Agreement for Construction Services

This Agreement ("Agreement") between Williamson County, Texas, a political subdivision of the State of Texas ("Owner") and Trimbuilt Construction, Inc. ("Contractor") is entered into in accordance with the following terms and conditions:

ARTICLE 1 SCOPE OF WORK: The Owner desires to retain Contractor for the construction of Jester Annex HVAC Rooftop Unit (RTU) Replacement (hereinafter called the "Project"). The Contractor shall have the overall responsibility for and shall provide complete construction services and furnish all materials, equipment, tools and labor as necessary or reasonably inferable to complete the Project, or any phase of the Project, in accordance with the Owner's requirements and the terms of this Agreement (hereinafter collectively referred to as the "Work").

ARTICLE 2 CONTRACT PRICE: Owner agrees to pay to the Contractor, for the satisfactory performance of the Work, the sum of **Two Million Two Hundred Ninety-Nine Thousand Nine Hundred and No/100 Dollars ($2,299,900.00)** in accordance with the terms and conditions of this Agreement.

ARTICLE 3 PLANS AND SPECIFICATIONS: The Work shall be performed pursuant to and in accordance with the plans and specifications attached hereto as **Exhibit "A"**, as well as any revisions made thereto.

ARTICLE 4 CONTRACT TIME:

4.1 Contractor shall commence the Work upon instruction to do so from the Owner and shall achieve Substantial Completion within **Four Hundred Fifty-Six (456) calendar days** from the date the Work is commenced; provided, however, Owner may extend said time period in the event bad weather affects the progress of the Work. Unless otherwise specified in writing, Contractor shall achieve Final Completion within **Thirty (30) calendar days of Substantial Completion**. Owner shall determine when the Project has been fully and finally completed to its satisfaction. The time set forth for completion of the work is an essential element of the Agreement.

4.2 Liquidated Damages.

Contractor acknowledges and recognizes that Owner is entitled to full and beneficial occupancy and use of the completed Work following expiration of the Contract Time and that Owner has entered into, or will enter into, binding agreements upon Contractor's achieving Substantial Completion of the Work within the Contract Time. Contractor further acknowledges and agrees

that if Contractor fails to complete substantially or cause the Substantial Completion of any Phase of the Work within the Contract Time, Owner will sustain extensive damages and serious loss as a result of such failure. In the cases of missed scheduled events, which incur exact losses of revenue and exact expenses for fees and other cancellation costs, Contractor shall be responsible for the exact amount of damages sustained by Owner. In other cases, the exact amount of such damages will be extremely difficult to ascertain. Therefore, Owner and Contractor agree as set forth below:

4.2.1 Subject to the other terms and conditions herein, if Substantial Completion is not achieved by the date specified above or by such date to which the Contract Time may be extended, the Contract Price shall be reduced by **Seven Hundred Fifty and No/100 Dollars ($750.00) per calendar day** as liquidated damages and not as a penalty, until the date of Substantial Completion. Force majeure shall apply relative to both rain/snow delays (acts of nature) and/or supply delays over which Contractor has no control, and such force majeure delays shall not be subject to such reduction of the Contract Price.

4.2.2 Owner may deduct liquidated damages described herein from any unpaid amounts then or thereafter due Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due Contractor shall be payable by Contractor to Owner at the demand of Owner, together with the interest from the date of the demand at a rate equal to the prime interest rate as published by the Wall Street Journal on the **first (1st) business day** after such amounts are demanded.

4.2.3 Notwithstanding anything to the contrary in this Agreement, if Owner is unable to recover any portion of liquidated damages in accordance with the terms and conditions herein because it is found to be unenforceable or invalid as a penalty or otherwise, then, Owner shall be entitled to recover from Contractor all of Owner's actual damages in connection with the failure by Contractor to achieve Substantial Completion of the Work within the Contract Time, including, without limitation, direct, indirect, or consequential damages.

ARTICLE 5 PAYMENT:

5.1 Schedule Of Values

Contractor shall submit to the Owner, before the first Application for Payment, a schedule of values allocating the entire Contract Price to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

5.2 Applications For Payment

5.2.1 Contractor shall submit to the Owner an itemized Application for Payment prepared in accordance with the schedule of values for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner may require, such as copies of requisitions from

subcontractors and material suppliers and shall reflect retainage if provided for in the Agreement.

5.2.1.1 Such applications may include requests for payment on account of changes in the Work that have been properly authorized by written Change Orders.

5.2.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a subcontractor or material supplier unless such Work has been performed by others whom the Contractor intends to pay.

5.2.1.3 If requested by Owner or required elsewhere in the Agreement, each Application for Payment shall be accompanied by the following, all in a form and substance satisfactory to the Owner:

a. With each Application for Payment: a current Sworn Statement from the Contractor setting forth all subcontractors and all material suppliers with whom the Contractor has subcontracted, the amount of each such subcontract, the amount requested for any subcontractor or material supplier in the Application for Payment, and the amount to be paid to the Contractor from such progress payment;

b. With each Application for Payment: a duly executed Conditional Waiver and Release on Progress Payment from the Contractor and subcontractors establishing receipt of payment or satisfaction of the payment requested by the Contractor in the current Application for Payment;

c. Commencing with the second Application for Payment submitted by the Contractor, a duly executed Unconditional Waiver and Release on Progress Payment from Contractor and all subcontractors, material suppliers and, where appropriate, lower tier subcontractors that have billed more than five thousand dollars ($5,000) on a single application of payment, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such entities and disbursed prior to submittal by the Contractor of the current Application for Payment;

d. With the Final Application for Payment: Contractor shall submit a Conditional Waiver and Release on Final Payment as required by Texas Property Code, §53.284. Upon receipt of final payment, Contractor shall submit an Unconditional Waiver and Release on Final Payment as required by Texas Property Code, §53.284; and

e. Such other information, documentation, and materials as the Owner, or the title insurer (if any) may require in order to ensure that Owner's property is free of lien claims. Such other documents may include, without limitation, original copies of lien or bond claim releases suitable for filing with the County Clerk in Williamson County, Texas.

5.2.2 Unless otherwise provided in the Agreement, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing.

Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

5.2.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, bond claims, claims, security interests or encumbrances in favor of the Contractor, subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

5.2.3.1 The Contractor further expressly undertakes to defend Owner, at the Contractor's sole expense, against any actions, lawsuits, or proceedings brought against Owner as a result of liens filed against the Work, the site of any of the Work, the Project site and any improvements thereon, or any portion of the property of any of Owner (referred to collectively as "liens" in this paragraph), provided the Owner has paid Contractor pursuant to the requirements of the Agreement. The Contractor hereby agrees to indemnify and hold Owner harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits, or proceedings.

5.2.3.2 The Owner shall release any payments withheld due to a lien or bond claims if the Contractor obtains security acceptable to the Owner, however, the Contractor shall not be relieved of any responsibilities or obligations under this paragraph, including, without limitation, the duty to defend and indemnify Owner.

5.2.3.3 Retainage. The Owner shall withhold from each progress payment, as retainage, five percent (5%) of the total earned amount. Retainage so withheld shall be managed in conformance with Texas Government Code, Chapter 2252, Subchapter B. Any request for reduction or release of retainage shall be accompanied by written consent of the Contractor's Surety. No such request shall be made until the Contractor has earned at least sixty-five percent (65%) of the total Contract Price.

5.2.3.4 For purposes of Texas Government Code, §2251.021 (a)(2), the date the performance of service is completed is the date when the Owner's representative approves the Application for Payment.

5.3 Certificates For Payment

5.3.1 The Owner will, within seven (7) business days after receipt of the Contractor's Application for Payment, issue a Certificate for Payment, with a copy to the Contractor, for such amount as the Owner determines is properly due, or notify the Contractor in writing of the Owner 's reasons for withholding certification in whole or in part as provided.

5.3.2 The issuance of a Certificate for Payment will constitute a representation by the Owner, based

on the Owner's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Owner's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Agreement. The foregoing representations are subject to an evaluation of the Work for conformance with the Agreement upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Agreement prior to completion and to specific qualifications expressed by the Owner. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Owner has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Price.

5.4 Decisions To Withhold Certification

5.4.1 The Owner may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Owner's opinion the representations to the Owner required herein cannot be made. If the Owner is unable to certify payment in the amount of the Application, the Owner will notify the Contractor. If the Contractor or Contractor and Owner, as the case may be, cannot agree on a revised amount, the Owner will promptly issue a Certificate for Payment for the amount that can be certified. The Owner may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss for which the Contractor is responsible because of:

5.4.1.1 defective Work not remedied;
5.4.1.2 third party claims filed or reasonable evidence indicating probable filing of such claims;
5.4.1.3 failure of the Contractor to make payments properly to subcontractors or for labor, materials or equipment;
5.4.1.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
5.4.1.5 damage to the Owner or a separate contractor;
5.4.1.6 failure to maintain the scheduled progress, or reasonable evidence that the Work will not be completed within the Contract Time;
5.4.1.7 failure to comply with the requirements of Texas Government Code, Chapter 2258 (Prevailing Wage Law);
5.4.1.8 failure to include sufficient documentation to support the amount of payment requested for the Project;
5.4.1.9 failure to obtain, maintain, or renew insurance coverage, payment/performance

bonds or warranty bond required by the Agreement; or

5.4.1.10 repeated failure to carry out the Work in accordance with the Agreement.

5.4.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

5.5 Progress Payments

5.5.1 The Owner shall make payment in the manner and within the time provided in the Agreement and in accordance with Texas Government Code, Chapter 2251.

5.5.2 The Contractor shall pay each subcontractor and material and equipment suppliers no later than ten (10) calendar days after receipt of payment from the Owner the amount to which the subcontractor or material and equipment suppliers is entitled. Payments to subcontractors may reflect the percentages actually retained from payments to the Contractor on account of the subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each subcontractor, require each subcontractor to make payments to Sub-subcontractors in a similar manner.

5.5.3 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven (7) calendar days, the Owner shall have the right to contact subcontractors to ascertain whether they have been properly paid. The Owner shall not have an obligation to pay or to see to the payment of money to a subcontractor, except as may otherwise be required by law.

5.5.4 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Agreement.

5.6 Failure Of Payment

5.6.1 If the Owner is required to issue Certificates for Payment and, through no fault of the Contractor, the Owner fails to timely issue Certificates for Payment in the time permitted in the Agreement, or if the Owner does not pay the Contractor by the date established in the Agreement, then the Contractor may, upon twenty-one (21) business days written notice to the Owner, stop the Work until payment of the amount owing has been received.

5.6.2 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Agreement, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Agreement to the contrary, if the Contractor fails to promptly make any payment due the Owner, or if the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective work, the Owner shall have an absolute right to offset such amount against the Contract Price and may, in the Owner's sole discretion, elect either to (1) deduct an amount equal to that which the Owner is entitled from

any payment then or thereafter due the Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Price by an amount equal to that which the Owner is entitled.

5.7 Substantial Completion

5.7.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Agreement so that the Owner can occupy or utilize the Work for its intended use; provided, however, that as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy and any other permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project.

5.7.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner a comprehensive list of items to be completed or corrected prior to final payment (punch list). Failure to include an item on the punch list does not alter the responsibility of the Contractor to complete all Work in accordance with the Agreement.

5.7.3 Upon receipt of the Contractor's punch list, the Owner will examine the Work to determine whether the Work or designated portion thereof is substantially complete. If the Owner's examination discloses any item, whether or not included on the Contractor's punch list, that is not sufficiently complete in accordance with the Agreement, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner. In such case, the Contractor shall then submit a request for another examination by the Owner to determine Substantial Completion.

5.7.4 When the Work or designated portion thereof is substantially complete, the Owner will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Unless otherwise provided, Contractor shall complete all items on the punch list within thirty (30) calendar days of Substantial Completion. Warranties required by the Agreement shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

5.7.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate of Substantial Completion. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage.

5.8 Partial Occupancy or Use

5.8.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor,

provided such occupancy or use is consented to by the insurer, the surety, and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Agreement. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Owner as provided herein. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.

5.8.2 Immediately prior to partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

5.8.3 Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Agreement.

5.9 Final Completion and Final Payment

5.9.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner will make such inspection and, when the Owner finds the Work acceptable under the Agreement and the Agreement fully performed, the Owner will issue a final Certificate for Payment for the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. All warranties and guarantees required under or pursuant to the Agreement shall be assembled and delivered by the Contractor to the Owner as part of the final Application for Payment. The final Certificate for Payment will not be issued by the Owner until all warranties and guarantees have been received and accepted by the Owner.

5.9.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, within the period of time required by Texas Government Code, Chapter 2251, (2) a certificate evidencing that insurance required by the Agreement to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) business days prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Agreement, (4) consent of surety to final payment, (5) a warranty bond in a form acceptable to Owner, and (6) other data establishing payment or satisfaction of obligations, such as receipts, unconditional full and final releases and waivers of liens, claims, security interests or encumbrances arising out of the Agreement, to the extent and in such form as may be designated by the Owner.

5.9.3 Acceptance of final payment by the Contractor, a subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and

identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 6 CONTRACTOR'S GENERAL RESPONSIBILITIES AND COVENANTS:

6.1 Contractor shall render, diligently and competently in accordance with the highest standards used in the profession, all Contractor services which shall be necessary or advisable for the expeditious, economical and satisfactory completion of the Project. Contractor agrees to use its best efforts, skill, judgment, and abilities to perform its obligations and to further the interests of Owner in accordance with Owner's requirements and procedures.

6.2 Contractor's duties as set forth herein shall at no time be in any way diminished by reason of any approval by the Owner nor shall the Contractor be released from any liability by reason of such approval by the Owner, it being understood that the Owner at all times is ultimately relying upon the Contractor's skill and knowledge in performing the services required hereunder.

6.3 Contractor is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The safety program shall comply with all applicable requirements of the current federal Occupational Safety and Health Act and all other applicable federal, state and local laws and regulations.

6.4 Contractor shall be responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work. The Contractor shall keep the Owner informed of the progress and quality of the Work.

6.5 **Insurance.** Contractor shall carry insurance in the types and amounts indicated below for the duration of the Agreement, which shall include items owned by Owner in the care, custody and control of Contractor prior to and during construction. Contractor must also complete and file the declaration pages from the insurance policies with Owner whenever a previously identified policy period expires during the term of the Agreement, as proof of continuing coverage. Contractor shall update all expired policies prior to submission of any payment requests hereunder. Failure to update policies shall be reason for payment to be withheld until evidence for renewal is provided to the Owner. If the Contractor fails to obtain, maintain or renew any insurance required by this Agreement, the Owner may, among other remedies available hereunder or at law, obtain insurance coverage directly and recover the cost of that insurance from the Contractor or declare this Agreement void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner. All policies of insurance provided by the Contractor must comply with the requirements set forth herein, the Agreement and the laws of the State of Texas.

6.5.1 The Contractor shall provide and maintain, until the Work covered in the Agreement is completed and accepted by the Owner, the minimum insurance coverages in the minimum amounts as described below.

	Type of Coverage	Limits of Liability
.1	Worker's Compensation	Statutory

.2 Employer's Liability

Bodily Injury by Accident	$500,000 Ea. Accident
Bodily Injury by Disease	$500,000 Ea. Employee
Bodily Injury by Disease	$500,000 Policy Limit

.3 Commercial general liability including completed operations and contractual liability insurance for bodily injury, death, or property damages in the following amounts:

COVERAGE	PER OCCURRENCE
Commercial General Liability (including premises, completed operations and contractual)	$1,000,000
Aggregate policy limits:	$2,000,000

.4 Comprehensive automobile and auto liability insurance (covering owned, hired, leased and non-owned vehicles):

COVERAGE	PER PERSON	PER OCCURRENCE
Bodily injury (including death)	$1,000,000	$1,000,000
Property damage	$1,000,000	$1,000,000
Aggregate policy limits	No aggregate limit	

.5 Builder's Risk Insurance (all-risks)

An all-risk policy, in the amount equal at all times to 100% of the Contract Price. The policy shall include coverage for loss or damage caused by certified acts of terrorism as defined in the Terrorism Risk Insurance Act. The policy shall be issued in the name of the Contractor and shall name its Subcontractors as additional insureds. The Owner shall be named as a loss payee on the policy. The builders risk policy shall have endorsements as follow:

a. This insurance shall be specific as to coverage and not considered as contributing insurance with any permanent insurance maintained on the present premises. If off-site storage is permitted, coverage shall include transit and storage in an amount sufficient to protect property being transported or stored.

b. For renovation projects and or portions of work contained within an existing structure, the Owner waives subrogation for damage by fire to existing building structure(s), if the Builder's Risk Policy has been endorsed to include coverage for existing building structure(s) in the amount described in the Special Conditions. However, Contractor shall not be required to obtain such an endorsement unless specifically required by the Special Conditions in the Agreement. The aforementioned waiver of subrogation shall not be effective unless such endorsement is obtained.

.6. Flood insurance when specified in Supplementary General Conditions or Special Conditions.

.7 Umbrella coverage in the amount of not less than $5,000,000.

6.5.2 Workers' Compensation Insurance Coverage:

1. Definitions:

(a) Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers' Compensation Commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the Project.

(b) Duration of the Project - includes the time from the beginning of the work on the Project until the Contractor's/person's work on the Project has been completed and accepted by the Owner.

(c) Coverage – Workers' compensation insurance meeting the statutory requirements of the Texas Labor Code, §401.011(44).

(d) Persons providing services on the Project ("subcontractor") - includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the Project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

2. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, §401.011(44) for all employees of the Contractor providing services on the Project, for the duration of the Project.

3. The Contractor must provide a certificate of coverage prior to execution of the Agreement/Contract, and in no event later than ten (10) days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor's bid bond.
4. If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner showing that coverage has been extended.
5. The Contractor shall obtain from each person providing services on a project, and provide to the Owner:

   (a.) a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and
   (b.) no later than seven days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.

6. The Contractor shall retain all required certificates of coverage for the duration of the Project and for one year thereafter.
7. The Contractor shall notify the Owner in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.
8. The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9. The Contractor shall contractually require each person with who it contracts to provide services on a project, to:

   (a) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;
   (b) provide to the Contractor, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;
   (c) provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;
   (d) obtain from each other person with whom it contracts, and provide to the Contractor:

i. a certificate of coverage, prior to the other person beginning work on the Project; and

ii. a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

(e) retain all required certificate of coverage on file for the duration of the Project and for one year thereafter;

(f) notify the Owner in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

(g) contractually require each person with whom it contracts, to perform as required by paragraphs (a)-(g), with the certificates of coverage to be provided to the person for whom they are providing services.

10. By signing the Agreement/Contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

11. The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the Agreement/Contract void if the Contractor does not remedy the breach within ten days after receipt of notice of breach from the Owner.

6.5.3 If insurance policies are not written for the amounts specified herein, Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of primary coverage.

6.5.4 Insurance coverage required hereunder shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A- or better by A.M. Best Company, or otherwise acceptable to Owner.

6.5.5 **The Owner ("Williamson County, Texas"), its officials, employees and volunteers shall be named as an additional insured on all required policies.** These insurance policies shall contain the appropriate additional insured endorsement signed by a person authorized by that insurer to bind coverage on its behalf.

6.5.6 The furnishing of the above listed insurance coverage, as may be modified by the Agreement, must be tendered prior to execution of the Agreement/Contract, and in no event

later than ten (10) days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor's bid bond.

6.5.7 Owner reserves the right to review the insurance requirements set forth herein during the Agreement and to make reasonable adjustments to the insurance coverage and their limits when deemed necessary and prudent by the Owner based upon changes in statutory law, court decisions, or the claims history of the industry as well as the Contractor.

6.5.8 Owner shall be entitled, upon request, and without expense, to receive complete copies of the policies with all endorsements and may make any reasonable requests for deletion, or revision or modification of particular policy terms, conditions, limitations, or exclusions, except where policy provisions are established by law or regulation binding upon the Parties or the underwriter of any of such polices. Damages caused by the Contractor and not covered by insurance shall be paid by the Contractor.

6.5.9 Contractor shall be responsible for payment of premiums for all of the insurance coverages required hereunder. Contractor further agrees that for each claim, suit or action made against insurance provided hereunder, with respect to all matters for which the Contractor is responsible hereunder, Contractor shall be solely responsible for all deductibles and self-insured retentions. Any deductibles or self-insured retentions over $75,000 in the Contractor's insurance must be declared and approved in writing by Owner in advance.

6.5.10 Contractor shall contractually require each person or entity with whom it contracts to provide services in relation to the Work, to comply with every insurance requirement that Contractor must comply with hereunder. More specifically, each person or entity with whom Contractor contracts to provide services on the in relation to the Work must comply with each insurance requirement hereunder just as if such person or entity was the Contractor. Thus, every reference to Contractor under each insurance requirement hereunder shall mean and include each person or entity with whom Contractor contracts to provide services in relation to the Work. If any such person or entity with whom Contractor contracts to provide services in relation to the Work fails to obtain, maintain or renew any insurance required by this Agreement, Owner may, among other remedies available hereunder or at law, obtain insurance coverage directly and recover the cost of that insurance from the Contractor or declare this Agreement void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner.

ARTICLE 7 INDEMNITY:

7.1 INDEMNIFICATION - EMPLOYEE PERSONAL INJURY CLAIMS. TO THE FULLEST EXTENT PERMITTED BY LAW, Contractor SHALL INDEMNIFY, DEFEND (WITH COUNSEL OF OWNER'S CHOOSING), AND HOLD HARMLESS OWNER, AND OWNER'S EMPLOYEES, AGENTS, REPRESENTATIVES, PARTNERS, OFFICERS, AND DIRECTORS (COLLECTIVELY, THE "INDEMNITEES") AND SHALL ASSUME ENTIRE RESPONSIBILITY AND LIABILITY (OTHER THAN AS A RESULT OF INDEMNITEES' GROSS NEGLIGENCE) FOR ANY CLAIM OR ACTION BASED ON OR ARISING OUT OF THE PERSONAL INJURY, OR DEATH, OF ANY EMPLOYEE OF CONTRACTOR, OR OF ANY SUBCONTRACTOR, OR OF ANY OTHER ENTITY FOR WHOSE ACTS THEY MAY BE LIABLE, WHICH OCCURRED OR WAS ALLEGED TO HAVE OCCURRED ON THE PROJECT SITE

OR IN CONNECTION WITH THE PERFORMANCE OF THE WORK. CONTRACTOR HEREBY INDEMNIFIES THE INDEMNITEES EVEN TO THE EXTENT THAT SUCH PERSONAL INJURY WAS CAUSED OR ALLEGED TO HAVE BEEN CAUSED BY THE SOLE, COMPARATIVE OR CONCURRENT NEGLIGENCE OR THE STRICT LIABILITY OF ANY INDEMNIFIED PARTY. THIS INDEMNIFICATION SHALL NOT BE LIMITED TO DAMAGES, COMPENSATION, OR BENEFITS PAYABLE UNDER INSURANCE POLICIES, WORKERS COMPENSATION ACTS, DISABILITY BENEFITS ACTS, OR OTHER EMPLOYEES BENEFIT ACTS.

INDEMNIFICATION - OTHER THAN EMPLOYEE PERSONAL INJURY CLAIMS. TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL INDEMNIFY, DEFEND (WITH COUNSEL OF OWNER'S CHOOSING), AND HOLD HARMLESS OWNER, AND OWNER'S EMPLOYEES, AGENTS, REPRESENTATIVES, PARTNERS, OFFICERS, AND DIRECTORS (COLLECTIVELY, THE "INDEMNITEES") FROM AND AGAINST CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING BUT NOT LIMITED TO ATTORNEYS' FEES, ARISING OUT OF OR ALLEGED TO BE RESULTING FROM THE PERFORMANCE OF THIS AGREEMENT OR THE WORK DESCRIBED HEREIN, TO THE EXTENT CAUSED BY THE NEGLIGENCE, ACTS, ERRORS, OR OMISSIONS OF CONTRACTOR OR ITS SUBCONTRACTORS, ANYONE EMPLOYED BY THEM OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS OR EXPENSE IS CAUSED IN WHOLE OR IN PART BY A PARTY INDEMNIFIED HEREUNDER.

7.2 Except for the obligation of Owner to pay Contractor the Contract Price pursuant to the terms of this Agreement, and to perform certain other obligations pursuant to the terms and conditions explicitly set forth herein, Owner shall have no liability to Contractor or to anyone claiming through or under Contractor by reason of the execution or performance of this Agreement. Notwithstanding any obligation or liability of Owner to Contractor, no present or future partner or affiliate of Owner or any agent, officer, director, or employee of Owner, or of the various departments comprising Owner, or anyone claiming under Owner has or shall have any personal liability to Contractor or to anyone claiming through or under Contractor by reason of the execution or performance of this Agreement.

ARTICLE 8 WARRANTY:

8.1 Contractor hereby warrants that the materials and equipment provided for the Work will be of good quality and new unless otherwise required or permitted by the Owner; that the construction will be free from faults and defects; and that the construction will conform with the requirements of the plans, specifications, drawings and the terms of this Agreement.

8.2 Contractor shall provide warranty services for the Work for a **full twelve (12) months** following Final Completion and final payment. Just before the warranty period expires, Contractor shall attend an on-site meeting with the Owner to ensure that all warranty issues have been identified and properly remedied.

ARTICLE 9 PREVAILING WAGE RATE:

9.1 Duty to Pay Prevailing Wage Rates. The Contractor shall pay not less than the wage scale of the various classes of labor as shown on the "Prevailing Wage Schedule", as defined below. The specified wage rates are minimum rates only, and are not representations that qualified labor adequate to perform the Work is available locally at the prevailing wage rates. The Owner is not bound to pay—and will not consider—any claims for additional compensation made by any

Contractor because the Contractor pays wages in excess of the applicable minimum rate contained in the Agreement. The "Prevailing Wage Schedule" is not a representation that quantities of qualified labor adequate to perform the Work may be found locally at the specified wage rates.

9.1.2 For classifications not shown, workers shall not be paid less than the wage indicated for Laborers. The Contractor shall notify each worker commencing work on the Project of the worker's job classification and the established minimum wage rate required to be paid, as well as the actual amount being paid. The notice must be delivered to and signed in acknowledgement of receipt by the employee and must list both the monetary wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties. When requested by Owner, competent evidence of compliance with the Texas Prevailing Wage Law shall be furnished by Contractor.

9.1.3 A copy of each worker wage rate notification shall be submitted to the Owner with the Application for Payment for the period during which the worker began on-site activities.

9.2 Prevailing Wage Schedule. Pursuant to Texas Government Code Section 2258.022(2), the general prevailing rate of per diem wages for each craft or type of worker needed to execute the Contract and the prevailing rate for legal holiday and overtime work shall be the most recent prevailing wage rate for Williamson County, Texas for building construction as determined by the United States Department of Labor in accordance with the Davis-Bacon Act (40 U.S.C. Section 276a et seq.), and its subsequent amendments, which are published and can be obtained online at https://sam.gov/search/?index=dbra (the "Prevailing Wage Schedule"). Should the Contractor at any time become aware that a particular skill or trade not reflected on the Prevailing Wage Schedule will be or is being employed in the Work, whether by the Contractor or by a subcontractor, the Contractor shall promptly inform the Owner and shall specify a wage rate for that skill or trade, which shall bind the Contractor.

9.3 Penalty for Violation. The Contractor and any Subcontractor shall pay to the Owner a penalty of sixty dollars ($60.00) for each worker employed for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the Prevailing Wage Schedule or any supplement or update thereto pursuant to previsions above. The Contractor and each Subcontractor shall keep, or cause to be kept, an accurate record showing the names and occupations of all workers employed in connection with the Work, and showing the actual per diem wages paid to each worker, which records shall be open at all reasonable hours for the inspection by the Owner.

9.4 Complaints of Violations of Prevailing Wage Rates. Within thirty-one (31) days of receipt of information concerning a violation of Texas Government Code, Chapter 2258, the Owner shall make an initial determination as to whether good cause exists to believe a violation occurred. The Owner's decision on the initial determination shall be reduced to writing and sent to the Contractor or Subcontractor against whom the violation was alleged, and to the affected worker. When a good cause finding is made, the Owner shall retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the Prevailing

Wage Schedule and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.

9.5 Arbitration Required if Violation not Resolved. After the Owner makes its initial determination, the affected Contractor or Subcontractor and worker have fourteen (14) days in which to resolve the issue of whether a violation occurred, including the amount that should be retained by Owner or paid to the affected worker. If the Contractor or Subcontractor and affected worker reach an agreement concerning the worker's claim, the Contractor shall promptly notify the Owner in a written document signed by the worker. If the Contractor or Subcontractor and affected worker do not agree before the fifteenth (15th) day after the Owner's determination, the Contractor or Subcontractor and affected worker must participate in binding arbitration in accordance with the Texas General Arbitration Act, Chapter 171, Tex. Civ. Prac. & Rem. Code. The parties to the arbitration have ten (10) days after the expiration of the fifteen (15) days referred to above, to agree on an arbitrator; if by the eleventh (11th) day there is no agreement to an arbitrator, a district court shall appoint an arbitrator on the petition of any of the parties to the arbitration.

9.6 Arbitration Award. If an arbitrator determines that a violation has occurred, the arbitrator shall assess and award against the Contractor or Subcontractor the amount of penalty as provided herein and the amount owed the worker. The Owner may use any amounts retained hereunder to pay the worker the amount as designated in the arbitration award. If the Owner has not retained enough from the Contractor or Subcontractor to pay the worker in accordance with the arbitration award, the worker has a right of action against the Contractor and Subcontractor as appropriate, and the surety of either to receive the amount owed, attorneys' fees and court costs. The Contractor shall promptly furnish a copy of the arbitration award to the Owner.

9.7 Prevailing Wage Retainage. Money retained pursuant to this section shall be used to pay the claimant or claimants the difference between the amount the worker received in wages for labor on the Project at the rate paid by the Contractor or Subcontractor and the amount the worker would have received at the general prevailing wage rate as provided by the agreement of the claimant and the Contractor or Subcontractor affected, or in the arbitrator's award. The full statutory penalty of sixty dollars ($60.00) per day of violation per worker shall be retained by the Owner to offset its administrative costs, pursuant to Texas Government Code, §2258.023. Any retained funds in excess of these amounts shall be paid to the Contractor on the earlier of the next progress payment or final payment. Provided, however, that the Owner shall have no duty to release any funds to either the claimant or the Contractor until it has received the notices of agreement or the arbitration award as provided in this section.

9.8 No Extension of Time. If the Owner determines that good cause exists to believe a violation has occurred, the Contractor shall not be entitled to an extension of time for any delay arising directly or indirectly from of the procedures set forth in this section.

ARTICLE 10 BONDS:

10.1 Performance Bond. Upon execution of this Agreement, Contractor shall provide a Performance Bond in the amount of 100% of the Contract Price. The surety for a Performance Bond shall meet the requirements of Texas law and the requirements set forth in the Agreement.

10.2 Payment Bond. Upon execution of this Agreement, Contractor shall provide a Payment Bond in the amount of 100% of the Contract Price, as security for the true and faithful payment in full of all subcontractors and persons performing labor, services, materials, machinery, and fixtures in connection with the Work. The surety for a Payment Bond shall meet the requirements of Texas law and the requirements set forth in the Agreement.

10.3 Warranty Bond. Upon Final Completion, Contractor shall provide a Warranty Bond in the amount of 20% of the Contract Price, as security for the true and faithful performance of all warranties set forth in the Agreement.

ARTICLE 11 TERMINATION OR SUSPENSION OF THE AGREEMENT

11.1 Termination by Contractor

If one of the reasons described below exists, the Contractor may, upon thirty (30) business days written notice to the Owner, terminate the Agreement and recover from the Owner payment for Work executed, including reasonable overhead, profit, and costs incurred by reason of such termination:

11.1.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

11.1.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

11.1.3 Because the Owner has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in the Agreement, or because the Owner has not made payment on an undisputed Certificate for Payment within the time stated in the Agreement; or

11.1.4 If the Work is stopped for a period of ninety (90) consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Agreement.

11.2 Termination by the Owner for Cause

11.2.1 The Owner may terminate the Agreement if the Contractor:

11.2.1.1 Fails to commence the Work in accordance with the provisions of the Agreement;

11.2.1.2 Fails to prosecute the Work to completion thereof in a diligent, efficient, timely, workmanlike, skillful and careful manner and in strict accordance with the provisions of the Agreement;

11.2.1.3 Fails to use an adequate amount or quality of personnel or equipment to complete the Work without undue delay;

11.2.1.4 Fails to perform any of its obligations under the Agreement;

11.2.1.5 Fails to make prompt payments when due to its Subcontractors and Suppliers, or as required by **Texas Government Code, Chapter 2251**;

11.2.1.6 Files any petition or other pleading seeking any relief under any provisions of the Federal Bankruptcy Act, as amended, or any other federal or state statute or law providing for reorganization of debts or other relief from creditors, permits a receiver or other person to be appointed on account of its insolvency or financial condition, or becomes insolvent;

11.2.1.7 Creates any situation or state of facts which would authorize or permit an involuntary petition in bankruptcy to be filed against Contractor; or

11.2.1.8 Has not met or in Owner's opinion will not meet the dates of Substantial Completion set forth in the Agreement.

11.2.2 When any of the reasons under **Paragraph 11.2.1** exist, the Owner, in its sole and absolute discretion, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, **thirty (30) calendar days** written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety, exclude the Contractor from the Project site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor; accept assignment of subcontracts of Contractors subcontractors; and finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

11.2.3 When the Owner terminates the Agreement for one of the reasons stated in **Paragraph 11.2.1**, the Contractor shall not be entitled to receive further payment until the Work is finished. In the event that it is determined that sufficient cause did not exist for termination under this **Section 11.2**, then the termination shall be considered a termination for convenience, under **Section 11.4**, below.

11.2.4 If the unpaid balance of the Contract Price exceeds costs of finishing the Work, including compensation for expenses made necessary thereby, and other damages and costs incurred by the Owner in finishing the Work and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner.

11.3 Suspension by the Owner for Convenience

11.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

11.3.2 The Contract Price and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in **Paragraph 11.3.1**. Adjustment of the Contract Price shall include profit. No adjustment shall be made to the extent:

11.3.2.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

11.3.2.2 that an equitable adjustment is made or denied under another provision of the Agreement.

11.4 Termination by the Owner for Convenience

11.4.1 The Owner may, at any time, terminate the Agreement for the Owner's convenience and without cause.

11.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

11.4.2.1 Cease operations as directed by the Owner in the notice;
11.4.2.2 Take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
11.4.2.3 Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

11.4.3 Upon Owner's termination for convenience, costs of the Work executed, including reasonable overhead and profit, incurred to and including the date of termination, will be due and payable to Contractor in accordance with the Agreement.

ARTICLE 12 MISCELLANEOUS PROVISIONS

12.1 Interest and Late Payments. Owner's payment for goods and services shall be governed by Chapter 2251 of the Texas Government Code. Interest charges for any overdue payments shall be paid by Owner in accordance with Texas Government Code Section 2251.025. More specifically, the rate of interest that shall accrue on a late payment is the rate in effect on September 1 of Owner's fiscal year in which the payment becomes due. The said rate in effect on September 1 shall be equal to the sum of one percent (1%); and (2) the prime rate published in the Wall Street Journal on the first day of July of the preceding fiscal year that does not fall on a Saturday or Sunday.

In the event that an error appears in an invoice/application for payment submitted by Contractor, Owner shall notify Contractor of the error not later than the twenty first (21st) day after the date Owner receives the invoice/application for payment. If the error is resolved in favor of Contractor, Contractor shall be entitled to receive interest on the unpaid balance of the invoice/application for payment submitted by Contractor beginning on the date that the payment for the invoice/application for payment became overdue. If the error is resolved in favor of the Owner, Contractor shall submit a corrected invoice/application for payment that must be paid in accordance within the time set forth above. The unpaid balance accrues interest as provided by Chapter 2251 of the Texas Government Code if the corrected invoice/application for payment is not paid by the appropriate date.

12.2 Audits. Contractor agrees that Owner or its duly authorized representatives shall, until the expiration of three (3) years after final payment under this Agreement, have access to and the right

to examine and photocopy any and all books, documents, papers and records of Contractor which are directly pertinent to the services to be performed under this Agreement for the purposes of making audits, examinations, excerpts, and transcriptions. Contractor agrees that Owner shall have access during normal working hours to all necessary Contractor facilities and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the provisions of this section. Owner shall give Contractor reasonable advance notice of intended audits.

12.3 Assignment. This Agreement is a personal service contract for the services of Contractor, and Contractor's interest in this Agreement, duties hereunder and/or fees due hereunder may not be assigned or delegated to a third party.

12.4 Governing Law and Venue. This Agreement and all of the rights and obligations of the parties and all of the terms and conditions shall be construed, interpreted and applied in accordance with and governed by and enforced under the laws of the State of Texas without reference to its conflicts of law provisions. Williamson County, Texas where the Project is located shall be the sole place of venue for any legal action arising from or related to this Agreement or the Project in which the Owner is a party.

12.5 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the parties and their respective permitted assigns and successors.

12.6 Notices. All notices, consents, approvals, demands, requests or other communications relied on by the parties shall be in writing. Written notice shall be deemed to have been given when delivered in person to the designated representative of the Contractor or Owner for whom it is intended; or sent by U. S. Mail to the last known business address of the designated representative.

12.7 Severability. Should any term or provision of this Agreement be held invalid or unenforceable in any respect, the remaining terms and provisions shall not be affected and this Agreement shall be construed as if the invalid or unenforceable term or provision had never been included.

12.8 Relationship of the Parties. GC shall be an independent contractor under this Contract and shall assume all of the rights, obligations, liabilities, applicable to it as such independent contractor hereunder and any provisions in this Contract which may appear to give County the right to direct GC as to details of doing the Work herein covered or to exercise a measure of control over the Work shall be deemed to mean that GC shall follow the desires of County in the results of the Work only. County shall not retain or have the right to control the GC's means, methods or details pertaining to the GC's performance of the Work described herein, nor shall County have the power to direct the order in which GC's Work is performed under this Contract. County and GC hereby agree and declare that GC is an independent contractor and, as such, meets the qualifications of an Independent Contractor under Texas Worker's Compensation Act, Texas Labor Code, Section 406.141, that the GC is not an employee of County for purposes of this Contract, and that the GC and its employees, agents and sub-subcontractors shall not be entitled to worker's compensation coverage or any other type of insurance coverage held by County.

12.9 Force Majeure. If the party obligated to perform is prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of said party, the other party shall grant such party relief from the performance of this Agreement. The burden of proof for the need of such relief shall rest upon the party obligated to perform. To obtain release based on force majeure, the party obligated to perform shall file a written request with the other party.

12.10 No Waiver of Sovereign Immunity. Nothing herein shall be construed as a waiver of sovereign immunity by Owner.

12.11 Current Revenues. Under Texas law, a contract with a governmental entity that contains a claim against future revenues is void; therefore, each party paying for the performance of governmental functions or services must make those payments from current revenues available to the paying party.

12.12 Compliance with Laws. Contractor shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of this Agreement, including, without limitation, Worker's Compensation laws, minimum and maximum salary and wage statutes and regulations, licensing laws and regulations. When required, Contractor shall furnish the Owner with certification of compliance with said laws, statutes, ordinances, rules, regulations, orders, and decrees above specified.

12.13 Entire Agreement & Incorporated Documents; Conflicting Terms. This Agreement constitutes the entire agreement between the parties and may not be modified or amended other than by a written instrument executed by both parties.

The following documents shall comprise the Contract Documents:

1. This Agreement between Owner and Contractor;
2. Exhibit "A" – Plans and Specifications;
3. Addenda issued prior to the Effective Date of this Agreement;
4. The Request for Proposal/Invitation for Bids documents defined in Williamson County RFP#25RFCSP50;
5. Contractor's Proposal/Bid submitted in response to Williamson County RFP#25RFCSP50; and
6. All Change Orders and any other Modifications issued after the Effective Date of this Agreement.

In the event of a dispute or conflict relating to the terms and conditions of the Contract Documents, applicable documents will be referred to for the purpose of clarification, conflict resolution or for additional detail in the following order of precedence:

1. This Agreement between Owner and Contractor;
2. Exhibit "A" – Plans and Specifications;
3. Addenda issued prior to the Effective Date of this Agreement;

4. The Request for Proposal/Invitation for Bids documents defined in Williamson County RFP#25RFCSP50;
5. Contractor's Proposal/Bid submitted in response to Williamson County RFP#25RFCSP50; and
6. All Change Orders and any other Modifications issued after the Effective Date of this Agreement.

BY SIGNING BELOW, the Parties have executed and bound themselves to this Agreement to be effective as of the date of the last party's execution hereof.

OWNER:

WILLIAMSON COUNTY, TEXAS,
a political subdivision of the state of Texas

By: Steve Snell (Jul 16, 2025 22:44 CDT)

Printed Name: Steve Snell

Title: Williamson County Judge

Date: 07/16/2025

CONTRACTOR:

Trimbuilt Construction, Inc.

By:

Printed Name: Larry Puckett

Title: President

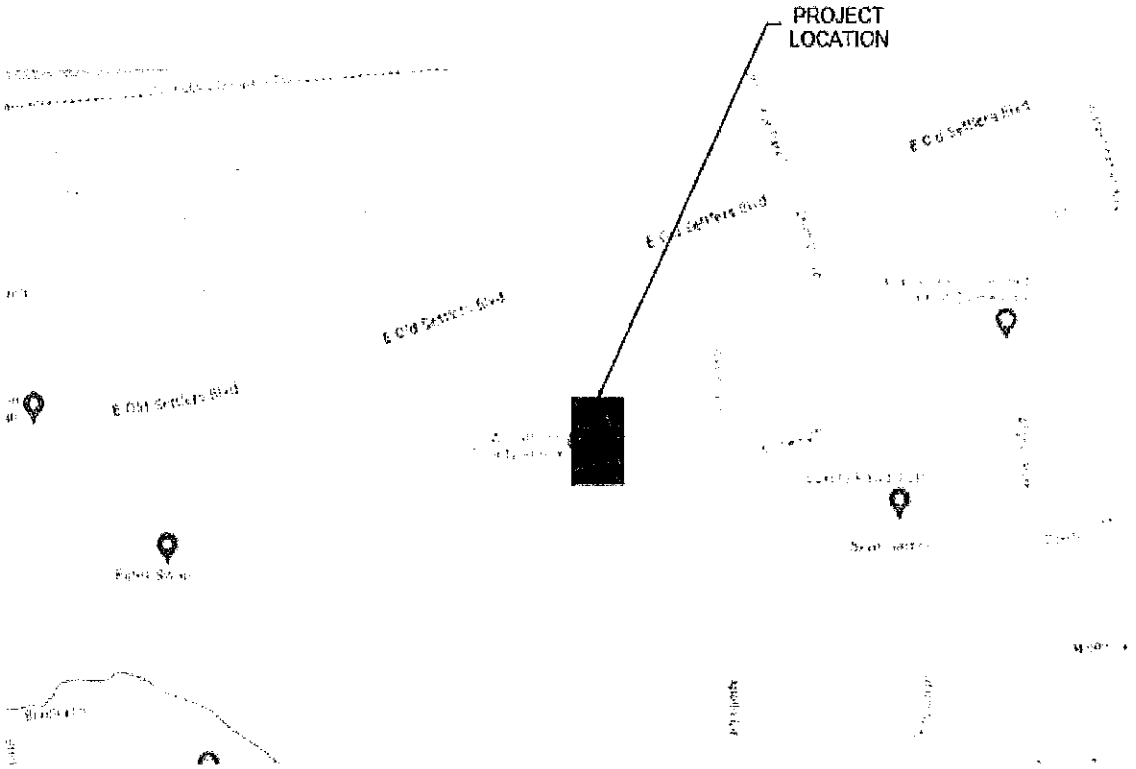
Date: 6-23-2025

Exhibit "A"

Plans and Specifications

Location of Project: Jester Annex, 1801 E. Old Settlers Blvd, Round Rock, TX 78664

Scope of Work: Owner's Project is to upgrade the air conditioning system at Williamson County Jester Annex by converting the current HVAC system from DX to chilled water. The Project envelopes two (2) of the three (3) units with provision made to replace the third unit at a future date. The Project includes all utilities, drainage, roadways, parking, landscaping and walkways to structures, and landscaping associated with structures.



PLANS AND SPECIFICATIONS

WILCO
FACILITIES MANAGEMENT

All Work provided are to be performed in conjunction with the A/E and Owner.

Architects and Engineers (A/E)
Owner's designated A/E has prepared the construction documents for the Project and has full responsibility for complying with, the laws relating to architectural and engineering services in Texas including, but not limited to the Texas Engineering Practice Act (Occupations Code Chapters 1001 and 1051), as applicable.

Personnel
In addition to the terms and conditions of the Agreement, Contractor shall

- Maintain a staff of properly trained and experienced personnel to ensure satisfactory performance under this Agreement.
- Assign to Owner a designated representative who will be responsible for the coordination and administration of Owner's requirements.
- Provide a superintendent on the job full time (all day/all working days) from the start of construction through substantial completion. After substantial completion, on-site contractor supervision will be required at any time work is under way at the site.

Project Execution
Except as otherwise set forth in the Agreement and other Contract Documents, Owner shall provide or contract for, independently of Contractor, the inspection services, the testing of construction materials engineering, and the verification testing services necessary for acceptance of the Project by Owner.

Construction Cost

In addition to the terms and conditions of the Agreement, Contractor shall:

- Complete accounting records of work performed on the Project
- Review all pay requests and process for payment through A/E
- Review and prepare summary application for payment based on the Contractors' Certificate of Payment and material vendors' invoicing
- Coordinate change orders, verify subcontractors' estimates as reasonable and accurate, secure Owner's approval before change order work is completed
- Provide all necessary materials, facilities, and ancillary services (such as cleanup) necessary for provision of the Work not being provided by the subcontractor(s) when necessary for the performance of the Work during construction and for completion of the construction

Construction Scheduling

In addition to the terms and conditions of the Agreement, Contractor shall:

- Review Owner's anticipated opening date and develop Project schedule
- Sequence schedule to support contract documents and opening date and recommend any necessary corrective actions
- Attend milestone review meetings with Owner and Project team immediately before commencing each Project phase
- At the milestone review meetings, assist Owner in identifying goals for the upcoming work, examine the performance of the Project team against the goals in the preceding phase, and propose corrective measures as necessary or appropriate.
- Coordinate and expedite the ordering and delivery of materials, especially those requiring a long lead time

Construction Administration

In addition to the terms and conditions of the Agreement, Contractor shall:

- Provide on-site job trailer, temporary fencing, temporary utilities, and other services as appropriate
- Schedule, conduct, and report with the A/E on weekly meetings with subcontractors
- Require safety programs and certificates of insurance from subcontractors
- Monitor and supervise safety programs of subcontractors and verify compliance with laws and regulations
- Coordinate interpretation of the meaning and intent of drawing and specification and assist in resolution of questions
- Review all shop drawings and submittals from subcontractors
- Keep records of all documents at the job site, including red-line changes
- Administer construction contracts prepared by Owner
- Coordinate necessary testing services
- Record progress of Project

Fulltime Onsite Supervision

In addition to the terms and conditions of the Agreement, Contractor shall:

- Provide an experienced Construction Field Superintendent on site daily, every workday, to monitor work and progress of the Project
- Manage subcontractor performance
- Monitor and enforce Owner construction conditions
- Provide visual inspections of workmanship and special inspections as needed to verify quality of work, and maintenance to specifications
- Provide written progress reports to Owner and A/E submitted weekly during contractor meetings

- Arrange for delivery and storage of all material purchased by Owner
- Coordinate contract scheduling, monitor contractor labor force, verify delivery of contractor materials

Disputes and Resolution

In addition to the terms and conditions of the Agreement, Contractor shall:

- Assist Owner and A/E with review and management of claims
- Mediate conflicts between Contractor and Owner, if necessary
- Mediate conflicts between A/E and Owner, if necessary

Project Close Out

In addition to the terms and conditions of the Agreement, Contractor shall:

- Supervise subcontractors' final testing and start-up of utilities, operations systems and equipment
- Walk through and prepare "punch list" with Owner, A/E and consulting engineers
- Participate in final inspection with Owner and A/E
- Prepare equipment operational manuals and provide preventive maintenance plan
- Verify appropriate training and in-service has been provided by subcontractors for Owner
- Supervise completion of punch list items
- Compile all product data, samples, warranties, owner manuals, red line drawings, keys, maintenance stock, extra materials, and other information or materials to be provided to Owner
- Coordinate Project substantial completion and final payments with A/E and Owner

Plans, Drawings and Specifications

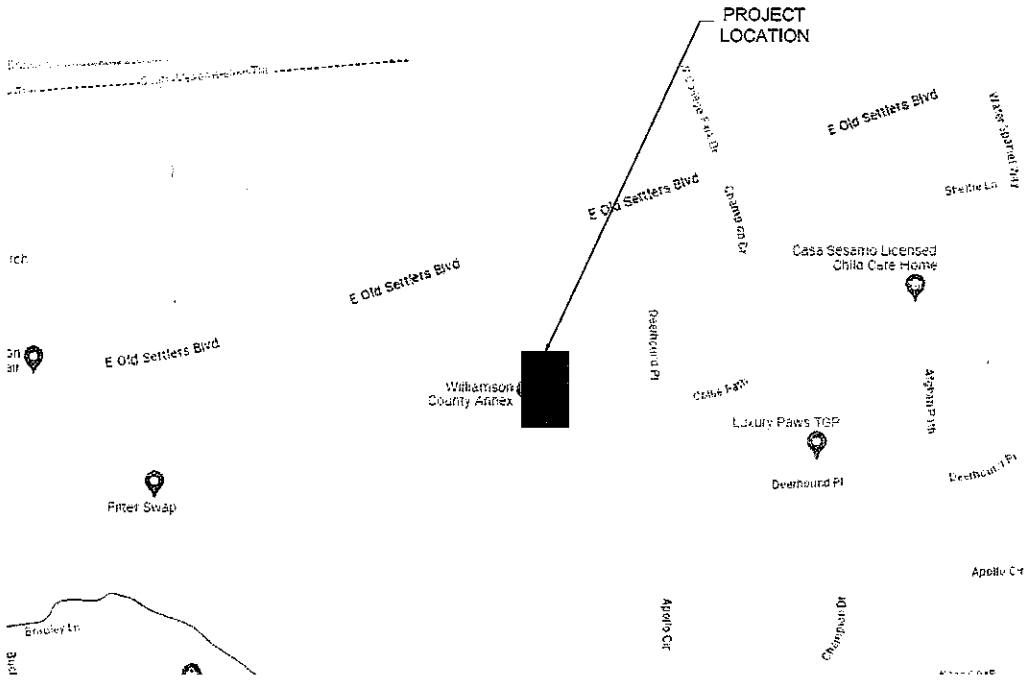
Attached below:

WILLIAMSON COUNTY JESTER ANNEX ROOFTOP HVAC UNIT REPLACEMENT

ISSUED FOR PERMIT
JULY 25, 2024

RAMIREZ-SIMON ENGINEERING, LLC
9805 Whithorn Drive
Houston, Texas 77095
Main: 832.261.1420
Texas Registered Engineering Firm F-14781

GESSNER ENGINEERING
Corporate Office: 401 W 26th Street,
Bryan, Texas, 77803
Main: 1.877.437.7637
Firm Registration Numbers: TBPE F-7451,
TBPLS F-10193910



VICINITY MAP

APPLICABLE CODES AND STANDARDS:

NFPA 1 - FIRE CODE (2020)
NFPA 101 - LIFE SAFETY CODE (2020)
NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE (2020)
INTERNATIONAL BUILDING CODE (IBC 2021)
INTERNATIONAL FIRE CODE (IFC 2021)
INTERNATIONAL MECHANICAL CODE (IMC 2021)
INTERNATIONAL PLUMBING CODE (IPC 2021)
INTERNATIONAL EXISTING BUILDING CODE (2021)
INTERNATIONAL ENERGY CONSERVATION CODE (IECC 2018)
NATIONAL ELECTRICAL CODE (NEC 2021)

SHEET LIST

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PD201	PLUMBING DEMOLITION ROOF PLAN - AREA B
PU201	PLUMBING RENOVATION UNDERFLOOR PLAN - AREA B
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P202	PLUMBING RENOVATION ROOF PLAN - AREA B
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P601	PLUMBING GAS RISER PLAN
P701	PLUMBING SCHEDULES

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS
MARK C. CLAYPOOL
147201
LICENSED
PROFESSIONAL ENGINEER
7/25/2024

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10159910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

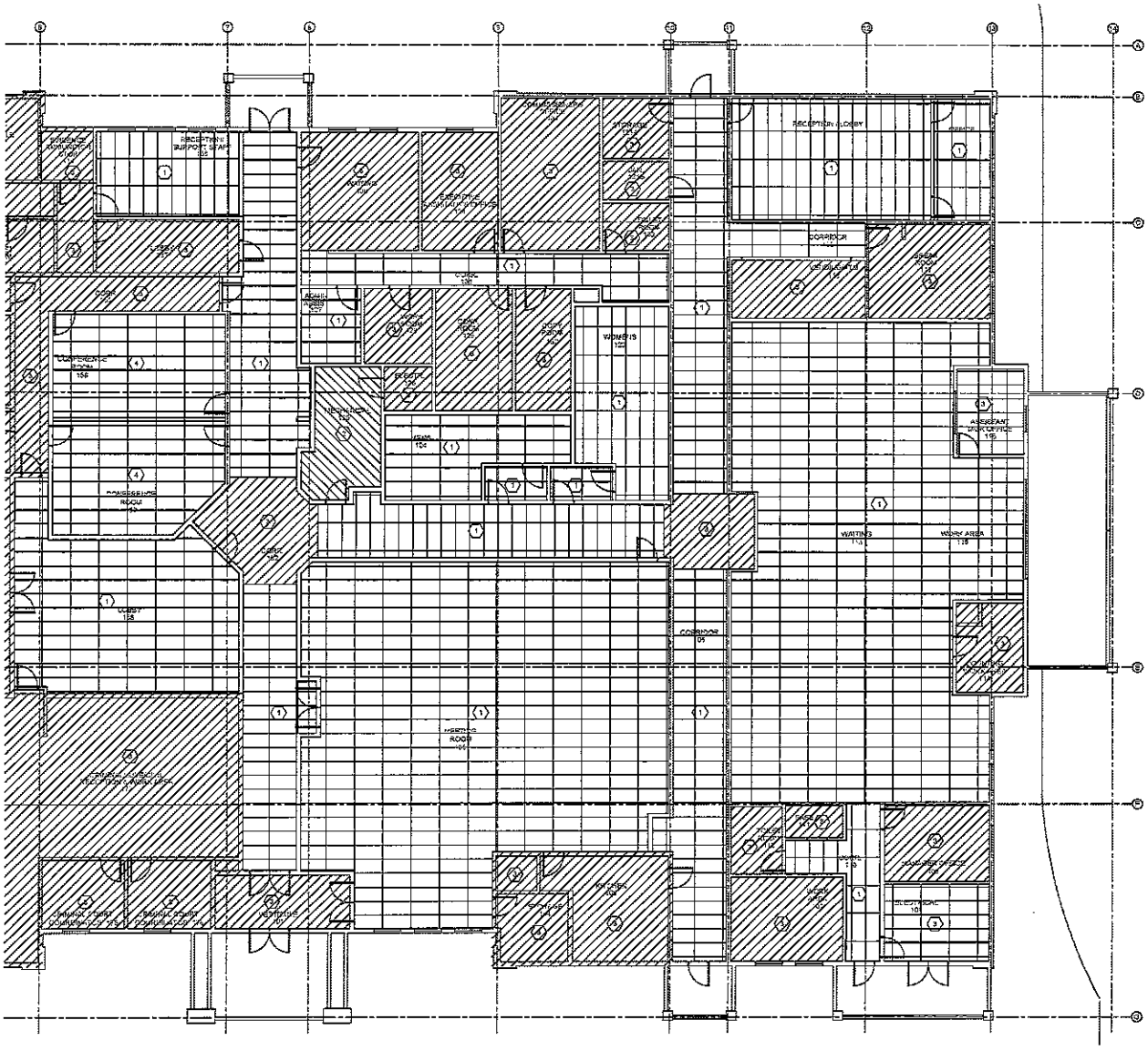
RSE PROJECT NO: 1479

SHEET TITLE

GENERAL INFORMATION

SHEET NUMBER

G001



1 GENERAL CEILING PLAN – AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

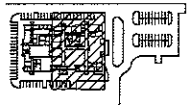
B. PROVIDE LAMINATED TERMINAL UNIT AND HEATING WATER VALVE IDENTIFICATION TAGS ON CEILING GRID. TAGS SHALL BE LOCATED ON GRID FOR BUILDING MAINTENANCE PERSONNEL TO QUICKLY IDENTIFY LOCATION OF TERMINAL UNITS AND VALVES.

C. CEILING PLAN IS DIAGRAMMATIC AND IS NOT INTENDED FOR EXACT PLACEMENT OF CEILING TILES. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.

SHEET KEYED NOTES

1. REMOVE AND REPLACE EXISTING CEILING TILES WITH ROCKFON, ARTIC 601 2X4. EXISTING CEILING GRID TO BE REMAIN AND BE PROTECTED. CEILING GRID TO BE REPAIRED AS REQUIRED.
2. DEMOLISH EXISTING CEILING AND ASSOCIATED GRID.
3. EXISTING CEILING TILES AND GRID TO REMAIN.
4. REMOVE AND REPLACE EXISTING CEILING TILES WITH ROCKFON, ARTIC 601 2X4. EXISTING CEILING GRID TO BE REMAIN AND BE PROTECTED. CEILING GRID TO BE REPAIRED AS REQUIRED. EXISTING HARD CEILING AROUND ROOM PERIMETER SHALL BE PROTECTED AND REMAIN.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"
N

FULL SIZE SHEET: 22X34

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RSE PROJECT NO. 1479

SHEET TITLE

GENERAL CEILING PLAN - AREA B

SHEET NUMBER

G201

GENERAL NOTES:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST PROVIDE SUBMITTALS OF PROPOSED CONSTRUCTION MATERIALS FOR REVIEW BY THE DESIGN ENGINEER A MINIMUM OF 14 DAYS PRIOR TO REQUIRED USE.
2. A PRE-CONSTRUCTION MEETING WILL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. TIME AND LOCATION TO BE DETERMINED BY WILLIAMSON COUNTY.
3. ALL BOUNDARY, TOPOGRAPHIC INFORMATION, AND SURVEY CONTROL WAS COMPLETED IN FEBRUARY, 2024 BY GESSNER ENGINEERING. CHANGES IN SITE OR FIELD CONDITIONS MAY HAVE OCCURRED.
4. THE CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTATION, BENCHMARKS, AND MARKERS DURING CONSTRUCTION.
5. THE CONTRACTOR MUST PROVIDE CONSTRUCTION STAKING SERVICES BASED ON THE INFORMATION PROVIDED IN THE PLANS.
6. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH FACILITY/PROPERTY OWNERS. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DONE TO EXISTING FACILITIES, PAVEMENT, ETC. AS A RESULT OF CONSTRUCTION ACTIVITIES.
7. ALL ITEMS SHOWN ON THESE PLANS ARE ASSUMED NEW/PROPOSED UNLESS DESIGNATED OR SHOWN AS EXISTING AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR INCLUSIVE OF ANY MATERIALS, LABOR, EQUIPMENT, AND OTHER REQUIREMENTS FOR A COMPLETE AND FUNCTIONING SITE ELEMENT. ALL ITEMS NECESSARY FOR PROPER COMPLETION OF THE WORK NOT SPECIFICALLY CALLED FOR OR SPECIFIED ON THE PLANS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND CONSIDERED SUBSIDIARY TO THE WORK.
8. ALL UTILITIES AND SERVICE LINES SHOWN ARE TAKEN FROM RECORD INFORMATION SUPPLIED BY THE UTILITY OWNER OR HORIZONTALLY LOCATED BY INDEPENDENT LOCATORS. CONTRACTOR IS RESPONSIBLE TO REPORT ANY CONFLICTS BETWEEN PLAN AND ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. OWNER, SURVEYOR, AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF INFORMATION OR DATA RELIED ON TO DEPICT UNDERGROUND FACILITIES. CONTRACTOR IS TO VERIFY THE EXACT LOCATION AND VERTICAL POSITIONING OF ALL PIPELINES, COMMUNICATION LINES, ELECTRICAL LINES, EXISTING UTILITIES, AND SERVICE LINES WITHIN THE PROJECT AREA, WHETHER SHOWN ON THE PLANS OR NOT, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONTACT OWNERS OF ALL UTILITIES AND SERVICE LINES WITHIN THE PROJECT AREA AND NOTIFY OF INTENT AT LEAST 1 WEEK PRIOR TO CONSTRUCTION.
9. CONTRACTOR IS TO MAINTAIN STRUCTURAL INTEGRITY OF ALL PIPELINES, ELECTRIC TRANSMISSION POLES AND LINES, PERMANENT AND TEMPORARY UTILITIES, AND UTILITY SERVICES.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES OR SERVICE LINES DURING THE CONSTRUCTION PROCESS. WHERE EXISTING UTILITIES OR SERVICE LINES ARE DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE UTILITY OR SERVICE LINE WITH THE SAME TYPE OF MATERIAL AND CONSTRUCTION, OR BETTER. ALL MATERIAL AND LABOR SHALL BE AT THE CONTRACTOR'S EXPENSE.
11. CONTRACTOR SHALL NOTIFY TEXAS811 AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION ACTIVITY AT 811 OR HTTP://WWW.TEXAS811.ORG. THE CONTRACTOR SHALL ALSO NOTIFY APPLICABLE UTILITY COMPANIES THAT HAVE UTILITY LINES ON OR IN THE GENERAL VICINITY OF THIS PROJECT SITE AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL STANDARDS, SPECIFICATIONS, AND REGULATIONS. WHERE CONSTRUCTION DOCUMENTS CONFLICT WITH THOSE GUIDELINES, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
12. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THESE PLANS AND ONSITE FIELD CONDITIONS OR SPECIFICATIONS OF OTHER DISCIPLINES. CONTRACTOR IS RESPONSIBLE TO REPORT ANY CONFLICTS WITHIN PLANS OR SPECIFICATIONS AND AWAIT WRITTEN INSTRUCTION FROM ENGINEER OR ARCHITECT PRIOR TO STARTING CONSTRUCTION.
13. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS, AS WELL AS INSPECTION APPROVALS.
14. A COPY OF APPROVED CONSTRUCTION PLANS SHALL BE KEPT ON SITE AT ALL TIMES THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN A SET OF REDLINE DRAWINGS TO RECORD AS-BUILT CONDITIONS.
15. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN AN ORDERLY PROJECT SITE. THE CONTRACTOR SHALL CLEAN, REMOVE, AND PROPERLY DISPOSE OF ANY SURPLUS OR DISCARDED MATERIALS, TEMPORARY STRUCTURES, AND DEBRIS FROM THE PROJECT SITE.
16. THE CONTRACTOR IS RESPONSIBLE FOR STORAGE AND SAFE-GUARDING OF ALL MATERIALS AND EQUIPMENT AT THE PROJECT SITE TO MAINTAIN A SAFE AND SECURE PROJECT.
17. THE CONTRACTOR SHALL COORDINATE SITE STORAGE WITH THE PROPERTY OWNER.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTAINMENT AND PROPER DISPOSAL OF ALL LIQUID AND SOLID WASTE ASSOCIATED WITH THIS PROJECT. THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO PREVENT THE OCCURRENCE OF WIND BLOWN LITTER FROM THE PROJECT SITE. THE SITE IS REQUIRED TO PROVIDE CONTAINMENT FOR WASTE PRIOR TO AND DURING DEMOLITION. SOLID WASTE ROLL OFF BOXES AND/OR METAL DUMPSTER SHALL BE SUPPLIED BY THE CONTRACTOR.
19. CONTRACTOR IS TO CONFINE ALL WORK TO OWNER'S PROPERTY. NO CONSTRUCTION ACTIVITY IS ALLOWED ON OR THROUGH PRIVATE PROPERTY UNLESS COVERED BY A PUBLIC UTILITY EASEMENT OR OTHER DOCUMENTED AGREEMENT. ANY ADJACENT RIGHT-OF-WAY (R.O.W.) OR PROPERTY AFFECTED DURING CONSTRUCTION SHALL BE RETURNED TO PRE-CONSTRUCTION CONDITION AT THE CONTRACTOR'S EXPENSE.
20. ALL EXISTING UTILITY APPURTENANCES (VALVE BOXES, FIRE HYDRANTS, MANHOLE RING AND COVER, JUNCTION BOX RING AND COVER, ETC) SHALL BE ADJUSTED TO FINAL GRADES.
21. ALL CONSTRUCTION OPERATIONS FOR THIS PROJECT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE UNITED STATES OCCUPATIONAL AND HEALTH ADMINISTRATION (OSHA).
22. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL STATE AND FEDERAL REGULATIONS REGARDING CONSTRUCTION ACTIVITIES NEAR ENERGIZED OVERHEAD ELECTRIC LINES.
23. THESE PLANS, PREPARED BY GESSNER ENGINEERING, DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR HIS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE WORK.
24. CONTRACTOR SHALL BE RESPONSIBLE AND LIABLE FOR ALL JOB SITE SAFETY, FOR MANAGEMENT OF JOB SITE PERSONNEL, FOR SUPERVISION OF THE USE OF JOB SITE EQUIPMENT AND FOR DIRECTION OF ALL CONSTRUCTION PROCEDURES, METHODS, AND ELEMENTS REQUIRED TO COMPLETE THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS

TRAFFIC CONTROL NOTES:

1. ALL TRAFFIC CONTROL DEVICES AND TRAFFIC MANAGEMENT SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF TMUTCD PART VI.
2. ALL CONSTRUCTION BARRICADES, SIGNS, MARKINGS, CHANNELIZING DEVICES, AND SPACING SHALL BE IN ACCORDANCE TO THE LATEST VERSION OF TXDOT BARRICADE AND CONSTRUCTION STANDARDS BC (1-12).
3. ALL EXISTING TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE MAINTAINED ON VISIBLE LOCATIONS DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. THE CONTRACTOR SHALL RESTORE OR REPLACE (AT THE DISCRETION OF THE ENGINEER) SIGNS AND PAVEMENT MARKING OR SIGNALS DAMAGED DURING CONSTRUCTION OPERATIONS, INCLUDING RAISED PAVEMENT MARKERS (RPMS) AND CHIP SEAL MARKERS.
4. ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAYS, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM ENGINEER.
5. AT THE END OF EACH WORK DAY, DURING NON-ACTIVE CONSTRUCTION PERIODS, AND AT ANY TIME A FLAGGER IS NOT PRESENT, TCP DEVICES SHALL BE REMOVED.
6. CONTRACTOR TO COORDINATE ANY NECESSARY ROAD CLOSURES WITH LOCAL RESIDENTS, BUSINESSES, AND EMERGENCY SERVICES.

DEMOLITION NOTES:

1. AREAS BENEATH REMOVED PAVEMENT SHALL BE CLEARED OF ALL LOOSE OR DISTURBED MATERIAL AND WATER. THE AREA SHALL BE PROOF-ROLLED AND MANUALLY COMPACTED OR REPLACED WITH SIMILAR MATERIALS PRIOR TO NEW PAVEMENT PLACEMENT PER SPECIFICATIONS.
2. UNDER ALL IMPROVEMENTS, ALL ITEMS ARE TO BE REMOVED UNLESS OTHERWISE INDICATED. REMOVE NOT ONLY THE ABOVE GROUND ELEMENTS BUT ALL UNDERGROUND ELEMENTS FOR UTILITIES UNLESS OTHERWISE INDICATED. DURING CLEARING AND GRUBBING ACTIVITIES WHERE TREES AND BRUSH ARE TO BE REMOVED, REMOVE THE TOTAL EXTENT OF THEIR ROOT SYSTEMS.
3. UNLESS OTHERWISE DIRECTED BY THE OWNER, ALL MATERIALS AND DEBRIS DEMOLISHED AND/OR REMOVED SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A MANNER SATISFACTORY TO THE OWNER, ARCHITECT, & ENGINEER. ON-SITE BURNING WILL NOT BE PERMITTED.
4. ALL EXCESS TOPSOIL AND CUT MATERIAL IS TO BE HAULED OFF AND DISPOSED OF OFF-SITE.
5. CONTRACTOR SHALL PREVENT TRANSPORT OF SEDIMENT TO ADJACENT PROPERTIES AND PUBLIC OR PRIVATE RIGHT OF WAYS AND IS RESPONSIBLE FOR CLEANUP IF SUCH OCCURS. CONTRACTOR IS TO ENSURE NO CONSTRUCTION DEBRIS OR MUD IS TRACKED OR DISCARDED ON TO ANY PUBLIC OR PRIVATE STREETS OR LAND AND IS RESPONSIBLE FOR SITE CLEANUP AFTER EACH DAYS WORK. CONTRACTOR IS TO MAKE USE OF BEST MANAGEMENT PRACTICES TO PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING EXISTING STORM SEWER OR DOWNSTREAM CHANNEL AREAS. CONTRACTOR SHALL MAINTAIN EROSION CONTROL THROUGHOUT CONSTRUCTION PERIOD AND UNTIL GRASS IS ESTABLISHED
6. CONTRACTOR TO PROTECT INDICATED EXISTING TREES TO REMAIN DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
7. CONTRACTOR IS TO PROTECT ALL EXISTING TREES INDICATED TO REMAIN DURING DEMOLITION AND CONSTRUCTION ACTIVITIES UNLESS OTHERWISE NOTED IN THE PLANS.

DIMENSION CONTROL NOTES:

1. THE CONTRACTOR MAY OBTAIN AN ELECTRONIC COPY OF PROJECT PLANS FOR CONSTRUCTION PURPOSES, WITH THE PERMISSION OF THE OWNER. THE ELECTRONIC FILE AND INFORMATION GENERATED BY GESSNER ENGINEERING FOR THIS PROJECT IS CONSIDERED BY GESSNER ENGINEERING TO BE CONFIDENTIAL. WHEN ISSUED, ITS USE IS INTENDED SOLELY FOR THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED. THE MATERIAL IS INTENDED FOR USE BY THE RECIPIENT NAMED, ONLY, AND PERMISSION IS NOT GRANTED TO THE RECIPIENT FOR DISTRIBUTION OF THIS DOCUMENTS IN ANY FORM OR FASHION. THE RECIPIENT UNDERSTANDS THAT THIS DATA IS AUTHORIZED "AS IS" WITHOUT ANY WARRANTY AS TO ITS PERFORMANCE, ACCURACY, FREEDOM FROM ERROR, OR AS TO ANY RESULTS GENERATED THROUGHOUT ITS USE. THE RECIPIENT ALSO UNDERSTANDS AND AGREES THAT GESSNER ENGINEERING, UPON RELEASE OF SUCH DATA, IS NOT LONGER RESPONSIBLE FOR THEIR USE OR MODIFICATION. THE USER AND RECIPIENT OF THE ELECTRONIC DATA ACCEPTS FULL RESPONSIBILITY AND LIABILITY FOR ANY CONSEQUENCES ARISING OUT OF THEIR USE.
2. ALL DIMENSIONS SHOWN ARE TO BE USED IN CONJUNCTION WITH THE PLANS FOR LOCATING ALL IMPROVEMENTS AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR FOR WORKABILITY PRIOR TO CONSTRUCTION OF THE IMPROVEMENTS.
3. REFER TO ARCHITECTURAL PLANS FOR DETAILED BUILDING DIMENSIONS.

GRADING NOTES:

1. ALL UNPAVED AREAS SHALL BE ADEQUATELY GRADED TO DRAIN AT A MINIMUM OF 2.0% SLOPE, UNLESS OTHERWISE NOTED, SO THAT NO PONDING OCCURS.
2. WHEN TOP OF CURB ELEVATIONS ARE SHOWN, THE CURB IS A STANDARD 6" CURB, UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL FOLLOW THE GENERAL INTENT OF THE GRADING PLANS. MINOR ADJUSTMENTS TO THE ACTUAL ELEVATIONS SHOWN ON THE GRADING PLAN MAY BE REQUIRED TO MATCH EXISTING GROUND ELEVATIONS AND STRUCTURES. CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO ANY MODIFICATIONS.
4. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITIONS OR BETTER.
5. THE APPROVAL OF THE PLANS IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM AFFECTED PROPERTY OWNER(S). ANY ADJACENT PROPERTY OR RIGHT-OF-WAY DISTURBED DURING CONSTRUCTION SHALL BE RETURNED TO EXISTING CONDITIONS OR BETTER.
6. FILL MATERIAL FOR NON-STRUCTURAL AREAS (5 FOOT OUTSIDE OF EDGE OF PAVEMENT, BACK OF CURB, OR IMPROVED AREAS) SHALL BE PLACED IN 8" MAXIMUM LOOSE LIFTS AND COMPACTED TO A UNIFORM DENSITY OF AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (ASTM D698) WITH A MOISTURE CONTENT OF +/-2% OF OPTIMUM.
7. COMPACTION AND MOISTURE CONTROL SHALL BE VERIFIED BY IN-PLACE DENSITY TEST FOR EACH LIFT, 1 TEST PER 4,000 SF OF FILL PLACED, WITH A MINIMUM OF 1 TEST PER LIFT.
8. PRIOR TO REVEGETATION OPERATIONS, CONTRACTOR TO SPREAD/REPLACE AND CONSOLIDATE TOPSOIL TO A DEPTH OF 6" MINIMUM.
9. CONTRACTOR IS RESPONSIBLE FOR WATERING (INCLUDING TEMPORARY IRRIGATION IN AREAS NOT RECEIVING PERMANENT IRRIGATION), MAINTENANCE, AND ESTABLISHMENT OF VEGETATION FOR A PERIOD OF 90 DAYS. CONTRACTOR TO GUARANTEE ALL PLANTED MATERIAL GROWTH AND COVERAGE FOR A PERIOD OF 6 MONTHS. GROWTH AND COVERAGE SHALL BE DEFINED AS 95% OF THE PLANTED AREA WITH UNIFORM COVERAGE OF GRASS GREATER THAN 1" IN HEIGHT WITH NO BARE SPOTS GREATER THAN 2 SQUARE FEET. SECOND APPLICATION OF SEED OR HYDROMULCH IS REQUIRED FOR BARE SPOTS NOT MEETING COVERAGE REQUIREMENT WITHIN 30 DAYS OF INITIAL APPLICATION.
10. ALL DISTURBED AREAS NOT TO BE PAVED OR NOT INCLUDED IN THE LANDSCAPE SCOPE ARE TO BE PREPARED AND HYDROMULCH OR SEEDED FOR PERMANENT ESTABLISHMENT OF VEGETATION. PRIOR TO OPERATIONS, CONTRACTOR IS TO REPLACE AND CONSOLIDATE TOPSOIL TO A DEPTH OF 6" MINIMUM. TOPSOIL TO BE HARLEY RAKE/TILLED TO A DEPTH OF 4" PRIOR TO SEEDING OR INSTALLATION OF SOD. FINAL GRADES WITH ESTABLISHED VEGETATION SHALL PROVIDE POSITIVE DRAINAGE.
11. CONTRACTOR SHALL MAINTAIN EROSION CONTROL UNTIL ALL LANDSCAPE AREAS ARE ESTABLISHED. CONTRACTOR IS RESPONSIBLE FOR CLEANUP FROM LANDSCAPING MATERIALS, MULCH OR LANDSCAPE SEDIMENT TRANSPORT THAT MAY OCCUR AFTER LANDSCAPE INSTALLATION INCLUDING MAINTENANCE OF GRATES AND TRENCH DRAINS.
12. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING N.O.I./N.O.T. (IF NECESSARY) TO T.C.E.Q & PROVIDING DOCUMENTATION OF SUBMISSION TO THE AUTHORITY HAVING JURISDICTION.
13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. WITHIN THE AREA OF CONSTRUCTION. THEY MUST BE ADJUSTED TO PROPER GRADE BY THE CONTRACTOR PRIOR TO AND AFTER THE PLACING OF PAVEMENT AND GRADING.
14. SIDEWALKS SHALL HAVE A SLOPE NO GREATER THAN 5% AND A CROSS SLOPE NOT GREATER THAN 2%, UNLESS OTHERWISE NOTED.
15. HANDICAP ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL HAVE A MAXIMUM OF 2% SLOPE IN ALL DIRECTIONS PER TAS REQUIREMENTS.
16. CONTRACTOR SHALL CONTACT GESSNER ENGINEERING IF DISCREPANCIES EXIST AT EXISTING GRADE TIE-INS.
17. CONTRACTOR TO VERIFY WITH ADJACENT PROPERTY OWNER WHEN GRADING ON ADJACENT PROPERTY.

PAVEMENT NOTES:

1. SUBGRADE:
1.A. EXISTING VEGETATION, TREES, STUMPS, AND ROOTS SHALL BE GRUBBED AND REMOVED. THE TOP 6" OF TOPSOIL AND SUBGRADE STRIPPED FROM THE AREAS TO BE COVERED BY PAVEMENT.
1.B. PAVING AREAS SHALL BE PROOF-ROLLED WITH A 20 TON COMPACTOR AND, IF REQUIRED AT THE TIME OF CONSTRUCTION, THE CONTRACTOR SHALL STABILIZE WEAK AREAS BY OVER EXCAVATING AND BACKFILLING WITH SPECIFIED MATERIALS.
1.C. FILL MATERIAL FOR AREAS UNDER PAVEMENT AND EXTENDING 5 FOOT BEYOND EDGE OF PAVEMENT OR BACK OF CURB, SHALL MEET THE SPECIFIED MATERIALS, BE PLACED IN 8" MAXIMUM LOOSE LIFTS, AND COMPACTED TO A UNIFORM DENSITY OF AT LEAST 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (ASTM D698) WITH A MOISTURE CONTENT OF +/-2% OF OPTIMUM.
1.D. COMPACTION AND MOISTURE CONTROL SHALL BE VERIFIED BY IN-PLACE DENSITY TEST FOR EACH LIFT FOR EVERY 200 LINEAR FEET OF PAVEMENT OR EVERY 4,000 SF OF FILL PLACED, WHICH EVER WOULD PRODUCE THE GREATER TESTING FREQUENCY, WITH A MINIMUM OF ONE TEST PER LIFT.
1.E. SOILS SHALL BE STABILIZED WITH LIME TREATMENT IF PAVEMENT SUBGRADE SOILS CONSIST OF CLAYS OR CLAYEY SANDS OF HIGH PLASTICITY (PI>20).
1.F. SOILS SHALL BE STABILIZED WITH CEMENT TREATMENT IF PAVEMENT SUBGRADE SOILS CONSIST OF SANDS OR SILTS WITH LOW PLASTICITY (PI <= 15).
1.G. STABILIZATION SHALL BE ACCOMPLISHED SUCH THAT A UNIFORM SUBGRADE MIX IS OBTAINED AND SHALL EXTEND TO 2 FOOT BEYOND THE BACK OF CURB OR EDGE OF PAVEMENT. PRIOR TO THE APPLICATION OF LIME OR CEMENT TO THE SUBGRADE, THE OPTIMUM PERCENTAGE TO BE ADDED SHALL BE DETERMINED BASED ON TEX-121-E LABORATORY TESTS (LIME) AND TEX-120-E LABORATORY TESTS (CEMENT) CONDUCTED ON MIXTURES OF THE SUBGRADE SOILS WITH VARYING PERCENTAGES. SUBGRADE SOIL SAMPLES SHOULD BE OBTAINED FROM THE PAVEMENT AREA AT THE PROPOSED FINAL SUBGRADE ELEVATION. THE LIME OR CEMENT SHOULD INITIALLY BE BLENDED WITH A MIXING DEVICE SUCH AS PULVERIZER OR MIXER AND SUFFICIENT WATER ADDED.
1.H. THE AMOUNT OF LIME REQUIRED FOR STABILIZATION SHOULD BE THE PERCENT REQUIRED BY WEIGHT TO PRODUCE A PH NOT LESS THAN 12.4 AND TO PROVIDE A PI VALUE OF LESS THAN OR EQUAL TO 18.
1.I. THE AMOUNT OF CEMENT REQUIRED FOR STABILIZATION SHOULD BE THE PERCENT REQUIRED BY WEIGHT TO PRODUCE A MINIMUM COMPRESSION STRENGTH OF 50 PSI PRIOR TO BEING OPEN TO LOCAL OR CONSTRUCTION TRAFFIC.
1.J. A STABILIZATION DEPTH CHECK SHALL BE PERFORMED WITH EACH DENSITY TEST FOR THE STABILIZED LIFT.

2. CONCRETE PAVEMENT:
2.A. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2.B. ALL CONCRETE SHALL BE VIBRATED WHEN PLACED.
2.C. PAVEMENT CONTRACTION JOINTS SHALL BE INSTALLED PER PLAN AND DETAIL SHEET, WITH A MAXIMUM SPACING OF 24 TIMES THE THICKNESS OF THE PAVEMENT (12' FOR 6" PAVEMENT). CONTRACTION JOINTS SHALL BE INSTALLED AS SOON AS CONCRETE CURING ALLOWS AND SHALL BE CUT 1/4 OF THE THICKNESS OF THE PAVEMENT. AN EARLY ENTRY SAW IS PREFERRED. TOOLED OR FORMED JOINTS ARE NOT ALLOWED.
2.D. PAVEMENT EXPANSION JOINTS SHALL BE SPACED AS SHOWN ON THE PLANS AND INSTALLED PER DETAIL SHEET. CONSTRUCTION SHALL BE STOPPED AT EXPANSION JOINTS. IF CONDITIONS REQUIRE, CONSTRUCTION TO BE STOPPED AT OTHER LOCATIONS, A COLD JOINT SHALL BE CONSTRUCTED.
2.E. ISOLATION JOINTS SHALL BE PLACED AT ALL IN-PAVEMENT OBJECTS INCLUDING INLETS, LIGHT POLE FOOTINGS, CLEANOUTS, ETC.
2.F. ALL JOINTS SHALL BE SEALED. PROVIDE EXPANSION JOINT WATER STOP CAPS AT NEW CONCRETE. PROVIDE EXPANSION JOINT SEALANT AT NEW TO EXISTING PAVEMENT.
2.G. REFERENCE DETAIL SHEET FOR PAVEMENT AND SIDEWALK CONSTRUCTION DETAILS.
2.H. TRANSPORTATION AND PLACEMENT OF THE CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301. A TEST SET CONSISTING OF 4 CYLINDERS SHALL BE TAKEN FOR EVERY 75 CUBIC YARDS OF CONCRETE.

3. CURB AND GUTTER SECTION:
3.A. EXPANSION JOINTS SHALL BE SPACED AT A MAXIMUM DISTANCE OF 40' AND AT ALL RADIUS POINTS, PT'S AND PC'S AND SHALL BE SEALED.
3.B. CONTRACTION JOINTS SHALL BE SPACED AT A MAXIMUM OF 10' AND SHALL BE SEALED. TOOLED OR FORMED JOINTS ARE NOT ALLOWED.

4. PAINTING AND STRIPING:
4.A. CONTRACTOR SHALL PAINT STRIPING FOR THE PARKING AREA AS INDICATED ON THE PLAN. THE SOLID LINE REPRESENTS A 4" WIDE SOLID WHITE LINE TO BE PAINTED. CONTRACTOR IS RESPONSIBLE TO PAINT HANDICAP MARKINGS AND LOADING ZONES IN CONFORMANCE WITH CURRENT ADA/TAS STANDARDS AND ALL FIRE LANE MARKINGS IN ACCORDANCE WITH AUTHORITY HAVING JURISDICTION REQUIREMENTS.
4.B. MATERIAL AND METHODS FOR PAVEMENT MARKINGS SHALL CONFORM TO ITEM 666 AND DMS-8200 OF THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES.

GENERAL UTILITY NOTES:

1. THE CONTRACTOR SHALL NOTIFY TEXAS 811 AND THE APPROPRIATE UTILITY COMPANY 48 HOURS PRIOR TO EXCAVATION, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL STATE AND FEDERAL REGULATIONS REGARDING CONSTRUCTION ACTIVITIES NEAR ENERGIZED OVERHEAD ELECTRIC LINES.
3. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL FRANCHISE & PRIVATE UTILITIES WITH EARTHWORK & PAVEMENT CONSTRUCTION.
4. GENERAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING & INSTALLING ANY NECESSARY UTILITY CONDUIT PRIOR TO SUBGRADE PREPARATION & PAVING OPERATION.
5. GENERAL CONTRACTOR IS RESPONSIBLE FOR DETERMINATION OF UTILITY INSTALLATION ORDER.
6. ALL PIPES AND APPURTENANCES SHALL BE KEPT FREE OF DIRT AND OTHER DEBRIS. STORE ALL MATERIALS PER MANUFACTURERS RECOMMENDATIONS. ANY DAMAGED MATERIALS SHALL BE REMOVED FROM THE SITE AND REPLACED.
7. TRENCH BACKFILL FOR ALL UTILITIES SHALL MEET THE DETAILS, SPECIFIED MATERIALS, AND BE FREE OF DEBRIS, TRASH, VEGETATION, AND ROCKS LARGER THAN 2" IN DIAMETER OR MATERIAL AS OUTLINED IN THE GEOTECHNICAL REPORT. UNDER AREAS TO BE PAVED & WITHIN 5' OF EDGE OF PAVING, THE BACKFILL SHALL BE PLACED IN 8" MAXIMUM LOOSE LIFTS AND COMPACTED TO A UNIFORM DENSITY OF AT LEAST 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (D698) OR BE CEMENT STABILIZED SAND COMPACTED TO A UNIFORM DENSITY OF AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D558 WITH A MOISTURE CONTENT OF -/+ 2% OF OPTIMUM. ALL OTHER AREAS SHALL BE COMPACTED TO A UNIFORM DENSITY OF AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (D698).
8. COMPACTION AND MOISTURE CONTROL SHALL BE VERIFIED BY IN-PLACE DENSITY TEST FOR EACH LIFT FOR EVERY 100 LINEAR FEET OF TRENCH PLACED, WITH A MINIMUM OF ONE TEST PER LIFT.

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STATE OF TEXAS
SAMANTHA BEEVERS
152222
LICENSED
PROFESSIONAL ENGINEER
07/25/24

CONSULTANTS

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www.gessnerengineering.com
FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JUL 25, 2024

MARK	DATE	DESCRIPTION

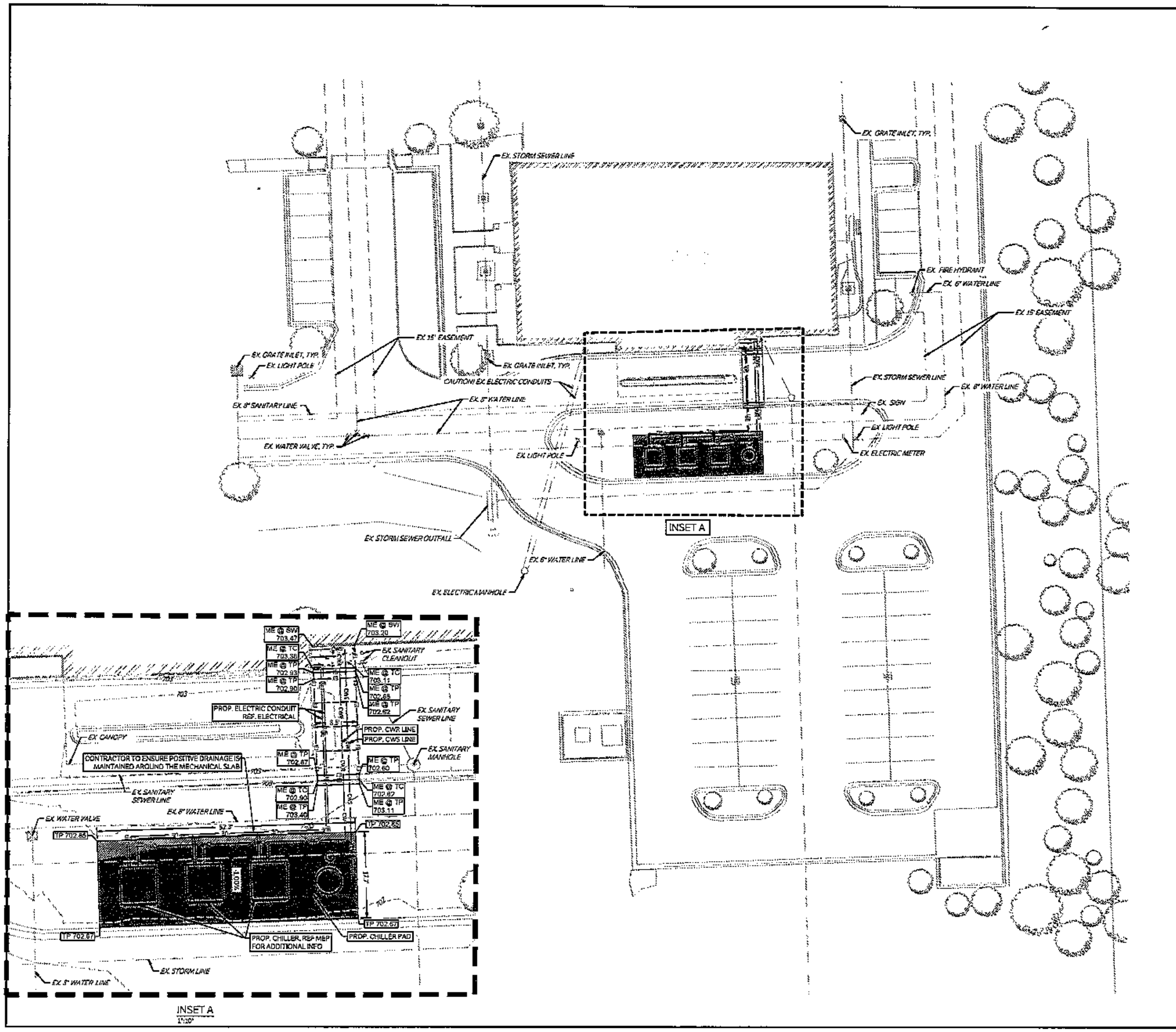
RSE PROJECT NO: 1479

SHEET TITLE

NOTES

SHEET NUMBER

C-000



INSET A
1"=10'

CAUTION: CONTACT TEXAS 811 AND LOCAL UTILITY PROVIDERS TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION
CONTACT GESSNER ENGINEERING IF CONFLICTS OCCUR

N

0 20 40 60
SCALE: 1"= 20'

PROJECT BENCHMARK

- BM1 BENCHMARK 1 DESCRIPTION
  NORTHING: 10169898.3889
  EASTING: 3137852.2567
  ELEVATION: 700.9430'
- BM2 BENCHMARK 2 DESCRIPTION
  NORTHING: 10169610.7495
  EASTING: 3137322.7220
  ELEVATION: 695.7814'
- BM3 BENCHMARK 3 DESCRIPTION
  NORTHING: 10169691.5961
  EASTING: 3138140.4609
  ELEVATION: 697.4031'

926 SQFT OF ADDITIONAL IMPERVIOUS COVER WILL NOT NEGATIVELY IMPACT DRAINAGE

LEGEND

- EXISTING BUILDING
- PROPOSED 7" CONCRETE PAVEMENT
- PROPOSED 4" CONCRETE SIDEWALK
- REF. STRUCTURAL PLANS & DETAILS
- EXISTING PAVEMENT EDGE
- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EX. | PROP. STORM LINE
- EX. | PROP. WATER LINE
- EX. | PROP. SANITARY SEWER LINE
- EXISTING THERMALS
- PROPOSED THERMALS
- EX. | PROP. GAS LINE
- EX. | PROP. DATA/TELECOM
- EX. | PROP. UNDERGROUND ELECTRIC
- EX. | PROP. FIBER OPTIC
- EX. | PROP. OVERHEAD ELECTRIC
- EX. | PROP. FIRE HYDRANT
- EX. | PROP. WATER METER
- EX. | PROP. GATE VALVE
- EX. IRRIGATION CONTROL VALVE
- PROP. FIRE DEPARTMENT CONNECTION
- PROP. POST INDICATOR VALVE
- PROP. HOSE LAY
- EX. | PROP. SANITARY SEWER MANHOLE
- EX. | PROP. SANITARY SEWER CLEANOUT
- EX. STORM SEWER MANHOLE
- PROP. STORM SEWER CURB INLET
- EX. | PROP. LIGHT POLE
- PAE PROPOSED PUBLIC ACCESS EASEMENT
- PUE PROPOSED UTILITY EASEMENT

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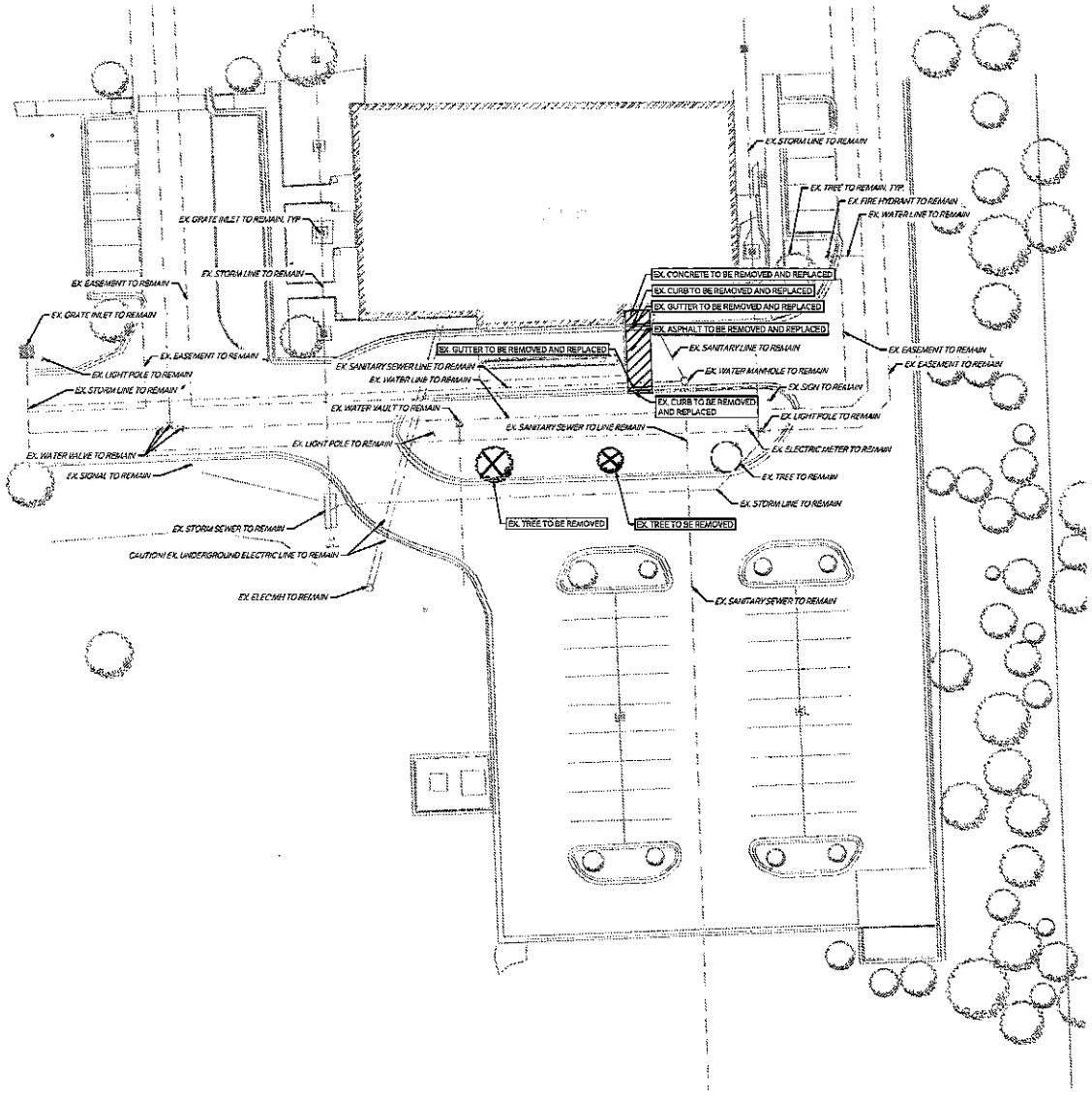
MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-100



CAUTION: CONTACT TEXAS 811 AND LOCAL UTILITY PROVIDERS TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTACT GESSNER ENGINEERING IF CONFLICTS OCCUR

N

0 20 40 60

SCALE: 1"= 20'

LEGEND

- PROP. TREE PROTECTION FENCE (REMOVE IF LANDSCAPE ARCHITECT IS HANDLING THIS)
- EX. TREE TO BE REMOVED
- EX. TREE TO REMAIN
- DEMOLITION AREA

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FIRM REGISTRATION NUMBERS:
TBPE F-7450, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

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ISSUED FOR PERMIT
JUL 25, 2024

MARK	DATE	DESCRIPTION

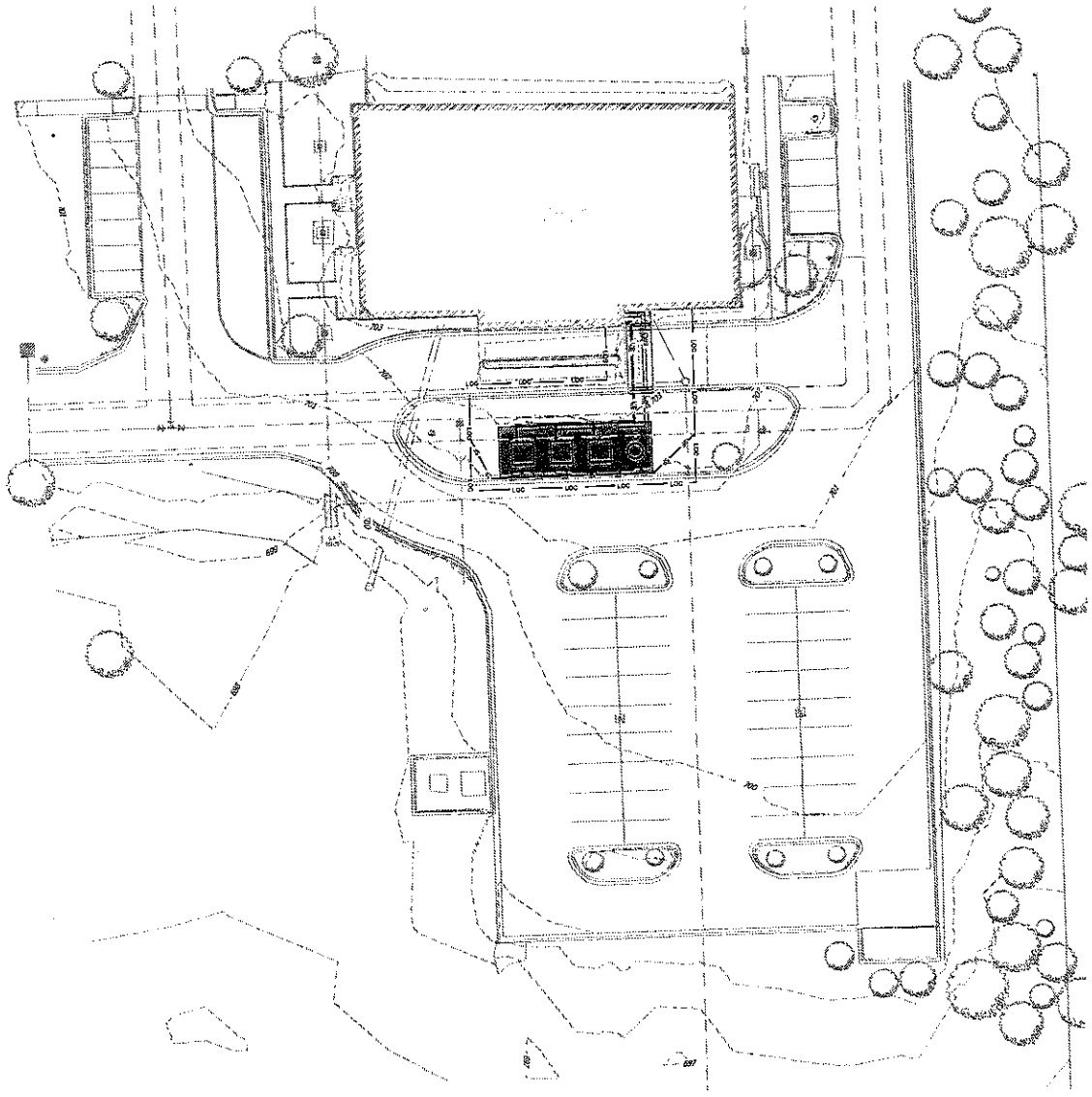
RSE PROJECT NO. 1479

SHEET TITLE

DEMO PLAN

SHEET NUMBER

C-200



CAUTION: CONTACT TEXAS 811 AND LOCAL UTILITY PROVIDERS TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTACT GESSNER ENGINEERING IF CONFLICTS OCCUR

N

0 20 40 60

SCALE: 1"= 20'

LEGEND

	CONSTRUCTION ENTRANCE, INSTALLED PER DETAIL
	PROPERTY LINE
340	EXISTING CONTOURS
340	PROPOSED CONTOURS
	EXISTING FLOW PATH
	PROPOSED FLOW PATH
SF	SILT FENCE, INSTALLED PER DETAIL
CL-D	PROPOSED DAM / EROSION CONTROL, LOG- 18"
RFD3	PROPOSED ROCK FILTER DAM TYPE 3

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FIRM REGISTRATION NUMBERS:
TBPE F-7453, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
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MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

EROSION CONTROL

SHEET NUMBER

C-300

EROSION CONTROL NOTES:
OWNER INFORMATION: WILLIAMSON COUNTY
1801 E OLD SETTLERS BLVD
ROUND ROCK, TEXAS 78664

PROJECT NAME: WICO JESTER ANNEX HVAC REPLACEMENT

PROJECT LOCATION: 1801 E OLD SETTLERS BLVD
ROUND ROCK, TEXAS

LATITUDE: 30° 32' 21.35" N
LONGITUDE: 97° 39' 31.44" W
TOTAL SITE AREA IS: 0.069 ACRES
TOTAL AREA OF SITE EXPECTED TO BE DISTURBED: APPROXIMATELY 0.024 ACRES

EXISTING SITE CONDITIONS:
LAND USE: OFFICE
LAND COVER: PARKING LOT PAVEMENT, SHORT GRASS
RECEIVING WATERS: TURKEY CREEK-BRUSHY CREEK
BASIN NAME: BRAZOS RIVER BASIN

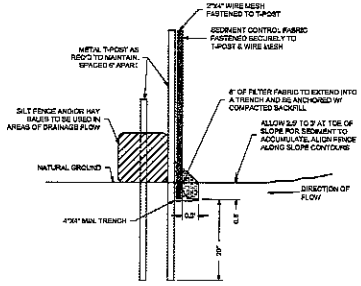
SOIL INFORMATION
3-5 PERCENT SLOPES
HYDROLOGIC SOIL GROUP: D

POST DEVELOPED SITE CONDITIONS
LAND USE: CHILLER PAD

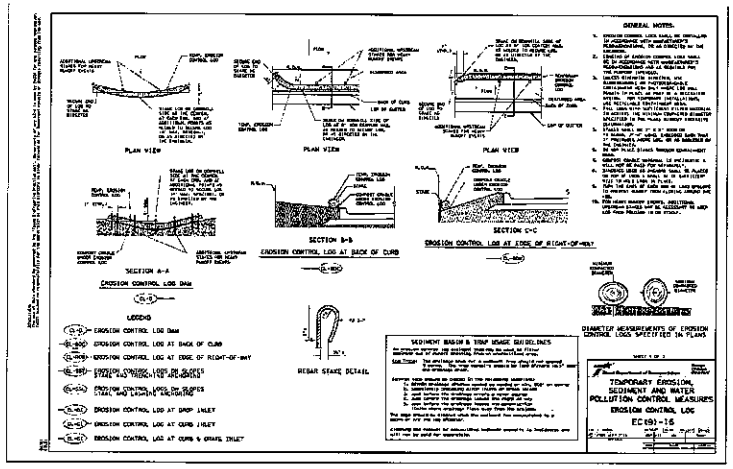
NATURE OF ACTIVITIES
CLEAR OF INDICATED TREES; STRIPPING OF TOPSOIL; SITE CUT/FILL OPERATIONS, 925 SQFT OF STRUCTURAL PAVEMENT, 112 SQFT OF CONCRETE PAVEMENT

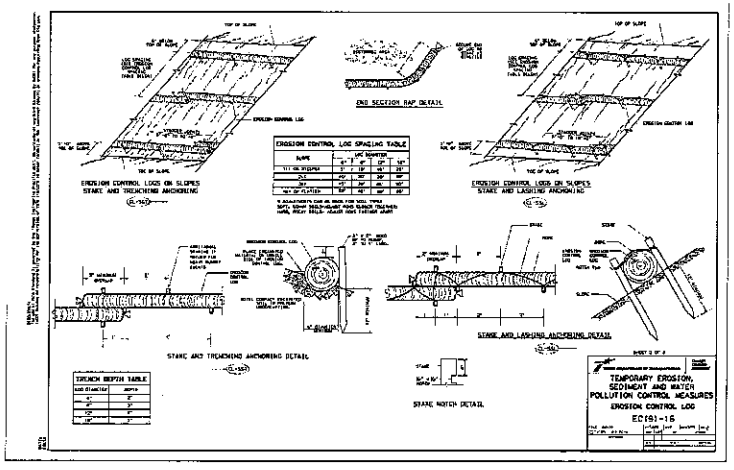
SEQUENCE OF MAJOR ACTIVITIES
1. INSTALL SILT FENCE AT LIMITS OF CONSTRUCTION & STOCK PILE AREAS
2. INSTALL GRAVEL FILTER BAGS AROUND EXISTING INLETS
3. CLEAR SITE
4. AFTER ESTABLISHMENT OF GRASS, REMOVE ALL TEMPORARY EROSION CONTROL (SILT-FENCE);
5. SEED ALL AREAS NOT HAVING PERMANENT GRASS COVERAGE AS DEFINED.

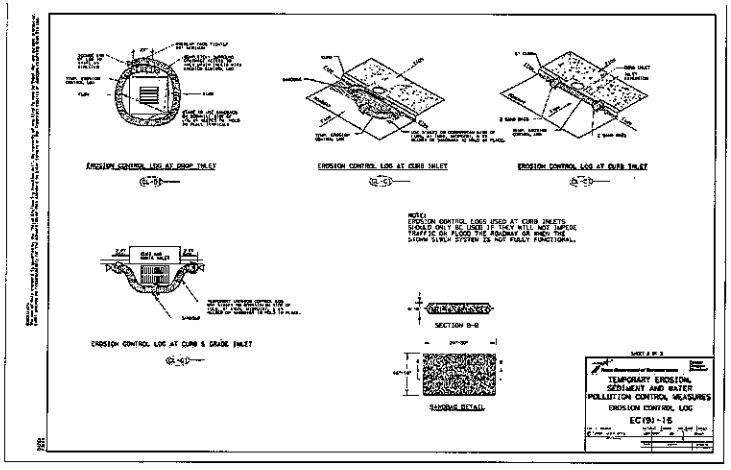
GENERAL EROSION CONTROL NOTES
1. ALL UTILITIES AND SERVICE LINES SHOWN ARE TAKEN FROM RECORD INFORMATION SUPPLIED BY THE UTILITY OWNER OR HORIZONTALLY LOCATED BY INDEPENDENT LOCATORS. CONTRACTOR IS RESPONSIBLE TO REPORT ANY CONFLICTS BETWEEN PLAN AND ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF INFORMATION OR DATA RELIED ON TO DEPICT UNDERGROUND FACILITIES.
2. CONTRACTOR IS TO CONTACT TEXAS 811 AND OWNERS OF ALL UTILITIES AND SERVICE LINES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH FACILITY OWNERS. CONTRACTOR IS TO VERIFY THE EXACT LOCATION AND VERTICAL POSITIONING OF ALL PIPELINES, EXISTING UTILITIES, AND SERVICE LINES WITHIN THE PROJECT AREA WHETHER SHOWN ON THE PLANS OR NOT, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
3. CONTRACTOR IS TO MAINTAIN STRUCTURAL INTEGRITY OF ALL PIPELINES, ELECTRIC TRANSMISSION POLES AND LINES, PERMANENT AND TEMPORARY UTILITIES. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DONE TO EXISTING UTILITY FACILITIES, PAVEMENT, ETC. AS A RESULT OF CLEARING/DIRTWORK ACTIVITIES.
4. CONTACT GESSNER ENGINEERING IF CONFLICTS OCCUR.
5. ALL DISTURBED AREAS NOT TO BE PAVED ARE TO HAVE ESTABLISHMENT OF GRASS AS OUTLINED IN THE DESCRIPTION OF CONTROLS, STABILIZATION PRACTICES NOTES.
6. ALL SWALE AREAS (BOTTOM WIDTHS & SIDE SLOPES) ARE TO BE PREPARED AND HYDROMULCHED FOR PERMANENT ESTABLISHMENT OF VEGETATION. PRIOR TO HYDROMULCHING OPERATIONS, CONTRACTOR TO REPLACE TOPSOIL TO A DEPTH OF 6". TOPSOIL IS TO BE DISKED TO A DEPTH OF AT LEAST 4" AND LIGHTLY COMPACTED. FINAL GRADES WITH ESTABLISHED VEGETATION SHALL BE AS CALLED OUT ON THE GRADING PLAN.
7. CONTRACTOR IS TO MAINTAIN EROSION CONTROL AT ALL LOCATIONS OF CONSTRUCTION, THROUGHOUT DURATION OF THE PROJECT AND UNTIL VEGETATION IS ESTABLISHED. INSURE SEDIMENT IS NOT TRANSPORTED DOWNSTREAM FROM PROJECT VIA GRAVEL FILTER BAGS AND SILT FENCE INSTALLATIONS. IF EXCESSIVE EROSION IS OBSERVED IN THE FIELD, ADDITIONAL EROSION CONTROLS SHALL BE INSTALLED.
8. CONTRACTOR SHALL NOT ALLOW SEDIMENT TO ENTER THE DOWNSTREAM CHANNEL. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OF THE DOWNSTREAM CHANNEL AREAS AND RESTORING TO ORIGINAL CONDITION, INCLUDING ESTABLISHMENT OF REVEGETATION SHOULD CONSTRUCTION SEDIMENT BE FOUND OUTSIDE THE LIMITS OF CONSTRUCTION.
9. THE CONTRACTOR WILL REMOVE ALL EXCESS SOIL FROM CONSTRUCTION VEHICLES PRIOR TO EXITING THE SITE.
10. THE CONTRACTOR SHALL UNDERTAKE PROPER METHODS TO REDUCE DUST GENERATION FROM THE SITE.
11. THE CONTRACTOR MUST COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS REGARDING SEDIMENTS AND EROSION CONTROL.
12. A COPY OF THIS PLAN MUST BE KEPT AT THE CONSTRUCTION FACILITY DURING THE ENTIRE CONSTRUCTION PERIOD.
13. ALL FINISHED GRADES ARE TO BE HYDRO-MULCHED, SPOT SODDED OR SEEDED AND WATERED UNTIL GROWTH IS ESTABLISHED.



SILT CONTROL FENCE
NTS







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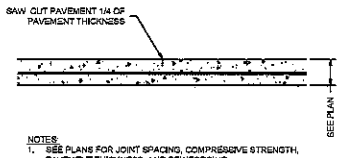
RSE PROJECT NO: 1479

SHEET TITLE

EROSION CONTROL NOTES

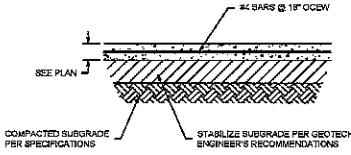
SHEET NUMBER

C-301



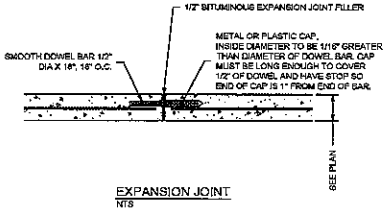
NOTES:
1. SEE PLANS FOR JOINT SPACING, COMPRESSIVE STRENGTH, PAVEMENT THICKNESS, AND REINFORCING.
2. SAW CUT OPERATIONS SHALL BEGIN AS SOON AS POSSIBLE AFTER CONCRETE PLACEMENT.
3. SEAL ALL JOINTS WITH SELF LEVELING JOINT SEALANT MATERIAL PER SPECIFICATIONS.

CONTROL JOINT
NTS

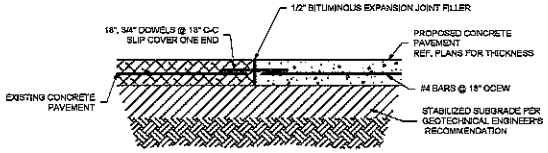


NOTES:
1. SEE PLAN FOR JOINT SPACING, COMPRESSIVE STRENGTH, PAVEMENT THICKNESS, AND REINFORCING.
2. DEPTH OF STABILIZATION SHALL BE A MINIMUM OF 6 INCHES OR BASED ON GEOTECHNICAL RECOMMENDATIONS SUBGRADE CONDITIONS.
3. SUBGRADE STABILIZATION SHALL BE PER GEOTECHNICAL RECOMMENDATIONS AND LIME/CEMENT SERIES BASED ON ACTUAL SUBGRADE CONDITIONS.

CONCRETE PAVEMENT
NTS

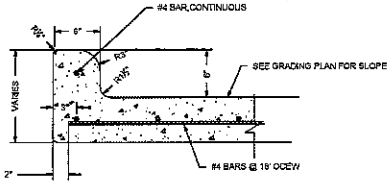


EXPANSION JOINT
NTS

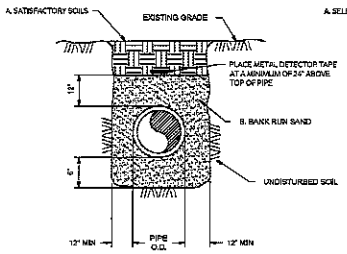


NOTE:
1. SEE PLANS FOR THICKNESS OF EXISTING AND PROPOSED CONCRETE PAVEMENT
2. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI

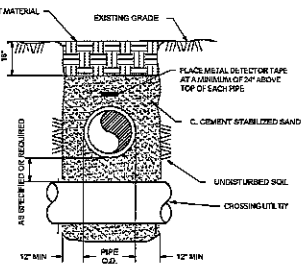
EXISTING CONCRETE TIE-IN
NTS



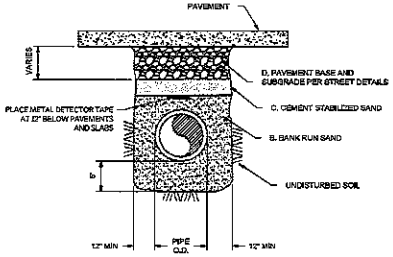
INTEGRAL CURB & GUTTER
NTS



NON-STRUCTURAL AREAS



UTILITY CROSSING AREAS



AREAS TO BE PAVED

A. SATISFACTORY SOILS
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLODS, OR DEBRIS LARGER THAT TWO (2) INCHES IN THE LARGEST DIMENSION), COMPACTED TO A MINIMUM OF 85% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT MOISTURE CONTENT WITHIN OPTIMUM TO 2% OF OPTIMUM UNDER NON-STRUCTURAL AREAS (IE., YEARDS, PASTURES, EASEMENTS) AND TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO 2% OF OPTIMUM UNDER NEW STREET AND PAVEMENT AREAS.

B. BANK RUN SAND
GRANULAR MATERIAL FREE OF DETRIMENTAL QUANTITIES OF CLAY, DEBRIS, OR ORGANIC MATERIAL. REFERENCE SPECIFICATION FOR REQUIREMENTS.

C. CEMENT STABILIZED SAND
MATERIALS SHALL BE TYPE I PORTLAND CEMENT CONFORMING TO ASTM C150 AND CLEAN DURABLE SAND MEETING GRADING REQUIREMENTS FOR FINE AGGREGATES OF ASTM C33. THE CEMENT STABILIZED SAND SHALL HAVE A MINIMUM OF 10% CEMENT PER CUBIC YARD OF CEMENT STABILIZED SAND MIXTURE, BASED ON LOOSE DRY WEIGHT VOLUME (AT LEAST 2.5 SACKS OF CEMENT PER CUBIC YARD OF MIXTURE). COMPACT MIX TO 98% OF ASTM D698 WITH A MOISTURE CONTENT BETWEEN -2% TO 2% ABOVE OPTIMUM.

REFERENCE PAVEMENT SECTION DETAIL AND SPECIFICATION

GENERAL NOTES:
ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY SLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

ESTABLISHMENT OF VEGETATION MAY BE A WARRANTY ITEM

NOTES:
1. FOR BEDDING AND TRENCHING WITHIN ALL PAVED AREAS SEE DETAILS FOR OPEN CUT STREETS.
2. ALL BEDDING & INSTALLATION OF HDPE PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA STANDARDS FOR HDPE PIPE
3. COMPACTION SHALL BE ATTAINED BY MECHANICAL TAMPING
4. RELATIVE COMPACTION SHALL BE TESTING IN THE PRESENCE OF THE ENGINEER
5. DUST RESULTING FROM THE CONTRACTOR'S PERFORMANCE OF THE WORK, EITHER INSIDE OR OUTSIDE THE RIGHT-OF-WAY, SHALL BE CONTROLLED BY THE CONTRACTOR
6. ALL TRENCHES SHALL BE BACK FILLED AND TEMPORARY PAVING OR PLATING PLACED AT THE END OF EACH WORKING DAY
7. HDPE LINES WITH WELDED JOINTS MAY BE BACKFILLED PRIOR TO TESTING AT CONTRACTOR'S RISK.

BEDDING AND TRENCH FOR HDPE PIPE WITH NON-STRUCTURAL OR NEW PAVED AREAS

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SEAL

STATE OF TEXAS
SAMANTHA BREWERS
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CONSULTANTS

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1.877.GESSNER (437.7637)
www.gessnergroupengineering.com
FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10153910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1601 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JUL 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO. 1479

SHEET TITLE

DETAILS

SHEET NUMBER

C-400

ABBREVIATION LIST

ACP	AUGER CAST PILE	MIN.	MINIMUM
ADD.	ADDITIONAL	MISC.	MISCELLANEOUS
ALT.	ALTERNATIVE	MPH	MILES/ HOUR
ARCH	ARCHITECT, ARCHITECTURAL	N/A	NOT APPLICABLE
ASI	ARCHITECTS SUPPLEMENTAL INSTRUCTIONS	NS	NON-SHRINK
BOS	BOTTOM OF STEEL	NTE	NOT TO EXCEED
BP	BASE PLATE	NTS	NOT TO SCALE
CJ	CONTROL JOINT	NWC	NORMAL WEIGHT CONCRETE
CJP	COMPLETE JOINT PENETRATION	OC	ON CENTER
CL, ℄	CENTER LINE	OCEW	ON CENTER EACH WAY
CMU	CONCRETE MASONRY UNIT	OPP	OPPOSITE
COL	COLUMN	PAR.	PARALLEL
COMP.	COMPOSITE	PEMB	PRE-ENGINEERED METAL BUILDING
CONT.	CONTINUOUS	PERP.	PERPENDICULAR
CU	CUBIC	PJP	PARTIAL JOINT PENETRATION
d,	BAR DIAMETER	PI	PLASTICITY INDEX
DF	DOUGLAS FIR	PLF	LBS/ LINEAR FOOT
DIA., Ø	DIAMETER	PSF	LBS/ SQUARE FOOT
EA	EACH	PSI	LBS/ SQUARE INCH
EJ	EXPANSION JOINT	PSL	PARALLEL STRAND LUMBER
EMBED.	EMBEDMENT	PW	PUDDLE WELD
EN	EDGE NAILING	QA	QUALITY ASSURANCE
EOR	ENGINEER OF RECORD	QC	QUALITY CONTROL
EP	EMBED PLATE	QTY	QUANTITY
EQ.	EQUAL	REC.	RECOMMENDED
EQUIP.	EQUIPMENT	REF	REFERENCE
EXT.	EXTERIOR	REINF.	REINFORCEMENT
FFE	FINISH FLOOR ELEVATION	REQ	REQUIRED
GA.	GAUGE	RFI	REQUEST FOR INFORMATION
GALV	GALVANIZED	SEC	SECOND
GC	GENERAL CONTRACTOR	SF	SQUARE FEET
GFCMU	GROUT FILLED CONCRETE MASONRY UNIT	SIM.	SIMILAR
GR	GRADE	SPEC.	SPECIFICATION
HCA	HEADED CONCRETE ANCHOR	SPF	SPRUCE PINE FIR
IN²	SQUARE INCHES	STD.	STANDARD
INFO.	INFORMATION	SYP	SOUTHERN YELLOW PINE
INT	INTERMEDIATE	T&B	TOP AND BOTTOM
K	KIP (1,000 LBS)	TBS	TO BE SIZED
KD	KILN DRIED	THK.	THICKNESS
LBS	POUNDS	TJI	TRUSS JOIST I-JOIST
LG	LIGHT GAUGE	TOC	TOP OF CONCRETE
LW	LIGHT WEIGHT	TOS	TOP OF STEEL
LSL	LAMINATED STRAND LUMBER	TSW	TOP SEAM WELD
LVL	LAMINATED VENEER LUMBER	TYP.	TYPICAL
LW	LIGHTWEIGHT	UNO	UNLESS NOTED OTHERWISE
MAX.	MAXIMUM	US	UNDERSIDE
MECH.	MECHANICAL	W/	WITH
MEP	MECHANICAL ELECTRICAL PLUMBING	W/C	WATER-CEMENT RATIO
MFR	MANUFACTURER	W/O	WITHOUT
MIL	0.001"	WWF	WELDED WIRE FABRIC

GENERAL

1. STRUCTURAL DESIGN BASED ON MECHANICAL PLANS PROVIDED BY RAMIREZ-SIMON RECEIVED JULY 23, 2024.
2. FOR REFERENCED STANDARDS OF DESIGN AND CONSTRUCTION REFER TO CHAPTER 35 OF THE INTERNATIONAL BUILDING CODE (IBC). WHERE OTHER STANDARDS ARE NOTED IN THE DRAWINGS, USE THE LATEST EDITION OF THE STANDARD UNLESS A SPECIFIC DATE IS INDICATED. REFERENCE TO A SPECIFIC SECTION IN A CODE DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE ENTIRE STANDARD. ALL SPECIFICATIONS AND CODES NOTED SHALL BE THE LATEST APPROVED EDITIONS AND REVISIONS BY THE AUTHORITY HAVING JURISDICTION OVER THIS PROJECT.
3. WHERE CONFLICTS EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS SHALL GOVERN, UNLESS APPROVED OTHERWISE.
4. STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH MECHANICAL, ELECTRICAL, PLUMBING, CIVIL, AND ARCHITECTURAL DRAWINGS. WHERE DISCREPANCIES OCCUR BETWEEN STRUCTURAL DOCUMENTS AND OTHER DISCIPLINES, THE STRUCTURAL ENGINEER SHALL BE CONTACTED.
5. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST RFI, ASI, AND/OR ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, OR CONSTRUCTION.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL FIELD VERIFY STRUCTURES NOTED IN THE DRAWINGS AS EXISTING. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT AND STRUCTURAL ENGINEER.
7. DO NOT SCALE DRAWINGS FOR QUANTITY, LENGTH, OR FIT OF MATERIALS
8. THE STRUCTURAL DRAWINGS ARE INTENDED TO SHOW THE GENERAL CHARACTER AND EXTENT OF THE PROJECT AND ARE NOT INTENDED TO SHOW ALL DETAILS OF THE WORK. DETAILS, SECTIONS, AND NOTES SHOWN ON THESE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR CONDITIONS ELSEWHERE UNLESS NOTED OR SHOWN OTHERWISE. IF LOCATIONS ARE FOUND WHERE NO TYPICAL OR SPECIFIC DETAIL OR TYPICAL SCHEDULE APPLIES, NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND ALL JOB RELATED SAFETY STANDARDS SUCH AS OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING, BUT NOT LIMITED TO: ADEQUATE EXCAVATION PROCEDURES, SHORING, BRACING, AND ERECTION PROCEDURES COMPLYING WITH NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
10. THE STRUCTURE HAS BEEN DESIGNED FOR THE LOADS IDENTIFIED WITHIN THESE STRUCTURAL DRAWINGS THAT ARE ANTICIPATED TO BE APPLIED TO THE FINAL STRUCTURE ONCE COMPLETED AND OCCUPIED.
    - A. THESE DRAWINGS DO NOT DEPICT ANY SECONDARY STRUCTURAL ELEMENTS WHICH MAY BE REQUIRED UNLESS SPECIFICALLY NOTED OTHERWISE. SECONDARY STRUCTURAL ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO: SUPPORT BEAMS ABOVE THE PRIMARY ROOF STRUCTURE TO SUPPORT MECHANICAL EQUIPMENT, ROOFTOP MECHANICAL CURBS, ELEVATOR SUPPORT RAILS AND BEAMS, RETAINING WALLS INDEPENDENT OF THE PRIMARY BUILDING, LIGHT POLE OR FLAG POLE FOUNDATIONS, ANCHORAGE AND SUPPORT OF MECHANICAL AND ELECTRICAL EQUIPMENT/PIPING/DUCTWORK, NON-BEARING PARTITIONS, GUARD RAILS AND POSTS, STAIR FRAMING, STAIR RAILINGS, AND EXTERIOR CURTAIN WALLS AND CLADDING.
    - B. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING THE ADEQUACY OF THE STRUCTURE TO SUPPORT ANY APPLIED CONSTRUCTION LOADS, INCLUDING, BUT NOT LIMITED TO: THOSE DUE TO CONSTRUCTION VEHICLES OR EQUIPMENT, MATERIAL HANDLING OR STORAGE, SHORING OR RESHORING, AND ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL CONTACT GESSNER ENGINEERING FOR ANY CONSTRUCTION LOADS THAT ARE IN EXCESS OF THE STATED DESIGN LOADS.
    - C. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOFS AND SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. DO NOT IMPACT POURED OR ERECTED FLOORS OR ROOFS WHEN PLACING MATERIALS.
11. THE BUILDING OWNER SHALL ESTABLISH A PLANNED PROGRAM OF MAINTENANCE TO ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. THIS PROGRAM SHALL INCLUDE, BUT IS NOT LIMITED TO: PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A CORROSIVE ENVIRONMENT.

DESIGN CRITERIA

1. THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION.
2. DEAD LOADS:
    - A. DESIGN DEAD LOADS INCLUDE THE WEIGHT OF THE STRUCTURE, MATERIALS, COMPONENTS, PERMANENT FIXTURES, 4 PSF MECHANICAL DUCT ALLOWANCE, AND 15 PSF PARTITION LOAD.
    - B. LOADING FOR MECHANICAL AND ELECTRICAL EQUIPMENT IS BASED ON THE WEIGHTS OF ASSUMED EQUIPMENT AS INDICATED ON THE STRUCTURAL DRAWINGS (INCLUDING THE WEIGHT OF CONCRETE PADS WHERE INDICATED ON MEP DRAWINGS). ANY DISCREPANCIES OR CHANGES IN THE TYPE, SIZE, LOCATION, OR NUMBER OF PIECES OF EQUIPMENT SHOULD BE REPORTED TO THE STRUCTURAL ENGINEER FOR VERIFICATION OF THE ADEQUACY OF SUPPORTING MEMBERS PRIOR TO PLACEMENT OF EQUIPMENT.
    - C. MAXIMUM FACADE DEAD LOADS:
        - STONE/BRICK VENEER - 40 PSF
        - CURTAIN WALLS - 15 PSF
        - METAL PANEL - 3 PSF
        - ROOF ASSEMBLIES - 8 PSF
3. LIVE LOADS:
    - A. FOOTNOTES ACCORDING TO THE IBC AND ASCE 7 SHALL PERTAIN AS APPLICABLE.
    - B. IN AREAS WHERE PARTITIONS ARE ERECTED OR WILL BE REARRANGED, AN ALLOWANCE OF 15 PSF HAS BEEN MADE FOR PARTITIONS AS A UNIFORMLY DISTRIBUTED LIVE LOAD WHERE THE LIVE LOAD AS STATED BELOW IS 80 PSF OR LESS.
    - C. DESIGN LIVE LOADS ARE BASED ON THE MORE RESTRICTIVE OF THE UNIFORM LOAD LISTED BELOW OR THE CONCENTRATED LOAD LISTED ACTING OVER AN AREA 2'-6" SQUARE OR, IN THE CASE OF PARKING GARAGES 20 IN², OR STAIR TREADS, 4 IN².
    - D. LIVE LOADS HAVE BEEN REDUCED USING THE STANDARD PROCEDURE FROM THE ABOVE REFERENCE CODES.
    - E. FOR LIVE LOADS EXCEEDING 100 PSF, NO REDUCTION HAS BEEN MADE, EXCEPT THAT THE DESIGN LIVE LOAD ON MEMBERS SUPPORTING (2) OR MORE FLOORS HAS BEEN REDUCED A MAXIMUM OF 20% BUT THE LIVE LOAD IS NOT TO BE LESS THAN APPLICABLE REDUCTION LIMITS.

CATEGORY	UNIFORM	CONCENTRATED
• ASSEMBLY AREAS, LOBBIES, SUITES, PLAZAS, & TERRACES	100 PSF	2,000 LBS
• UNINHABITABLE ATTIC (NOTE 3)		
WITH STORAGE	20 PSF	-
WITHOUT STORAGE	10 PSF	-
• BALCONIES & DECKS	NOTE 1	-
• CLASSROOMS	40 PSF	1,000 LBS
• DINING ROOMS	100 PSF	-
• CORRIDORS & EXITS		
FIRST FLOOR	100 PSF	2,000 LBS
OTHER FLOORS	80 PSF	2,000 LBS
• KITCHENS	150 PSF	NOTE 2
• MECHANICAL ROOMS	40 PSF	NOTE 2
• OFFICE FLOORS	50 PSF	2000 LBS
• RESTROOMS	60 PSF	-
• RETAIL		
FIRST FLOOR	100 PSF	1,000 LBS
OTHER FLOORS	75 PSF	1,000 LBS
• ROOF	20 PSF	300 LBS
• STAIRS	100 PSF	300 LBS
• STORAGE ABOVE CEILING (NON-ATTIC)	20 PSF	-
• WAREHOUSE STORAGE/ MANUFACTURING		
LIGHT	125 PSF	2,000 LBS
HEAVY	250 PSF	3,000 LBS

FOOTNOTES:
1. 1.5 TIMES THE UNIFORM LOAD OF THE OCCUPANCY SERVED, NOT REQUIRED TO EXCEED 100 PSF.
2. DESIGN CONCENTRATED LOAD IS THAT REQUIRED BY ASSUMED EQUIPMENT WEIGHT
3. REFERENCE CODE FOR APPLICABILITY CRITERIA.

4. GEOTECHNICAL DESIGN CRITERIA:
    - A. SOIL DESIGN PARAMETERS BELOW ARE BASED ON PRESUMPTIVE SOIL BEARING VALUES AS PROVIDED BY THE IBC, TABLE 1806.2, FOR CLAY SOILS
    - B. THE FOLLOWING DESIGN INFORMATION IS PROVIDED SOLELY FOR REFERENCE AND IS NOT INTENDED TO SUPERCEDE ANY INFORMATION PROVIDED IN THE GEOTECHNICAL REPORT. SHOULD DISCREPANCIES EXIST THROUGHOUT THE DRAWINGS RELATIVE TO THE GEOTECHNICAL REPORT, THE CONTRACTOR SHALL CONTACT GESSNER ENGINEERING FOR ADDITIONAL INFORMATION.
    - C. ALLOWABLE BEARING CAPACITIES

		CAPACITY (PSF)
SHALLOW BEARING	STRIP FOOTING (FS 3)	1,500
	ISOLATED FOOTING (FS = 3)	1,500

NOTES:
1. FACTOR OF SAFETY (FS) (TOTAL LOAD)
2. CAPACITIES LISTED REFLECT THOSE SHOWN IN THE GEOTECHNICAL REPORT.
3. REF DETAILS FOR MINIMUM BEARING DEPTHS

SPECIAL INSPECTIONS AND REPORTS

1. SPECIAL INSPECTIONS AND TESTING SHALL BE DONE IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS PER IBC CHAPTER 17, AS APPLICABLE PER THE FOLLOWING CRITERIA.
2. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (RDPIRC) FOR THIS PROJECT SHALL BE DESIGNATED BY THE OWNER. SUBMIT ALL SPECIAL INSPECTION REPORTS DIRECTLY TO THE RDPIRC AND BUILDING OFFICIAL FOR REVIEW. THE RDPIRC SHALL FORWARD ALL THE STRUCTURALLY RELATED SPECIAL INSPECTION REPORTS TO THE STRUCTURAL ENGINEER FOR REVIEW.
3. SPECIAL INSPECTORS SHALL BE CONTRACTED BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT. SPECIAL INSPECTORS SHALL BE QUALIFIED PER THE REQUIREMENTS LISTED IN SECTION 1704.2.
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL TESTING, INSPECTIONS, AND NOTIFYING THE ARCHITECT/ENGINEER, SPECIAL INSPECTORS, AND BUILDING OFFICIAL PER SECTION 110.3, OF WORK READY FOR INSPECTION. THE GENERAL CONTRACTOR MUST PROVIDE ACCESS TO AND MEANS FOR PROPER INSPECTION OF SUCH WORK.
5. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED, MOST CURRENT DESIGN DOCUMENTS AND SPECIFICATIONS, AND SHALL PROVIDE REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT/ENGINEER, AND OTHER DESIGNATED PERSONS.
6. THE SPECIAL INSPECTOR SHALL REPORT ALL DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN IF UNCORRECTED, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.
7. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND APPLICABLE STANDARDS OF QUALITY AND WORKMANSHIP OF THE IBC.
8. ADDITIONAL INSPECTIONS MAY BE REQUIRED BY THE GOVERNING JURISDICTION. THE BELOW REQUIREMENTS ARE MINIMUM PROJECT STANDARDS
9. STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY A LICENSED DESIGN PROFESSIONAL OR THEIR REPRESENTATIVE DURING PERIODIC SITE VISITS. THESE OBSERVATIONS DO NOT CONSTITUTE A SPECIAL INSPECTION. STRUCTURAL OBSERVATIONS SHALL BE PERFORMED FOR THE WORK LISTED BELOW:
    - A. CONCRETE CONSTRUCTION
      OBSERVE PLACEMENT OF REINFORCING STEEL, ANCHOR RODS, AND OTHER EMBEDDED COMPONENTS PRIOR TO PLACEMENT OF CONCRETE.
    - B. STRUCTURAL STEEL
      REVIEW INSTALLATION OF FRAMING COMPONENTS AND CONNECTORS IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
10. SPECIAL INSPECTIONS REQUIRED FOR THIS PROJECT INCLUDE, BUT ARE NOT LIMITED TO:
    - A. CONCRETE CONSTRUCTION (PER IBC SECTION 1705.3)
        1. PERIODIC INSPECTIONS:
            - a. PLACEMENT OF STEEL REINFORCEMENT.
            - b. WELDING OF STEEL REINFORCEMENT
            - c. PLACEMENT OF HEADED BOLTS AND EMBEDDED FABRICATIONS.
            - d. VERIFY USE OF REQUIRED DESIGN MIXTURE.
            - e. VERIFY CURING PROCEDURES AND MAINTENANCE OF CURING TEMPERATURE.
            - f. VERIFY CONCRETE STRENGTH BEFORE REMOVAL OF SHORES AND FORMS FROM BEAMS AND SLABS.
        2. CONTINUOUS INSPECTIONS:
            - a. PLACEMENT OF CONCRETE.
            - b. FABRICATION OF SPECIMENS FOR STRENGTH TEST; MINIMUM (1) SET FOR 100 YDS.
            - c. DETERMINATION OF SLUMP, AIR CONTENT, AND TEMPERATURE
    - B. STRUCTURAL MASONRY (PER IBC SECTION 1705.4 AND ACI 530)
        1. PERIODIC INSPECTIONS:
            - a. VERIFY COMPLIANCE WITH APPROVED SUBMITTALS.
            - b. AS MASONRY CONSTRUCTION BEGINS, VERIFY THE FOLLOWING ARE IN COMPLIANCE
                - PROPORTIONS OF SITE-PREPARED MORTAR
                - CONSTRUCTION OF MORTAR JOINTS
                - LOCATION OF REINFORCEMENT AND CONNECTORS
            - c. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:
                - GROUT SPACE.
                - GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS.
                - PLACEMENT OF REINFORCEMENT AND CONNECTORS.
                - PROPORTIONS OF SITE-PREPARED GROUT.
                - CONSTRUCTION OF MORTAR JOINTS.
            - d. DURING CONSTRUCTION, VERIFY THE FOLLOWING:
                - SIZE AND LOCATION OF STRUCTURAL ELEMENTS
                - TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.
                - PROTECTION OF MASONRY DURING HOT WEATHER (ABOVE 90° F) OR COLD WEATHER (BELOW 40° F)
            - e. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS.
        2. CONTINUOUS INSPECTION
            - a. NOT REQUIRED FOR RISK CATEGORY II
    - C. SOILS CONSTRUCTION (PER IBC SECTION 1705.6)
        1. PERIODIC INSPECTIONS:
            - a. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.
            - b. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.
            - c. INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY PRIOR TO PLACEMENT OF COMPACTED FILL.
            - d. PERFORM CLASSIFICATION AND TESTING OF MATERIALS TO BE USED FOR FILL.
        2. CONTINUOUS INSPECTIONS:
            - a. VERIFY USE OF PROPER MATERIALS, MOISTURE CONTENT, DENSITIES, AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.
            - b. REVIEW APPROVED GEOTECHNICAL REPORT FOR COMPLIANCE AND ADDITIONAL TESTING REQUIREMENTS.
    - E. STRUCTURAL STEEL (PER IBC SECTION 1705.2 AND AISC 360, CHAPTERS M & N)
        1. PERIODIC INSPECTIONS:
            - a. PRIOR TO THE START OF FABRICATION:
                - VERIFY SHOP COMPLIANCE WITH AISC CHAPTER N, SECTIONS N2 AND N3, AND AWS D1.1 FOR COMPLETENESS AND ADEQUACY OF FABRICATION AND QUALITY CONTROL PROCEDURES.
            - b. INSPECTION PERSONNEL SHALL BE AN AWS CERTIFIED WELD INSPECTOR (CWI) UNLESS OTHERWISE APPROVED BY THE ENGINEER OF RECORD (EOR)
            - c. INSPECTION OF WELDING SHALL BE IN ACCORDANCE WITH TABLES N5.4-1, N5.4-2, AND N5.4-3.
            - d. NON-DESTRUCTIVE TESTING OF WELDED JOINTS WITH TABLE N5.5:
                - CJP GROOVE WELDS OF MATERIALS IN THICKNESS EQUAL TO OR GREATER THAN 5/16" IS REQUIRED PER SECTION N5.5b.
            - e. INSPECTION OF HIGH-STRENGTH BOLTING SHALL BE IN ACCORDANCE WITH TABLES N5.6-1, N5.6-2, AND N5.6-3.
            - f. INSPECTION OF GALVANIZED MATERIALS SHALL BE IN ACCORDANCE WITH SECTION N5.7.
            - g. INSPECT ERECTED STEEL FRAME FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS
        2. SPECIAL INSPECTION RESPONSIBILITIES BY THE OWNER ARE PERMITTED TO BE WAIVED WHEN THE REQUIREMENTS OF SECTION N6 ARE MET.
    - J. POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY
      SPECIAL INSPECTIONS PER MANUFACTURER'S ICC EVALUATION REPORT OR AT A MINIMUM AS SPECIFIED BELOW:
        1. PERIODIC INSPECTIONS:
            - a. INSPECT MECHANICAL ANCHORS AND ADHESIVE ANCHORS FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS.
        2. CONTINUOUS INSPECTIONS:
            - a. ADHESIVE ANCHORS INSTALLED HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.
    - K. FABRICATED ITEMS
        1. FABRICATORS SHALL BE APPROVED TO PERFORM SUCH WORK IN ACCORDANCE WITH SECTION 1704.2.5.1 WITHOUT SPECIAL INSPECTION
        2. SHOULD A NON-APPROVED FABRICATOR BE USED, ADDITIONAL SPECIAL INSPECTION REQUIREMENTS SHALL BE MET IN ACCORDANCE WITH SECTION 1704.2.5

GENERAL FOUNDATION

1. DIMENSIONS OF FOUNDATION ELEMENTS INDICATE MINIMUM ACCEPTABLE SIZES. LARGER SIZES FORMED BY LESS ACCURATE CONSTRUCTION MAY REQUIRE ADDITIONAL REINFORCING NOT SHOWN, WHICH SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER DURING THE CONSTRUCTION OBSERVATION PROCESS. CUT HAUNCHES ON EACH SIDE OF TRENCHES OF ADEQUATE SIZE TO MAINTAIN THE VERTICAL SIDES OF THE TRENCH.
2. GRADE BEAMS AND FOOTINGS SHALL BEAR A MINIMUM OF 12" INTO COMPACTED STRUCTURAL FILL OR COMPETENT NATIVE SOILS. REDUCED PENETRATION DEPTHS INTO BEDROCK SHALL BE PER THE GEOTECHNICAL REPORT OR A MINIMUM OF 3". WHERE NOTED, FOUNDATIONS SHALL BE CONSTRUCTED ON APPROVED VOID FORMS.
3. PLACE MEP LINES BELOW SLABS AND OUTSIDE OF GRADE BEAMS AND FOOTINGS. DO NOT PLACE LINES PARALLEL WITHIN OR PARALLEL BELOW GRADE BEAMS AND FOOTINGS. REFERENCE TYPICAL DETAILS FOR ALLOWABLE PENETRATIONS PERPENDICULAR TO GRADE BEAMS, FOOTINGS AND SLABS. PROVIDE PROTECTION OF MEP LINES CROSSING GRADE BEAMS OR PROJECTING THROUGH THE SLAB TO ALLOW FOR FOUNDATION MOVEMENT.
4. A 2"-4" PERVIOUS SAND OR GRANULAR LAYER MAY BE PLACED UNDER THE SLAB AT THE CONTRACTOR'S DISCRETION
5. EXTEND FORMWORK AT LEAST 6" BELOW THE FINISHED GRADE ELEVATION AT PERIMETER BEAMS.
6. A VAPOR RETARDER SHALL BE PLACED UNDER ALL FOUNDATION CONCRETE.
    - A. AT A MINIMUM THE VAPOR RETARDER SHALL CONFORM TO IBC "CLASS I" WITH A PERMEANCE OF 0.1 PERMS OR LESS, ASTM E1745 "CLASS C", AND ACI 302.2R WITH A MINIMUM THICKNESS OF 10 MIL. WHERE ARCHITECTURAL PLANS CALL FOR SENSITIVE FLOOR MATERIALS, A VAPOR RETARDER EXCEEDING THE ABOVE SPECIFICATIONS MAY BE REQUIRED.
    - B. VAPOR RETARDERS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM E1643, WITH THE MATERIAL CONTINUOUS BELOW FOUNDATION CONCRETE AREAS AND WITH JOINTS LAPPED AT LEAST 6", OR AS INSTRUCTED BY THE MANUFACTURER.
    - C. SEAMS, TEARS, AND PENETRATIONS IN THE VAPOR RETARDER SHALL BE SEALED WITH THE MANUFACTURER'S RECOMMENDED ADHESIVE OR PRESSURE SENSITIVE TAPE.
    - D. AT SLAB EDGES THE VAPOR RETARDER SHALL BE SEALED TO THE EXTERIOR FACE OF THE PERIMETER FOUNDATION ELEMENT.
7. EXPANSION JOINTS SHALL BE FORMED BY A BITUMINOUS FILLER MATERIAL COMPLYING WITH ASTM D1751, ASPHALT-SATURATED CELLULOSIC FIGURE. SET 1/2"-1" BELOW THE SURFACE IN ORDER TO FILL THE JOINT WITH A FLEXIBLE JOINT FILLER. EXTERIOR JOINTS SHALL BE SEALED WITH A TRAFFIC GRADE SEALANT.

REINFORCEMENT

1. ALL REINFORCEMENT WORK SHALL CONFORM TO THE FOLLOWING STANDARDS AND ANY STANDARDS REFERENCED THEREIN:
    - ACI 318 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
    - ACI 315 - DETAILS AND DETAILING OF CONCRETE REINFORCEMENT
2. MATERIALS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
    - REINFORCEMENT - ASTM A615, GRADE 60
    - WELDED WIRE FABRIC - ASTM A185, SMOOTH, FLAT SHEET
3. LAPS AND SPLICES IN REINFORCING BARS SHALL BE A MINIMUM OF (30) BAR DIAMETERS.
4. BARS #3, #4, AND #5 MAY BE COLD BENT IN THE FIELD. FIELD BENDING BEYOND #5 IS NOT PERMISSIBLE.
5. REINFORCEMENT SHALL BE ADEQUATELY SECURED BY WIRE TIES AND SUPPORTED BY PLASTIC, METAL, OR MASONRY SUPPORTS. SPACING OF SUPPORTS SHALL BE AS NECESSARY TO PREVENT SAGGING OF THE REINFORCEMENT UNDER THE WEIGHT OF CONSTRUCTION WORKERS AND WET CONCRETE.
6. WHERE REINFORCEMENT MUST TRANSITION BETWEEN STEPPED ELEMENTS, SLOPE SHALL NOT BE GREATER THAN 1:6 UNLESS NOTED OTHERWISE.
7. CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE, OR OTHER FOREIGN MATERIALS THAT MAY REDUCE BOND TO CONCRETE.
8. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT FOR CAST-IN-PLACE CONCRETE CONSTRUCTION:

CONCRETE STRUCTURE	INTERIOR			EXTERIOR		
	TOP	SIDE	BOTTOM	TOP	SIDE	BOTTOM
BEAMS	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
COLUMNS	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
GRADE BEAMS/FOOTING W/O VAPOR RETARDER	1 1/2"	N/A	N/A	3"	3"	3"
GRADE BEAMS/FOOTING W/ VAPOR RETARDER	1 1/2"	2"	2"	2"	2"	2"
SLAB ON GRADE	3/4"	2"	2"	2"	2"	2"
WALLS	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
WIDE PAN JOIST (BEAMS)	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
DRILLED PIERS	N/A	N/A	N/A	3"	3"	3"
NOTES: "EXTERIOR" IS EXPOSURE TO EARTH OR WEATHER.						

SLAB-ON-GRADE SITE PREPARATION

1. ALL FILL PLACED BELOW THE FOUNDATION SLAB SHALL BE SELECT FILL CONSISTING OF A LOW PLASTICITY CLAYEY SOIL WITH A PLASTICITY INDEX BETWEEN 8 AND 18, A MAXIMUM GRAVEL CONTENT OF 40%, AND ROCKS NO LARGER THAN 2" IN THEIR LARGEST DIMENSION. ALTERNATIVELY, A CRUSHED LIMESTONE BASE MATERIAL MEETING THE REQUIREMENTS OF THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) 2014 STANDARD SPECIFICATIONS ITEM 247, TYPE A, GRADE 3 MAY BE USED.
2. THE BUILDING PAD SHALL EXTEND A MINIMUM OF 5'-0" FROM THE EDGE OF THE BUILDING FOOTPRINT IN ALL DIRECTIONS
3. CONSTRUCTION AREAS SHALL BE STRIPPED OF ALL VEGETATION, LOOSE TOPSOIL, SURFICIAL CONCRETE, ETC. SUBGRADE SOILS SHALL BE REMOVED BELOW EXISTING GRADE IN ACCORDANCE WITH THE "MINIMUM EXCAVATION DEPTH" NOTED BELOW. ROOTS OF TREES WITHIN THE CONSTRUCTION AREAS SHALL BE EXCAVATED AND REMOVED UNLESS APPROVED OTHERWISE
4. SLOPING SITES SHALL BE BROUGHT TO A LEVEL CONDITION TO MEET THE LOWEST EXCAVATED ELEVATION TO ALLOW FOR A UNIFORM DEPTH BUILDING PAD
5. WHERE REQUIRED, SOIL STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS TO THE "STABILIZATION DEPTH" NOTED BELOW.
6. ONCE FINAL SUBGRADE ELEVATION HAS BEEN ACHIEVED, EXPOSED SOIL SUBGRADE AREAS SHALL BE PROOFROLLED WITH A 15 TON ROLLER (MINIMUM) OR EQUIVALENT EQUIPMENT AS APPROVED BY THE GEOTECHNICAL ENGINEER. WEAK AREAS DETECTED DURING THE PROOF ROLLING PROCESS SHALL BE REMOVED AND REPLACED WITH SOILS EXHIBITING SIMILAR CLASSIFICATION, MOISTURE CONTENT, AND DENSITY AS THE ADJACENT IN SITU SOILS.
7. SELECT FILL SHALL BE COMPACTED IN PLACE TO FORM A LEVEL BUILDING PAD IN ACCORDANCE WITH THE "MINIMUM REPLACEMENT DEPTH" NOTED BELOW.
8. ALL SELECT FILL SHALL BE PLACED ON PREPARED SURFACES IN LIFTS NOT TO EXCEED 8" IN LOOSE MEASURE, WITH COMPACTED THICKNESS NOT TO EXCEED 6"
9. SELECT FILL SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR (ASTM D 698) DENSITY AT A MOISTURE CONTENT RANGING WITHIN 2% OF OPTIMUM MOISTURE CONTENT FOR DEPTHS OF 3'-0" OR LESS. IF FILL IN EXCESS OF 3'-0" IS REQUIRED, ALL STRUCTURAL AND SELECT FILL DEEPER THAN 3'-0" SHALL BE COMPACTED TO 99% OF STANDARD PROCTOR (ASTM D 698)
10. SLOPES ADJACENT TO FOUNDATIONS SHALL FALL A MINIMUM OF 6" IN THE FIRST 10'-0". WHERE SITES DO NOT ALLOW THIS, DRAINAGE SYSTEMS SHALL BE IMPLEMENTED TO ACCOMMODATE THE RUNOFF.
11. FOR SITE AREAS NOT BELOW PAVEMENTS OR GROUND SUPPORTED STRUCTURES, A CLAY CAP SHALL BE PLACED AROUND THE PERIMETER OF THE STRUCTURE FOR THE TOP 12" OF ADJACENT GRADE TO EXTEND TO THE EDGE OF THE BUILDING PAD ON ALL SIDES. THE SOILS USED FOR THE CLAY CAP SHALL HAVE A MINIMUM PI OF 30 AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR (ASTM 698) DENSITY AT A MOISTURE CONTENT RANGING WITHIN 2% OF OPTIMUM MOISTURE CONTENT.

MINIMUM EXCAVATION DEPTH	1'-0"
STABILIZATION DEPTH	N/A
MINIMUM REPLACEMENT DEPTH	1'-0"

FULL SIZE SHEET: 22X34

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SEAL

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TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE
STRUCTURAL NOTES

SHEET NUMBER
S001

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE FOLLOWING STANDARDS AND ANY STANDARDS REFERENCED THEREIN:
   - AISC 303 – CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
   - AISC 360 – SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS
   - AISC 341 – SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS
   - RCSC – SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS
   - AWS D1.1 – STRUCTURAL WELDING CODE - STEEL
   - AISC D6 – STRUCTURAL STAINLESS STEEL
   - AWS D1.6 – STRUCTURAL WELDING CODE - STAINLESS STEEL
2. MATERIALS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS, UNLESS NOTED OTHERWISE.

• W & WT SHAPES	ASTM A992, GRADE 50
• C, S, & ST SHAPES	ASTM A36
• ANGLE SHAPES	ASTM A36
• STRUCTURAL PIPES	ASTM A53, GRADE B
• ROUND HSS SHAPES	ASTM A500, GRADE C
• SQUARE & RECTANGULAR HSS SHAPES	ASTM A500, GRADE C
• STRUCTURAL PLATE & BARS	ASTM A36 OR ASTM A572 GRADE 50 AS NOTED
• HIGH STRENGTH BOLTS	ASTM A325 (MECHANICALLY GALVANIZED) OR ASTM A490 (BLACK)
• NUTS	ASTM A563 (MECHANICALLY GALVANIZED)
• HARDENED STEEL WASHERS	ASTM F436
• COMPRESSIBLE STEEL WASHERS	ASTM F959
• HEADED CONCRETE ANCHORS	AWS D1.1 CLAUSE 7 TYPE B
• DEFORMED BAR ANCHORS	ASTM A1064
• ANCHOR RODS (STANDARD)	ASTM F3554, GRADE 36
ANCHOR RODS (HIGH STRENGTH)	ASTM F3554, GRADE 55, WELDABLE
• THREADED RODS	ASTM A36
• WELDING ELECTRODES	AWS CLASS E70XX

3. STRUCTURAL STEEL FABRICATOR TO BE REGISTERED AND APPROVED TO PERFORM SUCH WORK IN ACCORDANCE WITH SECTION 1704.2.5.2 OF THE IBC. ACCEPTABLE CERTIFICATIONS INCLUDE THOSE PROVIDED BY ASTM OR AWS
4. DIMENSIONAL TOLERANCES OF FABRICATED STRUCTURAL STEEL SHALL CONFORM TO SECTION 6.4 OF THE AISC CODE OF STANDARD PRACTICE UNLESS NOTED OTHERWISE.
5. FABRICATE AND ASSEMBLE STRUCTURAL MEMBERS/ASSEMBLIES IN SHOP TO GREATEST EXTENT POSSIBLE.
6. ENDS OF COLUMNS AT SPLICES AND AT OTHER BEARING CONNECTIONS SHALL BE "FINISHED TO BEAR" TO COMPLETE TRUE BEARING.
7. PROVIDE STIFFENERS "FINISHED TO BEAR" UNDER ALL LOAD CONCENTRATIONS ON SUPPORTING MEMBERS OVER COLUMNS, AND WHERE SHOWN ON DRAWINGS.
8. WORKING POINTS FOR VERTICAL BRACING SHALL BE AT THE INTERSECTION OF THE COLUMN CENTERLINE AND THE BEAM CENTERLINE UNLESS NOTED OTHERWISE. WORKING POINTS FOR VERTICAL BRACING AT COLUMN BASE PLATES SHALL BE AT THE INTERSECTION OF COLUMN CENTERLINE AND THE TOP OF THE BASE PLATE.
9. BEAMS SHALL BE CAMBERED UPWARD WHERE SHOWN ON THE CONTRACT DOCUMENTS WHERE NO UPWARD CAMBER IS INDICATED, ANY MILL CAMBER SHALL BE DETAILED UPWARD IN THE BEAMS.
10. ALL STRUCTURAL STEEL MEMBERS, ASSEMBLIES, AND HARDWARE EXPOSED TO WEATHER OR INDICATED ON THE DRAWINGS SHALL BE EITHER HOT-DIP GALVANIZED OR PRIMED AND PAINTED. REPAIR ANY MEMBERS WELDED OR DAMAGED AFTER SURFACE PREPARATION WITH ZINC RICH PAINT OR APPROVED ALTERNATE
11. ALL STRUCTURAL STEEL MEMBERS, ASSEMBLIES, AND HARDWARE SHALL BE SHIPPED WITH ONE COAT OF SHOP PRIMER EXCEPT THOSE MEMBERS THAT ARE GALVANIZED OR IN AREAS SCHEDULED TO RECEIVE FIRE PROOFING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AREAS TO BE FIRE PROOFED PER ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
12. ALL EXPOSED-TO-VIEW MEMBERS SHALL MEET THE REQUIREMENTS OF AISC FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.
13. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE, AND CONNECTION TO BE MADE.
14. DECK EDGE ANGLES SHALL BE CONTINUOUS AND SHALL BE SPLICED ONLY AT SUPPORTS. SPLICES SHALL BE BUTT WELDED TO DEVELOP FULL CAPACITY OF THE MEMBER.
15. DO NOT CUT STRUCTURAL STEEL MEMBERS UNLESS SO INDICATED IN THE DRAWINGS OR AS REVIEWED BY THE ENGINEER
16. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED.
17. COLUMN BASE PLATES, LEVELING PLATES, OR BEARING PLATES SHALL BE SET TO THE ELEVATION INDICATED ON THE STRUCTURAL DRAWINGS AND LEVELED USING SHIMS OR JAM NUTS AND WASHERS ON ANCHOR BOLTS. BASE PLATES SHALL THEN BE GROUTED. GROUT SHALL BE WITH NON-SHRINK, NON-METALLIC GROUT WITH MINIMUM 7 DAY COMPRESSIVE STRENGTH EQUAL TO TWICE THE 28 DAY STRENGTH OF THE SUPPORTING CONCRETE. COMPLETE GROUT WORK BEFORE PLACING CONCRETE ON LEVELS ABOVE (WHERE APPLICABLE). ANCHOR BOLTS SHALL BE PRESET USING TEMPLATES OR SIMILAR METHODS. TIGHTEN ANCHOR BOLTS AFTER SUPPORTED MEMBERS HAVE BEEN POSITIONED AND PLUMBED. HOLE SIZES IN BASE PLATES SHALL BE OVERSIZED PER AISC SECTION J.3.2.
18. HEADED CONCRETE ANCHORS AND DEFORMED BAR ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
19. BOLT CONNECTION SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE
    A. BOLTS SHALL BE 3/4" DIAMETER AND CONFORM TO ASTM A325.
    B. BOLTS SHALL BE TIGHTENED TO "SNUG TIGHT" AS DEFINED BY AISC.
    C. BOLTS NOTED AS "SLIP CRITICAL" SHALL BE TIGHTENED TO THE MINIMUM PRE-TENSIONED AMOUNTS ACCORDING TO SECTION J.1 OF THE AISC SPECIFICATION USING ONE OF THE FOLLOWING METHODS:
       - TURN-OF-NUT
       - CALIBRATED TORQUE WRENCH
       - TWIST-OFF TYPE TENSION CONTROL
       - DIRECT TENSION INDICATOR
    D. PROVIDE WASHERS AND SLIP CRITICAL BOLTS FOR OVERSIZED AND SLOTTED CONNECTIONS.
20. FOR CONNECTIONS NOT SPECIFIED BY THESE NOTES OR STRUCTURAL DRAWINGS, PROVIDE FILLET WELDS AT ALL CONTACT SURFACES SUFFICIENT TO DEVELOP THE TENSILE STRENGTH OF THE SMALLER MEMBER AT THE JOINT.
21. FILLET WELDS WITH NO SIZE SPECIFIED SHALL BE 3/16" OR MINIMUM SIZE REQUIRED BY AISC, WHICHEVER IS LARGER

STRUCTURAL CONCRETE MASONRY

1. ALL STRUCTURAL CONCRETE MASONRY WORK SHALL CONFORM TO THE FOLLOWING STANDARDS AND ANY STANDARDS REFERENCED THEREIN.
   - TMS 602 – BUILDING CODE REQUIREMENTS FOR SPECIFICATION FOR MASONRY STRUCTURES
   - TMS 602 – SPECIFICATION FOR MASONRY STRUCTURES
2. STRUCTURAL CONCRETE MASONRY SHALL BE IN ACCORDANCE WITH THE TABLES BELOW UNLESS NOTED OTHERWISE.

CLASS	NET COMPRESSIVE STRENGTH (PSI)(PSI)	BLOCK COMPRESSIVE STRENGTH AT 28 DAYS (PSI)	MORTAR TYPE	GROUT COMPRESSIVE STRENGTH AT 28 DAYS (PSI)
1	1,750	2,000	N	2,000
2	2,000	2,000	M OR S	2,000
3	2,000	2,650	N	2,000

NOTES:
1. AGGREGATE SIZE SHALL NOT EXCEED 1/2" DIAMETER.
2. GROUT SLUMP SHALL RANGE FROM 8"-11".
3. DO NOT USE ADMIXTURES UNLESS APPROVED BY EOR

USE	CLASS
INTERIOR WALLS	3
EXTERIOR WALLS	3
SITE WALLS	2

3. MATERIAL SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
   - CONCRETE MASONRY UNITS - ASTM C90, NORMAL WEIGHT
   - MORTAR - ASTM C270
   - GROUT - ASTM C476, PROPORTIONED PER TABLE 1
   - AGGREGATE - ASTM C404
   - BED JOINT REINFORCEMENT - ASTM A1064, GALVANIZED OR STAINLESS STEEL.
4. LAY CMU TO MAXIMUM POUR HEIGHT, NOT TO EXCEED 8'-4" IN HEIGHT OR COURSE BELOW BOND BEAM UNLESS ADDITIONAL PARAMETERS ARE MET ACCORDING TO TMS 602, SECTION 3.5
5. LAY BLOCKS IN A RUNNING BOND WITH A MINIMUM JOINT OFFSET OF 1/4 UNIT LENGTH
6. REINFORCE CONCRETE MASONRY UNIT JOINTS WITH LADDER-TYPE HOT-DIP GALVANIZED COLD-DRAWN STEEL WITH W1.7 SIDE RODS AND W1.7 CROSS RODS
   A. PROVIDE JOINT REINFORCEMENT TO MEET THE FOLLOWING PARAMETERS:
      - 16" ON CENTER UNLESS NOTED OTHERWISE.
   B. LAP JOINT REINFORCING 14" AT SPLICES.
   C. ALSO PROVIDE AT:
      - TOP AND BOTTOM OF WALL OPENINGS, EXTENDING THE GREATER OF 24" OR 40 BAR DIAMETERS PAST THE OPENING.
      - CONTINUOUSLY AT STRUCTURALLY CONNECTED ROOF AND FLOOR LEVELS.
      - WITHIN 16" OF THE TOP OF WALLS.
   D. PROVIDE PREFABRICATED JOINT REINFORCING CORNER PIECES AT ALL WALL CORNERS AND INTERSECTIONS
   E. JOINT REINFORCING SHALL BE DISCONTINUOUS AT CONTROL AND EXPANSION JOINTS.
7. LAP REINFORCING BARS IN GROUTED MASONRY AS NOTED BELOW. SPLICES IN REINFORCING SHALL BE STAGGERED SO THAT NOT MORE THAN 1/2 OF ALL BARS ARE SPLICED AT THE SAME LOCATION.
   - VERTICAL BARS – (48) BAR DIAMETERS FOR #5 OR LESS.
     (60) BAR DIAMETERS FOR #6 OR GREATER
   - BOND BEAMS - (40) BAR DIAMETERS
   - LINTELS - DO NOT SPLICE
8. PROVIDE MINIMUM 1/2" CLEARANCE FROM REINFORCEMENT TO FACE SHELL OF BLOCK AND A MINIMUM 1" CLEARANCE BETWEEN PARALLEL REINFORCEMENT.
9. REINFORCEMENT SHALL BE ADEQUATELY SECURED TO PREVENT DISPLACEMENT CAUSED BY CONSTRUCTION LOADS OR BY PLACEMENT OF GROUT OR MORTAR BEYOND THE ALLOWABLE TOLERANCES. PROVIDE BAR POSITIONERS AT MANUFACTURER'S RECOMMENDED SPACING, NOT TO EXCEED 48" ON CENTER.
10. ALLOW MASONRY UNITS TO ATTAIN SPECIFIED STRENGTH BEFORE REMOVING TEMPORARY SUPPORTS
11. NON-LOAD BEARING MASONRY SHALL MAINTAIN A MINIMUM 1" SPACE BELOW ADJACENT FRAMING.
12. EMBEDDED ITEMS SHALL BE IN BUILT-IN (NOT CUT-IN) IN ACCORDANCE WITH TMS 602, SECTION 3.3D. ALUMINUM SHALL NOT BE USED IN MASONRY UNLESS EFFECTIVELY COATED OR OTHERWISE ISOLATED. CONDUITS SHALL NOT BE SPACED CLOSER THAN (3) DIAMETERS TO ONE ANOTHER.
13. COLD WEATHER AND HOT WEATHER CONSTRUCTION SHALL BE ACCORDANCE WITH TMS 602, SECTION 1.8C AND 1.8D, RESPECTIVELY.
14. INSTALL CONTROL AND EXPANSION JOINTS AT THE FOLLOWING MAXIMUM SPACING UNLESS NOTED OTHERWISE
    A. 25'-0" ON CENTER HORIZONTALLY.
    B. TO MAINTAIN A MAXIMUM HEIGHT TO WIDTH RATIO OF 1.1/2:1 BETWEEN JOINTS.
    C. WITHIN 1/2 TYPICAL JOINT SPACING FROM CMU WALL CORNER OR INTERSECTIONS ALONG INTERSECTING WALL

STRUCTURAL SUBMITTALS

1. SUBMIT TO THE ENGINEER FOR REVIEW APPROPRIATE SCHEDULES, SHOP DRAWINGS, SAMPLES, TEST REPORTS, AND PRODUCT DATA THAT IS RELATED TO THE STRUCTURAL PORTION OF THE WORK ACCORDING TO AIA DOCUMENT A201, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION. NO WORK SHALL BE FABRICATED UNTIL THE ENGINEER'S REVIEW HAS BEEN OBTAINED. PROVIDED IS A LIST OF STRUCTURAL SUBMITTALS REQUIRED FOR THIS PROJECT, AND REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
   A. FABRICATION / ERECTION DRAWINGS:
      - FOUNDATION REINFORCING STEEL
      - MASONRY WALL REINFORCING
      - STRUCTURAL STEEL
      - STRUCTURAL CAST-IN-PLACE COMPONENTS
   B. DEFERRED SUBMITTALS (TO BE SEALED BY THE RESPONSIBLE PARTY)
      - MECHANICAL UNITS AND CONNECTION TO STRUCTURE
   C. PRODUCT DATA SUBMITTALS
      - VAPOR RETARDER
      - CONCRETE MIX DESIGN
      - GROUT MIX DESIGN
      - CONCRETE/MASONRY/STEEL ACCESSORIES
      - MASONRY PRODUCT SUBMITTALS
      - FACADE ATTACHMENTS
      - FASTENERS
      - STEEL MILL REPORTS AND WELDING CERTIFICATES
   D. REPORTS:
      - EARTHWORK BELOW BUILDING TESTING REPORTS
      - CONCRETE TEST RESULTS
      - CONCRETE MONITORING DURING PLACEMENT
      - MASONRY
      - STEEL
2. THE CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS PRIOR TO SUBMISSION TO THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL REVIEW FOR COMPLETENESS AND COMPLIANCE WITH CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL SUBMIT EQUIPMENT PRODUCT DATA WHERE LOADING IS TO BE IMPARTED ON THE STRUCTURE DURING CONSTRUCTION FOR REVIEW, PRIOR TO USE.
4. SUBMIT SHOP DRAWINGS TO THE ARCHITECT/ENGINEER AS INDICATED OR SPECIFIED FOR REVIEW PRIOR TO FABRICATION. REVIEW WILL BE FOR GENERAL CONFORMANCE WITH DESIGN INTENT CONVEYED IN THE CONTRACT DOCUMENTS.
5. WHEN AN ENGINEER IS REQUIRED TO SIGN AND STAMP SHOP DRAWINGS AND CALCULATIONS, ENSURE SEAL INDICATES ENGINEER AS BEING REGISTERED IN THE STATE OF THE PROJECT.
6. SHOP DRAWINGS ARE NOT A PART OF CONTRACT DOCUMENTS. THEREFORE, ARCHITECT'S/ENGINEER'S REVIEW DOES NOT CONSTITUTE AN AUTHORIZATION TO DEVIATE FROM TERMS AND CONDITIONS OF THE CONTRACT.
7. THE ENGINEER REQUIRES (10) WORKING DAYS AFTER RECEIPT OF SHOP DRAWINGS AND CALCULATIONS FOR PROCESSING.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING STANDARDS AND ANY STANDARDS REFERENCED THEREIN.
   - ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE
   - ACI 117 – SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS
   - ACI 318 – BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
2. CONCRETE SHALL BE IN ACCORDANCE WITH THE TABLES BELOW UNLESS NOTED OTHERWISE

CONCRETE MIX SCHEDULE

CLASS	28 DAY STRENGTH (f'_c) (PSI)	MAX. W/C	SLUMP	MAX AGGREGATE SIZE	AIR CONTENT
A	3,000	0.55	5"-7"	1 1/2"	3%-5%
B	3,000	0.55	4"-6"	1 1/2"	3%-5%
C	4,000	0.55	4"-6"	1 1/2"	3%-5%
D	4,000	0.45	4"-8"	1 1/2"	≤1.5%
E	5,000	0.40	3"-5"	1"	5%-10%
F	4,000	0.50	4"-6"	3/4"	-
G	3,000	0.50	4"-6"	3/4"	-
H	2,000	0.55	5"-7"	3/4"	-

NOTES:
1. CONCRETE SHALL BE NORMAL WEIGHT UNLESS NOTED OTHERWISE.
2. FLY ASH MAY BE USED UP TO 25% REPLACEMENT OF PORTLAND CEMENT, EXCEPT AT POLISHED SLABS (LIMITED TO 15%) OR ARCHITECTURALLY EXPOSED CONCRETE (VERIFY WITH ARCHITECT)
3. ALL MIXES SHALL UTILIZE A WATER REDUCING ADMIXTURE.
4. AT POLISHED CONCRETE FINISHES, USE OF CURING COMPOUNDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT AND POLISHING SYSTEM MANUFACTURER.
5. SLUMP SHALL BE DETERMINED AT POINT OF PLACEMENT.
6. FOR TOPPING SLAB LESS THAN 2" THICK, CONTRACTOR SHALL SUBMIT PROPRIETARY MIX DESIGN AND PREPARATION PROCEDURE FOR APPROVAL.

USE	CLASS
DRILLED PIERS	A
PIER CAPS	B
GRADE BEAMS	B
SLABS-ON-GRADE	B
SLABS-ON-CARTON FORMS	C
POLISHED SLABS	D
FOOTINGS	B
RETAINING WALLS	D
POOLS SHOTCRETE	E
COLUMNS	F
WALLS	F
ELEVATED BEAMS	F
ELEVATED SLABS	F
CONCRETE ON METAL DECK	F
HOUSEKEEPING PADS	G
MUD SLABS	H
TOPPING SLABS (< 2")	G
TOPPING SLABS (≥ 2")	(NOTE 6)

3. MATERIALS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS

• READY-MIXED CONCRETE	ASTM C94
• PORTLAND CEMENT -	ASTM C150, TYPE I/II
• FLY ASH -	ASTM C618, CLASS F OR C
• NORMAL WEIGHT AGGREGATES -	ASTM C33
• LIGHT WEIGHT AGGREGATES -	ASTM C330
• WATER -	ASTM C1602
• WATER-REDUCING, PLASTICIZING, AND RETARDING ADMIXTURE -	ASTM C494
• AIR-ENTRAINING ADMIXTURE -	ASTM C260
• CURING COMPOUNDS -	ASTM C309, TYPE 1, CLASS B
• FLOOR SEALERS, HARDENERS, FINISHES, AND COVERINGS SHALL BE COMPATIBLE WITH CONCRETE PROPERTIES	

4. READY-MIXED CONCRETE SHALL BE FURNISHED WITH BATCH TICKET INFORMATION. PROJECT-SITE MIXING IS NOT ACCEPTABLE.
5. PLACEMENT OF CONCRETE SHALL BE COMPLETED WITHIN 90 MINUTES AFTER THE INTRODUCTION OF THE MIXING WATER, PER ASTM C94.
6. COLD WEATHER CONCRETE PLACEMENT SHALL COMPLY WITH ACI 306.1 AND AS FOLLOWS:
   A WHEN AVERAGE HIGH AND LOW TEMPERATURE IS EXPECTED TO FALL BELOW 40° F FOR (3) CONSECUTIVE DAYS, MAINTAIN DELIVERED CONCRETE MIX TEMPERATURE WITHIN THE TEMPERATURE RANGE REQUIRED BY ACI 301.
   B DO NOT USE OR PLACE CONCRETE ON FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW.
   C DO NOT USE CALCIUM CHLORIDE, SALT, OR OTHER MATERIALS CONTAINING ANTI-FREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS APPROVED IN MIX DESIGNS.
   D. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS OR LOW TEMPERATURES.
7. HOT WEATHER CONCRETE PLACEMENT SHALL COMPLY WITH ACI 305.1 AND AS FOLLOWS:
   A MAINTAIN CONCRETE TEMPERATURE BELOW 90° F AT TIME OF PLACEMENT
   B CHILLED MIXING WATER OR CHOPPED ICE MAY BE USED TO CONTROL TEMPERATURE. PROVIDED WATER EQUIVALENT OF ICE IS CALCULATED TO TOTAL AMOUNT OF MIXING WATER.
8. BEFORE TEST SAMPLING AND PLACING OF CONCRETE, WATER MAY BE ADDED TO THE PROJECT SITE, SUBJECT TO THE LIMITATIONS OF ACI 301. DO NOT ADD WATER TO THE CONCRETE AFTER ADDING HIGH-RANGE WATER-REDUCING ADMIXTURES
9. SECURELY POSITION ALL ITEMS TO BE CAST IN PLACE SUCH AS REINFORCING DOWELS, ANCHORS, SLEEVES, ETC. PRIOR TO PLACEMENT OF CONCRETE
10. EMBEDDED CONDUITS, PIPES, AND SLEEVES SHALL MEET THE REQUIREMENTS OF ACI 318. REFERENCE TYPICAL DETAILS FOR ALLOWABLE PENETRATIONS AND ADDITIONAL REQUIRED REINFORCEMENT.
11. PLACE ALL VERTICAL CONSTRUCTION JOINTS IN THE CENTER OF SPANS IN ACCORDANCE WITH THE TYPICAL DETAILS. CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS FOR CONSTRUCTION JOINTS NOT SHOWN ON STRUCTURAL DRAWINGS FOR REVIEW BY THE ARCHITECT AND ENGINEER.
12. FOOTING, GRADE BEAM, AND SLAB AREAS SHALL BE CLEANED OF DEBRIS AND STANDING WATER PRIOR TO POURING CONCRETE.
13. WHERE NOTED, SAW CUT JOINTS SHALL BE CUT AS SOON AS THE CONCRETE HAS OBTAINED ADEQUATE STRENGTH TO RESIST RAVELING OF THE JOINT EDGES, GENERALLY BETWEEN 4 TO 12 HOURS AFTER THE CONCRETE HAS BEEN FINISHED. HOWEVER, IF ENTRY IS DELAYED TOO LONG, SAWING CAN BECOME DIFFICULT AND UNCONTROLLABLE CRACKING MAY OCCUR. THE BEST TIME FOR SAWING SHALL BE DETERMINED IN THE FIELD AS TIMING MAY VARY BASED ON MIX DESIGN, PLACEMENT, AND CURING CONDITIONS. SAW CUTS SHALL BE A MINIMUM 1/4 OF THE SLAB THICKNESS, UNLESS NOTED OTHERWISE. WITH REINFORCEMENT CONTINUOUS THROUGH SAW CUTS IN ACCORDANCE WITH THE CONTROL JOINT DETAIL. DO NOT SAWCUT ELEVATED SLABS OR SLABS OVER VOID FORMS.
14. CONCRETE SHALL REACH 75% OF THE SPECIFIED 28 DAY COMPRESSIVE STRENGTH AND BE IN PLACE FOR 7 DAYS PRIOR TO REMOVAL OF FORMS OR CONSTRUCTION ON TOP OF THE SLAB.

N

FULL SIZE SHEET 22X34

Ramirez - Simon Engineering, LLC

Mechanical - Electrical - Plumbing
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SEAL

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www.gessnerengineering.com
FIRM REGISTRATION NUMBERS:
TBPE-F-2651, TBPLS-F-10193810

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY
1848

PROJECT NAME

Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT

JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

STRUCTURAL NOTES

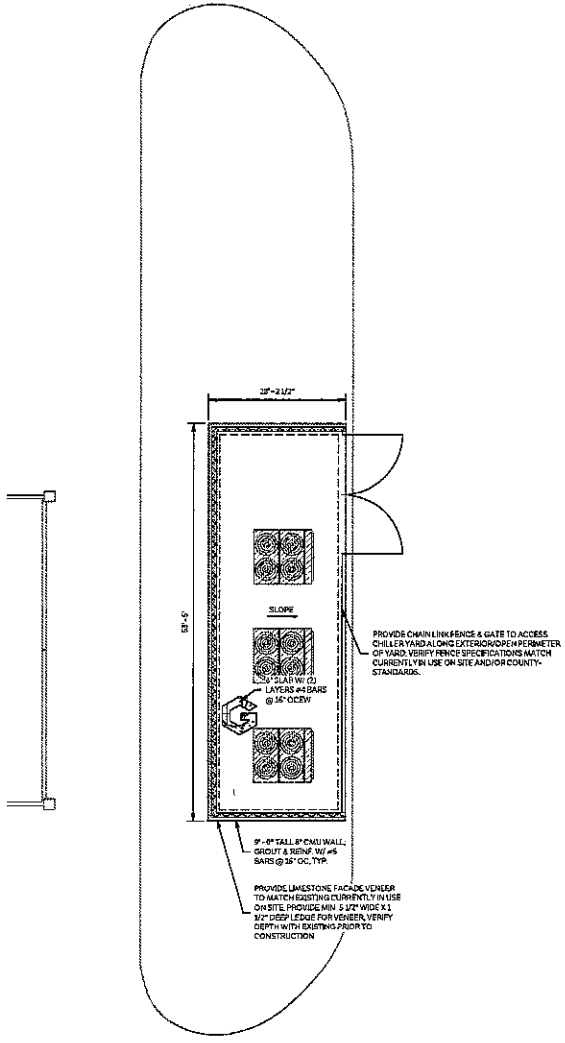
SHEET NUMBER

S002

NOTES:
1. REFERENCE GENERAL NOTES AND DETAILS FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS AND TYPES OF PLUMBING FIXTURES WITH ARCHITECTURAL DRAWINGS PRIOR TO COMMENCING CONSTRUCTION
3. VERIFY ALL DIMENSIONS & DROPS WITH ARCHITECT AND OWNER PRIOR TO COMMENCING CONSTRUCTION.

LEGEND:

	DROP
SLOPE	SLOPE, REF. CIVIL



1 FOUNDATION PLAN
1/8" = 1'-0"

N

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7453, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

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JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

FOUNDATION PLAN

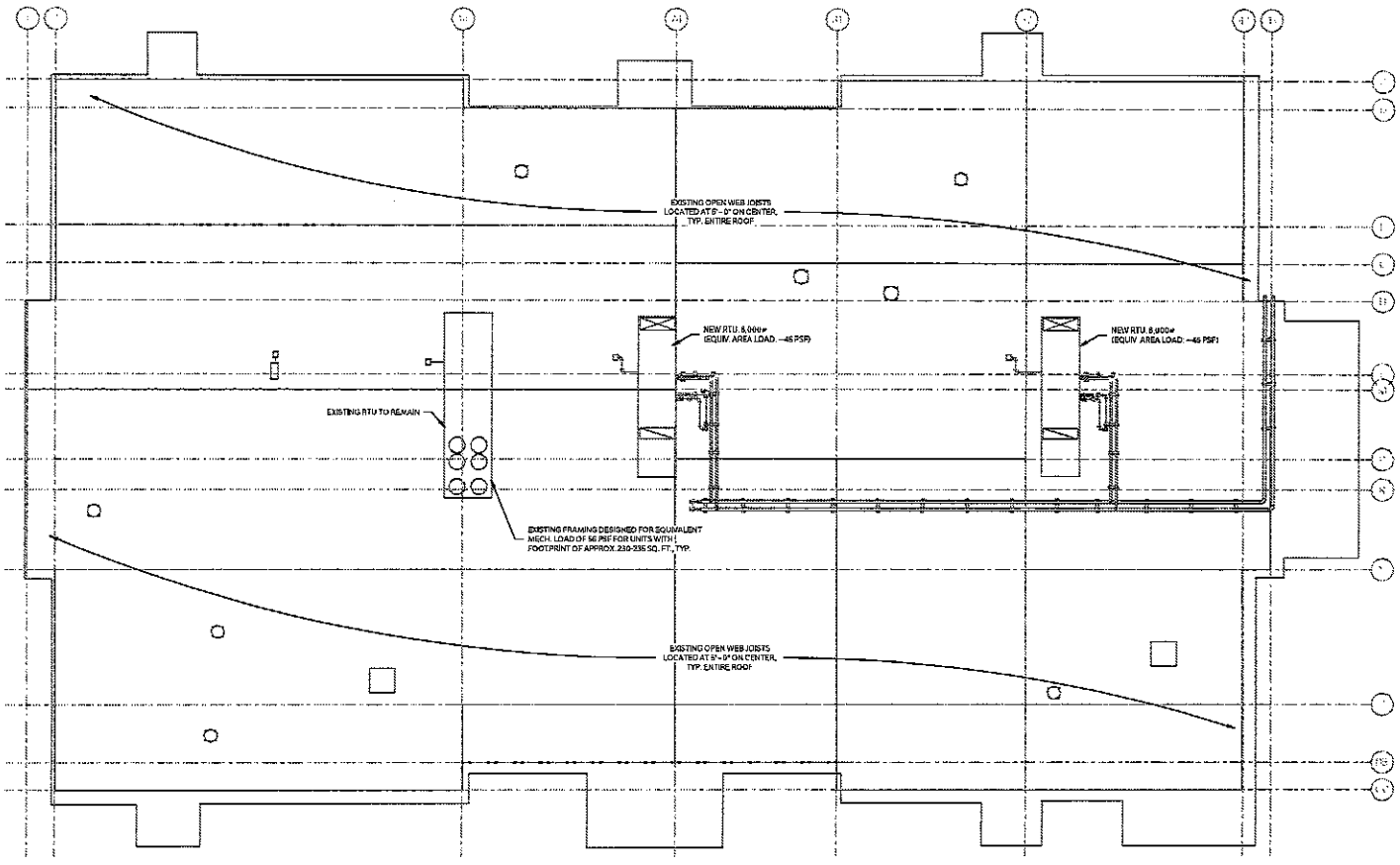
SHEET NUMBER

S101

NOTES:
1. STEEL BEAMS AND JOISTS ARE TYPICALLY CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES
2. REFERENCE MEP DRAWINGS FOR LOCATION AND DIMENSIONS OF ROOF PENETRATIONS.
3. COORDINATE AND VERIFY ALL DIMENSIONS WITH EXISTING CONDITIONS.
4. REFERENCE GENERAL NOTES, TYPICAL DETAILS, AND PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION
5. GESSNER ENGINEERING SHALL BE CONTACTED FOR REVIEW AND/OR REDESIGN WHEN CHANGES IN UNIT SIZES AND/OR LOCATIONS ARE DESIRED.

LEGEND:

MECHANICAL OPENING



1 ROOF FRAMING PLAN
3/32" = 1'-0"

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-2461, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

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ISSUED FOR PERMIT
JULY 26, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

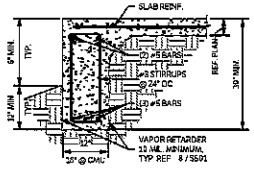
SHEET TITLE

ROOF PLAN

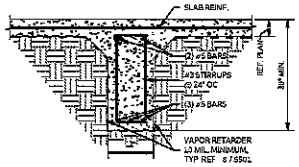
SHEET NUMBER

S112

SHEET NOTES:
1. REFERENCE PLANS FOR SLOPING SLAB CONDITIONS.
2. WHERE SLAB DROP IS LESS THAN OR EQUAL TO 11/2", SLAB REINFORCEMENT MAY BE CONTINUOUS AND BENT BELOW DROP IN LIEU OF PROVIDING BENT BARS AS SHOWN.
3. VAPOR RETARDER AS DETAILED TO BE INSTALLED BELOW ALL FOUNDATION CONCRETE.
4. ALL SPLICES SHALL BE AS SPECIFIED IN THE GENERAL NOTES.
5. BEAM AND SLAB REINFORCEMENT TYPICAL UNLESS NOTED OTHERWISE
6. BEAM AND SLAB DIMENSIONS TYPICAL UNLESS NOTED OTHERWISE.

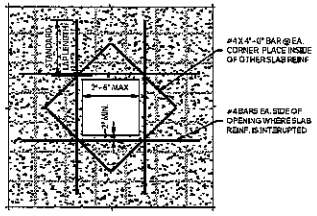


1 EXTERIOR BEAM
N.T.S.



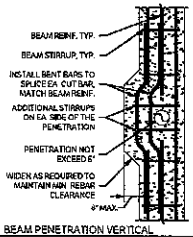
2 INTERIOR BEAM
N.T.S.

NOTE: NO ADDITIONAL REINFORCEMENT IS REQUIRED FOR SINGLE OPENINGS LESS THAN 6" WIDE



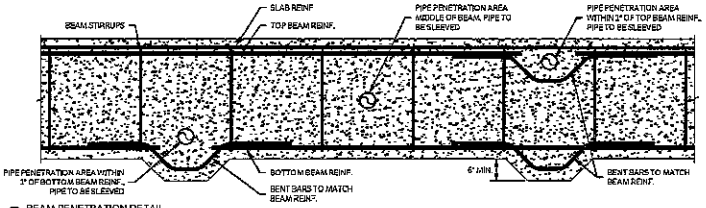
3 SLAB OPENING REINF.
N.T.S.

NOTE: IF PIPE PENETRATION OCCURS CENTER OF THE BEAM & THE PIPE W/ SLEEVE DIMENSION IS LESS THAN 6", THE CONTRACTOR MAY:
1. NOT WIDEN THE BEAM.
2. REPLACE BENT BARS W/ (2) #5 DOWEL EACH SIDE OF PIPE.



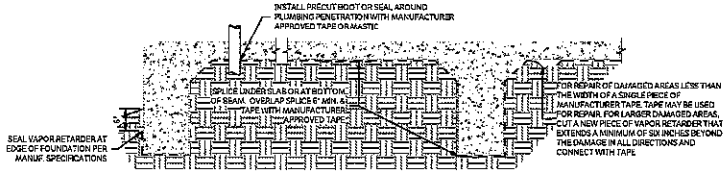
5 BEAM PENETRATION VERTICAL
N.T.S.

NOTE: WHEN PIPE SLEEVE IS WITHIN 1" OF BEAM REINF. BEAM REINF. SHALL BE STOPPED AND BENT BARS ADDED AS SHOWN BELOW.



4 BEAM PENETRATION DETAIL
N.T.S.

NOTE: VAPOR RETARDER AS DETAILED TO BE INSTALLED BELOW ALL FOUNDATION CONCRETE

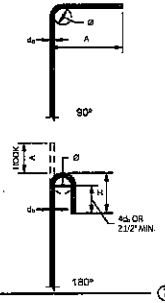


6 VAPOR RETARDER DETAIL
N.T.S.

STANDARD DOWEL HOOK DIMENSIONS
ALL GRADES OF STEEL

BAR SIZE	Ø	90°	180°	
		A	A	H
#3	2 1/4"	6"	6"	4"
#4	3"	8"	6"	4 1/2"
#5	3 3/4"	10"	7"	5"
#6	4 1/2"	12"	8"	6"
#7	5 1/4"	14"	10"	7"
#8	6"	16"	11"	8"

NOTE Ø = FINISHED INSIDE BEND

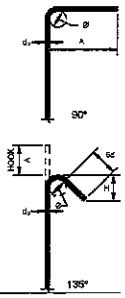


5 STANDARD DOWEL HOOKS
N.T.S.

STIRRUP/TIE HOOK DIMENSIONS
ALL GRADES OF STEEL

BAR SIZE	Ø	90°	135°	
		A	A	H
#3	1 1/2"	4"	4 1/4"	3"
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"
#7	5 1/4"	14"	9"	5 1/4"
#8	6"	16"	10 1/2"	6"

NOTE Ø = FINISHED INSIDE BEND



7 STIRRUP/TIE HOOKS
N.T.S.

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-461, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

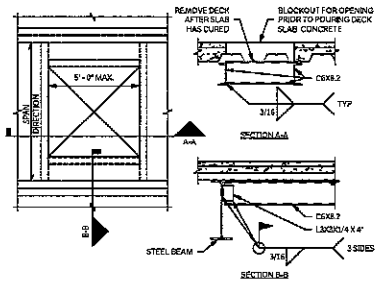
RSE PROJECT NO: 1479

SHEET TITLE

FOUNDATION DETAILS

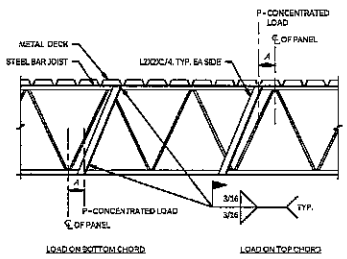
SHEET NUMBER

S501

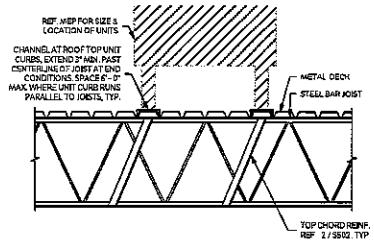


① LARGE MECHANICAL OPENING IN COMPOSTIE SLAB
N.T.S.

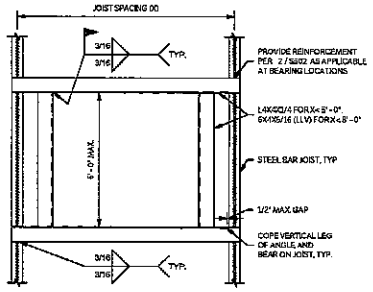
NOTE: BRACE NOT REQUIRED FOR "A" LESS THAN 3".



② BAR JOIST CHORD REINFORCEMENT
N.T.S.



③ MECHANICAL UNIT SUPPORT AT JOIST
N.T.S.



④ STANDARD ROOF OPENING
N.T.S.

N

FULL SIZE SHEET: 22X34

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TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT

JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

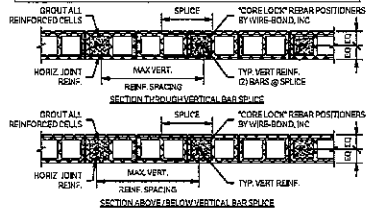
SHEET TITLE

ROOF FRAMING DETAILS

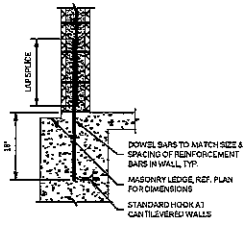
SHEET NUMBER

S502

NOTES:
1. MAINTAIN MINIMUM 2"X3" CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL AT EACH REBAR. PLACE WALLS TO MAX. 5'-0" HEIGHT BEFORE GROUTING.
2. PLACE REBAR IN WALL WITH LAP SPLICE LENGTH PER SCHEDULE.
3. STOP GROUT POUR 1 1/2" BELOW TOP OF COURSE, AT EACH GROUT LIFT, EXCEPT AT LINTELS & BOND BEAMS EXTEND GROUT TO TOP OF GROUTED COURSE.
4. PROVIDE REBAR POSITIONS AT MANUFACTURER RECOMMENDED SPACING, BUT NOT TO EXCEED 48" OC.

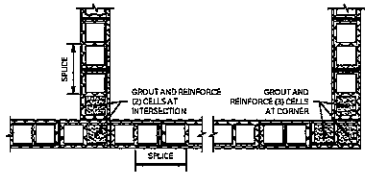


1 CMU WALL REINFORCING DETAIL
N.T.S.



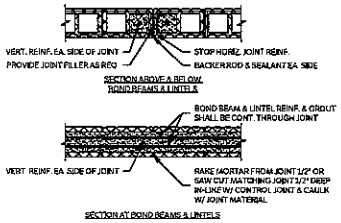
2 CMU WALL TO FOUNDATION
N.T.S.

NOTE: AT CONTRACTORS OPTION, IN LIEU OF INTERLOCKING CMU COURSING AT CORNER, REMOVE WEB AND FACE SHELL AT INTERFACE AND GROUT MONOLITHICALLY.



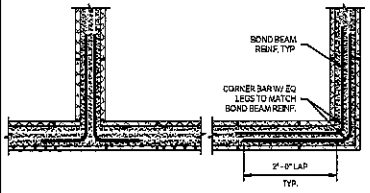
3 CMU WALL CORNER REINFORCING DETAIL
N.T.S.

NOTE: INSTALL CONTROL AND EXPANSION JOINTS AT THE FOLLOWING MAX SPACING UNO:
A. 30' - 0" ON CENTER HORIZONTALLY.
B. TO MAINTAIN A MAXIMUM LENGTH TO HEIGHT RATIO OF 1.5:1 BETWEEN JOINTS.
C. WITHIN 1/2 TYPICAL JOINT SPACING FROM CMU WALL CORNERS OR INTERSECTIONS ALONG INTERSECTING WALL.



4 CMU CONTROL JOINT DETAIL
N.T.S.

NOTE: CORNER BAR AND DOWELS SHALL MATCH SIZE OF TYPICAL BOND BEAM REINFORCING

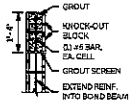


5 CMU BOND BEAM CORNER REINFORCMENT
N.T.S.

NOTES:
1. WHERE CONTROL JOINTS ARE TO BE PLACED ADJACENT TO OPENINGS, MASONRY OVER NON-LOAD BEARING HEADER SPECIFIED ABOVE SHALL NOT EXCEED 4' - 0" IN HEIGHT. WHERE THIS REQUIREMENT IS NOT MET, GESSNER ENGINEERING SHALL BE CONTACTED FOR ADDITIONAL INFORMATION
2. BARS SHALL NOT BE SPLICED OVER OPENINGS
3. SPLICE BARS WITHIN WALL AS REQUIRED. STAGGER LAP SPLICING WITHIN COURSE.

DOUBLE

PROVIDE WITHIN WALL:
- TOP OF WALL
- AT ENDS OF ASSOCIATED BOND BEAM OVER OPENING EXTENDED OVER JAMB CELLS



6 BOND BEAM SCHEDULE
N.T.S.

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-2461, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

CMU FRAMING DETAILS

SHEET NUMBER

S503

PIPING SYMBOLS

	PIPE UP
	PIPE DOWN
	PIPE CAP
	90° ELBOW
	RISE OR DROP IN ELEVATION
	TEE OR BRANCH CONNECTION
	TEE DOWN
	TEE DOWN
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
CD	CONDENSATE DRAIN LINE
RL	REFRIGERANT LINE
15MS	15 PSIG STEAM
50MS	50 PSIG STEAM
80MS	80 PSIG STEAM
LPC	LOW PRESSURE CONDENSATE
PCR	PUMPED CONDENSATE RETURN
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	GLOBE VALVE
	2 WAY CONTROL VALVE
	3 WAY CONTROL VALVE
	2 WAY SOLENOID VALVE
	3 WAY SOLENOID VALVE
	BALANCING VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE
	SAFETY VALVE
	SUCTION DIFFUSER
	STRAINER
	STRAINER W/ BLOWDOWN
	PIPE REDUCER
	PETE'S PLUG
	FLEXIBLE CONNECTION
	UNION
	COMPANION FLANGE
	AIR VENT - AUTOMATIC
	AIR VENT - MANUAL
	THERMOMETER
	PRESSURE GAUGE W/ GAUGE COCK
	FLOWMETER
	PIPE ANCHOR
	PIPE EXPANSION JOINT
	PIPE GUIDE
	TRIPLE DUTY VALVE

NOTE: NOT ALL SYMBOLS MAY BE USED IN THIS PROJECT.

ABBREVIATIONS

AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
BAS	BUILDING AUTOMATION SYSTEM
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CV	CONSTANT VOLUME
EAT	ENTERING AIR TEMPERATURE
(ETR)	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST AIR
°F	DEGREES FAHRENHEIT
FD	FIRE DAMPER
FSD	COMBINATION FIRE SMOKE DAMPER
FPM	FEET PER MINUTE
FT	FEET
GPM	GALLONS PER MINUTE
HEPA	HIGH EFFICIENCY PARTICULATE AIR FILTER
HP	HORSE POWER
IN	INCHES
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MVD	MANUAL VOLUME DAMPER
N/C	NOT IN CONTRACT
NO.	NUMBER (QUANTITY OR MODEL)
OA	OUTSIDE AIR
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE INCH GAGE
QTY	QUANTITY
RLF	RELIEF
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
SD	SMOKE DAMPER
SP	STATIC PRESSURE (INCHES OF WATER)
TP	TOTAL PRESSURE (INCHES OF WATER)
TYP	TYPICAL
V	VOLTS
VAC	VOLTS, ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE

NOTE:
NOT ALL ABBREVIATIONS MAY BE USED ON THIS PROJECT.

MECHANICAL SYMBOLS

	CEILING DIFFUSERS WITH ROUND RIGID DUCT CONNECTION
	CEILING DIFFUSERS WITH ROUND FLEX DUCT CONNECTION
	CEILING SUPPLY AIR DEVICE (24x24 AND 12x12)
	CEILING RETURN AIR DEVICE (24x24 AND 12x12)
	CEILING EXHAUST AIR DEVICE (24x24 AND 12x12)
	1-WAY THROW CEILING AIR DEVICE
	2-WAY THROW CEILING AIR DEVICE
	3-WAY THROW CEILING AIR DEVICE
	SIDEWALL EXHAUST OR RETURN AIR GRILLE OR REGISTER
	SIDEWALL SUPPLY REGISTER
MVD	MANUAL VOLUME DAMPER
M	MOTORIZED DAMPER
FD	FIRE DAMPER
FSD	COMBINATION FIRE/SMOKE DAMPER
SD	SMOKE DAMPER
	DUCT MOUNTED SMOKE DETECTOR
	FLEXIBLE DUCT CONNECTION
12x12 / 8x8	DUCT TRANSITION
12x12 / Ø12	DUCT TRANSITION FROM RECTANGULAR TO ROUND
R	DUCT RISE IN DIRECTION OF AIRFLOW
D	DUCT DROP IN DIRECTION OF AIRFLOW
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EXCEPT TRANSFER AIR SOUND ELBOW)
	LONG RADIUS DUCT ELBOW
	AIR DUCT SPLITTER
	ACOUSTICAL FIBER FREE LINED DUCT
	BRANCH CONNECTION TO MAIN WITH VOLUME DAMPER (ALL BRANCH DUCTWORK TO AIR DEVICE SHALL HAVE VOLUME DAMPERS UNLESS OTHERWISE NOTED)
	SUPPLY DUCT UP / DOWN
	RETURN DUCT UP / DOWN
	EXHAUST DUCT UP / DOWN
24x24 12ø 24x14ø	INDICATES 24"x24" RECTANGULAR DUCT INDICATES 12" ROUND DUCT INDICATES 24"x14" FLAT OVAL
	ACCESS DOOR
T	THERMOSTAT OR TEMPERATURE SENSOR (RE: CONTROLS)
H	HUMIDISTAT OR HUMIDITY SENSOR (RE: CONTROLS)
M	MAGNAHELIC GAUGE
SP	STATIC PRESSURE SENSOR
CO	CARBON DIOXIDE SENSOR
CO2	CARBON DIOXIDE SENSOR
DP	DIFFERENTIAL PRESSURE SENSOR
OS	OCCUPANCY SENSOR (REFER TO ELECT. FOR MORE INFO)
	THERMOSTAT CONTROL WIRE
	EXISTING TO BE DEMOLISHED
	EXISTING TO REMAIN
	NEW CONSTRUCTION
	CONNECT AT THIS POINT
	REMOVE TO THIS POINT
A12x8 S12x8 R12x8	AIR DEVICE TAG DENOTING CFM QUANTITY AND SCHEDULES TYPE S = SUPPLY R = RETURN E - EXHAUST
ACCH-1-M — EQUIPMENT TAG	EQUIPMENT UNIT TAG LEGEND ACCH = AIR COOLED CHILLER CHP = CHILLED WATER PUMP M = MIDDLE SCHOOL E = ELEMENTARY SCHOOL
EQUIPMENT — EQUIPMENT CLEARANCE	
SECTION CALLOUT SYMBOL SECTION NUMBER — 1 SHEET NUMBER — M201	
GENERAL CALLOUT SYMBOL ENLARGED PLAN DETAIL NUMBER — 1 ENLARGED PLAN SHEET NUMBER — M201	

NOTE: NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT.

GENERAL NOTES

1. THESE NOTES APPLY TO ALL MECHANICAL SHEETS.
2. PROVIDE ACCESS DOORS ON WALLS, CEILINGS OR CHASES TO ACCESS CONCEALED VALVES, ADJUSTABLE EQUIPMENT AND CONTROL DEVICES. REFER TO SPECIFICATIONS AND COORDINATE WITH ARCHITECT. ACCESS DOOR RATING SHALL MATCH CLASSIFICATION OF WALL AND CEILING FIRE RATING.
3. FURNISH ALL NECESSARY STRUCTURES, INSERTS, SLEEVES, AND HANGING DEVICES FOR INSTALLATION OF MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. COORDINATE WITH ALL BUILDING TRADES TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.
4. PROVIDE ALL NECESSARY MISCELLANEOUS ANGLES, CHANNELS, UNISTRUT, ETC., AS REQUIRED TO ADEQUATELY SUPPORT THE MECHANICAL PIPING, DUCTWORK AND EQUIPMENT. COORDINATE WITH STRUCTURAL.
5. DETAILS ILLUSTRATED ON THE DRAWINGS SHALL BE APPLIED IN ALL CASES WHERE THE FEATURE OCCURS IN THE SYSTEM DESIGN.
6. DRAWINGS ARE SCHEMATIC IN NATURE AND SHALL NOT BE SCALED. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PIPING WITH OTHER TRADES AND PROVIDING OFFSETS IN PIPING AS REQUIRED. ALL PIPE SHALL BE ROUTED AS CLOSE TO STRUCTURE AS POSSIBLE.
7. ALL EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR. CONDITIONS SHOWN IN DRAWINGS MAY DEVIATE FROM EXACT CONFIGURATION.
8. ALL PIPING SIZES SHOWN ARE NOMINAL DIMENSION IN INCHES. PIPING ARE EXTERNALLY INSULATED. CONTRACTOR IS REQUIRED TO COORDINATE ACTUAL PIPE ROUTING AND SIZING AS NECESSARY FOR MAINTAINING REQUIRED CLEARANCES IN COORDINATION WITH OTHER TRADES.
9. MAJOR EQUIPMENT SHOWN ON THE PLANS AND ELEVATIONS ILLUSTRATE THE GENERAL ARRANGEMENT AND SPACE ALLOCATIONS. THE CONTRACTOR SHALL VERIFY THE SPACE REQUIREMENTS FOR EACH SYSTEM COMPONENT USING MANUFACTURER CERTIFIED SHOP DRAWINGS AND MAKE THE NECESSARY ADJUSTMENTS IN EQUIPMENT PLACEMENT AND CONNECTION IN ORDER TO ACCOMMODATE THE EXACT EQUIPMENT INSTALLED.
10. COORDINATE ALL PIPING WITH STRUCTURAL AND ELECTRICAL SYSTEMS AND PROVIDE NECESSARY OFFSETS TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.
11. CONTRACTOR/ INSTALLER SHALL NOTIFY COUNTY OF ANY EXISTING NON-CONFORMING/ NON-CODE COMPLIANT INSTALLATIONS OR LIFE-SAFETY CONDITIONS UNCOVERED OR OBSERVED IN THE PROCESS OF THE WORK. CONDITIONS SHALL BE REPORTED WHETHER OR NOT THEY ARE WITHIN OR OUTSIDE THE CONTRACTUAL SCOPE OF WORK.
12. CONTRACTOR SHALL MAINTAIN THE FIRE PROTECTION SYSTEM OF THE ENTIRE BUILDING IN WORKING ORDER FOR THE DURATION OF THE PROJECT. NOTIFY COUNTY OF ANY CONDITIONS RELATED TO THE FIRE PROTECTION SYSTEM UNCOVERED OR OBSERVED OUTSIDE THE CONTRACTUAL SCOPE OF WORK.

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS
MARK C. CLAYPOOL
147201
LICENSED
PROFESSIONAL ENGINEER
7/25/2024

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TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

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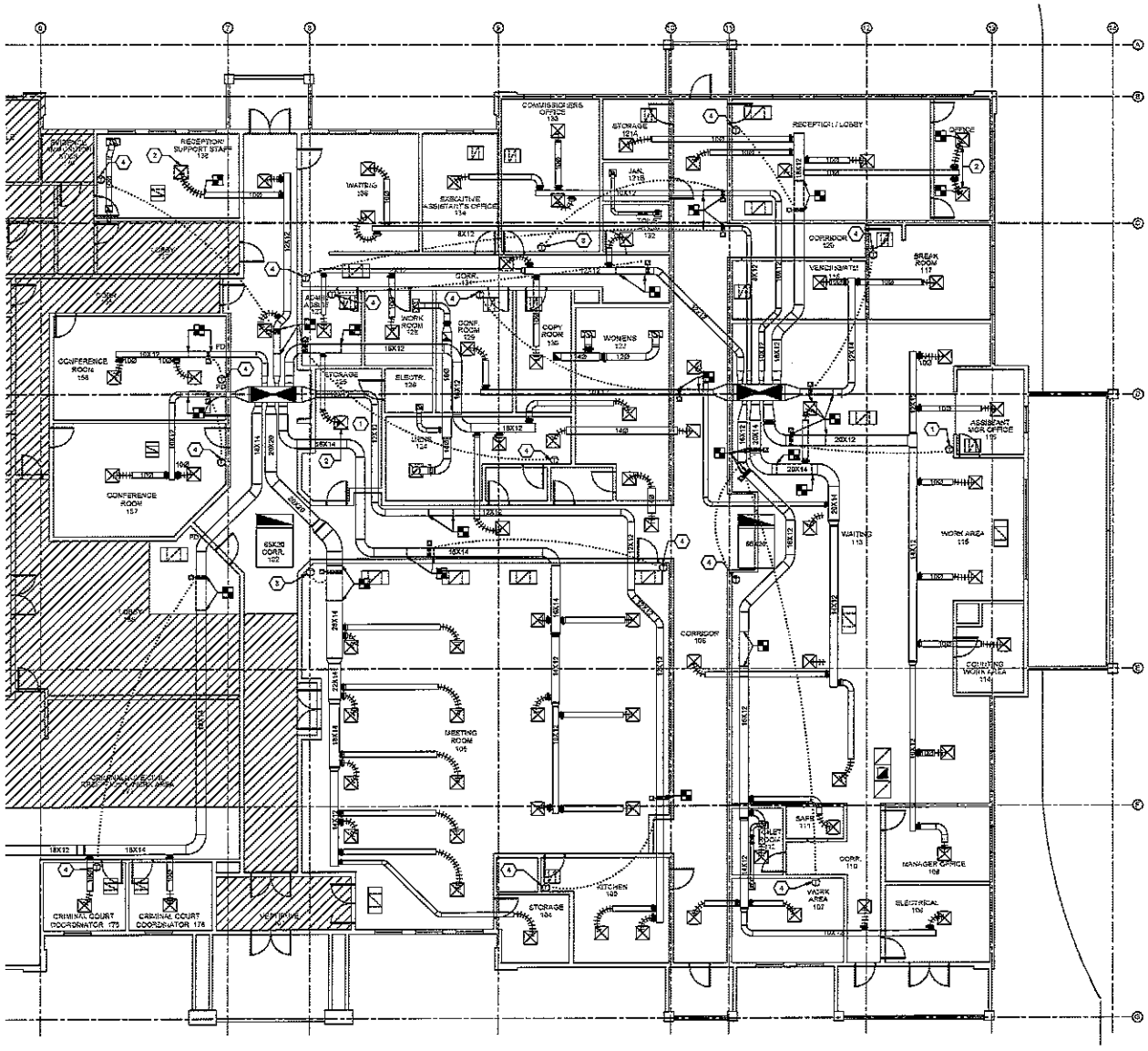
SHEET TITLE

MECHANICAL LEGEND AND GENERAL INFORMATION

SHEET NUMBER

M001



1 MECHANICAL DEMOLITION FLOOR PLAN – AREA B
SCALE 1/8" = 1'-0"

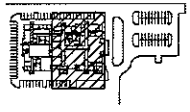
GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

SHEET KEYED NOTES

1. DEMOLISH EXISTING CEILING GRID AND TILES ALONG WITH AIR DEVICES. STORAGE ROOM WILL BE CHANGED TO A MECHANICAL ROOM WITHOUT A CEILING.
2. EXISTING AIR DEVICES TO BE REMOVED AND RELOCATED. DEMOLISH ASSOCIATED DUCTWORK.
3. DEMOLISH EXISTING T-STAT AND ASSOCIATED CONTROL WIRING. PROVIDE BLANK OFF PLATE OVER WALL OPENING.
4. DEMOLISH EXISTING T-STAT AND ASSOCIATED CONTROL WIRING.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"
N

FULL SIZE SHEET: 22X34

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TBPE F-7452, TBPLS F-10023320

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

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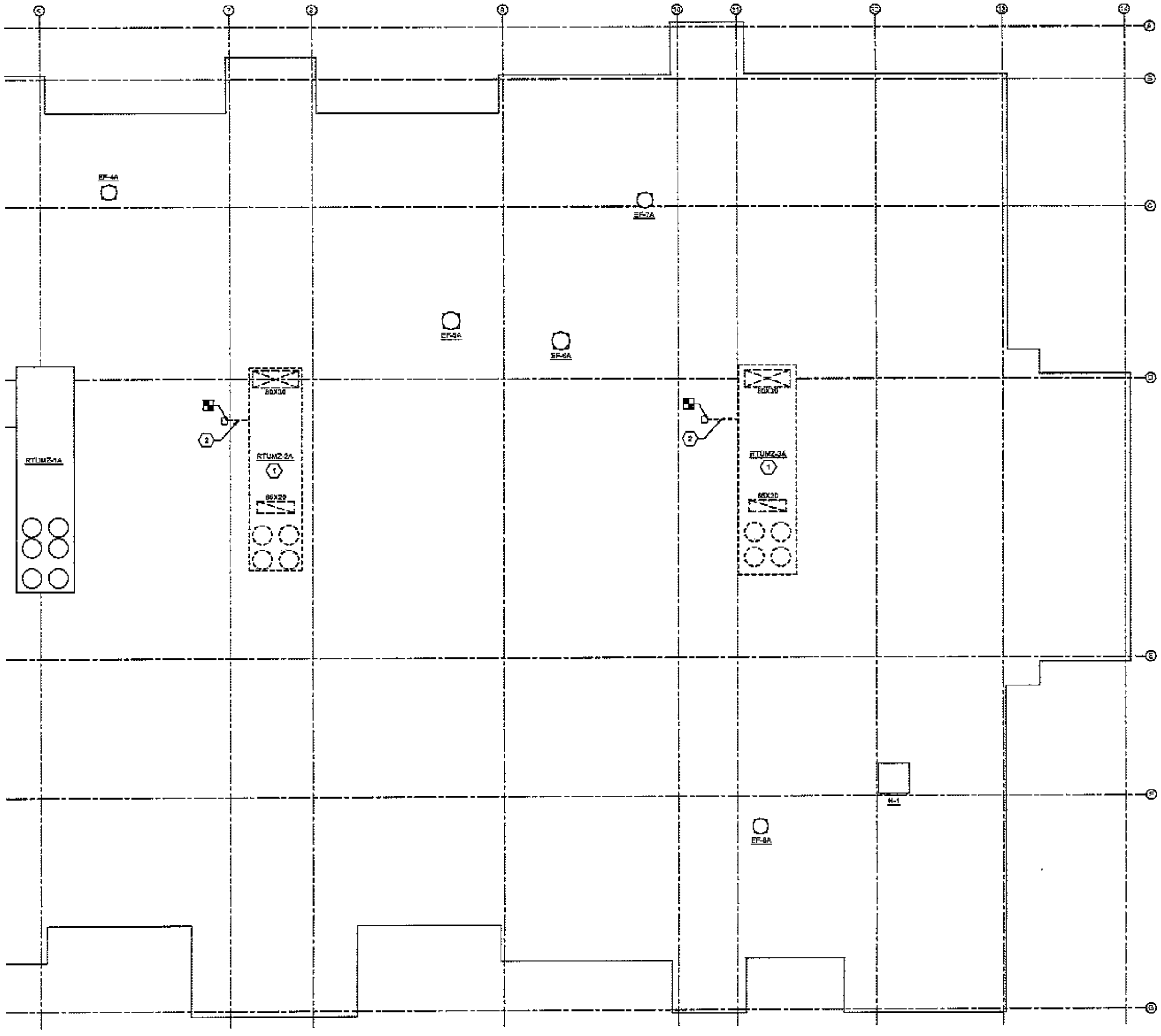
SHEET TITLE

MECHANICAL DEMOLITION FLOOR PLAN - AREA B

SHEET NUMBER

MD201



1 MECHANICAL DEMOLITION ROOF PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

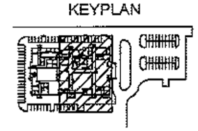
A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. REPAIR ANY ROOF DAMAGE OCCURRING DURING CONSTRUCTION IN ACCORDANCE WITH ROOF MANUFACTURER'S (FIRESTONE) SPECIFICATIONS.

SHEET KEYED NOTES

1. DEMOLISH EXISTING RTU AND APPURTENANCES. EXISTING CURB SHALL REMAIN.
2. DEMOLISH EXISTING CONDENSATE PIPING.

KEYPLAN



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TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

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WILLIAMSON COUNTY
1848

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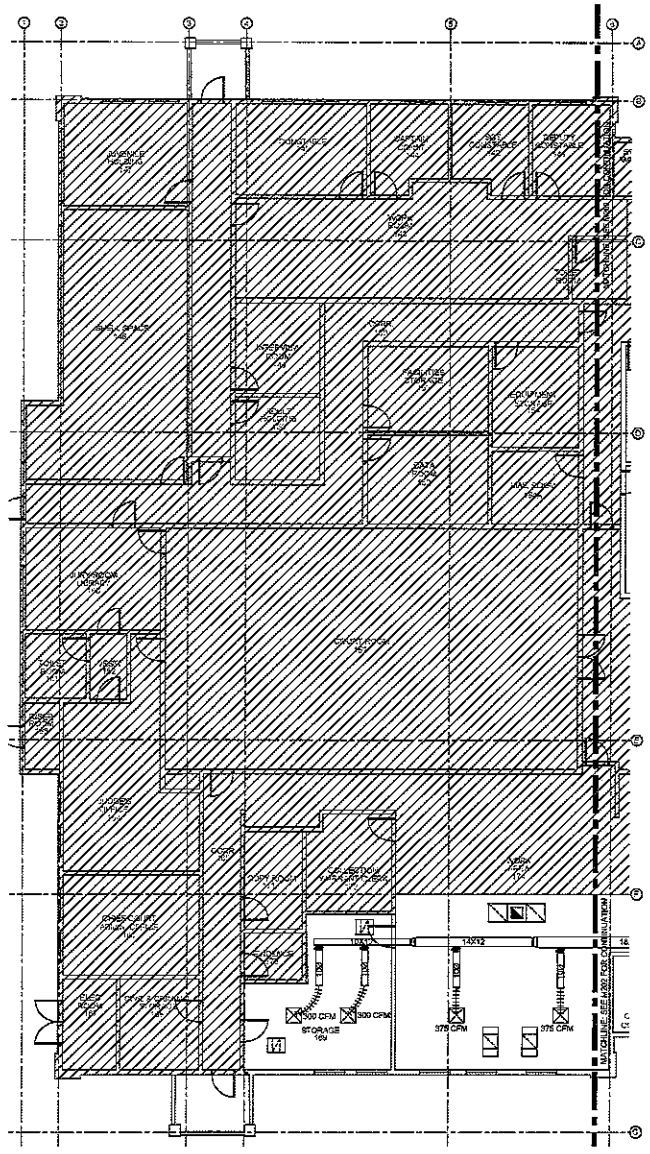
SHEET TITLE

MECHANICAL DEMOLITION ROOF PLAN - AREA B

SHEET NUMBER

MD202



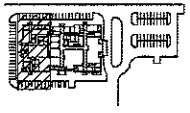
1 MECHANICAL RENOVATION FLOOR PLAN - AREA A
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. REBALANCE EXISTING DIFFUSERS TO CFM SHOWN ON PLAN.

KEYPLAN



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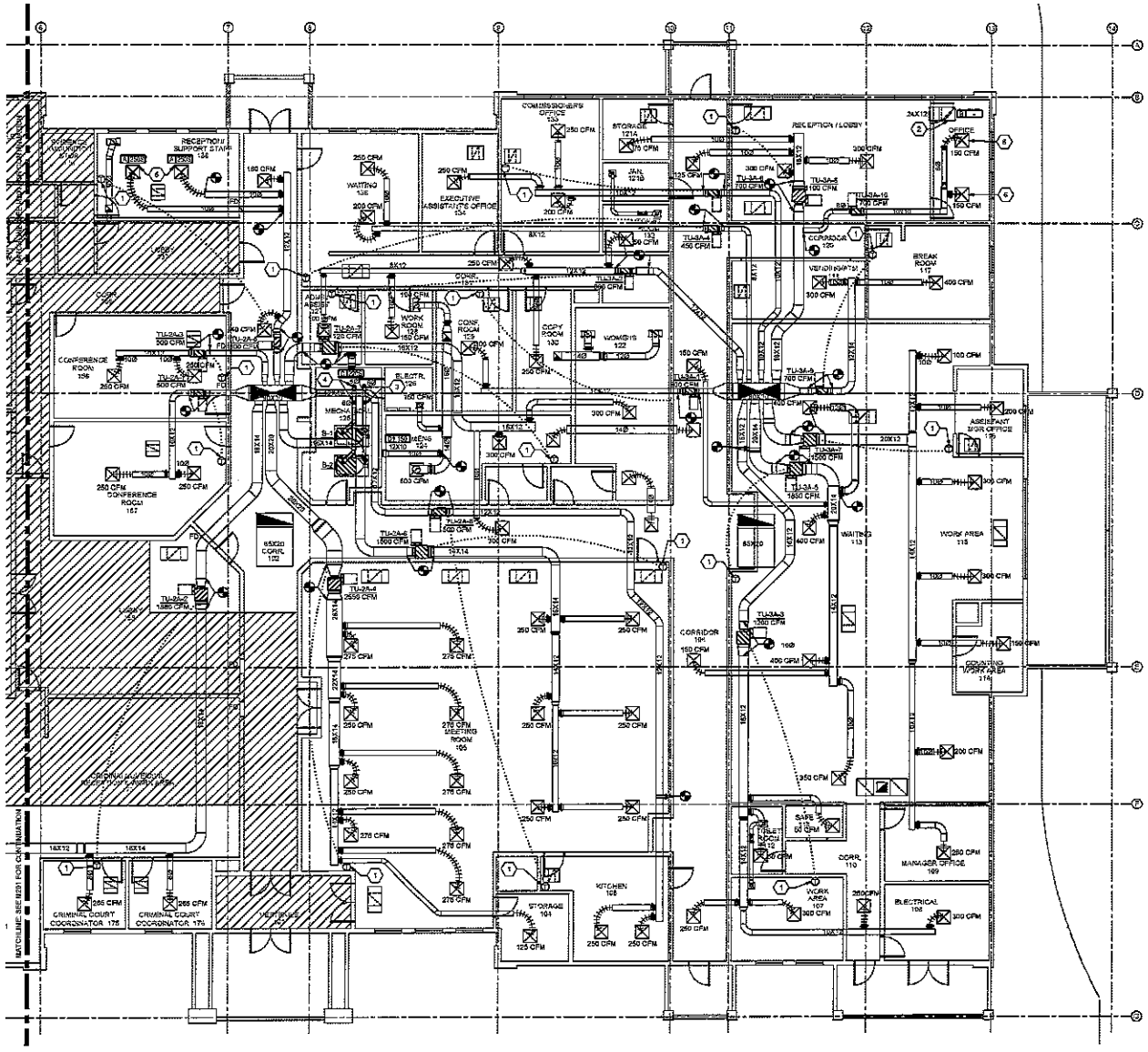
MECHANICAL RENOVATION FLOOR PLAN - AREA A

SHEET NUMBER

M201



1 MECHANICAL RENOVATION FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

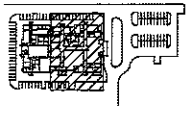
A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. REBALANCE EXISTING DIFFUSERS TO CFM SHOWN ON PLAN.

SHEET KEYED NOTES

1. PROVIDE NEW T-STAT AND ASSOCIATED CONTROL WIRING.
2. PROVIDE NEW RETURN AIR GRILLE AND ASSOCIATED SOUND ATTENUATING DUCT.
3. PROVIDE NEW 6" STAINLESS STEEL FLUE AND ROUTE TO ROOF. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS.
4. PROVIDE NEW 6" STAINLESS STEEL AIR INTAKE VENT AND ROUTE TO ROOF. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS.
5. PROVIDE NEW SUPPLY DIFFUSER AND MATCH EXISTING DIFFUSER TYPE.
6. RELOCATE EXISTING SUPPLY DIFFUSER.

KEYPLAN



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TBPE F-2451, TBPLS F-10153010

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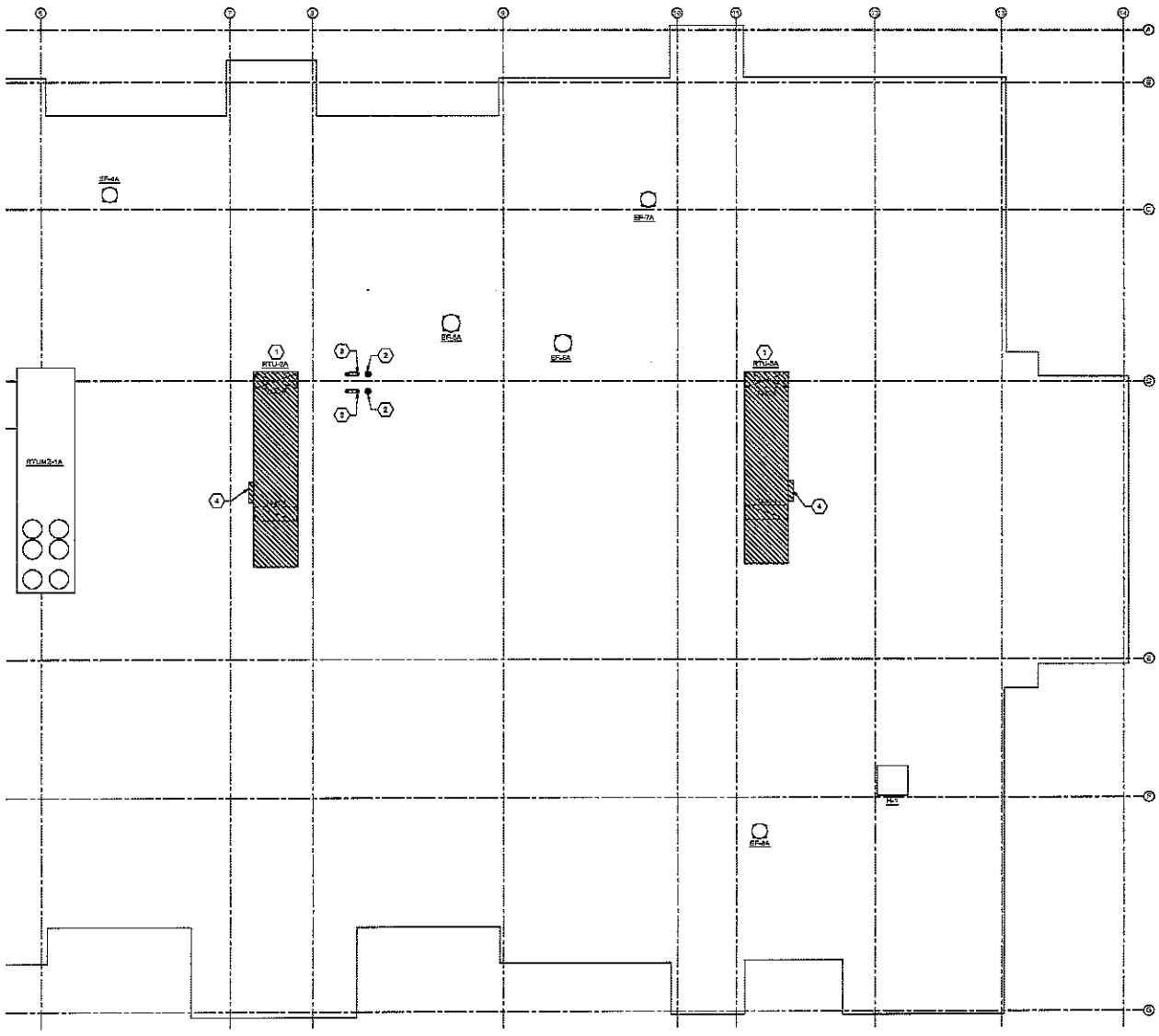
MECHANICAL RENOVATION FLOOR PLAN - AREA B

SHEET NUMBER

M202



1 MECHANICAL RENOVATION ROOF PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

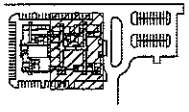
A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. REPAIR ANY ROOF DAMAGE OCCURRING DURING CONSTRUCTION IN ACCORDANCE WITH ROOF MANUFACTURER'S (FIRESTONE) SPECIFICATIONS.

SHEET KEYED NOTES

1. PROVIDE NEW RTU AND ASSOCIATED ROOF CURB ADAPTER. PROVIDE NECESSARY DUCTWORK TRANSITIONS TO RECONNECT TO EXISTING DUCTWORK PENETRATIONS THROUGH ROOF.
2. PROVIDE FLUE OUTLET WITH CAP, AND LOCATE A MINIMUM OF 36" ABOVE AIR INLET.
3. PROVIDE VENT AIR INTAKE WITH BIRD SCREEN, AND TERMINATE AIR INLET A MINIMUM OF 12" ABOVE ROOF.
4. OUTSIDE AIR DAMPER SHALL BE LOCATED AS SHOWN ON PLAN.

KEYPLAN



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FIRM REGISTRATION NUMBERS:
TBPE F-7450, TBPLS F-10193920

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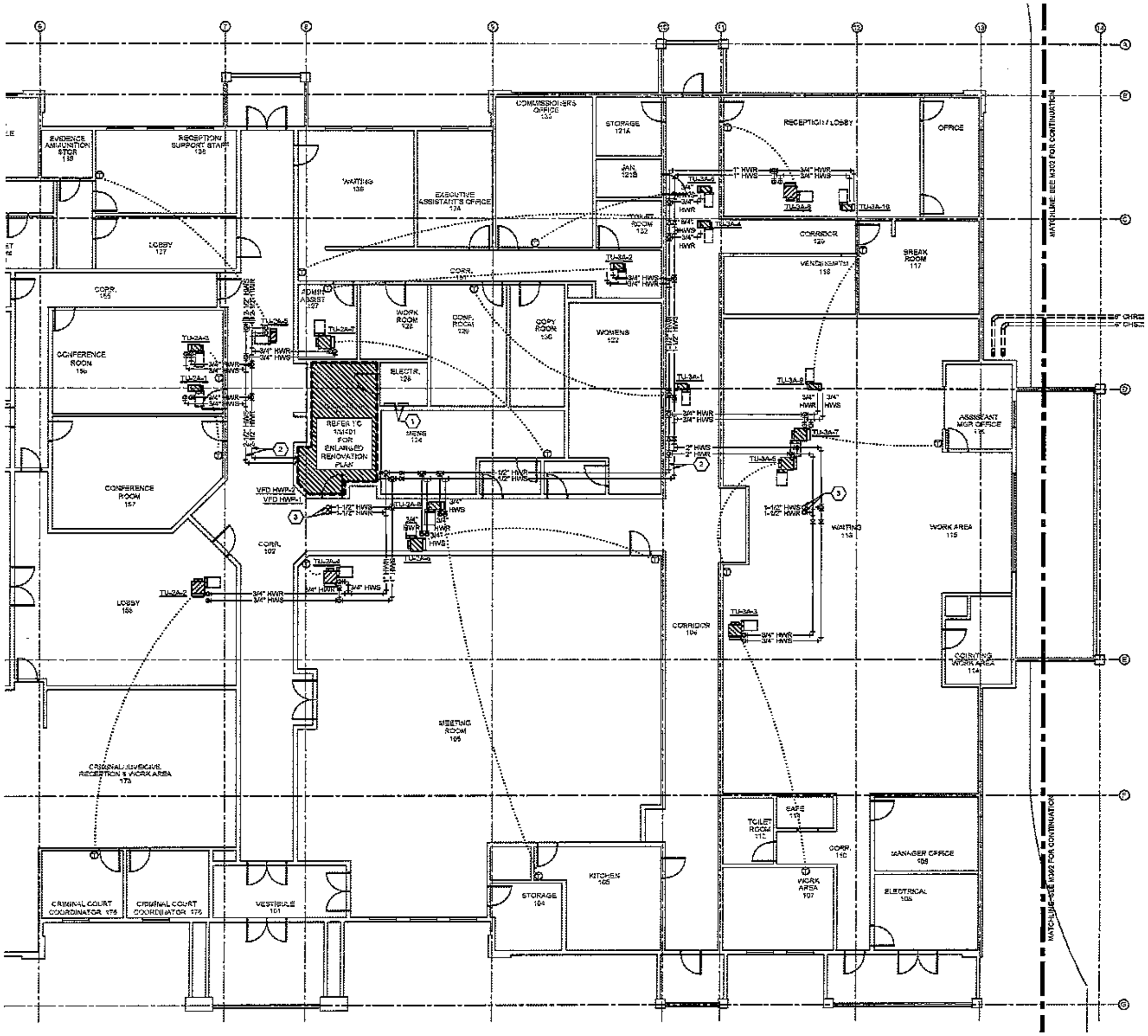
MECHANICAL RENOVATION ROOF PLAN - AREA B

SHEET NUMBER

M203



1 MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

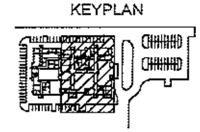
A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. PROVIDE LAMINATED TERMINAL UNIT AND HEATING WATER VALVE IDENTIFICATION TAGS ON CEILING GRID. TAGS SHALL BE LOCATED ON GRID FOR BUILDING MAINTENANCE PERSONNEL TO QUICKLY IDENTIFY LOCATION OF TERMINAL UNITS AND VALVES.

SHEET KEYED NOTES

1. PROVIDE NEW DDC CONTROL PANEL.
2. ROUTE NEW HEATING WATER PIPING IN CORRIDOR ABOVE CEILING AND AVOID GYP BOARD CEILING AREA.
3. ROUTE HWS/R PIPING UP THROUGH ROOF.

KEYPLAN



1/8" = 1'-0"

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS — MARK C. CLAYPOOL — 147201 — LICENSED PROFESSIONAL ENGINEER
7/25/2024

CONSULTANTS

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www.gessnerengineering.com
FIRM REGISTRATION NUMBERS
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

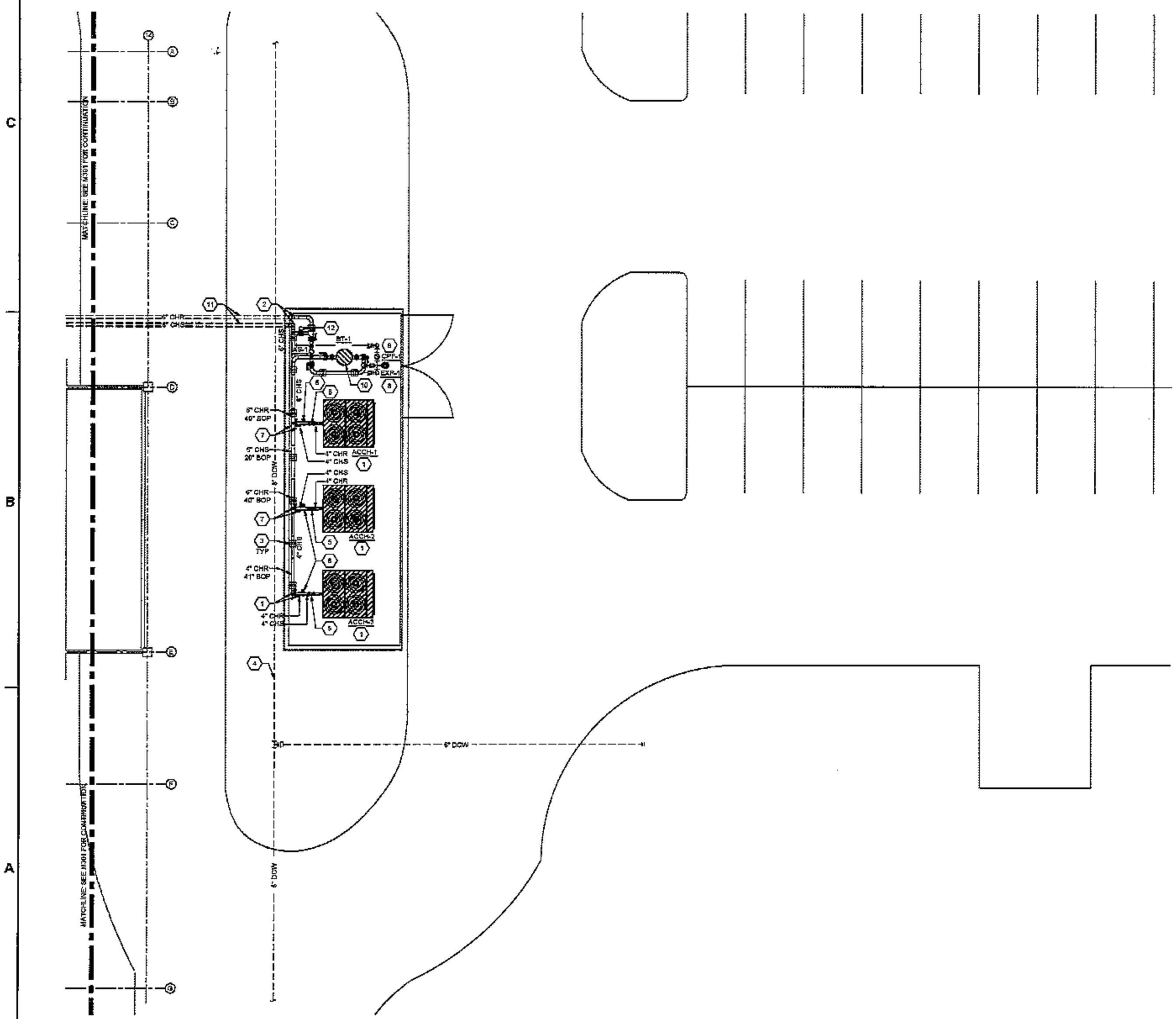
RSE PROJECT NO. 1479

SHEET TITLE

MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA B

SHEET NUMBER

M301



1 MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA C
SCALE: 1/8" = 1'-0"

GENERAL NOTES

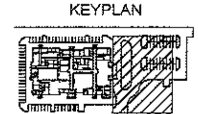
A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. CHAIN LINK FENCE TO BE PROVIDED BY OWNER.

SHEET KEYED NOTES

1. PROVIDE NEW CHILLER WITH INTEGRATED PUMP.
2. PROVIDE NEW CHILLED WATER PIPING ABOVE GRADE.
3. PROVIDE PIPE SUPPORT.
4. EXISTING UNDERGROUND DCW MAIN PIPING IS SHOWN FOR COORDINATION PURPOSES.
5. PROVIDE NEW FLOW METER IN 4" CHR PIPING.
6. PROVIDE NEW MOTORIZED CONTROL VALVE IN 4" CHS PIPING.
7. PROVIDE NEW ISOLATION VALVES IN CHILLED WATER PIPING.
8. PROVIDE NEW EXPANSION TANK AND MOUNT ON GRADE. ROUTE 1" PIPING TO 6" CHR PIPING AND PROVIDE ISOLATION VALVE.
9. PROVIDE NEW CHEMICAL POT FEEDER AND MOUNT ON GRADE. ROUTE 1" PIPING TO 6" CHR PIPING AND 6" CHS PIPING. PROVIDE ASSOCIATED ISOLATION VALVES.
10. PROVIDE NEW BUFFER TANK AND MOUNT ON GRADE.
11. PROVIDE NEW CHILLED WATER PIPING BELOW GRADE. REFER TO DETAIL 4/M501.
12. PROVIDE NEW MOTORIZED CONTROL VALVE IN CHILLED WATER BYPASS PIPING.

KEYPLAN



1/8" = 1'-0"

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS
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7/25/2024

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TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
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Round Rock, TX 78664

ISSUE

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MARK	DATE	DESCRIPTION

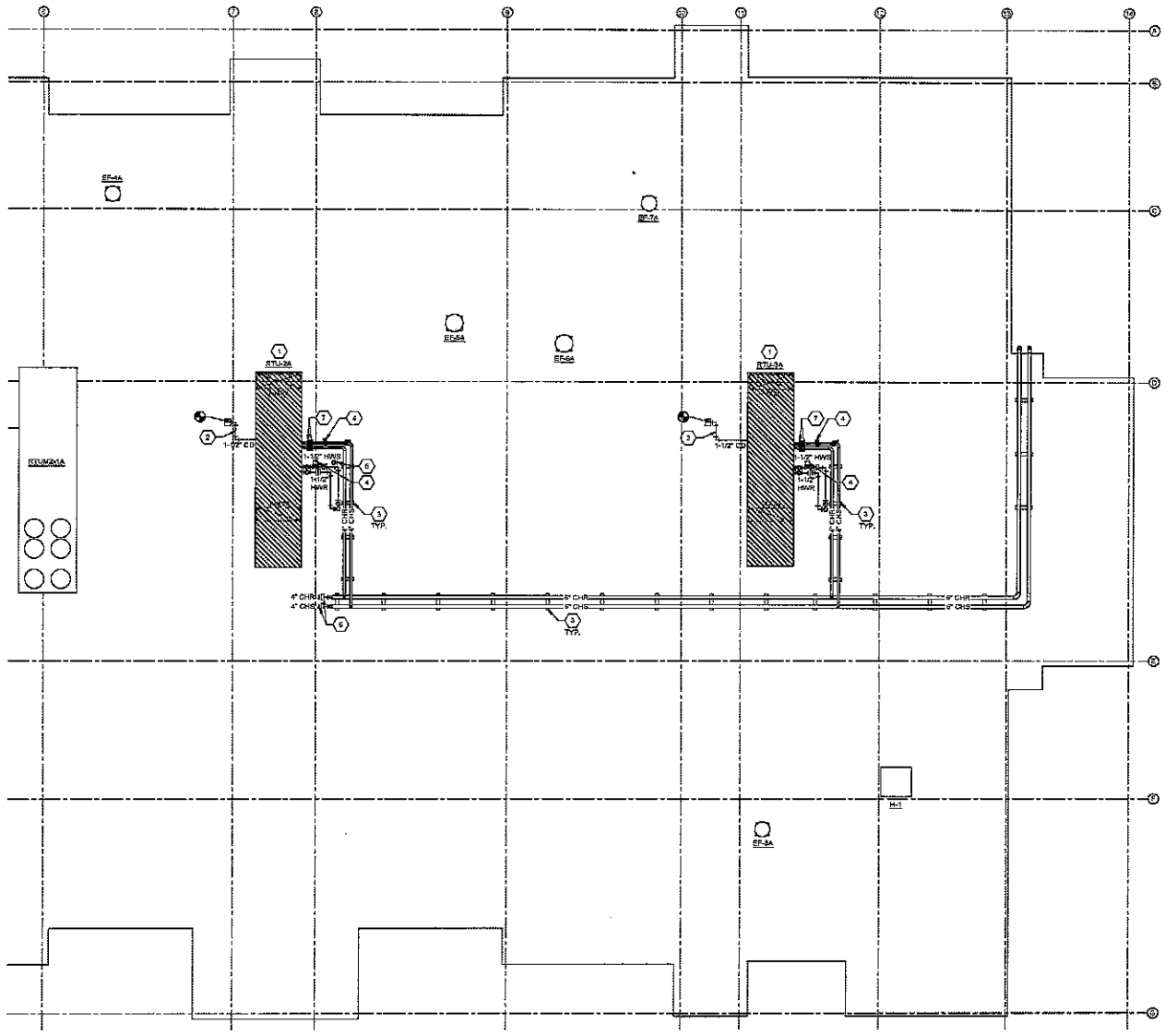
RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA C

SHEET NUMBER

M302



1 MECHANICAL RENOVATION PIPING ROOF PLAN - AREA B
SCALE: 1/8" = 1'-0"

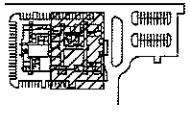
GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

SHEET KEYED NOTES

1. PROVIDE NEW RTU AND ASSOCIATED DUCTWORK TRANSITION.
2. PROVIDE NEW 1-1/2" CONDENSATE DRAIN PIPING.
3. PROVIDE NEW CHILLED WATER PIPING SUPPORTS ON ROOF.
4. PROVIDE NEW MOTORIZED CONTROL VALVE IN 4" CHR PIPING.
5. ROUTE NEW 1" CHILLED WATER MAKEUP PIPING TO 4" CHR, HEAT TRACE PIPING.
6. PROVIDE BLIND FLANGE AND ISOLATION VALVE IN CHILLED WATER PIPING.
7. PROVIDE ISOLATION VALVE IN CHILLED WATER PIPING.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"
N

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS
MARK C. CLAYPOOL
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FIRM REGISTRATION NUMBERS:
TBPE F-7453, TBPLS F-10193930

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL RENOVATION PIPING ROOF PLAN - AREA B

SHEET NUMBER

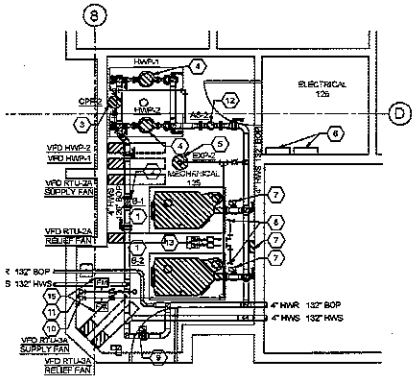
M303

GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

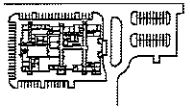
SHEET KEYED NOTES

1. PROVIDE NEW BOILER AND ASSOCIATED 4" CONCRETE HOUSEKEEPING PAD.
2. PROVIDE NEW FLOW METER IN 4" HWS PIPING.
3. PROVIDE NEW CHEMICAL POT FEEDER AND ROUTE ASSOCIATED 1" PIPING TO THE HEATING WATER PIPING LOCATED AT THE SUCTION AND DISCHARGE OF THE PUMPS.
4. PROVIDE NEW HEATING WATER PUMP ON ASSOCIATED 4" CONCRETE HOUSEKEEPING PAD.
5. PROVIDE NEW EXPANSION TANK AND SUSPEND FROM STRUCTURE ABOVE DOOR FRAME. AVOID CONFLICT WITH EXISTING DUCTS AND BOILER VENT/FLUE.
6. PROVIDE NEW BAS CONTROL PANELS.
7. PROVIDE MOTORIZED CONTROL VALVE IN HEATING WATER PIPING.
8. PROVIDE 3-1/2 BOILER DRAIN PIPING WITH P-TRAP AND ROUTE TO DRAIN.
9. PROVIDE MOTORIZED CONTROL VALVE IN HEATING WATER PIPING BYPASS.
10. CONNECT 1" HEATING WATER MAKEUP PIPING TO DOW PIPING.
11. CONNECT 1" CHILLED WATER MAKEUP PIPING TO DOW PIPING.
12. PROVIDE NEW AIR AND DIRT SEPARATOR ABOVE DOOR SWING.
13. PROVIDE CONDENSATE NEUTRALIZATION KIT FOR DRAIN PIPING.
14. PROVIDE A CO MONITOR SIMILAR TO MODEL 6002 BY OPERA INC. OR AE. DEVICE SHALL BE INSTALLED AT 48" AFF.
15. PROVIDE FLOW METER IN MAKEUP WATER PIPING.



1 MECHANICAL RENOVATION ENLARGED PIPING PLAN
SCALE: 1/4" = 1'-0"

KEYPLAN



0 2 4 8
1/4" = 1'-0"

N

FULL SIZE SHEET: 22X34

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TBPE F-2451, TBPLS F-10395500

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

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JULY 25, 2024

MARK	DATE	DESCRIPTION

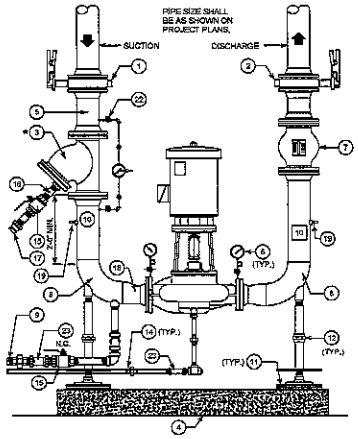
RSE PROJECT NO. 1479

SHEET TITLE

MECHANICAL RENOVATION ENLARGED PIPING PLAN

SHEET NUMBER

M401



SYMBOLS AND ABBREVIATIONS

- = COORDINATE LOCATION OF VALVES,VENTURIS AND STRAINERS WITH FIELD CONDITIONS

N.O.= NORMALLY OPEN
N.C. = NORMALLY CLOSED

KEYED NOTES

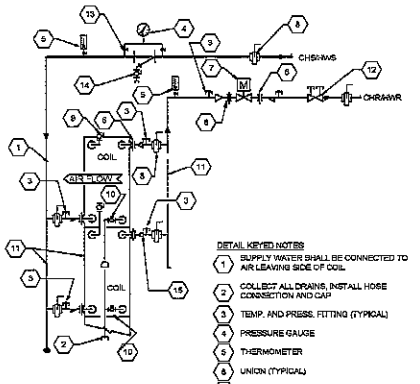
1. ISOLATION VALVE.
2. ISOLATION VALVE.
3. STRAINER.
4. 6" CONCRETE PAD
5. SPOOL PIECE.
6. PRESSURE GAUGE WITH GAUGE COCK.
7. CHECK VALVE. (SEE SPECIFICATIONS) AXIS OF CHECK VALVE SHAFT SHALL BE PERPENDICULAR TO PUMP SHAFT.
8. LONG RADIUS ELBOW.
9. EXTEND PUMP DRAIN LINES TO OUT FROM CONCRETE SLAB.
10. WELDED CONSTRUCTION (GROOVED FITTINGS NOT PERMITTED FOR SUPPORT OF PUMP).
11. STEEL PLATE BONDED BETWEEN AN "NR" PAD AND NON-SKID OIL-RESISTANT RIBBED NEOPRENE PAD. (EQUAL TO AMBER/BOOTH STYLE "A" PAD).
12. 2" SCREW JACK.
13. TEE PIPING AND ROUTE TO BOTH SEAL HOUSINGS.
14. UNION.
15. FULL BORE BALL VALVE.
16. FULL SIZE STRAINER DRAIN CONNECTION
17. HOSE END ADAPTER WITH CAP (SEE SPECIFICATIONS)
18. ECCENTRIC REDUCER.
19. PETE TEST PLUG.
20. DIFFERENTIAL PRESSURE GAUGE.
21. CONCENTRIC REDUCER.
22. 1/4" COCK VALVE.
23. RUBBER FLEXIBLE CONNECTORS.

GENERAL NOTES:

REFER TO PLAN DRAWING FOR PIPING CONFIGURATION FOR EACH INDIVIDUAL PUMP. REFER TO PLANS AND SPECIFICATIONS FOR SPECIFIC PUMP, CONCRETE BASE, VIBRATION ISOLATION SPRINGS, HOUSEKEEPING PADS, VALVES, STRAINERS, VENTURIS, PIPE FITTINGS, GAUGES, ETC.

9 INLINE VERTICAL PUMP DETAIL

SCALE: N.T.S.



DETAIL KEYED NOTES

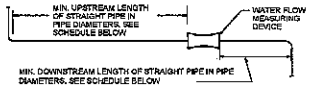
1. SUPPLY WATER SHALL BE CONNECTED TO AIR LEAVING SIDE OF COIL
2. COLLECT ALL DRAINS, INSTALL HOSE CONNECTION AND CAP
3. TEMP. AND PRESS. FITTING (TYPICAL)
4. PRESSURE GAUGE
5. THERMOMETER
6. UNION (TYPICAL)
7. AUTOMATIC MODULATING TWO-WAY VALVE
8. BUTTERFLY VALVE OR BALL VALVE. TO SPECIFICATIONS FOR PIPE SIZE ALLOWABLE FOR EACH TYPE OF VALVE (TYPICAL)
9. MANUAL AIR VENT (TYPICAL)
10. 3/4" BALL VALVE AND DRAIN
11. DASHED PIPING AND COILS INDICATE TYPICAL PIPING REQUIREMENTS FOR MULTIPLE COILS
12. CIRCUIT SETTER BALANCING VALVE
13. BALL VALVE (TYPICAL)
14. STRAINER W/ BLOW DOWN VALVE AND HOSE CONNECTION
15. REDUCERS AS REQUIRED (TYPICAL)

GENERAL NOTES

1. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS IN SYSTEM.
2. SEE PLANS AND/OR PIPING SCHEMATIC FOR PIPE SIZES.
3. TEMP/PRESS. FITTINGS INSTALLED IN PIPING 2" AND SMALLER SHALL BE INSTALLED IN ELBOW OR IN THE BRANCH SIDE OF A 2" TEE.

8 CHILLED/HEATING WATER RTU COIL PIPING (2-WAY) DETAIL

SCALE: N.T.S.



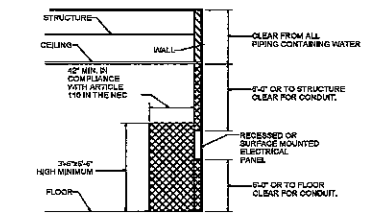
WATER FLOW MEASURING DEVICE INSTALLATION SCHEDULE		
TYPE	MIN. UPSTREAM LENGTH OF STRAIGTH PIPE IN PIPE DIAMETERS	MIN. DOWNSTREAM LENGTH OF STRAIGHT PIPE IN PIPE DIAMETERS
MAGNETIC FLOWMETER SENSORS	5	2

NOTES:

1. DIMENSION SHOWN IN SCHEDULE ARE MINIMUM REQUIRED. IF MANUFACTURER OF FURNISHED WATER FLOW MEASURING DEVICE RECOMMENDS A GREATER DIMENSION, USE THEIR RECOMMENDATION.
2. INSTALL THE WATER FLOW MEASURING DEVICE SO THE FLOW ARROW IS IN THE SAME DIRECTION AS THE FLOW.
3. THE WATER FLOW MEASURING DEVICE MAY BE INSTALLED IN EITHER HORIZONTAL PIPE.

6 WATER FLOW MEASURING DEVICE DETAIL

SCALE: N.T.S.

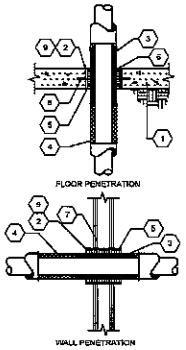


EXCLUSIVELY DEDICATED ELECTRICAL SPACE. NO PIPING OR DUCT SHALL BE ALLOWED WITHIN THESE AREAS

ELECTRICAL SPACE. NO WATER PIPING SHALL BE ALLOWED WITHIN THESE AREAS

5 CLEARANCE REQUIREMENTS AT ELECTRICAL PANELS DETAIL

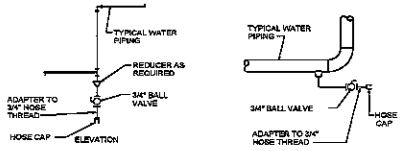
SCALE: N.T.S.



1. FLOOR STRUCTURE, SEE ARCH. DRAWING FOR RATING
2. PIPE SLEEVES, PROVIDE WATERSTOP FOR BELOW GRADE PENETRATIONS.
3. ROCKWOOL OR APPROVED FIRE SAVING PIPE INSULATION THRU PENETRATION, MIN. 6" BOTH SIDES OF WALL OR FLOOR (FOR INSULATED PIPING ONLY)
4. PIPE INSULATION (WHERE REQUIRED)
5. U.L. LISTED SILICONE FOAM OR OTHER FIRE SAFE MATERIAL BETWEEN PIPE AND PIPE SLEEVES OR PIPE SLEEVE AND ROCKWOOL INSULATION FOR INSULATED PIPING.
6. IF SILICONE FOAM IS NOT USED AS FIRE SAFING MATERIAL, SEAL WATER-PROOF WITH SILICONE SEALANT.
7. PARTITION OR WALL, SEE ARCH. DWGS FOR RATING.
8. ANCHOR ONE PIPE DIAMETER LONG 90° APART.
9. PIPE SLEEVES NOT REQUIRED IN GYP-BOARD WALLS.

3 PIPE PENETRATION THRU FIRE RATED BARRIER DETAIL

SCALE: N.T.S.

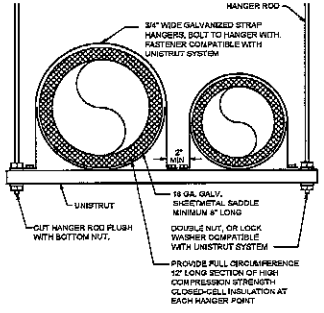


NOTES:

1. DRAIN ALL LOW POINTS OF PIPING
2. DRAIN ALL SCALE POCKETS AS SHOWN ON PLANS AND/OR PIPING DIAGRAMS

2 DRAIN VALVE DETAIL

SCALE: N.T.S.



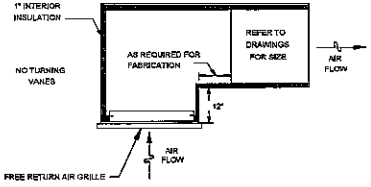
NOTES:

1) ALL UNISTRUT AND HARDWARE SHALL BE GALVANIZED.

2) SPACING OF HANGERS PER SPECIFICATIONS.

7 MULTIPLE PIPE HANGER DETAIL

SCALE: N.T.S.

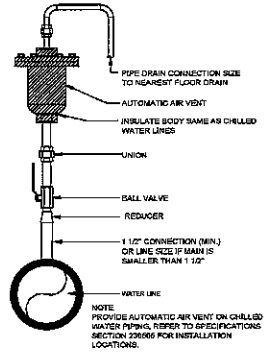


NOTE

1. RETURN AIR BOOT WITH TWO ELBOWS.

4 RETURN AIR GRILLE FOR OFFICE DETAIL

SCALE: N.T.S.



NOTE
PROVIDE AUTOMATIC AIR VENT ON CHILLED WATER PIPING, REFER TO SPECIFICATIONS SECTION 230666 FOR INSTALLATION LOCATIONS.

1 AUTOMATIC AIR VENT DETAIL

SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS — MARK C. CLAYPOOL — 147201 — LICENSED PROFESSIONAL ENGINEER

7/25/2024

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TBPE F-1451, TBPLS F-10193930

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

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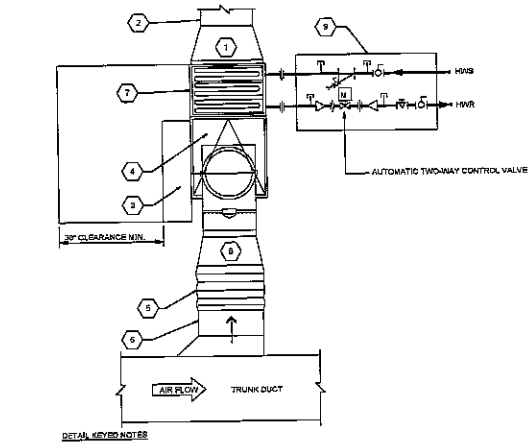
RSE PROJECT NO. 1479

SHEET TITLE

MECHANICAL DETAILS

SHEET NUMBER

M501



DETAIL KEYED NOTES

1. TRANSITION AS REQUIRED. DO NOT EXCEED 15° TRANSITION ANGLE.
2. LOW PRESSURE DUCTWORK DOWNSTREAM OF TERMINAL UNIT AS SPECIFIED.
3. FACTORY MOUNTED CONTROLS.
4. PROVIDE WITH BOTTOM ACCESS DOOR.
5. HIGH PRESSURE FLEXIBLE DUCT. MAXIMUM 1'-0" MIN. AND 25'-0" LENGTH.
6. MEDIUM PRESSURE DUCT BRANCH. DUCT SHALL BE A MINIMUM OF 3 DUCT DIAMETERS OF STRAIGHT INLET DUCT BETWEEN THE VAV INLET AND ANY TRANSITION, TAKE OFF OR FITTINGS. SEE SCHEDULE DUCT SIZE.
7. HOT WATER COIL.
8. TRANSITION FROM SQUARE TO ROUND AS REQUIRED.
9. HOT WATER COIL PACKAGE WITH 2-WAY CONTROL VALVE. PROVIDE COIL CONNECTION VALVE PACKAGE BY NEXUS CDZ OR EQUAL. COIL PACKAGE SHALL INCLUDE: MANUAL FLOW CONTROL VALVE WITH PT TEST PLUGS, UNION WITH MANUAL AIR VENT AND PT PLUGS, COMBINATION BALL VALVE/ STRAINER WITH UNION AND PT PLUGS, FLEX CONNECTIONS.

GENERAL NOTES:

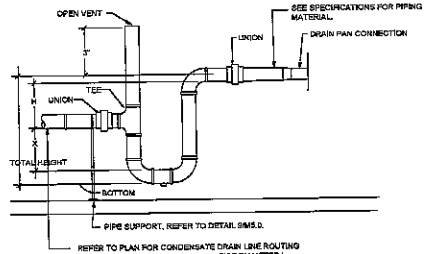
1. SUPPORT BOX WITH DUCT STRAPS AT ALL FOUR CORNERS FROM STRUCTURE.
2. CONFIGURATION SHOWN IS A SCHEMATIC AND DOES NOT REPRESENT THE SPECIFIC UNIT.
3. PROVIDE SUFFICIENT CLEARANCE TO ACCESS CONTROL BOX.
4. PROVIDE RECOMMENDED STRAIGHT DUCT WORK BEFORE TERMINAL UNIT SENSOR INLET.
5. REFER TO PLANS FOR COIL CONNECTION SIDE AND CONTROL PANEL SIDE.

8 SINGLE DUCT TERMINAL UNIT DETAIL

SCALE: N.T.S.

NOTES:

1. ELEVATE A/C UNIT SUFFICIENT DISTANCE ABOVE FLOOR OR ROOF TO ALLOW FOR INSTALLATION OF TRAP WITH ADEQUATE DIMENSIONS TO WITHSTAND SYSTEM OPERATING PRESSURE. COORDINATE WITH DETAIL FOR A UNIT MOUNTING.
2. TOTAL WIDTH OF TRAP SHALL BE LESS THAN OR EQUAL TO TOTAL HEIGHT OF TRAP.

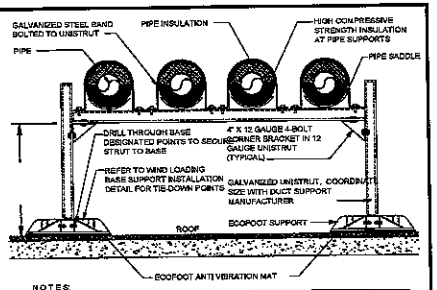


FOR DRAW THRU UNITS
X= MIN. 1/2 H (PREFERRED X=H)
H= NEGATIVE STATIC PRESSURE +1"

FOR BLOW THRU UNITS
X= FAN STATIC PRESSURE +1" H= MIN. 1"

6 CONDENSATE DRAIN PIPING ON ROOF DETAIL

SCALE: N.T.S.

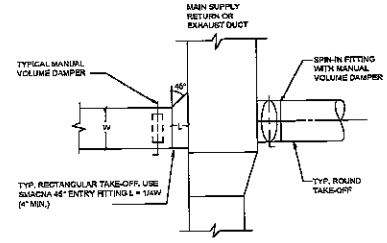


NOTES:

1. INSULATE PIPING AS REQUIRED. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS.
2. ALL UNISTRUT AND HARDWARE SHALL BE GALVANIZED.
3. SPACING OF SUPPORTS PER SPECIFICATIONS. SUPPORT SPACING SHALL BE BASED ON THE SMALLEST DIAMETER PIPE SUPPORTED BY THE RACK.
4. ATTACH SUPPORT BASE TO ROOF MEMBRANE WITH MASTIC APPROVED FOR USE WITH ROOFING SYSTEM.
5. REFER TO SUPPORT BASE MANUFACTURER FOR REQUIRED COMPONENTS AND INSTALLATION.

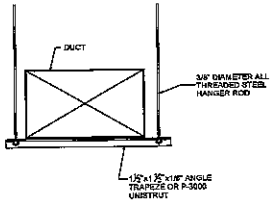
3 MULTIPLE PIPE SUPPORT ON ROOF DETAIL

SCALE: N.T.S.



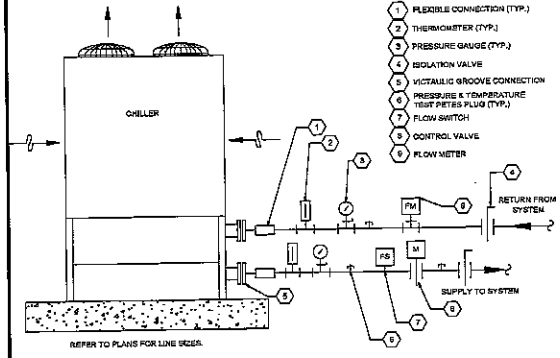
5 DUCT BRANCH TAKE OFF DETAIL

SCALE: N.T.S.



2 DUCT SUPPORT DETAIL

SCALE: N.T.S.

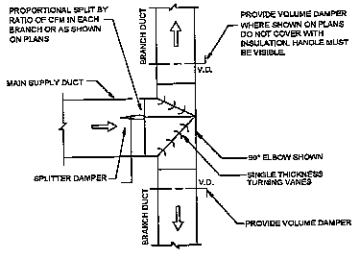


DETAIL KEYED NOTES

1. FLEXIBLE CONNECTION (TYP.)
2. THERMOMETER (TYP.)
3. PRESSURE GAUGE (TYP.)
4. ISOLATION VALVE
5. VICTAULIC GROOVE CONNECTION
6. PRESSURE & TEMPERATURE TEST PETES PLUG (TYP.)
7. FLOW SWITCH
8. CONTROL VALVE
9. FLOW METER

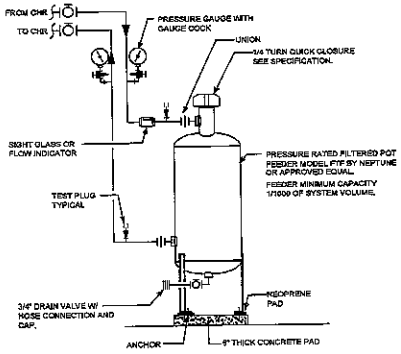
7 AIR COOLED CHILLER DETAIL

SCALE: N.T.S.



4 AIR DUCT SPLITTER DETAIL

SCALE: N.T.S.



1 CHEMICAL POT FEEDER DETAIL

SCALE: N.T.S.

FULL SIZE SHEET: 20X34

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SEAL

STATE OF TEXAS — MARK C. CLAYPOOL — 147201 — LICENSED PROFESSIONAL ENGINEER

7/25/2024

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TBPE F-1451, TBPLS F-10029910

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

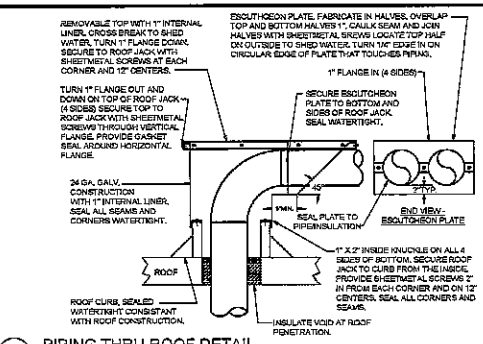
RSE PROJECT NO: 1479

SHEET TITLE

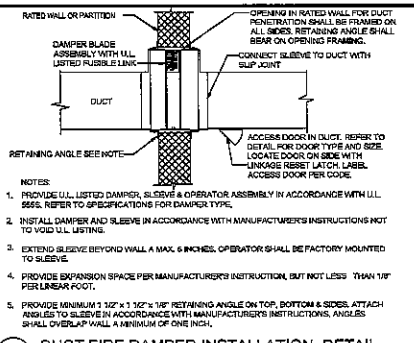
MECHANICAL DETAILS

SHEET NUMBER

M502



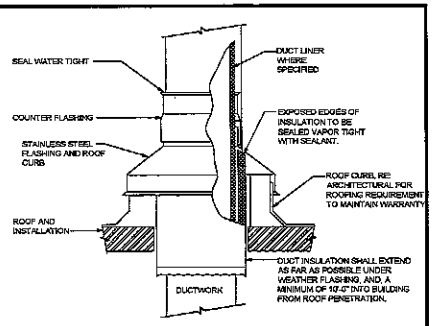
8 PIPING THRU ROOF DETAIL
SCALE: N.T.S.



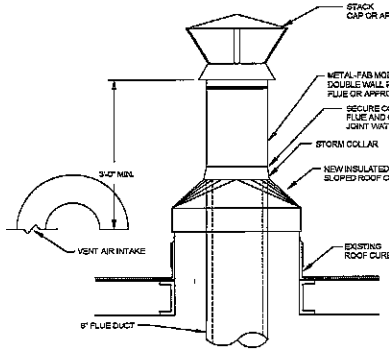
NOTES:

1. PROVIDE U.L. LISTED DAMPER, SLEEVE & OPERATOR ASSEMBLY IN ACCORDANCE WITH U.L. 555S. REFER TO SPECIFICATIONS FOR DAMPER TYPE.
2. INSTALL DAMPER AND SLEEVE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS NOT TO VOID U.L. LISTING.
3. EXTEND SLEEVE BEYOND WALL A MAX. 6 INCHES. OPERATOR SHALL BE FACTORY MOUNTED TO SLEEVE.
4. PROVIDE EXPANSION SPACE PER MANUFACTURER'S INSTRUCTION, BUT NOT LESS THAN 1/8" PER LINEAR FOOT.
5. PROVIDE MINIMUM 1 1/2" x 1 1/2" x 1/8" RETAINING ANGLE ON TOP, BOTTOM & SIDES. ATTACH ANGLES TO SLEEVE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ANGLES SHALL OVERLAP WALL A MINIMUM OF ONE INCH.

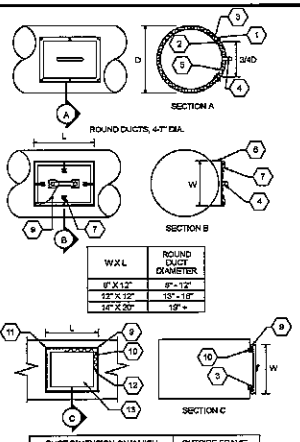
5 DUCT FIRE DAMPER INSTALLATION DETAIL
SCALE: N.T.S.



3 DUCT PENETRATION THRU ROOF DETAIL
SCALE: N.T.S.



7 BOILER FLUE THRU ROOF DETAIL
SCALE: N.T.S.



W X L	ROUND DUCT DIAMETER
8" X 12"	8" - 12"
12" X 12"	13" - 18"
14" X 20"	19" +

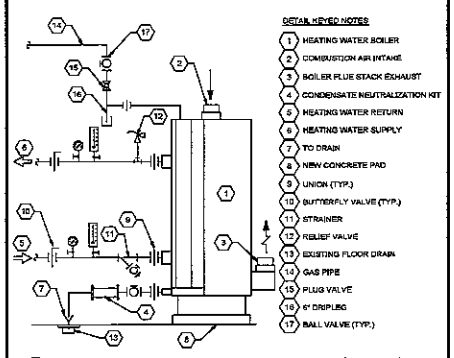
DUCT DIMENSION ON WHICH ACCESS DOOR IS PLACED	OUTSIDE FRAME W X L
6" - 8"	8" X 8"
9" - 12"	8" X 8"
13" - 15"	12" X 12"
16" - 33"	14" X 14"
34" - 66"	(2) 14" X 14"
67" +	(3) 14" X 14"

DETAIL KEYED NOTES: RECTANGULAR DUCTS

1. BOLT AND WING NUT AT MAX. 3" O.C.
2. TACK WELD BOLT TO DUCT
3. PROVIDE GASKET BETWEEN DUCT AND ACCESS
4. DOOR HANDLE
5. INSULATE COVER AS REQUIRED BY DUCT INSULATION SPEC.
6. MIN. 20 GA FRAME WELDED TO DUCT
7. PRESSURE SENSITIVE LATCH FOR VACUUM
8. RELEASE RETAINER CHAIN
9. MIN. 22 GA GALV. STEEL FRAME
10. FRAME SECURED TO DUCT WITH 3/8" NOTCHED KNOCK-OVER EDGES ON ALL SIDES
11. CONTINUOUS HINGE
12. CAM LATCH
13. MIN. 22 GA DOOR

NOTE:
DUCT ACCESS DOORS SHALL BE PROVIDED AT EACH FIRE DAMPER, SMOKE DAMPER, DUCT MOUNTED EQUIPMENT, AND AS REQUIRED FOR DUCT CLEANING AND INSPECTION

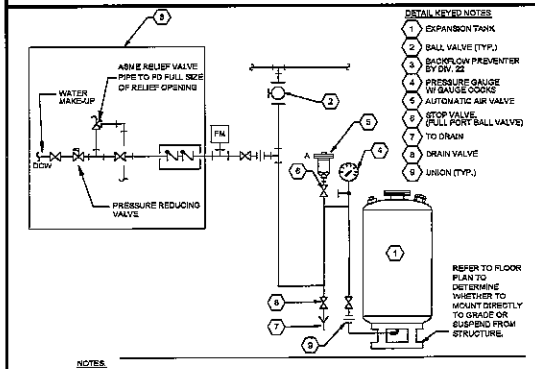
4 DUCT ACCESS DOOR DETAIL
SCALE: N.T.S.



DETAIL KEYED NOTES:

1. HEATING WATER BOILER
2. COMBUSTION AIR INTAKE
3. BOILER FLUE STACK EXHAUST
4. CONDENSATE NEUTRALIZATION KIT
5. HEATING WATER RETURN
6. HEATING WATER SUPPLY
7. TO DRAIN
8. NEW CONCRETE PAD
9. UNION (TYP.)
10. BUTTERFLY VALVE (TYP.)
11. STRAINER
12. RELIEF VALVE
13. EXISTING FLOOR DRAIN
14. GAS PIPE
15. PLUG VALVE
16. 6" DRIPLEG
17. BALL VALVE (TYP.)

2 HEATING HOT WATER BOILER PIPING DETAIL
SCALE: N.T.S.



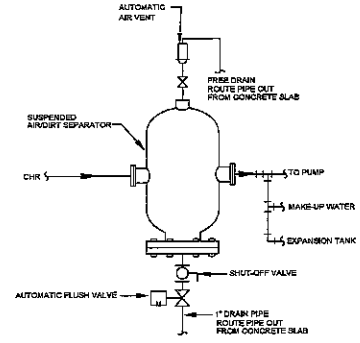
DETAIL KEYED NOTES:

1. EXPANSION TANK
2. BALL VALVE (TYP.)
3. BACKFLOW PREVENTER BY DIV. 22
4. PRESSURE GAUGE W/ GAUGE COCKS
5. AUTOMATIC AIR VALVE
6. STOP VALVE (FULL PORT BALL VALVE)
7. TO DRAIN
8. DRAIN VALVE
9. UNION (TYP.)

NOTES:

1. REFERS TO TANK MANUFACTURER FOR TANK CONNECTIONS.

6 EXPANSION TANK CONNECTION DETAIL
SCALE: N.T.S.



1 AIR/DIRT SEPARATOR PIPING DETAIL
SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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SEAL

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7/25/2024

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FIRM REGISTRATION NUMBERS:
TBPE F-2452, TBPLS F-10194910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

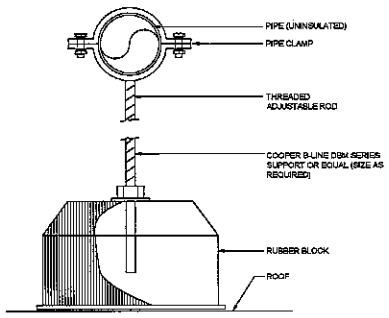
RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL DETAILS

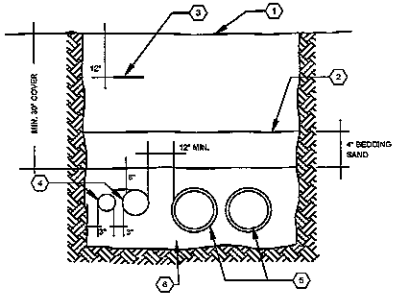
SHEET NUMBER

M503



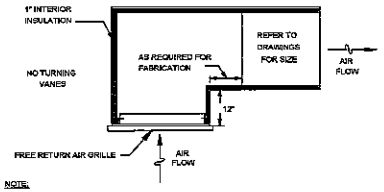
NOTES:
1. SPACING OF SUPPORTS PER SPECIFICATIONS.
2. ATTACH SUPPORT BASE TO ROOF MEMBRANE WITH MASTIC APPROVED FOR USE WITH ROOFING SYSTEM.

5 ROOF PIPE SUPPORT
SCALE: N.T.S.



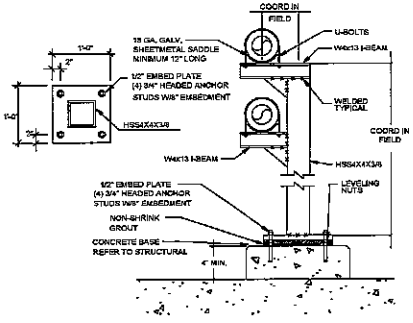
1. BACKFILL TO GRADE USING EXCAVATED MATERIAL COMPACTED TO 85% STANDARD PROCTOR, RE: SPECIFICATIONS.
2. BACKFILL WITH CLEAN EARTH, SAND OR SCREENING FREE OF DEBRIS, 12" ABOVE TOP OF BEDDING SAND. PLACE & COMPACT IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS RE: SPECIFICATIONS.
3. WARNING TAPE.
4. PVC SCHEDULE 40 CONDUIT, CONDUIT RUNS WILL TRANSITION TO GALVANIZED RIGID STEEL (GRS) FOR BENDS AND WHERE THEY STUB UP ABOVE GROUND. (1) 4" CONDUIT FOR HB FEEDER AND (1) 1.5" CONDUIT FOR CHILLER CONTROL WIRING.
5. CHILLED WATER PIPING INSTALLED BY DIVISION 23, SHOWN FOR COORDINATION.
6. WASHED BEDDING SAND AROUND CONDUITS AND PIPING.

3 TRENCHING DETAIL
SCALE: N.T.S.

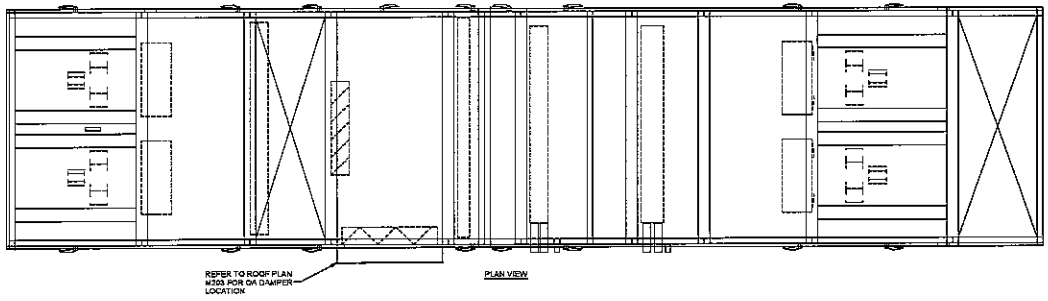


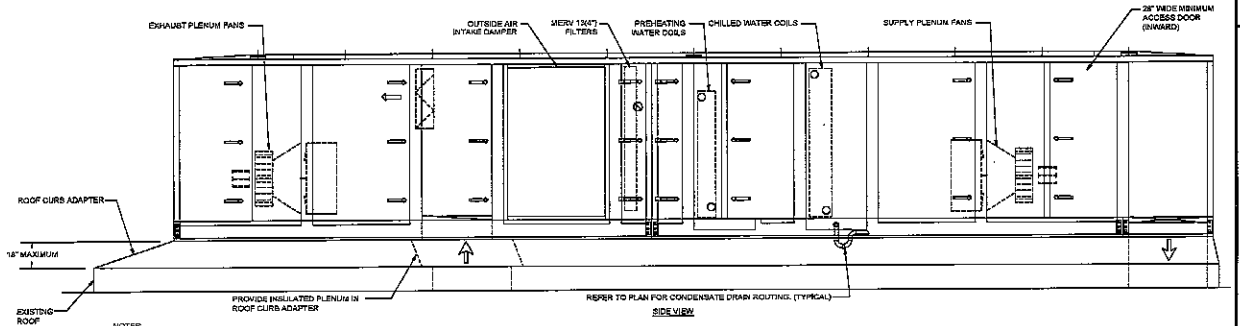
NOTE:
1. RETURN AIR SOOT WITH TWO ELBOWS.

2 RETURN AIR GRILLE FOR OFFICE DETAIL
SCALE: N.T.S.



1 PIPE SUPPORT
SCALE: N.T.S.





NOTES:
1. THIS DETAIL SHOWS GENERAL ARRANGEMENT OF A/C UNIT COMPONENTS ONLY.
2. COIL CONNECTION SIDE LOCATIONS AND ACCESS DOOR SWING LOCATIONS SHALL BE COORDINATED WITH PROJECT SPECIFIC CONDITIONS.
3. CONDENSATE DRAIN SHALL SLOPE TOWARDS DRAIN.

4 ROOFTOP UNIT DETAIL
SCALE: N.T.S.

FULL SIZE SHEET 22X34

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TBPE F-7252, TBPLS F-10150910

PROJECT INFORMATION

CLIENT NAME
WILLIAMSON COUNTY
1848

PROJECT NAME
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL DETAILS

SHEET NUMBER

M504

ROOFTOP UNIT SCHEDULE

GENERAL				SUPPLY PLENUM FAN							FILTERS DIRTY SP.WG. INCLUDED IN TOTAL S.P. (INCHES)	RELIEF PLENUM FAN					
UNIT TAG	MANUFACTURER	MODEL NUMBER	TYPE	SA CFM	OA CFM	EXTERNAL SP. WG. (INCHES)	FANS QTY.	HP PER FAN	HP TOTAL	STARTER	MERV 8	RA CFM	EXTERNAL SP. WG. (INCHES)	FANS QTY.	HP PER FAN	HP TOTAL	STARTER
RTU-2A	CARRIER	39MW	OUTDOOR - ROOFTOP	9,350	1,900	3	2	7.5	15	VFD	0.75"	9,350	1.5	2	5.0	10	VFD
RTU-3A	CARRIER	39MW	OUTDOOR - ROOFTOP	8,600	1,350	3	2	7.5	15	VFD	0.75"	8,600	1.5	2	3.0	8	VFD

	HEATING WATER PREHEAT COIL (VELOCITY = 450 FPM MAXIMUM)							CHILLED WATER COOLING COIL (VELOCITY = 450 FPM MAXIMUM)									ELECTRICAL	WEIGHT LBS.	REMARKS
UNIT TAG	MIXED AIR CFM	TOTAL LOAD (BTUH)	SA DB TEMP. (°F)	LA DB TEMP. (°F)	EWT/LWT TEMP. (°F)	GPM	PIPE SIZE (IN)	TOTAL LOAD (BTUH)	SENSIBLE LOAD (BTUH)	EAT DB TEMP. (°F)	EAT WB TEMP. (°F)	LAT DB TEMP. (°F)	LAT WB TEMP. (°F)	EWT/LWT TEMP. (°F)	GPM	PIPE SIZE (IN)	V / PH / HZ		
RTU-2A	3,740	66,810	39	55	170/140	4.4	1	341,240	256,490	79.3	65.3	54.0	53.0	56 / 42	43.9	4	460/60/3	8,000	ALL
RTU-3A	3,440	36,430	45	55	170/140	2.4	1	292,440	224,700	78.1	65.2	54.0	53.0	56 / 42	45.2	4	460/60/3	8,000	ALL

NOTES: REFER TO SPECS FOR ADDITIONAL INFORMATION. REFER TO FLOOR PLANS FOR VFD LOCATION

1. PROVIDE UNIT WITH NON FUSED DISCONNECT SWITCH.
2. PROVIDE WITH SINGLEPOINT ELECTRICAL CONNECTION FOR SUPPLY FANS AND ONE FOR RELIEF FANS. PROVIDE TRANSFORMER AS REQUIRED TO POWER LOW VOLTAGE EQUIPMENT SUCH AS DAMPERS AND CONTROLS, COORDINATE WITH DIVISION 26.
3. PROVIDE WITH RETURN AND RELIEF AIR MODULATING DAMPER.
4. PROVIDE SEPARATE POINT OF CONNECTION FOR LIGHTS.
5. PROVIDE WITH SMOKE DETECTOR AT UNIT SUPPLY AND RETURN AIR DUCTS. SMOKE DETECTORS TO BE PROVIDED BY DIV. 28. NOTE FOR COORDINATION ONLY.
6. PROVIDE WITH FILTER PRESSURE GAUGES.
7. PROVIDE SEPARATE POINT OF CONNECTION FOR CONTROLS.
8. PROVIDE FAN MOTORS WITH SHAFT GROUNDING.
9. PROVIDE MERV 13 FILTER BEFORE HEATING WATER COIL.
10. REFER TO ROOF PLAN M203 FOR OA INTAKE LOCATION.
11. PROVIDE WITH ECONOMIZER AND POWER RELIEF EXHAUST.

AIR COOLED CHILLER SCHEDULE

GENERAL			CAPACITIES							ELECTRICAL			ENERGY				
UNIT TAG	MANUFACTURER	MODEL	MINIMUM TOTAL CAPACITY (TONS)	CHILLED WATER FLOW (GPM)	ENTERING WATER TEMPERATURE (EWT) °F	LEAVING WATER TEMPERATURE (LWT) °F	EVAPORATOR FOULING FACTOR	EVAPORATOR PRESSURE DROP (FT)	AMBIENT AIR TEMPERATURE (MAX / MIN) ° F	INPUT DESIGN KW	V / PH / HZ	MCA / MOCP	MINIMUM EER @ NPLV CONDITIONS	MINIMUM EER @ IPLV AHRI CONDITIONS	REFRIGERANT	WEIGHT LBS.	REMARKS
ACCH-1	CARRIER	30RC	50	120	52	42	0.0001	3	105 / 20	72	460/60/3	128 / 150	9	10.6	R-32	3000	ALL
ACCH-2	CARRIER	30RC	50	120	52	42	0.0001	3	105 / 20	72	460/60/3	128 / 150	9	10.8	R-32	3000	ALL
ACCH-3	CARRIER	30RC	50	120	52	42	0.0001	3	105 / 20	72	460/60/3	128 / 150	9	10.6	R-32	3000	ALL

NOTES: REFER TO SPECS FOR ADDITIONAL INFORMATION.

1. PROVIDE WITH FREEZE PROTECTION
2. PROVIDE WITH LOW AMBIENT HEAD PRESSURE
3. PROVIDE WITH COIL TRIM PANELS, GRILLES, UPPER HAIL GUARDS
4. PROVIDE WITH LOW SOUND OPTION
5. PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION BY DIVISION 26,
6. WITH SUCTION LINE INSULATION
7. WITH SUCTION SERVICE LINES.
8. WITH MINIMUM LOAD CONTROL
9. PROVIDE WITH VARIABLE SPEED FANS
10. PROVIDE WITH BACNET INTERFACE
11. PROVIDE SOUND ATTENUATING BLANKETS ON ALL COMPRESSORS
12. PROVIDE VARIABLE SPEED DRIVE SCROLL COMPRESSOR
13. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.
14. PROVIDE WITH INTEGRAL VARIABLE SPEED PUMP PACKAGE. PUMP TO HAVE MINIMUM HEAD OF 70 FT.
15. PROVIDE WITH ELECTRICAL DISCONNECT.
16. A SYSTEM EXPANSION TANK HAS BEEN PROVIDED EXTERNAL TO THE CHILLERS. A FACTORY MOUNTED EXPANSION TANK SHOULD BE REMOVED OR DISABLED BY DISCONNECTING THE HOSE FROM THE CHILLER AND SECURELY PLUGGING THE END.

HEATING WATER BOILER SCHEDULE

UNIT DESCRIPTION			BURNER							WATER					ELECTRICAL				
UNIT TAG	MANUFACTURER	MODEL	FUEL	INPUT (MBH)	OUTPUT (MBH)	GAS CONN. (IN)	VENT / AIR INTAKE	MAX GAS INLET PRESSURE (IN. W.C.)	MIN GAS INLET PRESSURE (IN. W.C.)	MINIMUM FLOW RATE (GPM)	WATER FLOW (GPM) Based on ΔT	HEAD LOSS (FT. OF HD.) Based on ΔT	RETURN W.T. (F)	SUPPLY W.T. (F)	VOLTAGE/ PHASE / Hz	MCA	MOCP	OPERATING WEIGHT (lbs.)	NOTES
B-1	LOCHINVAR	CREST FBN1001	NATURAL GAS	1,000	960	1-1/2	6" DIA.	14	4	20	65	7	150	180	120V/3PH/ 60Hz	6	20	2,000	ALL
B-2	LOCHINVAR	CREST FBN1001	NATURAL GAS	1,000	960	1-1/2	6" DIA.	14	4	20	65	7	150	180	120V/3PH/ 60Hz	6	20	2,000	ALL

NOTES:

1. CONDENSING BOILER SHALL BE ASME, UL AND CUL CERTIFIED.
2. PROVIDE WITH UNIT CONTROLLER AND INTERFACE WITH BUILDING AUTOMATION SYSTEM.
3. DISCONNECT SWITCH TO BE PROVIDED BY DIVISION 26. NOTE FOR COORDINATION ONLY.
4. REFER TO BOILER SPECIFICATION FOR ADDITIONAL INFORMATION.
5. PROVIDE WITH HIGH & LOW GAS PRESSURE SWITCHES W/MANUAL RESET.
6. PROVIDE WITH LOW WATER CUT OFF.
7. PROVIDE TOP STANDARD VENT AND FLUE CONNECTION.
8. PROVIDE WITH LOW TEMPERATURE PROTECTION VALVE.
9. PROVIDE WITH CN4-2000 CONDENSATE NEUTRALIZATION KITS.

HEATING WATER PUMP SCHEDULE

MARK	SERVES	MANUFACTURER	SERIES	MODEL	TYPE	MIN. EFF.(%)	ENCLOSURE	GPM	TOTAL HEAD (FT H_2O)	HP	MOTOR RPM	WEIGHTS LBS	VOLTS / HZ / PH	NOTES
HWP-1	HEATING WATER	BELL & GOSSET	E-90	1.25AAB	VERTICAL IN-LINE	65.0	TEFC	65	50	2	3,600	100	208/3/60	ALL
HWP-2	HEATING WATER	BELL & GOSSET	E-90	1.25AAB	VERTICAL IN-LINE	65.0	TEFC	65	50	2	3,600	100	208/3/60	ALL

NOTES:

1. CAST IRON PUMP HOUSING WITH STAINLESS STEEL IMPELLER.
2. MECHANICAL CONTRACTOR SHALL PROVIDE WALL MOUNTED VARIABLE FREQUENCY DRIVE WITH BYPASS AND INTEGRAL DISCONNECT. INSTALLATION BY DIVISION 26.
3. PROVIDE MOTOR WITH SHAFT GROUNDING.

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS
TBPE F-7451, TBPLS F-10193810

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO. 1479

SHEET TITLE

MECHANICAL SCHEDULES

SHEET NUMBER

M701

SINGLE DUCT TERMINAL UNIT SCHEDULE (HOT WATER)

UNIT TAG	RTU SYSTEM NUMBER	MANUFACTURER	MODEL	BOX TYPE	MAXIMUM COOLING CFM	MINIMUM COOLING CFM	S.P. AT INLET (IN) W.G.	MAX. P.D. THRU BOX (IN) W.G.	BOX INLET SIZE (IN)	DUCT RUNOUT TO BOX		HEATING CFM	HEATING HOT WATER COIL					REMARKS
										ROUND	ALTERNATE RECTANGLE		EAT (°F)	LAT (°F)	BTUH	GPM	V / PH / HZ	
TU-2A-1	RTU-2A	PRICE	SDV	VAV	500	200	1.0	.2	8	10	-	200	53	95	9,072	1.1	120 / 1 / 60	ALL
TU-2A-2	RTU-2A	PRICE	SDV	VAV	1,880	760	1.0	.5	14	16	22x10	760	53	95	34,474	2.3	120 / 1 / 60	ALL
TU-2A-3	RTU-2A	PRICE	SDV	VAV	500	200	1.0	.2	8	10	-	200	53	95	9,072	1.1	120 / 1 / 60	ALL
TU-2A-4	RTU-2A	PRICE	SDV	VAV	2,550	1,020	1.0	.5	16	18	24x12	1,020	53	95	46,287	3.1	120 / 1 / 60	ALL
TU-2A-5	RTU-2A	PRICE	SDV	VAV	800	320	1.0	.35	10	12	16x6	320	53	95	14,515	1.1	120 / 1 / 60	ALL
TU-2A-6	RTU-2A	PRICE	SDV	VAV	1,500	600	1.0	.5	12	14	22x8	600	53	95	27,216	1.8	120 / 1 / 60	ALL
TU-2A-7	RTU-2A	PRICE	SDV	VAV	1,120	450	1.0	.5	12	14	22x8	450	53	95	20,412	1.4	120 / 1 / 60	ALL
TU-2A-8	RTU-2A	PRICE	SDV	VAV	500	200	1.0	.2	8	10	-	200	53	95	9,072	1.1	120 / 1 / 60	ALL
TU-3A-1	RTU-3A	PRICE	SDV	VAV	300	120	1.0	.2	6	8	-	120	53	95	5,443	1.1	120 / 1 / 60	ALL
TU-3A-2	RTU-3A	PRICE	SDV	VAV	800	320	1.0	.35	10	12	16x6	320	53	95	14,515	1.1	120 / 1 / 60	ALL
TU-3A-3	RTU-3A	PRICE	SDV	VAV	1,200	480	1.0	.5	12	14	22x6	480	53	95	21,773	1.5	120 / 1 / 60	ALL
TU-3A-4	RTU-3A	PRICE	SDV	VAV	450	180	1.0	.2	8	10	-	180	53	95	8,165	1.1	120 / 1 / 60	ALL
TU-3A-5	RTU-3A	PRICE	SDV	VAV	1,850	740	1.0	.5	14	16	22x10	740	53	95	33,566	2.2	120 / 1 / 60	ALL
TU-3A-6	RTU-3A	PRICE	SDV	VAV	700	280	1.0	.2	8	10	-	280	53	95	12,701	1.1	120 / 1 / 60	ALL
TU-3A-7	RTU-3A	PRICE	SDV	VAV	1,500	600	1.0	.5	12	14	22x8	600	53	95	27,216	1.8	120 / 1 / 60	ALL
TU-3A-8	RTU-3A	PRICE	SDV	VAV	800	320	1.0	.35	10	12	16x6	320	53	95	14,515	1.1	120 / 1 / 60	ALL
TU-3A-9	RTU-3A	PRICE	SDV	VAV	700	280	1.0	.2	8	10	-	280	53	95	12,701	1.1	120 / 1 / 60	ALL
TU-3A-10	RTU-3A	PRICE	SDV	VAV	300	120	1.0	.2	6	8	-	120	53	95	5,443	1.1	120 / 1 / 60	ALL

NOTES:
1. CONTROLS SHALL BE MOUNTED BY MANUFACTURER.
2. PROVIDE CONTROL VOLTAGE TRANSFORMER.
3. PROVIDE WITH FACTORY INSTALLED ELECTRICAL DISCONNECT.
4. TERMINAL CASING - FF - FIBER FREE FOAM INSULATION SYSTEM
5. PROVIDE NEXUS COIL VALVE PACKAGE MODEL C2Y.
7. PROVIDE WITH MULTI-POINT FLOW SENSOR.

AIR SEPARATOR SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	DESIGN CAPACITY GPM	SYSTEM CONNECTION (IN)	TANK WATER TEMP (F)	REMARKS
AS-1	CHILLED WATER	SPIROTHERM	VDT400	240	4	42	ALL
AS-2	HEATING WATER	SPIROTHERM	VDT250	55	2-1/2	170	ALL

NOTES:
1. PROVIDE WITH INSULATION MATCHING PIPE INSULATION.

BUFFER TANK SCHEDULE

MARK	SERVICE	TYPE	TANK VOLUME (GALS)	TANK DIAMETER (IN)	TANK HEIGHT (IN)	TANK INSULATION	TANK WATER TEMP (F)	MANUFACTURER	MODEL	REMARKS
BT-1	CHILLED WATER	VERTICAL	200	30	74	2"	42	CEMLINE	V200CWS-6F-C-20-A	ALL

NOTES:
1. INCLUDE 6" FLANGE CONNECTION.
2. PROVIDE WITH FACTORY ALUMINUM JACKET AND 2" ELASTOMERIC INSULATION.

AIR DEVICE SCHEDULE

MARK	TYPE	MANUFACTURER / MODEL	REMARKS
A	ARCHITECTURAL SQUARE PANEL SUPPLY AIR DIFFUSER	PRICE AMD	24"x24" OR 12"x12" FACE AREA. AIR PATTERN SHALL BE 4-WAY THROW UNLESS OTHERWISE NOTED ON DRAWINGS. FLEX SUPPLYING DUCT TO BE SAME AS NECK SIZE. PROVIDE WHITE FINISH. PROVIDE DIFFUSER WITH INSULATED BACK (EXTERNAL TO AIRFLOW).
B	ARCHITECTURAL SQUARE PANEL RETURN AIR DIFFUSER	PRICE AMD	24"x24" OR 12"x12" FACE AREA. PROVIDE WHITE FINISH. PROVIDE DIFFUSER WITH INSULATED BACK (EXTERNAL TO AIRFLOW).
C	LOUVERED FACE SIDEWALL SUPPLY GRILLE	PRICE 20	EXTRUDED ALUMINUM SUPPLY AIR DOUBLE-DEFLECTION RECTANGULAR SIDEWALL DIFFUSER. 3/4" SPACE BLADES. FRONT BLADES PARALLEL TO SHORT SECTION. 22.5 DEGREE BLADE DEFLECTION. REFER TO PLANS FOR SIZE (W"xH") AND AIR QUANTITY. PROVIDE WITH WHITE FINISH.
D	LOUVERED FACE SIDEWALL EXHAUST GRILLE	PRICE 60	EXTRUDED ALUMINUM EXHAUST DOUBLE-DEFLECTION RECTANGULAR SIDEWALL DIFFUSER, 3/4" SPACE BLADES. FRONT BLADES PARALLEL TO LONG SECTION. REFER TO PLANS FOR SIZE (W"xH") AND AIR QUANTITY. PROVIDE WITH WHITE FINISH.

NOTES:
1. CEILING DIFFUSERS ARE 4-WAY UNLESS INDICATED OTHERWISE IN THE DRAWINGS.
2. PROVIDE OPTIONAL BLOW CLIPS FOR 3-WAY, 2-WAY AND 1-WAY THROWS.
3. AIR DEVICE FRAME AND STYLE SHALL MATCH CEILING TYPE. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.

EXPANSION TANK SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	TYPE	TANK VOLUME (GALS)	TANK DIAMETER (IN)	TANK HEIGHT (IN)	TANK WATER TEMP (F)	REMARKS
EXP-1	CHILLED WATER	BELL & GOSSETT	B-60LA	VERTICAL	13	12	37	42	42
EXP-2	HEATING WATER	BELL & GOSSETT	B-60LA	VERTICAL	13	12	37	170	42

NOTES:
1. PROVIDE WITH INSULATION MATCHING PIPE INSULATION.

FULL SIZE SHEET: 22X34

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PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

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JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL SCHEDULES

SHEET NUMBER

M702

GENERAL NOTES:

CONTROL SYSTEM

EXISTING CONTROL SYSTEM IS AUTOMATED LOGIC CONTROLS. ALL NEW CONTROLS SHALL BE COMPATIBLE WITH EXISTING SYSTEM.

CONTROL SYSTEM SCOPE OF WORK

A. IT IS THE INTENT TO PROVIDE, INSTALL, CONNECT, AND CALIBRATE THE NEW MECHANICAL EQUIPMENT AS NECESSARY TO PROVIDE FULLY AUTOMATIC CONTROL FOR ALL SYSTEMS AS SHOWN IN THE CONTROL DRAWINGS, STATED IN THE SEQUENCES OF OPERATION, INDICATED IN THE ELECTRICAL LADDER DIAGRAMS, OR AS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS. SOME EQUIPMENT CONTROLS MAY BE SPECIFIED TO BE PROVIDED IN THE CONTRACT DOCUMENTS OUTSIDE THIS SECTION. AS WORK OF THIS SECTION, THE CONTRACTOR SHALL COORDINATE WITH THESE OTHER SUPPLIERS AND TRADES TO PROVIDE A COMPLETELY INTEGRATED CONTROL SYSTEM.

B. PROVIDE STARTUP DOCUMENTATION VERIFYING PROPER OPERATION OF ALL POINTS AND ALL INTEGRATED SYSTEMS.

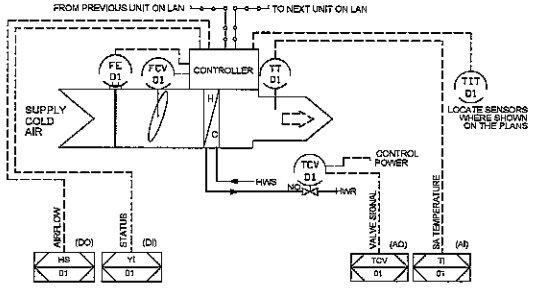
C. PROVIDE OPERATION AND PROGRAMING MANUALS OF THE INSTALLED CONTROL SYSTEM.

D. PROVIDE FULL INTEGRATION OF THE FACTORY PROVIDED CONTROLS FOR NEW EQUIPMENT INCLUDING EXHAUST FANS, RTUS, TERMINAL UNITS, CHILLERS, AND BOILERS INTO THE EXISTING FMS. ALL MONITORING POINTS AVAILABLE FROM THE FACTORY CONTROLLERS SHALL BE INTEGRATED.

E. NEW BUILDING EQUIPMENT CONTROLS MUST BE COMPATIBLE WITH EXISTING CONTROL SYSTEM PROTOCOL.

F. CONTROLS SYSTEM SHALL HAVE CAPABILITIES TO ALERT A DESIGNATED PERSONNEL FOR ANY SYSTEM ALARM.

CONTRACTOR IS REQUIRED TO UPDATE ASBUILTS ON A MONTHLY BASIS WITH NEW CONTROL CONDUIT LOCATIONS.



1 VAV TERMINAL UNIT WITH HEATING WATER COIL CONTROL DIAGRAM
N.T.S

SEQUENCE OF OPERATIONS

VARIABLE AIR VOLUME TERMINAL UNITS W/ HOT WATER COIL

EACH TERMINAL UNIT SHALL MODULATE THE SUPPLY AIR DAMPER TO MAINTAIN THE SPACE TEMPERATURE CONDITIONS. IF THE ZONE REQUIRES COOLING, THE SUPPLY AIR DAMPER SHALL BE MODULATED BETWEEN THE MINIMUM AND MAXIMUM COOLING AIR FLOWS TO MAINTAIN THE SPACE TEMPERATURE AT THE COOLING SETPOINT OF 72°F (ADJUSTABLE). IF THE ZONE CALLS FOR HEATING, THE SUPPLY AIR DAMPER SHALL BE MODULATED TO A MINIMUM AND THE HOT WATER VALVE SHALL BE MODULATED TO MAINTAIN THE SPACE TEMPERATURE AT THE HEATING SETPOINT OF 70°F (ADJUSTABLE). IF ADDITIONAL HEATING IS REQUIRED WHEN THE VALVE IS FULLY OPEN, THE SUPPLY AIR DAMPER SHALL BE MODULATED TO MEET THE ROOM TEMPERATURE REQUIREMENTS. VAV BOX SHALL BE CONNECTED TO ROOM THERMOSTAT.

HOT WATER VALVE EXERCISE
PROVIDE AUTOMATIC HOT WATER VALVE EXERCISE (OPEN AND CLOSE) WEEKLY. SET ORIGINAL TIME FOR FRIDAYS AT 12AM (ADJUSTABLE).

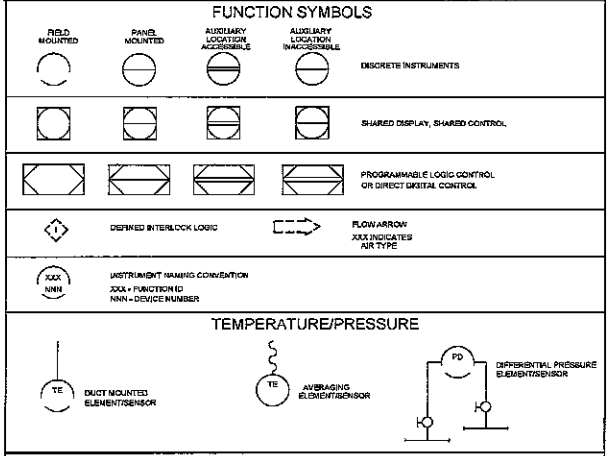
INSTRUMENTATION ABBREVIATION LIST

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AA	ANALYTICAL ALARM	LA	LEVEL ALARM	VA	VIBRATION ALARM
AE	ANALYTICAL ELEMENT	LC	LEVEL CONTROLLER (STAND ALONE)	VS	VIBRATION SWITCH
AET	ANALYTICAL ELEMENT TRANSMITTER	LCV	LEVEL CONTROL VALVE		
AI	ANALYTICAL INDICATOR	LE	LEVEL ELEMENT	XV	SOLENOID VALVE
AC	ANALYTICAL CONTROLLER	LIC	LEVEL INDICATING CONTROLLER		
AIC	ANALYTICAL INDICATING CONTROLLER	LIT	LEVEL INDICATING TRANSMITTER	YA	EQUIPMENT ALARM
AT	ANALYTICAL TRANSMITTER	LS	LEVEL SWITCH	YI	EQUIPMENT STATUS
AIT	ANALYTICAL INDICATING CONTROLLER	LT	LEVEL TRANSMITTER	YCD	SMOKE DAMPER
ACV	ANALYTICAL CONTROL VALVE	LY	LEVEL SIGNAL CONVERTER	YS	SMOKE DETECTOR
AY	ANALYTICAL SIGNAL CONVERTER				
		MV	MANUAL HAND VALVE	ZC	POSITION CONTROL
EI	VOLTAGE INDICATOR			ZI	POSITION INDICATOR
EA	VOLTAGE ALARM	NT	HUMIDITY TRANSMITTER	ZS	POSITION SWITCH
ES	VOLTAGE SWITCH (CONTROL RELAY)				
ESL	VOLTAGE SWITCH LOW (24 VAC OR LESS)	PA	PRESSURE ALARM	NC	NORMALLY CLOSED
ET	VOLTAGE TRANSMITTER	PCV	PRESSURE CONTROL VALVE	NO	NORMALLY OPEN
EY	VOLTAGE SIGNAL CONVERTER	PDI	PRESSURE DIFFERENTIAL INDICATOR		
		PDS	PRESSURE DIFFERENTIAL SWITCH		
FA	FLOW ALARM	PDT	PRESSURE DIFFERENTIAL TRANSMITTER		
FCV	FLOW CONTROL VALVE	PI	PRESSURE INDICATOR		
FE	FLOW ELEMENT	PIS	PRESSURE INDICATING SWITCH		
FET	FLOW ELEMENT/TRANSMITTER	PIT	PRESSURE INDICATING TRANSMITTER		
FI	FLOW INDICATOR	PS	PRESSURE SWITCH		
FIT	FLOW INDICATING TRANSMITTER	PT	PRESSURE TRANSMITTER		
FS	FLOW SWITCH	PY	PRESSURE SIGNAL CONVERTER		
FT	FLOW TRANSMITTER				
FY	FLOW SIGNAL CONVERTER	RH	RELATIVE HUMIDITY INDICATOR		
FMS	FACILITY MANAGEMENT SYSTEM				
HK	MANUAL VARIABLE CONTROL	SC	SPEED CONTROL		
HS	HAND SWITCH	SCM	SPEED CONTROL MANUAL		
HSI	HAND SWITCH INDICATOR				
		TA	TEMPERATURE ALARM		
II	CURRENT INDICATOR	TC	TEMPERATURE CONTROLLER		
IA	CURRENT ALARM	TCV	TEMPERATURE CONTROL VALVE		
IS	CURRENT SWITCH	TE	TEMPERATURE ELEMENT		
IT	CURRENT TRANSMITTER	TET	TEMPERATURE ELEMENT TRANSMITTER		
IY	CURRENT SIGNAL CONVERTER	TI	TEMPERATURE INDICATOR		
		TIT	TEMPERATURE INDICATING TRANSMITTER		
JIT	POWER INDICATING TRANSMITTER	TIC	TEMPERATURE INDICATING CONTROLLER		
JY	POWER SIGNAL CONVERTER	TS	TEMPERATURE SWITCH		
		TSA	FREEZE STAT		
KC	CLOCK	TT	TEMPERATURE TRANSMITTER		

*NOTE: NOT ALL ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS PROJECT.

GENERAL INSTRUMENT SYMBOLS

FUNCTION SYMBOLS



TEMPERATURE/PRESSURE

LINE TYPE LEGEND

	ELECTRICAL SIGNAL
	INTERNAL SYSTEM LINK

FULL SIZE SHEET: 22X34

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MARK	DATE	DESCRIPTION

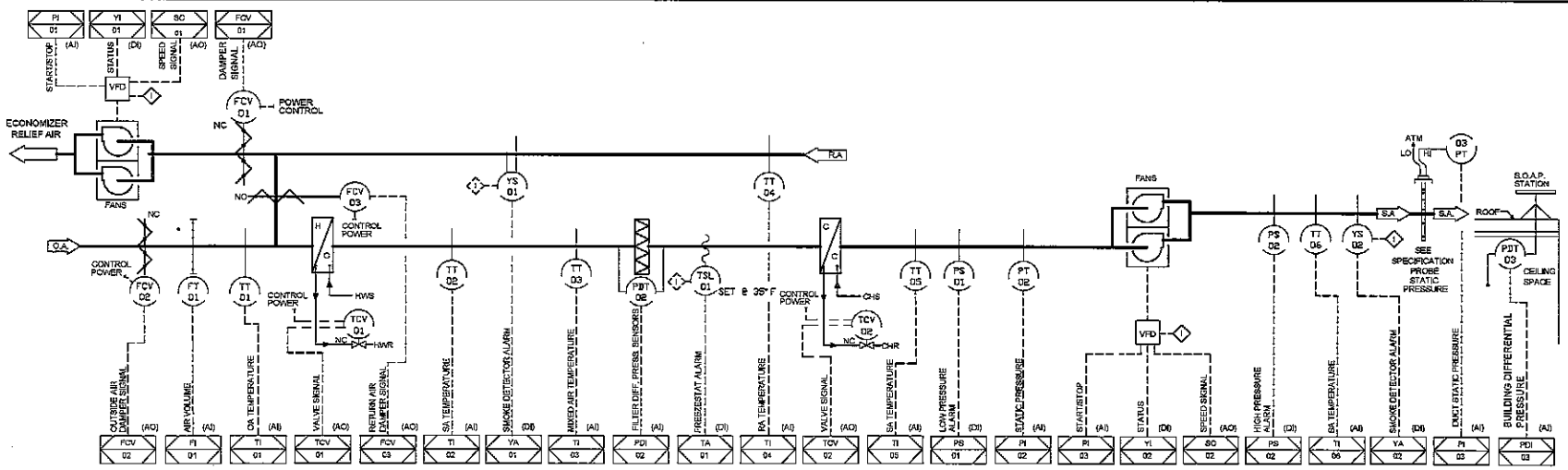
RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL CONTROLS

SHEET NUMBER

M801



1 ROOFTOP UNIT CONTROL DIAGRAM
N.T.S

SEQUENCE OF OPERATION FOR VAV ROOFTOP UNIT

SYSTEM STATUS DISPLAY

THE FMS SHALL PROVIDE OPERATING STATUS FOR THE SYSTEM. THE DISPLAY SHALL INCLUDE ALL POINTS REQUIRED TO ACHIEVE THE SEQUENCE OF OPERATIONS. THE AIR HANDLING UNIT CONTROL AND STATUS EVENTS SHALL BE RECORDED IN THE CONTROLS EVENT LOG TO FACILITATE TROUBLESHOOTING. FMS SHALL BE ABLE TO DESIGNATE INDIVIDUAL UNITS AS BEING IN MAINTENANCE MODE TO AVOID GENERATING ALARMS. ALL DETECTED ALARMS OR FAILURES SHALL INITIATE AN ALARM WITHIN THE FMS.

POWER FAILURE RECOVERY

THE FMS SHALL CONTAIN A POWER FAILURE RECOVERY MODE (ADJUSTABLE). THE POWER FAILURE RECOVERY CAPABILITY SHALL RETURN THE SYSTEM TO ITS LAST STATE (BEFORE LOST POWER).

OCCUPANCY CONTROL

THE FMS SHALL BE SETUP WITH AN OCCUPANCY SCHEDULE FOR DIFFERENT AREAS OF THE FACILITY. THE OWNER SHALL BE INTERVIEWED BY THE CONTRACTOR AT STARTUP TO ESTABLISH THESE SCHEDULES.

MINIMUM OUTSIDE AIR CONTROL

THE OUTSIDE AIR VOLUME SHALL BE CONTROLLED BY THE FLOW MONITORING STATION THAT MEASURES THE OUTSIDE AIR VOLUME. THE FMS SHALL MODULATE THE OUTSIDE RETURN AIR DAMPERS TO MAINTAIN THE OUTSIDE AIR VOLUME SETPOINT SPECIFIED ON SCHEDULES. IF THE AIR HANDLING UNIT IS STOPPED, THE FMS SHALL CLOSE THE OUTSIDE DAMPER.

SUPPLY AIR TEMPERATURE SETPOINT CONTROL

THE FMS SHALL CONTROL THE AIR HANDLING UNIT TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT SPECIFIED ON SCHEDULES (ADJUSTABLE). THE TEMPERATURE SETPOINT SHALL BE RESET BASED ON THE DEMAND OF THE TERMINAL UNITS SERVED BY IT SO THAT AT LEAST ONE TERMINAL UNIT IS IN FULL COOLING AND STILL MAINTAINING THE ROOM TEMPERATURE SETPOINT. CONTROLS CONTRACTOR SHALL REFER TO TAMU UES RESET SCHEDULE.

SUPPLY AIR TEMPERATURE CONTROL

THE FMS SHALL MODULATE THE CHILLED WATER COIL COIL VALVES TO MAINTAIN THE TEMPERATURE SETPOINT SPECIFIED ON SCHEDULES.

SUPPLY FAN CONTROL

THE SUPPLY FAN VFD SHALL BE STARTED AND STOPPED BY THE FMS SYSTEM BASED ON AN OCCUPANCY SCHEDULE FOR THE SPACE PROGRAMMED INTO THE FMS. THE FAN SHALL OPERATE CONTINUOUSLY DURING OCCUPIED SCHEDULE. IF DURING UNOCCUPIED HOURS, ANY OF THE SPACE TEMPERATURES RISE ABOVE THE UNOCCUPIED COOLING SETPOINT OR FALL BELOW THE UNOCCUPIED HEATING SETPOINT, THE AIR HANDLING UNIT SHALL START AND OPERATE TO CHANGE THE SPACE TEMPERATURE 2°F (ADJUSTABLE) BEFORE STOPPING.

SUPPLY FAN VFD CONTROL

THE VFD SHALL BE MODULATED TO MAINTAIN THE SUPPLY DUCT STATIC PRESSURE AT A SET POINT OF 1.0" W.G. (ADJUSTABLE). THE RAMP OF THE VFD SHALL BE ADJUSTED TO RESTRICT THE RATE OF CHANGE OF THE VFD OUTPUT TO SIXTY SECONDS FOR A ZERO TO ONE HUNDRED PERCENT CONTROL SIGNAL CHANGE. THE VFD SHALL NOT EXCEED THE MANUFACTURER'S RECOMMENDED FREQUENCIES.

SUPPLY FAN MONITORING

THE VFD OPERATION SHALL BE INDICATED TO THE FMS THROUGH A SET OF CONTACTS IN THE VFD. IF AN ALARM CONDITION IS DETECTED, THE FMS SHALL INITIATE AN ALARM.

FILTER MONITORING

THE DIFFERENTIAL PRESSURE ACROSS THE FILTERS SHALL BE MONITORED BY THE FMS THROUGH A DIFFERENTIAL PRESSURE TRANSMITTER. IF THE DIFFERENTIAL PRESSURE EXCEEDS SET POINT, THE CONTROLS SHALL INITIATE AN ALARM.

SMOKE DETECTOR

A SMOKE DETECTOR LOCATED IN THE SUPPLY AND RETURN AIR STREAMS. SMOKE DETECTOR SHALL STOP THE FANS THROUGH THE FIRE ALARM SYSTEM IF AN ALARM CONDITION IS DETECTED. WHEN THE FANS ARE STOPPED, THE CONTROLS SHALL POSITION THE DAMPERS TO THEIR NORMAL STATE. COORDINATE WITH FIRE ALARM PANEL.

DUCT PRESSURE SAFETY SWITCHES

SAFETY SWITCHES INSTALLED IN THE SUPPLY AND RETURN AIR DUCTS FOR EACH UNIT SHALL ALARM THE FMS IF THE DUCT PRESSURE IS ABOVE THE HIGH ALARM SETPOINT. THE HIGH ALARM SETPOINT SHALL BE 150% OF THE NORMAL OPERATING STATIC OF THE SYSTEM. IF THE FMS SENSES AN ALARM CONDITION, THE FMS SHALL STOP THE ASSOCIATED FAN.

FREEZESTAT

A FREEZESTAT SET AT 35F (ADJ) LOCATION UPSTREAM OF THE CHILLED WATER COIL SHALL INITIATE AN ALARM AT THE FMS AND STOP THE SUPPLY FAN IF AN ALARM CONDITION IS DETECTED. UPON ALARM, THE OUTSIDE AIR DAMPER SHALL CLOSE, THE CHILLED WATER PUMPS SHALL BE ENERGIZED AND THE UNITS CHILLED WATER VALVES SHALL MODULATE WIDE OPEN. PROVIDE FREEZE STAT RESET DEVICE INSIDE UNIT IN AN ACCESSIBLE AREA.

HOT WATER VALVE EXERCISE

PROVIDE AUTOMATIC HOT WATER VALVE EXERCISE (OPEN AND CLOSE) WEEKLY. SET ORIGINAL TIME FOR FRIDAYS AT 12AM (ADJUSTABLE).

ECONOMIZER CONTROL

THE FMS SHALL MONITOR OUTSIDE AIR TEMPERATURE AND RELATIVE HUMIDITY. THE AHU SHALL BE PROVIDED WITH A HIGH-LIMIT SHUTOFF CONTROL SETTING FOR A FIXED ENTHALPY OF 28 BTU/LB AND A FIXED OUTSIDE AIR TEMPERATURE OF 75°F. AHU SHALL SWITCH TO ECONOMIZER MODE WHEN THE THE OUTDOOR AIR CONDITIONS DROP BELOW THE ENTHALPY AND TEMPERATURE SETPOINTS. DURING ECONOMIZER MODE, THE RETURN AIR DAMPER SHALL CLOSE, RELIEF DAMPER SHALL OPEN, AND THE CHILLED WATER VALVE SHALL MODULATE TO MAINTAIN THE LEAVING AIR CONDITION SETPOINT IN THE SCHEDULES. IF OUTSIDE AIR TEMPERATURE DROPS BELOW 52°F, THE FMS SHALL EXIT ECONOMIZER MODE BY MODULATING OUTSIDE AIR DAMPER TO MINIMUM SETTING AND BY MODULATING RETURN AIR DAMPER.

ECONOMIZER DISABLING

THE ECONOMIZER IS DISABLED WHEN ONE OF THE FOLLOWING OCCURS: THE DISCHARGE AIR TEMPERATURE IS 52°F OR BELOW. WHEN THIS CONDITION OCCUR THE OUTSIDE AIR DAMPER SHALL CLOSE TO THE MINIMUM AIR FLOW REQUIRED AND THE RETURN AIR DAMPER SHALL OPEN TO THE NORMAL POSITION.

RELIEF AIR FANS

THE RELIEF AIR FAN SHALL BE ENABLED ONLY WHEN ECONOMIZER MODE IS ENABLED AND SPEED SHALL BE CONTROLLED IN SEQUENCE WITH THE BUILDING PRESSURE SENSOR SET TO MAINTAIN BUILDING DIFFERENTIAL PRESSURE WITH RESPECT TO AMBIENT. A PRESSURE MONITORING STATION SHALL CONTINUOUSLY MONITOR THE DIFFERENTIAL PRESSURE AND SEND OUTPUT TO THE BAS. WHEN THE DIFFERENTIAL PRESSURE IS ABOVE 0.05"WG. (ADJUSTABLE) RELATIVE TO AMBIENT THE RELIEF DAMPERS WILL OPEN. MODULATE RELIEF AIR FAN SPEED AS NEEDED TO MAINTAIN POSITIVE PRESSURE DIFFERENTIAL SETPOINT RELATIVE TO AMBIENT AS SENSED BY MONITOR.

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS — MARK C. CLAYPOOL — 147201 — LICENSED PROFESSIONAL ENGINEER
7/25/2024

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TBPE F-7421, TBPLS F-10193920

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

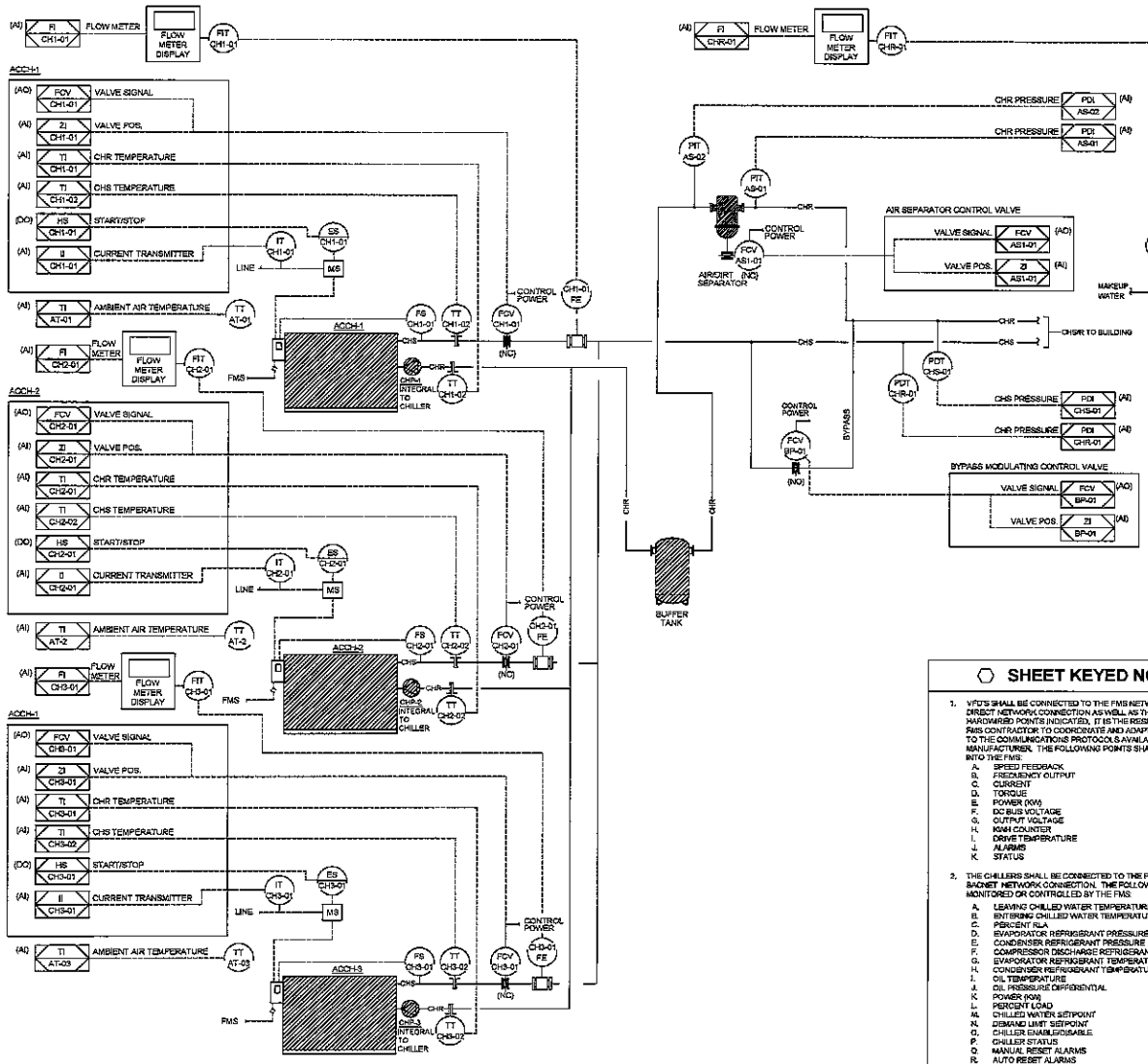
RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL CONTROLS

SHEET NUMBER

M802



1 CHILLED WATER SYSTEM CONTROL DIAGRAM

N.T.S

SEQUENCE OF OPERATION

CHILLED WATER PLANT CONTROL

CHILLER PLANT ENABLE
THE FMS SHALL ENABLE A CHILLER THROUGH A USER INPUT FROM THE OPERATOR WORKSTATION OR BASED ON A DEMAND FOR COOLING BY THE BUILDING AIR HANDLING SYSTEM.

CHILLED WATER SYSTEM SUPPLY TEMPERATURE SETPOINT
THE FMS SHALL SET THE CHILLED WATER TEMPERATURE SETPOINT BETWEEN 42°F (ADJUSTABLE).

CHILLER START-UP SEQUENCE
THE FOLLOWING STEPS SHALL OCCUR DURING THE CHILLER STARTUP SEQUENCE, AND SHALL BE OPERATOR CONFIGURABLE IN THE EVENT OF SEQUENCE MODIFICATIONS WITHOUT THE INTERVENTION OF THE ORIGINAL PROGRAMMER.

THE CHILLED WATER VALVE SHALL BE OPENED AND THE CHILLED WATER PUMP STARTED (IF NOT ALREADY OPERATING).

AFTER THE CHILLED WATER PUMP STATUS IS CONFIRMED AND THE VALVE IS OPENED, THE CHILLER SHALL BE ENABLED. IF PUMP STATUSES ARE NOT CONFIRMED WITHIN THE CONTROL FEEDBACK DELAY TIME (OPERATOR ADJUSTABLE), THE FMS SHALL MARK THE PUMP AS FAILED AND THE NEXT PUMP IN THE SEQUENCE SHALL START.

THE FMS SHALL WAIT UP TO THE CONTROL FEEDBACK DELAY TIME (OPERATOR ADJUSTABLE) FOR CHILLER STATUS TO BE CONFIRMED. IF STATUS IS NOT CONFIRMED IN THAT TIME, THE CHILLER IS MARKED AS FAILED, AND THE CHILLER IS TURNED OFF AND ITS ASSOCIATED CONTROL VALVES SHALL CLOSE.

CHILLER SHUT-DOWN SEQUENCE
THE FOLLOWING STEPS OUTLINE THE CHILLER STOP SEQUENCE, AND SHALL BE OPERATOR CONFIGURABLE IN THE EVENT OF SEQUENCE MODIFICATIONS WITHOUT THE INTERVENTION OF THE ORIGINAL PROGRAMMER

THE FIRST STEP IN THE CHILLER SHUTDOWN SEQUENCE IS TO DISABLE THE CHILLER.

THE FMS SHALL WAIT UP TO THE DURATION OF THE CONTROL FEEDBACK DELAY TIME (OPERATOR CONFIGURABLE) FOR CHILLER STATUS OF THE INPUT TO BE CONFIRMED OFF.

ONCE THE CHILLER HAS BEEN CONFIRMED OFF, THE FMS SHALL TURN OFF THE CHILLED WATER PUMPS AND CLOSE THE CONTROL VALVES.

CHILLED WATER SYSTEM MINIMUM FLOW CONTROL VALVE
THE FMS SHALL MONITOR THE CHILLED WATER SYSTEM FLOW RATE. IF THE FLOW RATE FALLS BELOW THE MINIMUM FLOW RATE REQUIRED BY THE OPERATING CHILLER, THE FMS SHALL MODULATE OPEN THE BY-PASS FLOW CONTROL VALVE TO MAINTAIN THE MINIMUM FLOW RATE FOR THE OPERATING CHILLER. REFER TO CHILLER SUBMITTAL FOR MINIMUM FLOW.

OUTSIDE AIR AND HUMIDITY (DB, WB AND RH)
THE FMS SHALL CONTINUOUSLY MONITOR, TREND AND DISPLAY THE AMBIENT AIR DRY BULB (DB) TEMPERATURE, RELATIVE HUMIDITY (RH) AND WET BULB TEMPERATURE (WB).

CHILLED WATER TEMPERATURE RESET.

CHILLED WATER SUPPLY SHALL BE RESET BASED ON OUTSIDE AIR TEMPERATURE.

OAT LESS THAN 40 DEG F	CHW TEMP. = 46.0 DEG F
OAT FROM 41 DEG F TO 50 DEG F	CHW TEMP. = 46.5 DEG F
OAT FROM 51 DEG F TO 60 DEG F	CHW TEMP. = 45.0 DEG F
OAT FROM 61 DEG F TO 80 DEG F	CHW TEMP. = 43.5 DEG F
OAT GREATER THAN 80 DEG F	CHW TEMP. = 42.0 DEG F

TONNAGE CALCULATION

2. FMS SHALL MONITOR & TREND CHW TEMPERARTURE & FLOWS IN DISTRIBUTION PIPING. TONNAGE SHALL BE CALCULATED USING DATA POINTS.

AIRQUIRT SEPARATOR VALVE
A NORMALLY CLOSED (FAIL CLOSED) FLUSH VALVE SHALL BE PROVIDED AT THE AIRQUIRT SEPARATOR. THE VALVE SHALL BE OPENED FOR 5 SECONDS(ADJ) ONCE A WEEK(ADJ) BASED ON THE OWNERS SCHEDULE.

SHEET KEYED NOTES

1. VFD'S SHALL BE CONNECTED TO THE FMS NETWORK THROUGH A DIRECT NETWORK CONNECTION AS WELL AS THROUGH THE HARDWIRED POINTS INDICATED. IT IS THE RESPONSIBILITY OF THE FMS CONTRACTOR TO COORDINATE AND ADAPT THE FMS NETWORK TO THE COMMUNICATIONS PROTOCOLS AVAILABLE FROM THE VFD MANUFACTURER. THE FOLLOWING POINTS SHALL BE INTEGRATED INTO THE FMS:
   A. SPEED FEEDBACK
   B. FREQUENCY OUTPUT
   C. CURRENT
   D. TORQUE
   E. POWER (KW)
   F. DC BUS VOLTAGE
   G. OUTPUT VOLTAGE
   H. KWH COUNTER
   I. DRIVE TEMPERATURE
   J. ALARMS
   K. STATUS
2. THE CHILLERS SHALL BE CONNECTED TO THE FMS THROUGH A BACNET NETWORK CONNECTION. THE POLLOWING POINTS SHALL BE MONITORED OR CONTROLLED BY THE FMS:
   A. LEAVING CHILLED WATER TEMPERATURE
   B. ENTERING CHILLED WATER TEMPERATURE
   C. PERCENT RLA
   D. EVAPORATOR REFRIGERANT PRESSURE
   E. CONDENSER REFRIGERANT PRESSURE
   F. COMPRESSOR DISCHARGE REFRIGERANT TEMPERATURE
   G. EVAPORATOR REFRIGERANT TEMPERATURE
   H. CONDENSER REFRIGERANT TEMPERATURE
   I. OIL TEMPERATURE
   J. OIL PRESSURE DIFFERENTIAL
   K. POWER (KW)
   L. PERCENT LOAD
   M. CHILLED WATER SETPOINT
   N. DEMAND LIMIT SETPOINT
   O. CHILLER ENABLE/DISABLE
   P. CHILLER STATUS
   Q. MANUAL RESET ALARMS
   R. AUTO RESET ALARMS
   S. COMMUNICATIONS STATE

GENERAL NOTES

1. IT IS THE INTENT TO INCORPORATE ALL ASPECTS OF THE CONTROL SYSTEMS SHOWN ON PLANS AND DESCRIBED IN ALL OF THE CONTROL DOCUMENTS AND PROVIDE A COMPLETE AUTOMATED SYSTEM.

FULL SIZE SHEET: 22X34

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TBPE F-1051, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 26, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL CONTROLS

SHEET NUMBER

M803

SEQUENCE OF OPERATION

HEATING WATER PLANT CONTROL

BOILER PLANT ENABLE
THE FMS SHALL ENABLE A BOILER THROUGH A USER INPUT FROM THE OPERATOR WORKSTATION OR BASED ON A DEMAND FOR HEATING BY THE BUILDING HVAC SYSTEM.

HEATING WATER SYSTEM SUPPLY TEMPERATURE SETPOINT
THE FMS SHALL SET THE HEATING WATER TEMPERATURE SETPOINT AT 170°F (ADJUSTABLE).

BOILER START-UP SEQUENCE
THE FOLLOWING STEPS SHALL OCCUR DURING THE BOILER STARTUP SEQUENCE, AND SHALL BE OPERATOR CONFIGURABLE IN THE EVENT OF SEQUENCE MODIFICATIONS WITHOUT THE INTERVENTION OF THE ORIGINAL PROGRAMMER.

THE BOILER WATER VALVES SHALL BE OPENED AND THE LEAD HEATING WATER PUMP STARTED (IF NOT ALREADY OPERATING).

AFTER THE HEATING WATER PUMP STATUS IS CONFIRMED THE BOILER SHALL BE ENABLED. IF PUMP STATUSES ARE NOT CONFIRMED WITHIN THE CONTROL FEEDBACK DELAY TIME (OPERATOR ADJUSTABLE), THE FMS SHALL MARK THE PUMP AS FAILED AND THE NEXT PUMP IN THE SEQUENCE SHALL START.

HEATING WATER PUMP CONTROL
THE HEATING WATER PUMP SHALL OPERATE ANYTIME THE HEATING WATER SYSTEM IS ENABLED. DIFFERENTIAL PRESSURE
THE PUMP SHALL MODULATE TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE AT SETPOINT FOR THE CONTROLLING ZONE. THE CONTROLLING ZONE SHALL BE THE DIFFERENTIAL PRESSURE SENSOR WHICH IS FURTHEST BELOW ITS SETPOINT.

HEATING WATER SYSTEM MINIMUM FLOW CONTROL VALVE
THE FMS SHALL MONITOR THE HEATING WATER SYSTEM FLOW RATE. IF THE FLOW RATE FALLS BELOW THE MINIMUM FLOW RATE REQUIRED BY THE OPERATING BOILER, THE FMS SHALL MODULATE OPEN THE BY-PASS FLOW CONTROL VALVE TO MAINTAIN THE MINIMUM FLOW RATE FOR THE OPERATING BOILER. REFER TO BOILER SCHEDULE FOR MINIMUM FLOW.

OUTSIDE AIR AND HUMIDITY (OB, WB AND RH)
THE FMS SHALL CONTINUOUSLY MONITOR, TREND AND DISPLAY THE AMBIENT AIR DRY BULB (DB) TEMPERATURE, RELATIVE HUMIDITY (RH) AND WET BULB TEMPERATURE (WB).

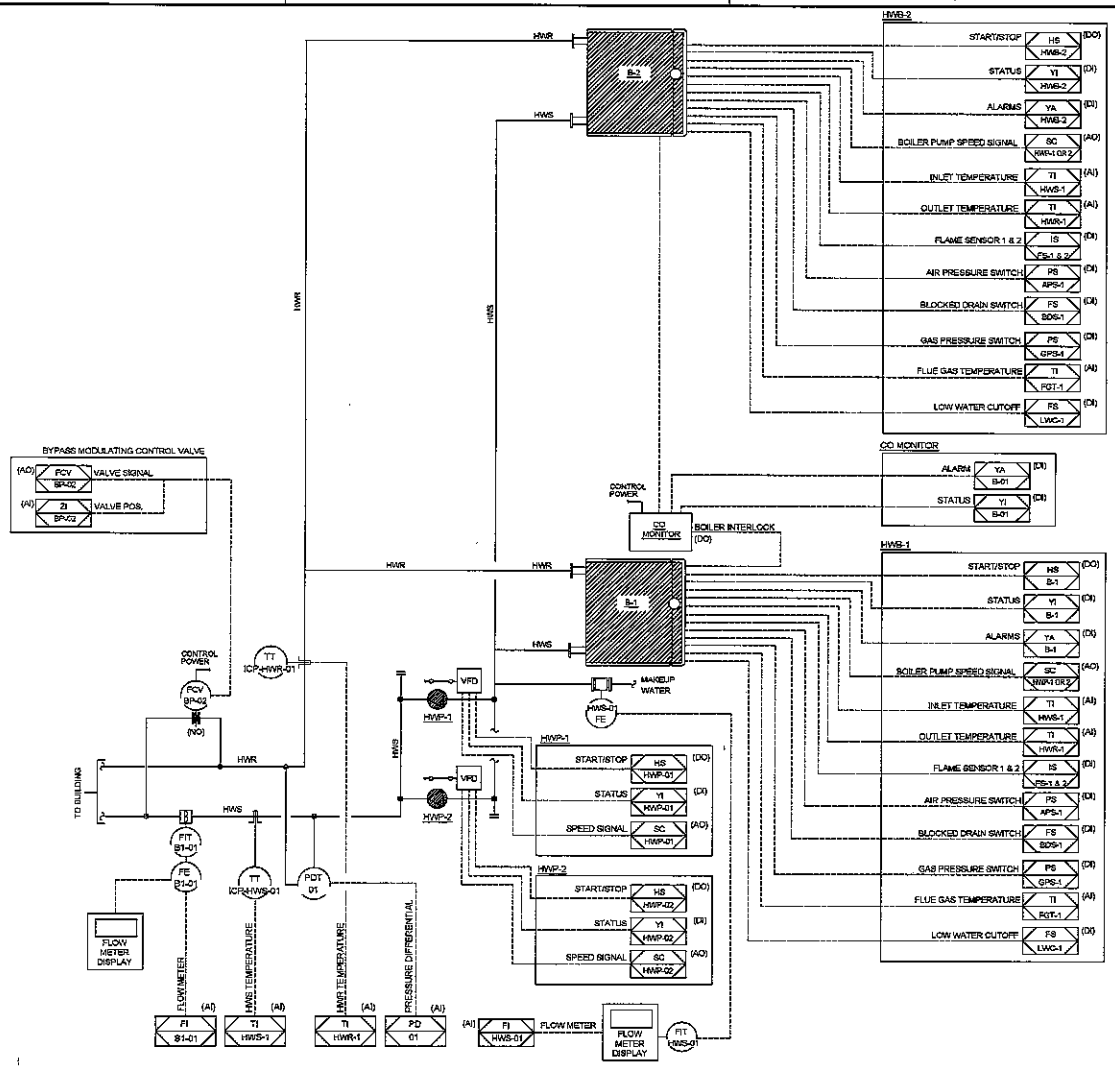
HEATING WATER TEMPERATURE RESET:
HEATING WATER SUPPLY SHALL BE RESET BASED ON OUTSIDE AIR TEMPERATURE.

OAT LESS THAN 30 DEG F	HHWTEMP. = 160 DEG F
OAT FROM 31 DEG F TO 40 DEG F	HHWTEMP. = 150 DEG F
OAT FROM 41 DEG F TO 50 DEG F	HHWTEMP. = 155 DEG F
OAT FROM 51 DEG F TO 60 DEG F	HHWTEMP. = 145 DEG F
OAT FROM 61 DEG F TO 70 DEG F	HHWTEMP. = 135 DEG F
OAT GREATER THAN 70 DEG F	HHWTEMP. = 130 DEG F

ALARMS
IF BOILER SUPPLY WATER TEMPERATURE EXCEEDS A HIGH WATER TEMPERATURE SETPOINT OF 150° F (ADJ) OR LOW TEMPERATURE OF 120° F, AN ALARM SHALL BE SENT THROUGH THE DDC SYSTEM.

GENERAL NOTES

1. IT IS THE INTENT TO INCORPORATE ALL FACETS OF THE CONTROL SYSTEMS SHOWN ON PLANS AND DESCRIBED IN ALL OF THE CONTROL DOCUMENTS AND PROVIDE A COMPLETE AUTOMATED SYSTEM.
2. THE BOILER SHALL BE CONNECTED TO THE FMS THROUGH A BACNET NETWORK CONNECTION. THE FOLLOWING POINTS SHALL BE MONITORED OR CONTROLLED BY THE FMS:
   - A. LEAVING HEATING WATER TEMPERATURE
   - B. ENTERING HEATING WATER TEMPERATURE
   - C. PERCENT LOAD
   - D. HEATING WATER SETPOINT
   - E. BOILER ENABLE/DISABLE
   - F. BOILER STATUS
   - G. MANUAL RESET ALARMS
   - H. AUTO RESET ALARMS
   - I. COMMUNICATIONS STATE
   - J. LOW- FLOW SWITCH
   - K. FLUE GAS SENSOR
   - L. FLAME SENSOR
   - M. AIR PRESSURE SWITCH
   - N. BLOCKED DRAIN SWITCH
   - O. GAS PRESSURE SWITCH
   - P. CO MONITOR STATUS



1 HEATING WATER SYSTEM CONTROL DIAGRAM
N.T.S

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS
TBPE F-2451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY
1848

PROJECT NAME

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

MECHANICAL CONTROLS

SHEET NUMBER

M804

ABBREVIATIONS

A	AMPS, AMPERE
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AVAILABLE INTERRUPTING CURRENT
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ATSC	AUTOMATIC TRANSFER SWITCH CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CO	CONDUIT ONLY
CU	COPPER
DC	DIRECT CURRENT
DIA	DIAMETER
E	EMERGENCY
EC	EMERGENCY, CRITICAL
EG	ENGINE GENERATOR
EL	EMERGENCY, LIFE SAFETY
EQ	EMERGENCY, EQUIPMENT
E (E)	EXISTING
F (FUT)	FUTURE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FDR	FEEDER
FUT.	FUTURE
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IG	ISOLATED GROUND
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPS
KVAR	KILOVOLT AMPS REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS, AND GROUND
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MIN	MINIMUM
MH	MANHOLE
MM	MIXED MEDIA
MTS	MANUAL TRANSFER SWITCH
MVA	MEGAVOLT AMPS
N	NEW
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELEC. MANUFACTURERS ASSOC.
NEUT	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NORMAL
NO	NORMALLY OPEN
OH	OVERHEAD
P	POLE
PA	PUBLIC ADDRESS
PC	PHOTOCELL
PH	PHASE
PMCS	POWER MONITORING AND CONTROL SYSTEM
RSC	RIGID STEEL CONDUIT
R (R)	REMOVE
SEC	SECURITY
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
TEMP	TEMPORARY
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP.	TYPICAL
UC	UNDER COUNTER
U/G	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UL	UNDERWRITERS' LABORATORIES
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS, VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER

EQUIPMENT NAMING

- 1, 2, 3, . . . = SUBFED PANEL
- A, B, C, = SEQUENCE OF PANELS OF THIS TYPE
- 1, 2, 3, . . . = FLOOR LEVEL (SB = SUB-BASEMENT, B = BASEMENT, M = MEZZANINE, P = PENTHOUSE)
- H = (480/277) VOLT PANELBOARD
- L = (208/120) VOLT PANELBOARD
- T = TRANSFORMER
- DB = DISTRIBUTION BOARD
- MSB = MAIN SWITCH BOARD
- MCC = MOTOR CONTROL CENTER
- I = ISOLATED PANELBOARD
- SES = SERVICE ENTRANCE SECTION
- ATS = AUTOMATIC TRANSFER SWITCH
- PDU = POWER DISTRIBUTION UNIT
- UPS = UNINTERRUPTABLE POWER SUPPLY
- B = BUSWAY
- BLANK FOR NORMAL POWER
- E = EMERGENCY
- EL = EMERGENCY-LIFE SAFETY-BRANCH
- EC = EMERGENCY-CRITICAL-BRANCH
- EQ = EMERGENCY-EQUIPMENT-BRANCH

RACEWAY/CONDUCTOR SYMBOLS

BRANCH CIRCUIT GENERAL INFORMATION
BRANCH CIRCUITS FROM OVERCURRENT PROTECTION (20A) TO FURTHEST DEVICE SHALL NOT EXCEED 75 FEET FOR #12AWG COPPER AND 150 FEET FOR #10AWG COPPER; MEASURED ALONG CONDUCTORS. BRANCH CIRCUITS EXCEEDING 150 FEET WILL BE SIZED SO THAT VOLTAGE DROP DOES NOT EXCEED 5%.

SYMBOL	DESCRIPTION
= GROUND; = HOT/PHASE; = NEUTRAL; = SWITCH LEG	CONDUCTOR IDENTIFICATION SYMBOLS. REFER TO PLANS FOR COMBINATION USE. CONDUCTOR IDENTIFICATION MOSTLY USED IN HOMERUN LOCATION, BUT CAN ALSO BE USED IN BRANCH CIRCUITING WHERE APPLIED. GROUND CONDUCTORS WILL BE INSTALLED IN ALL RACEWAYS WHETHER SHOWN OR NOT.
LA-1; LA-1,3; LA-1,3,5	HOMERUN TO EQUIPMENT LOCATION. THE CIRCUIT NUMBER ADJACENT TO HOMERUN INDICATES EQUIPMENT AND INDIVIDUAL SINGLE POLE CIRCUIT BREAKER(S). CONDUCTOR IDENTIFICATION SYMBOL INDICATES NUMBER OF CONDUCTORS IN HOMERUN, MINIMUM #12 CONDUCTORS WILL BE PROVIDED IN HOMERUN UON. ALL HOMERUNS WILL INCLUDE GROUND CONDUCTOR.
LA-7; LA-13	HOMERUN TO EQUIPMENT LOCATION. THE CIRCUIT NUMBER ADJACENT TO HOMERUN INDICATES EQUIPMENT AND INDIVIDUAL TWO OR THERE POLE CIRCUIT BREAKERS. CONDUCTOR IDENTIFICATION SYMBOL INDICATES NUMBER OF CONDUCTORS IN HOMERUN, MINIMUM #12 CONDUCTORS WILL BE PROVIDED IN HOMERUN UON. NEUTRAL MAY BE USED WHERE INDICATED ON PLAN. ALL HOMERUNS WILL INCLUDE GROUND CONDUCTOR.
	CONCEALED RACEWAY BETWEEN DEVICES AND OR EQUIPMENT IN WALLS OR IN CEILING SPACE
	UNDERGROUND RACEWAY BETWEEN DEVICES AND OR EQUIPMENT
	EXPOSED RACEWAY BETWEEN DEVICES AND OR EQUIPMENT ON WALLS OR CEILINGS
DOWN / UP	CONDUIT TURNS
	CONDUIT STUBBED AND CAPPED
B	BUSWAY
G	GROUNDING CONDUCTOR
	CABLE TRAY - POWER AND TELECOMMUNICATIONS
T	TELECOMMUNICATIONS RACEWAY
D	DATA RACEWAY
V/D	VOICE/DATA COMBINATION RACEWAY
FA	FIRE ALARM RACEWAY

EQUIPMENT SYMBOLS

SYMBOL	DESCRIPTION
MSB	MAIN SWITCHBOARD. DASHED LINES INDICATE CLEARANCES.
DB	DISTRIBUTION BOARD. DASHED LINES INDICATE CLEARANCES.
H1A	FLUSH MOUNTED PANELBOARD. DASHED LINES INDICATE CLEARANCES.
L1A	SURFACE MOUNTED PANELBOARD. DASHED LINES INDICATE CLEARANCES.
MCC	MOTOR CONTROL CENTER. DASHED LINES INDICATE CLEARANCES.
T1A	DRY TYPE TRANSFORMER, WITH NAME
VFD	VARIABLE FREQUENCY DRIVE
UPS / UPS-A	UNINTERRUPTIBLE POWER SUPPLY. DASHED LINES INDICATE CLEARANCES.
ATS / ATS-1	AUTOMATIC TRANSFER SWITCH. DASHED LINES INDICATE CLEARANCES.
	GROUND BAR

DEVICES SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING LOC.	MOUNTING HT.
X	DEVICE INDICATOR LETTER. "X" EQUALS DESIGNATION BELOW (TYPICAL FOR MOST RECEPTACLE TYPES): BLANK FOR NORMAL POWER; E = EMERGENCY; G = GFCI RATED; IG = ISOLATED GROUND; T = TAMPERPROOF; USB = USB PORTS; WG = WEATHERPROOF AND GFCI; WP = WEATHERPROOF		
	IN FLOOR DUPLEX RECEPTACLE. CONFIGURATION AS INDICATED ON PLANS	FLOOR	VARIES SEE ARCH SHEETS
	IN FLOOR DOUBLE DUPLEX RECEPTACLE, CONFIGURATION AS INDICATED ON PLANS		
	COMBINATION POWER/COMMUNICATION IN FLOOR OUTLET. CONFIGURATION AS INDICATED ON PLANS		
	CEILING MOUNTED DUPLEX RECEPTACLE	CEILING	FLUSH
	CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE		
	SIMPLEX RECEPTACLE	WALL, UON	+18" TO BOTTOM OF DEVICE UON
	DUPLEX RECEPTACLE		
	DOUBLE DUPLEX RECEPTACLE (QUADPLEX)		
	EMERGENCY DUPLEX RECEPTACLE		
	EMERGENCY DOUBLE DUPLEX RECEPTACLE		
	SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AND AMPERAGE AS NOTED ON PLANS		
	CLOCK, RECESSED SIMPLEX RECEPTACLE	WALL	+96" UON
TV	TELEVISION, DUPLEX RECEPTACLE	WALL, UON	+84" UON
TV/D	COMBINATION DUPLEX RECEPTACLE AND TV JACK. (TWO GANG OUTLET)	WALL, UON	+84" UON
	MULTI-OUTLET ASSEMBLY (SURFACE MOUNTED RACEWAY)	VARIES SEE PLANS	VARIES SEE PLANS
	COMBINATION POWER/COMMUNICATION POLE, CONFIGURATION AS NOTED ON PLANS		
J	WALL MOUNTED CODE SIZE J-BOX	VARIES SEE PLANS	VARIES SEE PLANS
J	POWER CONNECTION TO EQUIPMENT MOUNTED J-BOX		
J	CODE SIZE JUNCTION BOX		
P	CODE SIZE PULLBOX		
	PUSHBUTTON		
PC	PHOTOCELL		
	LIGHTNING PROTECTION AIR TERMINAL	ROOF	VARIES
T	THERMOSTAT	WALL	+44" UON
S_{CB}	ENCLOSED CIRCUIT BREAKER, AMPERAGE/NEMA ENCLOSURE RATING, 3 POLE U.O.N	VARIES	VARIES
30/1	NON-FUSED DISCONNECT SWITCH. AMPERAGE/NEMA ENCLOSURE DESIGNATION, 3 POLE UON.		
30/3R	FUSED DISCONNECT SWITCH. AMPERAGE/NEMA ENCLOSURE DESIGNATION, 3 POLE UON.		
0/1	MOTOR STARTER. STARTER SIZE INDICATED BY NUMBER/NEMA ENCLOSURE DESIGNATION, SINGLE SPEED UON.		
1/30/3R	COMBINATION DISCONNECT SWITCH AND MOTOR STARTER. NEMA STARTER SIZE/AMPERAGE/NEMA ENCLOSURE DESIGNATION, 3 POLE UON.		
5	MOTOR, NUMBER INDICATES HORSEPOWER RATING FOR 1HP AND LARGER	NA	NA
F	MOTOR, "F" INDICATES FRACTIONAL HORSEPOWER		

NOTE:
NOT ALL ABBREVIATIONS, SYMBOLS OR GENERAL NOTES APPLY TO THIS PROJECT

FIRE ALARM SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING LOC.	MOUNTING HT.
FACP	FIRE ALARM CONTROL PANEL	WALL	-
FAA	FIRE ALARM ANNUNCIATOR PANEL	WALL	+44"
F	PULL STATION		
F	HORN NOTIFICATION	WALL	+80" UON
S	SPEAKER NOTIFICATION		
C	CHIME NOTIFICATION		
	COMBINATION SPEAKER AND CHIME NOTIFICATION		
	SPEAKER/HORN WITH STROBE LIGHT		
	STROBE LIGHT ONLY		
B	BELL (GONG)		
	PHOTOELECTRIC SMOKE DETECTOR	CEILING	SURFACE
IZ	IONIZATION SMOKE DETECTOR		
BT	BEAM TRANSMITTER		
BR	BEAM RECEIVER		
R/F	COMBINATION RATE OF RISE /FIXED TEMPERATURE		
F	FIXED TEMPERATURE: TEMPERATURE AS NOTED ON PLANS OR SPECIFICATIONS		
R	RATE OF RISE ONLY		
H	HEAT DETECTOR		
U	UNDER FLOOR SMOKE DETECTOR	UNDER FLOOR	SEE PLANS
	DUCT DETECTOR	AT DUCT	SEE PLANS
	FIRE/SMOKE DAMPER		
PS	PRESSURE SWITCH	PIPE	VARIES
TS	TAMPER SWITCH		
FS	FLOW SWITCH		
PIV	POST INDICATOR VALVE		
M	MAGNETIC DOOR HOLDER	VARIES	SEE PLANS
CM	CONTROL MODULE		
MM	MONITOR MODULE		
	REMOTE ALARM INDICATING LIGHT		
R	ADDRESSABLE/SUPERVISED RELAY		

LIGHTING SYMBOLS

REFER TO LUMINAIRE SCHEDULE FOR ALL LUMINAIRE TYPES WHETHER WALL MOUNTED OR CEILING MOUNTED.

SYMBOL	DESCRIPTION	MOUNTING LOC.	MOUNTING HT.
	WALL MOUNTED LUMINAIRE	WALL	REFER TO LIGHTING SHEETS
	SINGLE HEAD, POLE MOUNTED LUMINAIRE	EXTERIOR	
	DOUBLE HEAD, POLE MOUNTED LUMINAIRE		
	BOLLARD LUMINAIRE		
S_X	DEVICE INDICATOR LETTER. "X" EQUALS DESIGNATION BELOW (TYPICAL FOR MOST SWITCH TYPES): a = SMALL CASE LETTER DENOTES SWITCHING CONTROL; 2 = DOUBLE POLE TOGGLE SWITCH; 3 = THREE-WAY TOGGLE SWITCH; 4 = FOUR-WAY TOGGLE SWITCH; P = PILOT LIGHT TOGGLE SWITCH; M = MOMENTARY CONTACT SWITCH; K = KEY OPERATED SWITCH; WP = WEATHERPROOF TOGGLE SWITCH; T = MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD PROTECTION; DM = DIMMER SWITCH	WALL	+44" UON

ONE-LINE DIAGRAM SYMBOLS

SYMBOL	DESCRIPTION
300/3	CIRCUIT BREAKER; RATING/NO. POLES. SETTINGS AND PROTECTION AS NOTED IN SPECIFICATION OR ON DRAWINGS
3000/5	CURRENT TRANSFORMER, NUMBER "3000/5" DENOTES RATIO. NUMBER "3" DENOTES QUANTITY
300A	DISCONNECT SWITCH. "300A" DENOTES AMPERAGE RATING
300A	FUSED DISCONNECT SWITCH. "300A" DENOTES AMPERAGE RATING
ST	CIRCUIT BREAKER WITH SHUNT TRIP OPERATOR
	GROUNDING ELECTRODE
	LIGHTNING ARRESTOR
SPD	SURGE PROTECTIVE DEVICE
M	ELECTRONIC METER
VFD	VFD CONNECTION
M	MOTOR CONNECTION

REFERENCE

SYMBOL	DEFINITION
KEY	KEYED NOTE REFERENCE
VAV-5	MECHANICAL EQUIPMENT REFERENCE
+48"	DENOTES MOUNTING HEIGHT AFF
25	KITCHEN EQUIPMENT REFERENCE
XXX	MEDICAL EQUIPMENT REFERENCE

GENERAL DRAWING SYMBOLS

NUMBER / SHEET	DETAIL
LETTER / SHEET	SECTION
N	NORTH ARROW
0 4' 8' 16' SCALE: 1/8" = 1'-0"	SCALE BAR

DEMOLITION LEGEND

	DASHED, DARK SYMBOL INDICATES EXISTING DEVICE OR EQUIPMENT TO BE REMOVED.
	SOLID, LIGHT SHADED SYMBOL INDICATES EXISTING DEVICE OR EQUIPMENT TO REMAIN.

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133807
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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193830

PROJECT INFORMATION

CLIENT NAME
WILLIAMSON COUNTY 1848

PROJECT NAME
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE
ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO 1479

SHEET TITLE
ELECTRICAL LEGEND

SHEET NUMBER
E001

FULL SIZE SHEET: 22X34

PROJECT GENERAL NOTES

A. GENERAL

1. CONTRACTOR SHALL INFORM HIMSELF OF ANY ELECTRICAL INFORMATION THAT MIGHT BE SHOWN IN OTHER DISCIPLINES OF THIS PROJECT AND NOT SHOWN IN ELECTRICAL DIVISION. COORDINATE ALL WORK DISCREPANCIES WITH ARCHITECT PRIOR TO BID. SHOULD COORDINATION NOT OCCUR, IT IS UNDERSTOOD THAT THE CONTRACTOR FOUND NO DISCREPANCIES AND SHALL PROVIDE AND INSTALL ELECTRICAL RACEWAY, CONDUCTORS, DEVICES, AND EQUIPMENT AT NO ADDITIONAL COST.
2. THE CONTRACTOR SHALL REFER TO DIVISION 26 AND 28 SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. THE SPECIFICATIONS ARE A PART OF THE CONSTRUCTION DOCUMENT SET AND MAY CONTAIN INFORMATION NOT SHOWN ON THE DRAWING SET.
3. THE WORD "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. EXCEPTIONS SHALL BE NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
4. DO NOT SCALE THE ELECTRICAL DRAWING TO DETERMINE THE LOCATIONS OF LUMINAIRES, OUTLETS, OR EQUIPMENT. REFER TO THE ARCHITECTURAL DRAWINGS AND FIELD MEASUREMENTS FOR ALL PROJECT DIMENSIONS.
5. THE CONTRACTORS SHALL COORDINATE ALL WORK WITH OTHER DISCIPLINES PRIOR TO START OF WORK AND INSTALLATION OF EQUIPMENT.
6. ALL EXPOSED CONDUIT, FITTING, BOXES, HANGERS, CLIPS, SUPPORTERS, ETC. IN FINISHED AREAS SHALL BE PAINTED PER THE ARCHITECT'S INSTRUCTIONS.
7. PROVIDE PULLSTRING IN ALL EMPTY CONDUITS.
8. ALL FREESTANDING ELECTRICAL EQUIPMENT SHALL HAVE CONCRETE HOUSEKEEPING PADS. REFER TO DIVISION 26 SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
9. IN THE CASE OF CONFLICTS NOT CLARIFIED PRIOR TO THE BIDDING DEADLINE, USE OF THE MOST COSTLY ALTERNATIVE (BETTER QUALITY, GREATER QUANTITY, AND LARGER SIZE) IN PREPARING THE BID.
10. CONTRACTORS SHALL VERIFY AND COORDINATE WITH EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL DEVICES WITH ARCHITECT PRIOR TO ROUGH-IN. ALL RACEWAYS FOR RECEPTACLES TO RUN CONCEALED BENEATH COUNTER AS REQUIRED.
11. ALL GROUNDING CABLE IN THE WHOLE ELECTRICAL DISTRIBUTION SYSTEM SHALL SHOW ZERO CURRENT (AFTER SYSTEM IS ENERGIZED) - IF ANY CURRENT IS FOUND IN THE SYSTEM, THEN THE CONTRACTOR IS RESPONSIBLE TO RESOLVE THE PROBLEM AND REMOVE OBJECTIONABLE CURRENT FROM THE GROUNDING SYSTEM.
12. CONTRACTORS SHALL COORDINATE ALL CEILING MOUNTED DEVICES INCLUDING LUMINAIRES, SPEAKERS, CEILING MOUNTED RECEPTACLES, VOICE/DATA OUTLET BOXES, AND DIFFUSERS PRIOR TO ROUGH-IN.

B. CIRCUITS

1. ALL BRANCH CIRCUITS SHALL BE 2#12 & 1#12-3/4"C MINIMUM UNLESS OTHERWISE INDICATED.
2. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF ANY SINK SHALL BE GFCI TYPE.
3. FIRE SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALL WITH FIRE SEALANT THE MATCHES OR EXCEEDS RATING OF WALL.

C. EQUIPMENT

1. REFER TO MECHANICAL DRAWINGS FOR CONTROL DIAGRAMS AND/OR SEQUENCE OF OPERATION DESCRIPTIONS.
2. REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT SCHEDULES.
3. SWITCHES CONTROLLING MECHANICAL EQUIPMENT SHALL BE LABELED FOR THE EQUIPMENT SERVED.
4. SIZE ALL FUSES PER THE EQUIPMENT MANUFACTURES RECOMMENDATION.
5. REFER TO MECHANICAL PLANS FOR EXACT LOCATION AND REQUIREMENTS FOR MOTORIZED DAMPERS.
6. PROVIDE A GFCI CONVENIENCE RECEPTACLE FOR MECHANICAL EQUIPMENT. LOCATE RECEPTACLE WITHIN 25 FEET OF UNIT. COORDINATE WITH MECHANICAL PRIOR TO ROUGH-IN.
7. PROVIDE FEEDERS BETWEEN THE STARTERS AND DISCONNECT SWITCHES SIZED PER THE HOMERUN.
8. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.

F. FIRE ALARM

1. COORDINATE WITH FIRE ALARM CONSULTANT PRIOR TO COMMENCEMENT OF WORK.
2. CONTRACTOR SHALL COORDINATE AND INSTALL ALL DUCT MOUNTED SMOKE DETECTORS, FIRE SMOKE DAMPERS, HEAT AND SMOKE DETECTORS, PULL STATIONS, HORN/STROBES, FACP PANEL, ANNUNCIATION PANELS, TAMPER AND FLOW SWITCHES, ETC. AS REQUIRED TO PROVIDE A COMPLETE SYSTEM. ALL DEVICES SHALL BE INSTALLED PER MANUFACTURES RECOMMENDATIONS.
3. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR MONITORING AND/OR CONTROLLING OF ALL REQUIRED ELEMENTS ASSOCIATED WITH THE FOLLOWING SYSTEMS: HVAC, SECURITY INTERFACE, AND EMERGENCY SHUT DOWNS.
4. ALL CHIMES, HORNS, STROBES, OR COMBINATION OF THE THREE SHALL BE SYNCHRONIZED. CONTRACTOR SHALL PROVIDE TWO SEPARATE CIRCUITS FOR CHIMES/HORNS AND STROBES TO PROVIDE THE CAPABILITY OF TURNING OFF CHIMES/HORNS, BUT NOT STROBES.
5. ALL DEVICES (SMOKE DETECTORS, SPEAKERS, ETC.) MOUNTED IN LAY-IN CEILING SHALL BE CENTERED IN TILE.
6. IN MECHANICAL/UTILITY ROOMS, CONTRACTOR SHALL LOCATE SMOKE DETECTORS IN SPACE AFTER ALL MECHANICAL, PLUMBING, ETC. HAS BEEN INSTALLED. PROVIDE ADEQUATE COVERAGE OF THE SPACE.
7. ALL FIRE/SECURITY RACEWAY SHALL BE 3/4"C MINIMUM UNLESS OTHERWISE NOTED.
8. CONTRACTOR/ INSTALLER SHALL NOTIFY COUNTY OF ANY EXISTING NON-CONFORMING/ NON-CODE COMPLIANT INSTALLATIONS OR LIFE-SAFETY CONDITIONS UNCOVERED OR OBSERVED IN THE PROCESS OF THE WORK. CONDITIONS SHALL BE REPORTED WHETHER OR NOT THEY ARE WITHIN OR OUTSIDE THE CONTRACTUAL SCOPE OF WORK.
9. CONTRACTOR SHALL MAINTAIN THE FIRE PROTECTION SYSTEM OF THE ENTIRE BUILDING IN WORKING ORDER FOR THE DURATION OF THE PROJECT. NOTIFY COUNTY OF ANY CONDITIONS RELATED TO THE FIRE PROTECTION SYSTEM UNCOVERED OR OBSERVED OUTSIDE THE CONTRACTUAL SCOPE OF WORK.

G. LIGHTING

1. LOCATE THE LUMINAIRES IN MECHANICAL SPACES AND SPACES WITHOUT CEILINGS AFTER ALL THE MECHANICAL EQUIPMENT, PIPING, DUCTWORK, GAUGES, VALVES, CONTROL PANELS, ETC. HAVE BEEN INSTALLED, IN ORDER TO EFFECTIVELY ILLUMINATE THESE ITEMS.
2. THE LUMINAIRE TYPE SHALL TAKE PRECEDENCE OVER LUMINARE MANUFACTURE MODEL NUMBER SHOULD A CONFLICT OCCUR.

FULL SIZE SHEET: 22X34

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TBPE F-7451, TBPLS F-10153810

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

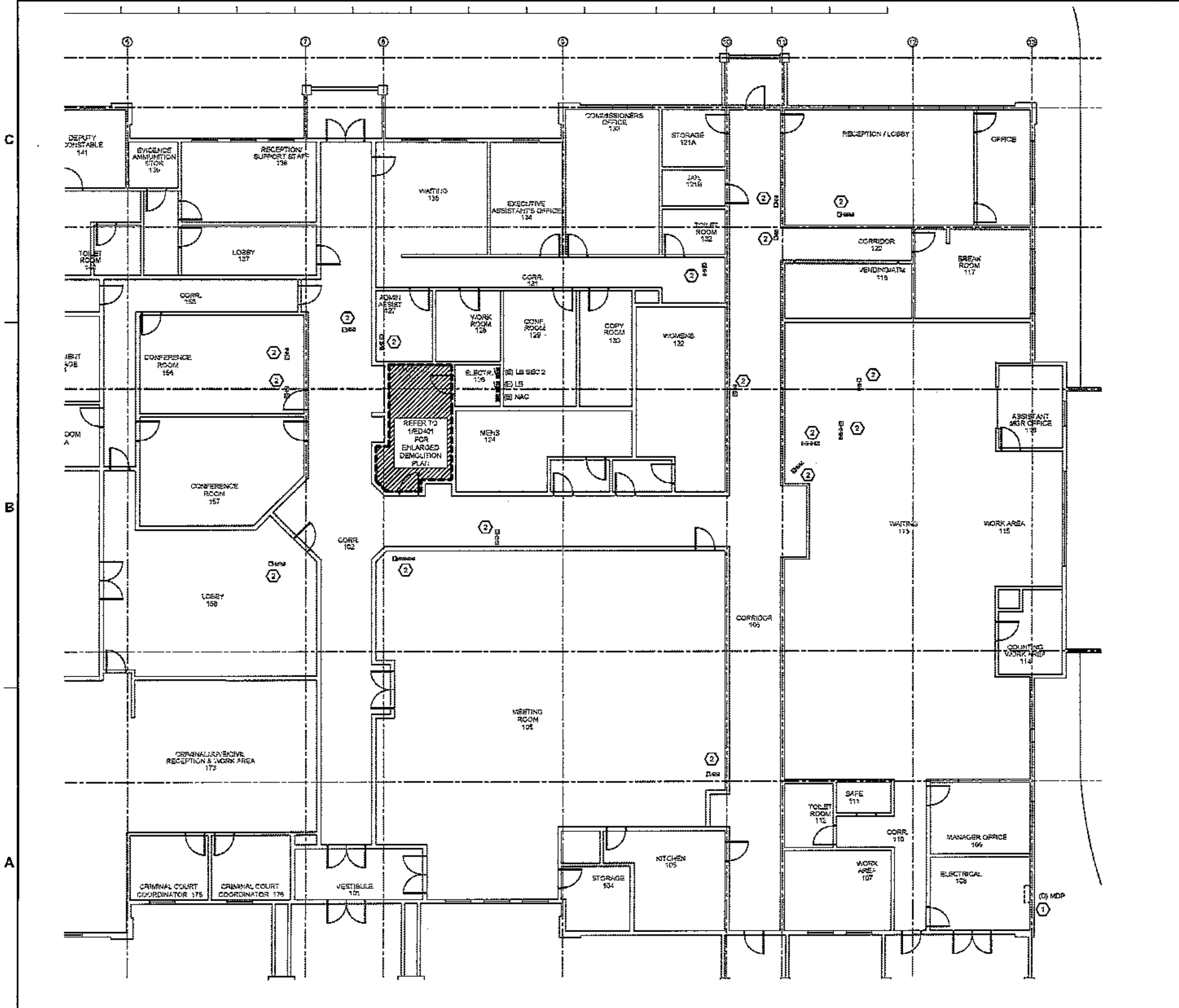
RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL GENERAL NOTES

SHEET NUMBER

E002



1 ELECTRICAL DEMOLITION FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES.

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. TO BEGIN THE DEMOLITION INDICATES THAT THE CONTRACTOR ACCEPTS THE EXISTING CONDITIONS.

E. CONTRACTOR SHALL MAINTAIN ACCESS TO EXISTING ELECTRICAL EQUIPMENT OR DEVICES WHICH REMAIN ACTIVE. CONTRACTOR SHALL EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS AS SPECIFIED.

F. VERIFY AND/OR DETERMINE EXISTING CIRCUITING ARRANGEMENTS FOR EQUIPMENT TO BE REMOVED BEFORE DE-ENERGIZING ANY CIRCUITS. CONTRACTOR SHALL CIRCUIT TRACE TO DETERMINE PANEL AND CIRCUIT CONNECTIONS FOR ALL EXISTING EQUIPMENT AND/OR CIRCUITS THAT ARE TO BE REMOVED IN PREPARATION FOR THE RENOVATION.

G. REMOVE ALL EXISTING DEVICES/EQUIPMENT THAT ARE NOT TO BE UTILIZED AFTER THE PROJECT IS COMPLETED. REMOVE ALL CONDUIT AND WIRING BACK TO THE SOURCE AND/OR PANEL UNLESS INDICATED OTHERWISE. MAINTAIN OPERATIONAL ALL EXISTING TO REMAIN DEVICES/EQUIPMENT, REGARDLESS IF ANY UPSTREAM DEVICES/EQUIPMENT ARE TO BE DEMOLISHED (EXTEND EXISTING CIRCUITS AS NEEDED). ALL MATERIALS AND EQUIPMENT NOT TO BE REUSED (UNLESS OWNER ELECTS TO RETAIN) IN THE PROJECT BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.

H. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED. IF ANY MATERIAL, EQUIPMENT, AND/OR FINISHES WITHIN THE SCOPE OF WORK IS DAMAGED, THEN RESTORE IT INTO WORKING CONDITION THAT IS ACCEPTABLE BY THE AHJ AND OWNER. IF NECESSARY, THE CONTRACTOR SHALL EMPLOY CRAFTS THAT WERE ORIGINALLY USED TO PERFORM THE EXISTING WORK.

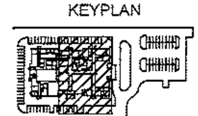
I. UPON COMPLETION OF RENOVATION, CONTRACTOR SHALL PROVIDE CONTINUITY OF ANY CIRCUITS THAT ARE TO REMAIN THAT WERE INTERRUPTED DUE TO THE DEMOLITION. PROVIDE 'AS-BUILT' DRAWINGS AND ACCURATELY DENOTE EACH CIRCUIT PART OF THE SCOPE OF WORK. UPDATE ALL PANELBOARD/SWITCHBOARD DIRECTORIES AS REQUIRED.

SHEET KEYED NOTES

1. EXISTING DISTRIBUTION PANEL TO BE REPLACED. EXISTING BRANCH CIRCUITS AND FEEDERS TO REMAIN SHALL BE RECONNECTED TO NEW PANEL. REFER TO ONE-LINE DIAGRAMS FOR MORE INFORMATION.

2. APPROXIMATE LOCATION OF MOTORIZED DAMPER TO BE DEMOED. DEMO BRANCH CIRCUIT WIRING AND CONDUIT BACK TO SOURCE. TURN OF BREAKER AND LABEL AS SPARE. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR. TYPICAL OF ALL MOTORIZED DAMPERS SHOWN ON THIS PLAN.

KEYPLAN



0 4' 8' 16'
1/8" = 1'-0"
N
FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193010

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

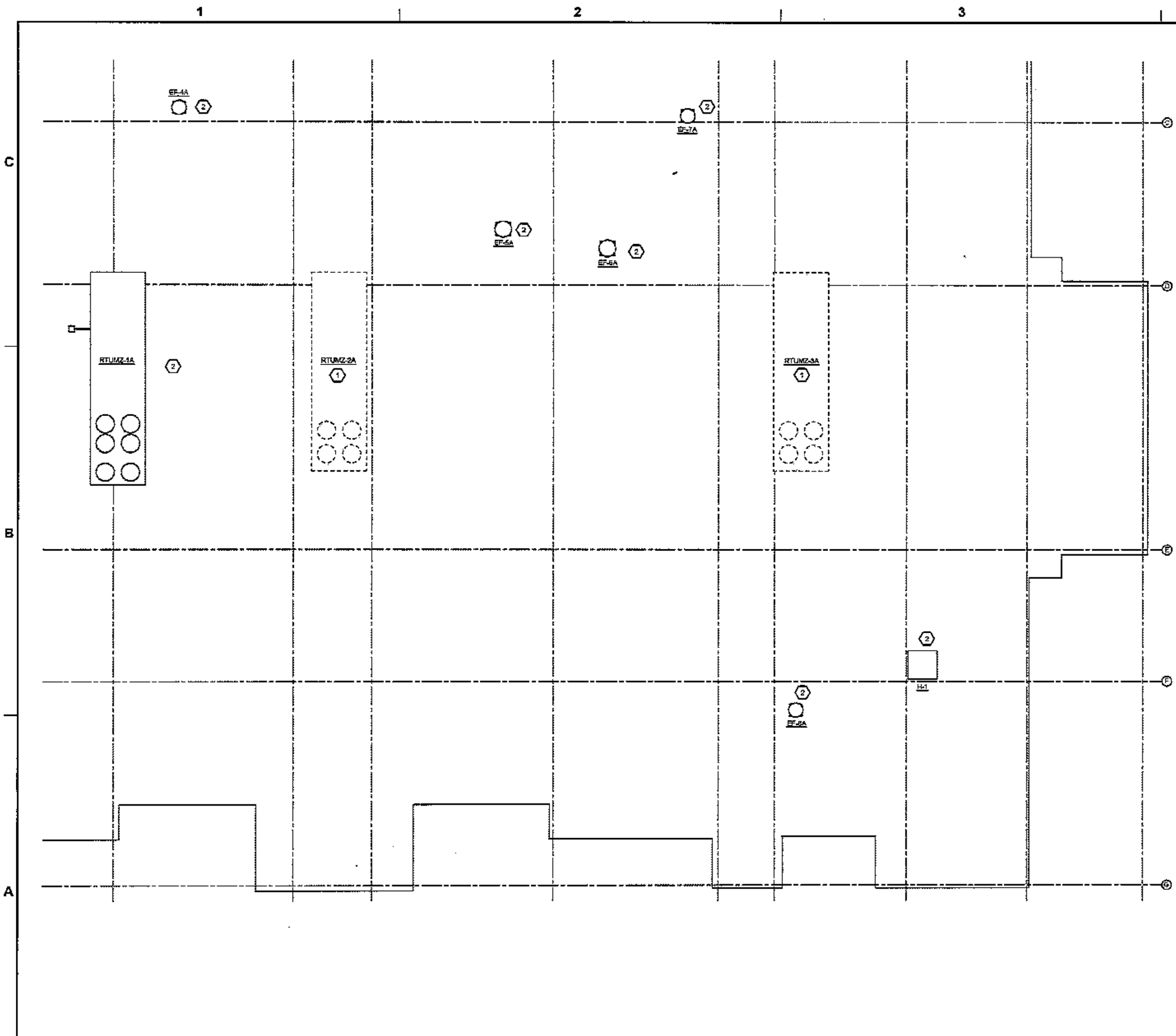
ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE
ELECTRICAL DEMOLITION FLOOR PLAN - AREA B

SHEET NUMBER
ED201



1 ELECTRICAL DEMOLITION ROOF PLAN - AREA B

SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES.

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. TO BEGIN THE DEMOLITION INDICATES THAT THE CONTRACTOR ACCEPTS THE EXISTING CONDITIONS.

E. CONTRACTOR SHALL MAINTAIN ACCESS TO EXISTING ELECTRICAL EQUIPMENT OR DEVICES WHICH REMAIN ACTIVE. CONTRACTOR SHALL EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS AS SPECIFIED.

F. VERIFY AND/OR DETERMINE EXISTING CIRCUITING ARRANGEMENTS FOR EQUIPMENT TO BE REMOVED BEFORE DE-ENERGIZING ANY CIRCUITS. CONTRACTOR SHALL CIRCUIT TRACE TO DETERMINE PANEL AND CIRCUIT CONNECTIONS FOR ALL EXISTING EQUIPMENT AND/OR CIRCUITS THAT ARE TO BE REMOVED IN PREPARATION FOR THE RENOVATION.

G. REMOVE ALL EXISTING DEVICES/EQUIPMENT THAT ARE NOT TO BE UTILIZED AFTER THE PROJECT IS COMPLETED. REMOVE ALL CONDUIT AND WIRING BACK TO THE SOURCE AND/OR PANEL UNLESS INDICATED OTHERWISE. MAINTAIN OPERATIONAL ALL EXISTING TO REMAIN DEVICES/EQUIPMENT, REGARDLESS IF ANY UPSTREAM DEVICES/EQUIPMENT ARE TO BE DEMOLISHED (EXTEND EXISTING CIRCUITS AS NEEDED). ALL MATERIALS AND EQUIPMENT NOT TO BE REUSED (UNLESS OWNER ELECTS TO RETAIN) IN THE PROJECT BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.

H. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED. IF ANY MATERIAL, EQUIPMENT, AND/OR FINISHES WITHIN THE SCOPE OF WORK IS DAMAGED, THEN RESTORE IT INTO WORKING CONDITION THAT IS ACCEPTABLE BY THE AHJ AND OWNER. IF NECESSARY, THE CONTRACTOR SHALL EMPLOY CRAFTS THAT WERE ORIGINALLY USED TO PERFORM THE EXISTING WORK.

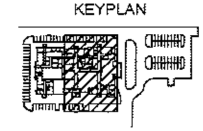
I. UPON COMPLETION OF RENOVATION, CONTRACTOR SHALL PROVIDE CONTINUITY OF ANY CIRCUITS THAT ARE TO REMAIN THAT WERE INTERRUPTED DUE TO THE DEMOLITION. PROVIDE "AS-BUILT" DRAWINGS AND ACCURATELY DENOTE EACH CIRCUIT PART OF THE SCOPE OF WORK. UPDATE ALL PANELBOARD/SWITCHBOARD DIRECTORIES AS REQUIRED.

SHEET KEYED NOTES

1. EXISTING UNIT TO BE DEMOLISHED. EXISTING CIRCUIT AND DISCONNECT SERVING UNIT SHALL BE DEMOLISHED. DEMO BACK BRANCH CIRCUIT WIRING AND CONDUIT BACK TO SOURCE.

2. EQUIPMENT IS EXISTING TO REMAIN. SHOWN FOR REFERENCE ONLY.

KEYPLAN



0 4' 8' 16'
1/8" = 1'-0"
N

FULL SIZE SHEET: 22X34

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SEAL

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

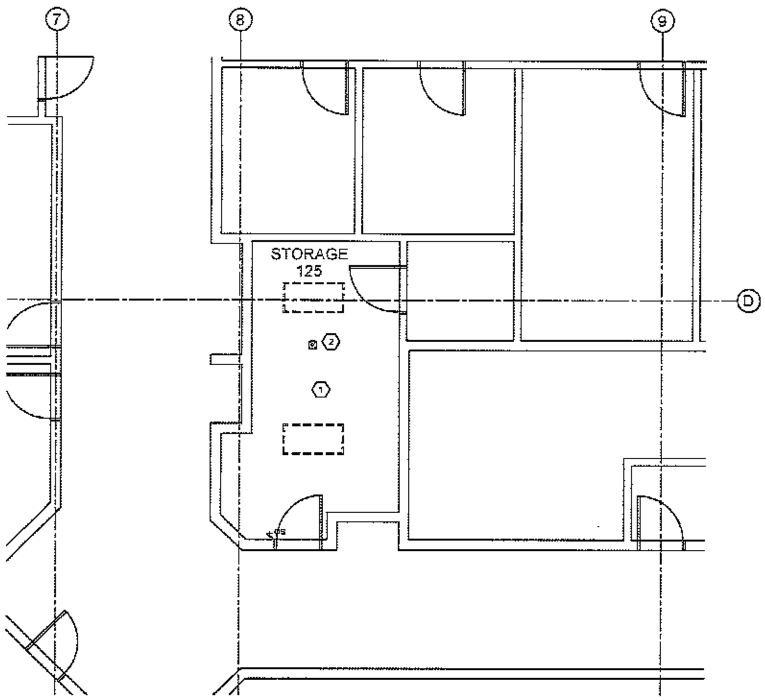
RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL DEMOLITION ROOF PLAN - AREA B

SHEET NUMBER

ED202



ENLARGED ELECTRICAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES.

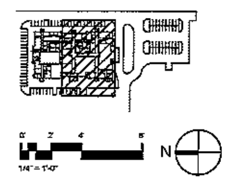
B. DRAWINGS ARE SCHEMATIC IN NATURE, VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. TO BEGIN THE DEMOLITION INDICATES THAT THE CONTRACTOR ACCEPTS EXISTING CONDITIONS.

SHEET KEYED NOTES

1. LAY-IN CEILING TO BE DEMOLISHED. LIGHT FIXTURES IN THIS ROOM TO BE DEMOLISHED. CONTRACTOR SHALL DEMOLISH ASSOCIATED CONTROLS FOR LIGHTING IN THIS ROOM. EXISTING CIRCUIT SERVING LIGHT FIXTURES SHALL BE REUSED FOR NEW LIGHTING.
2. DEMOLISH FIRE ALARM DEVICE AS SHOWN.

KEYPLAN



1/4" = 1'-0"

FULL SIZE SHEET: 22X34

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TBPE F-7451, TBPLS F-10193920

PROJECT INFORMATION

CLIENT NAME
WILLIAMSON COUNTY
1848

PROJECT NAME
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL ENLARGED DEMOLITION PLAN

SHEET NUMBER

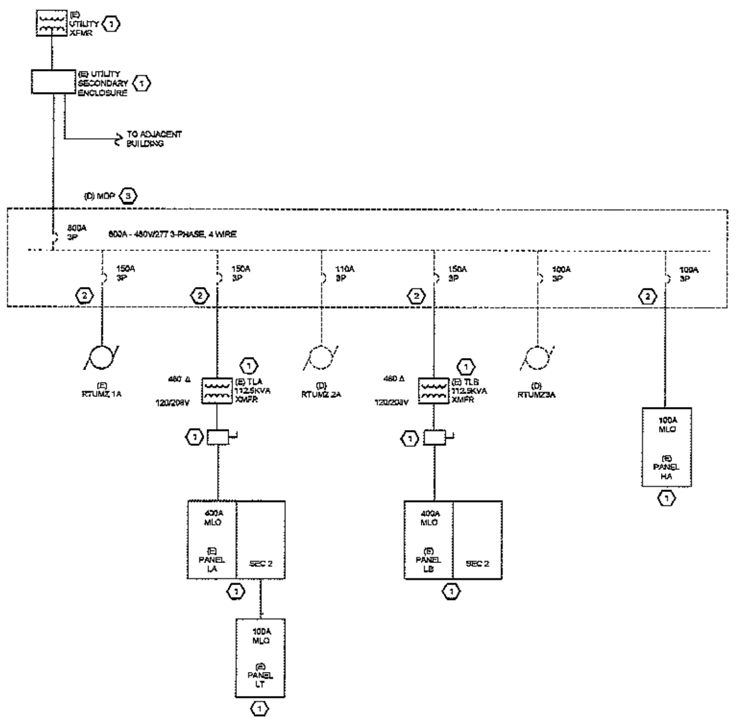
ED401

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES
B. ALL EQUIPMENT IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED.
C. FEEDER TAGS ARE REFERENCING THE FEEDER SCHEDULE FOUND ON SHEET E701.

SHEET KEYED NOTES

1. EXISTING TO REMAIN, SHOWN FOR REFERENCE ONLY.
2. DISCONNECT EXISTING FEEDERS TO REMAIN AND PULL BACK FOR DISTRIBUTION BOARD.
3. DISCONNECT AND REMOVE DISTRIBUTION BOARD FOR REPLACEMENT. EXISTING DISTRIBUTION BOARD DOES NOT SUPPORT NEW CHILLER CONNECTIONS.



1 ELECTRICAL DEMO ONE-LINE DIAGRAM
SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

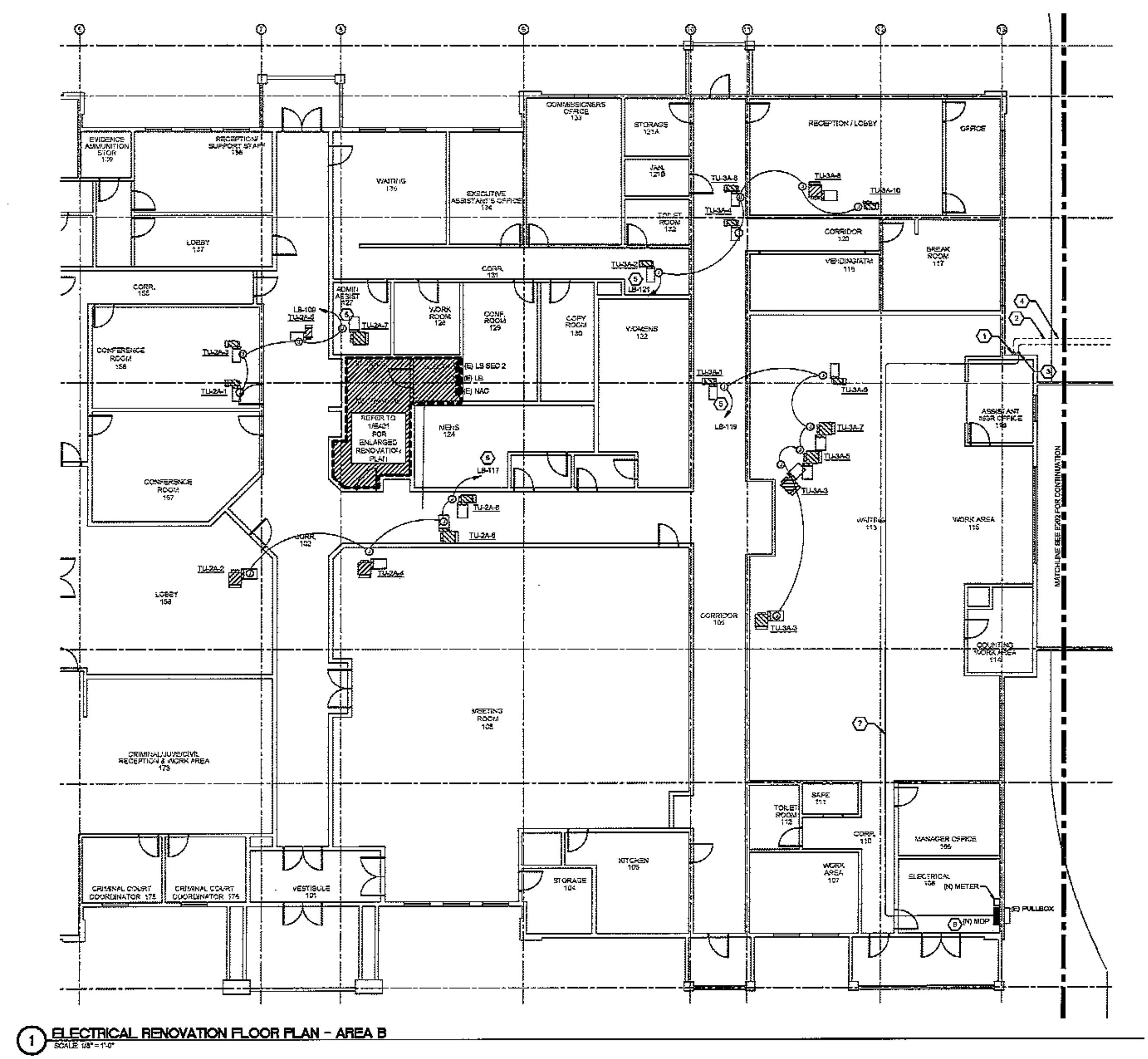
RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL DEMO ONE-LINE DIAGRAM

SHEET NUMBER

ED601



1 ELECTRICAL RENOVATION FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. FIELD VERIFY EXACT LOCATIONS OF EXISTING FEEDERS ON SITE. EXISTING FEEDERS TO REMAIN IN WORKING ORDER DURING CONSTRUCTION. HAND DIG IN AREAS WHERE EXISTING FEEDERS ARE LOCATED.

E. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.

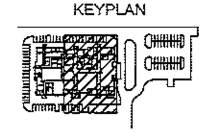
F. BRANCH CIRCUITS SHOWN ARE FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE EXISTING BRANCH CIRCUITS IN THE AREA TO EVALUATE AVAILABILITY. CONTRACTOR SHALL REUSE EXISTING BRANCH CIRCUITS MADE AVAILABLE AFTER DEMOLITION WORK. UPDATE PANEL DIRECTORY CARD WITH FINAL BRANCH CIRCUIT DESIGNATIONS.

G. CONTRACTOR TO KEEP TRACK OF ALL BRANCH CIRCUIT WIRING IN ORDER TO PRODUCE AS-BUILTS THAT SHOW EXACT LOCATION AND ROUTING OF WIRING, RACEWAYS, AND JUNCTION BOXES FOR BRANCH CIRCUITS.

SHEET KEYED NOTES

1. ROUTE CONTROL CONDUIT WITH CHILLER WATER LINE UP WALL.
2. PROVIDE 1.5" CONDUIT WITH PULL TAPE FOR ROUTING OF CHILLER CONTROL WIRING. ROUTE CONDUIT ALONG WITH CHILLER WATER LINES. COORDINATE WORK WITH DIVISION 23.
3. CORE DRILL EXISTING BLOCK WALL TO ROUTE NEW SERVICE YARD FEEDER THROUGH WALL. SEAL CONDUIT PENETRATION ONCE INSTALLATION IS COMPLETE.
4. APPROXIMATE ROUTING OF UNDERGROUND FEEDERS TO CHILLER YARD. ROUTING TO FOLLOW PATH OF NEW UNDERGROUND CHILL WATER PIPING. COORDINATE EXACT ROUTE WITH CIVIL TO AVOID CONFLICTS WITH EXISTING UTILITIES.
5. FURNISH AND INSTALL POWER TO SERVE TERMINAL UNITS. DISCONNECTING MEANS FOR EACH UNIT IS INTEGRAL WITH TERMINAL UNIT. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
6. EXISTING DISTRIBUTION PANEL SHALL BE REPLACED TO ACCOMMODATE NEW FEEDERS. RECONNECT EXISTING FEEDERS TO REMAIN TO NEW PANEL. EXISTING HOUSE KEEPING PAD SHOULD BE SUFFICIENT TO SUPPORT NEW PANEL. CONTRACTOR TO VERIFY AND REPLACE IF REQUIRED. REFER TO ONE-LINE DIAGRAMS FOR MORE INFORMATION.
7. CONDUIT TO BE ROUTED ABOVE CEILING. CONTRACTOR TO REMOVE AND REPLACE CEILING TILES AS REQUIRED DURING INSTALLATION OF CONDUIT. PROTECT CEILING GRID. REFER TO SHEET G201 FOR CEILING TILE REPLACEMENT SCOPE.

KEYPLAN



1/8" = 1'-0"

FULL SIZE SHEET: 22X34

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Texas Registered Engineering Firm F-14781
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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
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Round Rock, TX 78664

ISSUE

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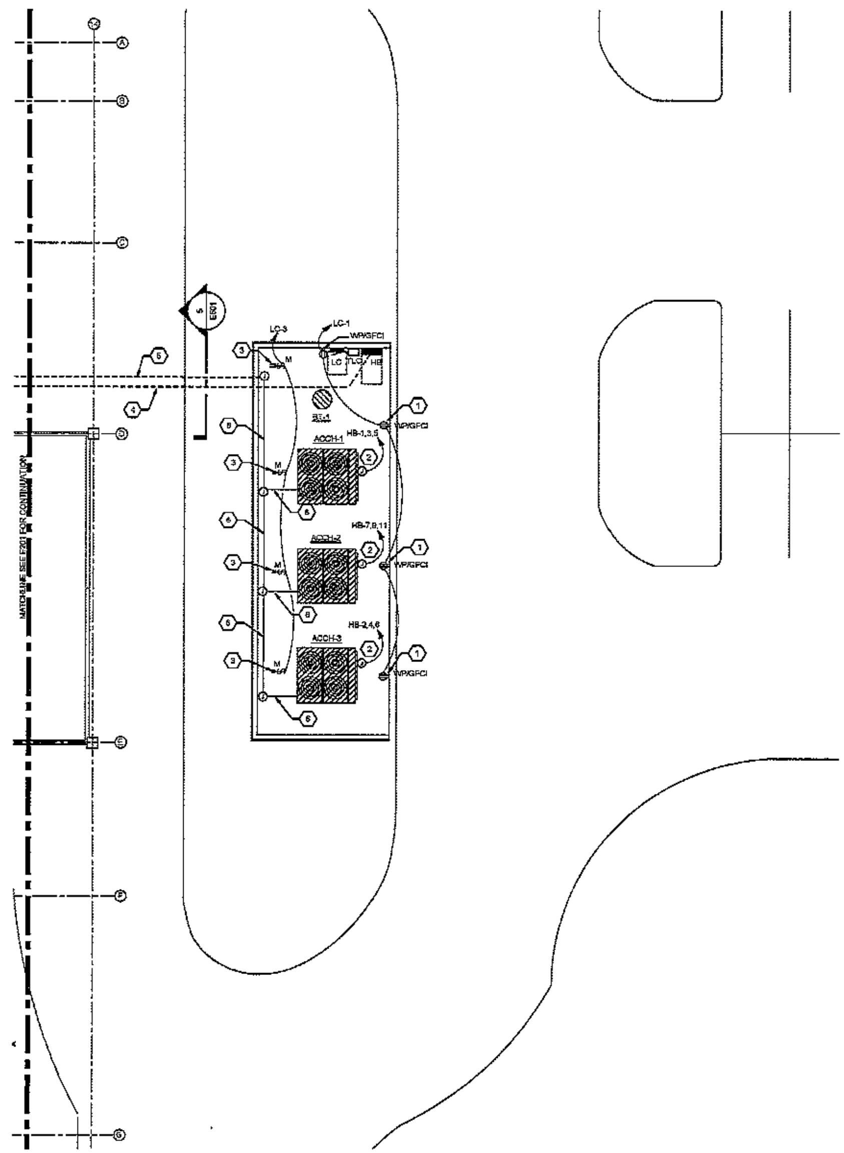
RSE PROJECT NO: 1479

SHEET TITLE
ELECTRICAL RENOVATION FLOOR PLAN - AREA B

SHEET NUMBER
E201



1 ELECTRICAL RENOVATION FLOOR PLAN - AREA C
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES

B. DRAWINGS ARE SCHEMATIC IN NATURE, VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. FIELD VERIFY EXACT LOCATIONS OF EXISTING FEEDERS ON SITE. EXISTING FEEDERS TO REMAIN IN WORKING ORDER DURING CONSTRUCTION. HAND DIG IN AREAS WHERE EXISTING FEEDERS ARE LOCATED.

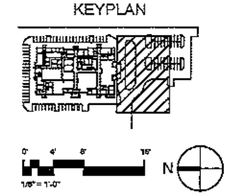
E. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.

F. BRANCH CIRCUITS SHOWN ARE FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE EXISTING BRANCH CIRCUITS IN THE AREA TO EVALUATE AVAILABILITY. CONTRACTOR SHALL REUSE EXISTING BRANCH CIRCUITS MADE AVAILABLE AFTER DEMOLITION WORK. UPDATE PANEL DIRECTORY CARD WITH FINAL BRANCH CIRCUIT DESIGNATIONS.

SHEET KEYED NOTES

1. SURFACE MOUNT DEVICE TO BLOCK WALL.
2. FURNISH AND INSTALL POWER TO SERVE CHILLER. LOCAL DISCONNECTING MEANS IS FURNISHED WITH EQUIPMENT. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
3. FURNISH AND INSTALL POWER TO SERVE MOTORIZED VALVE. PROVIDE A MOTOR RATED SWITCH IN NEMA 3R ENCLOSURE FOR LOCAL DISCONNECTING MEANS, COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
4. APPROXIMATE ROUTING OF UNDERGROUND FEEDERS TO CHILLER YARD, ROUTING TO FOLLOW PATH OF NEW UNDERGROUND CHILL WATER PIPING, COORDINATE EXACT ROUTE WITH CIVIL TO AVOID CONFLICTS WITH EXISTING UTILITIES.
5. PROVIDE 1.5" CONDUIT WITH PULL STRING FOR ROUTING OF CHILLER CONTROL WIRING. ROUTE CONDUIT ALONG WITH CHILLER WATER LINES. COORDINATE WORK WITH DIVISION 23.
6. APPROXIMATE ROUTING OF CHILLED WATER CONTROL CABLING. PROVIDE 1.5" C WITH PULLSTRING. CONDUIT TO FOLLOW ROUTING OF CHILLED WATER PIPING. COORDINATE WITH DIVISION 23.

KEYPLAN



FULL SIZE SHEET: 22X34

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TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1601 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

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MARK	DATE	DESCRIPTION

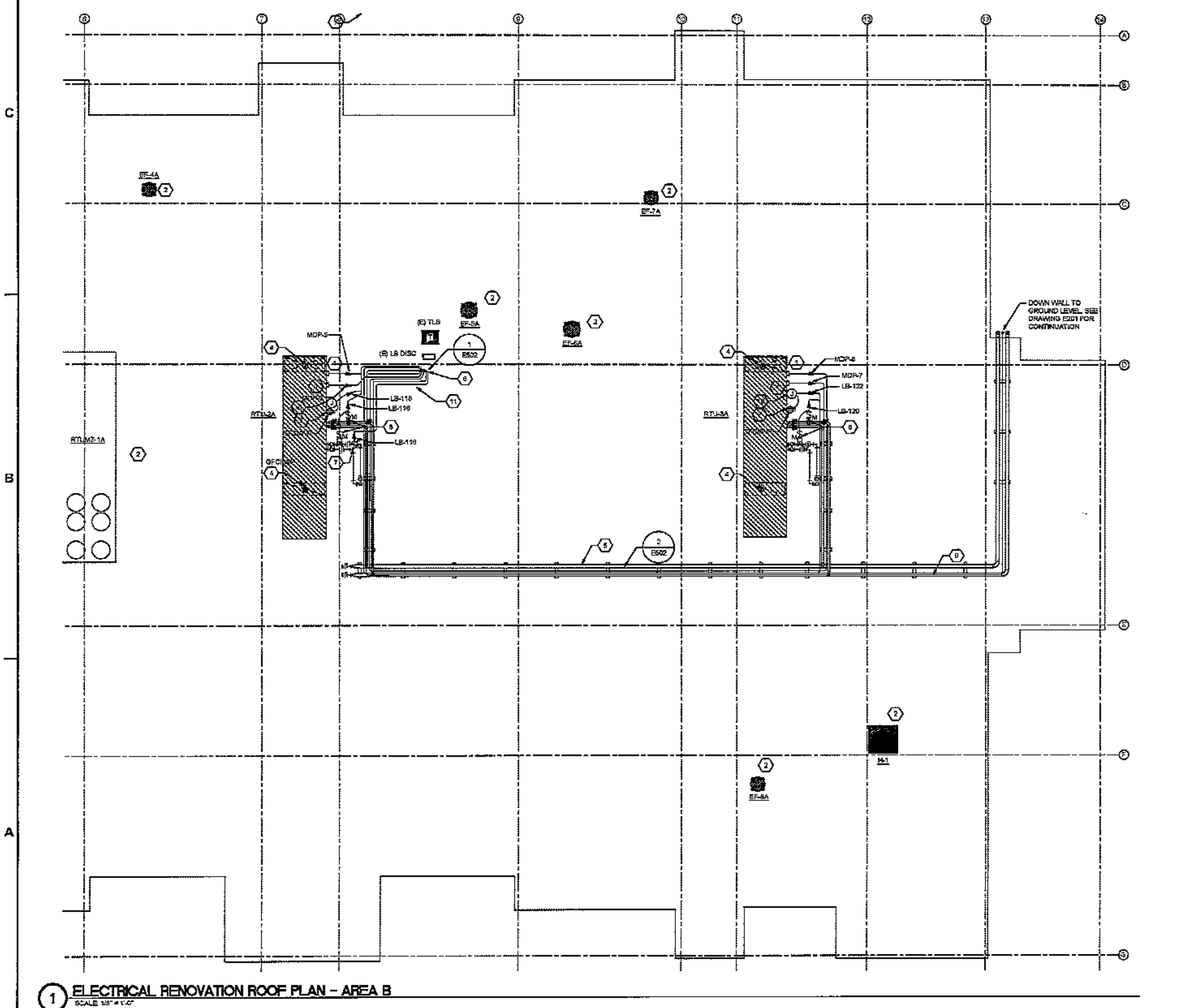
RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL RENOVATION FLOOR PLAN - AREA C

SHEET NUMBER

E202



1 ELECTRICAL RENOVATION ROOF PLAN – AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. FIELD VERIFY EXACT LOCATIONS OF EXISTING FEEDERS ON SITE. EXISTING FEEDERS TO REMAIN IN WORKING ORDER DURING CONSTRUCTION. HAND DIG IN AREAS WHERE EXISTING FEEDERS ARE LOCATED.

E. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.

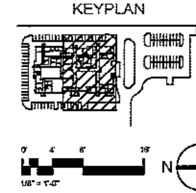
F. BRANCH CIRCUITS SHOWN ARE FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE EXISTING BRANCH CIRCUITS IN THE AREA TO EVALUATE AVAILABILITY. CONTRACTOR SHALL REUSE EXISTING BRANCH CIRCUITS MADE AVAILABLE AFTER DEMOLITION WORK. UPDATE PANEL DIRECTORY CARD WITH FINAL BRANCH CIRCUIT DESIGNATIONS.

G. CONTRACTOR TO KEEP TRACK OF ALL BRANCH CIRCUIT WIRING IN ORDER TO PRODUCE AS-BUILTS THAT SHOW EXACT LOCATION AND ROUTING OF WIRING, RACEWAYS, AND JUNCTION BOXES FOR BRANCH CIRCUITS.

SHEET KEYED NOTES

1. FURNISH AND INSTALL POWER TO SERVE RTU. LOCAL DISCONNECTING MEANS IS PROVIDED WITH EQUIPMENT. REFER TO ONE-LINE DIAGRAM FOR BRANCH CIRCUIT INFORMATION. HOMERUN CIRCUIT VIA VFD LOCATED IN BOILER ROOM. REFER TO SHEET E401 FOR LOCATION.
2. EQUIPMENT IS EXISTING TO REMAIN. SHOWN FOR REFERENCE ONLY.
3. FURNISH AND INSTALL POWER TO SERVE HEAT TRACING. COORDINATE EXACT LOCATION OF PIPE TO BE HEAT TRACED WITH DIVISION 23. PROVIDE GROUND FAULT EQUIPMENT PROTECTION TYPE CIRCUIT BREAKER TO SERVE CIRCUIT. PROVIDE A MOTOR RATED SWITCH FOR LOCAL DISCONNECTING MEANS.
4. DIVISION 28 TO FURNISH AND INSTALL DUCT SMOKE DETECTOR. PROVIDE WIRING AND INTERFACE WITH RTU CONTROLS. COORDINATE WITH MECHANICAL CONTRACTOR.
5. ROUTE ELECTRICAL CONDUITS ALONG WITH CHILLED WATER LINES ON SAME UTILITY SUPPORT RACK. COORDINATE INSTALLATION WITH DIVISION 23.
6. PENETRATE ROOF TO ROUTE NEW ELECTRICAL CONDUITS. FIELD LOCATE BEST LOCATE TO AVOID CONFLICT WITH STRUCTURE BEAMS AND OTHER OBJECTS.
7. MOUNT RECEPTACLE ON UNISTRUT.
8. FURNISH AND INSTALL POWER TO SERVE MOTORIZED VALVE. PROVIDE MOTOR RATED SWITCH FOR LOCAL DISCONNECTING MEANS.
9. 1.5" CONDUIT WITH PULLSTRING SERVING DDC CONTROL WIRING.
10. FURNISH AND INSTALL POWER TO SERVE RTU CONTROLS. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
11. COORDINATE CONDUIT ROUTING WITH MECHANICAL FLUE AND VENT PENETRATIONS.

KEYPLAN



1/8" = 1'-0"

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

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JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL RENOVATION ROOF PLAN - AREA A

SHEET NUMBER

E203

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. FIELD VERIFY EXACT LOCATIONS OF EXISTING FEEDERS ON SITE. EXISTING FEEDERS TO REMAIN IN WORKING ORDER DURING CONSTRUCTION. HAND DIG IN AREAS WHERE EXISTING FEEDERS ARE LOCATED.

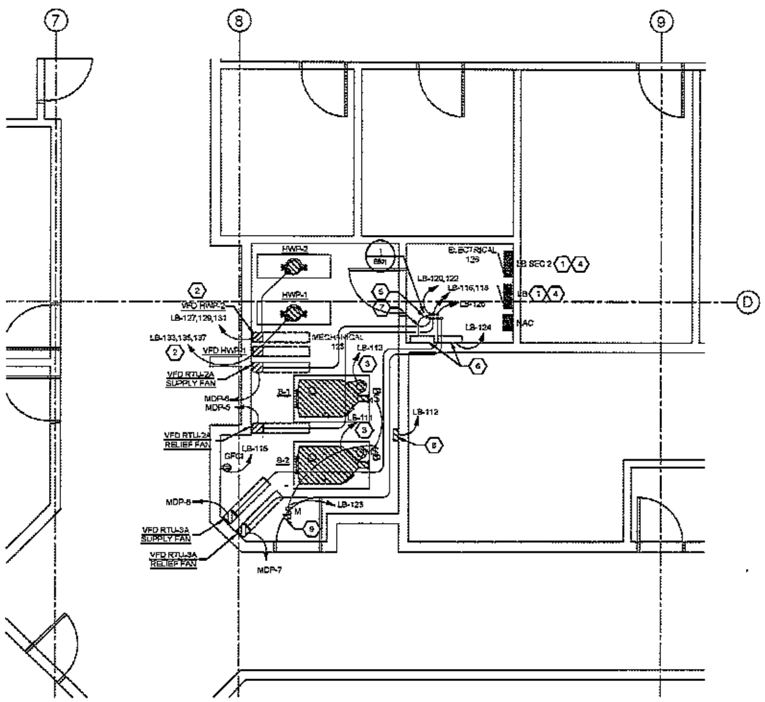
E. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.

F. BRANCH CIRCUITS SHOWN ARE FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE EXISTING BRANCH CIRCUITS IN THE AREA TO EVALUATE AVAILABILITY. CONTRACTOR SHALL REUSE EXISTING BRANCH CIRCUITS MADE AVAILABLE AFTER DEMOLITION WORK. UPDATE PANEL DIRECTORY CARD WITH FINAL BRANCH CIRCUIT DESIGNATIONS.

G. CONTRACTOR TO KEEP TRACK OF ALL BRANCH CIRCUIT WIRING IN ORDER TO PRODUCE AS-BUILTS THAT SHOW EXACT LOCATION AND ROUTING OF WIRING, RACEWAYS, AND JUNCTION BOXES FOR BRANCH CIRCUITS.

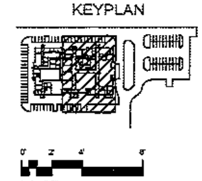
SHEET KEYED NOTES

1. EXISTING TO REMAIN. SHOWN FOR REFERENCE ONLY..
2. FURNISH AND INSTALL POWER TO SERVE PUMP. VFD SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
3. FURNISH AND INSTALL POWER TO SERVE BOILER. PROVIDE A MOTOR RATED SWITCH FOR LOCAL DISCONNECTING MEANS. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
4. PROVIDE NEW BREAKERS IN EXISTING EATON PRL1A PANEL BOARD. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
5. PROVIDE NEW ROOF PENETRATION TO ROUTE POWER CONDUITS UP TO ROOFTOP EQUIPMENT.
6. PROVIDE DEDICATED 120v 20A BRANCH CIRCUIT TO DDC CONTROL FURNISHED BY DIVISION 23. COORDINATE INSTALL WITH DIVISION 23.
7. EXTEND 1.5" CONDUIT WITH PULLSTRING FROM DDC CONTROL IN ELECTRICAL ROOM TO CHILLER YARD CONTROL PANEL.
8. FURNISH AND INSTALL 120V POWER TO SERVE CARBON MONOXIDE DETECTOR. PROVIDE 120/24V STEP DOWN TRANSFORMER. COORDINATE EXACT LOCATION WITH DIVISION 23.
9. FURNISH AND INSTALL 120V POWER TO SERVE MOTORIZED VALVES. PROVIDE MOTOR RATED SWITCH FOR LOCAL DISCONNECTING MEANS.



1 ENLARGED ELECTRICAL RENOVATION FLOOR PLAN - ENLARGED MECHANICAL ROOM
SCALE: 1/4" = 1'-0"

KEYPLAN



FULL SIZE SHEET 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

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Round Rock, TX 78664

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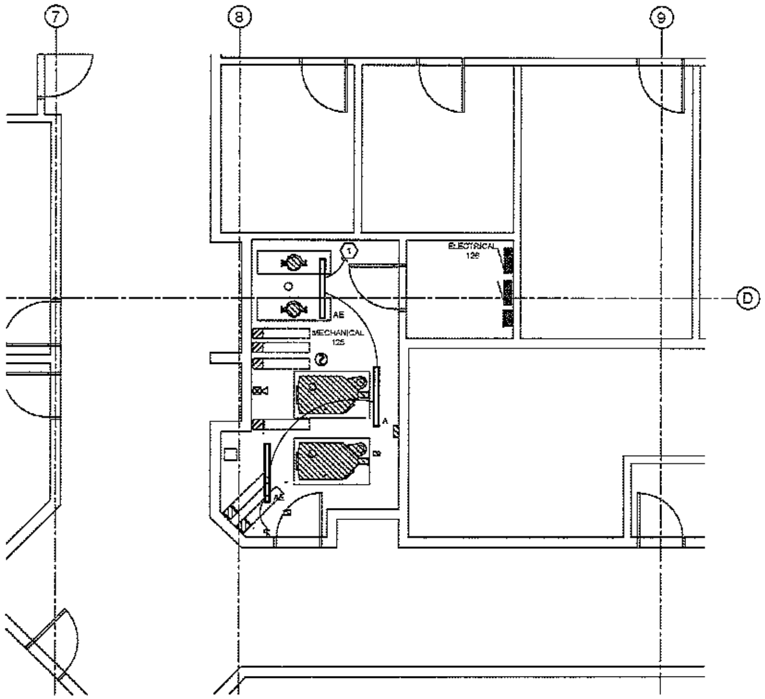
RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL ENLARGED PLAN

SHEET NUMBER

E401



1 ENLARGED ELECTRICAL RENOVATION FLOOR PLAN - LIGHTING PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. FIRE ALARM DEVICES SHOWN IS INTENDED TO IDENTIFY KEY COMPONENTS OF THE FIRE ALARM SYSTEM. A CERTIFIED FIRE ALARM CONTRACTOR WILL REVIEW BUILDING USE AND DESIGN A FIRE ALARM SYSTEM IN COMPLIANCE WITH NFPA, LOCAL CODES AND AUTHORITY HAVING JURISDICTION. THE CERTIFIED FIRE ALARM CONTRACTOR SHALL CREATE A SHOP DRAWING SUBMITTAL PACKAGE COMPLETE WITH ALL REQUIRED COMPONENTS, ALL REQUIRED CALCULATIONS AND LAYOUT WIRING DRAWINGS FOR A COMPLETE WORKING SYSTEM.

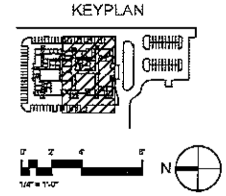
D. NEW FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM.

G. CONTRACTOR TO KEEP TRACK OF ALL BRANCH CIRCUIT WIRING IN ORDER TO PRODUCE AS-BUILTS THAT SHOW EXACT LOCATION AND ROUTING OF WIRING, RACEWAYS, AND JUNCTION BOXES FOR BRANCH CIRCUITS.

SHEET KEYED NOTES

1. CONNECT NEW LIGHTING TO EXISTING LIGHTING CIRCUIT SERVING THE AREA.

KEYPLAN



FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10159300

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
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1479

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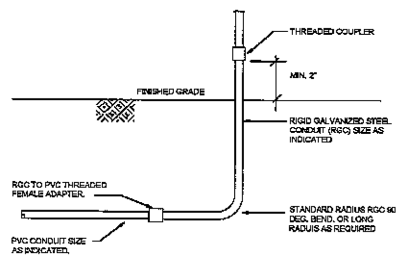
RSE PROJECT NO: 1479

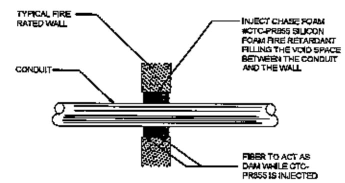
SHEET TITLE
ELECTRICAL ENLARGED PLAN

SHEET NUMBER
E402

ELECTRICAL DETAILS



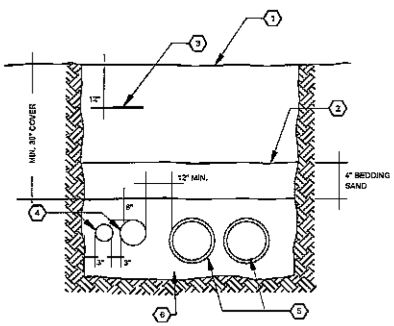
(4) CONDUIT STUB-UP DETAIL
SCALE: N.T.S.



NOTE

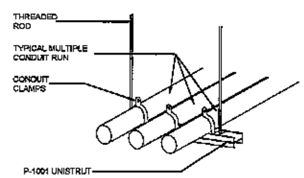
FIRE RATING OF COMPLETED FIREPROOFED ASSEMBLY SHALL EQUAL OR EXCEED THE FIRE RATING OF THE WALL

(2) FIREWALL PENETRATION DETAIL
SCALE: N.T.S.

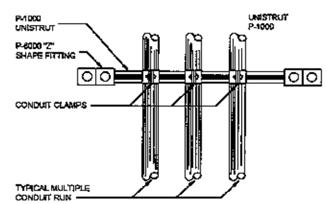


1. BACKFILL TO GRADE USING EXCAVATED MATERIAL COMPACTED TO 95% STANDARD PROCTOR, RE: SPECIFICATIONS.
2. BACKFILL WITH CLEAN EARTH, SAND OR SCREENING FREE OF DEBRIS. 12" ABOVE TOP OF BEDDING SAND. PLACE & COMPACT IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS RE: SPECIFICATIONS.
3. WARNING TAPE.
4. PVC SCHEDULE 40 CONDUIT. CONDUIT RUNS WILL TRANSITION TO GALVANIZED RIGID STEEL (GRS) FOR BENDS AND WHERE THEY STUB UP ABOVE GROUND. (1) 4" CONDUIT FOR HB FEEDER AND (1) 1.5" CONDUIT FOR CHILLER CONTROL WIRING.
5. CHILLED WATER PIPING INSTALLED BY DIVISION 23, SHOWN FOR COORDINATION.
6. WASHED BEDDING SAND AROUND CONDUITS AND PIPING.

(5) UTILITY TRENCHING DETAIL
SCALE: N.T.S.



(3) TRAPEZE MTD. CONDUIT DETAIL
SCALE: N.T.S.



(1) WALL MOUNTED CONDUIT SUPPORT DETAIL
SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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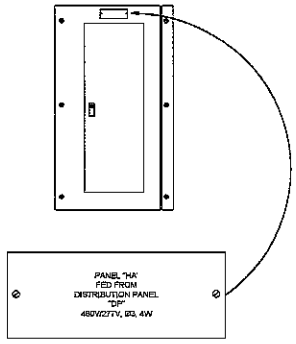
RSE PROJECT NO: 1479

SHEET TITLE
ELECTRICAL DETAILS

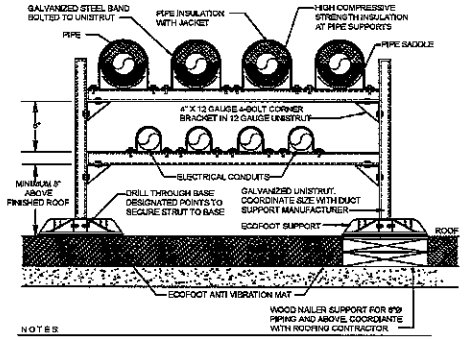
SHEET NUMBER
E501

NOTE

ALL PANELBOARDS IN THIS PROJECT SHALL BE IDENTIFIED BY THE PANEL NAME, SOURCE PANEL, VOLTAGE/PHASE, AND ELECTRICAL BRANCH OF THE ELECTRICAL SYSTEM.
RE: SPECIFICATIONS FOR COLORS AND ADDITIONAL INFORMATION.

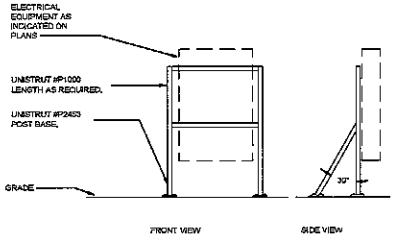


4 TYPICAL PANELBOARD IDENTIFICATION DETAIL
SCALE: N.T.S.

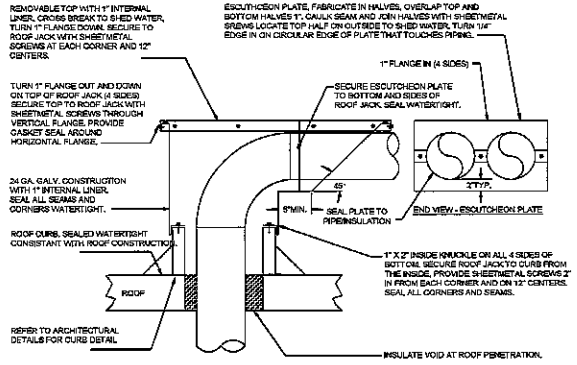


NOTES:
1. INSULATE PIPING AS REQUIRED. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS.
2. ALL UNISTRUT AND HARDWARE SHALL BE GALVANIZED.
3. SPACING OF SUPPORTS PER SPECIFICATIONS. SUPPORT SPACING SHALL BE BASED ON THE SMALLEST DIAMETER PIPE SUPPORTED BY THE RACK.
4. ATTACH SUPPORT BASE TO ROOF MEMBRANE WITH MASTIC APPROVED FOR USE WITH ROOFING SYSTEM.
5. REFER TO SUPPORT BASE MANUFACTURER FOR REQUIRED COMPONENTS AND INSTALLATION.

2 PIPE AND CONDUIT SUPPORT ON ROOF DETAIL
SCALE: N.T.S.



3 STAND FOR ELECTRICAL EQUIPMENT DETAIL
SCALE: N.T.S.



1 PIPING & ELECTRICAL CONDUIT THRU THE ROOF DETAIL
SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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TBPE F-2451 TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E502

UTILITY XFMR SIZE	PRIMARY VOLTAGE	SECONDARY VOLTAGE	PHASE	XFMR FLA	XFMR % IMP	LET THRU SHORT CIRCUIT CURRENT
1500 KVA	12.47KV	480V	3	1804A	3.5	51,530 A

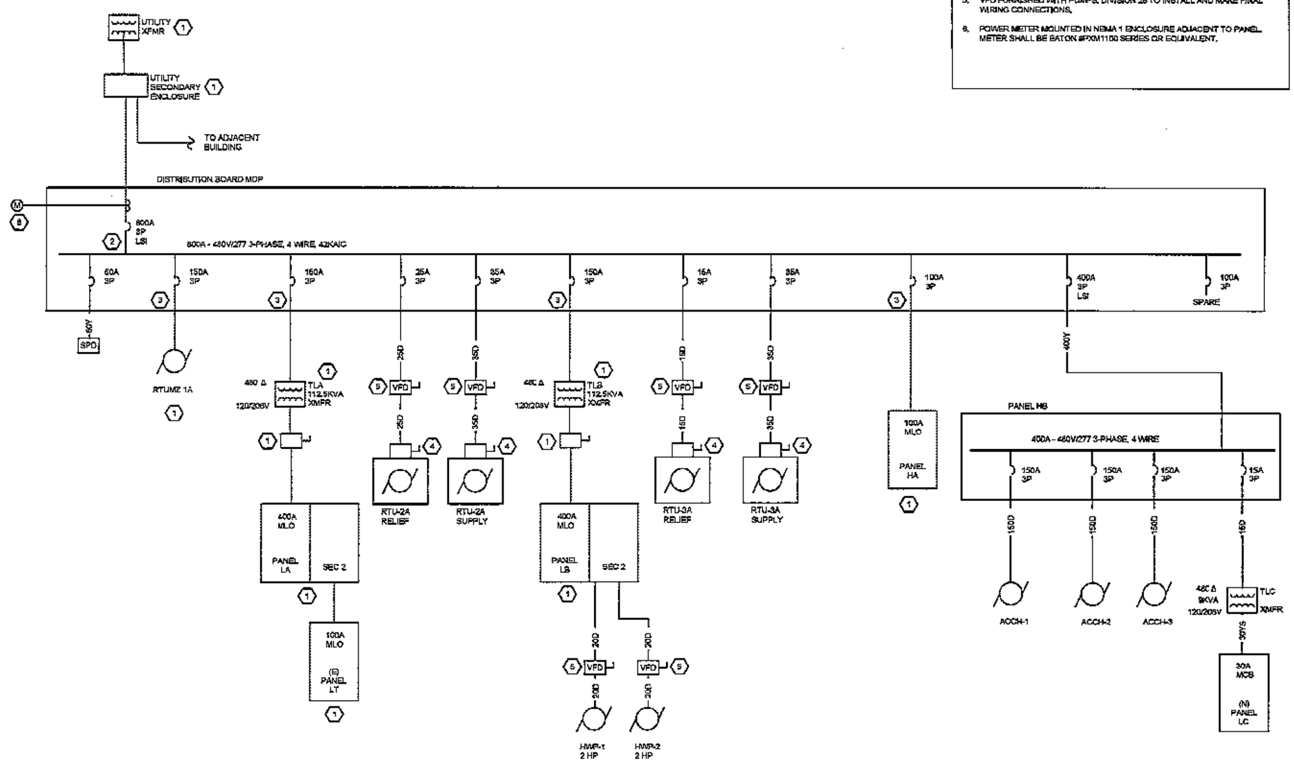
EQUIPMENT NAME	SOURCE OF FAULT	DISTANCE FROM SOURCE	AVAILABLE SHORT CIRCUIT CURRENT
MDP	UTILITY XFMR	200 FT	32,209 A
HB	MDP	184 FT	17,824 A
LC	TLC	1 FT	1,053 A

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES
B. ALL EQUIPMENT IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED.
C. FEEDER TAGS ARE REFERENCING THE FEEDER SCHEDULE FOUND ON SHEET E701.

SHEET KEYED NOTES

1. EXISTING TO REMAIN. SHOWN FOR REFERENCE ONLY.
2. NEW MAIN BREAKER SHALL BE MOUNTED ON BOTTOM SECTION OF PANEL TO ENSURE EXISTING FEEDERS CAN BE CONNECTED TO NEW BREAKER.
3. RECONNECT EXISTING FEEDER TO NEW BREAKER.
4. DISCONNECT SWITCH FURNISHED WITH RTU FOR SINGLE POINT OF CONNECTION BY DIVISION 26.
5. VFD FURNISHED WITH PUMPS, DIVISION 26 TO INSTALL AND MAKE FINAL WIRING CONNECTIONS.
6. POWER METER MOUNTED IN NEMA 1 ENCLOSURE ADJACENT TO PANEL. METER SHALL BE EATON #PXM1100 SERIES OR EQUIVALENT.



1 ELECTRICAL NEW ONE-LINE DIAGRAM
SCALE: N.T.S.

FEEDER SCHEDULE

NOTE:
ALL CONDUCTORS ARE COPPER, TYPE THWN/THHN UNLESS OTHERWISE NOTED.
CONDUCTOR SIZE BASED ON NEC 2023

DESIGNATION	CONDUCTORS	GROUND	CONDUIT
SINGLE PHASE TWO WIRE & GROUND FEEDER			
20S	2#12	12	3/4"
30S	2#10	10	3/4"
40S	2#8	10	3/4"
50S	2#6	10	1"
60S	2#4	10	1 1/4"
THREE PHASE THREE WIRE & GROUND FEEDER			
20D	3#12	12	3/4"
25D	3#10	10	3/4"
30D	3#10	10	3/4"
35D	3#8	10	3/4"
40D	3#8	10	3/4"
45D	3#6	10	1"
50D	3#6	10	1"
60D	3#4	10	1 1/4"
70D	3#4	8	1 1/4"
80D	3#3	8	1 1/4"
90D	3#2	8	1 1/4"
100D	3#1	6	1 1/2"
125D	3#1	6	1 1/2"
150D	3#1/0	6	1 1/2"
175D	3#2/0	6	2"
200D	3#3/0	6	2"
225D	3#4/0	4	2 1/2"
250D	3-250 KCMIL	4	3"
300D	3-350 KCMIL	4	3"
350D	3-500 KCMIL	2	4"
400D	3-600 KCMIL	2	4"
450D	(2) (3#4/0)	(2) 2	(2) 2 1/2"
500D	(2) (3-250 KCMIL)	(2) 2	(2) 3"
600D	(2) (3-350 KCMIL)	(2) 1	(2) 3"
700D	(2) (3-500 KCMIL)	(2) 1	(2) 4"
800D	(2) (3-600 KCMIL)	(2) 1/0	(2) 4"
1000D	(3) (3-400 KCMIL)	(3) 2/0	(3) 3"
1200D	(3) (3-600 KCMIL)	(3) 3/0	(3) 4"
1600D	(4) (3-600 KCMIL)	(4) 4/0	(4) 4"
2000D	(5) (3-600 KCMIL)	(5)250 KCMIL	(5) 4"
2500D	(6) (3-600 KCMIL)	(6)350 KCMIL	(6) 4"
3000D	(8) (3-500 KCMIL)	(8)400 KCMIL	(8) 4"
4000D	(10) (3-600 KCMIL)	(10)500 KCMIL	(10) 4"
THREE PHASE FOUR WIRE & GROUND FEEDER			
20Y	4#12	12	3/4"
25Y	4#10	10	3/4"
30Y	4#10	10	3/4"
35Y	4#8	10	3/4"
40Y	4#8	10	3/4"
45Y	4#6	10	1"
50Y	4#6	10	1"
60Y	4#4	10	1 1/4"
70Y	4#4	8	1 1/4"
80Y	4#3	8	1 1/4"
90Y	4#2	8	1 1/4"
100Y	4#1	6	1 1/2"
125Y	4#1	6	1 1/2"
150Y	4#1/0	6	2"
175Y	4#2/0	6	2"
200Y	4#3/0	6	2"
225Y	4#4/0	4	2 1/2"
225YN	5#4/0	4	3"
250Y	4-250 KCMIL	4	3"
300Y	4-350 KCMIL	4	3"
350Y	4-500 KCMIL	2	4"
400Y	4-600 KCMIL	2	4"
450Y	(2) (4#4/0)	(2) 2	(2) 2 1/2"
500Y	(2) (4-250 KCMIL)	(2) 2	(2) 3"
600Y	(2) (4-350 KCMIL)	(2) 1	(2) 3"
700Y	(2) (4-500 KCMIL)	(2) 1	(2) 4"
800Y	(2) (4-600 KCMIL)	(2) 1/0	(2) 4"
1000Y	(3) (4-400 KCMIL)	(3) 2/0	(3) 3"
1200Y	(3) (4-600 KCMIL)	(3) 3/0	(3) 4"
1600Y	(4) (4-600 KCMIL)	(4) 4/0	(4) 4"
2000Y	(5) (4-600 KCMIL)	(5)250 KCMIL	(5) 4"
2500Y	(6) (4-600 KCMIL)	(6)350 KCMIL	(6) 4"
3000Y	(8) (4-500 KCMIL)	(8)400 KCMIL	(8) 4"
4000Y	(10) (4-600 KCMIL)	(10)500 KCMIL	(10) 4"
5000Y	(12) (4-600 KCMIL)	(12)700 KCMIL	(12) 4"

EQUIPMENT BONDING JUMPER FOR SEPARATELY DERIVED SYSTEMS PER NEC 250.66 (PROVIDE CONDUCTOR GROUND BELOW INSTEAD OF FEEDER GROUND FOR THREE PHASE, 4-WIRE SYSTEMS INDICATED ABOVE)

DESIGNATION	GROUND	
20YS THRU 100YS	8	
125YS THRU 150YS	6	
175YS THRU 200YS	4	
225YS THRU 300YS	2	
350YS THRU 500YS	1/0	
600YS THRU 700YS	2/0	
800YS THRU 5000YS	3/0	

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193930

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

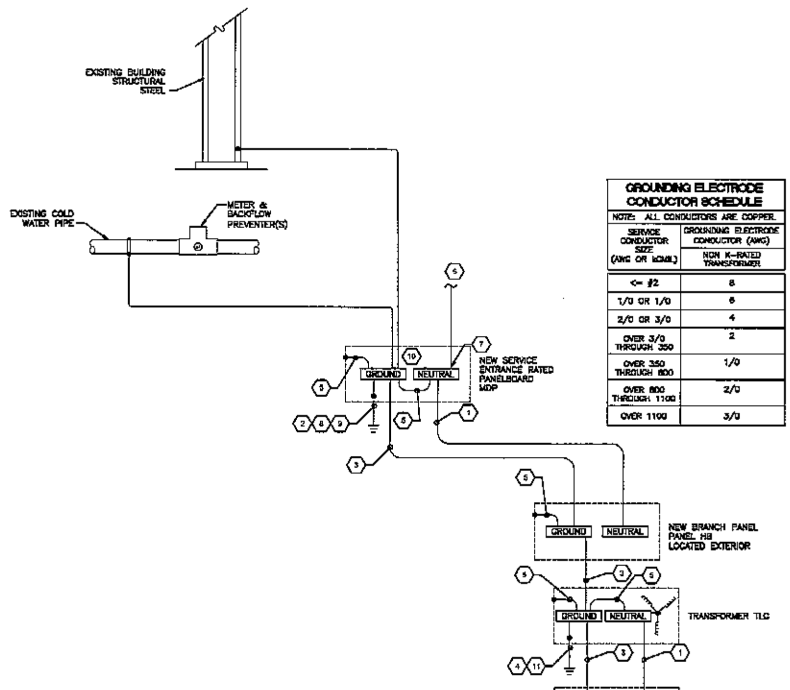
RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL NEW ONE-LINE DIAGRAM

SHEET NUMBER

E601



GROUNDING ELECTRODE CONDUCTOR SCHEDULE

NOTE: ALL CONDUCTORS ARE COPPER.

SERVICE CONDUCTOR SIZE (AWG OR KCMIL)	GROUNDING ELECTRODE CONDUCTOR (AWG) NON K-RATED TRANSFORMER
<= #2	8
1/0 OR 1/0	6
2/0 OR 3/0	4
OVER 3/0 THROUGH 350	2
OVER 350 THROUGH 600	1/0
OVER 600 THROUGH 1100	2/0
OVER 1100	3/0

(2) GROUNDING RISER DIAGRAM
SCALE: N.T.S.

GENERAL NOTES

A. INSTALL GROUNDING CONNECTIONS TO BUILDING STRUCTURE AND WATER PIPES AT LOCATIONS THAT ARE VISIBLE AND ACCESSIBLE FOR INSPECTION, MAINTENANCE, AND TESTING.

B. INSTALL AN INSULATED THROAT GROUNDING BUSHING ON EACH METALLIC SERVICE ENTRANCE CONDUIT. BOND TO SERVICE ENTRANCE EQUIPMENT GROUND BUS USING GROUNDING ELECTRODE CONDUCTOR.

C. INSTALL AN INSULATED THROAT GROUNDING BUSHING ON EACH METALLIC FEEDER CONDUIT. BOND TO GROUND BUS USING CONDUCTOR THAT IS SIZED EQUAL TO EQUIPMENT GROUNDING CONDUCTOR.

D. BOND ELECTRICAL EQUIPMENT ENCLOSURES TO GROUND BAR USING SAME SIZE CONDUCTOR AS FEEDER EQUIPMENT GROUND CONDUCTOR OR FACTORY PROVIDED GREEN SCREW.

E. CLEAN COATED RE-BAR PRIOR TO PERFORMING ELECTRICAL CONNECTION.

⬡ SHEET KEYED NOTES

1. REFER TO ONE-LINE DIAGRAM AND FEEDER SCHEDULE FOR GROUNDED CONDUCTOR SIZE.
2. CONNECT GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD.
3. FOR EQUIPMENT GROUNDING CONDUCTOR SIZE REFER TO ONE-LINE DIAGRAM AND FEEDER SCHEDULE.
4. PROVIDE GROUNDING ELECTRODE CONDUCTOR SIZE BASED ON THE CONDUCTOR SIZE OF THE SECONDARY OF THE TRANSFORMER. SIZE PER NEC 250.66 AND PER SCHEDULE ON THIS SHEET.
5. BONDING JUMPER SIZED PER GROUNDING ELECTRODE CONDUCTOR SCHEDULE THIS SHEET.
6. FED FROM EXISTING PAD MOUNTED TRANSFORMER.
7. CONTRACTOR TO RECONNECT EXISTING NEUTRAL CONDUCTOR FED FROM EXISTING PAD MOUNTED TRANSFORMER TO NEUTRAL BAR AT NEW SERVICE ENTRANCE RATED PANELBOARD MDP.
8. INSPECT EXISTING GROUND ROD AT LOCATION OF NEW SERVICE ENTRANCE RATED PANEL. IF REQUIRED REPLACE GROUND ROD TO ACHIEVE A GROUNDING RESISTANCE OF LESS THAN 25 OHMS PER NEC 250.56. NEW GROUND ROD SHALL BE 3/4" BY 120" IN LENGTH AND OF COPPER CLAD STEEL MATERIAL.
9. GROUNDING ELECTRODE CONDUCTOR SIZED PER GROUNDING ELECTRODE CONDUCTOR SCHEDULE ON THIS SHEET.
10. CONTRACTOR TO RECONNECT ALL EXISTING GROUNDING ELECTRODES TO GROUND BUS BAR.
11. NEW GROUND ROD SHALL BE 3/4" BY 120" IN LENGTH AND OF COPPER CLAD STEEL MATERIAL.

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO. 1479

SHEET TITLE

ELECTRICAL GROUNDING RISER DIAGRAM

SHEET NUMBER

E602

FULL SIZE SHEET: 22X34

PANEL: HS — LOCATION: CHILLER YARD
VOLTAGE: 480Y/277V-3P-4W — BUS RATING: 400A
MOUNTING: SURFACE — MAIN: MLO
FED FROM: MDP — ENCLOSURE: NEMA 3R — AIC RATING: 22,000

TYP	DESCRIPTION	BKR	LOAD	NO	PHA	PHB	PHC	NO	LOAD	BKR	DESCRIPTION	TYP
LM	ACCH-1	150A	35430	1	33694	0	0	2		150A	ACCH-2	D
LM	/	/	35430	3	0	33694	0	4		/		D
LM		3P	35430	5	0	0	33694	6		3P		D
M	ACCH-3	150A	35430	7	33694	0	0	8	720	20A	TLC XFMR 5 KVA	N
M	/	/	35430	9	0	33694	0	10	200	/		N
M		3P	35430	11	0	0	33694	12	0	3P		N
	SPACE			13	0	0	0	14			SPACE	
	SPACE			15	0	0	0	16			SPACE	
	SPACE			17	0	0	0	18			SPACE	

		0	0	0	X - MEASURED CALCD LOAD
		0	0	0	D - NON-CONCIDENT
		0	0	0	Y - SUBSEQUENT ADDED LOAD
	BUS TOTALS (KVA)	0	0	0	C - CONTINOUS LOAD (*125%)
	CONNECTED 204.9	35430	35430	35430	LM - LARGEST MOTOR LOAD (*125%)
	DEMAND 240.1	35430	35430	35430	M - MOTOR LOAD
		720	200	0	N - NON CONTINOUS LOAD
	BUS TOTALS (AMPS)	0	0	0	R - RECEPTACLE LOAD (100% 10kVA, 50% REMAIN)
	CONNECTED 318.5	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
	DEMAND 369.6	80436	76916	76716	TOTAL DEMAND PER PHASE (VA)

PANEL: LC — LOCATION: CHILLER YARD
VOLTAGE: 208Y/120V-3P-4W — BUS RATING: 100A
MOUNTING: SURFACE — MAIN: 30A
FED FROM: HS VIA TLC XFMR — ENCLOSURE: NEMA 3R — AIC RATING: 10,000

TYP	DESCRIPTION	BKR	LOAD	NO	PHA	PHB	PHC	NO	LOAD	BKR	DESCRIPTION	TYP
R	4 DR CHILLER YARD	20A	720	1	720	0	0	2		20A	SPARE	
N	MOTORIZED VALVES	20A	200	3	0	200	0	4		20A	SPARE	
	SPARE	20A		5	0	0	0	6		20A	SPARE	
	SPARE	20A		7	0	0	0	8		20A	SPARE	
	SPARE	20A		9	0	0	0	10		20A	SPARE	

		0	0	0	X - MEASURED CALCD LOAD
		0	0	0	D - NON CONCIDENT
		0	0	0	Y - SUBSEQUENT ADDED LOAD
	BUS TOTALS (KVA)	0	0	0	C - CONTINOUS LOAD (*125%)
	CONNECTED 0.9	0	0	0	LM - LARGEST MOTOR LOAD (*125%)
	DEMAND 0.9	0	0	0	M - MOTOR LOAD
		0	200	0	N - NON CONTINOUS LOAD
	BUS TOTALS (AMPS)	720	0	0	R - RECEPTACLE LOAD (100% 10kVA, 50% REMAIN)
	CONNECTED 2.6	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
	DEMAND 2.6	720	200	0	TOTAL DEMAND PER PHASE (VA)

ELECTRICAL LOAD SUMMARY

Wilco RR Jester Annex Rooftop HVAC Replacement

Project Summary
Replace existing RTUs and install new chillers, boilers, RTUs and terminal units .

Type of Occupancy: Office
HVAC System: Chilled Water and Heating Hot Water System

LOADS	KVA	Demand Factor	Total KVA
Demolished Loads			
RTUMZ-2A	84.7	100%	84.7
RTUMZ-3A	84.7	100%	84.7
RTUMZ-1A (Future Demo)	91.3	100%	91.3
		Subtotal:	260.7
RECEPTACLES LOADS			
Receptacles	1.3		*
*First 10KVA at 100%		100%	1.3
*Remainder over 10KVA @50%		50%	0.0
		Subtotal:	1.3
New Loads			
ACCH-1	106.0	100%	106.0
ACCH-2	106.0	100%	106.0
ACCH-3	106.0	0%	0.0
RTU-2A RELIEF	12.6	100%	12.6
RTU-2A SUPPLY	18.3	100%	18.3
RTU-3A RELIEF	8.0	100%	8.0
RTU-3A SUPPLY	18.3	100%	18.3
TERMINAL UNITS	1.1	100%	1.1
HWP-1 2HP	2.8	100%	2.8
HWP-2 2HP	2.8	100%	2.8
B-1	0.7	100%	0.7
B-2	0.7	100%	0.7
HEAT TRACING	0.5	100%	0.5
MOTORIZED VALVES	0.2	100%	0.2
RTU-2A 15 HP (Future New)	13.6	100%	13.6
		Subtotal:	291.6

New Net Connected Load (KVA): 32.1
At 277/480V/3-PHASE (Amps): 38.6

SHEET KEYED NOTES

1. CONNECT TO EXISTING SPARE BREAKER.
2. PROVIDE NEW BREAKER IN EATON POWER PANEL. NEW BREAKER AIC RATING TO MATCH BREAKER RATING USED IN PANEL.
3. UPDATE PANEL DIRECTORY TO REFLECT NEW CONNECTIONS.

DISTRIBUTION PANEL: MDP — LOCATION: ELECTRICAL 106
VOLTAGE: 480Y/277V-3P-4W
BUS RATING: 800A
MAIN: 800A
FED FROM: UTILITY

TYP	NO	DESCRIPTION	FRAME	TRIP	PHA	PHB	PHC	TOTAL VA	AMPS	COMMENTS
N	1	TLA 112.5KVA XFMR	150A	150A	21438	17760	17760	56870	68.8	
N	2	TLA 112.5KVA XFMR	150A	150A	22474	26244	24694	73412	87.1	
N	3	PANEL HA	100A	100A	76642	16842	15252	47736	57.0	
N	4	PANEL HS	400A	400A	80436	76916	76716	234068	288.8	
M	5	RTU2A Relief	30A	25A	4218	4218	4218	12654	15.3	
M	6	RTU2A Supply	50A	30A	6097	6097	6097	18291	22.0	
M	7	RTU3A Relief	25A	15A	2880	2880	2880	7680	9.5	
M	8	RTU3A Supply	50A	30A	6097	6097	6097	18291	22.0	
M	9	RTUMZ-1A	150A	150A	30484	30484	30484	91452	110.0	
	10	SPD	100A	60A				0	0.0	
	11	SPARE	100A	100A				0	0.0	
	12	SPARE ONLY						0	0.0	

		0	0	0	X - MEASURED CALCD LOAD
		0	0	0	D - NON-CONCIDENT
		0	0	0	Y - SUBSEQUENT ADDED LOAD
		0	0	0	C - CONTINOUS LOAD (*125%)
		0	0	0	LM - LARGEST MOTOR LOAD (*125%)
		45550	45550	45550	136650	M - MOTOR LOAD
		140584	136656	137364	414604	N - NON CONTINOUS LOAD
		186134	182206	182914	552253	TOTAL DEMAND PER PHASE (VA)
	BUS TOTALS (KVA) CONNECTED	666.5				
	DEMAND	666.6				
	BUS TOTALS (AMPS) CONNECTED	691.5				
	DEMAND	691.5				

PANEL: LB (SEC 2) (SECTION 2) — LOCATION: ELECTRICAL 106
VOLTAGE: 208Y/120V-3P-4W — BUS RATING: 400A
MOUNTING: SURFACE — MAIN: MLO
FED FROM: LB VIA FEED THRU LUGS — AIC: EXISTING

TYP	DESCRIPTION	BKR	LOAD	NO	PHA	PHB	PHC	NO	LOAD	BKR	DESCRIPTION	TYP
R	EXISTING LOAD	20A	540	73	1620	0	0	74	1080	20A	EXISTING LOAD	R
R		3P	540	75	0	1620	0	76	1080	/		R
R	EXISTING LOAD	20A	1080	77	0	0	2160	78	1080	3P		R
R		/	1080	79	2160	0	0	80	1080	20A	EXISTING LOAD	R
R		3P	1080	81	0	2160	0	82	1080	/		R
R	EXISTING LOAD	20A	540	83	0	0	1620	84	1080	3P		R
R	EXISTING LOAD	20A	540	85	1620	0	0	86	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	87	0	1620	0	88	1080	/		R
R	EXISTING LOAD	20A	1080	89	0	0	2160	90	1080	3P		R
R		/	1080	91	2160	0	0	92	1080	20A	EXISTING LOAD	R
R		3P	1080	93	0	2160	0	94	1080	/		R
R	EXISTING LOAD	20A	1080	95	0	0	2160	96	1080	3P		R
R		/	1080	97	1620	0	0	98	540	20A	EXISTING LOAD	R
R		3P	1080	99	0	2160	0	100	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	101	0	0	1620	102	1080	/		R
R		3P	540	103	1620	0	0	104	1080	3P		R
R	EXISTING LOAD	20A	540	105	0	1620	0	106	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	107	0	0	540	108		20A	SPARE	

PANEL: LB (SEC 2) (SECTION 2)

TYP	DESCRIPTION	BKR	LOAD	NO	PHA	PHB	PHC	NO	LOAD	BKR	DESCRIPTION	TYP
M	TU CONTROL POWER	20A	200	109	720	0	0	110	540	20A	EXISTING LOAD	R
N	B-1	20A	800	111	0	800	0	112	180	20A	CO DETECTOR	N
N	B-2	20A	800	113	0	0	1000	114	500	20A	EXISTING LOAD	N
R	1 DR BOILER ROOM	20A	180	115	180	0	0	116	180	20A	MOTORIZED VALVES ROOF	N
M	TU CONTROL POWER	20A	200	117	0	400	0	118	200	20A	RTU2A CONTROLS	M
M	TU CONTROL POWER	20A	200	119	0	0	200	120	180	20A	MOTORIZED VALVES ROOF	M
M	TU CONTROL POWER	20A	200	121	400	0	0	122	200	20A	RTU-3A CONTROLS	M
M	MOTORIZED VALVE	20A	180	123	0	510	0	124	840	20A	DDC CONTROLS	M
	SPARE	20A		125	0	0	500	126	500	20A	HEAT TRACING GRIP	N
M	HWP-1 2 HP	20A	1272	127	1272	0	0	128			SPACE	
M	/	/	1272	129	0	1272	0	130			SPACE	
M		3P	1272	131	0	0	1272	132			SPACE	
M	HWP-2 2 HP	20A	1272	133	1272	0	0	134			SPACE	
M	/	/	1272	135	0	1272	0	136			SPACE	
M		3P	1272	137	0	0	1272	138			SPACE	
	SPACE			139	0	0	0	140			SPACE	
	SPACE			141	0	0	0	142			SPACE	
	SPACE			143	0	0	0	144			SPACE	

		0	0	0	X - MEASURED CALCD LOAD
		0	0	0	D - NON-CONCIDENT
		0	0	0	Y - SUBSEQUENT ADDED LOAD
	BUS TOTALS (KVA)	0	0	0	Y - SUBSEQUENT ADDED LOAD
	CONNECTED 44.4	0	0	0	LM - LARGEST MOTOR LOAD (*125%)
	DEMAND 33.2	2544	2694	2754	M - MOTOR LOAD
		360	1240	1600	N - NON CONTINOUS LOAD
	BUS TOTALS (AMPS)	7440	7100	6830	R - RECEPTACLE LOAD (100% 10kVA, 50% REMAIN)
	CONNECTED 123.5	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
	DEMAND 92.3	10784	11034	11224	TOTAL DEMAND PER PHASE (VA)

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS — JAMES STEVEN TURBANKOVICH — 133807 — 07/25/24

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FIRM REGISTRATION NUMBERS
TBPE F-1024, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY 1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E701

PANEL: LA
VOLTAGE: 208Y/120V-3P-4W
MOUNTING: SURFACE
FED FROM: XFMR VIA 112.5KVA XFMR
LOCATION: FIRST FLOOR MAIN ELEC ROOM
BUS RATING: 400A
MAIN: MLO
AIC: 22,000

TYP	DESCRIPTION	BKR	LOAD	NO	PH A	PH B	PH C	NO	LOAD	BKR	DESCRIPTION	TYP
R	EXISTING LOAD	20A	1080	1	2160	0	0	2	1080	20A	EXISTING LOAD	R
R		/	1080	3	0	2160	0	4	1080	/		R
R		3P	1080	5	0	0	2160	6	1080	3P		R
R	EXISTING LOAD	20A	540	7	1620	0	0	8	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	1080	9	0	2160	0	10	1080	/		R
R		/	1080	11	0	0	2160	12	1080	3P		R
R		3P	1080	13	1620	0	0	14	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	1080	15	0	2160	0	16	1080	20A	EXISTING LOAD	R
R		/	1080	17	0	0	2160	18	1080	/		R
R		3P	1080	19	2160	0	0	20	1080	3P		R
R	EXISTING LOAD	20A	1080	21	0	2160	0	22	1080	20A	EXISTING LOAD	R
R		/	1080	23	0	0	2160	24	1080	/		R
R		3P	1080	25	2160	0	0	26	1080	3P		R
R	EXISTING LOAD	20A	540	27	0	1620	0	28	1080	20A	EXISTING LOAD	R
R		2P	540	29	0	0	1620	30	1080	/		R
R	EXISTING LOAD	20A	540	31	1620	0	0	32	1080	3P		R
R	EXISTING LOAD	20A	540	33	0	1040	0	34	500	20A	EXISTING LOAD	M
R	EXISTING LOAD	20A	540	35	0	0	1040	36	500	20A	EXISTING LOAD	M

PANEL: LA
(SECTION 2)

TYP	DESCRIPTION	BKR	LOAD	NO	PH A	PH B	PH C	NO	LOAD	BKR	DESCRIPTION	TYP
R	EXISTING LOAD	20A	540	37	1620	0	0	38	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	39	0	1620	0	40	1080	/		R
R	EXISTING LOAD	20A	1080	41	0	0	2160	42	1080	3P		R
R		/	1080	43	2160	0	0	44	1080	20A	EXISTING LOAD	R
R		3P	1080	45	0	2160	0	46	1080	/		R
R	EXISTING LOAD	20A	1080	47	0	0	2160	48	1080	3P		R
R		/	1080	49	1620	0	0	50	540	20A	EXISTING LOAD	R
R		3P	1080	51	0	2160	0	52	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	53	0	0	1620	54	1080	/		R
R	EXISTING LOAD	20A	1080	55	2160	0	0	56	1080	3P		R
R		/	1080	57	0	2160	0	58	1080	20A	EXISTING LOAD	R
R		3P	1080	59	0	0	2160	60	1080	/		R
R	EXISTING LOAD	20A	540	61	1620	0	0	62	1080	3P		R
R	EXISTING LOAD	20A	540	63	0	1620	0	64	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	65	0	0	1620	66	1080	/		R
R	EXISTING LOAD	20A	540	67	1620	0	0	68	1080	3P		R
R	EXISTING LOAD	20A	540	69	0	1080	0	70	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	71	0	0	1080	72	540	20A	EXISTING LOAD	R

	PH A	PH B	PH C	
	0	0	0	X - MEASURED/CALCD LOAD
	0	0	0	D - NON-COINCIDENT
	0	0	0	Y - SUBSEQUENT ADDED LOAD
BUS TOTALS (KVA)	0	0	0	Y - SUBSEQUENT ADDED LOAD
CONNECTED: 88.2	0	0	0	LM - LAREST MOTOR LOAD (*125%)
DEMAND: 58.1	0	500	500	M - MOTOR LOAD
	5960	5780	5200	N - NON CONTINOUS LOAD
BUS TOTALS (AMPS)	12770	12500	11960	R - RECEPTACLE LOAD (100% 10KVA, 50% REMAIN)
CONNECTED: 239.2	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
DEMAND: 161.2	21030	18780	17660	TOTAL DEMAND PER PHASE (VA)

PANEL: LA (SEC 2)
VOLTAGE: 208Y/120V-3P-4W
MOUNTING: SURFACE
FED FROM: LA VIA FEED THRU LUGS
LOCATION: ELEC ROOM 157
BUS RATING: 400A
MAIN: MLO
AIC: 22,000

TYP	DESCRIPTION	BKR	LOAD	NO	PH A	PH B	PH C	NO	LOAD	BKR	DESCRIPTION	TYP
N	EXISTING LOAD	20A	500	73	500	0	0	74		20A	SPARE	
N	EXISTING LOAD	20A	500	75	0	500	0	76		20A	SPARE	
M	EXISTING LOAD	20A	500	77	0	0	500	78		20A	SPARE	
M	EXISTING LOAD	20A	500	79	1040	0	0	80	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	81	0	540	0	82		20A	SPARE	
N	EXISTING LOAD	20A	500	83	0	0	500	84		20A	SPARE	
	SPARE	20A		85	0	0	0	86		20A	SPARE	
	SPARE	20A		87	0	0	0	88			SPACE	
	SPACE			89	0	0	0	90			SPACE	
	SPACE			91	0	0	0	92			SPACE	
	SPACE			93	0	0	0	94			SPACE	
	SPACE			95	0	0	0	96			SPACE	
	SPACE			97	0	0	0	98			SPACE	
	SPACE			99	0	0	0	100			SPACE	
	SPACE			101	0	0	0	102			SPACE	
	SPACE			103	0	0	0	104			SPACE	
	SPACE			105	0	0	0	106			SPACE	
	SPACE			107	0	0	0	108			SPACE	

PANEL: LA (SEC 2)
(SECTION 2)

TYP	DESCRIPTION	BKR	LOAD	NO	PH A	PH B	PH C	NO	LOAD	BKR	DESCRIPTION	TYP
	SPACE			109	0	0	0	110			SPACE	
	SPACE			111	0	0	0	112			SPACE	
	SPACE			113	0	0	0	114			SPACE	
	SPACE			115	0	0	0	116			SPACE	
	SPACE			117	0	0	0	118			SPACE	
	SPACE			119	0	0	0	120			SPACE	
	SPACE			121	7320	0	0	122	7320	100A	EXISTING PANEL LT	N
	SPACE			123	0	4740	0	124	4740	/		N
	SPACE			125	0	0	4200	126	4200	3P		N
	SPACE			127	0	0	0	128			SPACE	
	SPACE			129	0	0	0	130			SPACE	
	SPACE			131	0	0	0	132			SPACE	
	SPACE			133	0	0	0	134			SPACE	
	SPACE			135	0	0	0	136			SPACE	
	SPACE			137	0	0	0	138			SPACE	
	SPACE			139	0	0	0	140			SPACE	
	SPACE			141	0	0	0	142			SPACE	
	SPACE			143	0	0	0	144			SPACE	

	PH A	PH B	PH C	
	0	0	0	X - MEASURED/CALCD LOAD
	0	0	0	D - NON-COINCIDENT
	0	0	0	Y - SUBSEQUENT ADDED LOAD
BUS TOTALS (KVA)	0	0	0	Y - SUBSEQUENT ADDED LOAD
CONNECTED: 19.8	0	0	0	LM - LAREST MOTOR LOAD (*125%)
DEMAND: 19.8	600	0	500	M - MOTOR LOAD
	7820	5240	4700	N - NON CONTINOUS LOAD
BUS TOTALS (AMPS)	540	540	0	R - RECEPTACLE LOAD (100% 10KVA, 50% REMAIN)
CONNECTED: 55.1	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
DEMAND: 55.1	8860	5780	5200	TOTAL DEMAND PER PHASE (VA)

PANEL: LT
VOLTAGE: 208Y/120V-3P-4W
MOUNTING: SURFACE
FED FROM: LA (SEC 2)
LOCATION: DATA ROOM 152
BUS RATING: 125A
MAIN: MLO
AIC RATING: EXISTING

TYP	DESCRIPTION	BKR	LOAD	NO	PH A	PH B	PH C	NO	LOAD	BKR	DESCRIPTION	TYP
X	EXISTING LOAD	30A	1560	1	3120			2	1560	30A	EXISTING LOAD	N
X		2P	1560	3		3120		4	1560	2P		N
N	EXISTING LOAD	30A	1560	5			3120	6	1560	30A	EXISTING LOAD	N
N		2P	1560	7	3120			8	1560	2P		N
R	EXISTING LOAD	20A	540	9		1080		10	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	11			1080	12	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	13	1080			14	540	20A	EXISTING LOAD	R
	SPARE			15		540		16	540	20A	EXISTING LOAD	R
	SPARE			17			0	18			SPARE	
	SPARE			19	0			20			SPARE	
	SPARE			21		0		22			SPARE	
	SPARE			23			0	24			SPARE	
	SPACE			25	0			26			SPACE	
	SPACE			27		0		28			SPACE	
	SPACE			29			0	30			SPACE	

	PH A	PH B	PH C	
	0	0	0	X - MEASURED/CALCD LOAD
	0	0	0	D - NON-COINCIDENT
	0	0	0	Y - SUBSEQUENT ADDED LOAD
BUS TOTALS (KVA)	0	0	0	C - CONTINOUS LOAD (*125%)
CONNECTED: 16.3	0	0	0	LM - LARGEST MOTOR LOAD (*125%)
DEMAND: 16.3	0	0	0	M - MOTOR LOAD
	6240	3120	3120	N - NON CONTINOUS LOAD
BUS TOTALS (AMPS)	1080	1620	1080	R - RECEPTACLE LOAD (100% 10KVA, 50% REMAIN)
CONNECTED: 45.1	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
DEMAND: 45.1	7320	4740	4200	TOTAL DEMAND PER PHASE (VA)

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10153910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO. 1479

SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E702

FULL SIZE SHEET: 22X34

PANEL: LB
VOLTAGE: 208Y/120V-3P-4W
MOUNTING: SURFACE
FED FROM: MDP VIA 112.5KVA XMFR
LOCATION: ELEC RM 126
BUS RATING: 400A
MAIN: MLO
AIC: EXISTING

TYP	DESCRIPTION	BKR	LOAD	NO	PHA	PHB	PHC	NO	LOAD	BKR	DESCRIPTION	TYP
R	EXISTING LOAD	20A	1080	1	1620	0	0	2	540	20A	EXISTING LOAD	R
R		/	1080	3	0	3680	0	4	2600	50A	EXISTING LOAD	R
R		3P	1080	5	0	0	3680	6	2600	2P		R
R	EXISTING LOAD	20A	1080	7	2160	0	0	8	1080	20A	EXISTING LOAD	R
R		/	1080	9	0	2160	0	10	1080	/		R
R		3P	1080	11	0	0	2160	12	1080	3P		R
R	EXISTING LOAD	20A	1080	13	2160	0	0	14	1080	20A	EXISTING LOAD	R
R		/	1080	15	0	2160	0	16	1080	/		R
R		3P	1080	17	0	0	2160	18	1080	3P		R
R	EXISTING LOAD	20A	540	19	1080	0	0	20	540	20A	EXISTING LOAD	R
R		2P	540	21	0	1080	0	22	540	2P		R
R	EXISTING LOAD	20A	540	23	0	0	1080	24	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	25	1620	0	0	26	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	27	0	1620	0	28	1080	/		R
R	EXISTING LOAD	20A	1080	29	0	0	2160	30	1080	3P		R
R		/	1080	31	1620	0	0	32	540	20A	EXISTING LOAD	R
R		3P	1080	33	0	1620	0	34	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	540	35	0	0	1080	36	540	20A	EXISTING LOAD	R

PANEL: LB
(SECTION 2)

TYP	DESCRIPTION	BKR	LOAD	NO	PHA	PHB	PHC	NO	LOAD	BKR	DESCRIPTION	TYP
R	EXISTING LOAD	20A	540	37	1080	0	0	38	540	20A	EXISTING LOAD	R
R		2P	540	39	0	1080	0	40	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	1080	41	0	0	1620	42	540	20A	EXISTING LOAD	R
R		/	1080	43	1620	0	0	44	540	20A	EXISTING LOAD	R
R		3P	1080	45	0	2160	0	46	1080	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	1080	47	0	0	2160	48	1080	/		R
R		/	1080	49	2160	0	0	50	1080	3P		R
R		3P	1080	51	0	1620	0	52	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	1080	53	0	0	1620	54	540	20A	EXISTING LOAD	R
R		/	1080	55	1620	0	0	56	540	20A	EXISTING LOAD	R
R		3P	1080	57	0	1620	0	58	540	20A	EXISTING LOAD	R
R	EXISTING LOAD	20A	1080	59	0	0	1620	60	540	20A	EXISTING LOAD	R
R		/	1080	61	1620	0	0	62	540	20A	EXISTING LOAD	R
R		3P	1080	63	0	1620	0	64	540	2P		R
R	EXISTING LOAD	20A	1080	65	0	0	1620	66	540	20A	EXISTING LOAD	R
R		/	1080	67	1620	0	0	68	540	20A	EXISTING LOAD	R
R		3P	1080	69	0	2640	0	70	1560	30A	EXISTING LOAD	M
R	EXISTING LOAD	20A	540	71	0	0	2100	72	1560	2P		M

	PHA	PHB	PHC	
	0	0	0	X - MEASURED/CALC'D LOAD
	0	0	0	D - NON-COINCIDENT
	0	0	0	Y - SUBSEQUENT ADDED LOAD
BUS TOTALS (KVA)	0	0	0	Y - SUBSEQUENT ADDED LOAD
CONNECTED: 98.2	0	0	0	LM - LARGEST MOTOR LOAD (*125%)
DEMAND: 39.2	0	1560	1560	M - MOTOR LOAD
	0	0	0	N - NON CONTINUOUS LOAD
BUS TOTALS (AMPS)	11690	12450	11910	R - RECEPTACLE LOAD (100% 10KVA, 50% REMAIN)
CONNECTED: 272.4	0	0	0	K - KITCHEN LOAD (65% OF LOAD)
DEMAND: 108.7	11690	14010	13470	TOTAL DEMAND PER PHASE (VA)

LIGHT FIXTURE SCHEDULE

NOTES:
1. MANUFACTURERS CATALOG NUMBERS REPRESENT MANUFACTURER SERIES. SHOP DRAWING SUBMITTALS WILL INCLUDE ALL PART NUMBERS REPRESENTING ALL ITEMS OF THIS LUMINAIRE SCHEDULE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ORDER LUMINAIRES TO INCLUDE ALL PARTS INDICATED ON SCHEDULE FOR EACH LUMINAIRE. SUBMITTAL WILL CALL OUT EACH PART CLEARLY.
2. LUMINAIRES MAY REQUIRE A HIGHER OR LOWER MOUTING FROM THAT PROVIDED ON THIS SCHEDULE OR NOTES ON PLAN DUE TO CONSTRUCTION CONDITIONS.

TYPE	DESCRIPTION	VOLTS	MOUNTING	LAMPS	BALLAST	EM BAT. PK	LENS	MANUFACTURER/MODEL NO.	NOTES
A	LED UTILITY STRIP LIGHT FIXTURE	MULTI TAP (UNV.)	SUSPENDED 9' AFF	LED 4500 LUMENS 4000K 35W	LED DRIVER	NONE	DIFFUSE POLYCARBONATE LENS	LITHONIA LIGHTING; MNSL L48 3LL MVOLT 40K 80CRI M0	1,2
AE	SAME AS TYPE 'A' BUT WITH REMOTE EMERGENCY BATTERY BACKUP	MULTI TAP (UNV.)	SUSPENDED 9' AFF	LED 4500 LUMENS 4000K 35W	LED DRIVER	YES	DIFFUSE POLYCARBONATE LENS	LITHONIA LIGHTING; MNSL L48 3LL MVOLT 40K 80CRI M0 REMOTE BATTERY PACK: IOTA LB-CP10 HE	1,2

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex
Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR
PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO. 1479

SHEET TITLE

ELECTRICAL SCHEDULES

SHEET NUMBER

E703

PIPE MATERIAL SCHEDULE

SERVICE	LOCATION	TYPE K COPPER WELL GRADE	TYPE L COPPER WELL GRADE	CAST IRON NO-HUB COUPLING	CAST IRON HUB AND SPIGOT	PVC SCH. 40 PLASTIC PIPE	PVC SCH. 80 PLASTIC PIPE	PVC SCH. 40 PLASTIC PIPE	PVC SCH. 80 PLASTIC PIPE	PVC SCH. 40 PLASTIC PIPE	PVC SCH. 80 PLASTIC PIPE	316 STAINLESS STEEL PIPE	FITTINGS
POTABLE WATER	INTERIOR		•										LEAD FREE TYPE "L" COPPER SOLDERED FITTINGS
	EXTERIOR		•										LEAD FREE TYPE "L" COPPER SOLDERED FITTINGS
POTABLE WATER - EXPRESS MAINS	INTERIOR											•	ANSI 304/316 STAINLESS STEEL TYPE 770 FITTINGS
POTABLE WATER (BURIED OUTSIDE)	EXTERIOR	•											LEAD FREE TYPE "K" COPPER SOLDERED FITTINGS
WASTE/GREASE	ABOVE FLOOR			•									CAST IRON NO-HUB COUPLINGS
	BELOW FLOOR			•									CAST IRON HUB AND SPIGOT
VENT/GREASE VENT	ABOVE FLOOR			•									CAST IRON NO-HUB COUPLINGS
	BELOW FLOOR			•									CAST IRON HUB AND SPIGOT
ACID / CORROSIVE WASTE	ABOVE FLOOR									•	•		FUSE COUPLINGS OR, MECHANICAL COUPLINGS
	BELOW FLOOR									•	•		AS REQUIRED PER PRODUCT MANUFACTURER.
STORM DRAIN	ABOVE FLOOR			•									CAST IRON NO-HUB COUPLINGS
	BELOW FLOOR			•									CAST IRON HUB AND SPIGOT
OVERFLOW DRAIN	ABOVE FLOOR			•									CAST IRON NO-HUB COUPLINGS
	BELOW FLOOR			•									CAST IRON HUB AND SPIGOT
CONDENSATE DRAIN	INTERIOR		•										LEAD FREE TYPE "M" COPPER SOLDERED FITTINGS
	EXTERIOR		•										LEAD FREE TYPE "M" COPPER SOLDERED FITTINGS
NATURAL GAS	INTERIOR					•							PAINTED SCH 40 BLACK IRON THREADED FITTINGS
	EXTERIOR					•							PAINTED SCH 40 BLACK IRON THREADED FITTINGS
NATURAL GAS (BURIED OUTSIDE)	EXTERIOR							•					POLYEHYLENE SDR-11
ARGON (Ar), NITROGEN (N_2)							•						SCH. 40 316 SS WITH ORBITAL WELDING
BOILER CONDENSATE	INTERIOR								•				SCHEDULE 40 SOLID CORE PVC
FUEL OIL	INTERIOR												SCHEDULE 40 WELDED OR THREADED FITTINGS
	EXTERIOR						•						SCHEDULE 40 WELDED OR THREADED FITTINGS
PUMPED DISCHARGE (STORM & SEWER)	ABOVE FLOOR						•						SCHEDULE 40 THREADED FITTINGS
	BELOW FLOOR						•						SCHEDULE 40 THREADED FITTINGS
R.O. WATER	INTERIOR											•	SYGEF PVDF SOCKET FUSION FITTINGS & VALVES
DI WATER	INTERIOR											•	SYGEF PVDF SOCKET FUSION FITTINGS & VALVES
CA COMPRESSED AIR	INTERIOR	•											TYPE "K" COPPER BRAZED WITH N_2 PURGE FITTINGS

NOTES:
1. ALL DOMESTIC HOT WATER PIPING SHALL BE THERMALLY INSULATED WITH MINIMUM R-6 FROM SOURCE TO POINT OF USE.
2. ALL UNDERGROUND WASTE, VENT, AND STORM METALLIC PIPING SHALL BE PIPE PROTECTED FROM GROUND CORROSION.
3. ALL INTERIOR CONDENSATE PIPING SHALL BE INSULATED WITH 1/2" WALL MINIMUM, SELF SEALING, CLOSED CELL FOAM INSULATION.

BASIS OF DESIGN:
1. PROVIDE COPPER TYPE L FOR THE MAIN RISER HOT AND COLD WATER RISERS.
2. CONTRACTOR SHALL PROVIDE 10-YEAR WARRANTY AGAINST LEAKS IN THE PIPE & JOINTS TO INCLUDE ALL MATERIAL, LABOR AND TRAVEL.
3. CVPC IS NOT ALLOWED.

PLUMBING DEMOLITION GENERAL NOTES

1. PLUMBING CONTRACTOR SHALL COORDINATE ALL UNFORESEEN CONDITIONS IN THE FIELD THAT MAY COME ABOUT DUE TO THE OPENING OF WALLS, CEILINGS, AND THE UNCOVERING OF UNDERFLOOR PIPING.
2. FIELD VERIFY LOCATION AND INVERT ELEVATIONS OF ALL EXISTING PIPES BEFORE DOING ANY WORK.
3. DEMOLITION TO BE COMPLETED UNDER THE SUPERVISION OF THE ARCHITECT AS EXISTING STRUCTURE IS TO PRESERVED. DEMOLITION DRAWING MAY NOT NECESSARILY SHOW ALL PIPING, FIXTURES, OR EQUIPMENT TO BE REMOVED.
4. PLUMBING CONTRACTOR SHALL REMOVED ALL PIPING, FIXTURES, VENTS, AND EQUIPMENT IN THE EXISTING SPACE AS DIRECTED BY THE ARCHITECT.

NOTE: NOT ALL THE ABBREVIATIONS OR SYMBOLS APPLY TO THIS PROJECT

ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	HD	HEAD
AFG	ABOVE FINISHED GRADE	HE	HEAT EXCHANGER
ARV	AIR RELIEF VALVE	HP	HORSEPOWER
BOP	BOTTOM OF PIPE	IM	ICE MAKER
BS	BIRD SCREEN	IN	INCHES
BTU	BRITISH THERMAL UNIT	INV	INVERT
BTUH	BTU PER HOUR	JP	JOCKEY PUMP
CI	CAST IRON	KW	KITCHEN WASTE, or, KILOWATT
CO	CLEAN OUT	LV	LAVATORY
CP	CIRCULATION PUMP	MB	MOP BASIN
DCO	DOUBLE CLEANOUT	NA	NOT APPLICABLE
DCOTG	DOUBLE CLEANOUT TO GRADE	NC	NORMALLY CLOSED
DOW	DOMESTIC COLD WATER	NIC	NOT IN CONTRACT
DHW	DOMESTIC HOT WATER	NO	NORMALLY OPEN
DHWR	DOMESTIC HOT WATER RETURN	No. #	NUMBER
CWM	CLOTHES WASHING MACHINE	OW	OIL WASTE
DF	DRINKING FOUNTAIN	OWV	OIL WASTE VENT
DN	DOWN	PC	PLUMBING CONTRACTOR
DS	DOWNSPOUT	PRV	PRESSURE REDUCING VALVE
DWBP	DOMESTIC WATER BOOSTER PUMP	PH	PHASE
EGO	EXTERIOR CLEANOUT	PSAN	PUMPED SANITARY
EL	ELEVATION	PSB	PLUMBING SERVICE BOX
EWH	ELECTRIC WATER HEATER	PSIG	POUNDS PER SQ. INCH GAUGE
EWC	ELECTRIC WATER COOLER	PV	PRIMING VALVE
EEW	EMERGENCY EYEWASH	SE	SEWAGE EJECTOR
EM	EMERGENCY	SH	SHOWER
EP2	ELEVATOR PIT PUMP	SK	SINK
EMSH	EMERGENCY SHOWER	SP	SUMP PUMP
EMSH-EW	EMERGENCY SHOWER EYE WASH	SV	SOLENOID VALVE
(E)	EXISTING	SS	SERVICE SINK, or, STAINLESS STEEL
°F	DEGREES FAHRENHEIT	TD	TRENCH DRAIN
FCO	FLOOR CLEANOUT	TMV	THERMOSTATIC MIXING VALVE
FD	FLOOR DRAIN	TP	TRAP PRIMER
FFE	FINISHED FLOOR ELEVATION	TYP	TYPICAL
FP	FIRE PUMP	UR	URINAL
FS	FLOOR SINK	V	VENT
FT	FEET	VTR	VENT THROUGH ROOF
FV	FLUSH VALVE	VB	VACUUM BREAKER
GC	GENERAL CONTRACTOR	YB	YARD BOX
GI	GREASE INTERCEPTOR	YH	YARD HYDRANT
GPH	GALLONS PER HOUR	W	WASTE
GPM	GALLONS PER MINUTE	WCO	WALL CLEANOUT
GWH	GAS WATER HEATER	WC	WATER CLOSET
GPR	GAS PRESSURE REDUCER	WH	WALL HYDRANT
HB	HOSE BIBB	WHA	WATER HAMMER ARRESTOR

PIPING SYMBOLS

SYMBOL AND ABBREVIATION	DESCRIPTION
CD	CONDENSATE DRAIN
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
V	VENT
S	SANITARY SEWER
UGS	UNDERGROUND SANITARY SEWER
SD	STORM/ROOF DRAIN
OSD	OVERFLOW STORM DRAIN
NG	NATURAL GAS LOW PRESSURE
	DIRECTION OF FLOW
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	RISE IN PIPE
	UNION
	WYE TYPE STRAINER
	THERMOMETER
	PRESSURE GAUGE AND GAUGE COCK
WHA	WATER HAMMER ARRESTOR
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	DROP IN PIPE
	FLEXIBLE CONNECTION
	AUTOMATIC AIR VENT (ARV)
FD	FLOOR DRAIN
FS	FLOOR SINK
AD	AREA DRAIN
FCO	FLOOR CLEANOUT
ECO	EXTERIOR CLEAN OUT
	TWO WAY OR DOUBLE CLEANOUT TO GRADE
RD	ROOF DRAIN
OD	OVERFLOW DRAIN
DD	DECK DRAIN

VALVE SYMBOLS

SYMBOL	DESCRIPTION
	GATE VALVE
	CHECK VALVE
	GLOBE VALVE
	PLUG VALVE
	WATER PRESSURE REDUCING VALVE
	BALANCING VALVE/CIRCUIT SETTER MEASURING DEVICE
	SOLENOID VALVE
	BALL VALVE
	DRAIN VALVE
	OS&Y VALVE
	BUTTERFLY VALVE
	FUEL GAS PRESSURE REGULATOR
	PRESSURE RELIEF VALVE
	TEMPERATURE AND PRESSURE RELIEF VALVE
	2-WAY CONTROL VALVE
	3-WAY MODULATING CONTROL VALVE
	FLOW SWITCH
	DIAPHRAGM VALVE (PROCESS SYSTEMS)
	AUTO BALL DRIP VALVE
	VALVE IN VERTICAL
	REDUCED PRESSURE BACKFLOW PREVENTER
	DOUBLE CHECK BACKFLOW PREVENTER (DCBP)
	DOUBLE DETECTOR CHECK ASSEMBLY (DDCA)
	ATMOSPHERIC VACCUM BREAKER
	PRESSURE STYLE VACUUM BREAKER

PLUMBING GENERAL NOTES

1. OBTAIN ALL NECESSARY PERMITS, PAY LEGAL FEES AND COMPLY WITH ALL NATIONAL, STATE AND MUNICIPAL LAWS, CODES, AND ORDINANCES RELATING TO BUILDING AND PUBLIC SAFETY.
2. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, I.E., FULLY ADJUSTED, TESTED, AND READY FOR OPERATION WHEREVER THE WORK "PROVIDE" IS USED. IT SHALL MEAN, "FURNISH AND INSTALL, COMPLETE AND READY FOR USE".
3. PROTECT EQUIPMENT AND WORK FROM DAMAGE DURING HANDLING AND INSTALLATION UNTIL COMPLETION OF CONSTRUCTION.
4. REMOVE ALL EXCESS MATERIAL AND DEBRIS AND CLEAN ALL EQUIPMENT UPON COMPLETION OF WORK. TOUCH UP WITH PAINT WHERE REQUIRED.
5. ALL SYSTEMS SHALL BE COMPLETE AND WORKING AT COMPLETION OF CONSTRUCTION.
6. CONTRACTOR SHALL COORDINATE EQUIPMENT CONNECTIONS WITH EQUIPMENT DRAWINGS AND SUPPLIER. INSTALL EQUIPMENT AND MAKE FINAL CONNECTIONS, FURNISHING CUTOFF VALVES, P-TRAPS, P.R.V.'S, AND PIPING AS REQUIRED.
7. ALL CONNECTIONS BETWEEN PIPES OF DISSIMILAR MATERIALS SHALL BE MADE WITH DIELECTRIC UNIONS. PROVIDE ACCESS PANELS WHERE REQUIRED TO ACCESS VALVES OR DRAINAGE CLEANOUTS.
8. COORDINATE WATER, WASTE AND VENT PIPING WITH OTHER TRADES TO AVOID SPACING OR ROUTING PROBLEMS.
9. CONTRACTOR SHALL COORDINATE ALL WORK CLOSELY WITH NEW MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL.
10. SUBMIT SHOP DRAWINGS OF PROPOSED NEW DEVICES PRIOR TO INSTALLATION.
11. FURNISH OWNER WITH COMPLETE OPERATING MANUALS AND INSTRUCTIONS FOR ALL EQUIPMENT FURNISHED.
12. FIXTURES, EQUIPMENT AND CONNECTIONS, AND PIPING SHALL BE FURNISHED AND INSTALLED TO MEET OR EXCEED STATE AND LOCAL CODES AND REQUIREMENTS.
13. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL OFFSETS. INSTALL PIPING AS CLOSE AS POSSIBLE TO LOCATIONS SHOWN. WHERE INTERFERENCES WITH COMPONENTS OF OTHER TRADES WORK (STRUCTURAL FOUNDATIONS OR OTHER BUILDING ELEMENTS) REQUIRE ROUTINGS AND LOCATIONS THAT VARY FROM THOSE SHOWN, THE CONTRACTOR SHALL OBTAIN PROJECT ENGINEER'S APPROVAL PRIOR TO INSTALLATION. NO ADDITIONAL COST SHALL BE GRANTED FOR THOSE CHANGES.
14. THE PLUMBING DRAWINGS DO NOT NECESSARILY SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL INCLUDE SUCH ITEMS AS ARE REQUIRED TO ENSURE THAT THE ENTIRE SYSTEM IS FUNCTIONING IN COMPLIANCE WITH APPLICABLE CODES, ACCEPTED INDUSTRY STANDARDS, AND MANUFACTURER'S INSTALLATION REQUIREMENTS UPON COMPLETION OF THE WORK.
15. FURNISH AND INSTALL WATER HAMMER ARRESTORS IN COLD WATER LINES AT CONNECTIONS TO FLUSH VALVES AND QUICK CLOSING VALVES AND AT ALL HOT AND COLD WATER CONNECTIONS TO FIXTURES.
16. ROUGH-IN PLUMBING PIPING USING DIMENSIONS SHOWN ON ARCHITECTURAL DRAWINGS. LOCATION OF ALL PIPING SHALL ALLOW INSTALLATION OF FIXTURES WITHOUT THE NEED TO FURR-OUT WALLS.
17. PROVIDE CLEANOUTS IN EXCESS OF THOSE SHOWN WHICH ARE REQUIRED BY THE PLUMBING CODE.
18. INDIVIDUAL FIXTURE SUPPLY AND DRAIN SERVICES ARE NOT SHOWN IN PLAN VIEW DUE TO DRAWING SPACE LIMITATIONS. THE CONTRACTOR SHALL PROVIDE ALL SERVICES FOR A COMPLETE FUNCTIONAL INSTALLATION.
19. DO NOT INSTALL PIPING AT LOCATIONS THAT INTERFERE WITH SERVICE ACCESSIBILITY TO EQUIPMENT.
20. ALL CONFLICTS, WHICH MAY PREVENT THE COMPLETION OF WORK AS INTENDED, SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION. THE CONTRACTOR SHALL PROCEED AT THEIR OWN RISK UNTIL ALL CONFLICTS ARE RESOLVED AND THE CLARIFYING INFORMATION IS ISSUED TO THE CONTRACTOR BY THE ARCHITECT.
21. THE SUPPLY OF BOTH HOT AND COLD WATER TO EACH FIXTURE SHALL BE EQUIPPED WITH STOP VALVE AND WALL escutcheons, ALL EXPOSED VALVES, escutcheons, , AND COCKS SHALL BE CHROMIUM PLATED TO CORRESPOND TO PIPE FINISH.
22. CONTRACTOR WILL BE RESPONSIBLE FOR RELOCATING DOMESTIC WATER LINES IN CONFLICT WITH OTHER TRADES SCOPE OF WORK INCLUDING MECHANICAL EQUIPMENT, PIPING, DUCTS, ELECTRICAL CONDUITS, ETC.

FULL SIZE SHEET: 22X34

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TBPE: F-2451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY 1848

PROJECT NAME

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS

1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

RSE PROJECT NO: 1479

SHEET TITLE

PLUMBING LEGEND AND GENERAL INFORMATION

SHEET NUMBER

P001

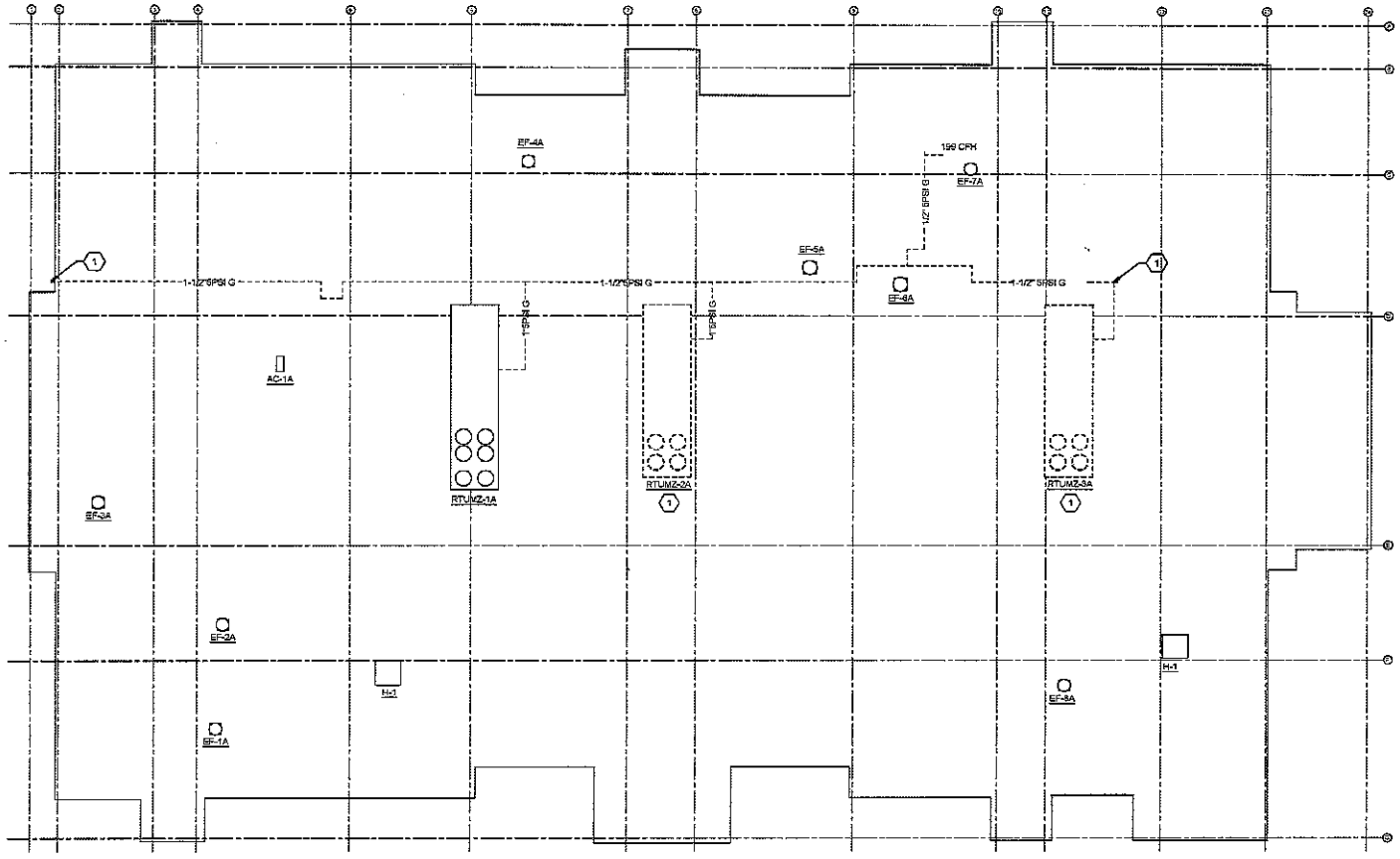
GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. PLUMBING CONTRACTOR SHALL COORDINATE ALL GAS SHUT DOWN WITH OWNER.

SHEET KEYED NOTES

1. REMOVE ALL GAS PIPE BACK TO METER.



1 PLUMBING DEMOLITION ROOF PLAN - AREA B
SCALE: 3/32" = 1'-0"

N

FULL SIZE SHEET: 22X34

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FIRM REGISTRATION NUMBERS
TBPE F-7451, TBPLS F-10159510

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

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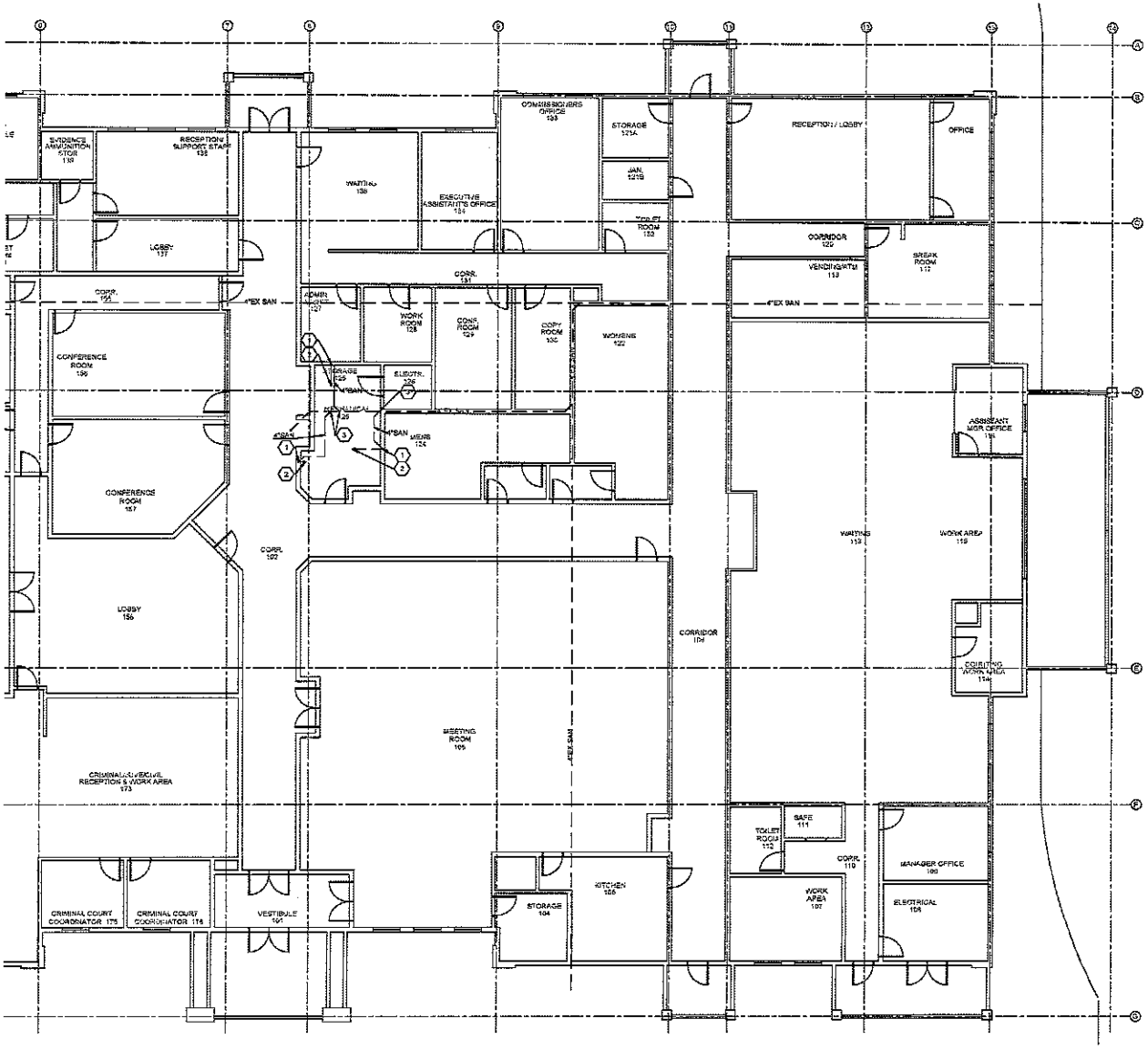
SHEET TITLE

PLUMBING DEMOLITION ROOF PLAN - AREA B

SHEET NUMBER

PD201



1 PLUMBING RENOVATION UNDER FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

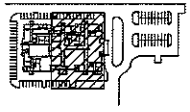
GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE, VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

SHEET KEYED NOTES

1. 4" SANITARY DOWN 2" VENT UP.
2. 4" SANITARY UP TO DRAIN ABOVE.
3. CONNECT TO EXISTING SANITARY HERE.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"
N
FULL SIZE SHEET: 22X34

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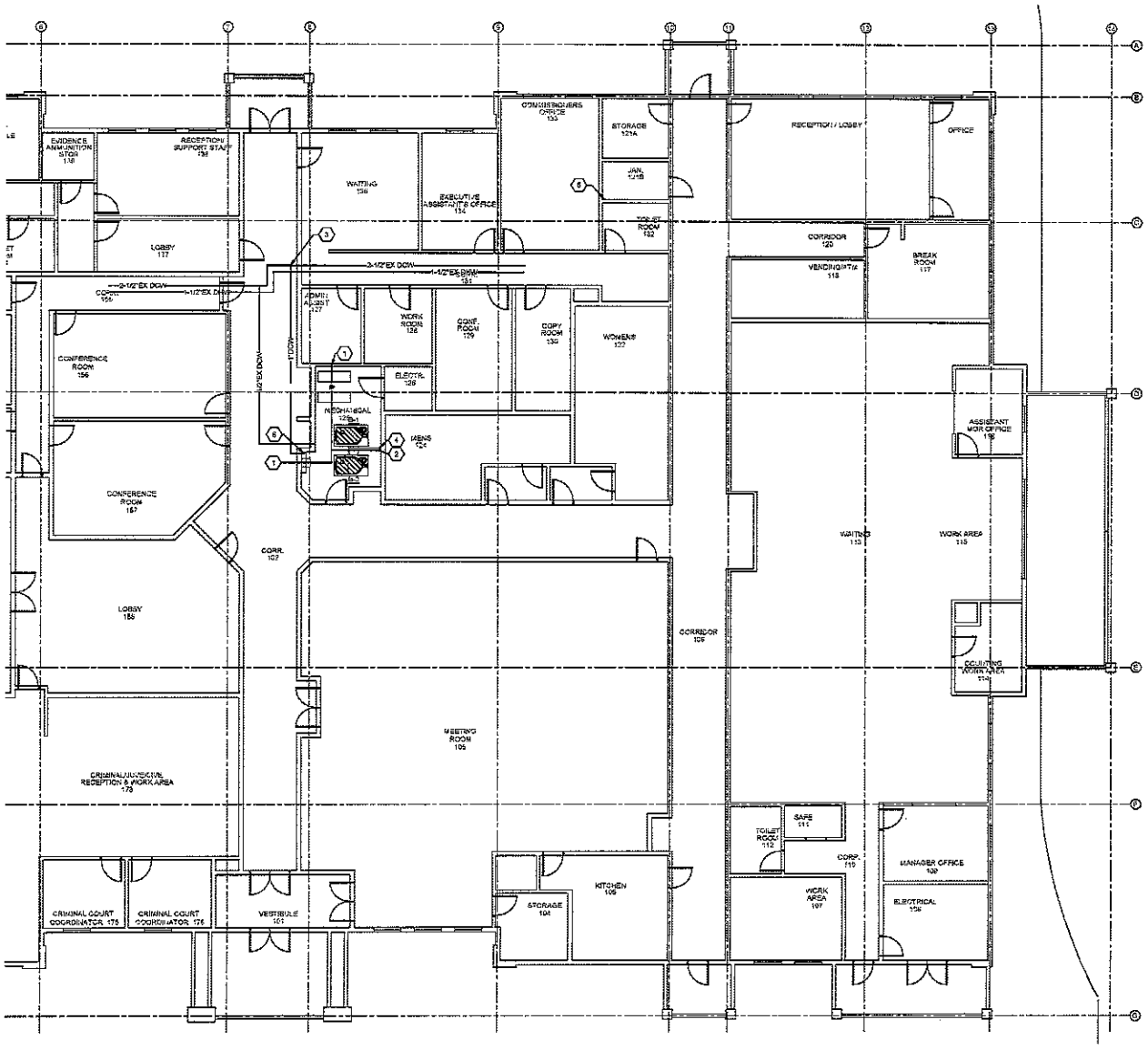
PLUMBING RENOVATION UNDER FLOOR PLAN - AREA B

SHEET NUMBER

PU201



1 PLUMBING RENOVATION FLOOR PLAN – AREA B
SCALE: 1/8" = 1'-0"

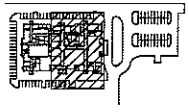
GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

SHEET KEYED NOTES

1. 2" VENT FROM BELOW.
2. 2" VENT FROM BELOW AND 2" VENT UP THROUGH ROOF.
3. CONNECT TO EXISTING COLD WATER PIPE OF EQUAL OR GREATER SIZE HERE.
4. 1-1/2" 5 PSI GAS FROM ROOF ABOVE TO FEED BOILERS.
5. NEW 3/4" FROM ROOF ABOVE TO FEED EXISTING GAS WATER HEATER.
6. 1" MAKE-UP WATER CONNECTION FOR MECHANICAL. COORDINATE WITH MECHANICAL CONTRACTOR.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"
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FULL SIZE SHEET: 22X34

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SHEET TITLE

PLUMBING RENOVATION FLOOR PLAN - AREA B

SHEET NUMBER

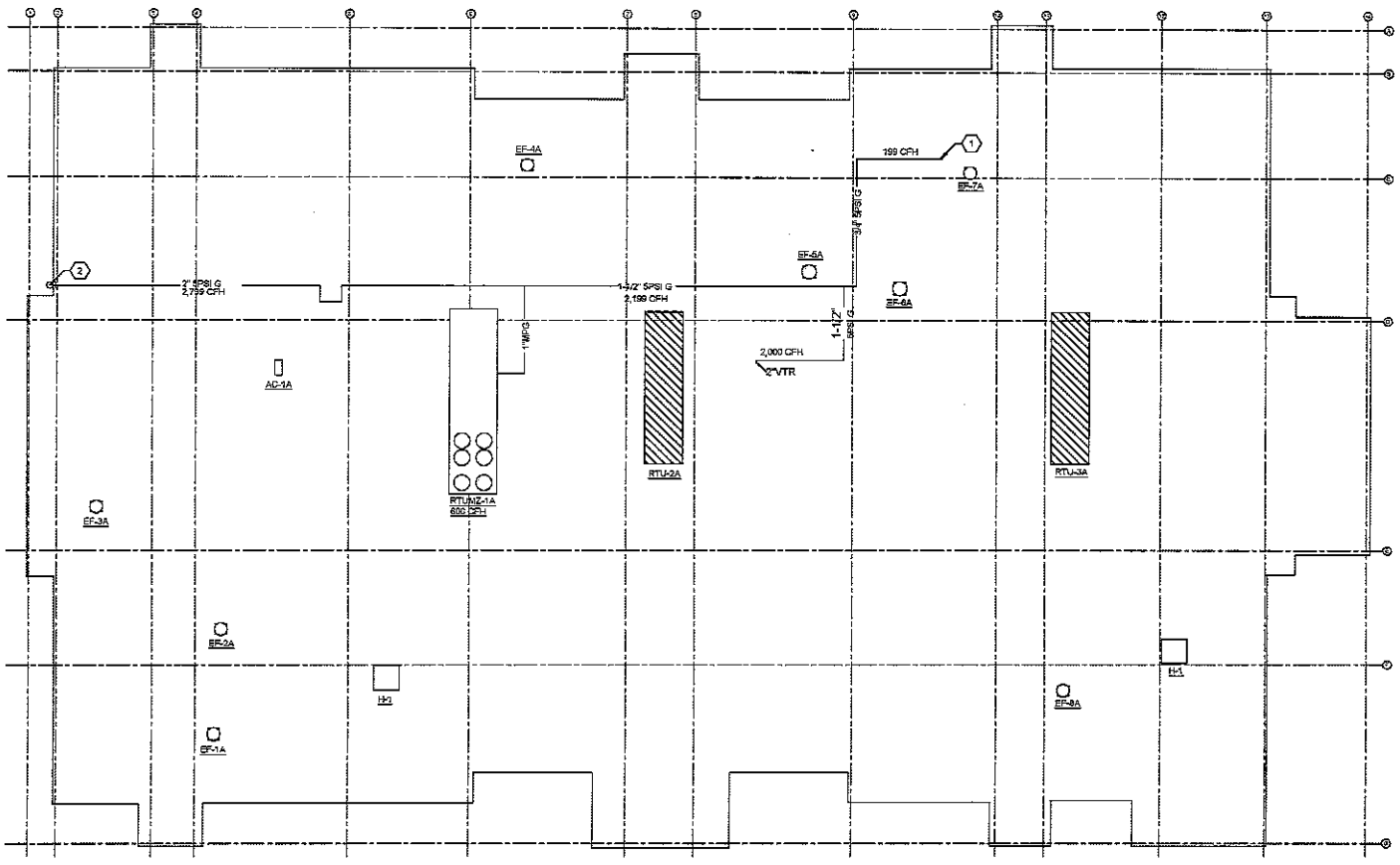
P201

GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

SHEET KEYED NOTES

1. 3/4" GAS DOWN TO WATER HEATER BELOW.
2. 2" 3 PSI GAS @ 2,799 CFH WITH A TOTAL DEVELOPMENTAL LENGTH OF 1600'



1 PLUMBING RENOVATION ROOF PLAN - AREA B
SCALE: 1/16" = 1'-0"

FULL SIZE SHEET: 22X34

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TBPE F-3451, TBPLS F-10033900

PROJECT INFORMATION

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PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
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ISSUE

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JULY 25, 2024

MARK	DATE	DESCRIPTION

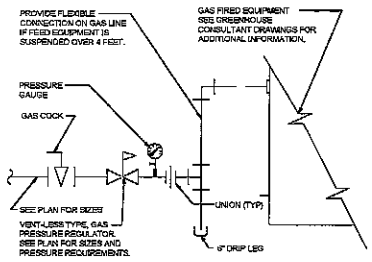
RSE PROJECT NO. 1479

SHEET TITLE

PLUMBING RENOVATION ROOF PLAN - AREA B

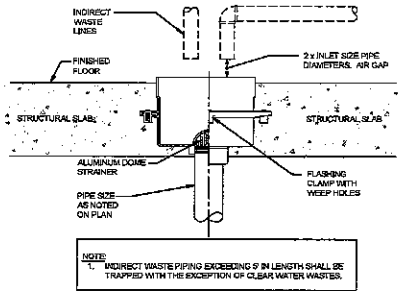
SHEET NUMBER

P202



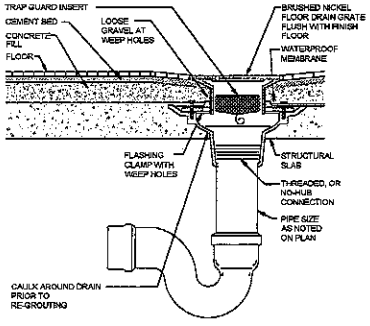
4 TYPICAL EQUIPMENT GAS SUPPLY DETAIL

SCALE: N.T.S.



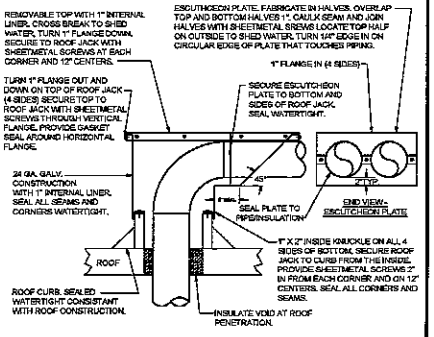
2 TYPICAL FLOOR SINK DETAIL

SCALE: N.T.S.



3 TYPICAL FLOOR DRAIN DETAIL

SCALE: N.T.S.



1 PIPING THROUGH ROOF DETAIL

SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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STATE OF TEXAS — MARK C. CLAYPOOL — 147201 — LICENSED PROFESSIONAL ENGINEER

Mark C. Claypool

7/25/2024

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FIRM REGISTRATION NUMBERS
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:

WILLIAMSON COUNTY 1848

PROJECT NAME:

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS:

1601 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION

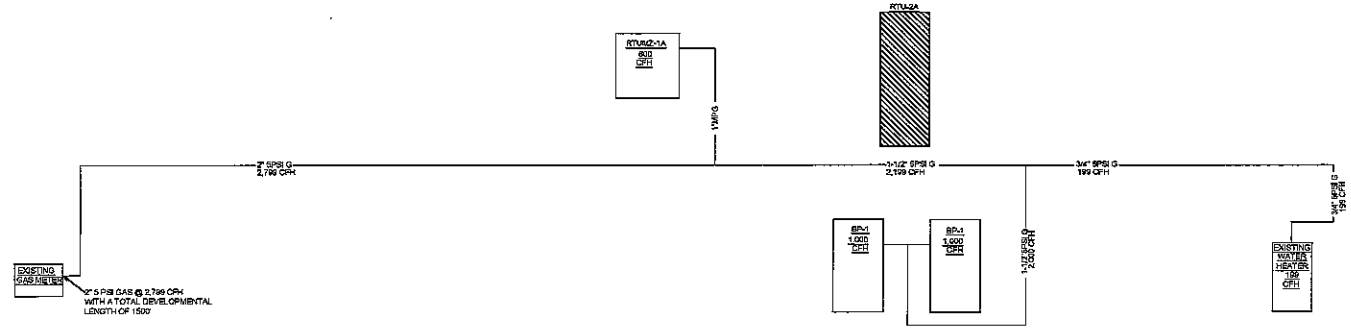
RSE PROJECT NO. 1479

SHEET TITLE

PLUMBING DETAILS

SHEET NUMBER

P501



1 PLUMBING GAS RISER PLAN
SCALE: NTS

FULL SIZE SHEET: 22X34

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1848

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Rooftop HVAC Unit Replacement

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SHEET TITLE

PLUMBING GAS RISER PLAN

SHEET NUMBER

P601

PLUMBING FIXTURE SCHEDULE

TYPE	MINIMUM ROUGH-IN SIZE					MANUFACTURER/ MODEL	DESCRIPTION	NOTES
	WASTE	VENT	DCW	DHW	LP			
FD-1	4"	2"	3/4"			JAY R. SMITH 2005Y-B	6" SQUARE TOP STRAINER HEAD FLOOR DRAIN WITH ADJUSTABLE STRAINER HEAD. PROVIDE TRAP GUARD.	1-3
FS-1	3"	2"	3/4"			JAY R. SMITH 3150	SANI-CEPTOR FLOOR SINK. 8" DEEP. PROVIDE DRAIN WITH 3/4 GRATE.	1-3

NOTES:

1. PROVIDE WITH VANDAL RESISTANT SCREWS.
2. PROVIDE WITH DEEP SEA TRAP.
3. FLOOR DRAINS IN TOILET ROOMS SHALL BE PROVIDED WITH TRAP GUARD.
4. FLUSH VALVE SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET FOR ALL ADA FIXTURES.

BACKFLOW PREVENTER SCHEDULE

TAG	DEVICE	TYPE	MANUFACTURER	MODEL	SERVING	MATERIAL	NOTES
BFP-1	BACKFLOW PREVENTER	REDUCED PRESSURE ZONE	WATTS	LF009	TABLE AND CHAIRS 125	CAST COPPER	1-4

NOTES:

1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE WITH LEAD FREE INLINE STRAINER AND ISOLATION VALVES FOR SERVICE.
3. INSTALL IN AN ACCESSIBLE LOCATION. (NOT FOR CONCEALED INSTALLATION).
4. REFER TO CONSTRUCTION DOCUMENTS FOR ACTUAL PIPE SIZE.

FULL SIZE SHEET: 22X34

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7/25/2024

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TBPE F-7451, TBPLS F-10193920

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PROJECT NAME:
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Round Rock, TX 78664

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JULY 25, 2024

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RSE PROJECT NO: 1479

SHEET TITLE

PLUMBING SCHEDULES

SHEET NUMBER

P701

Ramirez - Simon
Engineering, LLC

Project Title: **Williamson County Jester Annex – Rooftop HVAC Unit Replacement**
RSE Project #: **1479**
Issue: **Addendum 1**
Date: **05/23/2025**

This **Addendum 1** shall modify, amend, extend and become a part of the Contract Documents dated 07/25/2024 prepared by Ramirez Simon Engineering, LLC (RSE) in accordance with the terms therein, as if written out in full therein and bound originally therewith.

Questions concerning this **Addendum 1** or the Contract Documents, should be addressed to RSE by email to Mark Claypool (mcclaypool@ramirez-simon.com).

In cases of conflict, the Addendum shall take precedence over previously issued Contract Documents.

Questions

1. The specifications address material types for Chilled Water Piping but no Heating Water Piping. Does the Chilled Water Piping section also apply to Heating Hot Water?

   RSE Response:
   The chilled water piping specification section only applies to chilled water piping. Refer to attached specification section 23 2113 for heating hot water piping requirements.

2. The chilled water piping specification does not address the below grade chilled water piping. Is it pre-insulated? If so, can you please provide material for carrier pipe and type of pre-insulation?

   RSE Response:
   The chilled water piping below grade can be pre-insulated or insulated underground with mineral powder insulation. Refer to attached specification section 23 2120 and section 23 2119 as well as mechanical detail sheet M505 for more information.

Mechanical Drawings

1. Sheet G001 – GENERAL INFORMATION
   a. Added sheet M505 – Mechanical Details to sheet list.

2. Sheet M302 – MECHANICAL RENOVATION PIPING FLOOR PLAN – AREA C
   a. Revised keynote 11.

3. Sheet M505 – MECHANICAL DETAILS
   a. Added sheet.

Electrical Drawings

1. Sheet E203 – ELECTRICAL RENOVATION ROOF PLAN – AREA A
   a. Revised keynote tag number to reference keynote 3 for heat tracing.
   b. Revised circuit tag for heat tracing.

c. Removed floating keynote from plan.
d. Removed floating text from plan.

Plumbing Drawing

1. Sheet PU201 – PLUMBING RENOVATION UNDER FLOOR PLAN – AREA B
   a. Revised keynote 1.
   b. Revised keynote 2.
   c. Revised keynote 3.

Specifications

1. Table of Contents, Division 22
   a. Add Specification Section 22 7000 Facility Natural Gas System.

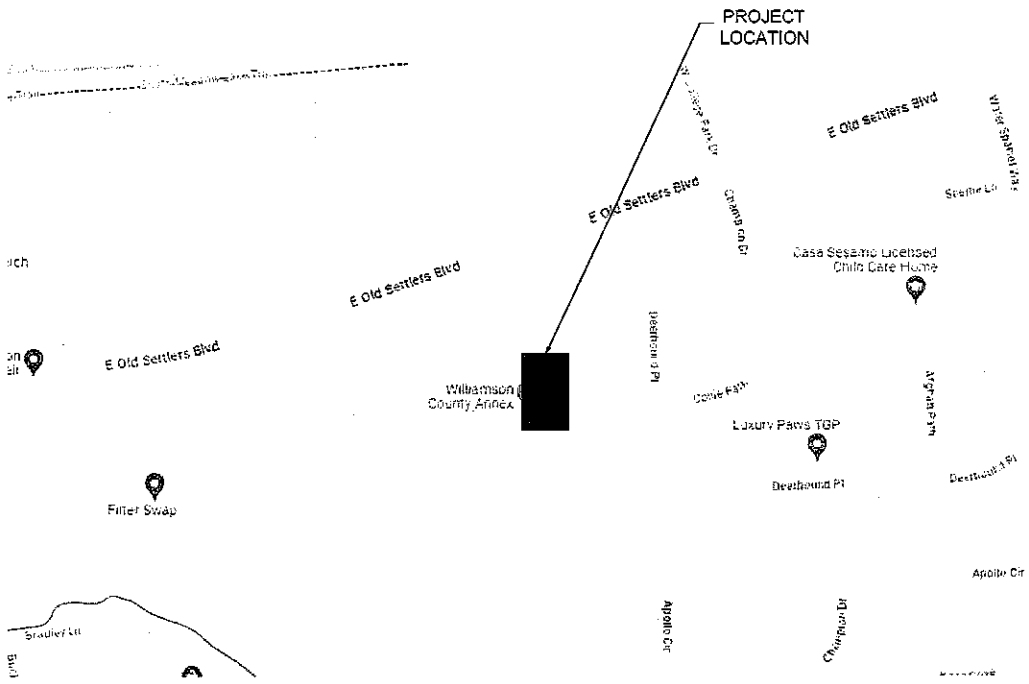
2. Table of Contents, Division 23
   a. Add Specification Section 23 2113 Heating Hot Water System and Equipment.
   b. Add Specification Section 23 2119 Underground Thermal Distribution Systems.
   c. Add Specification Section 23 2120 Underground Thermal Pipe Insulation.

3. Section 23 6423, Paragraph 1.2.E.
   a. Add sentence, **"Acceptable Manufacturer: Carrier, Trane, and JCI."**

4. Section 23 6423, Paragraph 2.1.M.8.
   a. Delete paragraph in its entirety.

5. Section 22 0500, Paragraph 2.4.C.
   a. Delete, **"Refer to Division 9 for additional information"** from paragraph.

END OF ADDENDUM 1



VICINITY MAP

APPLICABLE CODES AND STANDARDS:

NFPA 1 - FIRE CODE (2020)
NFPA 101 - LIFE SAFETY CODE (2020)
NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE (2020)
INTERNATIONAL BUILDING CODE (IBC 2021)
INTERNATIONAL FIRE CODE (IFC 2021)
INTERNATIONAL MECHANICAL CODE (IMC 2021)
INTERNATIONAL PLUMBING CODE (IPC 2021)
INTERNATIONAL EXISTING BUILDING CODE (2021)
INTERNATIONAL ENERGY CONSERVATION CODE (IECC 2018)
NATIONAL ELECTRICAL CODE (NEC 2021)

SHEET LIST	
SHEET NO.	SHEET TITLE
G001	GENERAL INFORMATION
G201	GENERAL CEILING PLAN
C000	NOTES
C100	SITE PLAN
C200	DEMO PLAN
C300	EROSION CONTROL
C301	EROSION CONTROL NOTES
C400	DETAILS
S001	STRUCTURAL NOTES
S002	STRUCTURAL NOTES
S101	FOUNDATION PLAN
S112	ROOF PLAN
S501	FOUNDATION DETAILS
S502	ROOF FRAMING DETAILS
S503	CMU FRAMING DETAILS
M001	MECHANICAL LEGEND AND GENERAL INFORMATION
MD201	MECHANICAL DEMOLITION FLOOR PLAN - AREA B
MD202	MECHANICAL DEMOLITION ROOF PLAN - AREA B
M201	MECHANICAL RENOVATION FLOOR PLAN - AREA A
M202	MECHANICAL RENOVATION FLOOR PLAN - AREA B
M203	MECHANICAL RENOVATION ROOF PLAN - AREA B
M301	MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA B
M302	MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA C
M303	MECHANICAL RENOVATION PIPING ROOF PLAN - AREA B
M401	MECHANICAL RENOVATION ENLARGED PIPING PLAN
M501	MECHANICAL DETAILS
M502	MECHANICAL DETAILS
M503	MECHANICAL DETAILS
M504	MECHANICAL DETAILS
M505	MECHANICAL DETAILS
M701	MECHANICAL SCHEDULES
M702	MECHANICAL SCHEDULES
M801	MECHANICAL CONTROLS
M802	MECHANICAL CONTROLS
M803	MECHANICAL CONTROLS
M804	MECHANICAL CONTROLS
E001	ELECTRICAL LEGEND
E002	ELECTRICAL GENERAL NOTES
ED201	ELECTRICAL DEMOLITION FLOOR PLAN - AREA B
ED202	ELECTRICAL DEMOLITION ROOF PLAN - AREA B
ED401	ELECTRICAL ENLARGED DEMOLITION PLAN
ED601	ELECTRICAL DEMOLITION ONE-LINE DIAGRAM
E201	ELECTRICAL RENOVATION FLOOR PLAN - AREA B
E202	ELECTRICAL RENOVATION FLOOR PLAN - AREA C
E203	ELECTRICAL RENOVATION ROOF PLAN - AREA B
E401	ELECTRICAL ENLARGED RENOVATION PLAN
E402	ELECTRICAL ENLARGED RENOVATION PLAN
E501	ELECTRICAL DETAILS
E502	ELECTRICAL DETAILS
E601	ELECTRICAL RENOVATION ONE LINE DIAGRAM
E602	ELECTRICAL GROUNDING RISER DIAGRAM
E701	ELECTRICAL SCHEDULES
E702	ELECTRICAL SCHEDULES
E703	ELECTRICAL SCHEDULES
P001	PLUMBING LEGEND AND GENERAL INFORMATION
PD201	PLUMBING DEMOLITION ROOF PLAN - AREA B
PU201	PLUMBING RENOVATION UNDERFLOOR PLAN - AREA B
P201	PLUMBING RENOVATION FLOOR PLAN - AREA B
P202	PLUMBING RENOVATION ROOF PLAN - AREA B
P501	PLUMBING DETAILS
P601	PLUMBING GAS RISER PLAN
P701	PLUMBING SCHEDULES

FULL SIZE SHEET: 22X34

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5/23/2025

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FIRM REGISTRATION NUMBERS
TBPE F-7451, TBPLS F-10193910

PROJECT INFORMATION

CLIENT NAME:
WILLIAMSON COUNTY
1848

PROJECT NAME:
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS:
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION
1	6/23/25	ADDENDUM 1

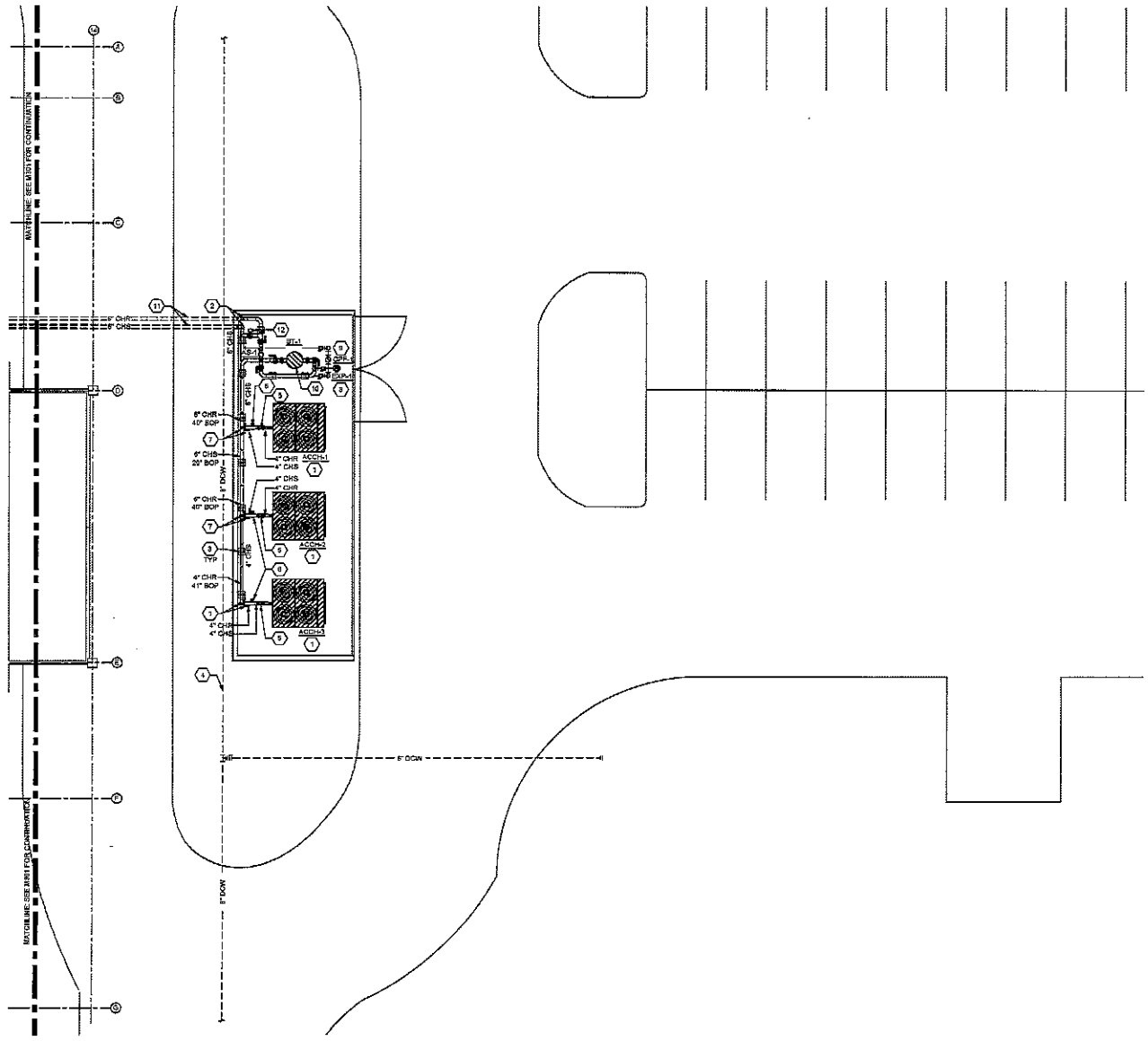
RSE PROJECT NO: 1479

SHEET TITLE

GENERAL INFORMATION

SHEET NUMBER

G001



1 MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA C

SCALE: 1/8" = 1'-0"

GENERAL NOTES

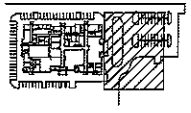
A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

B. CHAIN LINK FENCE TO BE PROVIDED BY OWNER

SHEET KEYED NOTES

1. PROVIDE NEW CHILLER WITH INTEGRATED PUMP.
2. PROVIDE NEW CHILLED WATER PIPING ABOVE GRADE.
3. PROVIDE PIPE SUPPORT.
4. EXISTING UNDERGROUND DCW MAIN PIPING IS SHOWN FOR COORDINATION PURPOSES.
5. PROVIDE NEW FLOW METER IN 4" CHR PIPING.
6. PROVIDE NEW MOTORIZED CONTROL VALVE IN 4" CHS PIPING.
7. PROVIDE NEW ISOLATION VALVES IN CHILLED WATER PIPING.
8. PROVIDE NEW EXPANSION TANK AND MOUNT ON GRADE. ROUTE 1" PIPING TO 6" CHR PIPING AND PROVIDE ISOLATION VALVE.
9. PROVIDE NEW CHEMICAL POT FEEDER AND MOUNT ON GRADE. ROUTE 1" PIPING TO 6" CHR PIPING AND 6" CHS PIPING. PROVIDE ASSOCIATED ISOLATION VALVES.
10. PROVIDE NEW BUFFER TANK AND MOUNT ON GRADE.
11. PROVIDE NEW CHILLED WATER PIPING BELOW GRADE. REFER TO DETAIL 3/M802.
12. PROVIDE NEW MOTORIZED CONTROL VALVE IN CHILLED WATER BYPASS PIPING.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"

N

FULL SIZE SHEET: 22X34

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TBPE F-2451, TBPLS F-10059800

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY
1848

PROJECT NAME

Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.

1479

PROJECT ADDRESS

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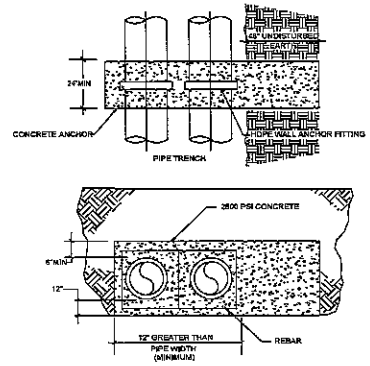
RSE PROJECT NO: 1479

SHEET TITLE

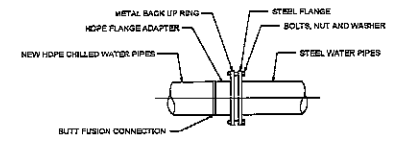
MECHANICAL RENOVATION PIPING FLOOR PLAN - AREA C

SHEET NUMBER

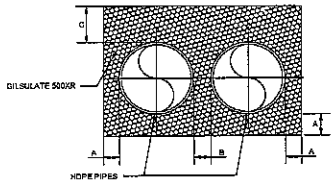
M302



2 TYPICAL PIPE ANCHORING CONCRETE BLOCK
SCALE: N.T.S.

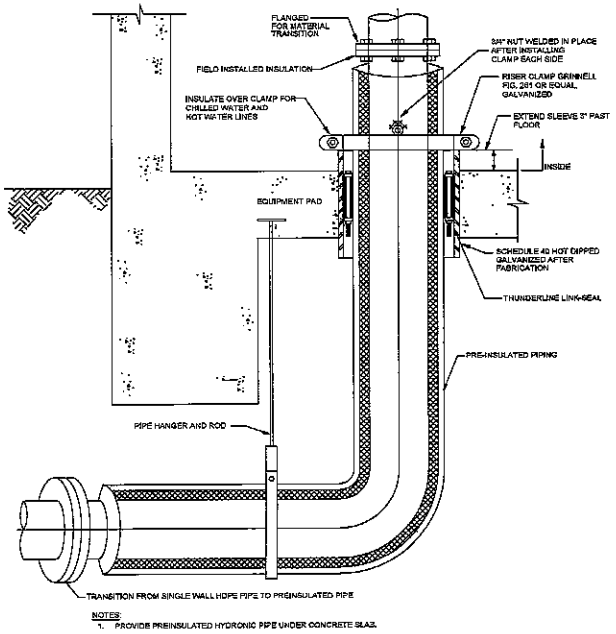


5 PIPE MATERIAL TRANSITION
SCALE: N.T.S.



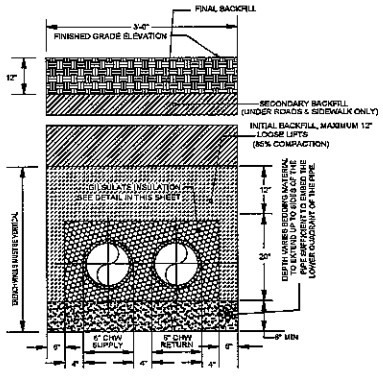
INSULATION SCHEDULE			
NOMINAL PIPES SIZE	CHILLED WATER		
	A	B	C
6	4	3	5

4 TYPICAL HDPE WATER PIPE INSULATION
SCALE: N.T.S.



NOTES:
1. PROVIDE PREINSULATED HYDRONIC PIPE UNDER CONCRETE SLAB.

3 PIPE PENETRATION THRU CONCRETE SLAB
SCALE: N.T.S.



BEDDING MATERIAL
BEDDING MATERIAL SHALL BE COMPOSED OF SAND MEETING THE REQUIREMENTS OF ASTM C33.
INITIAL BACKFILL
INITIAL BACKFILL SHALL CONSIST OF SAND WHICH TO CONFORMS TO THE REQUIREMENTS FOR BEDDING MATERIAL.
SECONDARY BACKFILL
SECONDARY BACKFILL SHALL CONSIST OF CEMENT STABILIZED SAND (5-1/2 SACKS CEMENT/CY). CEMENT STABILIZED SAND, MAXIMUM 12" LOOSE LIFTS, COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY ASTM D558 WITH MOISTURE CONTENT WITHIN ±3 PERCENT OF OPTIMUM.
FINAL BACKFILL
FINAL BACKFILL SHALL CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE OF BRUSH DEBRIS AND TRASH. NO ROCK OR STONES HAVING ANY DIMENSIONS LARGER THAN SIX INCHES(6") AT THE LARGEST DIMENSIONS SHALL BE USED IN THE SECONDARY BACKFILLING ZONE. SECONDARY BACKFILL SHALL BE PRIMARILY COMPOSED OF COMPACTIBLE SOIL MATERIALS.

1 THERMAL WATER LINES TRENCH
SCALE: N.T.S.

FULL SIZE SHEET: 22X34

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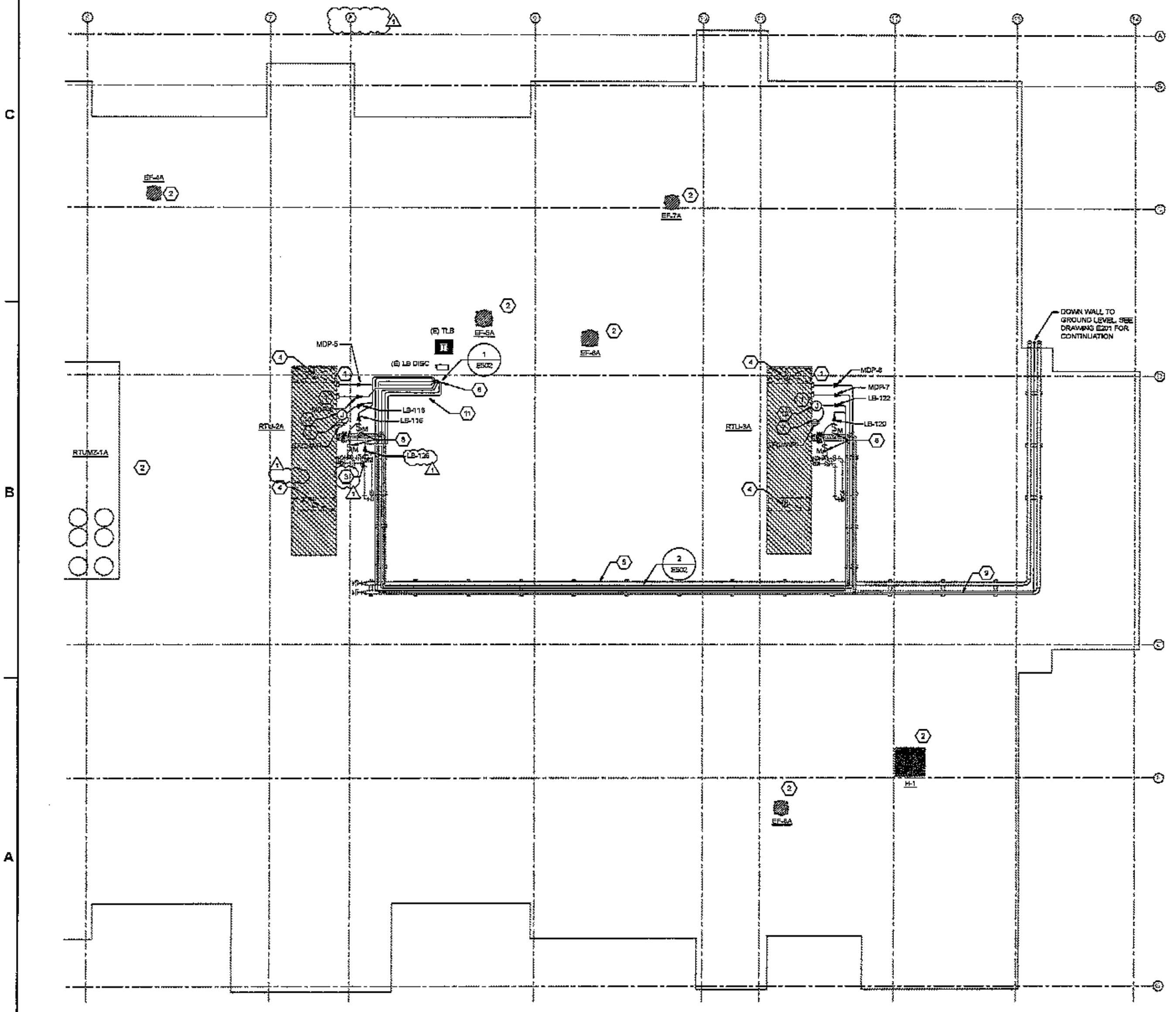
R&E PROJECT NO: 1479

SHEET TITLE

MECHANICAL DETAILS

SHEET NUMBER

M505



1 ELECTRICAL RENOVATION ROOF PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO ELECTRICAL LEGEND SHEET E001 FOR PROJECT GENERAL NOTES

B. DRAWINGS ARE SCHEMATIC IN NATURE; VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

C. ELECTRICAL EQUIPMENT AND DEVICES SHOWN ON THIS SHEET HAVE BEEN GATHERED FROM FIELD INVESTIGATIONS. THERE MAY EXIST OTHER EQUIPMENT AND DEVICES IN FIELD THAT ARE NOT REFLECTED ON THIS SHEET. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING AND/OR RELOCATING EQUIPMENT, DEVICES AND RACEWAY SYSTEM IN CONFLICT WITH NEW CONSTRUCTION.

D. FIELD VERIFY EXACT LOCATIONS OF EXISTING FEEDERS ON SITE. EXISTING FEEDERS TO REMAIN IN WORKING ORDER DURING CONSTRUCTION. HAND DIG IN AREAS WHERE EXISTING FEEDERS ARE LOCATED.

E. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.

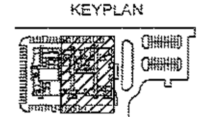
F. BRANCH CIRCUITS SHOWN ARE FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE EXISTING BRANCH CIRCUITS IN THE AREA TO EVALUATE AVAILABILITY. CONTRACTOR SHALL REUSE EXISTING BRANCH CIRCUITS MADE AVAILABLE AFTER DEMOLITION WORK. UPDATE PANEL DIRECTORY CARD WITH FINAL BRANCH CIRCUIT DESIGNATIONS.

G. CONTRACTOR TO KEEP TRACK OF ALL BRANCH CIRCUIT WIRING IN ORDER TO PRODUCE AS-BUILTS THAT SHOW EXACT LOCATION AND ROUTING OF WIRING, RACEWAYS, AND JUNCTION BOXES FOR BRANCH CIRCUITS.

SHEET KEYED NOTES

1. FURNISH AND INSTALL POWER TO SERVE RTU. LOCAL DISCONNECTING MEANS IS PROVIDED WITH EQUIPMENT. REFER TO ONE-LINE DIAGRAM FOR BRANCH CIRCUIT INFORMATION. HOMERUN CIRCUIT VIA VFD LOCATED IN BOILER ROOM. REFER TO SHEET E401 FOR LOCATION.
2. EQUIPMENT IS EXISTING TO REMAIN, SHOWN FOR REFERENCE ONLY.
3. FURNISH AND INSTALL POWER TO SERVE HEAT TRACING. COORDINATE EXACT LOCATION OF PIPE TO BE HEAT TRACED WITH DIVISION 23. PROVIDE GROUND FAULT EQUIPMENT PROTECTION TYPE CIRCUIT BREAKER TO SERVE CIRCUIT. PROVIDE A MOTOR RATED SWITCH FOR LOCAL DISCONNECTING MEANS.
4. DIVISION 28 TO FURNISH AND INSTALL DUCT SMOKE DETECTOR. PROVIDE WIRING AND INTERFACE WITH RTU CONTROLS. COORDINATE WITH MECHANICAL CONTRACTOR.
5. ROUTE ELECTRICAL CONDUITS ALONG WITH CHILLED WATER LINES ON SAME UTILITY SUPPORT RACK, COORDINATE INSTALLATION WITH DIVISION 23.
6. PENETRATE ROOF TO ROUTE NEW ELECTRICAL CONDUITS. FIELD LOCATE BEST LOCATE TO AVOID CONFLICT WITH STRUCTURE BEAMS AND OTHER OBJECTS.
7. MOUNT RECEPTACLE ON UNISTRUT.
8. FURNISH AND INSTALL POWER TO SERVE MOTORIZED VALVE. PROVIDE MOTOR RATED SWITCH FOR LOCAL DISCONNECTING MEANS.
9. 1.5" CONDUIT WITH PULLSTRING SERVING DDC CONTROL WIRING.
10. FURNISH AND INSTALL POWER TO SERVE RTU CONTROLS. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
11. COORDINATE CONDUIT ROUTING WITH MECHANICAL FLUE AND VENT PENETRATIONS.

KEYPLAN



1/8" = 1'-0"

FULL SIZE SHEET: 22X34

Ramirez - Simon Engineering, LLC

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SEAL

05/23/25

CONSULTANTS

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FIRM REGISTRATION NUMBERS:
TBPE F-7451, TBPLS F-10193810

PROJECT INFORMATION

CLIENT NAME

WILLIAMSON COUNTY 1848

PROJECT NAME
Williamson County Jester Annex Rooftop HVAC Unit Replacement

RSE PROJECT No.
1479

PROJECT ADDRESS
1801 E Old Settlers Blvd
Round Rock, TX 78664

ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION
1	5/23/25	ADDENDUM 1

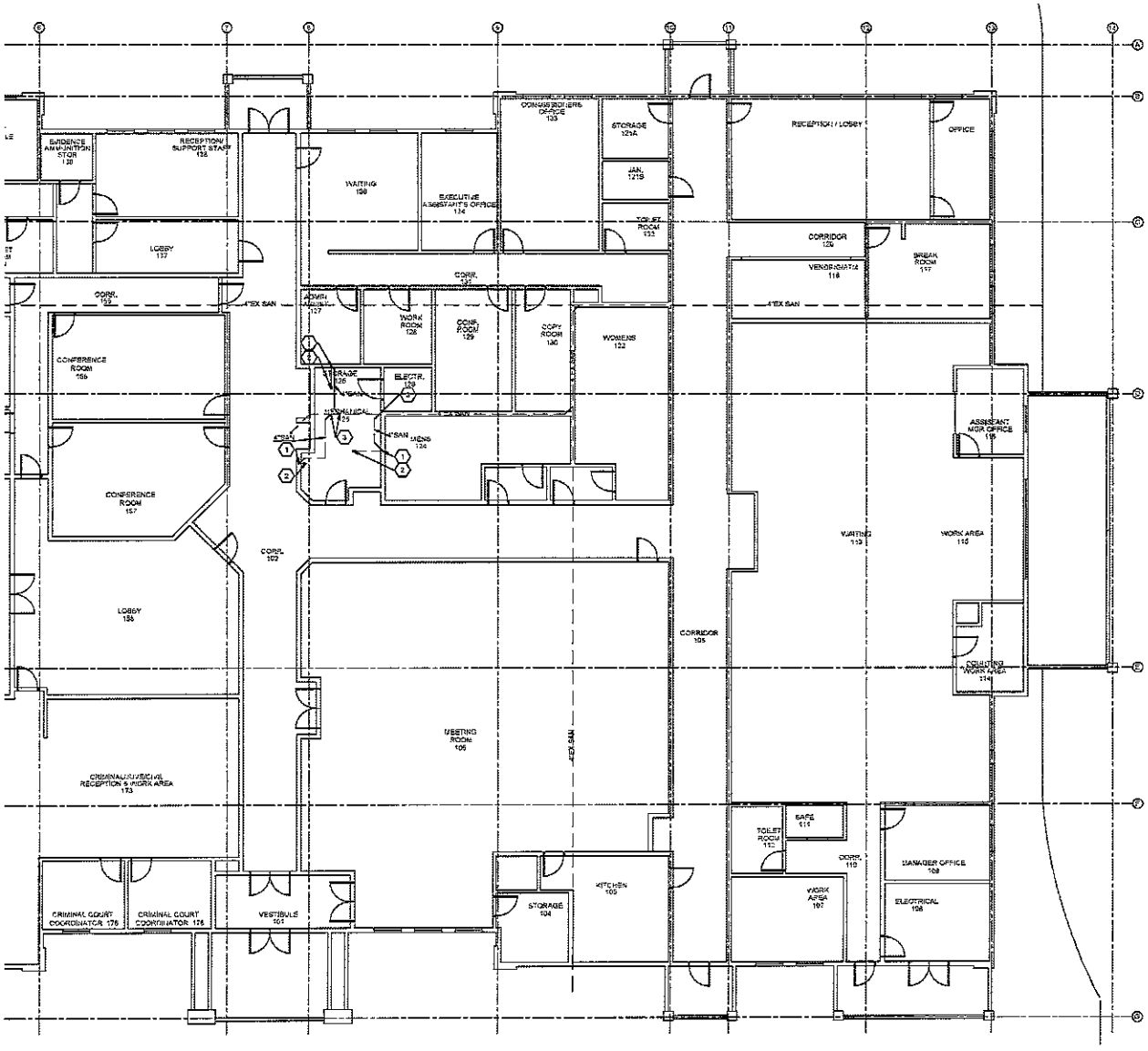
RSE PROJECT NO. 1479

SHEET TITLE

ELECTRICAL RENOVATION ROOF PLAN - AREA A

SHEET NUMBER

E203



1 PLUMBING RENOVATION UNDER FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

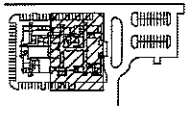
GENERAL NOTES

A. DRAWINGS ARE SCHEMATIC IN NATURE. VERIFY DIMENSIONS AND EQUIPMENT LOCATIONS IN THE FIELD. CONTRACTOR SHALL VERIFY EXACT LOCATION AND CONFIGURATION OF EXISTING INSTALLATIONS TO REMAIN.

SHEET KEYED NOTES

1. NEW 4" SANITARY DOWN 2" VENT UP.
2. NEW 4" SANITARY UP TO DRAIN ABOVE.
3. CONNECT NEW SANITARY TO EXISTING SANITARY HERE.

KEYPLAN



0' 4' 8' 16'
1/8" = 1'-0"
N

FULL SIZE SHEET: 22X34

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SEAL

STATE OF TEXAS
MARK C. CLAYPOOL
147201
LICENSED PROFESSIONAL ENGINEER
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ISSUE

ISSUED FOR PERMIT
JULY 25, 2024

MARK	DATE	DESCRIPTION
1	5/23/25	ADDENDUM 1

RSE PROJECT NO: 1479

SHEET TITLE

PLUMBING RENOVATION UNDER FLOOR PLAN - AREA B

SHEET NUMBER

PU201

SECTION 22 7000
FACILITY NATURAL GAS SYSTEM

PART 1 - GENERAL

1.1 REQUIREMENTS

A. Conform with applicable provisions of the General Conditions and Supplemental General Conditions.

1.2 SCOPE

A. Connect to existing building natural gas system and extend piping to serve new HVAC roof-mounted equipment. Work shall include all necessary, piping, regulators, supports, anchoring, miscellaneous accessories coordination with roofing, coordination with mechanical equipment, and coordination with other utilities. All outages shall be coordinated with Owner and the Contractor shall verify that all existing equipment affected by the outage is back to normal operation.

PART 2 - PRODUCTS

2.1 PIPING

A. All underground gas piping shall be minimum SDR-11 High Density Polyethylene (HDPE) plastic pipe and fittings, ASTM D-2513, with heat-fused socket or butt-fused joints. Piping shall be intended for natural gas use.

B. Provide connection between buried plastic gas service piping and metallic riser in accordance with the gas code. Provide metallic riser consisting of HDPE fused coating on steel pipe for connection to above ground building distribution piping. Underground horizontal metallic portion of riser shall be at least twenty-four inches in length before connection to the plastic service pipe. An approved transition fitting or adaptor meeting design pressure rating and plastic pipe manufacturers recommendations shall be used where the plastic joins the metallic riser.

C. All-natural gas piping shall be painted yellow.

D. Above Ground Piping Outside of Building
   1. Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with Class 150 black malleable iron threaded fittings conforming to ASME B16.3.
   2. Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.
   3. Provide factory-applied, three-layer coating of epoxy, adhesive, and PE or field applied primer and epoxy paint coating on all pipe and fittings. Field applied coating is restricted to fittings and short sections of pipe necessarily stripped for threading or welding. Field coating shall be manufactured by Amercoat Type 240 or approved equal and applied in accordance with manufacturer's recommendations. Galvanizing shall not be considered adequate protection.

E. Above Ground Piping Exposed Inside of Building:

1. Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with Class 150 black malleable iron threaded fittings conforming to ASME B16.3.
2. Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.
   EXCEPTIONS:
   a. All exposed piping 1½ inches and smaller located within areas utilized as return air plenums shall have welded joints with Schedule 40 socket welded forged steel fittings conforming to ASME B16.11.

F. Above Ground Piping Concealed Inside of Building (Includes above all ceilings, within partitions, within chases, and all non-accessible locations):

1. Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.

   EXCEPTIONS:
   a. Threaded piping 1½ inches and smaller may be installed in lieu of welded provided that all piping is encased within steel sleeve vented to the exterior of the building. Sleeve piping shall be Schedule 10 black steel pipe conforming to ASTM A53, Grade A or B, electric resistance welded or seamless, with roll-grooved ends. Sleeve pipe couplings shall be Victaulic Style 75 with Grade T nitrile gasket. Sleeve fittings shall be Victaulic grooved malleable or steel. Sleeve piping and fittings must be two pipe sizes, but not less than 1 inch larger than encased gas piping.

2.2 FITTINGS

A. Fittings for steel piping 2" and smaller shall be threaded or welded as described in Section 2.1 above. Threaded fittings shall be Class 150 standard black malleable iron conforming to ANSI B16.3. Weld fittings shall be either standard weight steel butt-weld fittings conforming to ANSI B16.9, or forged steel socket-weld fittings, 2000-pound Schedule 40 conforming to ANSI B16.11. Fittings for steel piping 2-1/2" and larger shall be standard weight steel butt-weld fittings conforming to ANSI B16.9.

2.3 FLANGES

A. Flanges for steel piping system shall be forged steel, weld neck, or slip-on, 1/16" raised face Class 150 flanges conforming to ANSI B16.5.

B. Flange connections for valves and equipment shall match the rating and drilling of the valves and equipment furnished.

C. Where specifically required by the application, black cast iron Class 125 standard threaded plain face companion flanges may be utilized for flanged connections in threaded piping systems.

D. Gaskets shall be 1/16" thick full face non-asbestos material suitable for the temperatures and pressure application.

E. Flange bolting shall be carbon steel machine bolts or studs and hex nuts, ASTM A307, Grade B.

2.4 VALVES

A. Valves shall be as specified in Section 22 0523, Valves.

B. Valves used in conjunction with gas piping shall be approved for the required service.

2.5 GAS METERS

A. Natural gas meters shall be furnished and installed by the natural gas utility company. All required permits and fees shall be secured and paid for by the Contractor in accordance with Section 22 0500. Gas meter shall be the type and capacity required for the application and shall be located as indicated on the drawings and in accordance with utility company requirements and applicable codes and ordinances.

B. All natural gas meters shall be preceded by a main gas supply shut-off valve serviceable and accessible outside the building.

2.6 NATURAL GAS REGULATOR

A. The incoming system natural gas pressure regulator shall be furnished and installed with the gas meter by the utility company, set for the required gas leaving pressure shown on the drawings.

B. Line gas pressure regulators shown on these documents shall be contractor furnished. Size the regulators per manufacturer recommendations for flow quantities and pressure as shown on the drawings. Provide Fisher/Emerson EZR, SENSUS 243, or approved equal.

C. Install pressure gauge adjacent to and downstream of each line pressure regulator.

D. Secondary natural gas appliance and equipment regulators required by the equipment manufacturer shall be furnished by the equipment manufacturer or supplier and sized for the system inlet pressure and the required appliance operating pressure.

E. Gas regulators located indoors shall be vented to the outdoors and termination point shall be 3ft above roof a minimum of 10ft separated from outdoor air intakes.

2.7 PIPING SUPPORTS

A. Piping hangers and supports shall be in accordance with Section 22 0504. Roof-mounted pipe supports shall be coordinated with roofing system to maintain existing warranty, if in place. Roof work shall be coordinated with SSC Services.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Piping installation shall conform to the requirements of Section 22 0500, Common Work Requirements for HVAC, and Section 22 0504, Pipe and Pipe Fittings. Installation of specialties shall conform to the requirements of Section 22 0505, Piping Specialties.

B. Installation of piping and equipment shall be in accordance with applicable codes and regulations, including International Plumbing Code, International Mechanical Code, International Fuel and Gas Code, and NFPA No. 54.

C. No gas piping shall be installed in or on the ground under any building or structure, and all exposed gas piping shall be at least 6-inches above grade.

D. Gas piping supplying the building or facility shall be provided with a shut-off valve located outside the building and readily accessible. Where gas piping supplies multiple buildings or facilities, each building shall be provided with a shut-off valve as described herein.

3.2 EQUIPMENT AND APPLIANCE CONNECTIONS

A. All gas fired equipment and appliances shall be connected to the gas piping system in an approved manner and shall be furnished with a shut-off valve and union installed ahead of the unit. Connections shall in no case be less than the unit inlet connection size and shall be rigidly connected, except as otherwise shown on the drawings and allowed by codes and regulations.

3.3 DRIPS

A. Accessible capped drip pockets shall be furnished at low points in piping system, connections to appliances and equipment, and other locations where condensation may tend to collect.

3.4 VENTS

A. All gas regulators and other required devices installed within the building shall be vented to the outside of the building in accordance with manufacturer's requirements, codes, and regulations.

3.5 TESTS

A. All gas piping shall be pressure tested using air, CO2, or nitrogen in accordance with the applicable codes and regulations, including International Plumbing, Mechanical Code, NFPA No. 54.

B. All new rough-in distribution piping and affected portions of existing systems connected to, shall be subjected to a pneumatic test pressure utilizing clean, dry air and must be demonstrated to be absolutely tight when subjected to the pressures and time durations listed herein. All equipment and components designed for operating pressures of less than the test pressure shall not be connected to the piping system during test.

1. Systems on which the normal operating pressure is less than 0.5 pounds per square inch gauge (psig), the test pressure shall be 5.0 psig and the time interval shall be 4 hours.
2. Systems on which the normal operating pressure is between 0.5 psig and 5.0 psig, the test pressure shall be 1.5 times the normal operating pressure or 5.0 psig, whichever is greater, and the time interval shall be 4 hours.
3. Systems on which the normal operating pressure is 5.0 psig or greater, the test pressure shall be 1.5 times the normal operating pressure, and the time interval shall be 8 hours.

END OF SECTION 22 7000

SECTION 23 2113
HEATING HOT WATER SYSTEM AND EQUIPMENT

PART 1 - GENERAL

1.1 REQUIREMENTS

A. Conform with applicable provisions of the General Conditions, Supplementary Conditions and General Requirements.

1.2 RELATED SECTIONS

A. See Section 23 0500, for Common Work Requirements for HVAC.

B. See Section 23 0504, for Pipe and Pipe Fittings.

C. See Section 23 0505, for Piping Specialties.

D. See Section 23 0523, for Valves.

E. See Section 23 0700, for HVAC Insulation.

F. See Division 26, Electrical.

PART 2 - PRODUCTS

2.1 PIPING

A. Copper Piping – 4" and less - The Contractor shall use Type L hard drawn copper tubing, ASTM B88 for heating water piping. Proper insulating fittings, as specified in Section 23 05 04, shall be installed to prevent electrolytic action between steel and copper piping connections.

B. Polypropylene Piping - Aquatherm Blue Pipe with multi-layer faser (SDR-9 MF), ASTM F2389 – All sizes. Pipe shall have certification from NSF to meet NSF 14 and 61 and shall be listed with ICC. Pipe minimum rating shall be 100 psi at 180 F deg. Certified of flame spread/smoke development rating of 25/50 in accordance with ASTM E84 when wrapped with standard pipe insulation, field installed. Contractor (all installers) shall be trained by factory authorized representative prior to installation. Contractor shall coordinate expansion control requirements with manufacturer and install as required. Acceptable manufacturers are Aquatherm, Niron, or approved equal.

2.2 FITTINGS

A. Fittings for copper piping shall be wrought copper conforming to ANSI B16.22, with 95-5 solder joints, as specified in Section 23 05 04.

B. Mechanically formed tee connections and couplings for copper piping system shall be as specified in Section 23 05 04.

C. Polypropylene pipe fittings shall match pipe material. Fittings shall be as specified in Section 23 0504.

2.3 FLANGES

A. Flanges connections shall be forged steel, 1/16" raised face Class 150 flanges conforming to ANSI B16.5.

B. Flange connections for valves and equipment shall match the rating and drilling of the valves and equipment furnished.

C. Gaskets shall be 1/16" thick ring type or full face non-asbestos material suitable for the temperatures and pressure application.

D. Flange bolting shall be carbon steel machine bolts or studs and hex nuts, ASTM A307, Grade B.

2.4 VALVES

A. Valves other than automatic control valves are specified in Section 23 0523, HVAC Valves.

B. Automatic control valves shall be as specified Division 25 Integrated Automation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Piping installation shall conform to the requirements of Section 23 0500, Common Work Requirements for HVAC, Section 23 0504, Pipe and Pipe Fittings. Installation of specialties shall conform to the requirements of Section 23 0505, Piping Specialties.

3.2 CLEANING AND FLUSHING PIPING SYSTEMS

A. New heating water piping systems installed under this Contract shall be chemically cleaned of oils, greases, dirt and mill scale. The new piping system shall be inspected by the Owner's approved Water Treatment Agency.

B. Cleaning shall be performed in strict accordance with the chemical treatment agency and manufacturer's recommendations.

C. After the mechanical contractor has prepared the building and the piping to be flushed after it has been tested. Provide a complete water flushing and cleaning of the closed loop hot water systems as specified herein. Systems must be commissioned as clean and meet the water treatment specifications.

D. All hot water piping and related equipment shall be thoroughly flushed out with pre-cleaning chemicals designed to remove deposits such as pipe dope, oils, loose rust, mill scale and other extraneous materials. Recommended dosages of pre-cleaner chemical products shall be furnished by water treatment supplier, added and circulated throughout the water systems. The water systems shall then be drained, refilled and flushed thoroughly until no foreign matter is observed and total alkalinity of the rinse water is equal to or better than that of the make-up water.

E. All polypropylene piping and related equipment shall be thoroughly flushed out with high volume and velocity water designed to remove deposits such as pipe shavings, dirt, debris and any other

and other extraneous materials.

F. All temporary connections required for cleaning, purging, and circulating shall be included. Provide suitable pipe bypasses at each coil and heat exchanger during this cleaning operation.

G. Flushing & Cleaning – a third party flushing company should be used. Permanent facility pumps should not be used for circulating the cleaning water. However, if its impractical to use temporary pumps, the permanent facility pump may be used provided that the pump is unconditionally warranted for two years, parts and labor, after the date of substantial completion by the mechanical contractor. A documented flush plan may be required at the discretion of the engineer. All operators should be aware of and abide by the Safety and PPE regulations of the project site. Operation should be manned continuously during the flushing process.

H. Self-Contained Flush Unit Requirements – Should contain a pump or pumps connected that will meet or exceed the volume required to flush and purge the system at the required velocity rate through the largest pipe. A pump curve will be submitted along with other important documentation for the related equipment on the unit. This will include, at minimum, filtration, flow meter(s), pressure gauges, and unit description or picture.

I. Pre Flush - Bypass loops should be installed at all equipment components. Strainers can be removed when a self-contained purge unit is used in conjunction with on board filtration. Flush ports should be identified along with the type of high pressure hose or piping that will be used to connect to the system. The water source should be identified and must be adequate to fill and make up water in a timely manner to the system during the flush process.

J. Clear Water Flush – Fill the piping system with clean potable water. The first flush is a clear- water flush intended to circulate water through the system and force loose debris to low point drains and the flush cart filtration system. This flush should be at minimum velocity throughout the system of 5 to 7 ft/sec. Filtration should be 25 micron.
   1. For Polypropylene, HDPE Piping Systems – the minimum duration of the flush should be calculated using a formula of 1 hour per 1000 linear feet of pipe and until system water is comparable to make up water source.

K. Cleaning & Passivation
   1. For Metallic Piping Systems - The second flush cycle is a combined flushing cycle where cleaning and passivation chemicals are introduced into the system to clean the oils and treat the inside wall of the piping system. This process will be monitored by the chemical treatment company to meet the chemical specifications of the water. The cleaning velocity should be between 3 to 5 ft/sec and the circulation time will be baes on the chemical testing but will typically be up to 48 hours.

L. Treatment
   1. For Metallic Piping Systems - After cleaning and before adding chemical initial charge, system must be flushed to meet these minimum requirements:
      a. Conductivity no higher than 20 mmho above domestic water level
      b. No foam
      c. Copper level less than 0.5 ppm
      d. Iron level less than 1.0 ppm
      e. pH 9.4 or less
      f. Less than 1 ppm phosphates (ortho-phosphate PO4)

M. Final Chemical Fill – Once the chemical treatment company has determined the system has been brought back to the correct composition, the chemical treatment company will inject the final chemicals into the system. Once the system is filled with the final chemicals it is important that the water is not to be left stagnant. Chemical treatment shall be comparable to existing treatment program.

N. Verify satisfactory completion of clean pipe and a final flushing and chemical treatment report should be signed by field personnel and submitted. Refer to Appendix A for the Flush & Cleaning Hydronic Pipe Field Completion Report

O. In conjunction with piping system cleaning, clean and inspect all strainers and suction diffusers. Remove, bypass, or otherwise protect as necessary all piping system components which may be damaged due to chemical cleaning, including filters, instrumentation gauges, flow meters, etc.

P. After completion of chemical cleaning and flushing, the piping system shall be immediately refilled and maintained with treated water. Under no circumstances shall cleaned piping be allowed to sit empty or filled with untreated water.

3.3 TESTS

A. All piping shall be proven tight at a hydrostatic pressure of 150% of the system design operating pressure, but not less than 125 PSI. The system shall show no loss in pressure or indication of leakage at any joint or connection for a period of **one (8)** hours.

END OF SECTION 23 2113

Appendix A

Flush & Cleaning Hydronic Pipe Field Completion Report

Flush & Cleaning Hydronic Pipe Field Completion Report

Project Name _____

Date of Report: _____

Project Location: _____

Prime Contractor: _____

Mechanical Firm: _____

Chemical Treatment Firm: _____

Lead Flushing Technician On-Site During Process: _____

Project Type:

- Hot Water Flush _____
- Other: _____

Scope Summary:

_____
_____
_____
_____
_____

Start Time and Date: _____ End Time and Date: _____

_____
Mechanical Representative

_____
Chemical Representative

_____
Owner Representative

SECTION 23 21 19
UNDERGROUND THERMAL DISTRIBUTION SYSTEMS

PART 1 – GENERAL

1.01 REQUIREMENTS

A. Conform with applicable provisions of the General Conditions, the Special Conditions, and General Requirements.

1.02 RELATED SECTIONS

A. Section 23 2120 Underground Thermal Piping Insulation

1.03 WORK INCLUDED

A. Underground chilled water distribution system the use of extra high molecular weight plus (EHMW plus) high density polyethylene (HDPE) pipe due to its additional performance against abrasion, higher pressure and elevated temperatures. For chilled water a minimum of SDR 17 is required. Work shall include all piping, valves and pipe insulation to provide a complete system for chilled water piping as indicated. Pipes need to meet with the following minimum specifications:

1.04 MATERIALS

A. The pipe and fittings shall be made extra high molecular weight (EHMW) high-density polyethylene with a standard thermoplastic material designation code of PE3608 and having a cell classification of 345464c per ASTM D3350.

B. Materials used to manufacture pipe and fittings shall be listed under the manufacturer's name in the plastics pipe institute (PPI) TR-4, "PPI listing of hydrostatic design basis (HDB), strength design basis (SDB), pressure design basis (PDB) and minimum required strength (MRS) ratings for thermoplastic piping materials or pipe." The manufacturer shall supply a product with a standard grade HDB rating of 1600 PSI (minimum) at 73F and 800 PSI (minimum) for 180F. Upon request, the manufacturer shall supply certification that the materials used to manufacture the pipe and fittings meet the above requirements.

C. All materials, which come in contact with potable water, including lubricants, shall be evaluated, tested and certified for conformance with ANSI/NSF standard 61.

PART 2 – POLYETHILENE PIPE AND FITTINGS

2.01 Pipe and tubing furnished under this specification shall be manufactured from compounds in compliance with sections above. The dimensional and performance characteristics shall conform to the requirements of the most current version of AWWA C-901 (1.2" through 3") or C-906 (4" through 65"). Each lot of material shall be tested for melt index, density and % carbon. Upon request, the manufacturer shall furnish test data.

2.02 Polyethylene fabricated fittings shall be manufactured from polyethylene pipe, sheet stock or molded fittings meeting the material requirements of this specification and all appropriate requirements of AWWA C-901 or AWWA C-906.

2.03 Polyethylene fittings, including custom fabrications, shall have the same internal pressure rating as the mating pipe. At the point of fusion, the wall thickness and outside diameter of the fitting shall be in accordance with AWWA C-901 or AWWA C-906 for the same pipe size.

2.04 The Pipe Manufacturer's Quality System Shall Be Certified to Be In Accordance with ISO 9001:2000

PART 3 – JOINING

3.01 Heat fusion

A. Pipe and fittings shall be joined by one of the following types of thermal fusion per the manufacturer's recommended procedures: butt fusion, saddle fusion or socket fusion.

B. Upon request, the manufacturer shall provide fusion training by authorized personnel or an authorized representative. The contractor shall be responsible for ensuring that personnel have received proper training per the manufacturer's recommended procedure. Records of training shall be maintained by the contractor and should not exceed 12 months from date of construction.

C. Butt fusions performed between pipe ends or pipe ends, and fitting outlets shall be within the following allowable wall mismatches:
   1. 2 DR difference for pipe and fitting diameters 6" and smaller.
   2. 1 DR difference for above 6" through 18".
   3. No difference for diameters above 18".
   4. The difference in DR's is determined from the following DR values: 7.3, 9, 11, 13.5, 17, 21, 26 and 32.5.

3.02 Other methods of joining

A. Polyethylene pipe and fittings may be joined together or to other materials through the use of electrofusion fittings, flange adapters with back-up rings, mechanical couplings designed for connecting polyethylene pipe and fittings to itself or to another material, or mj adapters. The manufacturer of the joining device shall be consulted for proper installation procedures.

PART 4 – MARKING

4.01 Service identification stripes: permanent identification of piping service shall be provided by co-extruding four equally spaced color stripes into the pipe outside surface. The striping material shall be the same material as the pipe material except for color. The following colors shall be used to identify piping service:

A. No color stripe – chilled water pipe

4.02 Pipe and tubing shall be permanently marked in accordance with all applicable standards per this specification. Marking shall be heating stamped indent print and shall remain legible under normal handling and installation practices.

4.03 Fittings shall be marked on the body or hub. Marking shall be in accordance with the applicable standard depending upon the fitting type. Mechanical fittings shall be marked with size, body material designation code, pressure rating and the manufacturer's name or trademark.

4.04 All buried pipelines shall have detectable marking tape installed a minimum of 12" inches below final grade and 18" to 24" above each pipe. Tape shall be a 6" with a minimum 5.0 mil over all thickness. tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core and then laminated to a 3.75 mil clear virgin polypropylene film. Tape shall label to meet design guidelines. Marking tape shall meet or exceeds all applicable ASTM specifications.

PART 5 – WORKMANSHIP

5.01 Pipe, tubing and fittings shall be homogenous throughout, and free of visible cracks, holes, foreign inclusions, blisters, dents or other injurious defects. the pipe, tubing and fittings shall be as uniform as commercially practicable in color, opacity, density and other physical properties.

PART 6 – TESTING

6.01 The contractor shall be responsible for field set-up and performance of the fusion equipment and the fusion procedure used by the operator. Upon request, the contractor shall verify the fusion quality by making and testing per the manufacturer's recommended qualification procedure. The contractor shall be responsible for the necessary adjustments to the set-up, equipment, and operation and fusion procedure. Fusions that fail the qualification procedure shall be remade.

6.02 Hydrostatic testing shall be conducted in accordance with the manufacturer's recommended testing procedures. Hydrostatic testing shall be performed prior to installation of the insulation and backfill. At no time shall the pipe be covered prior to the completion of the hydrostatic testing. Hydrostatic test pressures shall be 100 psi for chilled water piping, 125 psi for domestic cold and hot water lines. Acceptance shall be zero pressure drop after 2 hours.

PART 7 – THIRD PARTY CERTIFICATION

7.01 The performance requirements of the pipe and fittings shall comply with the most current version of AWWA C-901 or AWWA C-906. The manufacturer shall be listed with NSF61certification and include the third-party certification within the print line of the product.

PART 8 – INSTALLATION

8.01 Installation of HDPE SDR11 pipes shall be in accordance with AWWA M55 (chapter 8).

Notes:

A. Minimum compaction shall be to 85% standard proctor density unless under a roadway where a minimum compaction shall be to 95% standard proctor density.
B. Due to the potential for ring buckling of empty pipe during roadway construction installation must have a minimum cover of 30 inches for pipe sizes up to 18-inches and 36 inches of cover from pipe sizes 18 to 24-inches.
C. The valves associated with this system shall be direct buried gate valve type.

END OF SECTION 23 21 19

SECTION 23 21 20
UNDERGROUND THERMAL PIPE INSULATION

PART 1 – GENERAL

1.02 REQUIREMENTS

A. Conform with applicable provisions of the General Conditions, the Special Conditions, and General Requirements.

1.03 RELATED SECTIONS

A. Section 23 2119 Underground Thermal Distribution System

1.04 WORK INCLUDED

A. Extent of underground piping insulation required by this section is indicated on drawings and schedules and by requirement of this section.

B. Types of underground piping insulation specified in this section include the following: Inorganic, engineered granular, underground pipe insulation. Pre-insulated pipes are an acceptable alternative.

C. An underground piping insulation system must be provided to enclose and provide thermal and waterproofing protection for piping specified and shown on Plans, including but not limited to the following:
- Piping insulation including expansion units.
- Miscellaneous materials incidental to complete installation of insulated underground sections.
- Supervision of installation as specified.

D. Piping located under building slab shall be pre-insulated type.

PART 2 – MINERAL POWDER INSULATION

2.02 GENERAL

A. Insulating material which adheres to or becomes joined in any manner to piping during cycle of operation shall not be used.

B. Contractors are solely responsible to complete work for entire run of piping between points specified and shown on plans.

C. Adequate space and clearance with insulated underground piping system shall be provided to allow free movement of piping and avoid stress or abrasions to piping. No wood, masonry, metal, or any other abrasive pipe supports or guides, shall be left in contact with piping.

D. Provide fittings and accessories necessary and incidental to type of system selected.

E. Store materials and equipment on work site on wood platforms or members; stack and pile in substantial and safe manner so products will not easily dislodge while in storage.

F. Replace or repair wet or damaged insulation as directed by Engineer or product installation requirements.

G. Complete hydrostatic tests for all new lines. Perform hydrostatic leak test at 1.5 times maximum operating pressure to ensure piping system is free from leaks before application of field applied insulation and closures. See HDPE Piping Installation Design Standard for testing pressures and acceptance requirements. Williamson County technical staff must be notified in advance of planned hydrostatic test and be present to witness the test. See pipe manufacturer's recommendations for testing procedures.

H. All parts of system to be intact, undamaged, and free from leaks before backfilling with insulation material. Upon completion of backfilling of insulation material, work must be approved by construction inspector and Williamson County representative before final backfilling is performed. Piping or insulation installation that is deemed to be inadequate or incorrect. by Engineer, construction inspector, or Williamson County representative must be corrected to meet.
specifications prior to backfilling.

2.03 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firm regularly engaged in the manufacture of granular insulation products of size and type required, whose product has been in satisfactory use in similar service for not less than 10 years.

B. Installers Qualifications: Firm with at least 3 years of successful installation experience on projects with elevated temperature mechanical insulation systems.

2.04 DELIVERY, STORAGE AND HANDLING

A. Deliver insulation, associated adhesives, form work and supplementary steel to site in manufacturer's containers with manufacturer's stamp or label clearly shown.

B. Protect insulation packaging and associated components against sun, dirt, water and chemical damage.

2.05 MANUFACTURER

A. Gilsulate International, Incorporated

2.06 PRODUCT

A. Gilsulate 500XR

C. Expansion Cushions: provide 3-to-5-pound density mineral fiber cushion to accommodate thermal expansion at expansion loops and elbows as required by the contract documents and insulation manufacturer's drawings and Design and Installation Manual.

2.10 EXAMINATION

A. Examine area and conditions under which engineered controlled density insulating fill & corrosion protection system is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected. All standing water shall be removed from trench prior to installing insulation.

B. Pile dirt from trenching on one side of trench and work from opposite side. Ensure bottom of trench is free of debris and large stones.

C. Bottom of trench shall be undisturbed soil.

2.11 EXCAVATION, FILLING AND BACKFILLING

A. Final grading for setting pipe units to be performed immediately prior to setting units or concrete supporting pad in trenches; backfilling around completed insulated system to be under direction of supervisor for installation of insulated underground system.
B. Restore all finished grades and improvements as detailed.

2.12 INSTALLATION

A. Install and test carrier pipe: Install and test prior to installing insulation. Inspect welds and pressure test pipe as required by other sections of this specification. Clean pipe of all dirt, scale and foreign materials.

B. Installation of anchors: Install structural steel and concrete of the size and quantity shown on the contract documents. Pour 2000 psi concrete at 28 days around rebar and anchor post and against undisturbed soil. Ensure anchor post and support channel (if required) are at the proper elevation for installation of piping. Ensure the rebar and the bottom of the anchor post is within the concrete envelope. Just prior to pouring the insulation coat all exposed steel (anchor post, support channel and knee brace) with bitumastic. Bitumastic must be tacky during insulation.

C. Installation of guides: Install structural steel and concrete of the size and quantity shown on the contract documents. Pour 2000 psi concrete at 28 days around lower portion of guide brackets and against undisturbed soil. Weld the horizontal guide brackets at the proper pipe elevation. Just prior to pouring the insulation coat all exposed steel guide brackets and spacer angles with bitumastic. Bitumastic must be tacky during insulation installation.

D. Installation of expansion loop support: Pour concrete support pad of the size indicated on the contract documents. Ensure pad elevation is correct for proper pipe elevation when the concrete pipe support is installed. Coat pipe support with bitumastic. Bitumastic must be tacky during insulation installation.

E. Installation of temporary pipe supports: Provide temporary pipe support wires suspended from lumber bridging the trench. Temporary wood blocks located under the pipe may also be used. These supports must be removed as the insulation is poured and consolidated. No

object should be allowed to bridge the gap between the soil and the pipe except the insulation.

F. Installation of expansion cushions: Wrap mineral fiber cushions around pipe elbows on expansion elbows and expansion loops as indicated on the contract documents. Insure there is sufficient space or flexibility between cushions to allow insulation to pour and be consolidated under piping. Secure cushion to pipe with fiber reinforced tape. Specified Insulation thicknesses need to be maintained around fiber cushion areas.

G. Installation of forms: Provide gypsum board forms with support posts as shown in Gilsulate International, Inc.'s Design and Installation Manual. Posts must be located on the outside of the forms and spaced to prevent bowing of the gypsum board. After forms are in place, partially backfill outside of form to height of pipe.

H. Pouring of insulation: Pour insulation in short sections along the pipe axis. Apply bitumastic to structural steel surfaces and fill trench to centerline of pipe. Consolidate insulation using a rod-type concrete vibrator pulled along the sides and between the pipes. Pour and consolidate additional layers of insulation until the design coverage has been achieved. Proper consolidation is achieved when the insulation can be walked on with footprints less than 1" deep. No wood is to remain in contact with pipe(s) or left in insulation envelope. This could affect overall system efficiency (heat gain/loss) of non-metallic pipe(s) and/or cause corrosion to metallic pipe(s).

I. Inspector must physically be capable of confirming specified installed/compacted insulation thicknesses prior to placement of any backfill.

J. Backfill first 6" of soil (no stones) by hand. Complete backfilling and mechanically compact in uniform layers with suitable excavated soil to grade level.

K. Refer to Gilsulate International Inc. "Design & Installation Manual" for Installation Procedures.

PART 3 – PRE-INSULATED PIPE INSULATION

3.02 GENERAL

A. For underground thermal lines furnish a complete HDPE jacketed system of factory pre-insulated piping for the specified service. The jacket throughout the entire system shall incorporate electric fusion, butt fusion, or extrusion welding at all fittings, joint closures, or other points of connection. This shall create a jacket that is seamless throughout the entire system with the exception of anchors whose water shed rings are sealed with double lap Raychem Dirax, Canusa GTS-65, or WLNN wrap prohibiting the ingression of water.

B. All pre-insulated pipe, fittings, insulating materials and support shall be provided by the pre-insulated piping system manufacturer.

3.03 PRODUCTS

A. Insulation shall be polyurethane foam either spray applied or injected with one shot into the annular space between carrier pipe and jacket and shall be bonded to both. Insulation shall be rigid, minimum 90% closed cell polyurethane with a minimum of 2.0 lbs. per cubic foot density, compressive strength of 30 psi @ 75 degrees F, and coefficient of thermal conductivity (K-Factor) not higher than 0.16 @ 75 degrees F per ASTM C-518. Maximum

operating temperature of urethane shall not exceed 250 degrees F. Polyurethane foam shall be CFC free. CHW lines 12" and below shall have 1" of insulation. HHW lines shall have 2-1/2" of insulation.

B. Jacketing material shall be extruded, black, high-density polyethylene (HDPE) having a minimum wall thickness not less than 100 mils for pipe sizes less than or equal to 12", 125 mils for pipe sizes greater than 12" to 24" and 150 mils for pipe sizes greater than 24". No FRP, HDUP or tape jacket allowed. The inner surface of the HDPE jacket shall be oxidized by means of corona treatment or other approved methods. This will ensure a secure bond between the jacket and foam insulation preventing any ingression of water at the jacket/foam interface.

C. Straight run joints are insulated with flex foam to allow for expansion and contraction of the gasket joint. Straight field joints shall be covered with an HDPE split sleeve and sealed with a heat shrink sleeve to prevent the ingression of moisture or debris.

END OF SECTION 23 21 20