED.

WIRING TO REMOTE ALARM TRANSMITTING DEVICE: 1-INCH CONDUIT BETWEEN THE FACU AND THE TRANSMITTER. INSTALL NUMBER OF CONDUCTORS AND ELECTRICAL SUPERVISION FOR CONNECTING WIRING AS NEEDED TO SUIT MONITORING FUNCTION.

MAKE ADDRESSABLE CONNECTIONS WITH SUPERVISED INTERFACE DEVICE TO THE FOLLOWING DEVICES AND SYSTEMS. INSTALL INTERFACE DEVICE LESS THAN 36-INCHES FROM DEVICE CONTROLLED. MAKE ADDRESSABLE CONFIRMATION CONNECTION WHEN SUCH FEEDBACK IS AVAILABLE AT DEVICE OR SYSTEM BEING CONTROLLED. SMOKE DAMPERS IN AIR DUCTS OF DESIGNATED HVAC DUCT SYSTEMS.

MAGNETICALLY HELD-OPEN DOORS. ALARM-INITIATING CONNECTION TO ELEVATOR RECALL SYSTEM AND COMPONENTS. SUPERVISORY CONNECTIONS AT VALVE SUPERVISORY SWITCHES. DATA COMMUNICATION CIRCUITS FOR CONNECTION TO BUILDING MANAGEMENT SYSTEM.

.8 IDENTIFICATION IDENTIFY SYSTEM COMPONENTS, WIRING, CABLING, AND TERMINALS. COMPLY WITH REQUIREMENTS FOR IDENTIFICATION SPECIFIED IN SECTION 260553 "IDENTIFICATION FOR ELECTRICAL SYSTEMS." INSTALL FRAMED INSTRUCTIONS IN LOCATION VISIBLE FROM FACU.

A. GROUND FACU AND ASSOCIATED CIRCUITS IN ACCORDANCE WITH SECTION 260526 "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS. GROUND SHIELDED CABLES AT CONTROL PANEL LOCATION ONLY. INSULATE SHIELD AT DEVICE LOCATION.

A. CONTRACTOR SHALL CONFIRM WHETHER FIELD TESTS MUST BE WITNESSED BY THE AHJ PRIOR TO

START-UP AND CERTIFICATION TESTING SHALL BE PERFORMED BY A NICET CERTIFIED FIRE ALARM TECHNICIAN. STATE NAME OF TECHNICIAN AND CERTIFICATION NUMBER ON ALL TEST REPORTS. ADMINISTRANT FOR TESTS AND INSPECTIONS:

 ADMINISTER AND PERFORM TESTS AND INSPECTIONS WITH ASSISTANCE OF FACTORY-AUTHORIZED SERVICE REPRESENTATIVE. REACCEPTANCE TESTING: PERFORM REACCEPTANCE TESTING TO VERIFY PROPER OPERATION OF ADDED OR REPLACED DEVICES AND APPLIANCES.

FIRE ALARM SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS. PREPARE TEST AND INSPECTION REPORTS. MAINTENANCE TEST AND INSPECTION: PERFORM TESTS AND INSPECTIONS LISTED FOR WEEKLY, MONTHLY QUARTERLY, AND SEMIANNUAL PERIODS. USE FORMS DEVELOPED FOR INITIAL TESTS AND INSPECTIONS. ANNUAL TEST AND INSPECTION: ONE YEAR AFTER DATE OF SUBSTANTIAL COMPLETION, TEST FIRE ALARM SYSTEM COMPLYING WITH VISUAL AND TESTING INSPECTION REQUIREMENTS IN NFPA 72. USE FORMS DEVELOPED FOR INITIAL TESTS AND INSPECTIONS.

ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN FIRE-ALARM SYSTEM. 1. TRAIN OWNER'S MAINTENANCE PERSONNEL ON PROGRAMMING EQUIPMENT FOR STARTING UP AND SHUTTING DOWN, TROUBLESHOOTING, SERVICING, AND MAINTAINING THE SYSTEM AND

TRAIN A MINIMUM OF TEN (10) EMPLOYEES OF OWNER. UNDER THIS CONTRACT, CONDUCT A TOTAL OF TWELVE (12) HOURS (MINIMUM) OF ON-SITE TRAINING AS SPECIFIED IN INSTRUCTIONS TO OWNER'S EMPLOYEES IN DIVISION 01 SECTION "DEMONSTRATION AND TRAINING." TRAINING SHALL BE DIVIDED INTO TWO (2) SEPARATE SESSIONS ON TWO (2) SEPARATE DAYS IF REQUESTED BY OWNER. THE FIRST SESSION SHAL PROVIDE TWO (2) HOURS OF BASIC TRAINING. THE SECOND SESSION SHALL PROVIDE EIGHT (8) HOURS OF IN-DEPTH TRAINING. COORDINATE TRAINING AGENDA, DATES, AND TIMES DIRECTLY

4. CONDUCT TRAINING ON INSTALLED EQUIPMENT AFTER ACCEPTANCE TESTING. 5. TRAIN ON SYSTEM OPERATION, INCLUDING MANUAL CONTROL OF OUTPUT FUNCTIONS FROM 6. TRAIN ON TESTING OF SYSTEM, INCLUDING LOGGING OF SYSTEM TESTS, FIELD TEST OF DEVICES,

AND RESPONSE TO COMMON TROUBLES. REFER TO DIVISION 01 SECTION "DEMONSTRATION AND TRAINING", INCLUDING REQUIREMENTS RELATED TO VIDEO RECORDING. 8. ALLOW OWNER TO RECORD TRAINING.

OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SYSTEM TO SUIT ACTUAL OCCUPIED CONDITIONS. PROVIDE UP TO THREE (3) VISITS TO PROJECT OUTSIDE NORMAL OCCUPANCY HOURS FOR THIS PURPOSE FOR EACH BUILDING. INCLUDE A MINIMUM OF 12 HOURS OF ON-SITE LABOR DESIGNATED FOR THIS PURPOSE PLUS ALL NECESSARY TRAVEL TIME AND EXPENSES ANNUAL TEST AND INSPECTION: THROUGH THE FIRST YEAR AFTER DATE OF SUBSTANTIAL COMPLETION. TEST THE FIRE ALARM SYSTEM COMPLYING WITH THE TESTING AND VISUAL INSPECTION REQUIREMENTS IN NFPA 72. PERFORM TESTS AND INSPECTIONS LISTED FOR MONTHLY, QUARTERLY, SEMIANNUAL, AND ANNUAL PERIODS. USE FORMS DEVELOPED FOR INITIAL TESTS AND INSPECTIONS.

3.13 MAINTENANCE MAINTENANCE SERVICE: BEGINNING AT SUBSTANTIAL COMPLETION. MAINTENANCE SERVICE MUST INCLUDE 12 MONTHS OF FULL MAINTENANCE BY SKILLED EMPLOYEES OF MANUFACTURER'S DESIGNATED SERVICE ORGANIZATION. INCLUDE PREVENTIVE MAINTENANCE. REPAIR. OR REPLACEMENT OF WORN OR DEFECTIVE COMPONENTS, LUBRICATION, CLEANING, AND ADJUSTING AS REQUIRED FOR PROPER OPERATION. PARTS AND SUPPLIES MUST BE MANUFACTURER'S AUTHORIZED REPLACEMENT PARTS AND SUPPLIES. 1. INCLUDE VISUAL INSPECTIONS IN ACCORDANCE WITH "VISUAL INSPECTION FREQUENCIES" TABLE

IN "TESTING" PARAGRAPH OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72. 2. PERFORM TESTS IN "TEST METHODS" TABLE IN "TESTING" PARAGRAPH OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.

PERFORM TESTS PER "TESTING FREQUENCIES" TABLE IN "TESTING" PARAGRAPH OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72. 3.14 SOFTWARE SERVICE AGREEMENT

A. COMPLY WITH UL 864. B. TECHNICAL SUPPORT: BEGINNING AT SUBSTANTIAL COMPLETION, SERVICE AGREEMENT MUST INCLUDE SOFTWARE SUPPORT FOR FIVE (5) YEARS. UPGRADE SERVICE: AT SUBSTANTIAL COMPLETION, UPDATE SOFTWARE TO LATEST VERSION. INSTALL AND PROGRAM SOFTWARE UPGRADES THAT BECOME AVAILABLE WITHIN FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION. UPGRADING SOFTWARE MUST INCLUDE OPERATING SYSTEM AND NEW OR REVISED LICENSES FOR USING SOFTWARE. 1. UPGRADE NOTICE: AT LEAST 30 DAYS TO ALLOW OWNER TO SCHEDULE ACCESS TO SYSTEM AND

TO UPGRADE COMPUTER EQUIPMENT IF NECESSARY.

SECTION 280000 - FIRE ALARM SYSTEMS - CONT'D PART 4 - SEQUENCE OF OPERATIONS

.1 FIRE ALARM SYSTEM OPERATIONS SCHEDULE PROVIDE ALL COMPONENTS, CABLING, HARDWARE, SOFTWARE, PROGRAMMING, AND ACCESSORIES NECESSARY TO ACHIEVE A FULLY INTEGRATED, COMPLETE, AND FUNCTIONAL TURNKEY SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS. VISUAL/AUDIBLE VOICE GENERAL ALARM NOTIFICATION: ACTIVATE AUDIBLE/VOICE NOTIFICATION AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT THE ENTIRE BUILDING.

SUPERVISORY SIGNAL: PROVIDE AUDIBLE AND VISUAL SUPERVISORY ALERT ONLY AT SYSTEM ANNUNCIATOR PANELS AND BAS SYSTEM. TROUBLE SIGNAL: SHOW VISUAL TROUBLE SIGNAL ONLY AT THE SYSTEM ANNUNCIATOR PANELS AND BAS ALARM ANNUNCIATION AND RECORDING: LOG EVENTS, DISPLAY AT EVERY FACU AND FAA PANEL, AND

ARCHIVE TO NETWORK CLOUD ALL SYSTEM ACTIVITY. TRANSMIT SIGNAL TO THE BAS. SUPERVISING STATION: PROGRAM THE DIGITAL ALARM COMMUNICATOR TRANSMITTER TO SIGNAL OFFSITE MONITORING AGENCY AND/OR FIRST RESPONDERS. COORDINATE WITH OWNER TO ACHIEVE THIS FUNCTION. TRANSMIT ALL ALARM, SUPERVISORY, AND TROUBLE SIGNALS, UNLESS OTHERWISE STATED. TRANSMIT POINT-SPECIFIC ALARM DATA PER AGENCY'S SPECIFICATIONS. 1. POINT-SPECIFIC ALARM REPORTING: INCLUDE THE HARDWARE, SOFTWARE, AND PROGRAMMING NECESSARY TO TRANSMIT A UNIQUE IDENTIFICATION CODE FOR EACH INITIATING DEVICE CORRESPONDING TO ITS DESCRIPTION AND LOCATION USING THE OWNER'S ACTUAL ROOM

NAMES, NUMBERS, AND DEFINED ZONES. THIS SIGNAL SHALL BE TRANSMITTED TO THE OWNER'S SECURITY MONITORING AGENCY IN THE FORMAT/PROTOCOL SPECIFIED BY THE LOCAL FIRE DEPARTMENT OR FIRST RESPONDER. THIS CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS DIRECTLY WITH THE LOCAL FIRE DEPARTMENT. ALL LABOR AND MATERIALS REQUIRED FOR FULL COMPLIANCE MUST BE INCLUDED IN THIS CONTRACT. SPRINKLER ALARM NOTIFICATION: ACTIVATE EXTERIOR SPRINKLER FLOW AUDIBLE/VISUAL NOTIFICATION APPLIANCE VIA ADDRESSABLE RELAY AND SLAVE RELAY ENERGIZING ITS CIRCUIT. BUILDING AUTOMATION SYSTEM: TRANSMIT ALARM, TROUBLE, AND SUPERVISORY SIGNALS TO THE BAS

TO RELEASING SMOKE DAMPERS. TO RELEASE (CLOSE) SMOKE DAMPERS, OPEN CONNECTED POWER CIRCUIT VIA ADDRESSABLE RELAY AND SLAVE RELAY AS REQUIRED. 1. A SMOKE DAMPER INSTALLED IN A HALLWAY/CORRIDOR WALL SHALL BE RELEASED (CLOSED) UPON INITIATION OF ANY ONE OF THE SMOKE DETECTORS LOCATED THROUGHOUT THE SAME HALLWAY/CORRIDOR CONTIGUOUS TO THE RATED FIRE/SMOKE BARRIER.

OF THE WALL, WHICHEVER METHOD IS INDICATED ON THE DRAWINGS.

(ALSO KNOWN AS BMS, TEMPERATURE CONTROLS, OR DDC INTERFACE).

SMOKE DAMPERS INSTALLED IN NON-CORRIDOR WALLS SHALL BE ACTIVATED UPON INITIATION OF A DEDICATED DUCT-TYPE SMOKE DETECTOR PROVIDED SPECIFICALLY FOR THAT SINGLE SMOKE DAMPER OR ROOM SMOKE DETECTORS (SPOT-TYPE CEILING MOUNTED) LOCATED ON EITHER SIDE

SMOKE AND FIRE/SMOKE DAMPERS: SEND SIGNAL FOR AIR DISTRIBUTION SHUTDOWN 10 SECONDS PRIOR

AIR DISTRIBUTION CONTROL: SHUTDOWN HVAC UNITS/FANS AS INDICATED ON THE DRAWINGS (SEE EQUIPMENT CONNECTIONS SCHEDULES) VIA ADDRESSABLE RELAY AND SLAVE RELAY INTERFACED WITH EACH MOTOR CONTROL CIRCUIT. ELEVATOR SHUTDOWN: ENERGIZE THE ELECTRIC ACTUATOR CIRCUIT (THE BREAKER'S SHUNT-TRIP MECHANISM) VIA ADDRESSABLE RELAY AND SLAVE RELAY TO OPEN THE ELEVATOR POWER FEEDER. ALSO, PROVIDE CONTINUOUS VOLTAGE MONITORING OF ELECTRIC ACTUATOR CIRCUIT USING A GENERAL-PURPOSE POWER RELAY IN CONJUNCTION WITH AN ADDRESSABLE MONITORING DEVICE. IF CIRCUIT ACTUATOR IS FURNISHED INTEGRAL TO THE LOCAL MAINTENANCE DISCONNECT SERVING THE ELEVATOR. INSTEAD, PROVIDE A N.C. CONTROL CONTACT THAT OPENS AND SIGNALS TO THE CONTROLLER THAT THE FEEDER WAS OPENED DUE TO AN ACTIVATED HEAT DETECTOR (RATHER THAN FOR MAINTENANCE PURPOSES). THIS IS APPLICABLE WHERE AN EMERGENCY RETURN UNIT IS PROVIDED WITH THE ELEVATOR. ELEVATOR RECALL: PROVIDE TWO (2) ADDRESSABLE RELAYS AND SLAVE RELAYS FOR EACH INDIVIDUAL OR GROUPED ELEVATORS TO INTERFACE WITH EACH ELEVATOR CONTROLLER. THE FIRST RELAY SHALL

SIGNAL THE ELEVATOR TO RETURN TO ITS DESIGNATED LEVEL. IF SMOKE IS DETECTED IN THE MAIN ELEVATOR LOBBY OF THE DESIGNATED LEVEL, THE SECOND RELAY SHALL SIGNAL THE ELEVATOR TO RETURN TO ITS ALTERNATE LEVEL, INSTEAD. ELEVATOR CAB VISUAL: PROVIDE ADDRESSABLE RELAY AND SLAVE RELAY FOR EACH INDIVIDUAL OR GROUPED ELEVATORS TO INTERFACE WITH EACH ELEVATOR CONTROLLER. THIS RELAY SHALL CAUSE THE FIREFIGHTER'S CAB VISUAL ("NOT SAFE" ALARM) TO ILLUMINATE. HOISTWAY DAMPERS: HOISTWAY DAMPERS, IF APPLICABLE, SHALL NOT BE OPERATED AUTOMATICALLY. PROVIDE A PROGRAMMABLE BUTTON LOCATED IN EACH FIRE ALARM ANNUNCIATOR PANEL FOR MANUAL CONTROL OF EACH HOISTWAY DAMPER VIA ADDRESSABLE RELAY AND SLAVE RELAY. A SUPERVISORY SIGNAL SHALL INDICATE WHEN A HOISTWAY DAMPER IS OPEN. FOOD SERVICE EQUIPMENT SHUTDOWN: DE-ENERGIZE POWER CIRCUITS TO ALL KITCHEN EQUIPMENT POSITIONED BELOW THE FIRE SUPPRESSION HOODS VIA ADDRESSABLE RELAY AND SLAVE RELAY

EQUIPMENT. SEE THE FOOD SERVICE EQUIPMENT SCHEDULE ON THE DRAWINGS FOR ADDITIONAL INFORMATION. INTERCOM SYSTEM, PA SYSTEMS, CLASSROOM AUDIO ENHANCEMENT SYSTEMS: SILENCE ALL SOUND REINFORCEMENT SYSTEMS. COORDINATE MUTING INTERFACE WITH THE MANUFACTURER, SUPPLIER, AND **INSTALLER OF EACH SYSTEM** MAGNETIC DOOR HOLD-OPENS: RELEASE FIRE/SMOKE DOORS THROUGHOUT BUILDING VIA ADDRESSABLE RELAYS AND SLAVE RELAYS. REFER TO THE DRAWINGS FOR ADDITIONAL INFORMATION. FIRE/SMOKE PARTITIONS: RELEASE COILING FIRE/SMOKE DOORS, FIRE/SMOKE CURTAINS, OR OTHER

INTERFACED WITH THE CONTROL CONTACTOR AND/OR CONTROL RELAY SERVING EACH KITCHEN

ELECTRIC-OPERATED FIRE/SMOKE BARRIERS AS IDENTIFIED ON THE DRAWINGS VIA ADDRESSABLE RELAY 4.2 FIRE ALARM SYSTEM OPERATIONS MATRIX A. PROVIDE FULLY FUNCTIONAL AND COMPLETE FIRE ALARM SYSTEM IN ACCORDANCE WITH APPLICABLE

CODES, STANDARDS, AND THE FIRE ALARM SYSTEM OPERATIONS MATRIX BELOW.

F	IRE	A	LA	RM	[O]	PEI	RA	ΓIC	NS	S M	ΑT	RI.	X					
NOTIFICATION					FIRE SAFETY CONTROL OPERATIONS													
SYSTEM INPUTS	GENERAL ALARM	SUPERVISORY ONLY	TROUBLE ONLY	ANNUNCIATOR PANEL	SUPERVISING STATION	SPRINKLER ALARM	SMOKE DAMPERS	AIR DISTRIBUTION CTRL	ELEVATOR SHUTDOWN	ELEVATOR RECALL	ELEVATOR CAB VISUAL	HOISTWAY DAMPER	KITCHEN SHUTDOWN	P.A. SYS / INTERCOM	CLASSROOM AUDIO	DOOR HOLD-OPENS	FS/S PARTITIONS	
MANUAL PULL STATION	Х			Х	Х									Х	Х	Х		
GENERAL DETECTION	Х			Х	Х		Х	Х						Х	Х	Х		
DUCT-TYPE: FS/S DAMPERS		Х		Х			X	Х										
AREA-TYPE: FS/S DAMPERS	Х			Х	Х		Х	Х						Х	Х	Х		
DUCT-TYPE: FAN SHUTDOWN		Х		Х			Х	Х										
ELEVATOR LOBBY SMOKE	Х			Х	Х		Х	Х		Х				Х	Х	Х		
ELEV RM/HOISTWAY SMOKE	Х			Х	Х		Х	Х		Х	Х			Х	Х	Х		
ELEV RM/HOISTWAY HEAT	Х			Х	Х		Х	Х	Х					Х	Х	Х		1
SHUNT-TRIP MONITORING		Х		Х														1
HOISTWAY MAN. DAMPER		Х		Х								Х						1
FS/S PARTITION SMOKE	Х			Х	Х		Х	Х						Х	Х	Х	Х	Ī
SPRINKLER FLOW OR PIV	Х			Х	Х	Х	Х	Х						Х	Х	Х		
SPRINKLER TAMPER/OS&Y		Х		Х														
HOOD SUPPRESSION SYSTEM	х			Х	Х		Х	Х					Х	Х	х	Х		1
CARBON MONOXIDE DET.		х		Х														
FACP AC POWER FAILURE		Х		Х														
FACP LOW BATTERY			Х	Х														
FACP CKT MALFUNCTION			х	х														1

851**5**4PE

OREGON

08/07/2023

RENEWS DECEMBER 31, 2024

CONSTRUCTION

DOCUMENTS

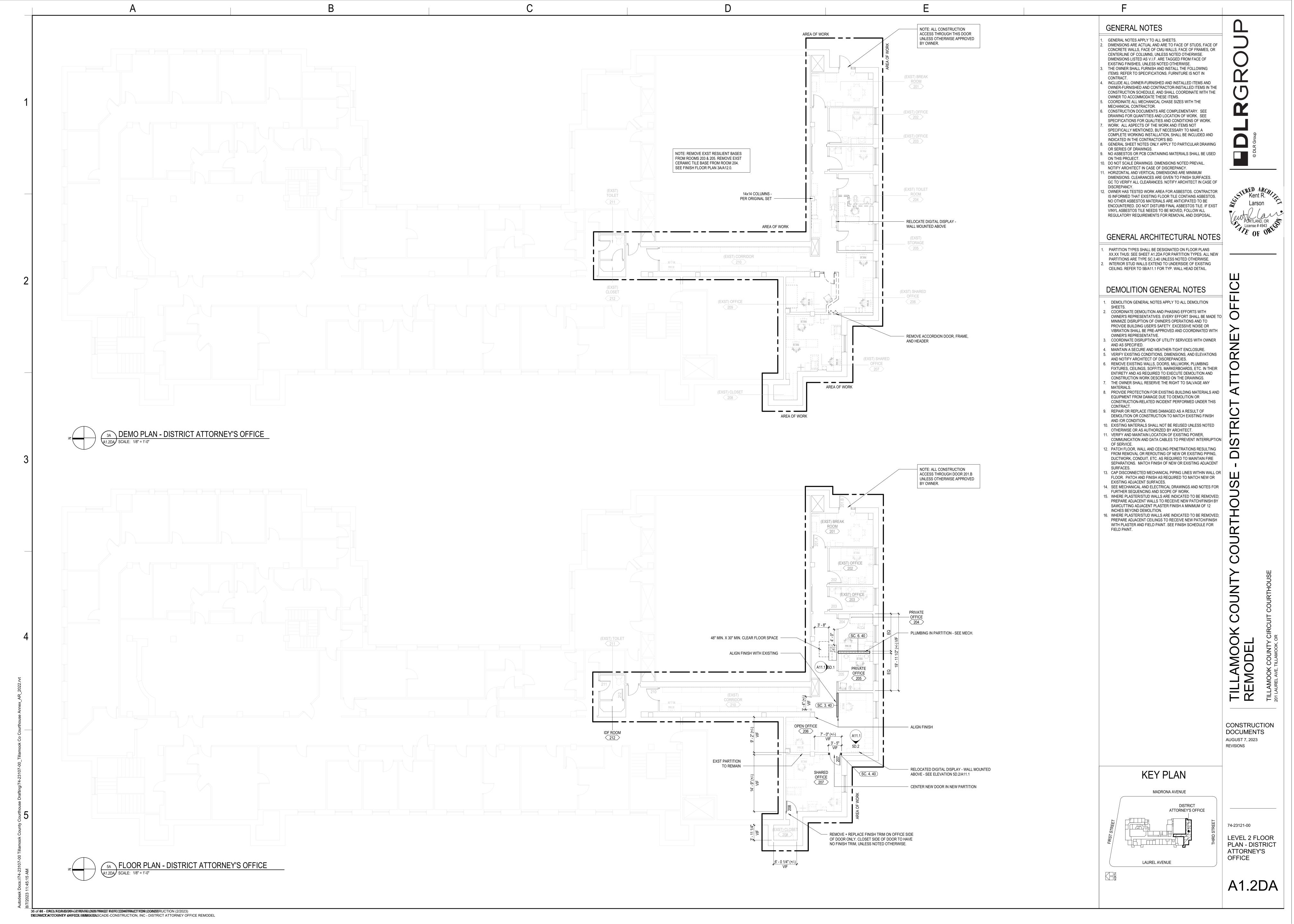
AUGUST 7, 2023

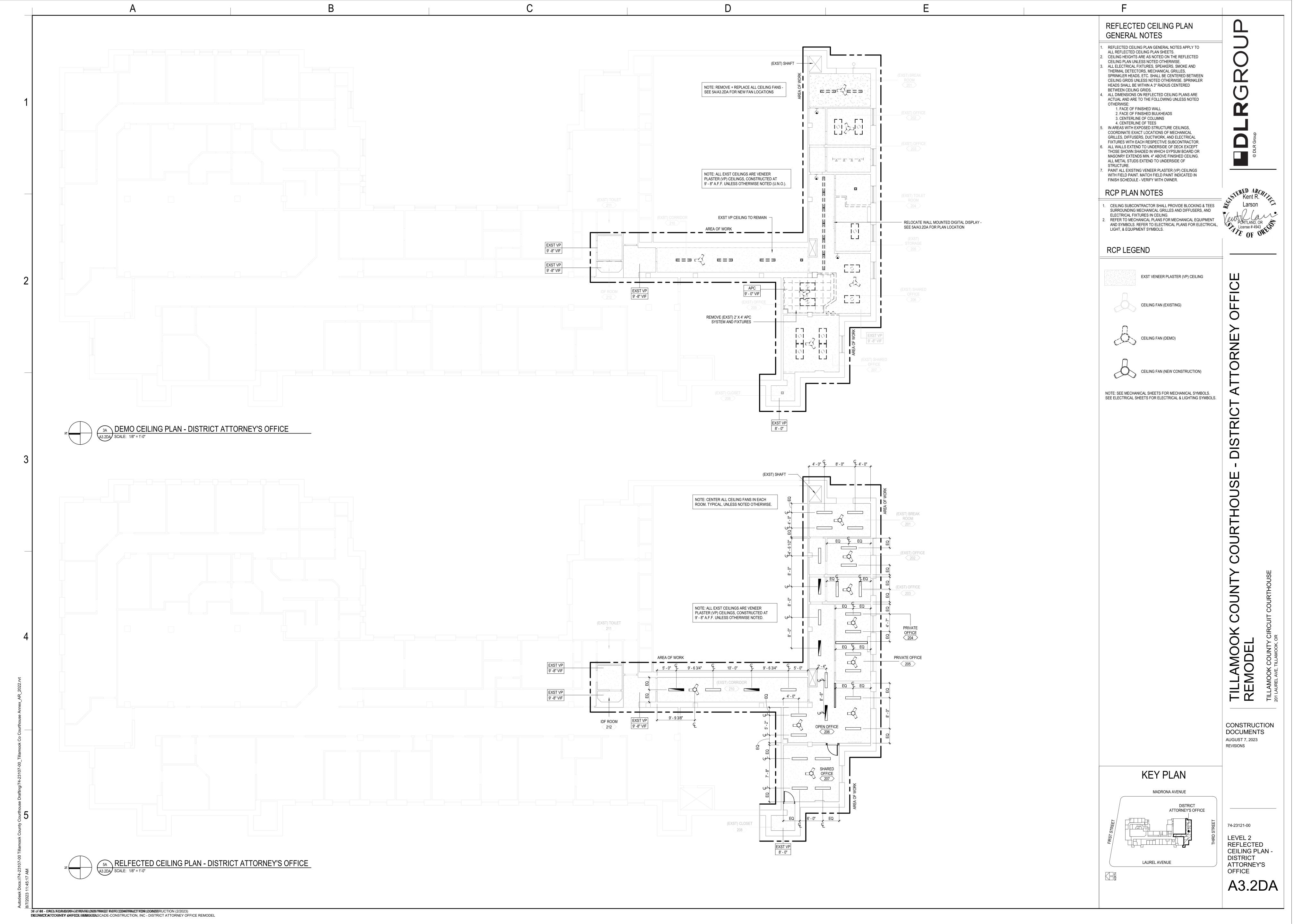
REVISIONS

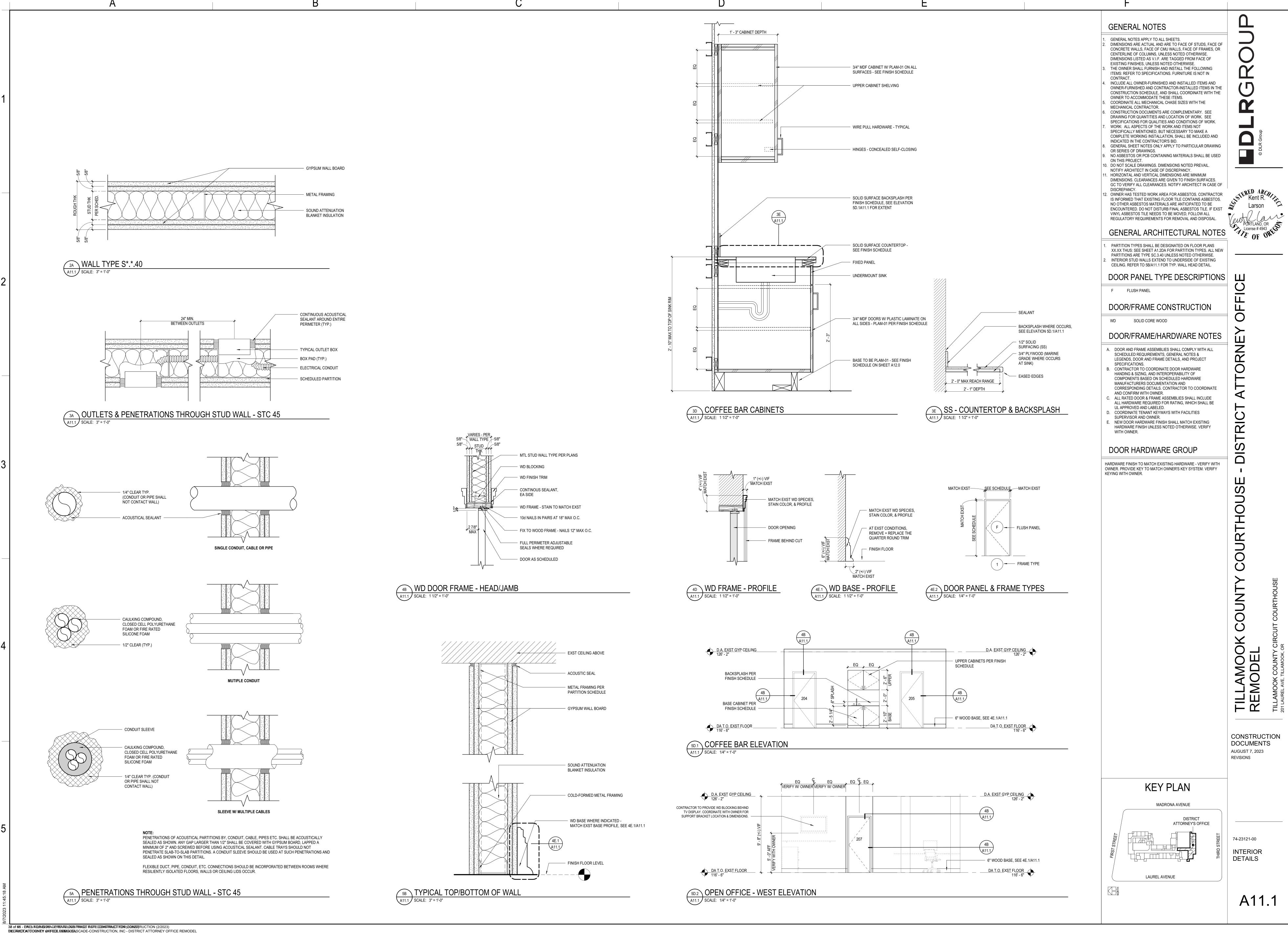
74-23121-00 SPECIFICATIONS

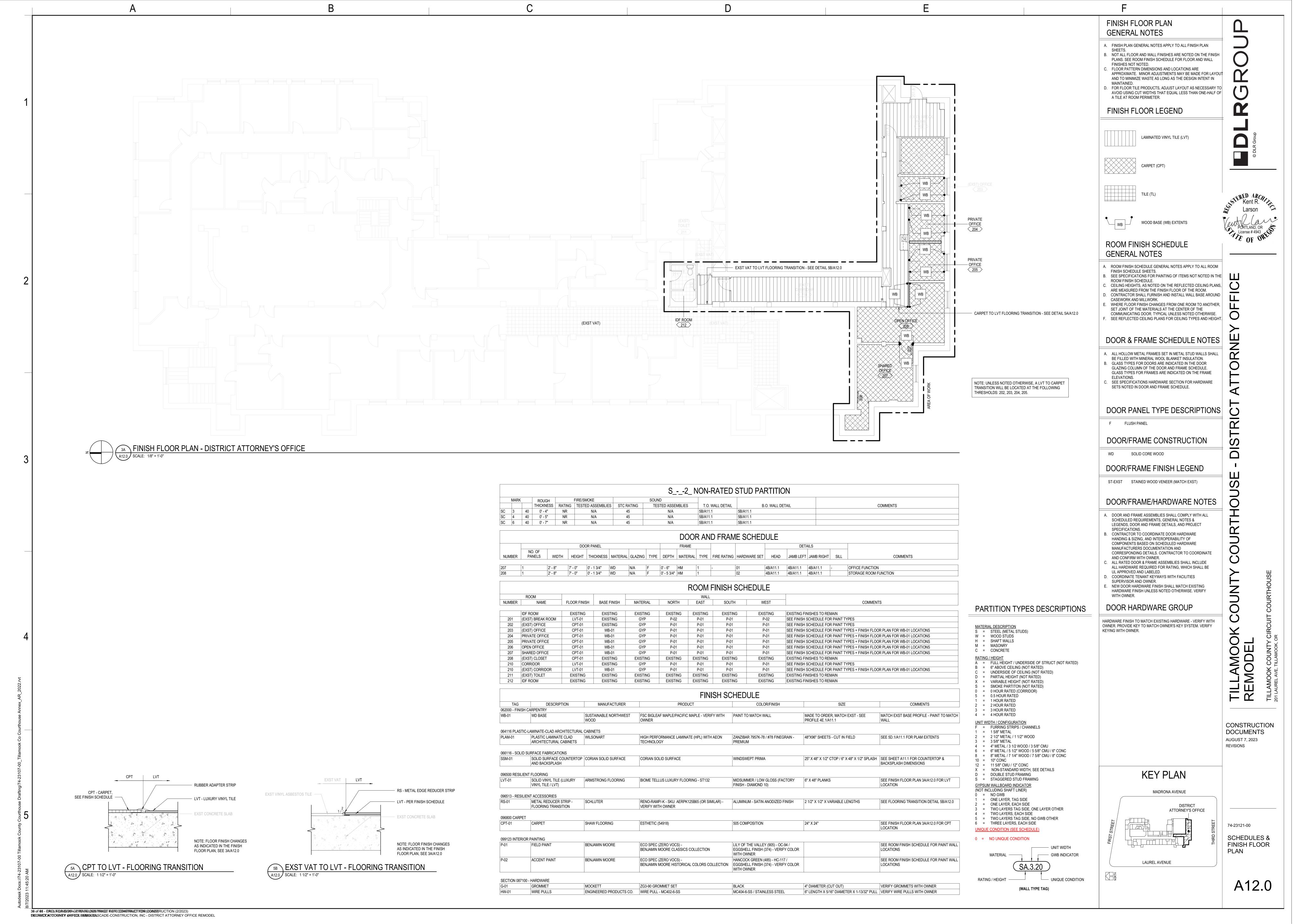
35 of 66 - PAREL/ADDRIBIDISAGE/REAVABLONOS/TVPAKGEF PROFECCOONSTIPRACCT FOR (2/2023) RUCTION (2/2023)

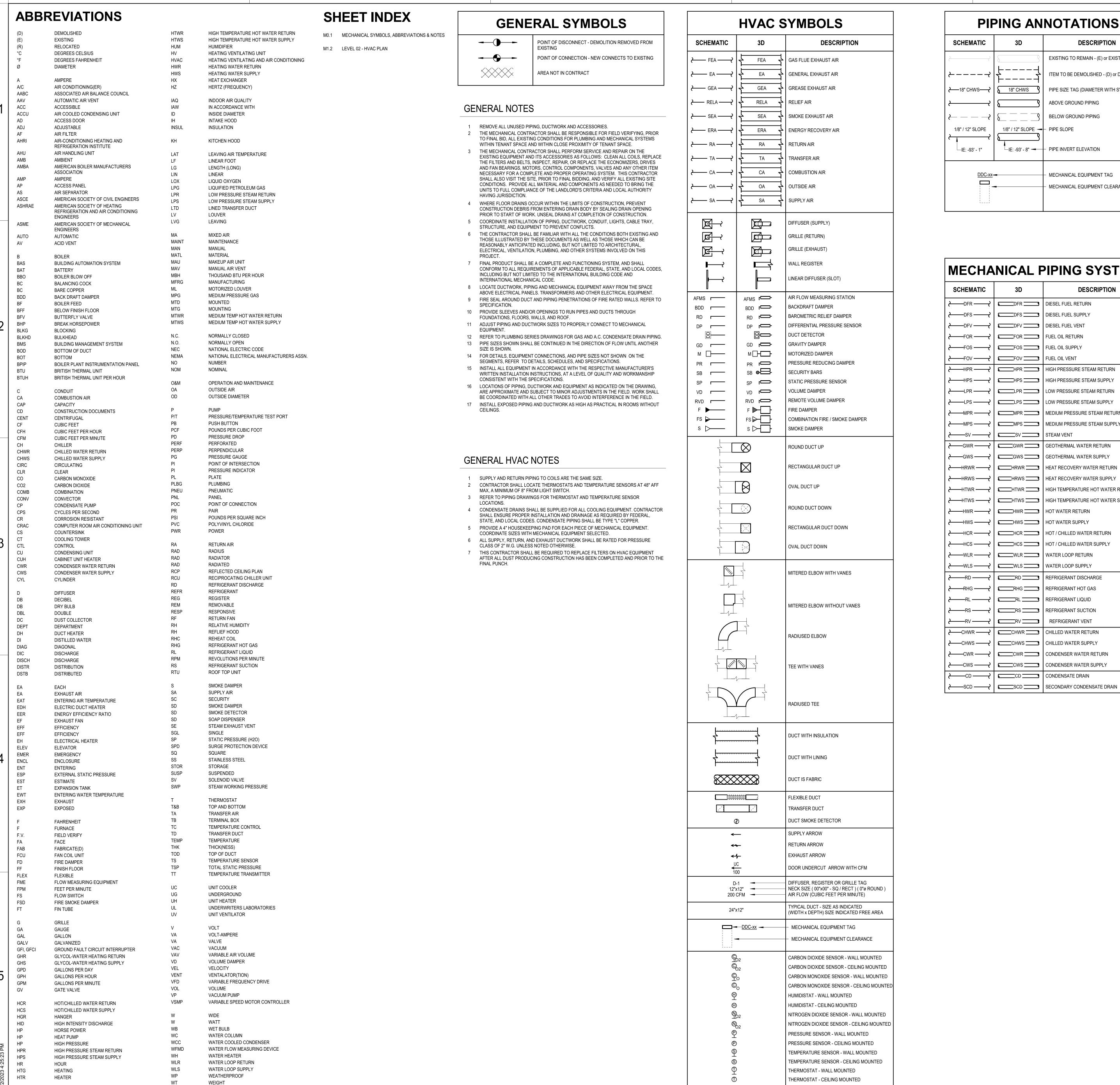
DISTANCOCKTOORNEY OFFICE REMDIADEASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL

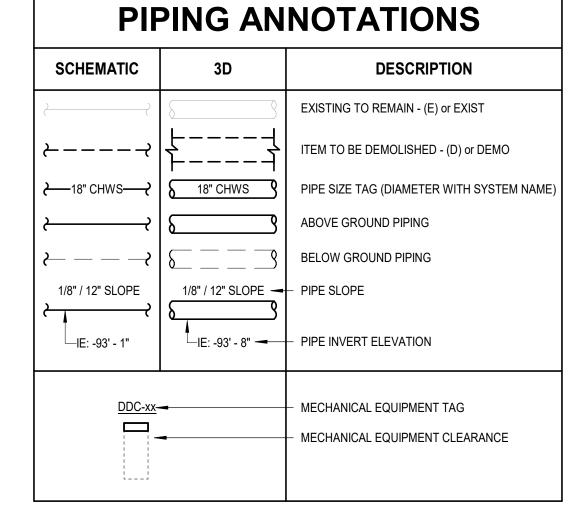




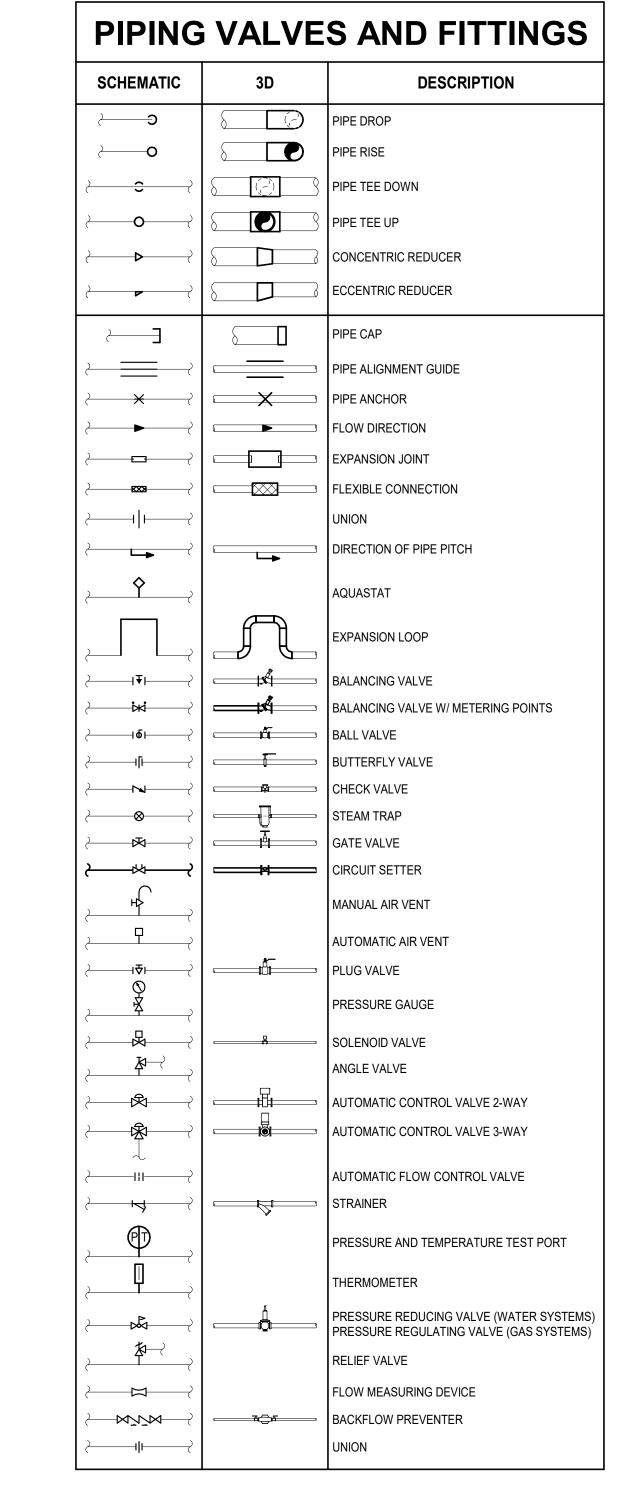








SCHEMATIC	3D	DESCRIPTION					
} ——DFR —— -	DFR	DIESEL FUEL RETURN					
├ ──DFS ── 	DFS	DIESEL FUEL SUPPLY					
├ ──DFV	DFV	DIESEL FUEL VENT					
FOR ——	FOR	FUEL OIL RETURN					
FOS —	FOS	FUEL OIL SUPPLY					
FOV ——	FOV	FUEL OIL VENT					
HPR ——	HPR	HIGH PRESSURE STEAM RETURN					
HPS ——	HPS	HIGH PRESSURE STEAM SUPPLY					
├ LPR ──	LPR	LOW PRESSURE STEAM RETURN					
├	LPS	LOW PRESSURE STEAM SUPPLY					
├ ──MPR ──	MPR	MEDIUM PRESSURE STEAM RETURN					
├ MPS — 	MPS	MEDIUM PRESSURE STEAM SUPPLY					
sv ——	SV	STEAM VENT					
GWR ——	GWR 3	GEOTHERMAL WATER RETURN					
GWS	GWS	GEOTHERMAL WATER SUPPLY					
HRWR ——	HRWR —	HEAT RECOVERY WATER RETURN					
HRWS ——	HRWS —	HEAT RECOVERY WATER SUPPLY					
HTWR ——	HTWR	HIGH TEMPERATURE HOT WATER RETURN					
HTWS —	HTWS	HIGH TEMPERATURE HOT WATER SUPPLY					
HWR ——	HWR	HOT WATER RETURN					
} —−HWS —— }	HWS	HOT WATER SUPPLY					
HCR ——	HCR	HOT / CHILLED WATER RETURN					
HCS ——	HCS	HOT / CHILLED WATER SUPPLY					
₩LR ——	WLR	WATER LOOP RETURN					
} —₩LS —— }		WATER LOOP SUPPLY					
₹ RD ——	RD	REFRIGERANT DISCHARGE					
RHG —	RHG RHG	REFRIGERANT HOT GAS					
RL ——	RL	REFRIGERANT LIQUID					
} —RS	RS	REFRIGERANT SUCTION					
? —	RV	REFRIGERANT VENT					
CHWR ——	CHWR	CHILLED WATER RETURN					
CHWS ——	CHWS	CHILLED WATER SUPPLY					
2 —CWR — →	CWR	CONDENSER WATER RETURN					
cws——	cws	CONDENSER WATER SUPPLY					
<u>CD —</u>	CD	CONDENSATE DRAIN					
SCD	scD	SECONDARY CONDENSATE DRAIN					



EXPIRES: 12/31/2024

CONSTRUCTION **DOCUMENTS** AUGUST 7, 2023 REVISIONS

74-23121-00 **MECHANICAL** SYMBOLS, ABBREVIATIONS &

* NOTE *

APPLICABLE TO ALL OTHER SHEETS IN

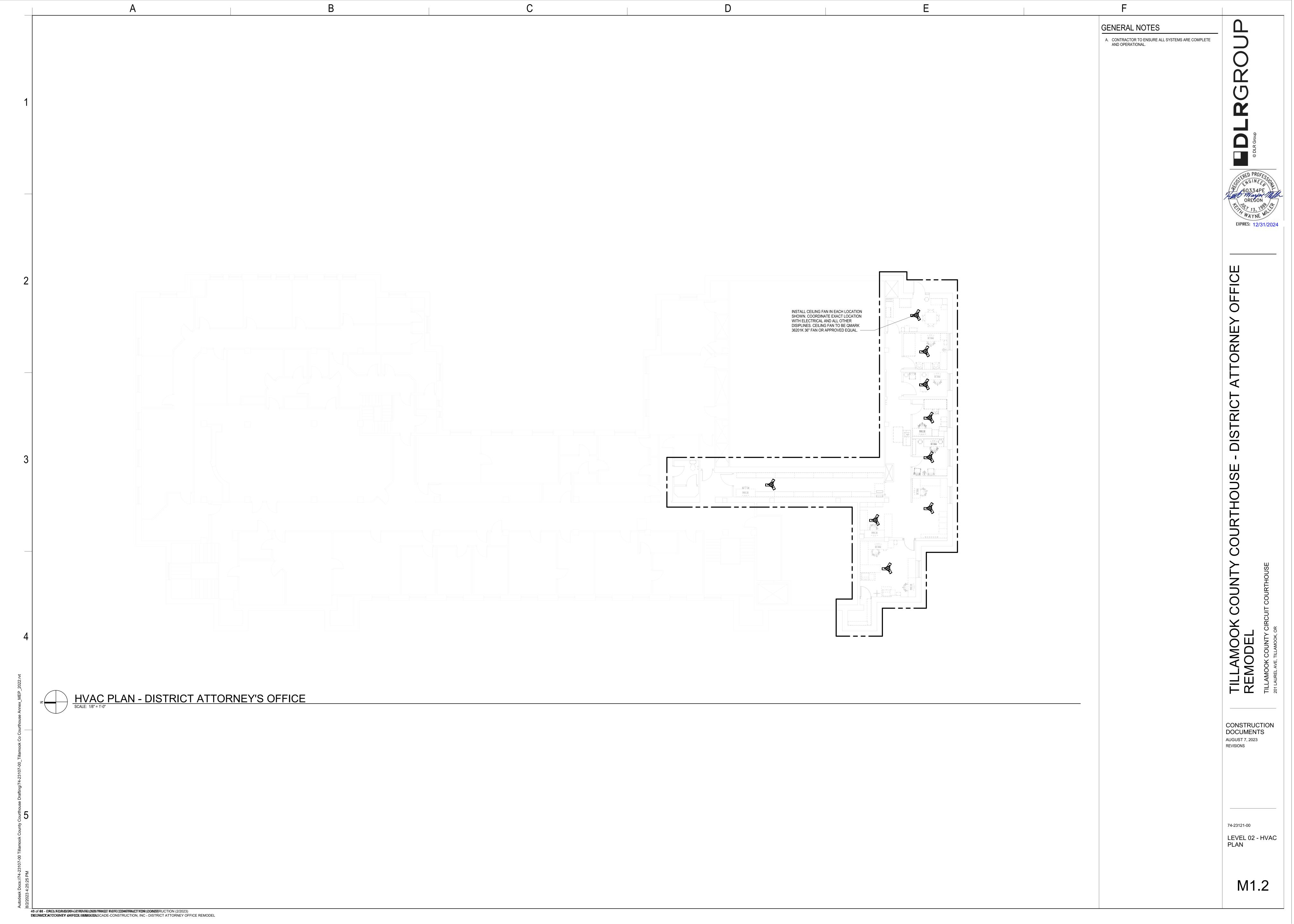
THE SYMBOLS AND ABBREVIATIONS

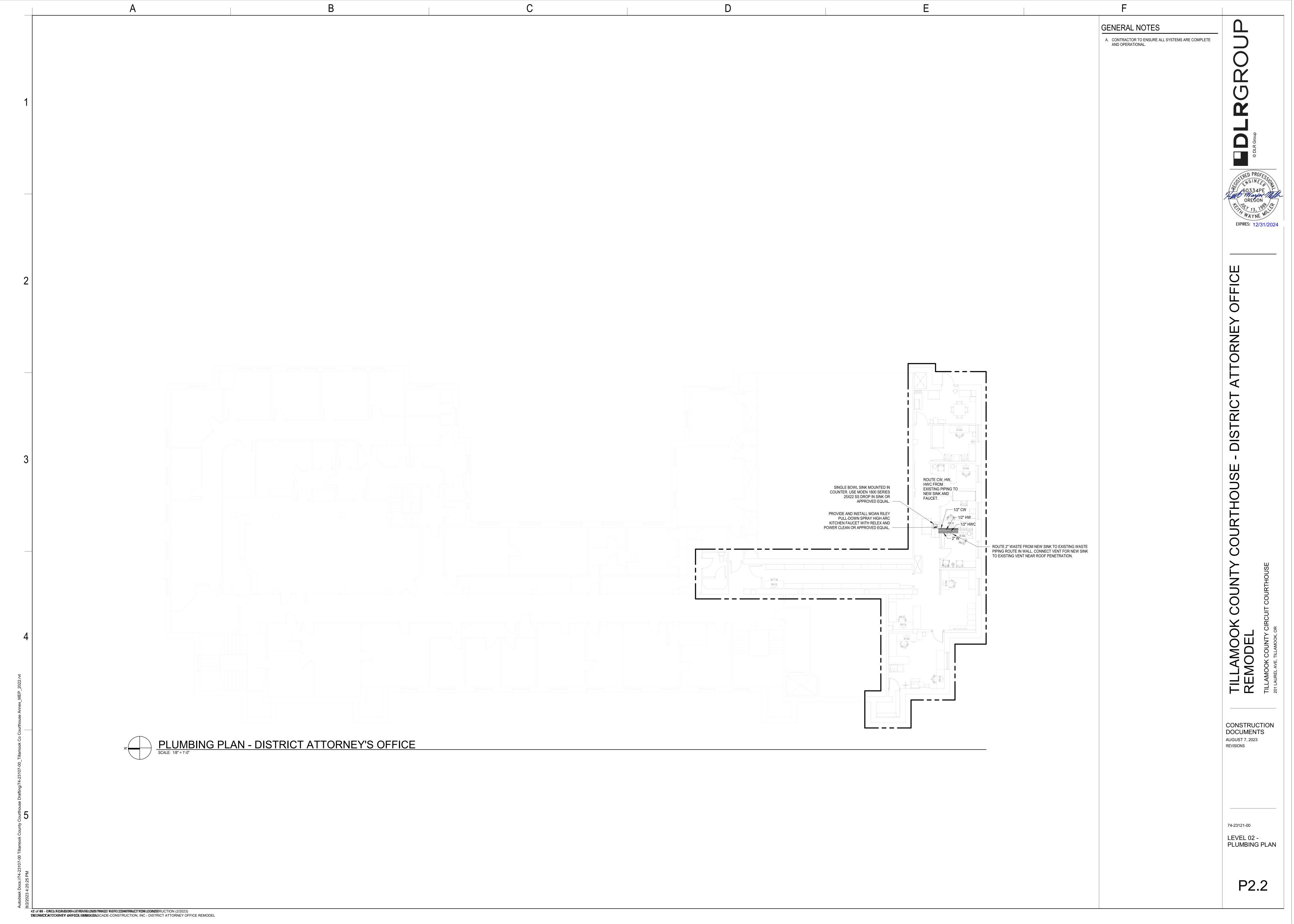
SHOWN ON THIS SHEET MAY OR MAY

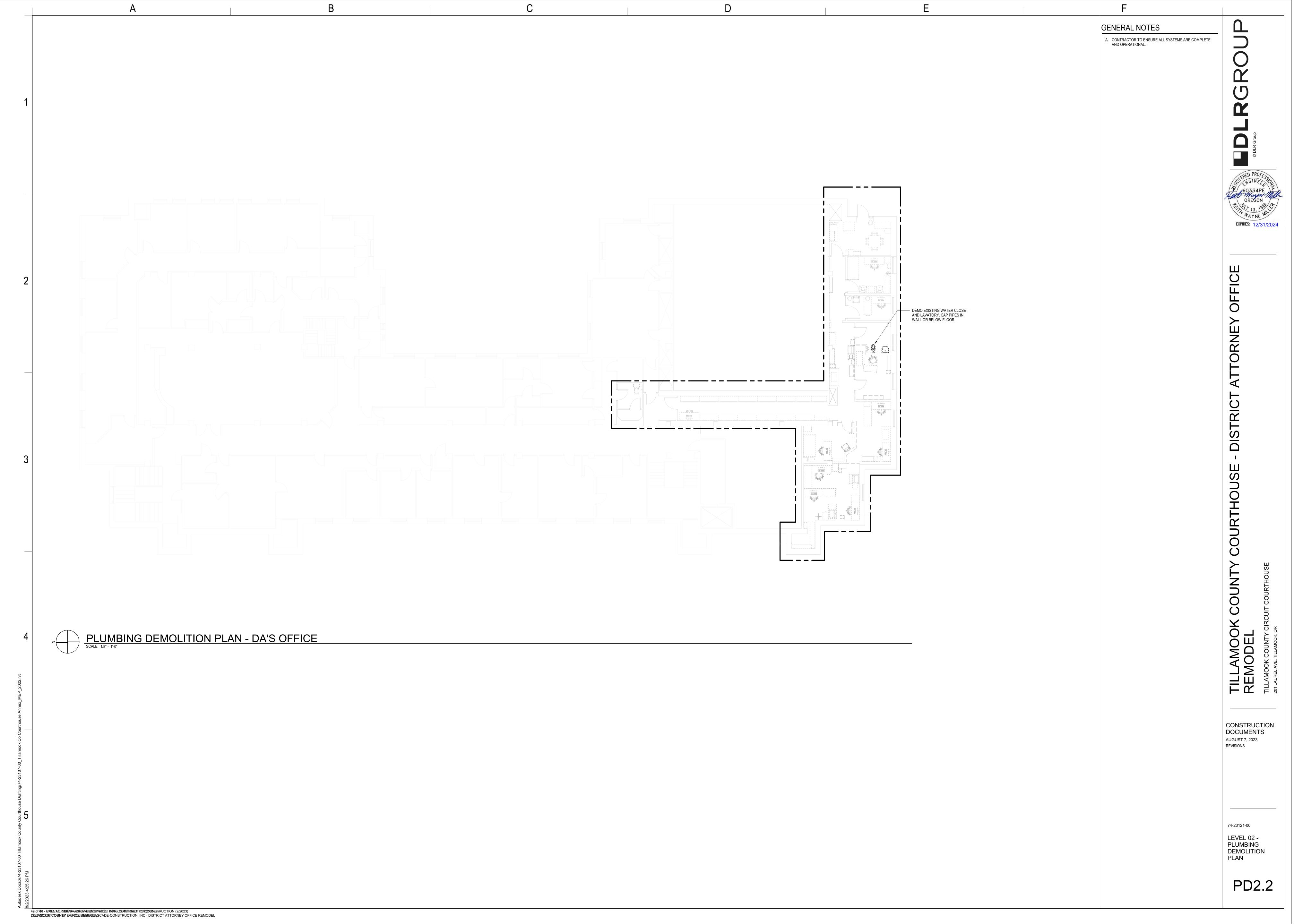
NOT BE APPLICABLE IN THIS SET OF

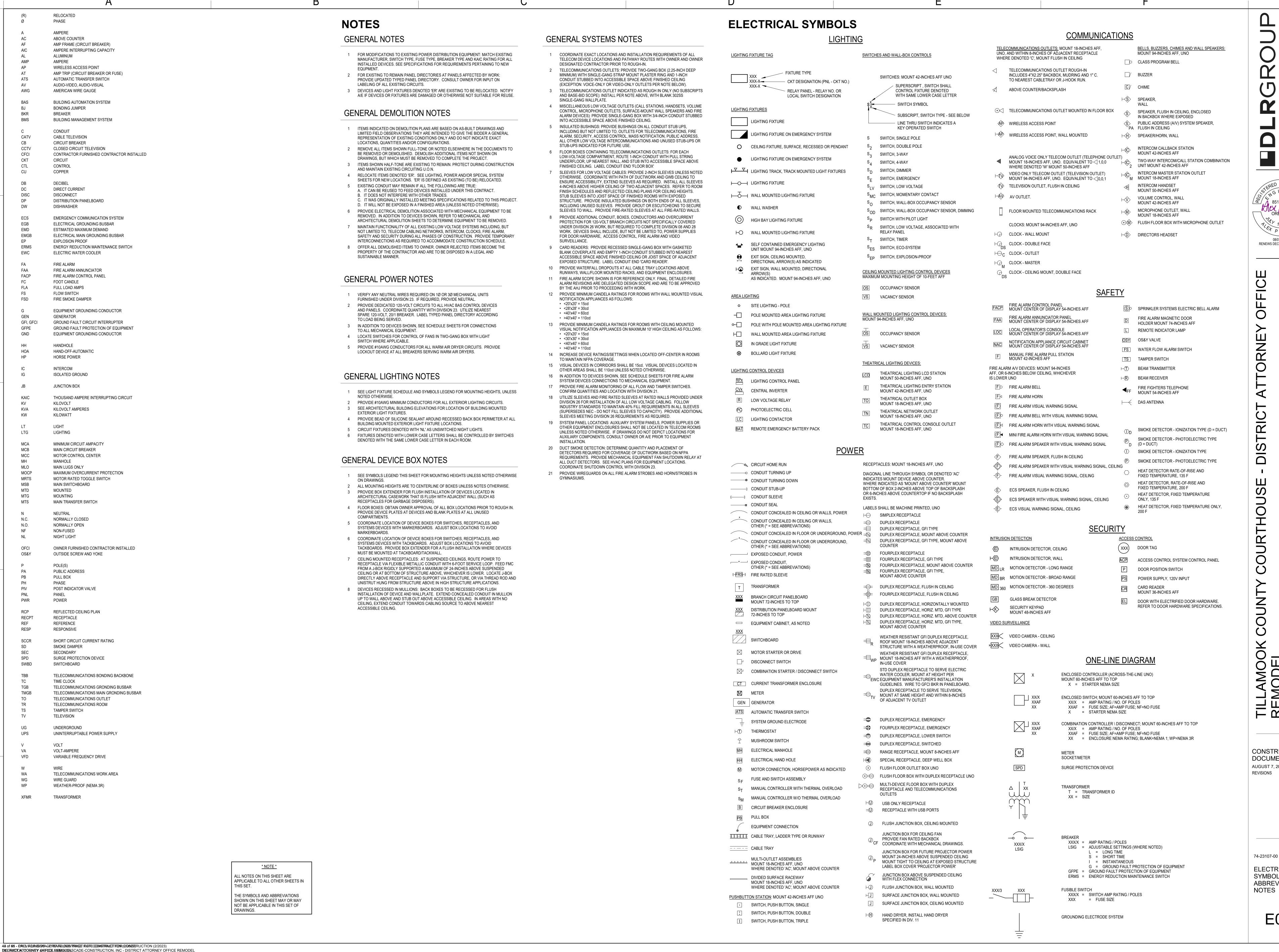
DRAWINGS.

ALL NOTES ON THIS SHEET ARE





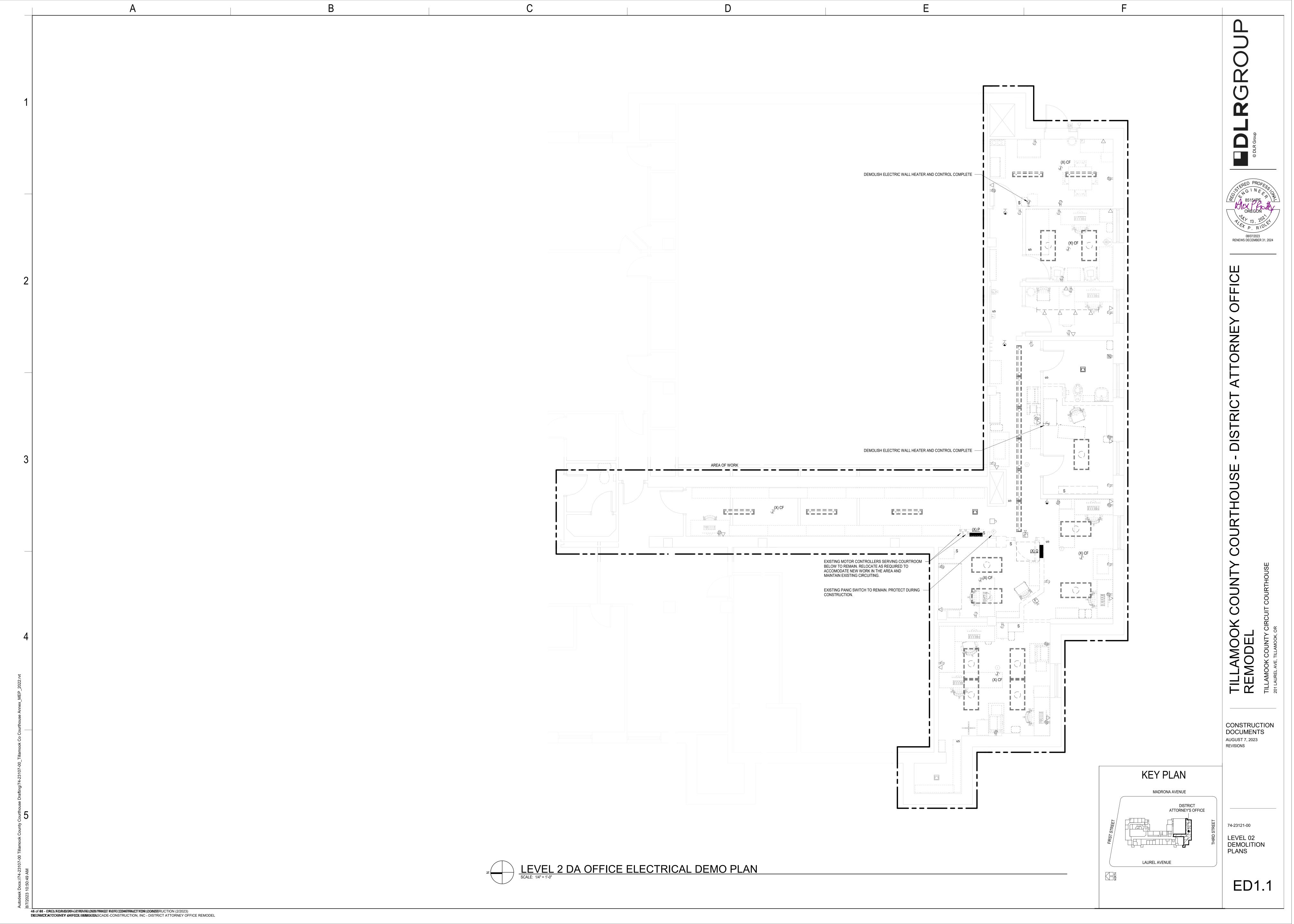


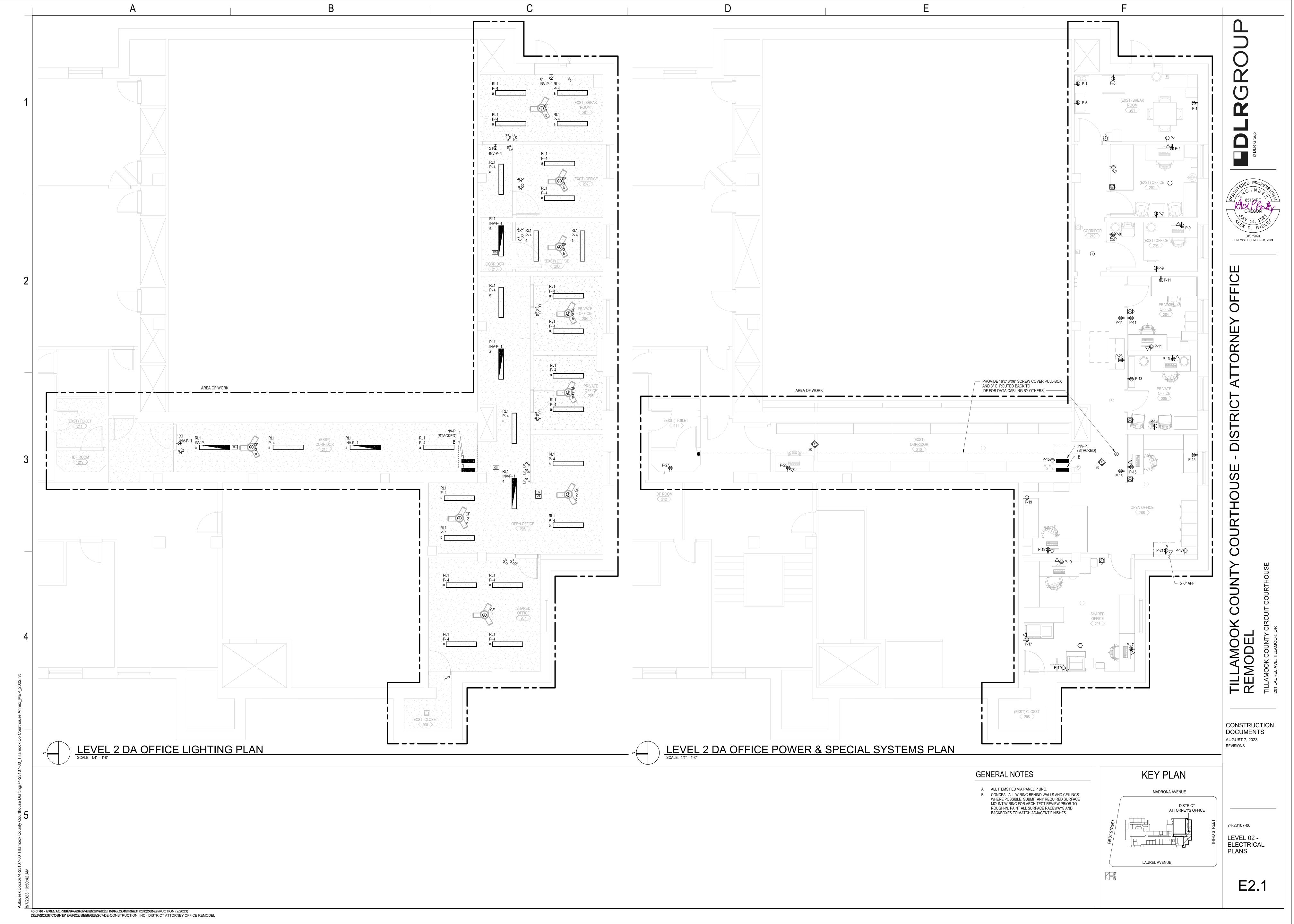


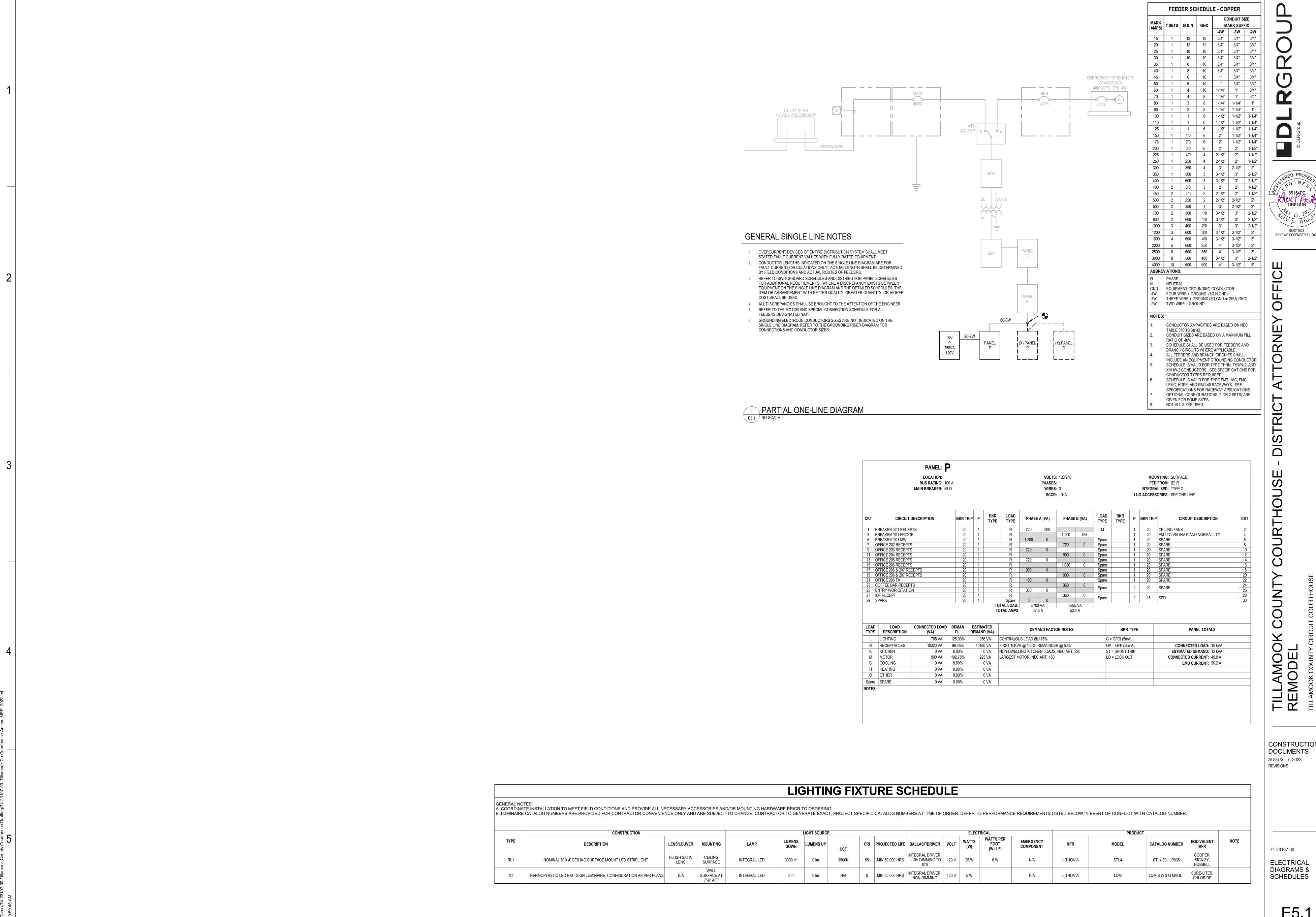
RENEWS DECEMBER 31, 2024

CONSTRUCTION DOCUMENTS AUGUST 7, 2023 REVISIONS

74-23107-00 **ELECTRICAL** SYMBOLS, **ABBREVIATIONS &**

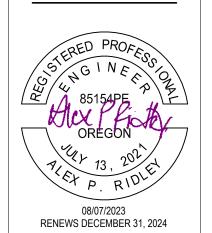






45 of 66 - PREMADENDING DOSAGERRATALIDADS WASCET IRATECCOONSTIRATCH FOR (2/2023)

DISTANCTORNEY OFFICE REMINICALEASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL



CONSTRUCTION

ADDENDUM NO. 1 TO THE PROJECT MANUAL AND DRAWINGS **FOR**

TILLAMOOK COUNTY COURTHOUSE TILLAMOOK COUNTY DISTRICT ATTORNEY OFFICE REMODEL: INITIAL ADVERTISEMENT DATE AUGUST 28, 2023 TILLAMOOK CO. COURTHOUSE - DISTRCIT ATTORNEY (DA) OFFICE REMODEL DLR Group Project No. 74-23121-00

Prepared by:

DLR GROUP 110 SW YAMHILL STREET, PORTLAND, OR 97204

The Drawings and Project Manual for the above-named Project, dated 08/07/2023, are modified, amended, and supplemented as set forth in this Addendum and shall be incorporated in preparing Bids. This Addendum shall become part of the Contract Documents.

Wherein this Addendum conflicts with the Specifications and Drawings, the requirements of this Addendum shall govern.

REVISIONS TO THE PROJECT MANUAL

The following Specification Sections are revised as indicated. The Sections are not re-issued with this Addendum:

- ITEM 1. GENERAL CONDITIONS: Add item #15 as follows:
 - A. Contractor shall execute and submit CRIMINAL HISTORY BACKGROUND CHECK FORM forms for each person working on site at the project site. Prior to beginning work on site, submit forms as shown on Attachment No. 2 to this Addendum. The Owner reserves the right to exclude any proposed personnel from the work area of the project based on review of this submitted information.
- SECTION 00010 CALL FOR BIDS: ITEM 2.
 - A. In the 5th paragraph, delete "10:00 am" and substitute "2:00 pm." Delete "10:05 am" and substitute "2:05 PM" Note: Bid date remains as September 25th, 2023. Bids are due at 2:00 pm. Bids will be opened and read aloud at 2:05 pm.
- ITEM 3. SECTION 00020 - INVITATION TO BID
 - A. Paragraph 1.2.1: Delete 10:00 am and substitute 2:00 pm. Delete 10:05 am and substitute 2:05 pm.
 - B. Paragraph 1.6.2: Delete 12:00 pm and substitute 4:00 pm.
- ITEM 4. SECTION 00030 – BID DOCUMENTS PART 1 (BID FORM)
 - A. Bid Closing: Delete 10:00 am and substitute 2:00 pm.
 - B. Bid Opening: Delete 10:05 am and substitute 2:05 pm.
- ITEM 5. SECTION 00040 – BID DOCUEMENTS PART II (FIRST TIER SUB-CONTRACTOR DISCLOSURE FORM)
 - A. Bid Closing: Delete 10:00 am and substitute 2:00 PM
 - B. Disclosure Form Submission Deadline: Delete 12:00 pm and substitute 4:00 pm.

PRE-BID CONFERENCE MEETING NOTES

ITEM 6. See attached Planholder's List as of 09/19/2023.

REVISIONS TO DRAWINGS

The following Drawings are revised and reissued with this Addendum:

- G0.0 COVER SHEET & INDEX OF DRAWINGS: ITEM 7.
 - A. Delete sheet G0.0 in its entirety and substitute sheet G0.0 as indicated in Attachment 1 to this Addendum.
- G0.1 GENERAL NOTES, SYMBOLS AND ABBREVIATIONS: ITEM 8.
 - A. Delete sheet G0.1 in its entirety and substitute sheet G0.1 as indicated in Attachment 1 to this Addendum.
- ITEM 9. A1.2DA – LEVEL 2 FLOOR PLAN – DISTRICT ATTORNEY'S OFFICE:
 - A. Delete sheet A1.2DA in its entirety and substitute sheet A1.2DA as indicated in Attachment 1 to this Addendum.
- ITEM 10. A3.2DA - LEVEL 2 REFLECTED CEILING PLAN - DISTRICT ATTORNEY'S OFFICE:
 - A. Delete sheet A3.2DA in its entirety and substitute sheet A3.2DA as indicated in Attachment 1 to this Addendum.
- ITEM 11. A11.1 – INTERIOR DETAILS:
 - A. Delete sheet A11.1 in its entirety and substitute sheet A11.1 as indicated in Attachment 1 to this Addendum.
- A12.0 SCHEDULES & FINISH FLOOR PLAN: ITEM 12.
 - A. Delete sheet A12.0 in its entirety and substitute sheet A12.0 as indicated in Attachment 1 to this Addendum.
- ITEM 13. M1.2 - LEVEL 02 - HVAC PLAN
 - A. Delete sheet M1.2 in its entirety and substitute sheet M1.2 as indicated in Attachment 1 to this Addendum.
- ITEM 14. P2.2 - LEVEL 02 - PLUMBING PLAN
 - A. Delete sheet P2.2 in its entirety and substitute sheet P2.2 as indicated in Attachment 1 to this Addendum.

The following Drawings are revised with this Addendum:

- E5.1 ELECTRICAL DIAGRAMS & SCHEDULES
 - A. For fixture type X1, add allowable product: subject to project requirements EMS series by LSI Industries.

QUESTIONS FROM BIDDERS

- Does all of the tile wainscot get removed and patched back with plaster at the existing ITEM 16. restroom? What is the wainscot height?
 - A. See 3A/A1.2DA "DEMO PLAN DISTRICT ATTORNEY'S OFFICE" of Attachment 1 to Addendum No. 1.
- ITEM 17. Which rooms have paneling that gets removed and walls patched?
 - A. See 3A/A1.2DA of Attachment 1 to Addendum No. 1. Please also refer to the GENERAL ARCHITECTURAL NOTES of Attachment 1 to Addendum No. 1
- ITEM 18. Does the existing and new wood base get painted to match wall color?
 - A. See ROOM FINISH SCHEDULE GENERAL NOTES of Attachment 1 to Addendum No. 1
- ITEM 19. Which walls get accent paint?
 - A. See ROOM FINISH SCHEDULE of Attachment 1 to Addendum No.1

END OF ADDENDUM NO. 01

CRIMINAL HISTORY BACKGROUND CHECK FORM

Please type or print clearly.

As Appears on Drivers License (Last Name) (First Name) (Middle Name) Date of Birth: _____ Sex:____ List other Names Previously Used:______ (Includes Maiden Name) Social Security No:_____ Driver License/Identification Card No.:_____ Providing your social security number on this form is voluntary. If you choose not to disclose this social security number, this will not be basis for denial of employment or any rights, services or benefits to which you are otherwise entitled. If you do provide the number the law enforcement agency utilized for the background check will use it as an additional identifier to search for any criminal record you may have. Your social security number will be used as stated above. State and federal laws protect the privacy of your records. Mailing Address:_ Full Street Address/Post Office Box City: _____ State: ____ Zip + 4:_____ Have you **EVER** been convicted of a sex-related crime? [] Yes [] No If yes, was the conviction in Oregon or another state? (Please specify if another state.) State: If yes, did the crime involve force of minors? [] Yes [] No Have you EVER been convicted of a crime involving violence or threat В. [] Yes [] No of violence? If yes, was the conviction in Oregon or another state? (Please specify if another state.) State: _____ Have you **EVER** been convicted of a crime involving criminal C. activities in drugs or alcoholic beverages? [] Yes [] No If yes, was the conviction in Oregon or another state? (Please specify if another state.) State: _____

Tillamook County District Attorney Office Remodel - Attachement 2 to Addendum No. 1 dated 9-19-2023

CRIMINAL HISTORY BACKGROUND CHECK FORM (CONTINUED)

D.	Have	you	EVER	been	convicted	of	any	crime	except	а	minor	tra	ffic
	viola	ation	1? (]	includ	es Traffic	Cr	imes)			[] Yes] [] No

Ε.	Have	you	beer	ı ar	rest	ced	withir	ı th	ie I	last	thre	ee	years	for	а	crime	e f	ior
	which	ı the	ere l	nas	not	yet	been	an	ac	quitt	tal	or	dismi	ssal	.?			
														г	7 7	7 ~ ~ F	7	NT.

[] Yes [] No

<u>Advisory:</u> A check of the applicant's criminal history will be made by the County to verify the responses to the preceding questions.

I hereby grant to Tillamook County permission to check civil or criminal records to verify any statement made on this form. Regardless of whether the applicant grants consent, Tillamook County will conduct a criminal offender record of contractors and contractor employees working with or around children. The application is entitled to review their criminal history for inaccurate or incomplete information. Discrimination by an employer on the basis of arrest records alone may violate federal civil rights law. The applicant may obtain further information concerning the applicant's rights by contacting the Bureau of Labor and Industries, Civil Rights Division, State Office Building, Suite 1070, Portland, Oregon 97232, telephone (503) 731-4075.

Ι	acknowledge	reading	the	receipt	of	this	notice.	
---	-------------	---------	-----	---------	----	------	---------	--

Applicants S	Signature:	 Date:
	_	

END OF CONTRACT FORMS

TILLAMOOK COUNTY

CFB

DA Remodel

Put HH 8/29 & 9/5/2023 8/28 & 9/6/2023 Put DJC Bid Initial Advertisement: 8/29 & 9/5/2023 Bid Initial Advertisement: 8/28 & 9/6/2023

Bid Close: Monday, September 25, 2023

2:00p.m. Bid Close Time: Bid Open Time: File Location: 2:05p.m.

CONTRACTOR & CONTACT	MAILING ADDRESS	TELEPHONE	CELL	FAX	EMAIL	DATE PLAN METHOD SENT SENT	PRE BID MEETING	DATE ADD01 SENT	DATE ADD02 SENT	DATE BID RECEIVED	TIME BID RECEIVED	CCB STATUS	BOLI STATUS	OUTCOME
Fernando Horner Long Painting Company	1120 NE 146th Street Vancouver WA 98685	206-779-0935	206-779-0935	none provided	Fernandoh@longpainting.com	8/28/2023 email								
Doug Miller Spacesaver Specialists	9730 SW Herman Road Tualatin, OR 97062	503-481-9097	503-612-2614	800-456-2066	Doug_Miller@Storageplanning.com	8/28/2023 email								
M. Gage Construction Services Group	5706 112th Avenue Vancouver, WA 98662	none provided	503-989-5193	none provided	gage.csg@gmail.com	8/29/2023 email								
Sharlene Richards Daily Journal of	11 NE Martin Luther King Jr Blvd, suite 201 Portland, OR 97232	503-274-0624	503-802-7252	none provided	srichards@djcoregon.com; plancenter@djcoregon.com.	8/29/2023 email								
Brie Kidwell	PO Box 2486 Clackamas, OR 97015	503-650-0148	none provided	none provided	brie@contractorplancenter.com	8/29/2023 email								
Lori Cooley	2256 Judson Street SE Salem, OR 97302	503-362-7957 x 302	none provided	none provided	lori@sceonline.org	8/29/2023 email								also sent plan holder list
	83 Columbia Street Suite 200 Seattle, WA 98104	506-622-8272	none provided	206-622-8416	alex.lavorato@djc.com	8/29/2023 email								
Diane J. Chartier	3076 NE Diamond Lake Blvd Roseburg, OR 97470	541-440-9030	none provided	206-622-8416	plans@dcplancenter.com	8/29/2023 email								
Madeline Tugg INLINE Commercial Construction	18880 SW Shaw Stree Aloha, OR 97078	503-939-3430	503-713-0184	none provided	MadelineT@inline-cc.com	8/29/2023 email								
Trina Nirutz	2460 W 11th Avenue Eugene, OR 97402	541-484-5331	none provided	none provided	projects@ebe.org	8/29/2023 email								
	25027 Hwy 224 Boring, OR 97009	503-407-1447	503-970-1676	none provided	c.dehoog@cciteams.com	8/30/2023 email								
Kurt Moyer Pacific Tech Construction Inc.	1302 Walnut Street Kelso, WA 98626	360-414-8084	360-560-0214	none provided	kmoyer@pactechgroup.com; estimating@pactechgroup.com	8/30/2023 email								
JJ Macedo DSL Builders LLC	195 Pine Street, Salem 97301	503-363-0202	none provided	none provided	jjm@dsl-builders.com	8/31/2023 email								
Desiree Ann Sibala Construct Connect	none provided - various online locations throughout the country	323-602-5079 ex75331	none provided	866-570-8187	desirree.sabala@constructconnect.com	9/1/2023 email								
Svea Erickson Contractor Plan Center	PO Box 2486 Clackamas, OR 97015	503-650-0148	none provided	866-570-8187	Svea@contractorplancenter.com	9/5/2023 email								
Toni Holliday Construction Services Group	5706 NE 112th Ave Vancouver, WA 986602	360-984-6174	360-8396-6353	none provided	tonih.csg@gmail.com	9/6/2023 email								
Randy Bauer	10115 SE Schacht Boring OR 97089	503-665-7767	503-750-7348	503-661-8601	columbiacascade@yahoo.com	9/11/2023 email	х							
Catrina Gabaldon First Cascade Corporaton	18551 SW 65th Ave, Suite A Lake Oswego, OR 97035	503-699-8970	503-431-0127	none provided	office@firstcascade.com	9/11/2023 email								
Therin Bliss Construct Connect	3825 Edwards Road, suite 800 Cincinnati, OH 45209	877-403-7790	513-458-8509	none provided	Therin.Bliss@constructconnect.com	9/13/2023 planholder list only via email								
Adam Stockton Inland Electric	subcontractor - not planholder					oman	х							
Danielle McDowell Premier Builder's Exchange	PO Box 6731, Bend OR 97708	541-389-0123	none provided	none provided	dc@plansonfile.com	9/13/2023 email								
Marck Korlesky	63017 Sherman Road Bend, OR 97703	541-383-2061	none provided	none provided	marckapci@msn.com	9/14/2023 email								

TILLAMOOK COUNTY CIRCUIT COURTHOUSE CONSTRUCTION DOCUMENTS

AUGUST 7, 2023



APPLICABLE CODES

- OREGON STRUCTURAL SPECIALTY CODE 2022
- **OREGON MECHANICAL SPECIALTY CODE 2019** OREGON ELECTRICAL SAFETY CODE 2021
- OREGON ENERGY EFFICIENCY SPECIALTY CODE 2021

INDEX OF DRAWINGS

- **SPECIFICATIONS**
 - **SPECIFICATIONS**

MECHANICAL

- LEVEL 2 FLOOR PLAN DISTRICT ATTORNEY'S OFFICE EVEL 2 REFLECTED CEILING PLAN - DISTRICT ATTORNEY'S OFFICE
 - SCHEDULES & FINISH FLOOR PLAN
 - ECHANICAL SYMBOLS, ABBREVIATIONS & NOTES
 - **LEVEL 02 HVAC PLAN LEVEL 02 - PLUMBING PLAN**
 - **LEVEL 02 PLUMBING DEMOLITION PLAN**
 - **ELECTRICAL**
 - **LEVEL 02 ELECTRICAL PLANS**
 - **ELECTRICAL DIAGRAMS & SCHEDULES LEVEL 02 - DEMOLITION PLANS**

TILLAMOOK CO. COURTHOUSE - DISTRICT ATTORNEY (DA) OFFICE REMODEL **201 LAUREL AVENUE 97141** TILLAMOOK, OREGON

OWNER'S REPRESENTATIVE

TILLAMOOK COUNTY COURTHOUSE 201 LAUREL AVENUE TILLAMOOK, OR 97141 (503) 842-3404

RACHEL HAGERTY RHAGERTY@CO.TILLAMOOK.OR.US

FACILITIES SUPERVISOR

TILLAMOOK COUNTY COURTHOUSE 201 LAUREL AVENUE TILLAMOOK, OR 97141 (503) 842-3404

KEVIN JOLLY KJOLLY@CO.TILLAMOOK.OR.US

ARCHITECTURE

DLR GROUP 110 SW YAMHILL STREET PORTLAND, OR 97204 (503)-200-3303

KENT LARSON, AIA, LEED AP KLARSON@DLRGROUP.COM

MECHANICAL

DLR GROUP 110 SW YAMHILL STREET PORTLAND, OR 97204 (503) 575-3441

KEITH MILLER. PE KMILLER@DLRGROUP.COM

ELECTRICAL

DLR GROUP 110 SW YAMHILL STREET PORTLAND, OR 97204 (503) 575-3450

ALEX RIDLEY, PE ARIDLEY@DLRGROUP.COM

EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS,

PAINT. MATCH FIELD PAINT INDICATED IN FINISH SCHEDULE -

ROOM FINISH SCHEDULE **GENERAL NOTES**

COMMUNICATING DOOR. TYPICAL UNLESS NOTED OTHERWISE.

DEMOLITION GENERAL NOTES

DEMOLITION GENERAL NOTES APPLY TO ALL DEMOLITION COORDINATE DEMOLITION AND PHASING EFFORTS WITH

CONSTRUCTION WORK DESCRIBED ON THE DRAWINGS.

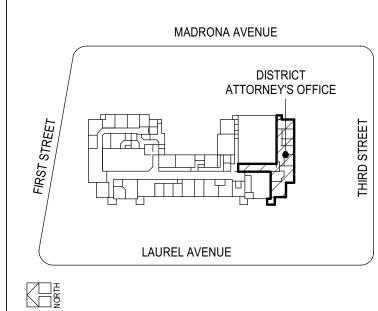
EQUIPMENT FROM DAMAGE DUE TO DEMOLITION OR REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF

DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT

EXISTING ADJACENT SURFACES FURTHER SEQUENCING AND SCOPE OF WORK.

. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12

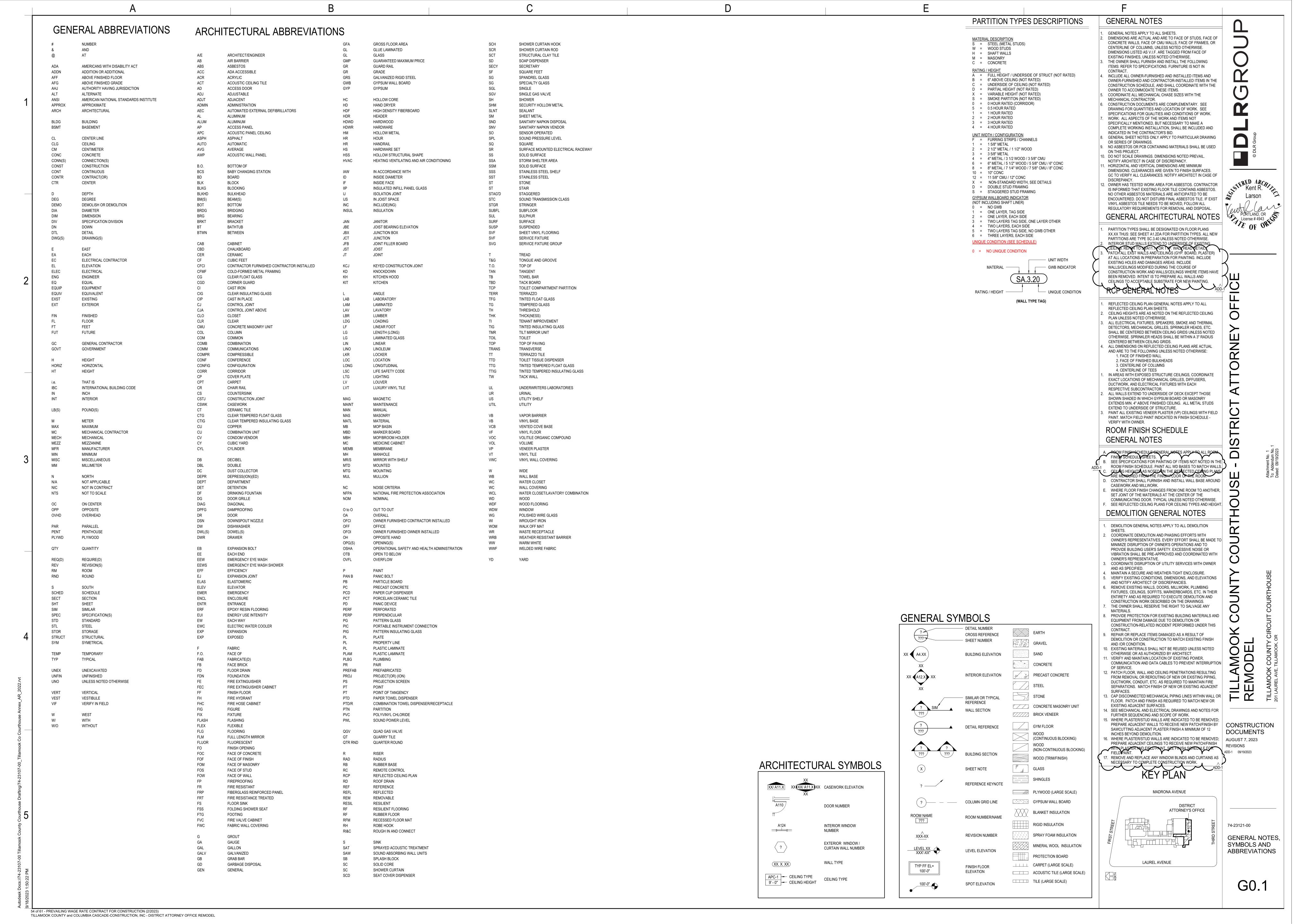
KEYPLAN

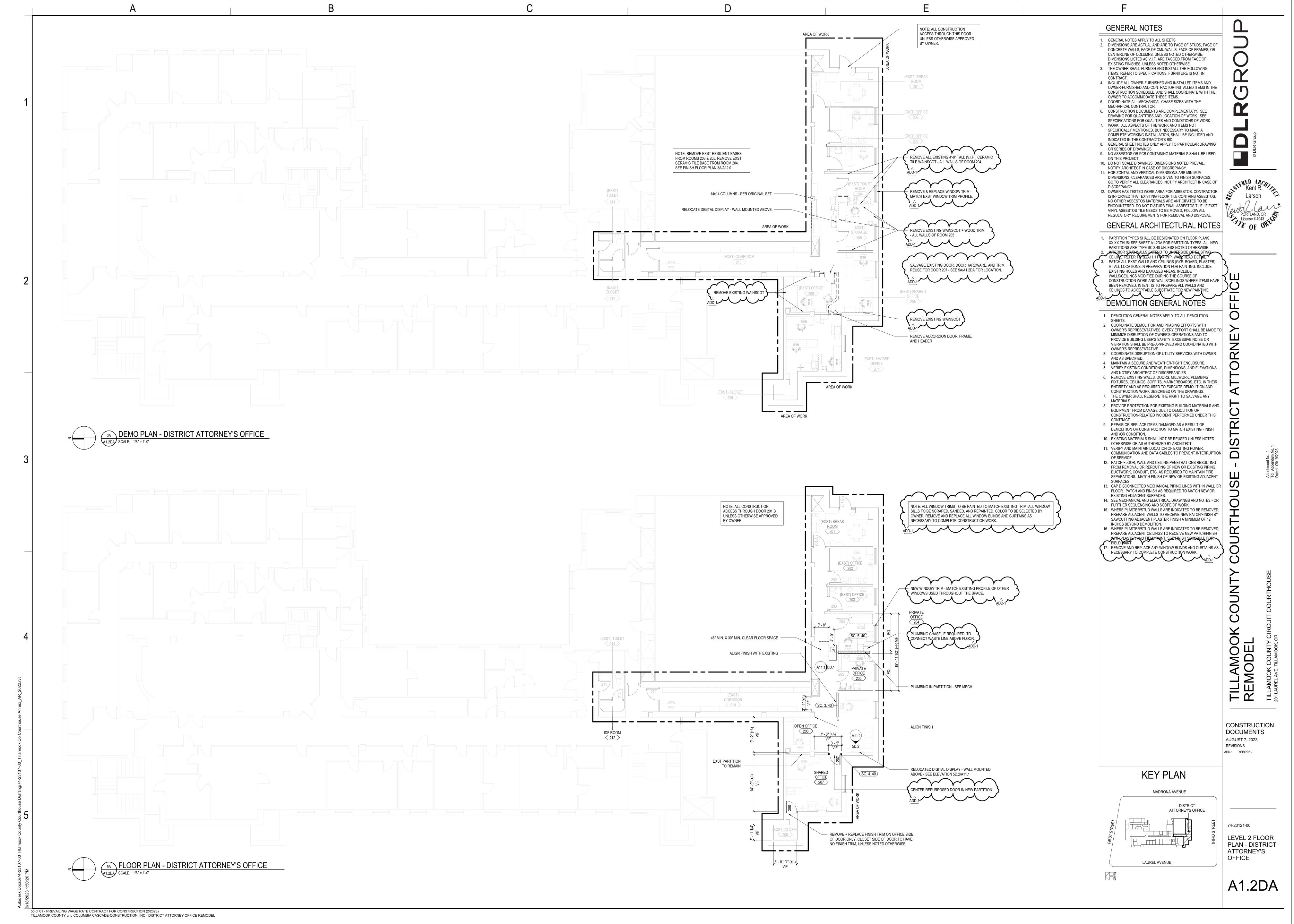


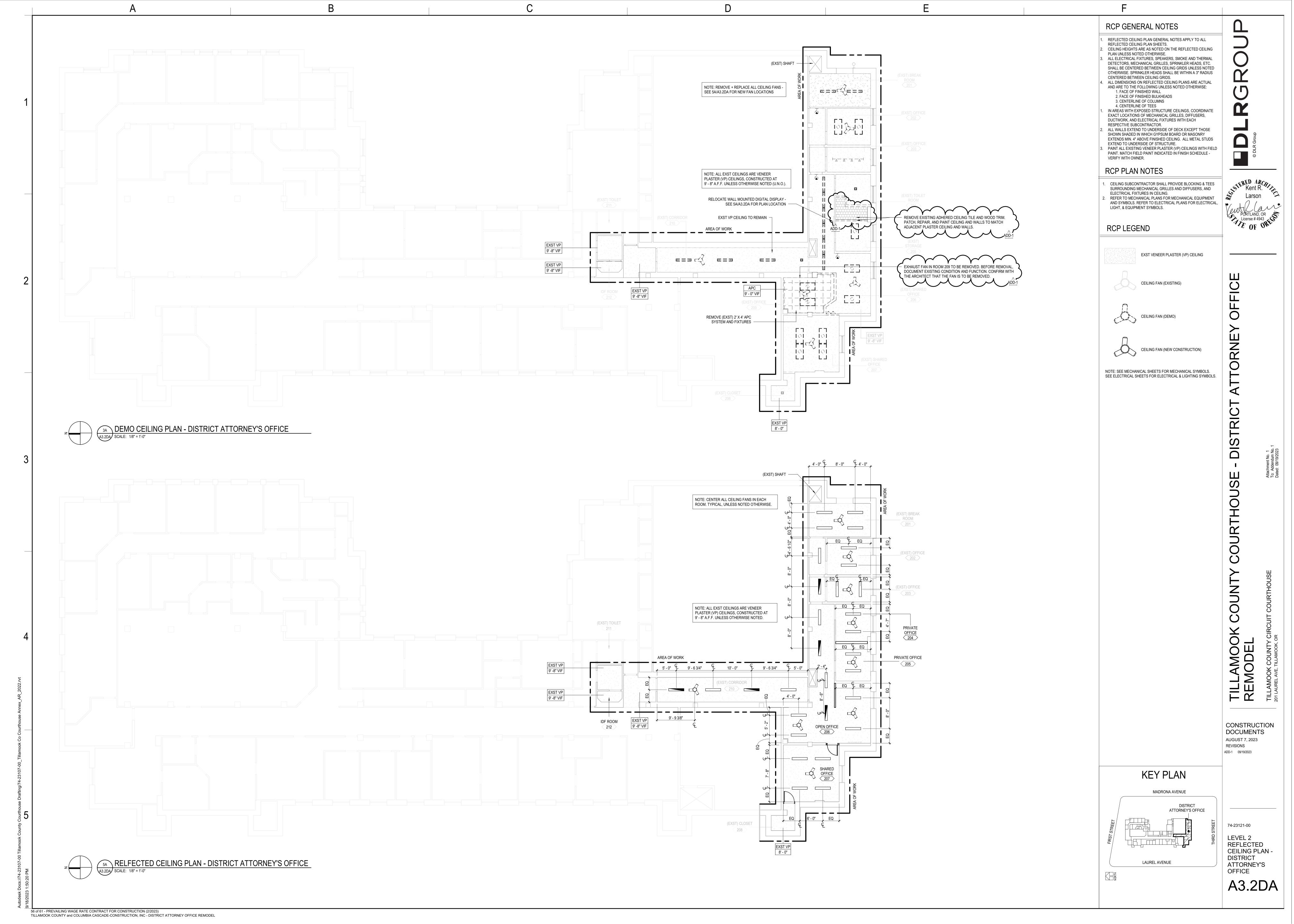
74-23121-00 **COVER SHEET & DRAWINGS**

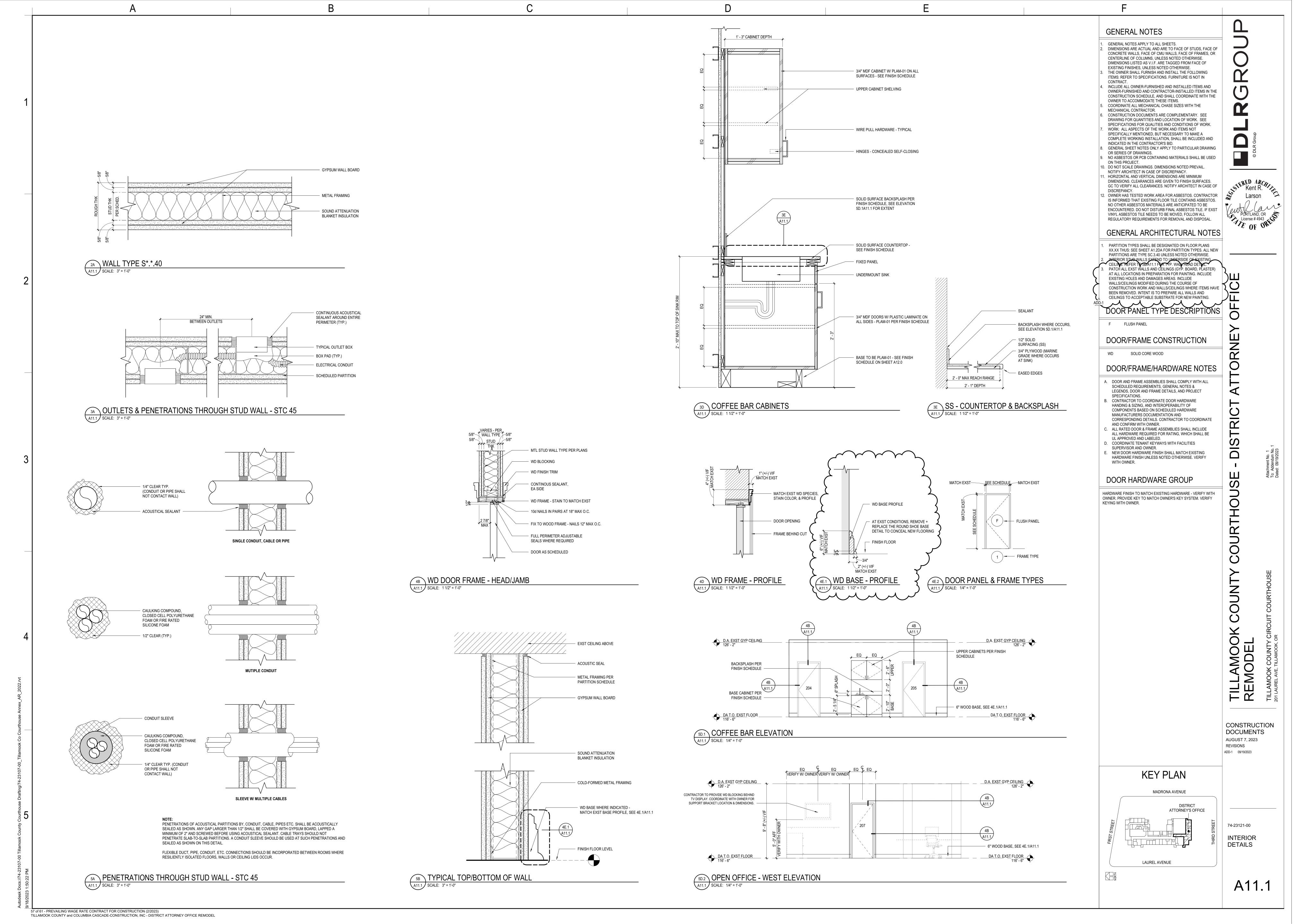
G0.0

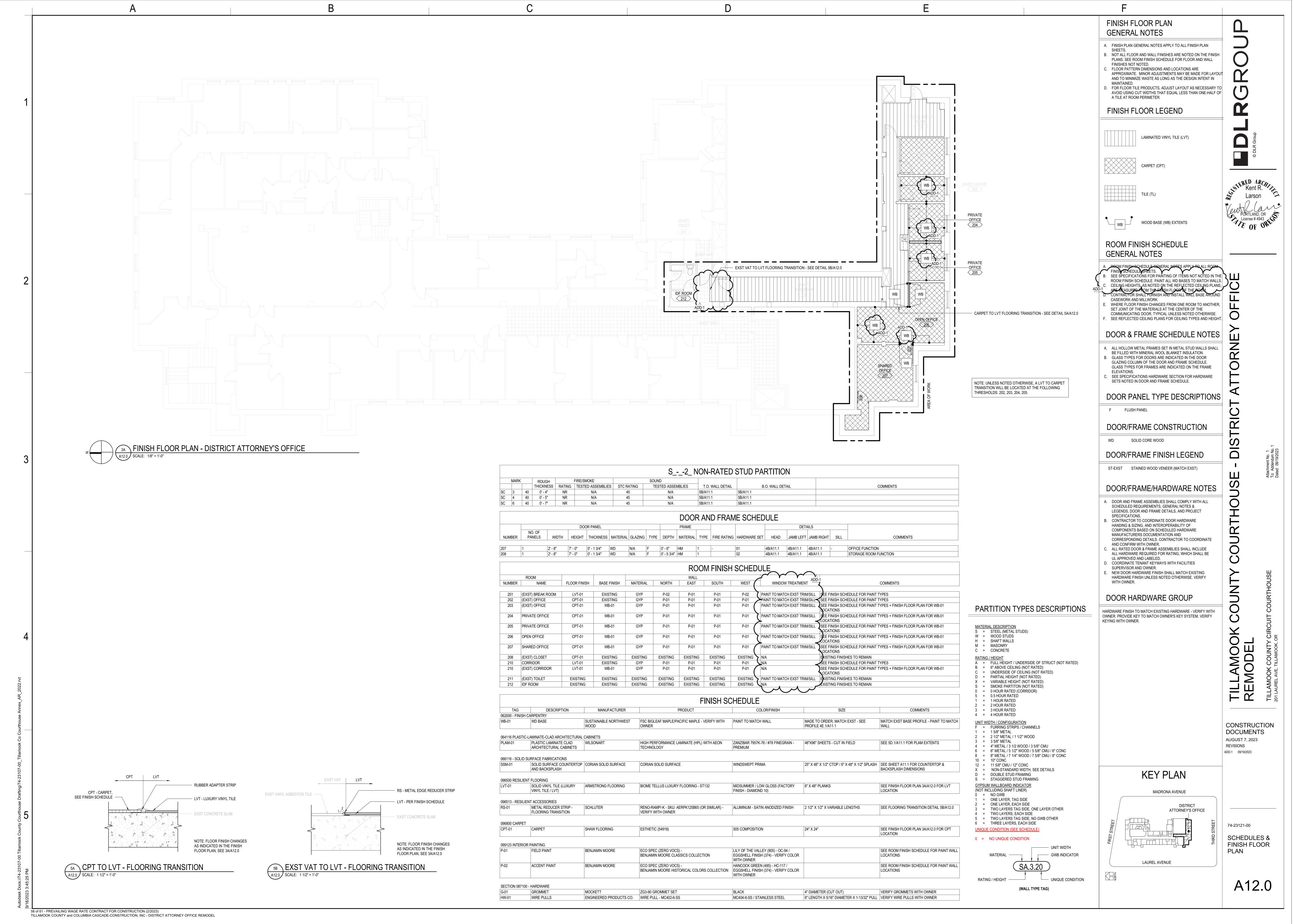
3 of 61 - PREVAILING WAGE RATE CONTRACT FOR CONSTRUCTION (2/2023)

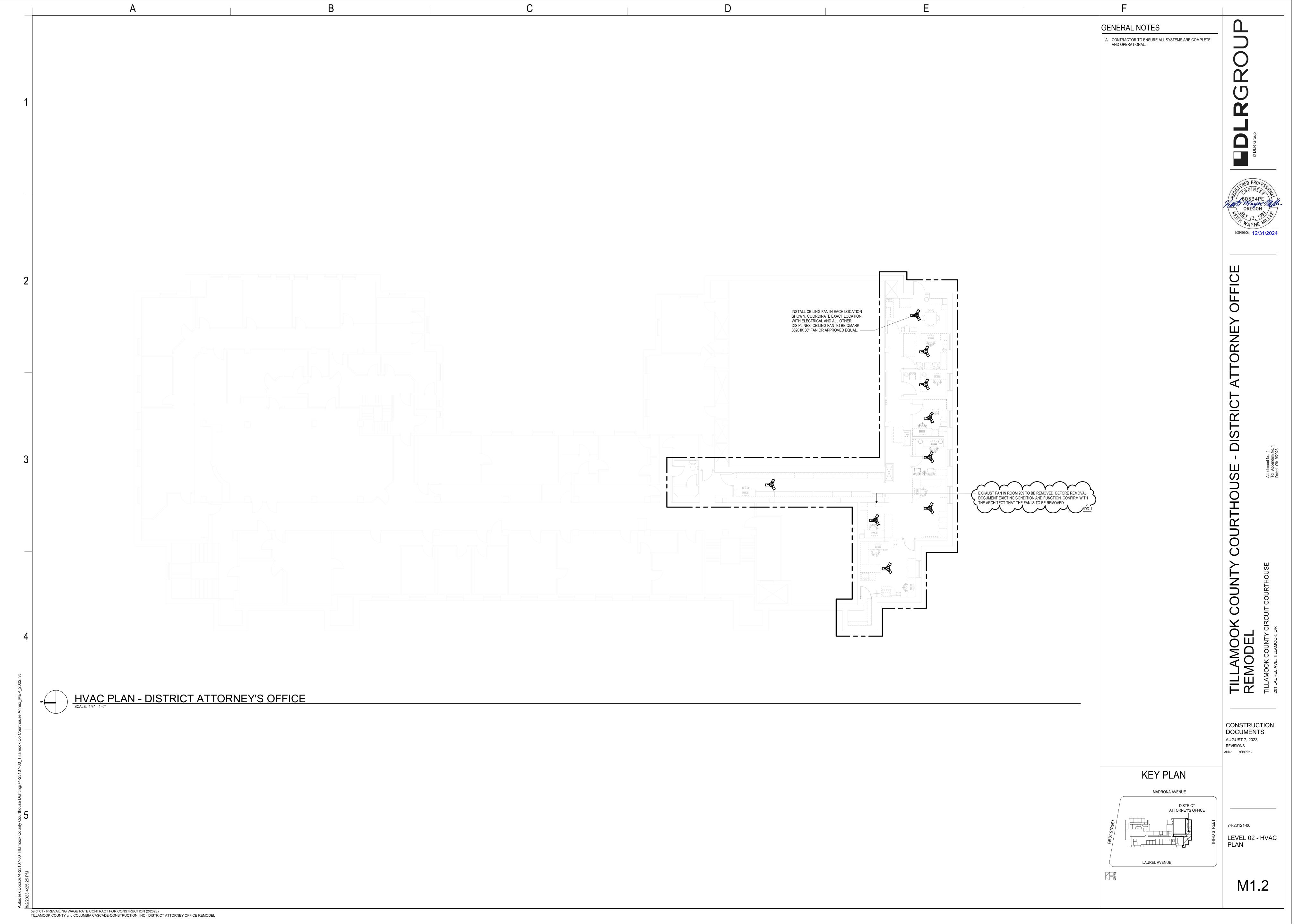


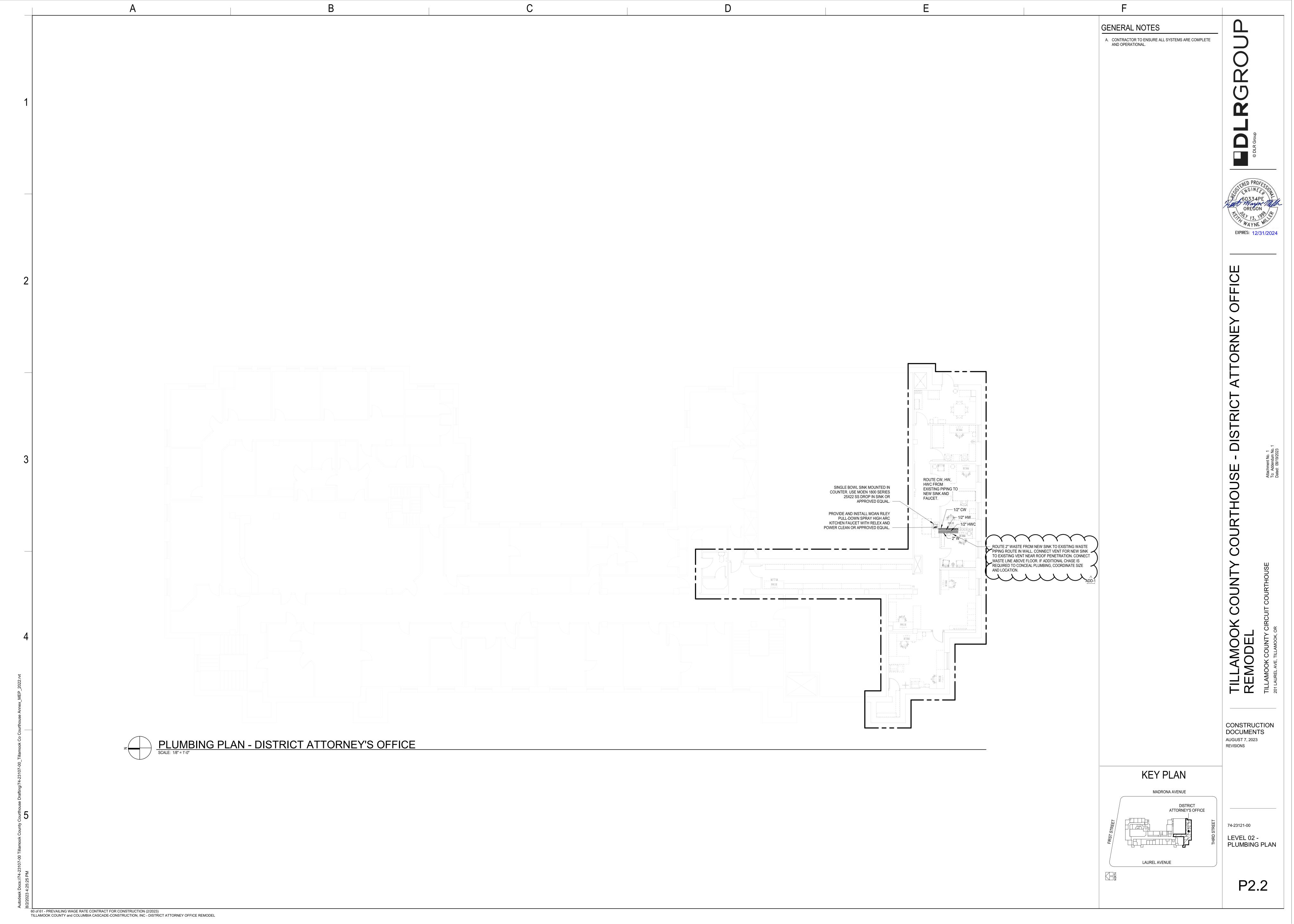


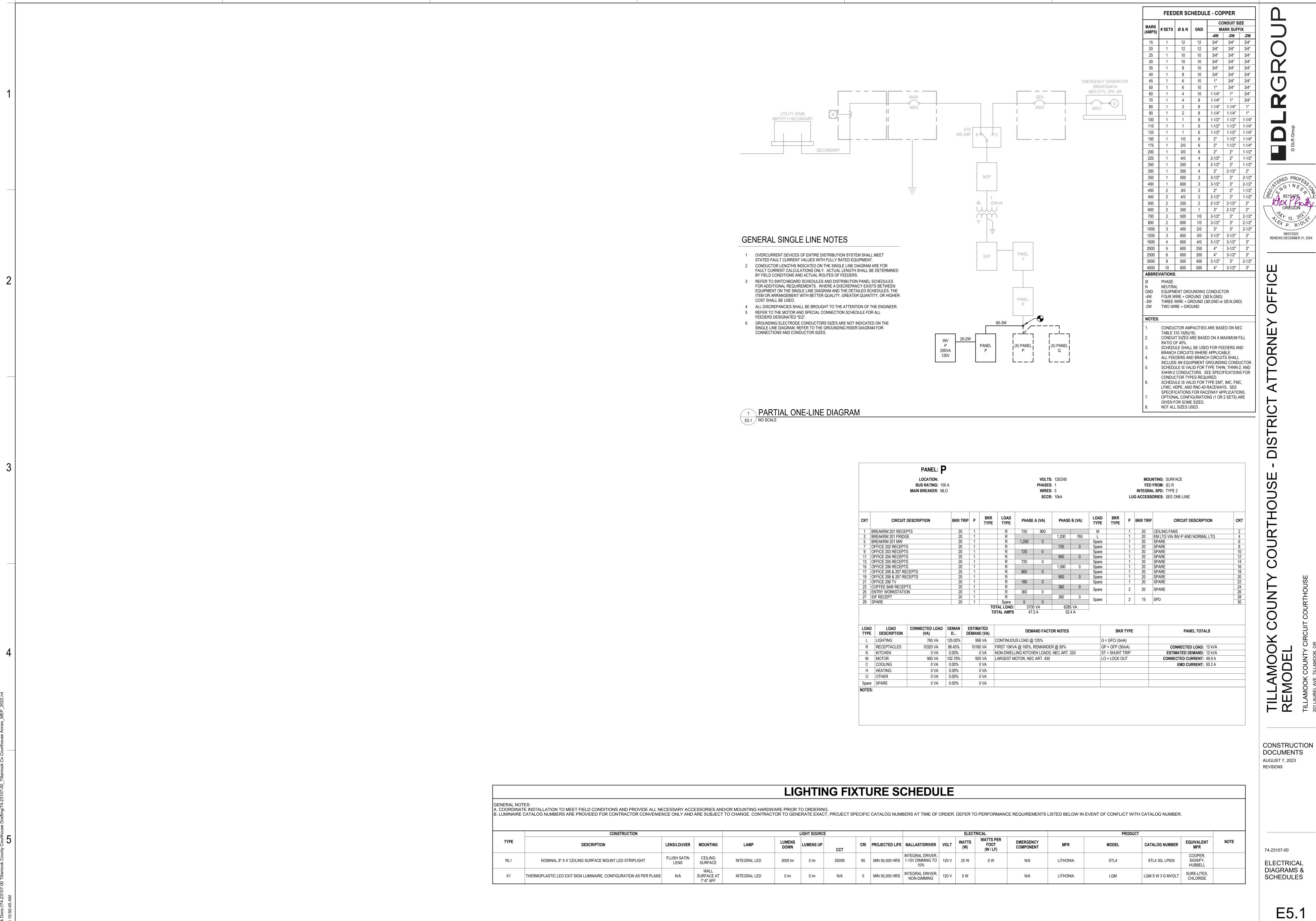












61 of 61 - PREVAILING WAGE RATE CONTRACT FOR CONSTRUCTION (2/2023)

TILLAMOOK COUNTY and COLUMBIA CASCADE-CONSTRUCTION, INC - DISTRICT ATTORNEY OFFICE REMODEL