

RESOLUTION NO. 18-____

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF MIAMI LAKES, FLORIDA, WAIVING THE COMPETITIVE PROCUREMENT PROCEDURES UNDER SECTION 5(D) OF ORDINANCE 17-203; AWARDING CONTRACT 2018-05 FOR THE CONSTRUCTION OF THE GOVERNMENT CENTER EMERGENCY GENERATOR ENCLOSURE TO LA PERLA CONTRACTORS, INC. IN AN AMOUNT NOT TO EXCEED \$210,000.00; AUTHORIZING THE TOWN MANAGER TO TAKE ALL NECESSARY STEPS TO IMPLEMENT THE TERMS AND CONDITIONS OF THE CONTRACT; AUTHORIZING THE TOWN MANAGER TO EXPEND BUDGETED FUNDS; AUTHORIZING THE TOWN MANAGER TO EXECUTE THE CONTRACT; PROVIDING FOR INCORPORATION OF RECITALS; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Section 5(d) of Ordinance 17-203 (“Town’s Procurement Ordinance”) provides that the Town Manager may request authorization from the Town Council to waive the requirements of Section 5 of the Town’s Procurement Ordinance; and

WHEREAS, where the Town Manager has made a written recommendation that it is not practical to comply with requirements of Section 5 of the Town’s Procurement Ordinance; and

WHEREAS, on June 7, 2016, the Town Council authorized the purchase of an emergency generator through a National Joint Powers Alliance (“NJPA”) contract with Pantropic Power; and

WHEREAS, the fabrication of the generator is anticipated to be completed within three to four months, however, the generator requires the construction of a room enclosure to house the unit before it can be installed; and

WHEREAS, on November 27, 2017, the Town of Miami Lakes (“Town”) issued Invitation to Bid (“ITB”) No. 2018-05 for the construction of the Enclosure for the Government Center Generator; and

WHEREAS, on the date of the bid opening, the Town received two bids from Bejar Construction, Inc. (“Bejar”) and Graham Contracting, LLC; and

WHEREAS, the lowest Bid, submitted by Bejar Construction, Inc., was \$254,882.00, which was \$44,738.00 over the engineer’s estimate; and

WHEREAS, La Perla Contractors, Inc. (“La Perla”) is a licensed General Contractor capable of performing the work and has already contracted with the Town to perform similar services for small-scale projects; and

WHEREAS, La Perla has provided the Town with an informal bid of \$190,200.00 to construct the generator enclosure, which was \$19,444.00 under the engineer’s estimate; and

WHEREAS, the Town Manager requests the waiver of competitive procurement procedures under Section 5(d) of Ordinance 17-203, and the authorization to execute a contract with La Perla in an amount not to exceed \$210,000.00.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF MIAMI LAKES, FLORIDA, AS FOLLOWS:

Section 1. **Recitals.** The foregoing Recitals are true and correct and incorporated herein by this reference.

Section 2. **Waiver of Competitive Bidding.** The Town Council hereby waives competitive bidding procedures pursuant to Section 5(d) of the Town’s Procurement Ordinance.

Section 3. **Approval of the Contract.** The Town Council hereby approves the award of a contract to La Perla Contractors, Inc. for the construction of the generator enclosure in an amount not to exceed \$210,000.00.

Section 3. **Authorization of Town Officials.** The Town Manager and/or his designee and the Town Attorney are authorized to take all steps necessary to implement the terms and conditions of the contract with La Perla Contractors, Inc. for the construction of the generator enclosure.

Section 4. **Authorization of Fund Expenditure.** The Town Manager is authorized to expend budgeted funds in an amount not to exceed \$210,000.00 to implement the terms and conditions of this Resolution and the contract with La Perla Contractors, Inc.

Section 5. **Execution of the Contract.** The Town Manager is authorized to execute the Contract in substantially the form attached hereto as Exhibit "A," with La Perla Contractors, Inc., and to execute any required agreements and/or documents to implement the terms and conditions of the Contract, subject to approval as to form and legality by the Town Attorney.

Section 6. **Effective Date.** This Resolution shall take effect immediately upon adoption.

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Passed and adopted this _____ day of _____, 2018.

The foregoing resolution was offered by _____ who moved its adoption. The motion was seconded by _____ and upon being put to a vote, the vote was as follows:

Mayor Manny Cid	_____
Vice Mayor Frank Mingo	_____
Councilmember Luis Collazo	_____
Councilmember Timothy Daubert	_____
Councilmember Ceasar Mestre	_____
Councilmember Marilyn Ruano	_____
Councilmember Nelson Rodriguez	_____

Manny Cid
MAYOR

Attest:

Gina Inguanzo
TOWN CLERK

Approved as to form and legal sufficiency:

Raul Gastesi, Jr.
Gastesi & Associates, P.A.
TOWN ATTORNEY

EXHIBIT A

Contract 2018-05
between the
Town of Miami Lakes
and
La Perla Contractors, Inc.
for
The Construction of the
Government Center Generator Enclosure

Construction of the Government Center Emergency Generator Enclosure

Contract No. 2018-05



The Town of Miami Lakes Council:

Mayor Manny Cid
Vice Mayor Frank Mingo
Councilmember Luis Collazo
Councilmember Ceasar Mestre
Councilmember Nelson Hernandez
Councilmember Marilyn Ruano
Councilmember Timothy Daubert

Alex Rey, Town Manager
The Town of Miami Lakes
6601 Main Street
Miami Lakes, Florida 33014

SECTION 1

TERMS AND CONDITIONS

1.1 DEFINITION OF TERMS

Change Order means a written document ordering a change in the Contract price or Contract time or a material change in the Work. A Change Order must comply with the Contract Documents.

Contract means the documents that have been executed by the Contractor and the Town subsequent to approval of award by the Town.

Contract Documents means the Contract as may be amended from time to time, to include but not be limited to clarifications, directives, change orders, payments and other such documents issued under or relating to the Contract.

Contractor means the person, firm, or corporation with whom the Town has contracted and who will be responsible for the acceptable performance of any Work and for the payment of all legal debts pertaining to the Work under the Contract.

Cure means the action taken by the Contractor promptly, after receipt of written notice from the Town of a breach of the Contract Documents, which shall be performed at no cost to the Town, to repair, replace, correct, or remedy all material, equipment, or other elements of the Work or the Contract Documents affected by such breach, or to otherwise make good and eliminate such breach.

Cure Period means the period of time in which the Contractor is required to remedy deficiencies in the Work or compliance with the Contract Documents after receipt of a written Notice to Cure from the Town identifying the deficiencies and the time to Cure.

Days mean calendar days unless otherwise specifically stated in the Contract Documents.

Emergency Work means Work identified by the Town that requires the Contractor to respond with Personnel within sixty (60) minutes of notification by the Project Manager(s).

Personnel means a person(s) assigned by the Contractor to complete the Work under assigned under the Contract, including all tools, equipment and means of transportation necessary to perform the Work.

Materials mean goods or equipment incorporated in a Project, or used or consumed in the performance of the Work.

Premium Time means any time outside of Regular Hours during which Contractor shall be paid at 1.5 times the hourly rate stated in the Bid Form.

Project Manager means the individual(s) assigned by the Town Manager to manage the Work assigned and performed under the Contract.

Regular Hours means the hours specified in Article 1.48 during which the Contractor shall be paid.

Services mean the Scope of Work and all of the tasks required by the Contract Documents.

Town means the Town Council of the Town of Miami Lakes or the Town Manager, as applicable.

Town Manager means the duly appointed chief administrative officer of the Town of Miami Lakes or his designee.

Work or Task means work or tasks to be completed as issued under the Contract.

Work Order means a document issued by the Town awarding a specific Project to a Contractor.

1.2 INTENTION OF THE TOWN

It is the intent of the Town to describe herein the Work to be completed in accordance with all codes and regulations governing all the Work to be performed under this Contract. Any work, labor, materials and/or equipment that may reasonably be inferred from the Contract as being required to produce the intended results shall be supplied by Contractor whether or not specifically called for in the Contract Documents. Where words, which have well-known technical or trade or industry meanings are used to describe Work, materials or equipment, such words shall be interpreted in accordance with that meaning. The Town shall have no duties other than those duties and obligations expressly set forth within the Contract Documents.

1.3 TIME IS OF THE ESSENCE

Contractor will promptly perform its duties under the Contract and will give the Work as much priority as is necessary to cause the Work to be completed on a timely basis in accordance with the Contract Documents.

Dates and time periods set forth in any Work Order issued under the Contract for the commencement and completion of Work is included because of its importance to the Town.

1.4 NOTICES

Whenever either party desires to give written notice to the other relating to the Contract, such must be addressed to the party for whom it is intended at the place specified below; and the place for giving the notice shall remain until it shall have been changed by written notice in compliance with the provisions of this Article. Notice shall be deemed given on the date received or within 3 days of mailing, if mailed through the United States Postal Service. Notice shall be deemed given on the date sent via e-mail or facsimile. Notice shall be deemed given via courier/delivery service upon the initial delivery date by the courier/delivery service. For the present, the parties designate the following as the respective places for giving of notice:

For Town:

Mr. Alex Rey
Town Manager
Town of Miami Lakes
6601 Main Street
Miami Lakes, Florida 33014

Thomas Fossler
Procurement Manager
Town of Miami Lakes
6601 Main Street
Miami Lakes, Florida 33014

For Contractor:

Osmar Reguera
La Perla Contractors, Inc.

During the Work the Contractor shall maintain continuing communications with designated Town representative(s). The Contractor shall keep the Town fully informed as to the progress of the Work under the Contract.

1.5 PRIORITY OF PROVISIONS

If there is a conflict or inconsistency between any term, statement requirement, or provision of any exhibit attached hereto, any document or events referred to herein, or any document incorporated into the Contract Documents by reference and a term, statement, requirement, the specifications or any plans, or provision of the Contract Documents the following order of precedence shall apply:

In the event of conflicts in the Contract Documents the priorities stated below will govern;

- Revisions and Change Orders to the Contract shall govern over the Contract.
- The Contract Documents shall govern over the Contract.

- Terms and Conditions in the Contract will govern over terms and conditions stated on the plans or in the specifications.

1.6 INDEMNIFICATION

The Contractor shall indemnify and hold harmless the Town, its officers, agents and employees from and against all liability, claims, damages, losses and expenses, including reasonable attorney's fees and costs at both trial and appellate levels arising out of or resulting from the performance of the Work under this Contract, caused by negligence, recklessness, intentional misconduct, or any act or omission of the Contractor or anyone directly or indirectly employed by Contractor or anyone for whose acts Contractor may be liable. The Contractor expressly understands and agrees that any insurance protection required by this Contract or otherwise provided by Contractor shall in no way limit the responsibility to indemnify, keep and save harmless and defend the Town or its officers, employees, agents and instrumentalities as herein provided.

The Contractor agrees and recognizes that the Town shall not be held liable or responsible for any claims which may result from any actions or omissions of the Contractor in which the Town participated either through review or concurrence of the Contractor's actions. In reviewing, approving or rejecting any submissions by the Contractor or other acts of the Contractor, the Town in no way assumes or shares any responsibility or liability of the Contractor or Sub-Contractor, under this Contract. The Contractor shall defend the Town or provide for such defense at its own expense, at the Town's option.

This indemnification obligation shall survive the expiration or termination of this Contract.

The Town has provided specific consideration for the indemnification of \$10.00 from the sums due to the Contractor under this Contract.

1.7 INSURANCE

Without limiting any of the other obligations or liabilities of Contractor, the Contractor shall secure and maintain throughout the duration of this Contract, insurance of such type and in such amounts necessary to protect its interest and the interest of the Town against hazards or risks of loss as specified below. The underwriter of such insurance shall be qualified to do business in the State of Florida, be rated "B" as to management and "Class V" as to strength or better as rated by the latest edition of Best's Insurance Guide, published by A.M. Best Company, Oldwick, New Jersey, or its equivalent, The insurance carrier shall have agents upon whom service of process may be made in the State of Florida. The insurance coverage shall be primary insurance with respect to the Town, its officials, employees, agents and volunteers. Any insurance maintained by the Town shall be in excess of the Contractor's insurance and shall not contribute to the Contractor's insurance. The insurance coverages shall include a minimum of:

- Worker's Compensation and Employer's Liability Insurance:** For all employees of the Contractor as required by Florida Statute 440
- Employer's Liability:** Limit for each bodily injury by an accident shall be \$300,000 policy limit for each accident, per employee, including bodily injury caused by disease.
- Comprehensive Business Automobile and Vehicle Liability Insurance:** This insurance shall be written in comprehensive form and shall protect the Contractor and the Town against claims for injuries to members of the public and/or damages to property of others arising from the Contractor's use of motor vehicles or any other equipment and shall cover operation with respect to onsite and offsite operations and insurance coverage shall extend to any motor vehicles or other equipment irrespective of whether the same is owned, non-owned, or hired. The limit of liability shall not be less than \$300,000 per occurrence, combined single limit for Bodily Injury Liability and Property Damage Liability. Coverage must

be afforded on a form no more restrictive than the latest edition of the Business Automobile Liability Policy, without restrictive endorsement, as filed by the Insurance Services Office.

d. Commercial General Liability ("CGL"). This insurance shall be written in comprehensive form and shall protect the Contractor and the Town against claims arising from injuries to members of the public or damage to property of others arising out of any act or omission to act of the Contractor or any of its agents, employees, or subcontractors. The limit of liability shall not be less than \$300,000 per occurrence, combined single limit for Bodily Injury Liability and Property Damage Liability. Coverage must be afforded on a primary and non-contributory basis and with a coverage form no more restrictive than the latest edition of the Commercial General Liability Policy, without restrictive endorsements, as filed by the Insurance Services Office.

- CGL Required Endorsements
- Employees included as insured
- Contingent Liability/Independent Contractors Coverage
- Contractual Liability
- Waiver of Subrogation

Town is to be expressly included as an **Additional Insured** pursuant to endorsement number CG 2010 11/85 or its equivalence.

e. Certificate of Insurance: Contractor shall provide the Town Manager or designee with Certificates of Insurance for all required policies within fifteen (15) days of notification of a conditional award by the Town. The Certificates of Insurance shall not only name the types of policy(ies) provided, but also shall specifically cite this Contract and shall state that such insurance is as required by this Contract. The Town reserves the right to require the Contractor to provide a certified copy of such policies, upon written request by the Town. Each policy certificate shall be endorsed with a provision that not less than thirty (30) calendar days' written notice shall be provided to the Town before any policy or coverage is cancelled, restricted, or a material change is made. Acceptance of the Certificate(s) is subject to approval of the Town Manager or designee.

f. Additional Insured - The Town is to be specifically included as an Additional Insured for the liability of the Town resulting from operations performed by or on behalf of Contractor in performance of this Contract. The Town shall be named as additional insured under the CGL and business automobile insurance. Town shall be named as an additional insured under Contractor's insurance, including that applicable to the Town as an Additional Insured, shall apply on a primary basis and any other insurance maintained by the Town shall be in excess of and shall not contribute to Contractor's insurance. Contractor's insurance shall contain a severability of interest provision providing that, except with respect to the total limits of liability, the insurance shall apply to each Insured or Additional Insured in the same manner as if separate policies had been issued to each.

All deductibles or self-insured retentions must be declared to and be approved by the Town Manager. The Contractor shall be responsible for the payment of any deductible or self-insured retentions in the event of any claim.

Compliance with the foregoing requirements shall not relieve the Contractor of its liability and obligations under this section or any other section of the Contract.

Issuance of a purchase order/work order is contingent upon receipt and maintaining of the required insurance documents. Failure to comply may result in the rescission of the award.

The Contractor is responsible for assuring that the insurance required certificates remain in full force for the duration of the Contract. Failure to maintain such insurance certificates may result in delays in issuing payment to the Contractor, issuance of a stop work order by the Town, or termination of the Contract for default.

1.8 GENERAL REQUIREMENTS

The employee(s) of the Contractor shall be considered to be at all times its employee(s), and not employee(s) or agent(s) of the Town or any of its departments.

The Contractor agrees that the Contractor will at all times employ, maintain and assign to the performance of the Contract a sufficient number of competent and qualified professionals and other personnel to meet the requirements of the Work to be performed.

The Contractor agrees to replace any of the Contractor's personnel assigned to a Task(s) if so requested by the Project Manager, should the Project Manager make a determination that said staffing is unacceptable or that any individual is not performing in a manner consistent with the requirements for such a position.

The Contractor represents that its staff personnel have the proper skills, training, background, knowledge, experience, rights, authorizations, integrity, character and licenses necessary to perform the Work, in a competent and professional manner.

The Contractor shall at all times cooperate with the Project Manager and coordinate its respective Work efforts to most effectively and efficiently performance of the Work.

1.9 RULES AND REGULATIONS

The Contractor shall comply with all laws and regulations applicable to provision of the Services specified in the Contract Documents. The Contractor shall be familiar with all federal, state and local laws, rules, regulations, codes, and ordinances that affect the Work.

1.10 SITE INVESTIGATION AND REPRESENTATION

Should the Contractor identify any utilities, structures, etc., which will or may be encountered during the performance of the Work, the Town shall be consulted immediately in order for a decision to be made on the potential relocation or other action(s) to be taken as it relates to the Work. The Contractor shall not purposefully disrupt or disconnect any type of utility whatsoever without first obtaining the prior written approval of the Town or applicable utility owner.

Work site(s) may have existing utilities, such as, but not limited to, irrigation, phone, water and sewer, CATV, traffic signals, electrical, and storm sewer. The Contractor shall not purposefully disrupt or disconnect any type of utility whatsoever without first obtaining the prior written approval of the Project Manager.

1.11 METHOD OF PERFORMING THE WORK

The Contractor shall familiarize itself with normal Town operations where the Work is to be performed so that it can conduct the Work in the best possible manner to the complete satisfaction of the Project Manager.

The Work to be performed shall be done in such a manner so as not to interfere with the normal Town operations. The manner in which the Work is performed shall be subject to the approval of the Project Manager, whom if necessary, shall have the authority to require changes in the manner in which the Work is performed. There shall be no obstruction of Town services without the prior written approval of the Project Manager.

The Contractor shall protect public and private property, and utilities from injury or loss arising in connection with the Work, and take all necessary precautions to prevent accidents, injuries, or damage to persons or property on or near the Work.

The Contractor shall be responsible for, and shall replace and make good all loss, injury, or damage to any property (including landscaping, irrigation, walks, drives, structures or utilities). Contractor shall be

responsible for documentation including photos of the work site before and after the authorized services/work is conducted to verify property's pre-existing and post-existing condition.

1.12 COORDINATION OF THE WORK

Operations and events/programs may be ongoing at locations where Work will be performed. The Contractor shall coordinate the Work with the Project Manager to minimize any potential adverse impacts.

1.13 SAFETY PRECAUTIONS

Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to property, persons, or employees.

The Contractor shall take all necessary precautions for the safety of employees in the performance of the Work, and shall comply with all applicable provisions of Federal, State, and local laws, including, but not limited to the requirements of the Occupational Safety and Health Act of 1970, and amendments thereto, to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. Contractor shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. Any fines levied by the above mentioned authorities for failure to comply shall be the sole responsibility of the Contractor.

The Contractor shall comply with the OSHA "Federal Right to Know" Regulation regarding informing employees of toxic substances in the workplace, providing training, and emergency procedures.

Contractor must adhere to applicable environmental protection guidelines for the duration of the Work. The Contractor shall comply with all codes, ordinances, rules, orders and other legal requirements of public authorities (including OSHA, NIOSH, the Town, Miami-Dade County, State of Florida), which bear on the performance of the Work

The Contractor shall provide such equipment as are necessary or required, in the case of accidents, for first aid service to person who may be injured during the performance of the Work. Contractor shall immediately report to the Project Manager every accident to persons and shall furnish in writing full information, including witness statements, regarding any and all accidents.

The Federal "Right to Know" Regulation implemented by the Occupational Safety and Health Administration (OSHA) requires employers to inform their employees of any toxic substances to which they may be exposed in the workplace, and to provide training in safe handling practices and emergency procedures. It also requires notification to local fire departments of the location and characteristics of all toxic substances regularly present in the workplace.

Contractor shall provide a complete set of Material Safety Data Sheets (MSDS) to the Project Manager prior to initial product utilization. This information must be provided prior to the use of any such materials, or supplies.

For additional information on the Federal Right to Know Regulation, contact OSHA at www.OSHA.gov or call (954) 424-0242.

1.14 LABOR, MATERIALS, AND EQUIPMENT

Unless otherwise directed by the Project Manager, Contractor shall provide labor, tools, equipment, means of transportation, and any other non-consumable articles necessary for the proper execution and completion of the Work. The Town may supply all consumable materials to be used in the performance of services; however the Town reserves the right to access materials and equipment through the Contractor using the pre-determined percentage mark-up.

In addition to materials required to complete the Work, the Town may also provide equipment such as an electronic tablet or other device to be utilized by the Contractor. The Contractor shall ensure that the device is kept in good working condition and will be responsible for paying for repairs or replacement costs if the device is damaged, lost or stolen while checked out by the Contractor.

The Town may rent specialty equipment including bucket trucks, hi-lifts, and scaffolding and similar items; however the Town reserves the right to access equipment through the Contractor using the pre-determined percentage mark-up.

At the Project Manager's direction, Contractor shall be responsible for pick up and drop off of rental equipment as applicable.

1.15 PROJECT SUPERVISION

Contractor shall be responsible for all supervision of the Work to ensure that the Work is performed in accordance with the Contract Documents.

The Project Manager and the Contractor shall meet as often as deemed necessary by the Project Manager, before, during, or after the performance of the Work to review the Work and resolve any outstanding issues.

1.16 SUBCONTRACTORS

Contractor shall not subcontract any of the Work to be performed under this Contract, unless approved by the Town Manager.

1.17 AUTHORITY OF THE PROJECT MANAGER(S)

The Town Manager hereby authorizes the Project Manager(s) to determine, all questions of any nature whatsoever arising out of, under or in connection with, or in any way relating to or on account of the Work, and questions as to the interpretation of the Work to be performed under the Contract Documents.

The Contractor shall be bound by all determinations or orders of the Project Manager and shall promptly respond to requests of the Project Manager, including the withdrawal or modification of any previous order, and regardless of whether the Contractor agrees with the Project Manager's determination or requests. Where requests are made orally, the Project Manager will follow up in writing, as soon thereafter as is practicable.

The Project Manager shall have authority to act on behalf of the Town to the extent provided by the Contract, unless otherwise modified in writing by the Town. All instructions to the Contractor shall be issued in writing. All instructions to the Contractor shall be issued through the Town Manager or Project Manager.

The Project Manager may dictate means, methods, techniques, sequences or procedures, or for safety precautions in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

All interpretations and recommendations of the Project Manager shall be consistent with the intent of the Contract Documents.

The Project Manager or designee shall inspect the Work and has the authority to reject Work that does not conform to the Contract Documents.

The Project Manager's authority to act under this paragraph, nor any decision made in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Project Manager to the Contractor, any supplier or any of their agents, employees, or any other person performing any of the Work. The Project Manager will not be responsible for the acts or omissions of the Contractor, or any of their agents or employees, or any other persons performing any of the Work.

1.18 DEFECTIVE OR NON-COMPLIANT WORK

Contractor shall promptly either correct all rejected Work or remove such rejected Work and replace it with compliant Work. Contractor shall bear all direct, and indirect costs of such removal or corrections.

Should Contractor fail or refuse to remove or correct rejected Work or to make any necessary repairs in accordance with the requirements of the Contract Documents within the time indicated in writing by the Project Manager or designee, the Project Manager or designee shall have the authority to cause the rejected Work to be removed or corrected, or make such repairs or corrections as may be necessary at Contractor's expense. Any expense incurred by the Town in making such removals, corrections or repairs, shall be paid for out of any monies due or which may become due to Contractor. In the event of failure of Contractor to make all necessary repairs promptly and fully, the Town Manager or designee may declare the Contractor in default.

1.19 TAXES

Contractor shall pay all applicable sales, consumer, use and other taxes required by law. Contractor is responsible for reviewing the pertinent State Statutes involving state taxes and complying with all requirements.

1.20 REMOVAL OF UNSATISFACTORY PERSONNEL

Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ under the Contract any unfit person or anyone not skilled in the Work to which they are assigned.

The Town may make written request to the Contractor for the prompt removal and replacement of any personnel employed or retained by the Contractor. The Contractor shall respond to the Town within five (5) calendar days of receipt of such request with either the removal and replacement of such personnel or written justification as to why that may not occur. The Town shall make the final determination as to the removal of unsatisfactory personnel from the Work. The Contractor agrees that the removal of any of such individual(s) does not require the termination or demotion of said individual(s).

The Town may request that a Contractor's employee be removed for accepting gratuities.

1.22 CLAIMS

Any claim shall be made by written notice by Contractor to the Town representatives identified in Article 1.4 within ten (10) business days of the commencement of the event giving rise to the claim and stating the general nature and cause of the claim. Thereafter, within twenty (20) calendar days of the termination of the event giving rise to the claim, written notice of the extent of the claim with supporting information and documentation shall be provided unless the Town Manager or designee allows an additional period of time to ascertain more accurate data in support of the claim. The written notice must be accompanied by Contractor's written notarized statement that the adjustment(s) claimed is the entire adjustment to which the Contractor has reason to believe it is entitled as a result of the occurrence of said event. All claims and disputes shall be determined in accordance with the Contract. It is expressly and specifically agreed that any and all claims for changes to the Contract shall be waived if not submitted in strict accordance with the requirements of this Article.

1.23 DISPUTES AND MEDIATION

Contractor understands and agrees that all disputes between it and the Town upon an alleged violation of the terms of this Contract by the Town shall be submitted for resolution in the following manner.

Initial effort(s) should be made by the Contractor to resolve any issues with the Project Manager or other Town representative(s) it works within in the coordination and performance of the Work.

Should the initial efforts at resolution not end in a mutual resolution then the Contractor notify in writing the Procurement Manager identified in Article 1.4, Notices, of the claim or dispute

The Contractor shall submit its dispute in writing, with all supporting documentation, to the Procurement Manager, as identified in Article 1.4, Notices. Upon receipt of said notification the Procurement Manager shall review the issues relative to the claim or dispute and issue a written finding.

Should the Contractor and the Procurement Manager fail to resolve the claim or dispute the Contractor shall submit their dispute in writing within five (5) calendar days of the written finding being issued by the Procurement Manager to the Town Manager. Failure to submit such appeal in the stated timeframe of the written finding shall constitute acceptance of the finding by the Contractor. Upon receipt of said notification the Town Manager shall review the issues relative to the claim or dispute and issue a written finding.

Appeal to the Town Manager for resolution is required prior to Contractor being entitled to seek judicial relief in connection therewith. Should the Contractor be entitled to compensation hereunder, the Town Manager's decision may be subject to approval by the Town Council. Contractor shall not be entitled to seek judicial relief unless:

- it has first received Town Manager's written decision, approved by the Town Council if applicable, or
- a period of sixty (60) days has expired after submitting to the Town Manager a detailed statement of the dispute, accompanied by all supporting documentation, or a period of (90) days has expired in an instance where Town Manager's decision is subject to Town Council for approval; or
- Town has waived compliance with the procedure set forth in this Article by written instrument(s) signed by the Town Manager.

In the event the determination of a dispute under this Article is unacceptable to either party hereto, the party objecting to the determination must notify the other party in writing within fourteen (14) calendar days of receipt of the written determination. The notice must state the basis of the objection and must be accompanied by a statement that any Contract price or Contract time adjustment claimed is the entire adjustment to which the objecting party has reason to believe it is entitled to as a result of the determination. Within sixty (60) calendar days after completion of the Work or expiration of the Contract Term, the parties shall participate in mediation to address all objections to any determinations hereunder and to attempt to prevent litigation. A certified Mediator, who the parties find mutually acceptable, will conduct any mediation proceedings in Miami-Dade County, State of Florida. The costs of a certified Mediator shall be shared on a 50/50 basis. Should claim or dispute not be resolved in mediation, the parties retain all their legal rights and remedies provided under State law. A party objecting to a determination specifically waives all of its rights provided hereunder, including its rights and remedies under State law, if said party fails to comply in strict accordance with the requirements of this Article.

1.24 CONTINUING THE WORK

Contractor shall continue to perform all Work under the Contract Documents during all disputes or disagreements with Town, including disputes or disagreements concerning a request for a Change Order and Work shall not be delayed or postponed pending resolution of any disputes or disagreements without the prior written approval of the Project Manager.

1.25 FRAUD AND MISREPRESENTATION

The Town may terminate this Contract, or any other contract(s) with the Town, with any person, individual, corporation, entity, or affiliate that attempts to meet its contractual obligations with the Town through fraud, misrepresentation or material misstatement. Such person, individual, corporation, entity, or affiliate shall be responsible for all direct or indirect costs associated with termination or cancellation of the contract(s).

1.26 STOP WORK ORDER

The Town may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the Work for a period of up to ninety (90) days (or any lesser period), commencing no sooner than the date the order is delivered to the Contractor, and for any further period to which the parties may agree. Any such order shall be specifically identified as a "Stop Work Order" issued pursuant to this paragraph. Within the period of ninety (90) days (or the lesser period specified) after a Stop Work Order is delivered to the Contractor, or within any extension to which the parties have agreed the Town shall either:

- Cancel the Stop Work Order; or
- Terminate the Work covered by such order as provided in Article 1.28, Termination for Convenience.

If a Stop Work Order issued under this Article is canceled or the period of the order or any extension thereof expires, the Contractor shall resume the Work without compensation to the Contractor for such suspension other than extending the time to complete any Work under the Contract or extending the Contract Term to the extent that, in the opinion of the Town Manager or designee, the Contractor may have been delayed by such suspension. In the event the Town Manager or designee determines that the suspension of Work was necessary due to Contractor's defective or incorrect Work, unsafe Work conditions caused by the Contractor, or any other reason caused by Contractor's fault or omission, the Contractor shall not be entitled to an extension of time or Contract Term or (Time) as a result of the issuance of a Stop Work Order.

Suspension of the Work caused by a threatened or actual storm event, regardless of whether the Town has directed such suspension, will entitle the Contractor to additional Contract time as non-compensable, Excusable Delay, and shall not give rise to a claim for compensable delay.

1.28 TERMINATION FOR CONVENIENCE

In addition to cancellation or termination as otherwise provided for in the Contract, the Town may at any time, in its sole discretion, with or without cause, terminate the Contract by written notice to the Contractor. Such Written Notice shall state the date upon which Contractor shall cease all Work under the Contract, and if applicable vacate the Park site(s).

Upon receipt of such notice, unless otherwise directed by the Town, the Contractor shall, Stop all Work on the date specified in the notice ("the Effective Date") and;

- Take such action as may be necessary for the protection and preservation of the Town's materials and property;
- Remove all materials, supplies or equipment that may be used by the Contractor on the Work;
- Take no action that shall increase the amounts payable by the Town under the Contract Documents; and take reasonable measures to mitigate the Town's liability under the Contract Documents; and
- All documents, including electronic documents, related to Work authorized under the Contract, whether finished or not, must be turned over to the Town. Failure to timely deliver the documentation shall be cause to withhold any payments due without recourse by Contractor until all documentation is delivered to the Town.

In no event, shall any payments under this Paragraph exceed the maximum cost set forth in the Contract and the amount due hereunder may be offset by payments made to the Contractor or any claims made against the Contractor. Contractor shall not be entitled to lost profits, overhead or consequential damages as a result of a Termination for Convenience.

1.29 CONTRACTOR'S RIGHT TO TERMINATE

The Contractor will have the right to terminate this Agreement, in writing, within thirty (30) days from the date of the Town's receipt of a written statement from Contractor.

1.30 TOWN MAY AVAIL ITSELF OF ALL REMEDIES

The Town may avail itself of each and every remedy stated in the Contract Documents or existing at law or in equity. The exercise or the beginning of the exercise, of one remedy shall not be deemed a waiver of the right to exercise, at the same time or thereafter, of any other remedy.

1.32 NONDISCRIMINATION, EQUAL EMPLOYMENT OPPORTUNITY, AND AMERICANS WITH DISABILITIES ACT

Contractor shall not unlawfully discriminate against any person, shall provide equal opportunities for employment, and comply with all applicable provisions of the Americans with Disabilities Act in its performance of the Work under the Contract.

1.33 INDEPENDENT CONTRACTOR

The Contractor is engaged as an independent business and agrees to perform Work as an independent contractor. In accordance with the status of an independent contractor, the Contractor covenants and agrees that the Contractor will conduct business in a manner consistent with that status, that the Contractor will not claim to be an officer or employee of the Town for any right or privilege applicable to an officer or employee of the Town, including, but not limited to: Worker's compensation coverage; unemployment insurance benefits; social security coverage; retirement membership, or credit. The employee(s) of the Contractor shall be considered at all time its employee(s) and not employee(s) or agent(s) of the Town or any of its departments.

1.34 THIRD PARTY BENEFICIARIES

Neither Contractor nor Town intends to directly or substantially benefit a third party by this Contract. Therefore, the parties agree that there are no third party beneficiaries to this Contract and that no third party shall be entitled to assert a claim against either of them based upon this Contract.

1.35 ASSIGNMENT OR SALE OF CONTRACT

The performance of this Contract shall not be transferred pledged, sold, delegated or assigned, in whole or in part, by the Contractor. It is understood that a sale of the majority of the stock or partnership shares of the Contractor, a merger or bulk sale, an assignment for the benefit of creditors shall each be deemed transactions that would constitute an assignment or sale hereunder.

Any transference without Town approval shall be cause for the Town to terminate this Contract.

Nothing herein shall either restrict the right of the Contractor to assign monies due to, or to become due or be construed to hinder, prevent or affect any assignment by the Contractor for the benefit of its creditors, made pursuant to applicable law.

1.36 MATERIALITY AND WAIVER OF BREACH

Town and Contractor agree that each requirement, duty, and obligation set forth in the Contract Documents is substantial and important to the formation of the Contract Documents and, therefore, is a material term hereof. The Town's failure to enforce any provision of the Contract Documents shall not be deemed a waiver of such provision or modification of the Contract Documents. A waiver of any breach of a provision of the Contract Documents shall not be deemed a waiver of any subsequent breach and shall not be construed to be a modification of the terms of the Contract Documents.

1.37 DEFENSE OF CLAIMS

Should any claim be made or any legal action brought in any way relating to the Work under the Contract, the Contractor shall diligently render to the Town any and all assistance which the Town may require of the Contractor.

1.38 FUNDS AVAILABILITY

Funding for this Contract is contingent on the availability of Town funds.

1.39 ACCESS TO AND REVIEW OF RECORDS

Town shall have the right to inspect and copy, at Town's expense, the books, records, and accounts of Contractor which relate in any way to the Contract. The Contractor agrees to maintain an accounting system that provides for accounting records that are supported with adequate documentation and adequate procedures for determining allowable costs.

The Contractor shall comply with the applicable provisions of Chapter 119, Florida Statutes and Town shall have the right to immediately terminate this Contract for the refusal by the Contractor to comply with Chapter 119, Florida Statutes. The Contractor shall retain all records associated with this Contract for a period of five (5) years from the date of termination.

1.41 TIME IN WHICH TO BRING ACTION AGAINST THE TOWN

In the event the Contractor may be deemed to have a cause of action against the Town, no action shall lie or be maintained by the Contractor against the Town upon any claim arising out of or based upon the Contract Documents by reason of any act or omission or requirement of the Town or its agents, unless such action shall be commenced within six (6) months after the date of issuance of a final payment under the Contract, or if the Contract is terminated under the provisions of the Contract, unless such action is commenced within six (6) months after the date of such termination by the Town.

1.42 APPLICABLE LAW AND VENUE OF LITIGATION

This Contract shall be enforceable under Florida law, and if legal action is necessary by either party with respect to the enforcement of any or all of the terms or conditions the sole venue shall be Miami-Dade County, Florida.

1.43 ATTORNEY'S FEES AND COSTS

Contractor hereby agrees that in the event either the Town or Contractor must initiate litigation to enforce this Agreement, the prevailing party shall be entitled to an award of reasonable attorney's fees and costs, at all levels of litigation, including trials and appeals, including fees for litigating entitlement to and amount of attorney's fees.

1.44 NON-EXCLUSIVE CONTRACT

The Town reserves the right, as deemed in its best interest, to perform, or cause to be performed, the Work and services enumerated herein, or any portion thereof, as it sees fit, including but not limited to: Award of other contracts, use of another contractor, or perform the Work with its own employees.

1.45 SEVERABILITY

In the event any provision of the Contract Documents is determined by a Court of competent jurisdiction to be illegal or unenforceable, then such unenforceable or unlawful provision shall be excised from this Contract, and the remainder of the Contract Documents shall continue in full force and effect. Notwithstanding the foregoing, if the result of the deletion of such provision will materially and adversely affect the rights of either party, such party may elect, at its option, to terminate the Contract in its entirety. An election to terminate the Contract based upon this provision shall be made within seven (7) calendar days after the finding by the Court becomes final.

1.46 CONTRACT DOCUMENTS CONTAINS ALL TERMS

The Contract Documents and all documents incorporated herein by reference contain all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the

subject matter of the Contract Documents shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

1.47 ENTIRE AGREEMENT

The Contract Documents, as they may be amended from time to time, represent the entire and integrated Contract between the Town and the Contractor and supersede all prior negotiations, representations or agreements, written or oral. This Contract may not be amended, changed, modified, or otherwise altered in any respect, at any time after the execution hereof, except by a written document executed with the same formality and equal dignity herewith. Waiver by either party of a breach of any provision of the Contract Documents shall not be deemed to be a waiver of any other breach of any provision of the Contract Documents.

1.48 COMPENSATION AND WORK HOURS

The Contractor shall provide pre-approved Personnel on an as needed basis at the direction of the Project Manager or designee. A Work Order will define appropriate scope tier in accordance with Attachment "A". Contractor shall be paid for actual work performed unless otherwise stipulated in Work Order. Town will pay at least four (4) times the hourly rate.

For the purposes of this agreement, the Town's business hours are 8:30 am until 5:00 pm, Monday through Friday. Special Town events may be held on Saturdays between the hours of 8:00 am until 5:00 pm. Overtime rates shall apply to any work commenced outside of aforementioned hours or on Sunday. The maximum overtime rate the Contractor may charge is 1.5 times the regular hourly rate. No overtime rates are permitted on equipment. All Work shall be performed in accordance with the hours set forth in the Town's noise Ordinance No. 04-50 unless otherwise specified in writing.

The Town reserves the right to request Contractor's Price Proposal for minor Town-owned projects. The Price Proposal submitted by the Contractor shall establish the time to perform a Work Order.

1.50 CONTRACT TERM

This Agreement shall be effective upon execution and remain in effect for a period of three (3) years. The Town at its sole option may opt to renew (OTR) the Contract for two (2) additional twelve (12) month periods. Any Option shall be effective upon receipt of a written notice from the Town Manager to the Contractor.

1.51 PRICE ADJUSTMENTS DURING THE CONTRACT

Contractor's price(s) shall remain fixed and firm during the term of Contract with the following exception:

Adjustments to the rates paid under this Contract may be annually indexed to inflation as defined by the Consumer Price Index (CPI) calculated by the U.S. Department of Labor as applied to the County of Miami-Dade using the Consumer Price Index, Miami, All Urban Consumers figures provided for the period ending December 31 and thereafter on an annual basis in the same way for succeeding years. Said increases must be requested in writing by the Contractor not later than thirty (30) days prior to the expiration of each Contract year and will be effective upon the commencement of the new Contract year. Retroactive increases shall not be permitted.

1.52 INVOICES

Contractor shall provide the Town with an invoice every thirty (30) days. Unless otherwise approved in writing in advance the Contractor must use the invoice form provided by the Town. At a minimum the invoice must contain the following information:

- Name and address of the Contractor
- Contract number

- Purchase Order Number
- Date of invoice
- Invoice numbers (Invoice numbers cannot be repeated)
- Applicable hourly rate(s)
- Extension amount(s)
- Total value of the invoice

Failure to include the above information will delay payment. Payments will not be made based on statements of accounts.

The Town will take action to pay, reject or make partial payment on an invoice in accordance with the Florida Local Government Prompt Payment Act. No payments shall be due or payable for Work not performed or materials not furnished or where the Work has not been accepted by the Town. If there is a dispute with regard to an invoice, the Town will pay the amount not in dispute and reject the remainder that is in dispute.

Town reserves the right to withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:

- Defective/Rejected Work not remedied.
- Claims filed or reasonable evidence indicating probable filing of claims by other parties against Contractor or Town because of Contractor's performance.
- Failure of Contractor to provide any and all documents required by the Contract Documents.
- Any amount of any claim by a third party;
- Any unpaid legally enforceable debt owed by the Contractor to the Town.

The Town shall notify the Contractor in writing of any such withholdings. Any withholding, which is ultimately held to have been wrongful, shall be paid to the Contractor in accordance with the Local Government Prompt Payment Act.

1.54 UNIFORMS

All Contractor employees shall wear a distinctive, neat, and freshly laundered uniform shirt as provided by the Town. The Project Manager may request removal of any employee not properly uniformed. Uniform, including shoes, color and design, must be approved by the Project Manager.

Appropriate protective clothing, shoes and other safety equipment must be worn as required by the Project Manager.

1.55 VEHICLE IDENTIFICATION

The Town shall issue a vehicle identification magnet with the Town's logo to Contractor on a daily check-out basis. All vehicles used in the performance of Contractor's work/services shall be identified accordingly. Under no circumstances shall the Contractor display the magnet when not performing pre-authorized services for the Town.

1.56 SCAVENGING

Scavenging by any of the Contractor's personnel is prohibited and the Project Manager may require removal any employee who scavenges from performing any further Work.

1.57 WARRANTY

Contractor shall warrant its work for ninety (90) days from date of completion. Where equipment is installed the manufacturer's warranty shall be provided to the Town.

SECTION 2
SPECIAL TERMS & CONDITIONS

2.1 SCOPE OF WORK

The scope of work under this project includes, but is not limited to, earthwork, structure excavation and backfill, construction of a concrete foundation, concrete masonry walls, roof, landscape, and receipt and installation of backup generator, and other appurtenances required for a complete installation of the emergency generator enclosure per the approved project plans, attached hereto as Exhibit A, and any applicable codes and local regulations that may apply. The Contractor must comply with all NPDES requirements to reduce storm water runoff by implementing applicable BMPs. All work performed under this section shall be included in the lump sum price bid for the Emergency Generator Enclosure, and shall include full compensation for furnishing all labor, materials, tools, and equipment for doing all work involved.

The Emergency Generator will be delivered by the manufacturer to the Miami Lakes Town Hall facility. The contractor is responsible for coordinating the delivery, unloading, rigging, storage, and installation inside the enclosure. Additional specifications and details on the scope of work can be found in this Section, Special Terms & Conditions.

2.2 CONTRACT TERM

The Contract will become effective on the date it is executed by both parties and shall remain in effect until the expiration of the Warranty period(s).

2.3 TIME FOR PERFORMANCE

The Contractor shall obtain Substantial Completion of the Work within seventy-five (75) Days of the Notice to Proceed being issued by the Town. Contractor must obtain Final Completion within fifteen (15) Days after obtaining Substantial Completion.

2.4 INSPECTION OF THE WORK

The Project Manager, other Town representatives, and inspectors representing the Town and other public entities having jurisdiction over the Work must at all times have access to the Work

Should the Contract Documents, or any laws, ordinances, or any public authority require any of the Work to be tested, Contractor must provide timely notice of readiness of the Work for testing and timely notice must be given of the date fixed for such testing so that the appropriate representatives of the Town, DERM, or other entities can be present for such testing. Contractor will be responsible for making arrangements for all tests and for all associated costs for all required testing. The original copies of all testing reports are to be sent directly to the Project Manager by the testing firm, with a copy to the Contractor.

The Town, at its sole discretion may conduct testing in addition to the required testing. In such instances the Town will pay all testing costs unless the tests determine that the material, Work, or equipment is not compliant with the requirements of the Contract Documents. In such instances the Contractor must reimburse the Town for all incurred testing costs and the Contractor will be responsible for any costs associated with re-testing to ensure compliance.

Inspectors have no authority to permit deviations from, or to relax any of the provisions of the Contract Documents or to delay the Work by failure to inspect the materials and Work with reasonable promptness without the written permission or instruction of Project Manager.

2.5 PROTECTION OF PROPERTY, UTILITIES, AND THE PUBLIC

The Contractor must continuously maintain adequate protection of all its Work from all losses or damage and must protect public and private property, and utilities from injury or loss arising in connection with the Work, and take all necessary precautions to prevent accidents, injuries, or damage to persons or property on or near the Work.

Contractor is solely responsible to restore all areas impacted by the Work, including but not limited to swale areas, existing structures, driveways and approaches, landscaping, drainage, and lighting to pre-existing conditions to the satisfaction of the Project Manager.

2.6 CONTRACTOR TO CHECK PLANS, SPECIFICATIONS AND DATA

Contractor must verify all dimensions, quantities and details shown on any plans, specifications or other data received from Project Manager and must notify the Project Manager of all errors, omissions and discrepancies found therein within three (3) calendar days of discovery. Contractor will not be allowed to take advantage of any error, omission or discrepancy, as full instructions will be furnished to the Project Manager. Contractor will not be liable for damages resulting from errors, omissions or discrepancies in the Contract Documents unless Contractor recognized such error, omission or discrepancy and knowingly failed to report it to Project Manager.

2.7 RELEASE OF LIENS/SUBCONTRACTOR'S STATEMENT OF SATISFACTION

The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Invoice, whether incorporated in the Project or not, will pass to the Town upon the receipt of payment by the Contractor, free and clear of all liens, claims, security interests or encumbrances and that no Work, materials or equipment will have been acquired by the Contractor or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor by a Subcontractor or supplier or any other interested party.

The Contractor must, starting with the second (2nd) Invoice, provide the Project Manager completed Partial or Final Releases of Lien/Subcontractor's Statement of Satisfaction Form for the Project. As an option the Contractor may also submit a Consent of Surety if a payment bond has been provided, authorizing the release of payment by the Surety. Failure to submit such documentation will result in rejection of the Invoice. The Contractor must use the Town's forms.

Conditional Release of Liens are not accepted by the Town.

2.8 COMPENSATION

Contractor can submit an invoice once per month for Work completed and acceptance by the Project Manager. Contractor may not invoice more than once per month.

Contractor must use the Town's Contractor Payment Application ("Invoice") for all payment requests. Failure to use the Invoice form or to provide the required information will delay payment. Payments will not be made based on statements of accounts.

The Invoice Form is available on the Town's website.

The Town will take action to pay, reject or make partial payment on an Invoice in accordance with the Florida Local Government Prompt Payment Act. No payments will be due or payable for Work not performed or materials not furnished or where the Work has not been accepted by the Town. If there is a dispute with regard to an invoice, the Town will pay the amount not in dispute and reject the remainder that is in dispute.

Contractor is responsible for paying its Subcontractors and suppliers in accordance with the Florida Local Government Prompt Payment Act.

The Contractor will be compensated based on actual Work performed, based on a schedule of values, in an amount not to exceed the contract price listed below.

The acceptance of final payment for a Project constitutes a waiver of all claims by Contractor related to that Project, except those previously made in strict accordance with the provisions of the Contract and identified by Contractor as unsettled at the time of the application for payment.

2.9 ACCEPTANCE AND FINAL PAYMENT

Upon receipt of written notice from Contractor that the Work is ready for final inspection and acceptance, Project Manager will, within ten (10) calendar days, make an inspection thereof. If the Project Manager finds the Work acceptable, the requisite documents have been submitted and the requirements of the Contract fully satisfied, and all conditions of the permits and regulatory agencies have been met, a Final Certificate for Payment will be issued by Project Manager, stating that the requirements of the Contract have been performed and the Work is ready for acceptance under the terms and conditions thereof.

Before issuance of the Final Certificate for Payment, Contractor must deliver to the Project Manager a final release of all liens arising out of the Contract, receipts in full in lieu thereof; an affidavit certifying that all suppliers and subcontractors have been paid in full and that all other indebtedness connected with the Work has been paid, and a consent of the surety to final payment; the final corrected as-built drawings; operations and maintenance data, and the final bill of materials, if required, and payment application. Contractor must deliver the written Contractor's and all Manufacturer's warranties prior to issuance of the final invoice.

If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of Contractor, and Project Manager so certifies, Town will, upon such certification of Consultant, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment will be made under the terms and conditions governing final payment, except that it will not constitute a waiver of claims.

The acceptance of final payment will constitute a waiver of all claims by Contractor, except those previously made in strict accordance with the provisions of the Contract and identified by Contractor as unsettled at the time of the application for final payment.

2.10 SUBSTANTIAL COMPLETION, PUNCHLIST & FINAL COMPLETION

The Work will be substantially complete when the Project Manager, in the reasonable exercise of his/her discretion determines that the Work is complete and there are no material or substantial variations from the Contract and the Work is fit for its intended purpose. Upon Substantial Completion, the Project Manager and the Contractor will sign the Substantial Completion Inspection Form. The signing of this form does not relieve the Contractor from its obligation to complete the Project.

When the Contractor believes that the Work is substantially complete, the Contractor must request in writing that the Project Manager or Consultant inspect the Work to determine if Substantial Completion has been achieved. Where the Work requires the Contractor to obtain a Certificate of Completion, no request for Substantial Completion inspection is to be submitted until the Contractor has obtained the Certificate(s) of Completion. The Project Manager or Consultant will schedule the date and time for any inspection and notify the Contractor and any other parties deemed necessary. During this inspection, the Project Substantial Completion Inspection Form will be completed as necessary. Any remaining Construction Work must be identified on this form and it will be known as Punch List Work. The Punch List must be signed by the Project Manager and the Contractor confirming that the Punch List contains the item(s) necessary to complete the Work. The failure or refusal of the Contractor to sign the Project Substantial Completion Inspection Form or

Punch List will not relieve the Contractor from complying with the findings of the Project Substantial Completion Inspection and completing the Project to the satisfaction of the Town.

The Project Manager or Consultant, and the Contractor will agree on the time reasonably required to complete all remaining Work included in the Punch List.

Upon Substantial Completion and the receipt and acceptance of any required documentation, including warranty documents, the Project Manager will determine that a Project has achieved Final Completion and authorize final payment.

The acceptance of final payment will constitute a waiver of all claims by Contractor, except those previously made in strict accordance with the provisions of the Contract and identified by Contractor as unsettled at the time of the application for final payment.

END OF SECTION

CONTRACT EXECUTION FORM

This Contract 2018-12 made this ____ day of _____ in the year ____ in the amount of \$210,000.00 by and between the Town of Miami Lakes, Florida, hereinafter called the "Town," and La Perla Contractors, Inc. hereinafter called the "Contractor."

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

Attest:

TOWN OF MIAMI LAKES

By: _____
Gina Inguanzo, Town Clerk

By: _____
Alex Rey, Town Manager

By: _____
Raul Gastesi, Town Attorney

Signed, sealed and witnessed in the presence of:

As to the Contractor:

La Perla Contractors, Inc.

By: _____

By: _____

Name: _____

Title: _____

(*) In the event that the Contractor is a corporation, there shall be attached the original of the corporate resolution in the form contained in this Section, of the board of the corporation, authorizing the officer who signs the Contract to do so in its behalf.

CORPORATE RESOLUTION

WHEREAS, _____, Inc. desires to enter into a contract with the Town of Miami Lakes for the purpose of performing the work described in the contract to which this resolution is attached; and

WHEREAS, the Board of Directors at a duly held corporate meeting has considered the matter in accordance with the By-Laws of the corporation;

Now, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS that the _____,
(type title of officer)

_____, is hereby authorized
(type name of officer)

and instructed to enter into a contract, in the name and on behalf of this corporation, with the Town of Miami Lakes upon the terms contained in the proposed contract to which this resolution is attached.

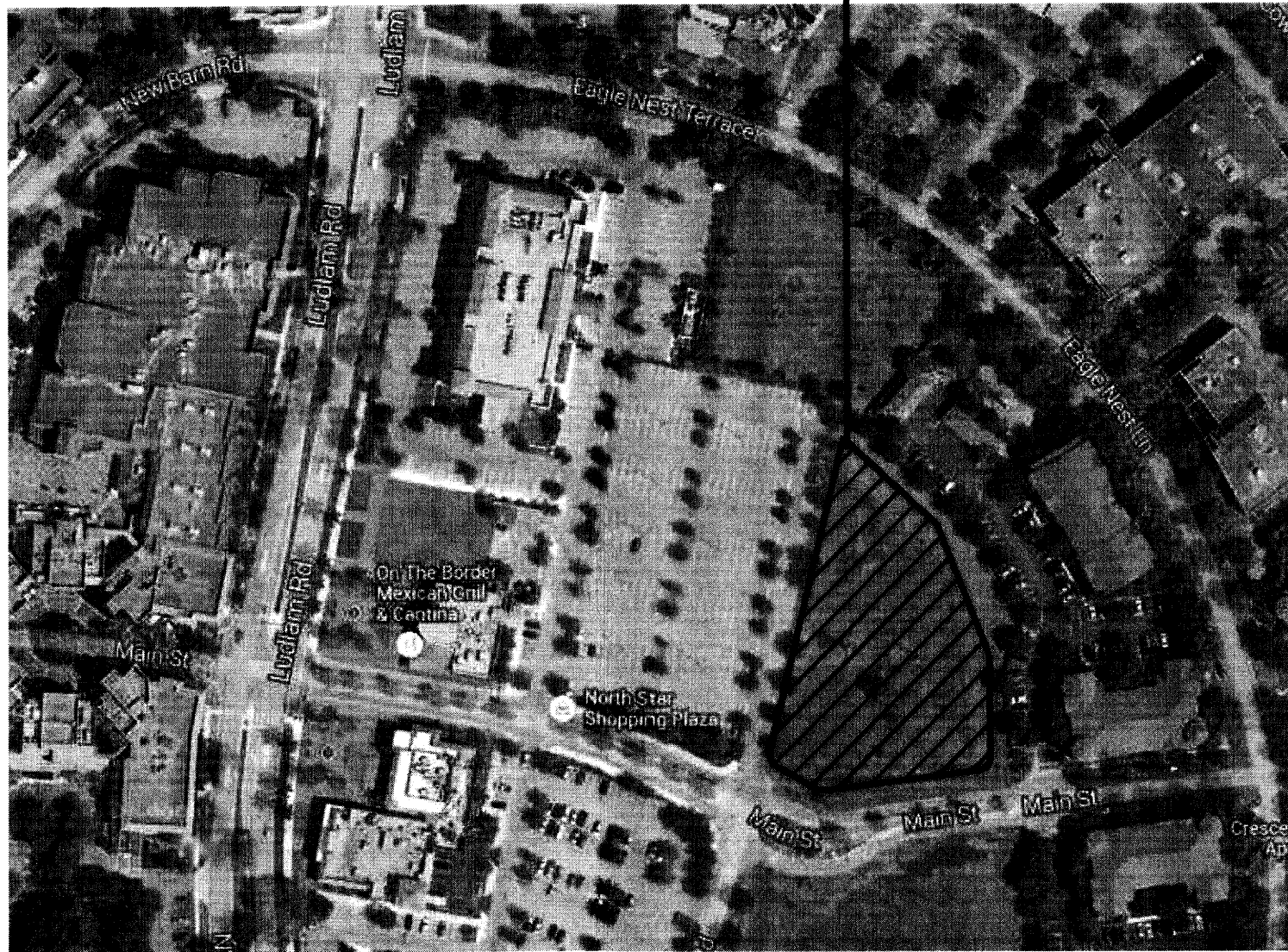
DATED this _____ day of _____, 20____.

Corporate Secretary

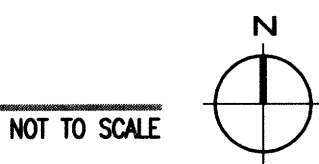
(Corporate Seal)

EXHIBIT A – Generator Installation Plans

AREA OF WORK



KEY PLAN



TOWN OF MIAMI LAKES GOVERNMENT CENTER GENERATOR INSTALLATION

6601 MAIN STREET
MIAMI LAKES, FLORIDA 33014
OCTOBER 31st, 2017

MANNY CID
MAYOR

NELSON RODRIGUEZ
VICE MAYOR

TIM DAUBERT
COUNCILMEMBER

FRANK MINGO
COUNCILMEMBER

LUIS COLLAZO
COUNCILMEMBER

CEASAR MESTRE
COUNCILMEMBER

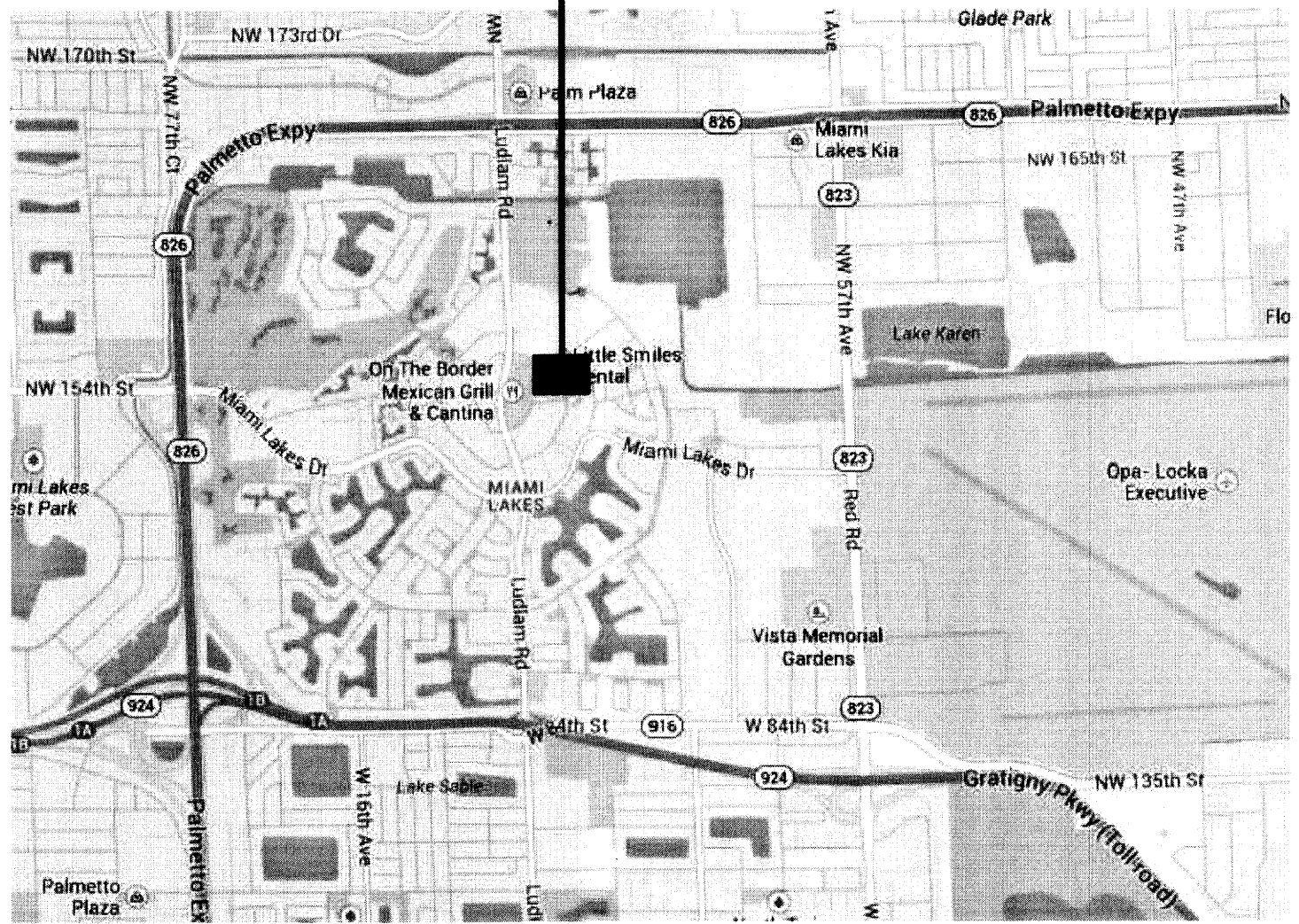
MARILYN RUANO
COUNCILMEMBER

ALEX REY
TOWN MANAGER

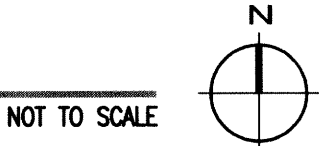
PREPARED BY:

BASULTO
ASSOCIATES
CONSULTING ENGINEERS
14160 Palmetto Frontage Road
Suite 22, Miami Lakes, FL 33016
305.698.3988, fax: 305.698.3989

SITE LOCATION



LOCATION MAP



INDEX OF DRAWINGS

CIVIL

- C-1 DEMOLITION AND GRADING PLAN
- C-2 DETAILS AND NOTES

LANDSCAPE

- L-1.0 LANDSCAPE PLAN AND DETAILS

MECHANICAL

- M-1.0 MECHANICAL

ELECTRICAL

- E-1.0 ELECTRICAL NOTES AND SYMBOL LEGEND
- E-2.0 SITE PLAN
- E-3.0 ENLARGED ELECTRICAL ROOM & GENERATOR PLANS
- E-4.0 ELECTRICAL RISER
- E-5.0 GENERATOR SPECIFICATION
- E-6.0 GENERATOR ENCLOSURE SPECIFICATION
- E-7.0 GENERATOR ENCLOSURE DETAILS

STRUCTURAL

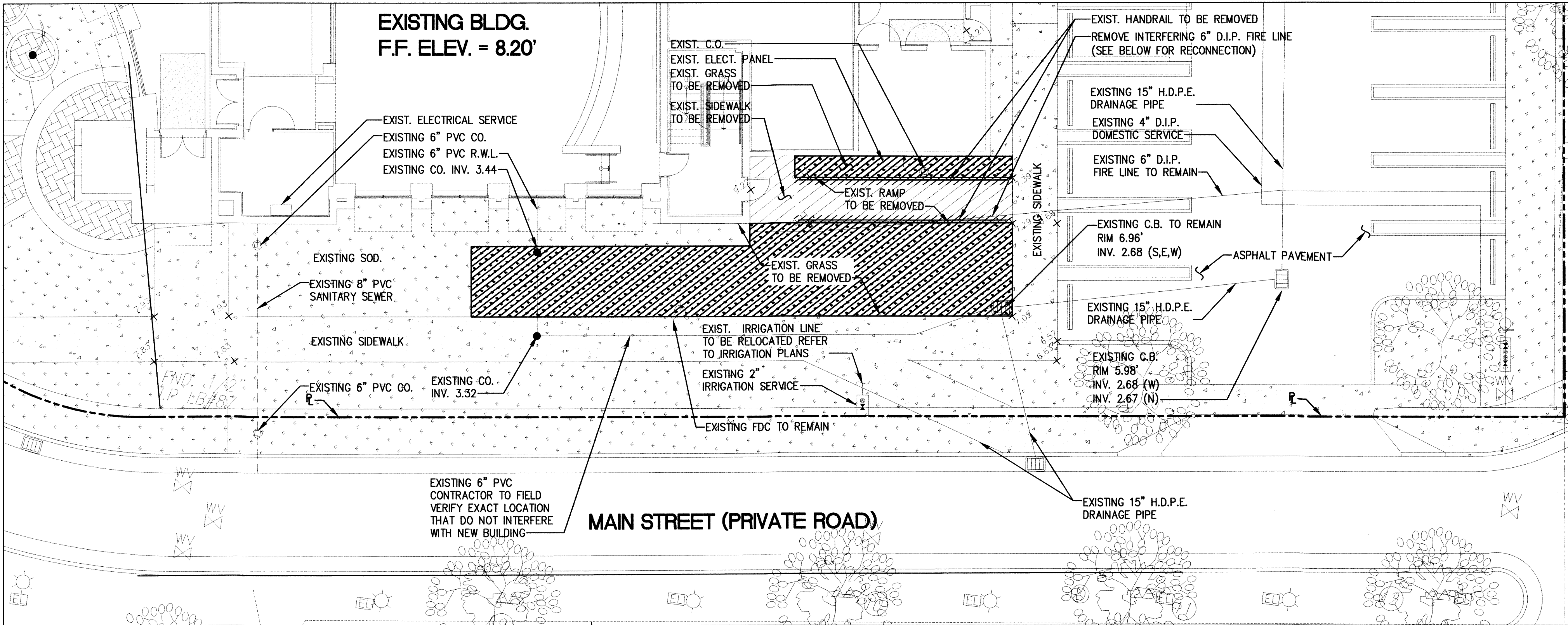
- S-1.0 STRUCTURAL NOTES AND SCHEDULES
- S-2.0 FOUNDATION / ROOF PLAN
- S-2.1 ELEVATIONS
- S-3 SECTIONS AND DETAILS

SCOPE OF WORK

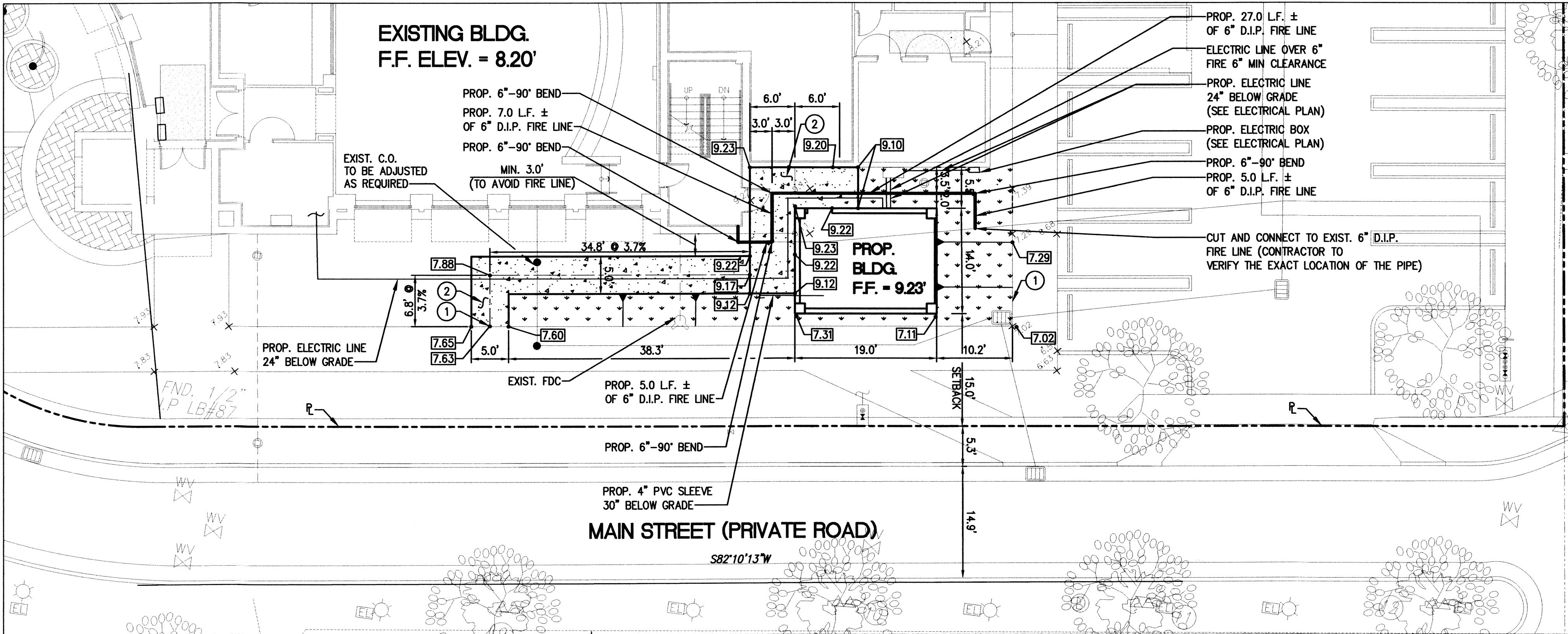
PROPOSED SCOPE OF WORK IS LIMITED TO
INSTALLATION OF NEW DIESEL FUELED GENERATOR
TO SERVE THE ENTIRE BUILDING.

PER CHAPTER 43 OF THE FLORIDA FIRE
PREVENTION CODE SECTIONS 43.11.1(3) AND 43.10.4
THE WORK RELATED TO THIS PROJECT SHALL BE
CONSIDERED "MODIFICATIONS". THESE
"MODIFICATIONS" DO NOT AFFECT THE BUILDING
OCCUPANCY CLASSIFICATION, MEANS OF EGRESS
OR ANY OTHER LIFE SAFETY RELATED ITEM.

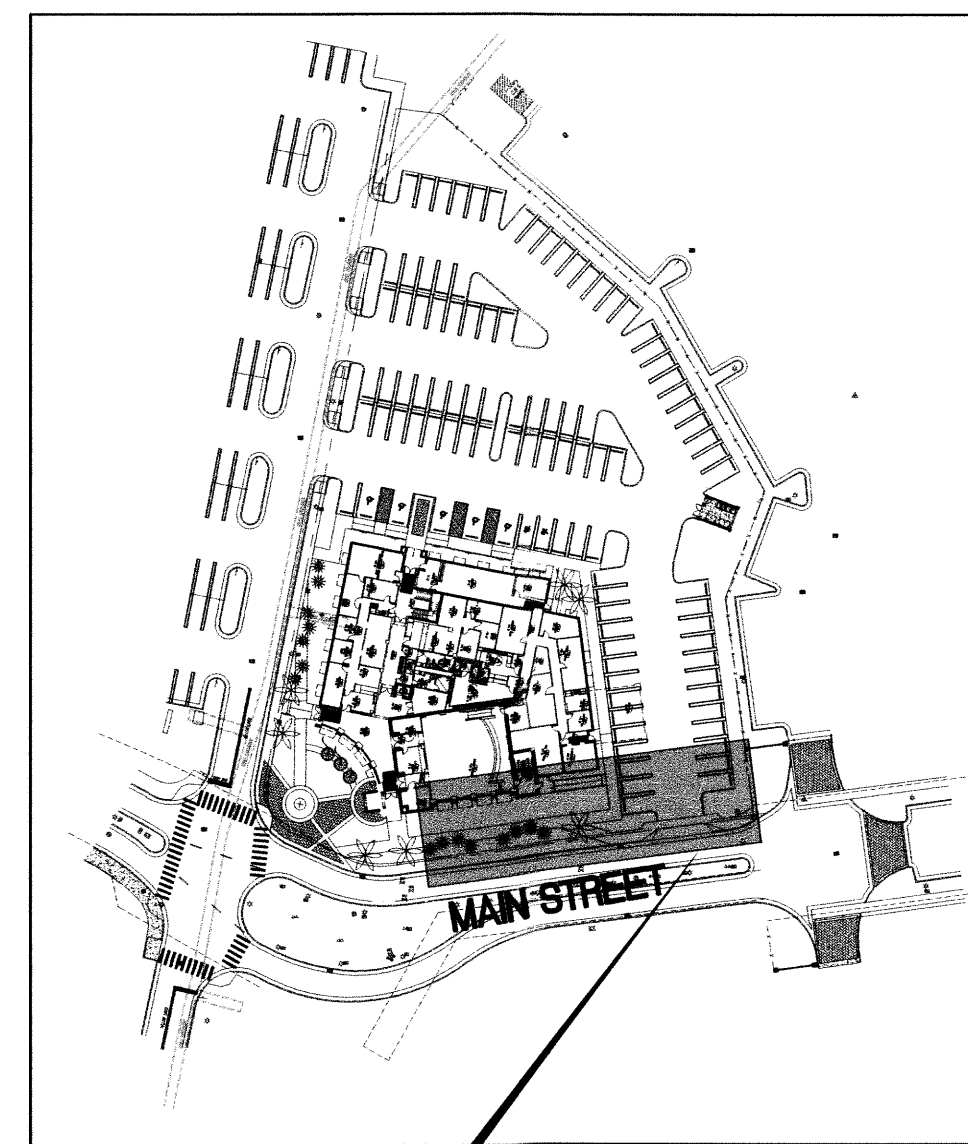
- 1 12-02-2014 BUILDING DEPARTMENT COMMENTS
- 2 12-10-2014 FIRE REVIEW COMMENTS
- 3 01-09-2015 OWNER REVIEW COMMENTS
- 4 04-29-2015 GENERATOR WALL
- 5 10-25-2016 REVISED TO GENERATOR BUILDING
- 7 10-31-2017 REVISED TO GENERATOR BUILDING RAMP



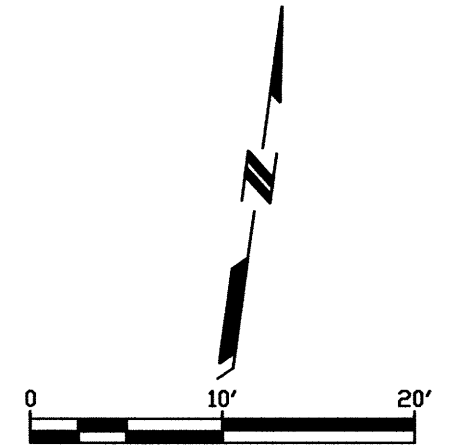
DEMOLITION PLAN
SCALE 1"=10'



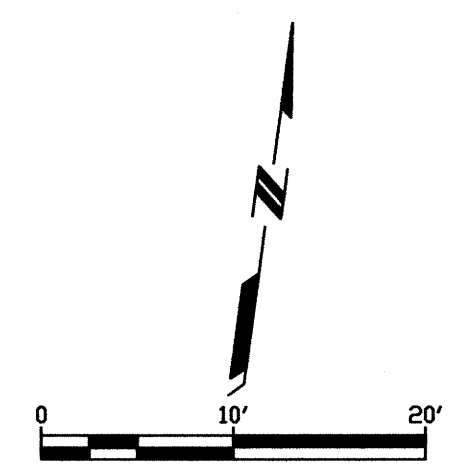
GRADING PLAN
SCALE 1"=10'



LOCATION SKETCH



- LEGEND:**
- EXIST. SOD AND LANDSCAPING TO BE REMOVED
 - EXIST. CONCRETE TO BE REMOVED
 - EXIST. HANDRAIL TO BE REMOVED
 - CONSTRUCT 4" CONCRETE RAMP (BY OTHER)
 - PROPOSED SOD AREA AND LANDSCAPING (BY OTHER)
 - PROPOSED SLOPE
 - EXISTING ELEVATION
 - PROPOSED ELEVATION
 - ① MATCH EXISTING GRADE
 - ② CONSTRUCT 4" THICK CONCRETE SIDEWALK (SEE DETAIL)



SRSI
ENGINEERING, INC.

CONSULTING ENGINEERS EB-00007317

5001 S.W. 74th COURT, SUITE 201
MIAMI, FLORIDA 33155
TEL. 305-662-8887 FAX 305-662-8858
WWW.SRSI-CORP.COM

PROJECT NAME
**MIAMI LAKES
GOVERNMENT CENTER
NEW BACKUP GENERATOR**

CLIENT
MIAMI LAKE GOVERNMENT CENTER

SHEET TITLE
**DEMOLITION
AND GRADING
PLAN**

SEAL
IGNACIO SERRALLA
LICENSE
101730117
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

S.R.S. PROJ. No.: **1622**
DATE: **10-27-17**
DRAWN BY: **A.F.**
DESIGNED BY: **A.F.**
CHECKED BY: **I.S.**

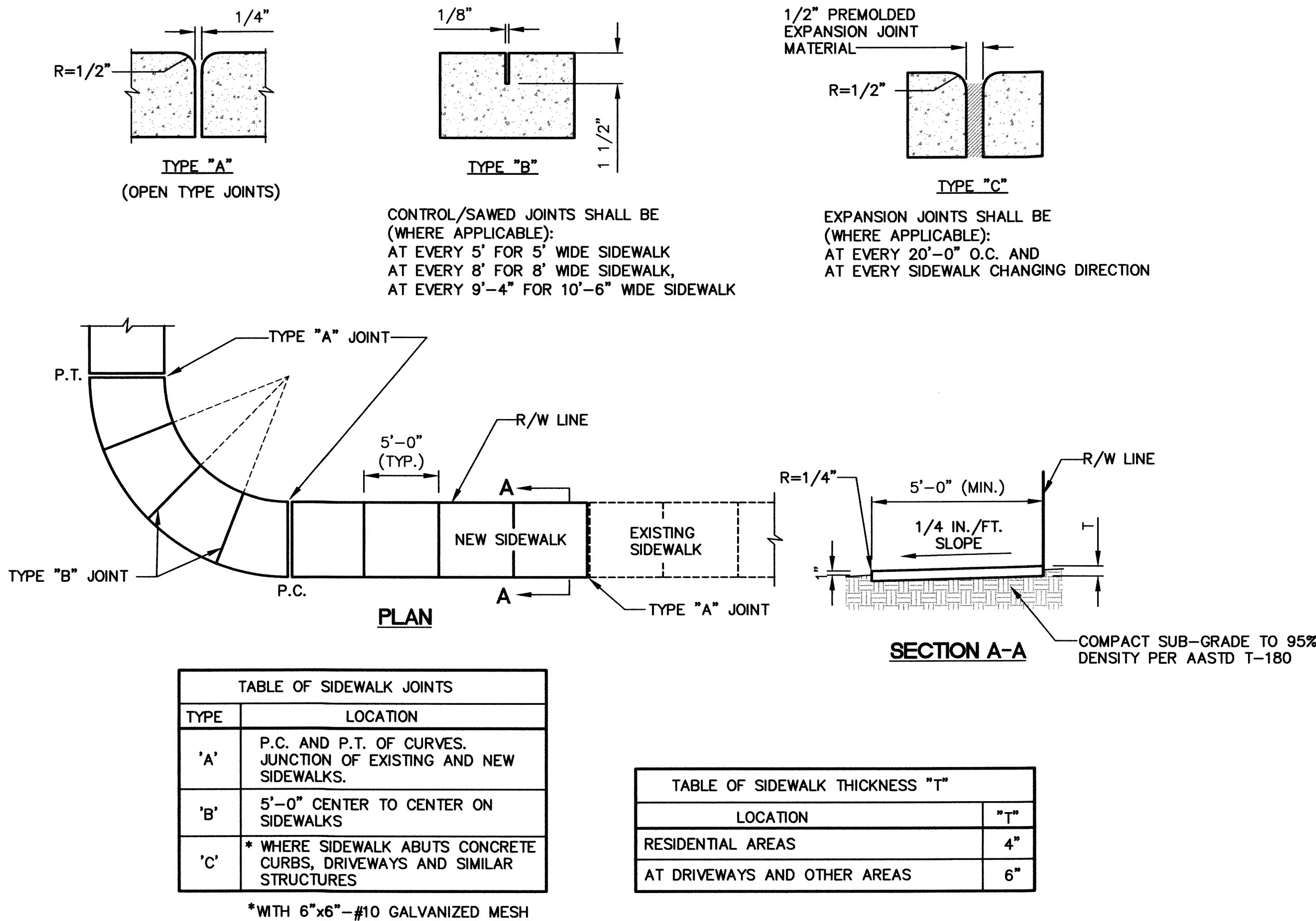
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C-1

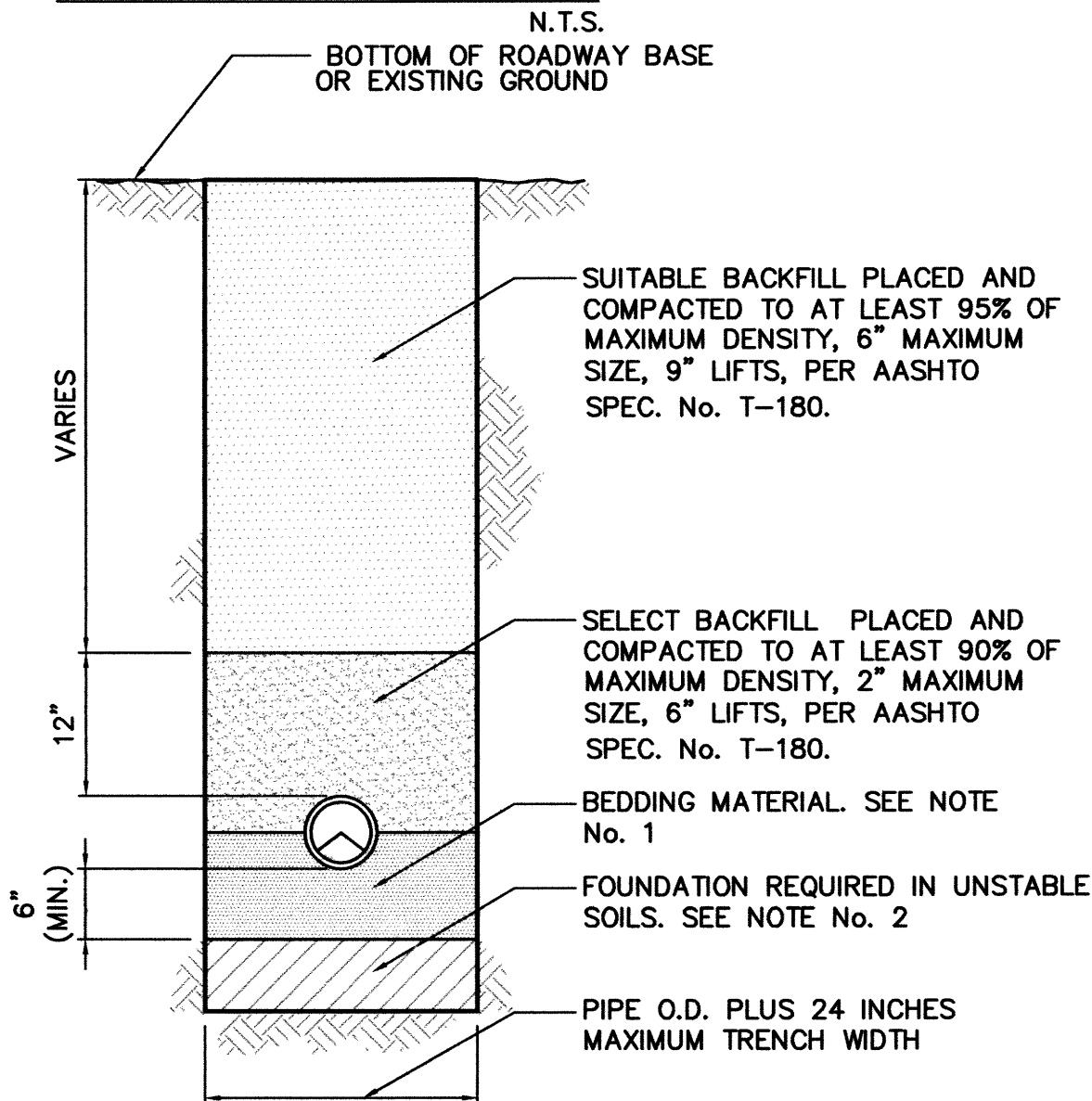
LOCATED IN: E:\Engineering\SRS Projects\2016\1622 - Miami Lakes - Generator\Design\1622-C1-FGD-Plans.dwg & PRINTED ON: Monday, October 30, 2017, 10:56:43 AM

GENERAL NOTES:

- ALL ELEVATIONS REFER TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD-'29).
- FLOOD CRITERIA ELEVATION IS 6.40 FEET BASED ON MIAMI DADE COUNTY FLOOD CRITERIA MAPS. OCTOBER WATER LEVEL 3.00
- IN ACCORDANCE WITH THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL No. 12086C, MAP No. 0283, SUFFIX L, REVISED DATE: 09-11-2009; THIS PROJECT IS LOCATED IN FLOOD ZONE "XE", BASE FLOOD ELEVATION = N/A
- 48 HOURS PRIOR TO DIGGING CONTRACTOR SHALL COORDINATE WITH ALL UNDERGROUND UTILITY SERVICE COMPANIES TO VERIFY LOCATION OF ALL UNDERGROUND UTILITIES. ADDITIONALLY, CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA, INC. (811) TO ASSURE THAT ALL UTILITIES HAVE BEEN IDENTIFIED.
- THE LOCATION AND SIZE OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHODS AND BY HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES, PRIOR TO BEGINNING ANY CONSTRUCTION OPERATION, ANY AND ALL CONFLICTS OF EXISTING UTILITIES WITH PROPOSED IMPROVEMENTS MUST BE RESOLVED BY THE ARCHITECT/ENGINEER AND THE OWNER. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- UNDERGROUND UTILITY INFORMATION SHOWN HEREON WAS TAKEN FROM DATA PROVIDED BY THE OWNER AND SUPPLEMENTED BY FIELD MEASUREMENTS WHEN OBTAINABLE.
- ALL EXISTING ROCK BASE MATERIAL WHICH IS REMOVED IS TO BE INCORPORATED IN THE STABILIZED PORTION OF THE SUBGRADE, ONLY AS DIRECTED BY THE ENGINEER.
- NONE OF THE EXISTING ROCK BASE THAT IS REMOVED IS TO BE INCORPORATED INTO THE PROPOSED LIMEROCK BASE
- ALL DISPOSAL OF EXCESS AND UNSUITABLE EXCAVATED MATERIAL, DEMOLITION, VEGETATION, RUBBISH AND DEBRIS SHALL BE MADE OUTSIDE THE LIMITS OF CONSTRUCTION AT A LEGAL DISPOSAL SITE PROVIDED BY THE CONTRACTOR AT HIS/HER OWN EXPENSE, WITH THE PRIOR APPROVAL OF THE ENGINEER. MATERIAL CLEARED FROM THE SITE SHALL NOT BE DEPOSITED ON ADJACENT AND/OR NEARBY PROPERTY.
- CONTRACTOR SHALL TO PREVENT DEBRIS OR DIRT FROM EXISTING STORM DRAINAGE SYSTEM AS A RESULT OF CONSTRUCTION ACTIVITIES. ALL LINES AND STRUCTURES SHALL BE CLEANED PRIOR TO FINAL INSPECTION AND ACCEPTANCE. TEMPORARY FILTER FABRIC SHALL BE INSTALLED DURING CONSTRUCTION.
- ALL GRASS AREAS AFFECTED BY CONSTRUCTION SHALL BE RESODDED TO MATCH EXISTING SODDING.
- ANY EXISTING BUILDING, PAVEMENT OR OTHER EXISTING IMPROVEMENTS NOT SPECIFIED FOR REMOVAL WHICH IS TEMPORARILY DAMAGED, EXPOSED OR IN ANY WAY DISTURBED BY CONSTRUCTION PERFORMED UNDER THIS CONTRACT, SHALL BE REPAIRED, PATCHED OR REPLACED AT NO ADDITIONAL COST TO THE TOWN OF MIAMI LAKES.
- ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY SHALL BE RESTORED BY THE CONTRACTOR AT NO EXPENSE TO THE TOWN OF MIAMI LAKES
- GRADES SHOWN ARE "FINISHED" GRADES.
- ALL TREES NOT AFFECTED BY GRADING OPERATIONS ARE TO REMAIN, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. CONTRACTOR MUST TAKE CARE NOT TO DAMAGE ANY TREE OR PALM THAT IS TO REMAIN WITHIN CONSTRUCTION AREA. SMALL TREES OR PALMS MAY BE RELOCATED AS DIRECTED BY THE TOWN OF MIAMI LAKES.
- CONTRACTOR SHALL HAVE A SET OF PLANS WITH CURRENT FIELD CHANGES MARKED THERE-ON AND SHALL DELIVER THESE PLANS TO THE ENGINEER UPON COMPLETION OF CONSTRUCTION.
- CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN CONFLICTS BETWEEN DRAWINGS AND ACTUAL CONDITIONS ARE DISCOVERED.



CONCRETE SIDEWALK



NOTES:

- UNLESS OTHERWISE SPECIFIED, BEDDING MATERIAL SHALL CONSIST OF SELECT BACKFILL MATERIAL 2" MAX. SIZE, OR WASHED AND GRADED LIMEROCK (3/8"-7/8"), COMPACTED TO AT LEAST 90% OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. No. T-180.
- WHERE UNSTABLE SOILS ARE ENCOUNTERED, INCLUDING PEAT, MUCK OR OTHER ORGANIC SOILS, ELASTIC SILT AND CLAYS BELOW THE WATER TABLE, A FOUNDATION IS REQUIRED. COMPACTED TO AT LEAST 90% OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. No. T-180. FOUNDATION MATERIAL SHALL BE SELECT BACKFILL MATERIAL, 2" MAXIMUM SIZE 6" LIFTS EXTEND EXCAVATION AT LEAST 2' DEEPER FOR FOUNDATION UNLESS SUITABLE MATERIAL IS FOUND AT A LESSER DEPTH, GREATER DEPTHS MAY BE REQUIRED FOR EXTREMELY POOR CONDITIONS.

TYPICAL TRENCH BACKFILL

(WATER MAINS)

N.T.S.

ENGINEERING, INC.

CONSULTING ENGINEERS EB-00007317

5001 S.W. 74th COURT, SUITE 201
MIAMI, FLORIDA 33155
TEL. 305-662-8887 FAX 305-662-8858
WWW.SRSI-CORP.COM

PROJECT NAME

**MIAMI LAKES
GOVERNMENT CENTER
NEW BACKUP GENERATOR**

CLIENT

MIAMI LAKE GOVERNMENT CENTER

SHEET TITLE

**GENERAL NOTES
AND DETAILS**

SEAL

IGNACIO SERRALTA
"C" ENGINEER
No. 45609
10/30/17
STATE OF FLORIDA
PROFESSIONAL ENGINEER

S.R.S. PROJ. No.: **1622**

DATE: **10-27-17**

DRAWN BY: **A.F.**

DESIGNED BY: **A.F.**

CHECKED BY: **I.S.**

REVISIONS

date	description	no.
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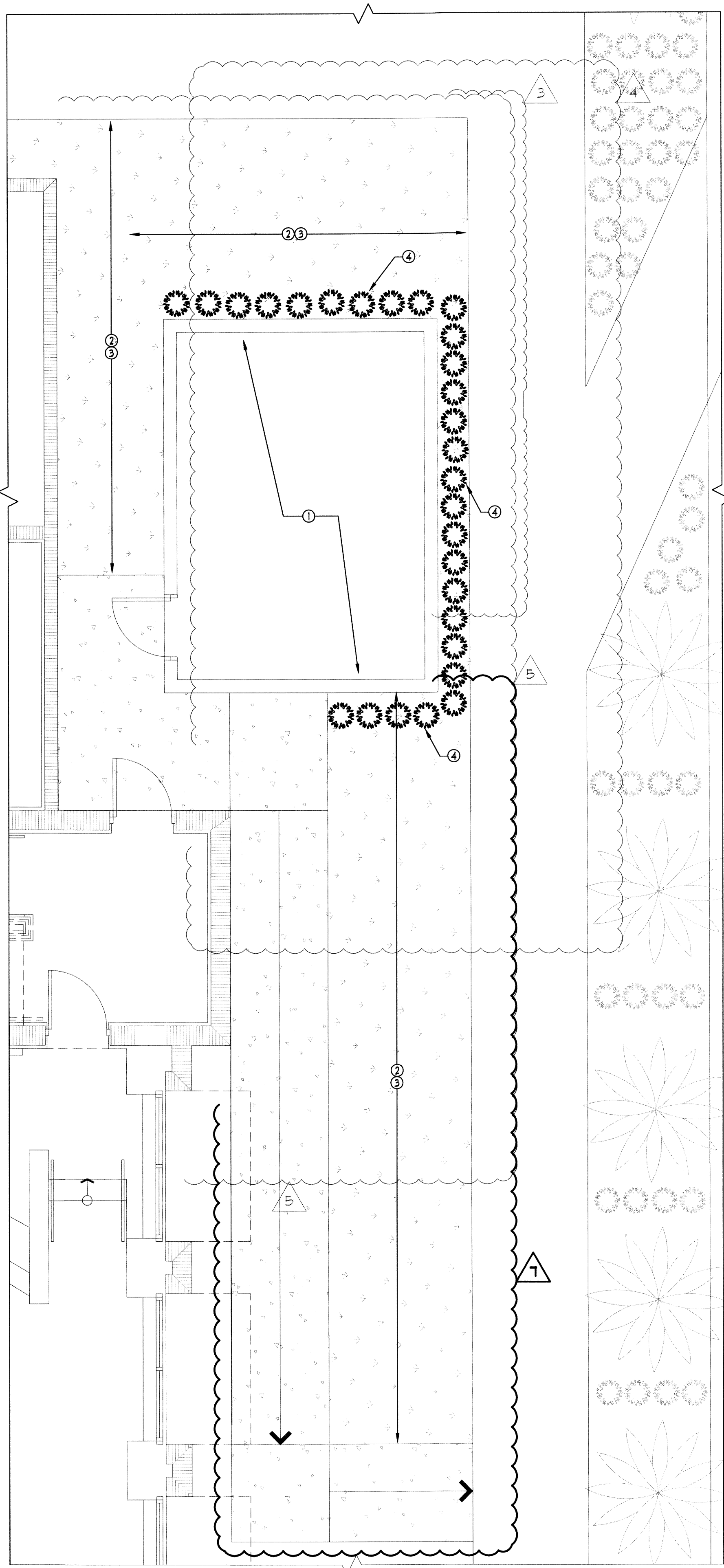
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C-2



LANDSCAPE PLAN KEY NOTES

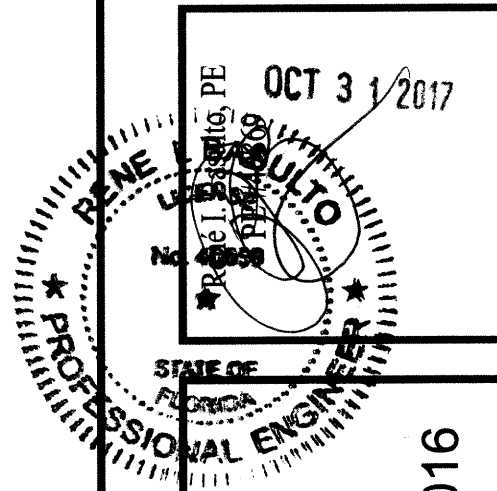
- ① REMOVE PLANTING BED AND RELATED LANDSCAPING FOR GENERATOR BUILDING INSTALLATION.
- ② RELOCATE EXISTING IRRIGATION SYSTEM PIPING AND SPRAY HEADS TO THAT THEY DO NOT RUN UNDER NEW GENERATOR SLAB. FIELD VERIFY LOCATIONS AND QUANTITIES PRIOR TO BID.
- ③ 'RE-MULCH' PLANTING BED AFTER GENERATOR INSTALLATION IS COMPLETE.
- ④ 3 GALLON 'BAHAMIA COFFEE' (PSYCHOTRIA LIGUSTRIFOLIA) PLANTED ON 36" CENTERS. HEIGHT AND TYPE OF SHRUBS TO MATCH EXISTING.



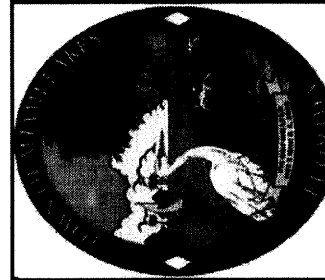
LANDSCAPING PLAN
SCALE: 1/4" = 1'-0"

NOTE:
REFER TO CIVIL DRAWINGS
FOR RAMP INFORMATION

REVISIONS	BY
1 12-2-2014 B.D.C.	C.Y.
3 01-09-2015 OWNER REV.	R.I.B.
4 04-09-2015 WALL REV.	R.I.B.
6 10-25-2016 GEN. BLDG.	R.I.B.
6 07-19-2017 GEN. BLDG.	R.I.B.
7 10-31-2017 GEN. BLDG.	R.I.B.



TOWN OF MIAMI LAKES
GOVERNMENT CENTER
GENERATOR INSTALLATION
6601 MAIN STREET, MIAMI LAKES 33016



LANDSCAPING PLAN
AND DETAIL

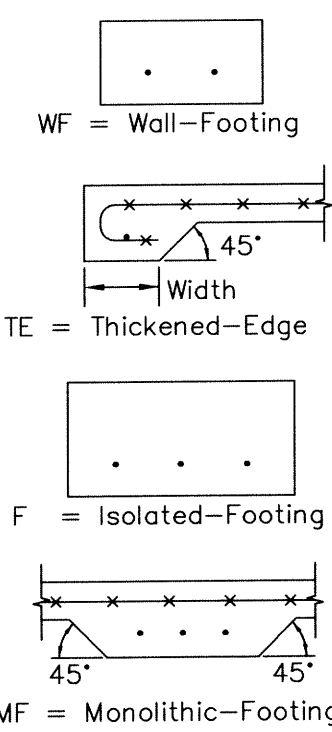
BASULTO & ASSOCIATES
CONSULTING ENGINEERS
14160 Palmetto Frontage Road
Suite 22, Miami Lakes, FL 33016
PE 40869 - FL CA06722
www.basulto.com

DRAWN d.t.
CHECKED c.v.
DATE 10-25-2016
SCALE AS SHOWN
JOB NO. 14124
SHEET L-1.0
SHEETS 6

GENERAL NOTES

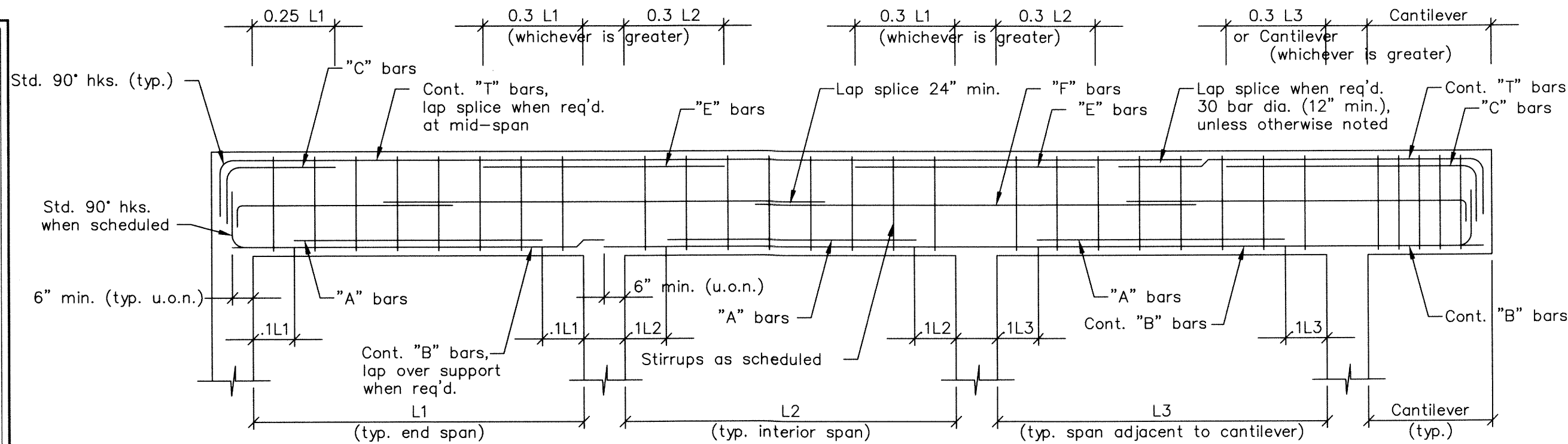
- ALL CONSTRUCTION SHALL COMPLY WITH THE PERTINENT SECTIONS OF THE FLORIDA BUILDING CODE 2014 (Fifth Edition).
- CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER/ARCHITECT BEFORE PROCEEDING.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS. APPROVAL OF SHOP DRAWINGS BY THE ENGINEER/ARCHITECT IS FOR DESIGN AND LAYOUT ONLY, AND IS NOT FOR THE PURPOSE OF AUTHORIZING CHANGES TO THE CONTRACT DRAWINGS FOR APPROVING SUBSTITUTIONS.
- ALL ELEVATIONS SHOWN ON THESE DRAWINGS ARE MEASURED WITH RESPECT TO THE FINISH FLOOR. +0'-0"= + NGVD.
- ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
- ALL STRUCTURAL TUBING SHALL BE CONCRETE FILLED AND CONFORM TO ASTM A500. CONCRETE FILLED TUBING SHALL HAVE 1/4" DIAMETER PRESSURE RELIEF HOLES WITHIN 6" OF THE TOP AND BOTTOM OF THE EXPOSED LENGTH OF THE MEMBER AND ONE HOLE AT MID-HEIGHT.
- ALL BOLTING SHALL BE PERFORMED WITH HIGH STRENGTH BOLTS INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS CONFORMING TO ASTM A325.
- ALL WELDS TO BE PERFORMED WITH E70XX ELECTRODES AND IN ACCORDANCE WITH AWS D1.1.
- ALL REINFORCING BARS SHALL BE GRADE 60 CONFORMING TO ASTM A615.
- ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI 318. ALL CONCRETE USED SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AND A MAXIMUM SLUMP OF 6", EXCEPT FOR SLABS (GRADE/ELEV.) WHICH ITS 28-DAY COMPRESSIVE STRENGTH IS 5000 PSI AND W/C=0.40..
- CONCRETE SLABS-ON-GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302. CONCRETE FOR SLABS-ON-GRADE SHALL BE LIMITED TO A WATER TO CEMENT RATIO OF 0.40.
- A SPECIAL INSPECTOR, RETAINED BY THE OWNER, SHALL INSPECT AND SUPERVISE THE COMPACTION OF FILL UNDER SLABS ON GRADE. THE FILL SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY FOR ALL LAYERS AS VERIFIED BY FIELD DENSITY TESTS MADE IN ACCORDANCE WITH ASTM D1557.
- MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE PROVIDED IN ACCORDANCE WITH ACI 318 SECTION 7.7.1.
- ALL TIE BEAMS SHALL HAVE FOUR #3 TIES AT 12" C/C AT CORNERS AND AT EACH BEND AND AT 48" C/C ELSEWHERE. LONGITUDINAL REINFORCEMENT SHALL CONSIST OF NO LESS THAN 4 #5 REINFORCING BARS PLACED TWO AT THE TOP & TWO AT THE BOTTOM. TIE BEAM REINFORCING CONTINUITY SHALL BE PROVIDED BY LAPPING SPLICES NOT LESS THAN 18". CONTINUITY SHALL BE PROVIDED AT CORNERS BY BENDING BARS FROM EACH DIRECTION AROUND THE CORNER 30" OR BY ADDING 2 #5 BENT TWO BARS WHICH EXTEND 30" EACH WAY FROM THE CORNER.
- MASONRY CONSTRUCTION SHALL COMPLY WITH THE BUILDING CODE AND SPECIFICATIONS FOR CONCRETE MASONRY STRUCTURES ACI 530 AND ACI 530.1.
- CONCRETE MASONRY SHALL HAVE A NET AREA COMPRESSIVE STRENGTH $f'_m=1500$ P.S.I. AND SHALL COMPLY WITH ASTM C90. CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 1900 P.S.I.
- MASONRY MORTAR SHALL BE TYPE M OR S AND SHALL COMPLY WITH ASTM C270.
- GROUT FOR GROUTING CELLS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 P.S.I. OR THE BLOCK STRENGTH, WHICH EVER IS GREATER AND SHALL BE IN ACCORDANCE WITH WITH ASTM C476-91. GROUT TO HAVE A SLUMP BETWEEN 8" TO 11".
- A SPECIAL INSPECTOR, RETAINED BY THE OWNER, SHALL INSPECT AND SUPERVISE THE CONSTRUCTION OF REINFORCED MASONRY PER ACI 530.1.
- EXPANSION ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS.
- ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATIONS AT OTHER LOCATIONS THAN THAT SPECIFICALLY INDICATED.

FOUNDATION SCHEDULE



Safe Soil Bearing Pressure = See soil statement
 $f'_c = 3$ ksi
 $f_y = 60$ ksi
Minimum of 3" clear cover on bottom reinf.

Mark	Top Elev.	Size WIDTH x LENGTH x DEPTH	Bottom Reinforcement			REMARKS
			E.W.	CONT.	TRANSV.	
WF-18	-3'-0"	18" x CONT. x 12"		2 #5	#4@24"	
WF-24	-3'-0"	24" x CONT. x 12"		3 #5	#4@24"	



TYPICAL BEAM DIAGRAM

BAR PLACEMENT NOTES:

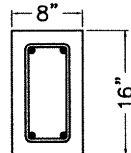
- BEAMS SHOWN IN PLAN ARE READ FROM LEFT TO RIGHT.
- THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS IN A LAYER SHALL BE EQUAL TO THE NOMINAL DIAMETER OF THE BARS. IN NO CASE SHALL THE CLEAR DISTANCE BETWEEN BARS BE LESS THAN ONE INCH, NOR LESS THAN ONE AND ONE-HALF TIMES THE MAXIMUM SIZE OF THE COARSE AGGREGATE.
- WHEN REINFORCEMENT IS PLACED IN TWO OR MORE LAYERS, THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN ONE INCH NOR LESS THAN THE DIAMETER OF THE BARS, AND THE BARS IN THE UPPER LAYERS SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTOM LAYER.
- "B" BARS ARE BOTTOM BARS. "B" BARS SHALL EXTEND OVER SUPPORTS 6" MIN. UNLESS OTHERWISE NOTED. "B" BARS MAY BE CONTINUOUS.
- "A" BARS ARE BOTTOM BARS. "A" BARS DO NOT EXTEND OVER SUPPORTS. "A" BARS SHALL BE PLACED IN THE SAME LAYER AS "B" BARS (U.O.N.).
- "T" BARS ARE CONTINUOUS TOP BARS. "T" BARS SHALL BE LAP SPICED WHEN REQUIRED AT MID-SPAN 30 BAR DIAMETERS (12" MINIMUM) (U.O.N.).
- "C" BARS ARE TOP BARS AT THE DISCONTINUOUS END OF END SPANS. "C" BARS SHALL BE PLACED IN THE SAME LAYER AS "T" BARS UNLESS OTHERWISE NOTED.
- "E" BARS ARE TOP BARS OVER INTERIOR SUPPORTS. "E" BARS SHALL BE PLACED IN THE SAME LAYER AS "T" BARS UNLESS OTHERWISE NOTED.
- "F" BARS SHALL BE EQUALLY SPACED BETWEEN "B" AND "T" BARS, HALF ON EACH VERTICAL FACE. "F" BARS MAY BE CONTINUOUS.
- STIRRUPS SPACING IS FROM FACE OF SUPPORT. STIRRUPS SHALL HAVE "B" OR "T" BARS TIED IN EACH CORNER.
- ALL REINFORCING BARS TO HAVE A MINIMUM OF 1 1/2" CLEAR COVER (U.O.N.) 12. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE PROVIDED IN ACCORDANCE WITH ACI 318-95, SECTION 7.7.1.

BEAM SCHEDULE

MARK	TOP OF BEAM ELEV.	SIZE (in.) b x d	LONGITUDINAL REINFORCEMENT							STIRRUPS		REMARKS
			T	A	B	C	E	F	No.	TYPE	SPACING E.A. END	
TB-1	SEE PLAN	8" x 12"	2 #5		2 #5				#3	□	4 #3@12" BAL. @ 12"	DROP TIE BEAM OVER OPENINGS. ADD 2 #6 BOTT. & STIRRUP SPACING AT 8" O.C. & TO BEAR 16" AT ADJACENT MASONRY OR CASTED WITH ADJACENT COL.
B-1	SEE PLAN	8" x 54"	2 #5		2 #8			4 #6	#3	□	AT 12" O.C.	

COLUMN SCHEDULE

Ⓒ Reinforced Concrete Column
 $f'_c = 3000$ psi
4 #5
#3 Ties @ 8" O.C.
3'-0" min. Lap Splice



LOADS

DESIGN CRITERIA: FBC 2014 (FIFTH EDITION)
Roof Live Load= 30 psf
WIND LOADS: ASCE 7-10
CAT. II - EXP. C - V= 175 MPH - I=1.00

SOIL STATEMENT

THE EXISTING SITE IS OBSERVED FOR SOIL CONDITIONS AND HAS BEEN OBSERVED TO CONFORM WITH SOILS TYPICAL WITH THE SURROUNDING SITES WHICH CONSIST OF UNDISTURBED SAND AND ROCK. THEREFORE THE FOUNDATION HAVE BEEN DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. A GREATER ALLOWABLE SOIL BEARING PRESSURE CAN BE USED IF SUBSTANTIATED BY A GEOTECHNICAL EXPLORATION OF THE SUBSOIL TO BE PERFORMED BY A LISENCED PROFESSIONAL ENGINEER.

MASONRY NOTE

ALL EXTERIOR MASONRY WALLS SHALL BE 8" CMU $f'_m=1500$ psi WITH #5 VERTICALS WITH A MAXIMUM SPACING OF 32" O.C. AND TO BE PLACED AS SHOWN ON THE FOUNDATION PLAN.
PROVIDE NO.9 LADDER TYPE HORIZONTAL REINFORCMENT AT 16" O.C.

SANTIAGO ARANEGUI P.E.

PE 0048106

6431 S.W. 145 STREET
CORAL GABLES, FL. 33158
(305) 431-6747

GENERATOR BUILDING FOR:

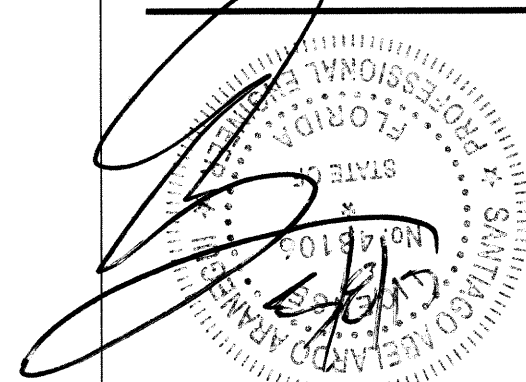
TOWN OF MIAMI LAKES
GOVERNMENT CENTER

6601 MAIN STREET
MIAMI LAKES, FLORIDA

JOB NUMBER
2015-0098

FILE No. :

DRAWN : 0000
REVIEWED : 0000
CHECKED : 0000



Santiago Aranequi
Reg. No.: PE 0048106

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DATE : 3/8/17

ISSUE

REVISIONS

SHEET TITLE

FOUNDATION PLAN

SHEET NUMBER

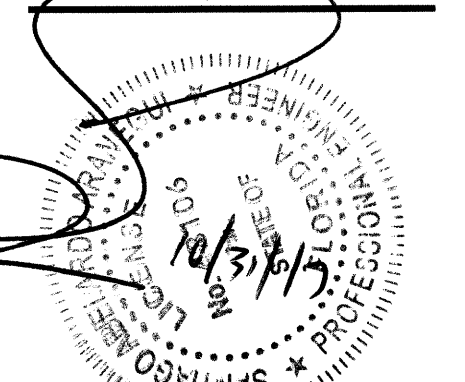
S-1

SANTIAGO ARANEGUI P.E.
PE 0048106
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CORAL GABLES, FL. 33158
(305) 431-6747

GENERATOR BUILDING FOR:
TOWN OF MIAMI LAKES
GOVERNMENT CENTER
6601 MAIN STREET
MIAMI LAKES, FLORIDA

JOB NUMBER
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FILE No. :
DRAWN : 000
REVIEWED : 000
CHECKED : 000



Santiago Aranequi
Reg. No.: PE 0048106

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DATE : 10/30/17

ISSUE

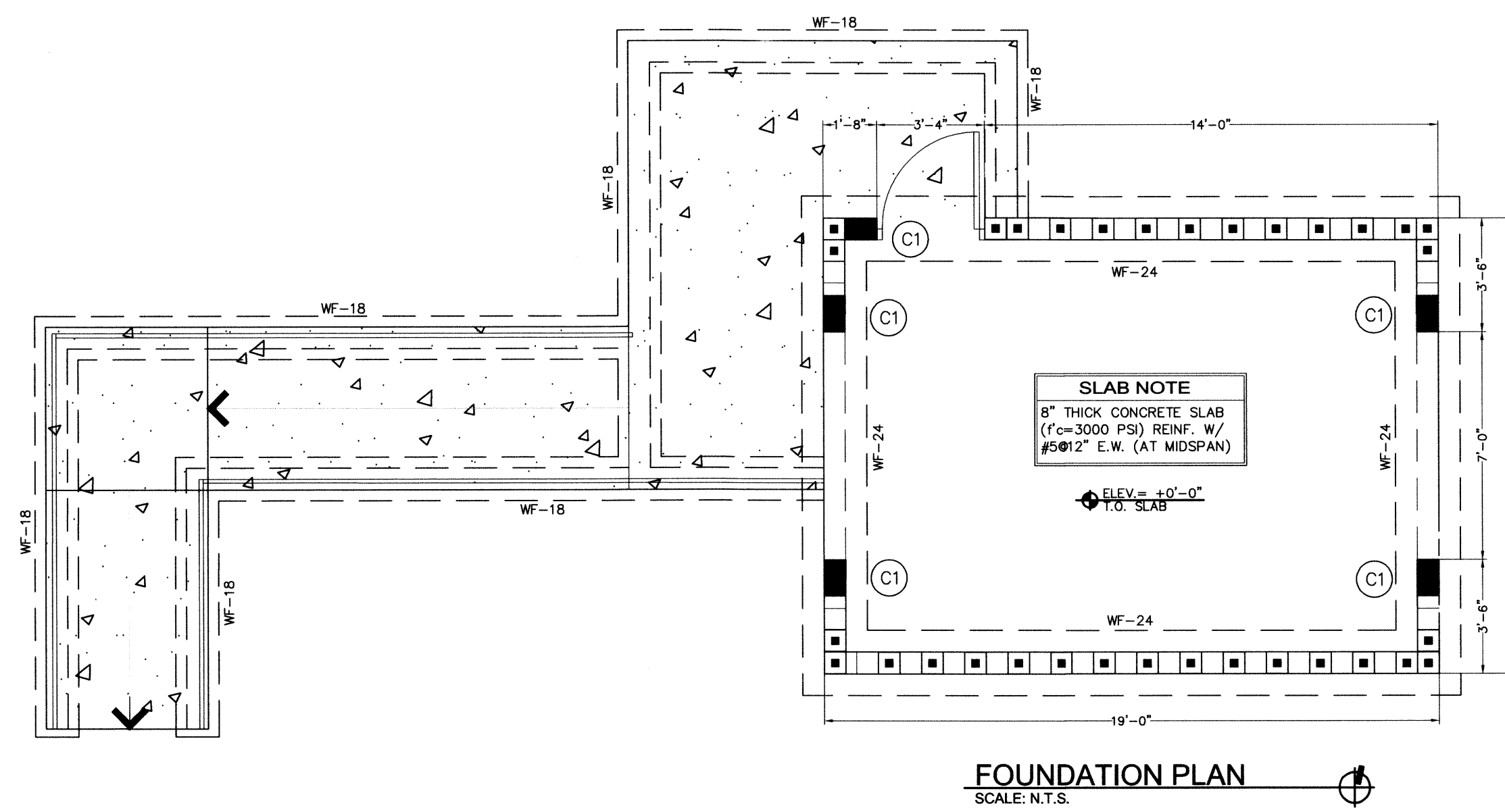
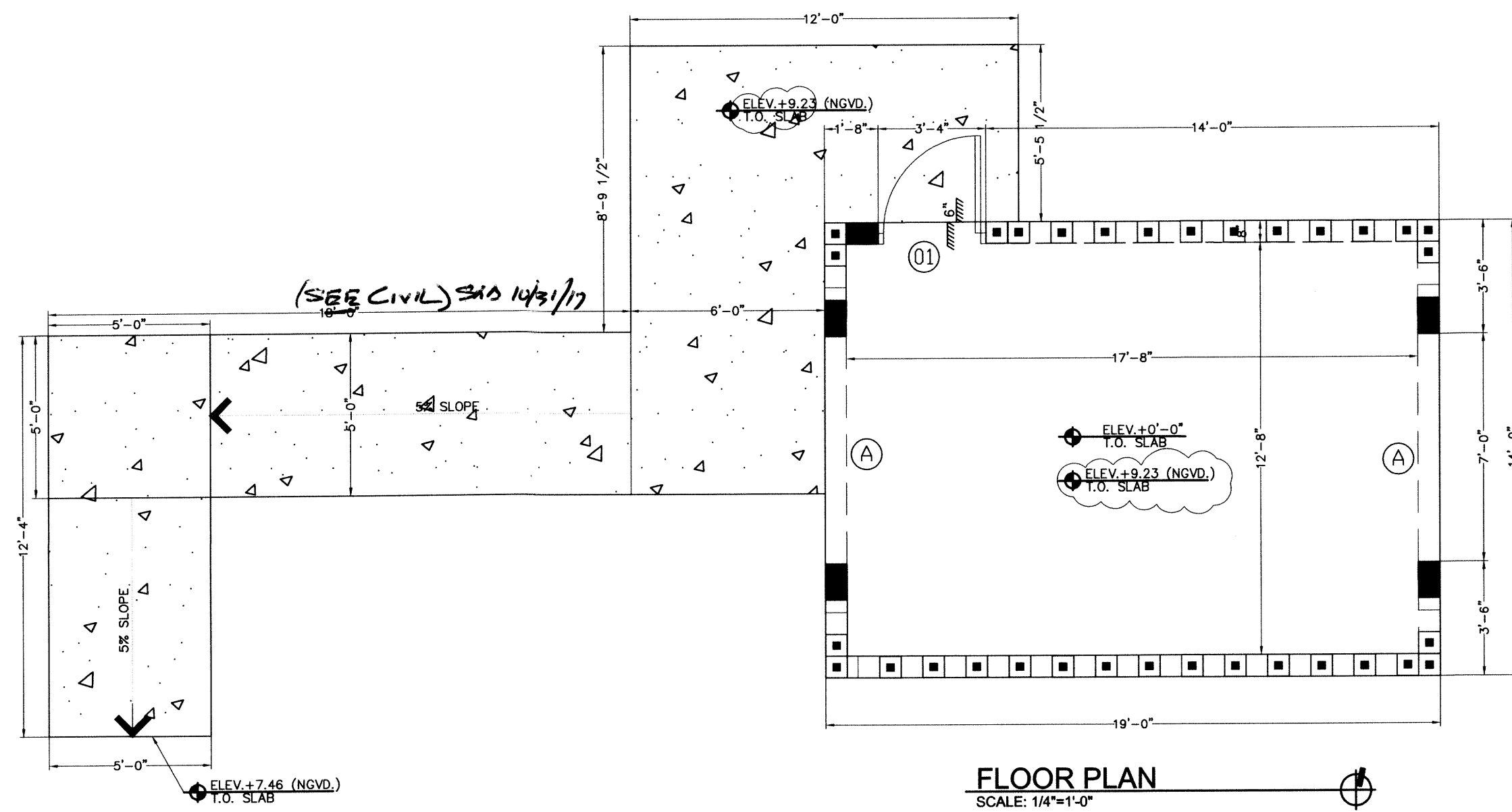
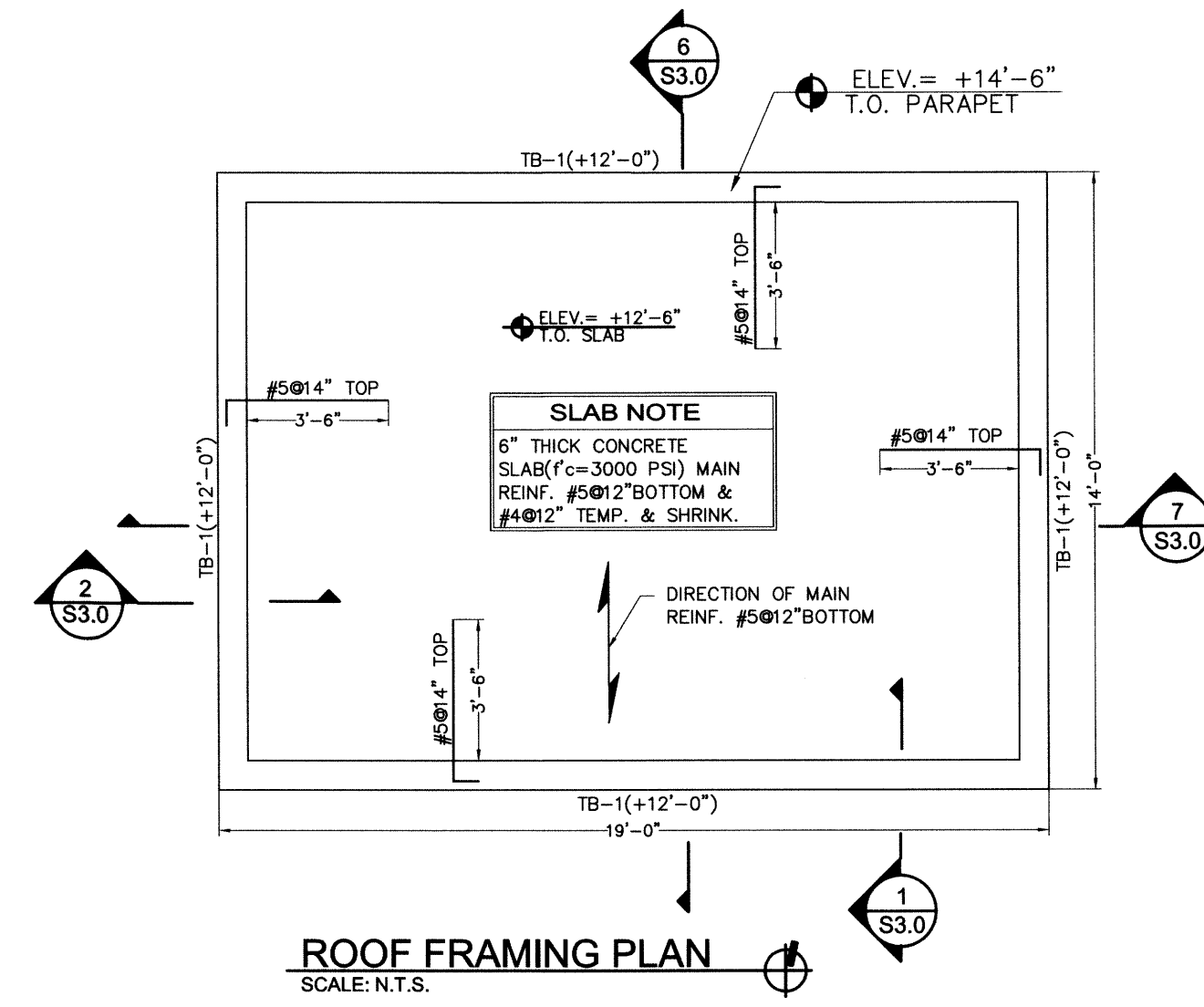
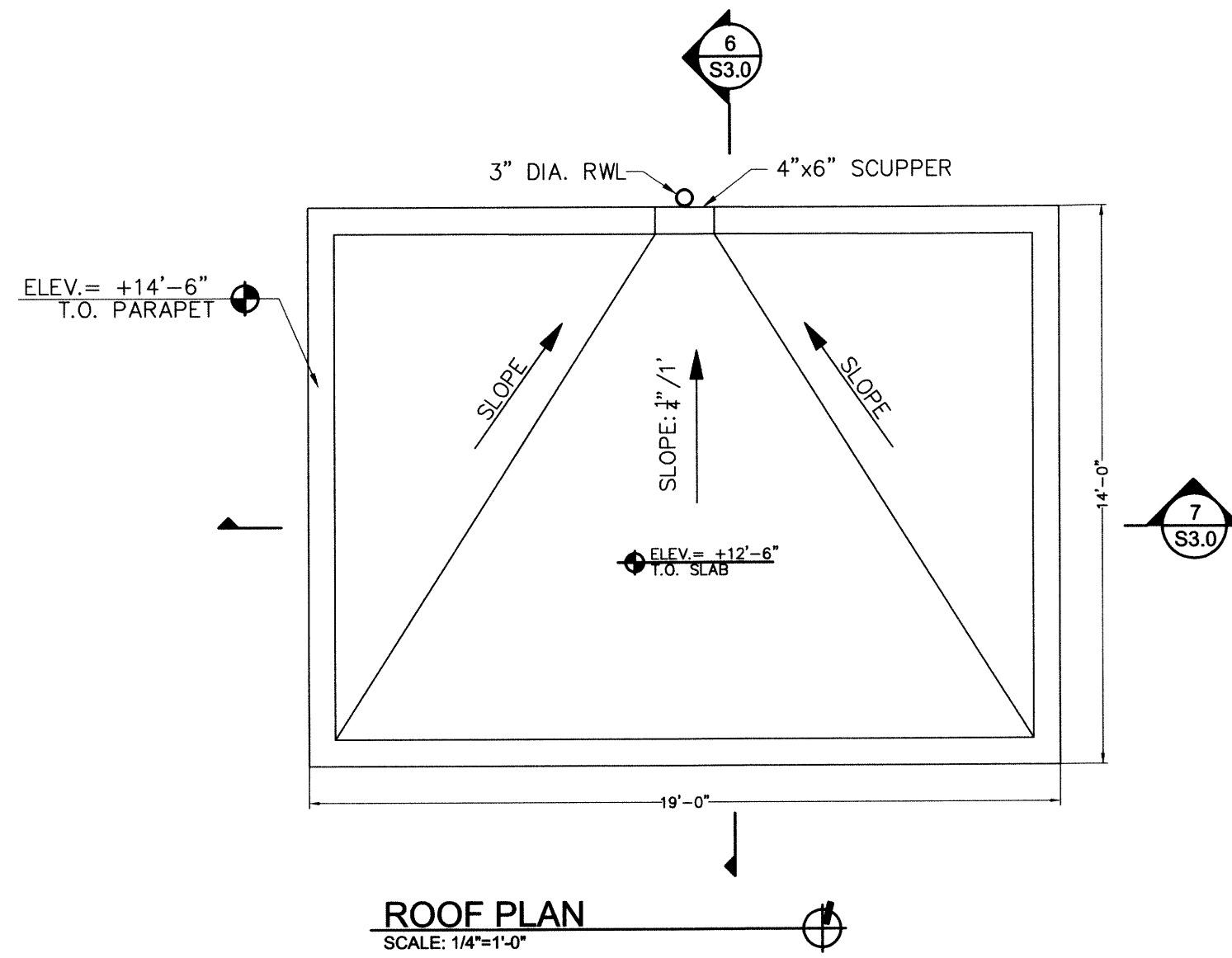
REVISIONS

SHEET TITLE

FOUNDATION/ROOF PLAN

SHEET NUMBER

S-2

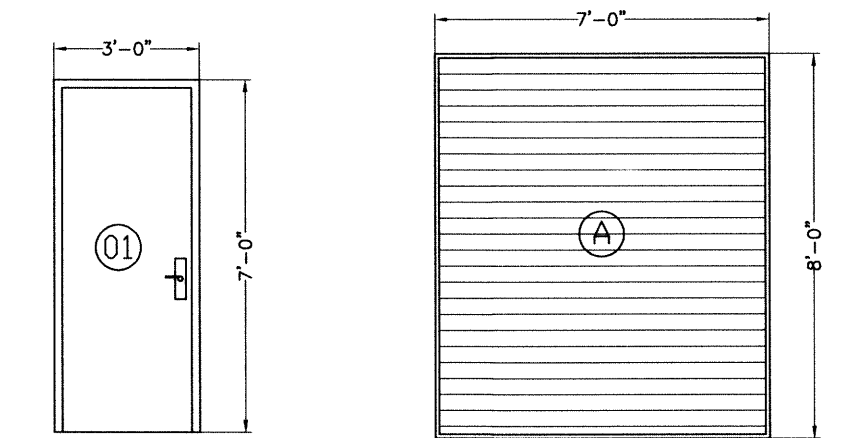


GROUND FLOOR PLAN NOTES:

- TOP OF SLAB ELEVATION +0'-0" TYPICAL UNLESS OTHERWISE, ASSOCIATED WITH AN NGVD EL.+9.23' NOTED AS THUS
- FOR GENERAL STRUCTURAL NOTES, SEE SHEET S1.0
- FOR FOOTING SCHEDULE, SEE SHEET S1.0
- FOR COLUMN SCHEDULE, SEE SHEET S1.0
- COORDINATE ALL SLAB DEPRESSIONS, SLOPES AND OPENINGS WITH MECHANICAL DRAWINGS.
- DENOTES 8" BEARING MASONRY BLOCK WALL (f'm=1500 PSI), REINFORCED W/ #5 @ 16" O.C. IN GROUT FILLED CELLS, UNLESS SHOWN OTHERWISE.
- SLAB NOTES : SLAB ON GRADE SHALL BE A 8" CONCRETE SLAB ON VAPOR BARRIER OVER WELL COMPACTED FILL, REINFORCED WITH #5@12" E.W. AT SLAB MID-HEIGHT

LEGEND

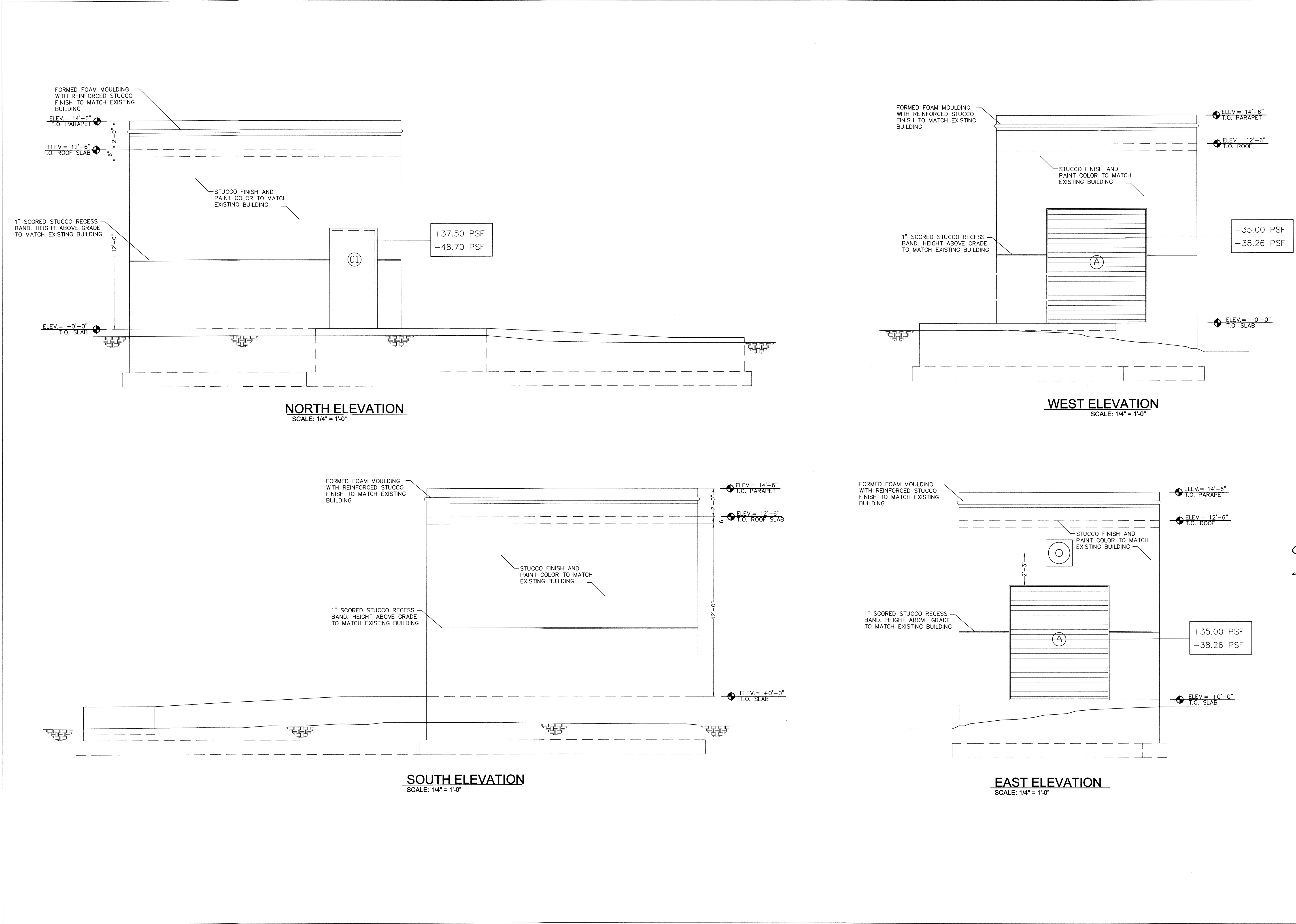
- Filled Cell- See plan for spacing and reinf. information.
- Footings- See plan and schedule for additional information.
- Column- See plan and schedule for additional information.
- CMU- See plan for size and reinf. information.



EXTERIOR METAL DOOR
(QTY:1)
1-HR FIRE RATED
(IMPACT)

EXTERIOR ALUMINUM LOUVER
MANUFACTURED BY RUSKIN
MODEL #HZ850 (MIAMI-DADE
COUNTY NOA# 14-0918.06)

DOOR/LOUVER SCHEDULE



SANTIAGO ARANEGUI P.E.
PE 0048106
6431 S.W. 145 STREET
CORAL GABLES, FL. 33158
(305) 431-6747

GENERATOR BUILDING FOR:
TOWN OF MIAMI LAKES
GOVERNMENT CENTER
6601 MAIN STREET
MIAMI LAKES, FLORIDA

JOB NUMBER
2015-0098
FILE No. :
DRAWN : 000
REVIEWED : 000
CHECKED : 000

Santiago Aranequi
Reg. No. PE 0048106

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DATE : 10/30/17
ISSUE

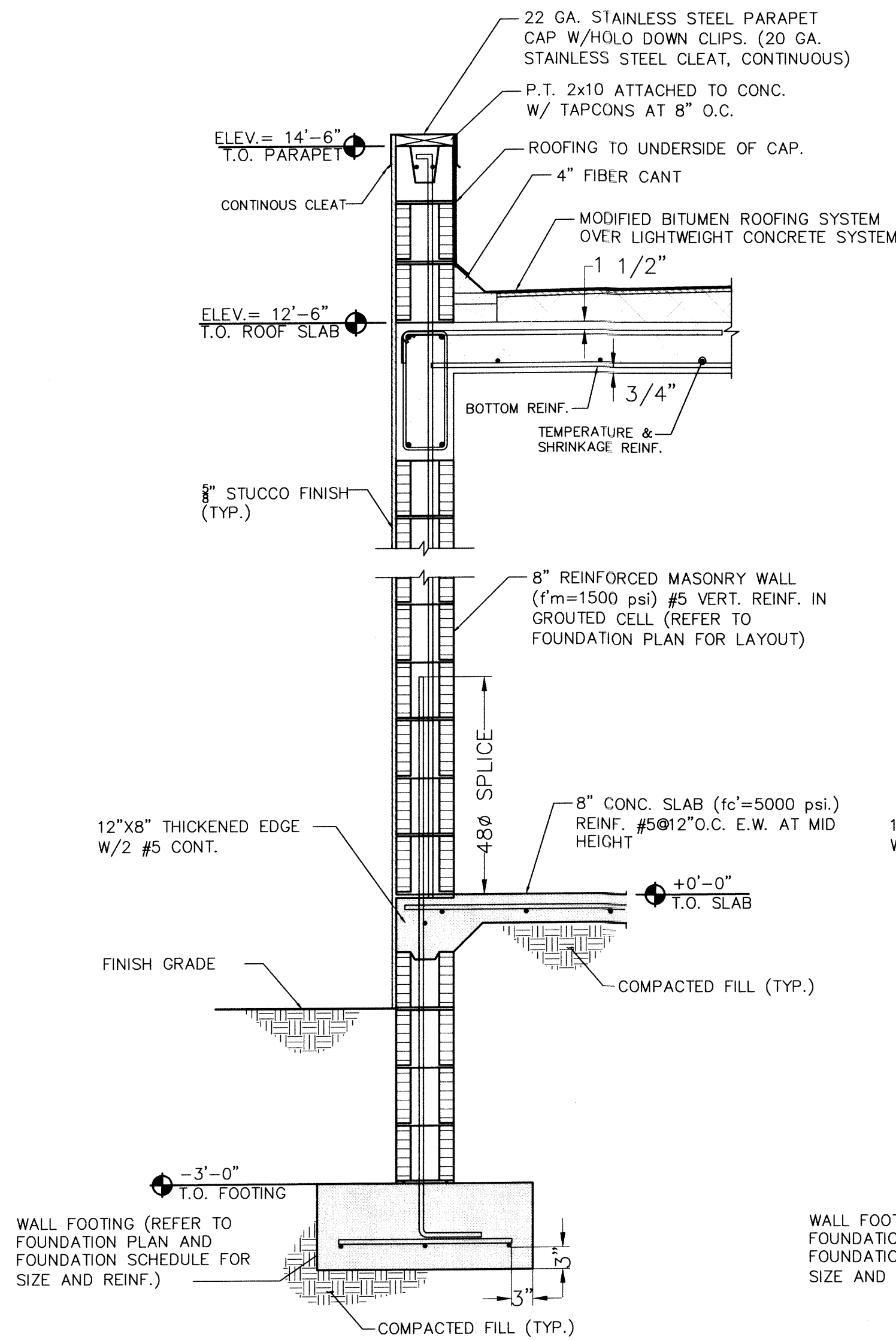
REVISIONS	

SHEET TITLE

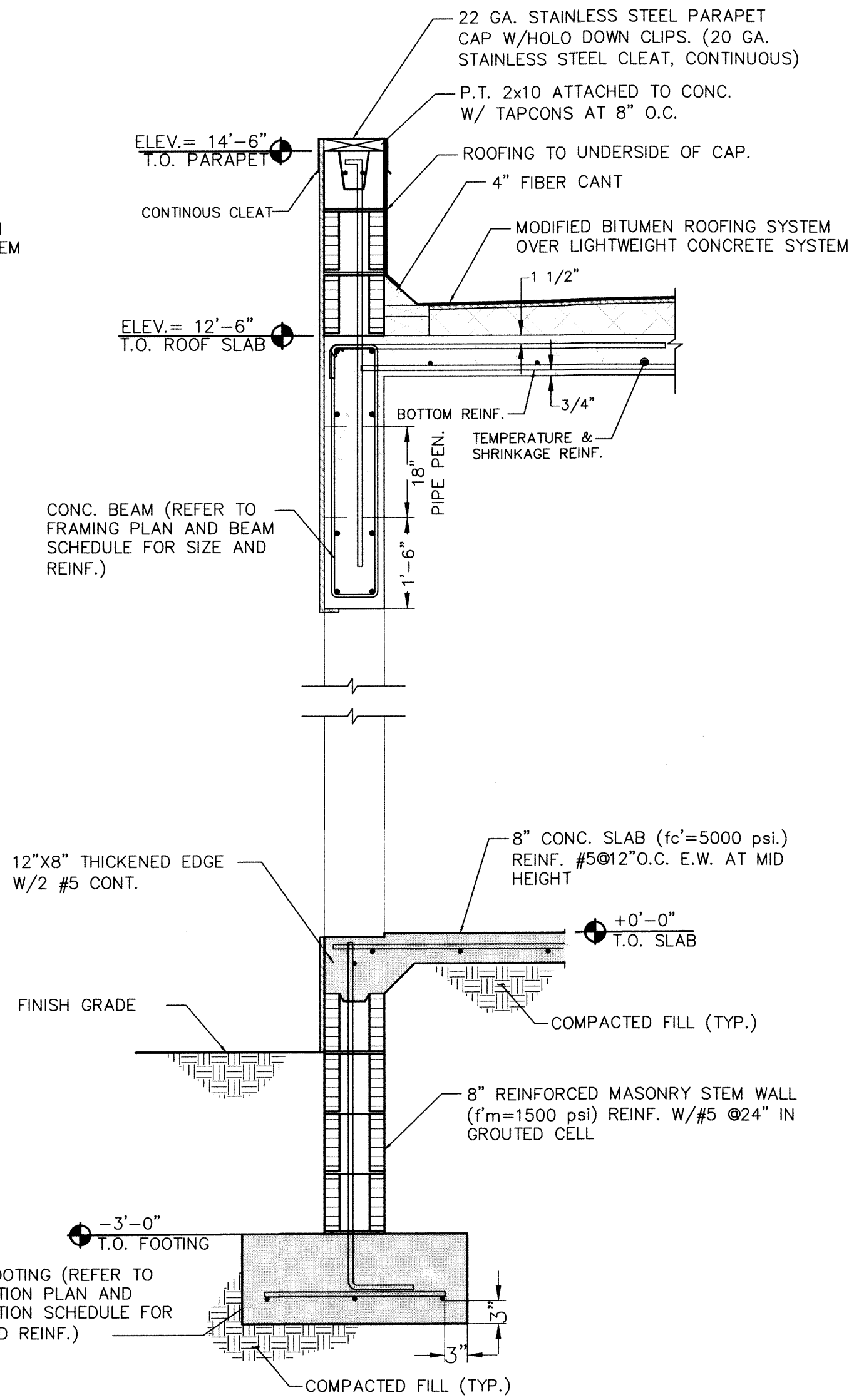
ELEVATIONS

SHEET NUMBER

S-2.1

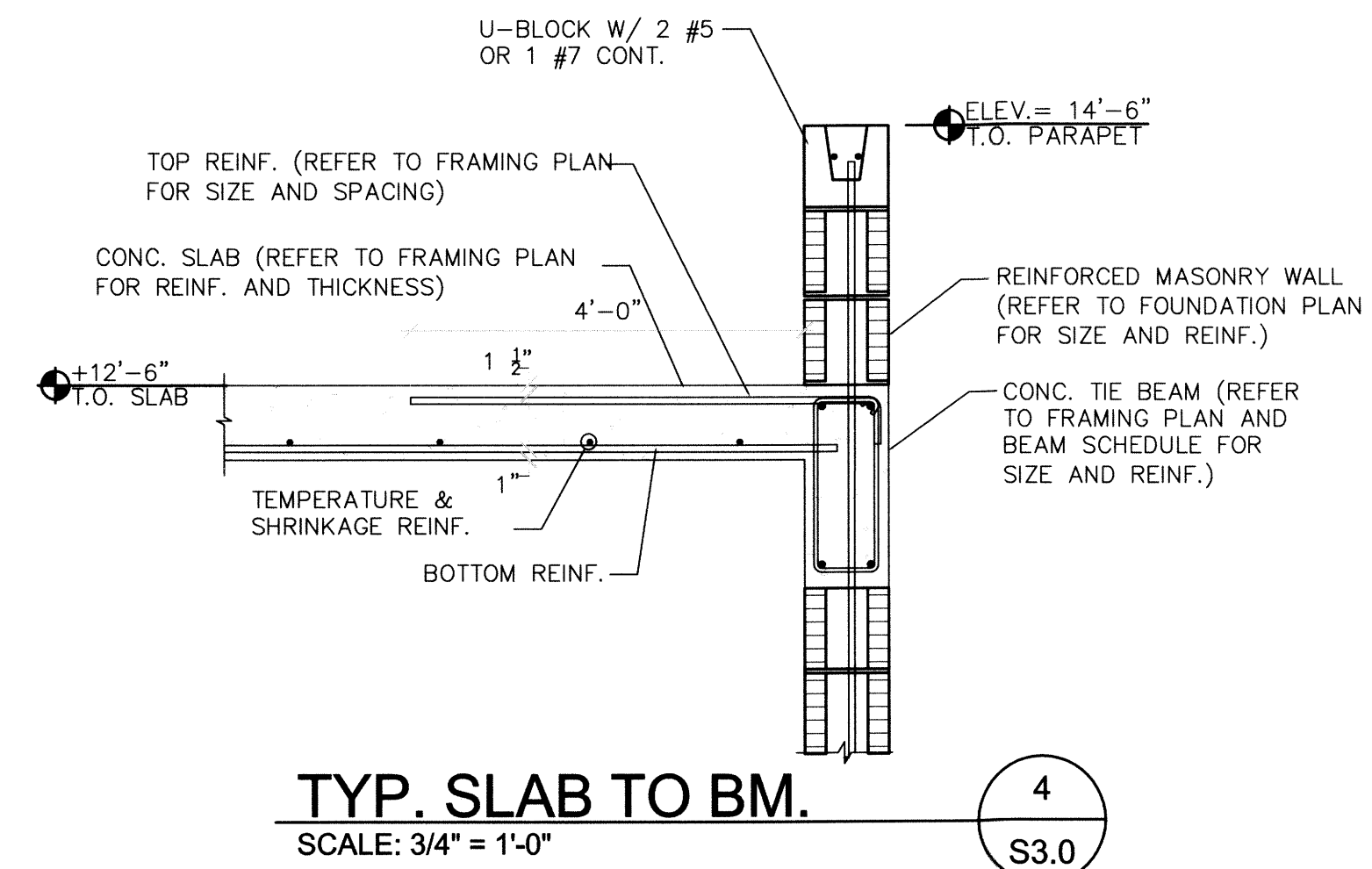
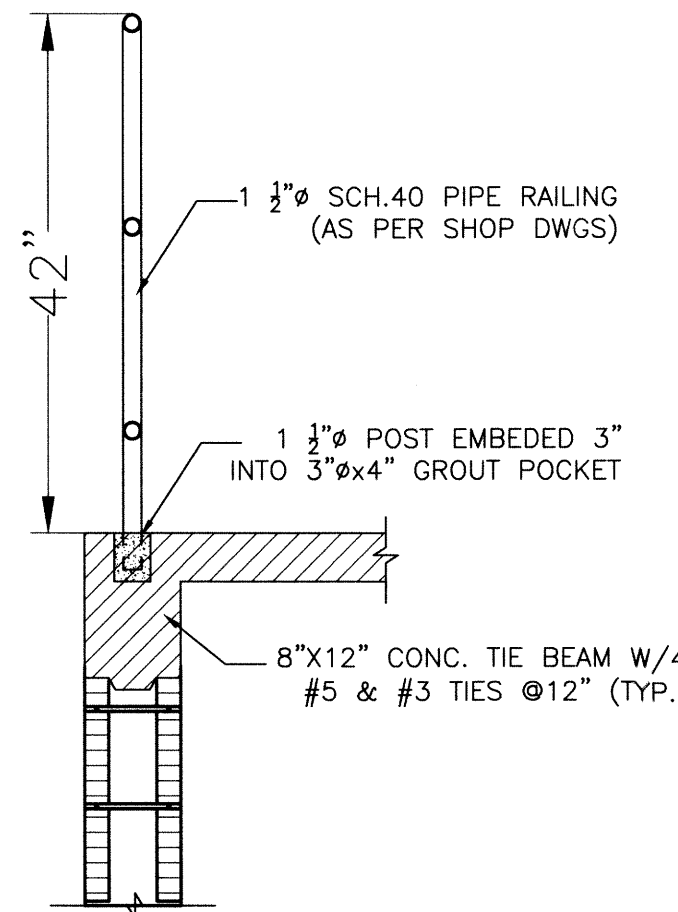


1
S-3.0
GENERATOR FOUNDATION/WALL SECTION
SCALE: 1/2" = 1'-0"

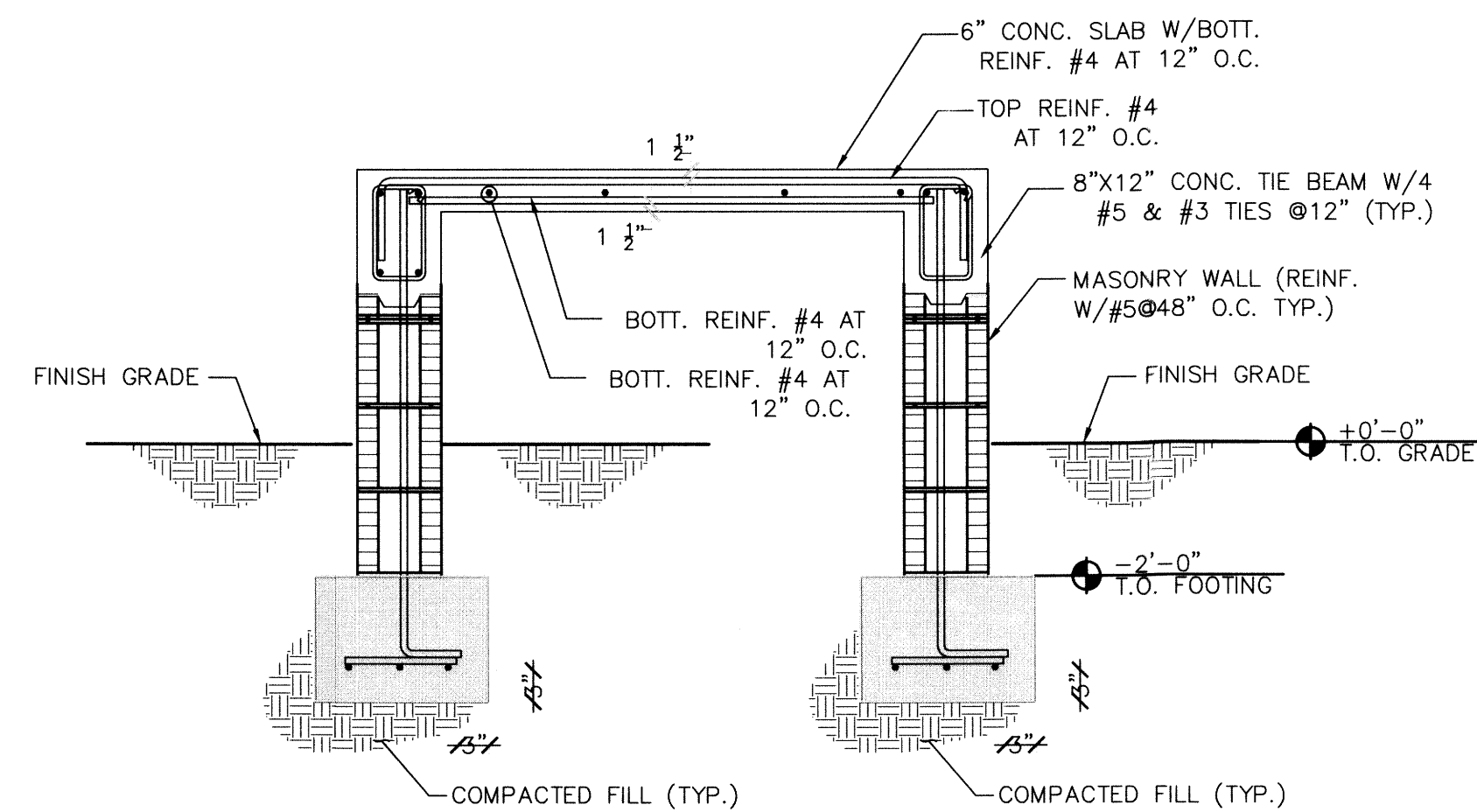


2
S-3.0
GENERATOR FOUNDATION/WALL SECTION
SCALE: 1/2" = 1'-0"

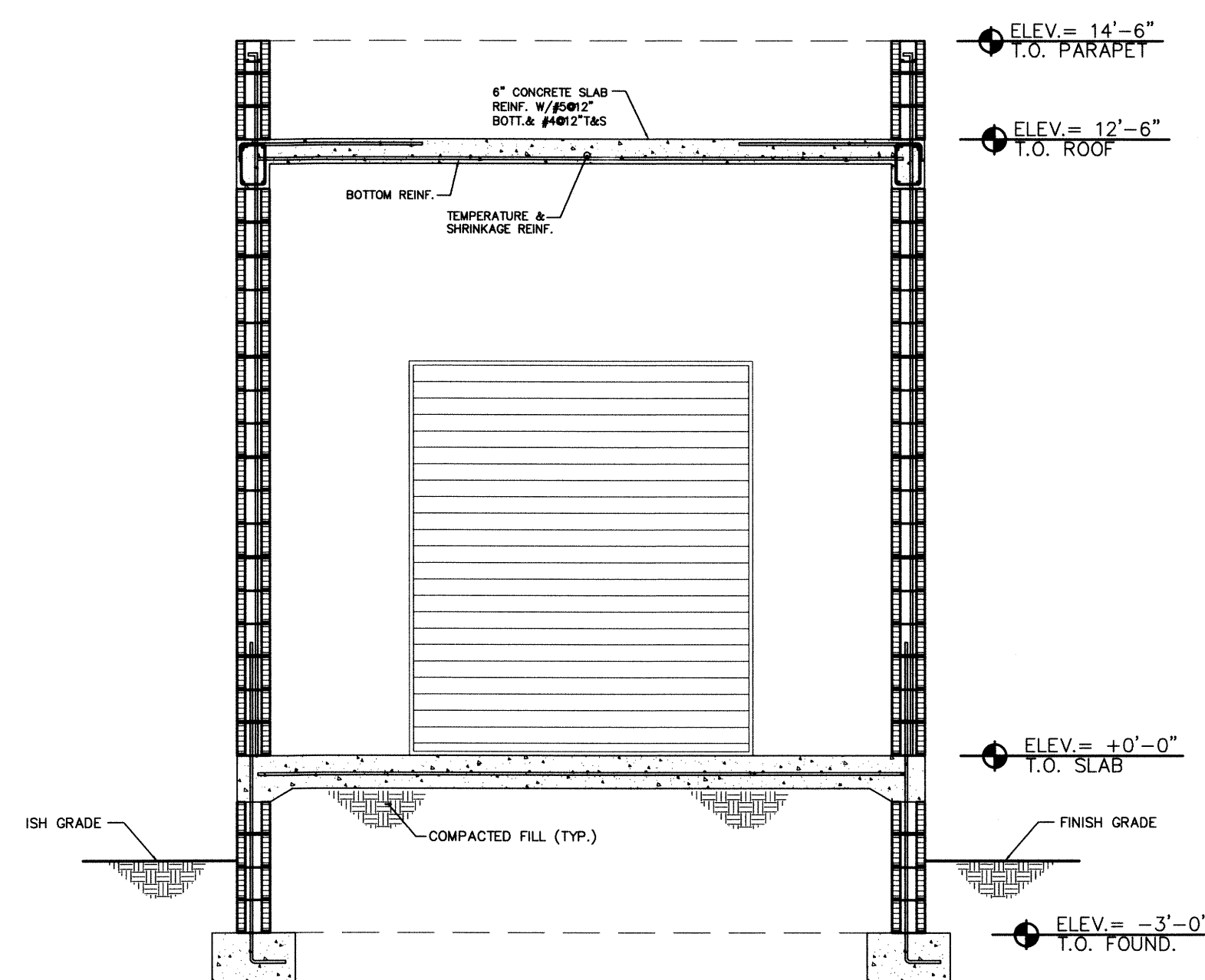
3
S-3
RAILING DETAIL
SCALE: 3/4" = 1'-0"



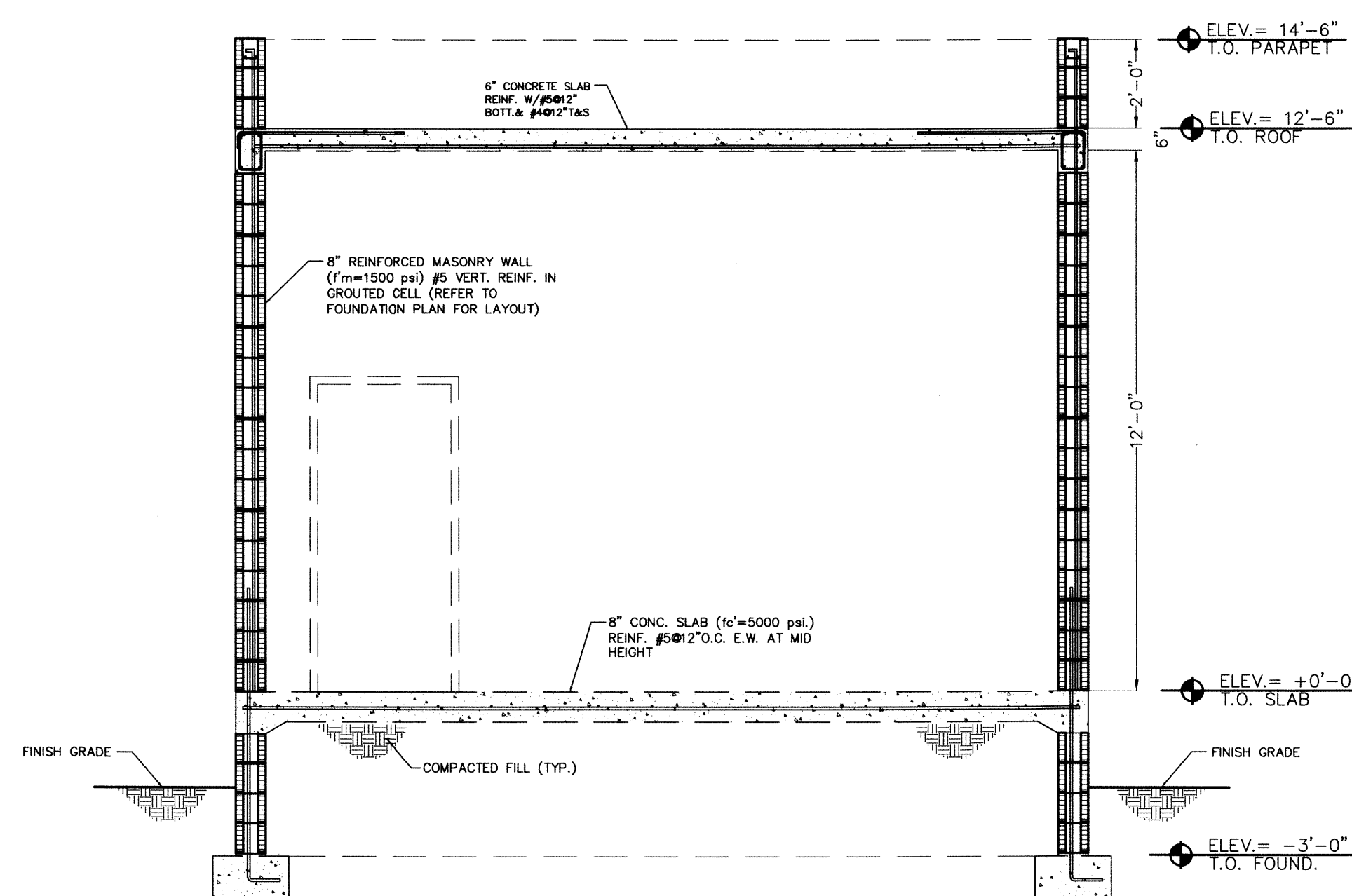
4
S3.0
TYP. SLAB TO BM.
SCALE: 3/4" = 1'-0"



5
S-3
NEW CONC. RAMP WALL AND FTG. SECTION
SCALE: 3/4" = 1'-0"



6
S-3.0
BUILDING SECTION
SCALE: 1/4" = 1'-0"



7
S-3.0
BUILDING SECTION
SCALE: 1/4" = 1'-0"

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GENERATOR BUILDING FOR:
TOWN OF MIAMI LAKES
GOVERNMENT CENTER
6601 MAIN STREET
MIAMI LAKES, FLORIDA

JOB NUMBER
2015-0098
FILE NO.:
DRAWN: S O O
REVIEWED: S O O
CHECKED: S O O

Santiago Aranequi
Reg. No.: PE 0048106

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DATE: 3/8/17

ISSUE

REVISIONS

SHEET TITLE

SECTION & DETAILS

SHEET NUMBER

S-3.0

1.0 BASIC ELECTRICAL REQUIREMENTS

- 1.1 SCOPE OF WORK
- A. FOR PURPOSE OF LEGIBILITY, DRAWINGS ARE DIAGRAMMATIC AND ALTHOUGH LOCATION OF EQUIPMENT IS SHOWN TO SCALE, THE CONTRACTOR SHALL VERIFY ALL INFORMATION AT THE SITE BEFORE BIDDING THE JOB.
- B. WHEN DRAWINGS, NOTES AND THESE REQUIREMENTS ARE IN CONFLICT, THE MOST STRINGENT CONDITION SHALL APPLY UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- C. THE WORK CONSISTS OF ALL SUPERVISION, LABOR, MATERIALS, EQUIPMENT AND INSTALLATION REQUIRED FOR THE COMPLETE ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE REQUIREMENTS.
- D. FURNISH, INSTALL, AND MAINTAIN TEMPORARY ELECTRICAL POWER AND LIGHTING REQUIRED FOR ALL TRADES.
- E. CONNECT ELECTRICAL EQUIPMENT FURNISHED BY OTHER TRADES EVEN IF NOT SHOWN ON ELECTRICAL DRAWINGS.
- 1.2 CODES AND STANDARDS
- PERFORM WORK AND FURNISH EQUIPMENT COMPLYING WITH THE FOLLOWING CODES:
- 1) NATIONAL ELECTRICAL CODE (NEC)
- 2) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
- 3) UNDERWRITERS' LABORATORIES (UL)
- 4) NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
- 5) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- 6) INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
- 7) FLORIDA BUILDING CODE (FBC)
- 8) INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- 1.3 SHOP DRAWINGS
- WITHIN 30 DAYS AFTER THE DATE OF THE AWARD OF THE CONTRACT, AND BEFORE ANY MATERIAL OR EQUIPMENT IS PURCHASED, SUBMIT TO THE ENGINEER FOR APPROVAL, A COMPLETE LIST IN QUANTIFICATE OF ELECTRICAL MATERIALS, AND EQUIPMENT TO BE INCORPORATED IN THE WORK INCLUDE CATALOG NUMBER, DIMENSIONS, INTERCONNECTION DIAGRAMS AND INSTALLATION INSTRUCTIONS.
- 1.4 OPERATION AND MAINTENANCE MANUALS
- A 4 M MAINTENANCE MANUALS MUST CONTAIN BUT NOT LIMITED TO THE FOLLOWING: SYSTEM DESCRIPTION, AND OPERATING AND MAINTENANCE INSTRUCTIONS.
- 1) MANUFACTURER'S NAME AND MODEL NUMBER OF ALL COMPONENTS.
- 2) CONTROL AND WIRING DIAGRAMS WITH SEQUENCE OF OPERATION.
- 4) LIST OF RECOMMENDED SPARE PARTS.
- 1.5 AS BUILT DRAWINGS
- AFTER FINAL INSPECTION, FURNISH A SET OF REPRODUCIBLE 'AS BUILT DRAWINGS' SHOWING DEPTHS AND ROUTING OF CONCRED ELECTRICAL, AND OUTDOOR USE INSTALLATIONS AND ALL VARIATIONS BETWEEN THE ACTUAL WORK AND AS IT WAS SHOWN ON THE CONTRACT DRAWINGS.
- 1.6 MATERIALS
- A. FURNISH EQUIPMENT AND MATERIALS THAT ARE NEW AND LATEST DESIGN OF STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH EQUIPMENT.
- B. ALL MATERIALS SHALL BEAR THE LABEL OF UNDERWRITER'S LABORATORY FOR THE INTENDED USE.
- C. EQUIPMENT ENCLOSURES SHALL BE NEMA 1 FOR INDOOR USE, AND NEMA 4X (STAINLESS STEEL OR 3R AS SHOWN ON DRAWINGS FOR OUTDOOR USE.
- D. FURNISH LIGHTING FIXTURES WITH LAMPS AND 10 PERCENT (TWO MINIMUM) SPARE LAMPS OF EACH TYPE.
- E. FURNISH FUSIBLE EQUIPMENT WITH FUSES AND 10 PERCENT (THREE MINIMUM) OF SPARE FUSES OF EACH TYPE.
- 1.7 INSTALLATION
- A. INSTALL EQUIPMENT AT THE LOCATIONS SHOWN ON THE DRAWINGS FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS.
- B. COORDINATE INSTALLATION OF UNDERGROUND DUCTS AND CONDUITS WITH EXISTING UNDERGROUND UTILITIES, FIELD VERIFY ROUTING AND BURIAL DEPTH. DRAIN DUCTS AWAY FROM BUILDINGS TOWARD MANHOLES. LOW POINTS IN DUCT BANK RUNS ARE NOT ACCEPTABLE.
- C. INSTALL FLOOR MOUNTED SELF SUPPORTED EQUIPMENT ON 4-INCHES HIGH CONCRETE PADS WITH STEEL REINFORCING. USE REQUIRED BOLTS, ANCHORS, INSERTS AND CONDUIT SLEEVES.
- D. MAKE OPENINGS THROUGH WALLS, CEILING, ROADWAYS, FLOOR SLABS, ETC. REQUIRED FOR THE INSTALLATION OF ELECTRICAL EQUIPMENT, BUT CUTTING, WELDING, OR OTHER WEAKENING OF BUILDING STRUCTURE TO SIMPLIFY ELECTRICAL EQUIPMENT AND MATERIALS' INSTALLATION ARE NOT BE PERMITTED. WHERE EXISTING WALLS, CEILING OR FLOOR SLABS HAVE TO BE CUT, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER BEFORE MAKING SUCH CUTS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE DONE WHILE PROVIDING SUCH OPENINGS AND SHALL PATCH THE SURFACE TO MATCH ADJACENT MATERIALS AND FINISHES.
- E. NO CONDUITS, SLEEVES, PIPES OR ANY OTHER ITEM SHALL BE EMBEDDED IN CONCRETE ALONG OR THROUGH ANY BEAM, COLUMN, FOOTING, GRADE BEAM, SLAB, WALL OR ANY OTHER STRUCTURAL MEMBER WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- F. COORDINATE SHIPPING LENGTHS OF SWITCH GEARS AND MOTOR CONTROL CENTERS. THOSE ITEMS SHALL BE ABLE TO BE REMOVED AND REPLACED IN THE FUTURE THROUGH THE PERMANENT ACCESS PROVIDED IN THE STRUCTURE.
- G. PROVIDE 36-INCHES WIDE, 3/16-INCHES THICK RUBBER MATS IN THE FRONT AND REAR OF SWITCH GEARS, MOTOR CONTROL CENTERS AND SWITCHBOARDS. MATS TO COMPLY WITH FEDERAL SPEC'S 22-F-416A.
- 1.8 TESTING
- UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL ENERGIZE, START-UP AND TEST OPERATE ALL THE SYSTEMS AND EQUIPMENT IN THE PRESENCE OF THE ENGINEER. INSULATION RESISTANCE TESTS SHALL BE MADE ON EACH 480V AND 240VOLT FEEDER WITH A 500V VOLT DC MEGGER. DEFECTS FOUND SHALL BE CORRECTED.

2.0 RACEWAYS

- 2.1 RIGID CONDUIT
- A. STEEL: HOT DIPPED ZINC COATED, GALVANIZED, THREADED RIGID STEEL CONFORMING TO ANSI C80, AND FED. SPEC. UU-C-581 USE THREADED GALVANIZED STEEL FITTINGS.
- B. EMT: GALVANIZED CONFORMING TO FEDERAL SPECIFICATION UU-C-563A. FITTINGS TO BE STEEL. USE SET SCREW TYPE AT CONCEALED LOCATIONS AND COMPRESSION TYPE AT EXPOSED LOCATIONS.
- C. PLASTIC: RIGID, SCHEDULE 40, 90 DEGREES C, UL RATED, PVC PLASTIC CONFORMING TO UL 651, FED. SPEC. U-C-1094 AND NEMA 4X FOR OUTDOOR USE. MINIMUM DIMENSIONS SHALL BE 1 1/2" X 1 1/2" X 3/4".
- 2.2 FLEXIBLE METAL CONDUIT
- LIQUID-TIGHT, FLEXIBLE ZINC COATED CONFORMING TO UL 1 TYPE WITH LIQUID-TIGHT FLEXIBLE PLASTIC SHEATH, CONFORMING TO UL 360 STANDARD. FITTINGS, PER FED. SPEC. U-R-406B AND UL 514.
- 2.3 LOCATION AND USE OF EACH TYPE OF CONDUIT
- A. USE RIGID CONDUIT FOR ABOVE GROUND EXPOSED INSTALLATIONS EXCEPT IN CORROSIVE AREAS WHERE PVC COATED RIGID GALVANIZED STEEL SHALL BE USED.
- B. USE GALVANIZED THREADED RIGID STEEL CONDUIT AS FOLLOWS:
- 1) WHEREVER SPECIFICALLY CALLED FOR ON DRAWINGS.
- 2) WHERE RACEWAY ELBOWS FROM DUCT BANKS STUB-UP INCLUDING VERTICAL SECTION THRU SLAB.
- 3) FOR UNDERGROUND WORK AS SPECIFIED ON DRAWINGS OR GALVANIZED STEEL CONDUITS AND FITTINGS WITH TWO COATS OF CARBOLINE'S BITUMASTIC NO. 50 OR EQUAL.
- C. USE PLASTIC CONDUIT AS FOLLOWS:
- 1) WHEN INSTALLED IN POURED CONCRETE SLABS OR WALLS.
- 2) FOR UNDERGROUND WORK UNDER SLABS.
- 3) IN DUCT BANKS OR IF SPECIFICALLY CALLED FOR IN TRENCHES. BACK-FILL TRENCHES WITH STRUCTURAL FILL 90% COMPACTED (PROCTOR DENSITY) AND REBOD TO ORIGINAL CONDITION.
- D. USE FLEXIBLE METAL CONDUIT (24 TO 60 INCHES LONG) FOR CONNECTIONS TO ROTATING OR VIBRATING EQUIPMENT.

- 2.4 INSTALLATION
- A. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL BENDS, FITTINGS, BOXES, AND SPECIALTIES WHICH MAY BE REQUIRED OR THE EXACT LOCATION OF CONDUITS. EXAMINE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF THE WORK AND PLAN IT ACCORDINGLY. FURNISHING SUCH FITTINGS AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. ARRANGE CONDUIT RUNS TO CLEAR BEAMS, PIPES AND OTHER OBSTRUCTIONS AND AVOID INTERFERENCES WITH OTHER TRADES WORK. ANY CHANGES FROM LOCATIONS SHOWN ON THE DRAWINGS MUST BE APPROVED BY THE ENGINEER.
- B. INSTALL RACEWAYS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES AND CEILING. INSTALL HORIZONTAL RACEWAYS CLOSE TO CEILING OR CEILING BEAMS, AND ABOVE PIPES AND DUCTS.
- C. SIZE RACEWAY ACCORDING TO NEC, BUT IN NO CASE SHALL BE LESS THAN INDICATED ON DRAWINGS. MINIMUM SIZE SHALL BE 3/4-INCH, EXCEPT FLEXIBLE CONDUITS TO LIGHT FIXTURES CAN BE 3/8" BUT NOT EXCEEDING SIX FEET LONG.
- D. INSTALL CONDUITS PASSING THROUGH WALLS AND SLABS IN PVC SLEEVES. EXTEND SLEEVES THROUGH FULL CONCRETE THICKNESS AND PROVIDE 1/2-INCH CLEARANCE AROUND CONDUITS TO FACILITATE SEALING.
- E. SEAL ANY OPENING MADE IN SLABS OR WALLS TO PREVENT SMOKE OR FIRE SPREAD AND THE PASSAGE OF WATER. USE SEALING COMPOUND APPROVED FOR THE PURPOSE.
- F. USE EXPANSION FITTINGS WHEN CONDUITS CROSS STRUCTURAL EXPANSION JOINTS.
- G. EXCEPT WHERE BOXES, PANELS AND OTHER EQUIPMENT HAVE THREADED OPENINGS, MAKE CONDUIT CONNECTIONS AS FOLLOWS:
- 1) DOUBLE LOCKNUTS, ONE INSIDE AND ONE OUTSIDE.
- 2) PROVIDE MALLEABLE, IRON OR STEEL BUSHING WITH BAKELITE LINER MOLDED AND BONDED INTO THE BUSHING.
- 3) PLACE GROUNDING BUSHING ON END OF CONDUIT IN ADDITION TO LOCKNUTS.
- 2.5 SUPPORT OF RACEWAY
- A. INSTALL WALL MOUNTED ELECTRICAL EQUIPMENT, WIRING TROUGHS, JUNCTION BOXES AND GROUPS OF TWO OR MORE CONDUITS ON A SYSTEM OF EXTRUDED, GAUGE 12, 1-5/8 INCHES WIDE, ALUMINUM CHANNELS. ATTACH CHANNELS TO WALL WITH STAINLESS STEEL MACHINE BOLTS AND EXPANSION SHIELDS. CHANNELS TO BE SERIES P-10000 WITH COMPATIBLE HARDWARE AND FITTINGS AS MANUFACTURED BY INDIUSTRIAL CO. OR EQUAL.
- B. FASTEN VERTICAL AND HORIZONTAL RUNS OF RACEWAYS AT INTERVALS OF NOT MORE THAN EIGHT FEET AND WITHIN 3 FEET OF BENDS, OUTLETS AND JUNCTION BOXES.
- C. SUPPORT SINGLE CONDUITS NOT LARGER THAN 1-1/2 INCHES IN DIAMETER BY MEANS OF TWO-HOLE PIPE STRAPS OR INDIVIDUAL PIPE HANGERS. FOR CONDUITS LARGER THAN 1-1/2 INCHES IN DIAMETER USE INDIVIDUAL PIPE HANGERS.
- D. SPACE CONDUITS INSTALLED AGAINST CONCRETE SURFACES NOT LESS THAN 1/4 INCH AWAY FROM THE SURFACES BY CLAMP BACKS OR OTHER APPROVED MEANS.
- E. FURNISH HANGER RODS MADE OF GALVANIZED STEEL, OF NOT LESS THAN 1/4 INCH IN DIAMETER WHEN CONCEALED ABOVE A SUSPENDED CEILING, GALVANIZED PERFORATED STEEL STRAPPING IS ACCEPTABLE.
- F. SUPPORT BRANCH CIRCUIT RACEWAYS INSTALLED ABOVE SUSPENDED CEILING INDEPENDENTLY OF THE CEILING SUPPORT SYSTEM. WHEREVER POSSIBLE, THEY SHALL BE FASTENED TO THE UNDERSIDE OF THE SLAB ABOVE.

3.0 CONDUCTORS (600 VOLTS)

- 3.1 MATERIAL
- A. FURNISH CONDUCTORS OF 98% ANNEALED COPPER, 600 VOLT CLASS B, HEAT AND MOISTURE RESISTANT, THERMOPLASTIC TYPE THHN/THU (SIZED BY THU RATING) WITH A POLYVINYL CHLORIDE INSULATION RESISTANT TO OIL, GASOLINE AND WEATHER INSULATION SHALL MEET UL STANDARD 83.
- B. CONDUCTORS TO BE STRANDED: #6 THROUGH #12 SHALL BE 1 STRAND; #14 THROUGH #18, 19 STRAND AND 250 MCM THROUGH 500 MCM, 31 STRAND.
- 3.2 IDENTIFICATION
- A. COLOR CODE FOR POWER CONDUCTORS AS FOLLOWS:
- 1) 120/208 VOLT SYSTEM: WHITE-NEUTRAL, BLACK-PHASE A, BLUE-PHASE B, RED-PHASE C.
- 2) 277/480 VOLT SYSTEM: GRAY-NEUTRAL, BROWN-PHASE A, ORANGE-PHASE B, YELLOW-PHASE C.
- 3) BONDING CONDUCTOR GREEN.
- B. IDENTIFY FEEDERS, BRANCH CIRCUITS AND INSTRUMENTATION AND CONTROL WIRES AT TERMINATIONS, JUNCTION AND PULL BOXES.
- 3.3 INSTALLATION
- A. DO NOT USE CONDUCTORS SMALLER THAN #12 FOR POWER AND #14 FOR CONTROL UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
- B. DO NOT PULL CONDUCTORS INTO CONDUITS UNTIL THE MECHANICAL WORK HAS BEEN COMPLETED.
- C. GROUP AND TIE CONDUCTORS IN PANEL BOARDS, JUNCTION BOXES, PULL BOXES, ETC. FOR A NEAT AND ORDERLY APPEARANCE.
- D. USE CONNECTORS, TERMINALS AND SPLICES THAT ARE DESIGNED AND APPROVED FOR THE SPECIFIC TYPE AND SIZE OF THE CONDUCTORS BEING CONNECTED.
- E. FIREPROOF FEEDERS WHERE NOT PROTECTED BY CONDUITS LIKE IN MANHOLES, SWITCH GEARS, ETC.

4.0 OUTLET, PULL AND JUNCTION BOXES

- A. OUTLET BOXES IN INDOOR FINISHED WALLS TO BE GALVANIZED STEEL, 4" X 4" X 1-1/2" CONFORMING TO FEDERAL SPECIFICATIONS UC-983 AND ANSI-C33.65.
- B. EXTERIOR OUTLET BOXES, BOXES AND FITTINGS EMBEDDED IN CONCRETE, AND BOXES FOR EXPOSED CONDUIT RUNS SHALL BE CAST OF RUST RESISTING METAL, WITH FULL THREADED HUELL AND SCREW TYPE RUBBER GASKET COVERS.
- C. INSTALL BOXES FOR LIGHT SWITCHES LOCATED NEAR DOORS ON THE LOCK SIDE, EVEN WHERE THE SYMBOLS ARE INDICATED ON THE HINGE SIDES.
- D. PULL AND JUNCTION BOXES SHALL BE OF 12 GAUGE WELDED ALUMINUM WITH HINGED COVER. NEMA 12 FOR INDOOR USE AND NEMA 4X FOR OUTDOOR USE. MINIMUM DIMENSIONS SHALL BE 12" X 12" X 6".
- E. IN CORROSIVE AREAS OR WHERE CALLED FOR ON DRAWINGS, FURNISH PULL AND JUNCTION BOXES OF 14 GAUGE STAINLESS STEEL.
- F. WHEN SPRINGING CONTROL CONDUCTORS IN BOXES USE SCREW TYPE TERMINAL STRIP BLOCKS CLASS 9090 (G) AS MANUFACTURED BY SQUARE D OR EQUAL. IDENTIFY EVERY WIRE AT BOTH SIDES AND PROVIDE GRADE TYPE LUGS FOR TERMINATION.
- G. PROVIDE PULL AND JUNCTION BOXES WHERE REQUIRED TO REDUCE LENGTH OF CABLE PULL OR REDUCE NUMBER OF ELBOWS BETWEEN OUTLETS.

5.0 SWITCHES AND RECEPTACLES

- A. FURNISH WALL SWITCHES OF THE QUIET AND TOTALLY ENCLOSED TUMBLER TYPE, WITH BODIES OF PHENOLIC COMPOUND. WIRING TERMINALS SHALL BE OF THE SCREW TYPE. NO MORE THAN ONE SWITCH SHALL BE INSTALLED IN A SINGLE-GANG POSITION. SWITCHES SHALL CONFORM TO FEDERAL SPECIFICATIONS US-58966, HUBBEL 121 AND 123, OR APPROVED EQUAL.
- B. USE 120A, 125 V, DUPLEX, U-SLOTTED, GROUNDING TYPE RECEPTACLES THAT CONFORM TO FEDERAL SPECIFICATIONS UC-5940, HUBBEL 5940, OR EQUAL.
- C. MOUNT DUPLEX RECEPTACLES VERTICALLY. BOXES MOUNTED BACK TO BACK ARE NOT BE PERMITTED. GANGED RECEPTACLES AND SWITCHES SHALL HAVE SINGLE MULTI-GANG COVER PLATE.
- D. FURNISH HOSPITAL GRADE GROUND FAULT INTERRUPTER WITH DIFFERENTIAL CURRENT TRANSFORMER, SOLID STATE SENSING CIRCUITRY AND CIRCUIT INTERRUPTER SENSITIVITY TO BE 5 MA, TRIPPING TIME 1/20TH OF A SECOND.
- E. WHEN INSTALLING RECEPTACLES IN OUTDOOR LOCATIONS USE CAST-METAL OUTLET BOXES WITH GASKET WEATHERPROOF CAST-METAL COVER PLATES AND SPRING-FLAP CAP OVER EACH RECEPTACLE.
- F. USE STAINLESS STEEL COVER PLATES FOR SWITCHES AND RECEPTACLES EXCEPT IN NON-INDUSTRIAL AREAS SUCH AS OFFICES, REST ROOMS, LABORATORIES, ETC.

6.0 MOTOR DISCONNECT SWITCHES & STARTERS

- A. PROVIDE EACH MOTOR WITH A DISCONNECTING MEANS MEETING THE REQUIREMENTS OF NEC, ARTICLE 430. SWITCHES SHALL BE HEAVY DUTY, HORSE POWER RATED, SUITABLE TO BE PADLOCKED IN 'OFF' POSITION AND CONFORM TO FEDERAL SPECS U-S-865, NEMA KS1 AND ANSI C33.6-4. IF FUSES ARE REQUIRED, THEY SHALL BE CURRENT LIMITING TYPE.
- B. SIZE DISCONNECTS AND STARTERS FOR THE FULL LOAD OF THE CONTROLLED MOTOR. THE HORSEPOWER RATINGS INDICATED ON THE DRAWINGS ARE SHOWN FOR THE BENEFIT OF THE CONTRACTOR AND DO NOT LIMIT EQUIPMENT SIZE.
- C. FOR SINGLE-PHASE FRACTIONAL HORSEPOWER MOTORS, A SINGLE OR DOUBLE-POLE TOGGLE SWITCH WILL BE ACCEPTABLE PROVIDED THE AMPERE RATING OF THE SWITCH IS AT LEAST 125 PERCENT OF MOTOR RATING.
- D. SWITCHES SHALL BE THE QUICK-BREAK TYPE AND DISCONNECT ALL UNGROUNDED CONDUCTORS.
- E. FOR MOTORS LARGER THAN 1/4 HORSEPOWER, FURNISH STARTERS SPECIFICALLY DESIGNED FOR THE PURPOSE AND HAVING A HORSEPOWER RATING EQUAL TO THE MOTOR CONTROLLED.
- F. PROVIDE MOTORS OF 1/8 HORSEPOWER OR LARGER WITH THERMAL OVERLOAD PROTECTION. THE OVERLOAD PROTECTION DEVICE, OF THE MANUAL RESET TYPE AND WITH CONTACTS ON EACH PHASE, SHALL BE PART OF THE STARTER. SIZE THE OVERLOAD HEATER ELEMENTS ACCORDING TO THE MOTOR MANUFACTURER'S RECOMMENDATIONS AND BASED ON THE ACTUAL MOTOR NAMEPLATE FULL-LOAD CURRENT.
- G. PROVIDE EACH MOTOR WITH A SUITABLE CONTROLLER OR DEVICE TO MAKE IT PERFORM AS REQUIRED. AUTOMATIC CONTROL DEVICES SUCH AS THERMOSTATS, FLOAT OR PRESSURE SWITCHES MAY DIRECTLY CONTROL THE START-STOP OF MOTORS UP TO 1/4 HORSEPOWER, PROVIDED THE DEVICES USED ARE DESIGNED FOR THE PURPOSE AND HAVE AN ADEQUATE HORSEPOWER RATING. WHEN THE AUTOMATIC-CONTROL DEVICE DOES NOT HAVE SUCH A RATING, A MAGNETIC STARTER SHALL BE USED WITH THE AUTOMATIC CONTROL DEVICE ACTIVATING THE COIL OF THE CONTACTOR.
- H. PROVIDE 3 POSITION MANUAL-OFF-AUTO SWITCH WHEN MANUAL AND AUTOMATIC CONTROL IS REQUIRED. CONNECT THE SELECTOR SWITCH SO THAT ONLY THE AUTOMATIC DEVICES ARE BY-PASSED WHEN THE SWITCH IS IN THE 'MANUAL' POSITION. ALL SAFETY DEVICES SUCH AS PRESSURE AND TEMPERATURE SWITCHES, MOTOR OVERLOAD AND SAFETY SWITCHES SHALL BE ACTIVE IN 'MANUAL' AND 'AUTOMATIC' POSITIONS.
- I. FURNISH COMBINATION MOTOR STARTERS OF THE MOLDED CASE, MOTOR CIRCUIT PROTECTOR, CIRCUIT BREAKER TYPE, THREE PHASE, OF THE VOLTAGE AND SIZE AS SHOWN ON THE DRAWINGS BUT NOT SMALLER THAN THE SIZE REQUIRED BY THE CONTROLLED MOTOR. 120 VOLT CONTROL CIRCUIT, 3 THERMAL INTERCHANGEABLE OVERLOAD RELAYS, 'HAND-OFF-AUTO' OR 'ON-OFF' SWITCH AS REQUIRED BY THE APPLICATION, RED AND GREEN PILOT LIGHTS AND FOUR NORMALLY CLOSED AND NORMALLY OPEN INTERLOCK CONTACTS.
- K. THE STARTER DISCONNECT SHALL BE OPERABLE BY AN EXTERNAL 'ON-OFF' LABELED HANDLE, INTERLOCKED TO PREVENT OPENING THE ENCLOSURE DOOR WHILE THE DISCONNECT IS IN THE 'ON' POSITION EXCEPT WHEN CONSCIOUSLY OPERATING A PERMISSIVE RELEASE DEVICE.
- L. FURNISH STARTERS MANUFACTURED BY SQUARE D, CLASS 8536, ALLEN BRADLEY BULLETIN NO. 509, OR EQUAL.

7.0 PANEL BOARDS

PROVIDE DEAD FRONT CIRCUIT BREAKER TYPE PANEL BOARDS WITH COPPER BUS AND AS SCHEDULED ON DRAWINGS. EACH PANEL BOARD SHALL BE PROVIDED WITH A SEPARATE GROUND BUS IN ADDITION TO THE NEUTRAL BUS. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE, INTERRUPTING CAPACITY OF PANEL AND CIRCUIT BREAKERS SHALL BE 10,000 AMPS MINIMUM FOR 120-240 VOLT CIRCUIT BREAKERS AND 10,000 AMPS MINIMUM FOR 277-480 VOLT CIRCUIT BREAKERS. A TYPEWRITTEN DIRECTORY SHALL CLEARLY IDENTIFY THE LOAD SERVED BY EACH CIRCUIT AND SHALL BE MOUNTED INSIDE THE DOOR IN A METAL FRAME WITH PLASTIC COVER. CIRCUIT NUMBERS SHALL BE PERMANENTLY INDICATED ADJACENT TO EACH CIRCUIT BREAKER.

8.0 GROUNDING

- A. INSTALL GROUNDING AS SHOWN ON DRAWINGS. WHERE NOT INDICATED, INSTALL IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. DO NOT USE CONDUCTORS SMALLER THAN SIZE AUG #2.
- B. INACCESSIBLE CONNECTIONS SHALL BE MADE WITH THE EXOTHERMIC WELDING PROCESS USING EQUIPMENT MANUFACTURED BY BURNDY OR ERCO PRODUCTS OR EQUAL.
- C. ACCESSIBLE CONNECTIONS SHALL BE MADE WITH BURNDY, MULTIPLE BOLT CONNECTORS SPECIFICALLY APPROVED FOR THE APPLICATION.
- D. TO ASSURE ELECTRICAL CONTINUITY, INSTALL JUMPPERS ACROSS METAL PARTS SEPARATED BY NON-CONDUCTING MATERIALS OR ATTACHED TOGETHER BY HIGH RESISTANCE JOINTS.
- E. DO NOT EMBED GROUNDING CABLES DIRECTLY IN CONCRETE. USE SLEEVES WHEN PASSING CABLES THROUGH CONCRETE. BARE COPPER CABLES BURIED IN EARTH SHALL BE TINNED.
- F. FURNISH GROUND RODS OF COPPER CLAD STEEL, 3/4 INCH IN DIAMETER, 10 FEET LONG, DRIVEN FULL LENGTH INTO THE EARTH. MAXIMUM RESISTANCE TO GROUND IS LIMITED TO 25 OHMS. ADDITIONAL GROUND RODS SHALL BE DRIVEN IF REQUIRED TO MAINTAIN THIS LEVEL.
- G. PARTS TO BE GROUNDED: SWITCH GEAR AND PANEL BOARD FRAMES, FIXTURES AND DEVICES, CABLE SHEATHS, NEUTRAL OF TRANSFORMERS, BOXES AND RACEWAYS, MOTOR FRAMES, STREET LIGHTS, NON-CURRENT CARRYING PARTS OF APPLIANCES AND DEVICES, AND ALL OTHER PARTS AND EQUIPMENT AS REQUIRED BY NEC. NEVER USE A NEUTRAL WIRE AS GROUNDING MEANS.
- H. BOND EQUIPMENT WITH CONDUCTORS INSTALLED IN SAME CIRCUIT RACEWAY.
- I. PROVIDE POWER AND LIGHTING CIRCUIT AND 120 VOLT GROUNDING RECEPTACLE WITH A GREEN GROUNDING CONDUCTOR OF THE SAME SIZE AND TYPE AS THE PHASE CONDUCTOR AND RUNNING IN THE SAME CONDUIT.
- J. MAKE BONDING TO EQUIPMENT WITH APPROVED SOLDERLESS CONNECTOR. CONTACT SURFACE SHALL BE UNPAINTED AND THOROUGHLY CLEANED BEFORE CONNECTION IS MADE TO INSURE A GOOD METAL CONTACT.

9.0 TRANSFORMERS

- A. FURNISH DRY TYPE, THREE OR SINGLE PHASE TRANSFORMERS OF THE SIZE AND VOLTAGE INDICATED ON THE DRAWINGS, WITH FOUR (TWO ABOVE AND TWO BELOW) 2-1/2" FCN TAPS, HOUSED IN A DRIP-PROOF ENCLOSURE WITH FRONT ACCESSIBLE WIRING COMPARTMENT AND CONFORMING TO THE APPLICABLE REQUIREMENTS OF ANSI, IEEE, AND NEMA STANDARDS.
- B. CORE AND COIL ASSEMBLY TO BE VACUUM IMPREGNATED WITH CLASS H INSULATION. TEMPERATURE RISE NOT TO EXCEED 15 DEGREE C.
- C. TRANSFORMERS SOUND LEVEL NOT TO EXCEED FOLLOWING VALUES: 0 TO 9 KVA, 36 DB; 10 TO 45 KVA, 42 DB; 50 TO 100 KVA, 45 DB.
- D. BOLT FLOOR MOUNTED TRANSFORMERS TO FLOOR WHEN WALL MOUNTED, PROVIDE STEEL BRACKET ANGLES AND BOLT TRANSFORMER TO BRACKET. USE NEOPRENE ISOLATION PADS TO ISOLATE VIBRATIONS.
- E. ADJUST PRIMARY TAPS TO PROVIDE A SECONDARY VOLTAGE WITHIN + 5% OF NOMINAL VOLTAGE.

10.0 DUCT BANKS

- A. DUCT BANKS OF THE SIZE INDICATED ON DRAWINGS, SHALL CONSIST OF A NUMBER OF INDIVIDUAL PVC DUCTS AS INDICATED, ENCASED IN A REINFORCED CONCRETE ENVELOPE.
- B. USE PVC SCHEDULE 40 CONDUITS WITH MOLDED INTERLOCKING SPACERS. CONCRETE TO BE CLASS C, 2500 POUNDS PSI. PROVIDE #2 AUG FULL WIRE IN ALL EMPTY CONDUITS.
- C. SLOPE DUCTS A MINIMUM OF 3 INCHES PER 100 FEET. SLOPE TO BE AWAY FROM BUILDINGS, FROM ONE MANHOLE TO THE NEXT OR BOTH WAYS FROM A HIGH POINT BETWEEN MANHOLES. KEEP THE HIGHEST POINT NOT LESS THAN 24 INCHES BELOW THE FINISHED GRADE.

11.0 SAFETY MEASURES

- A. CONTRACTOR SHALL FOLLOW SAFETY MEASURES OUTLINED IN NFPA 70 AND NFPA 70E

ELECTRICAL SYMBOL LEGEND

BOXES & FITTINGS

CEILING MOUNTED JUNCTION BOX

WALL MOUNTED JUNCTION BOX, 18" AFF. OR AS OTHERWISE NOTED.

CEILING MOUNTED JUNCTION BOX, 12"x12"x6" DEEP MINIMUM UNLESS OTHERWISE INDICATED FOR DISTRIBUTION OF TELEPHONE/DATA SYSTEM

PULLBOX, SIZED AS INDICATED OR AS REQUIRED BY NEC.

PANELBOARDS

POWER, LIGHTING OR DISTRIBUTION PANELBOARD, (NEW)

WIRING

HOMERUN TO PANEL 1A1-3-5 ARE CIRCUIT NO'S. TICKS ARE NO. OF CONDUCTORS (/) INDICATES GROUND WIRE SIZED AS PER NEC. ART. 250.

INDICATES A CONDUIT RUN CONCEALED IN A CEILING OR WALL.

INDICATES A CONDUIT RUN CONCEALED IN FLOOR EMBEDDED IN CONCRETE OR UNDERGROUND AT 24" BELOW GRADE MINIMUM.

INDICATES A CAPPED CONDUIT.

INDICATES A FLEXIBLE METAL CONDUIT CONNECTION. USE LIQUID TIGHT CONDUIT IN WET, DAMP OR OILY LOCATIONS.

FLEXIBLE EQUIPMENT CONNECTION.

CONDUIT RUN TURNED DOWN.

CONDUIT RUN TURNED UP.

CONDUIT EXPANSION JOINT

SWITCHES

S_K SINGLE POLE TOGGLE SWITCH, 20A, KEY OPERATED 120/277 VAC. MOUNTED 48" AFF.

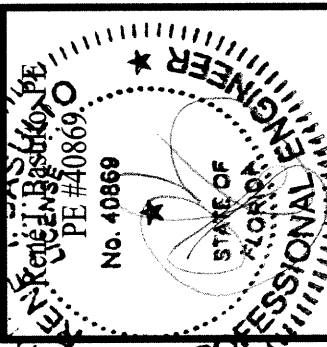
S_D SINGLE POLE TOGGLE SWITCH, 20A, 120/277 VAC. MOUNTED 48" AFF. 1" SWITCH LEG.

S₃ S₄ THREE-WAY AND FOUR-WAY TOGGLE SWITCHES 20A, 120/277 VAC. MOUNTED 48" AFF.

S_M MANUAL MOTOR STARTER TOGGLE SWITCH WITH OVERLOADS, 48" AFF.

3P 60 50 SAFETY SWITCH, 3P + NO. OF POLES, 60 + SWITCH SIZE, 50 + FUSE SIZE.

REVISIONS	BY
3	01-09-2015 OWNER REV.
	R.I.B.



TOWN OF MIAMI LAKES
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GENERAL NOTES AND
SYMBOL LEGEND

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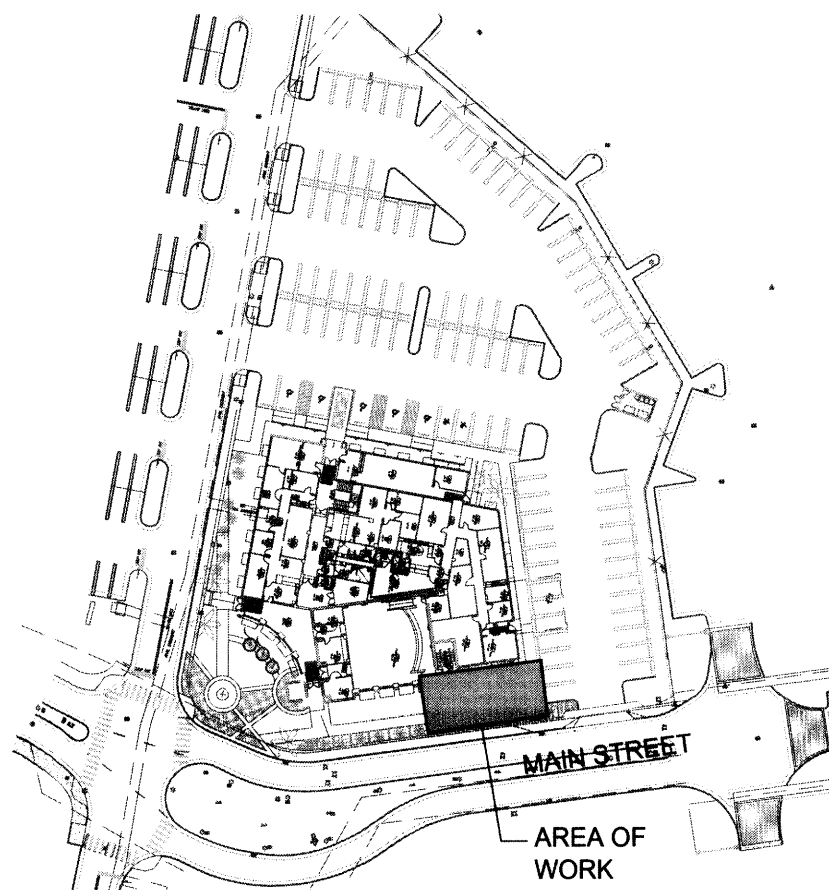
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CHECKED c.v.
DATE 10-25-2016
SCALE AS SHOWN
JOB NO. 14124
SHEET E-1.0
SHEETS



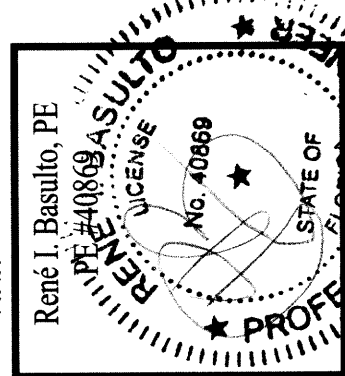
ELECTRICAL SITE PLAN
SCALE: 1/16" = 1'-0"

KEY NOTES:

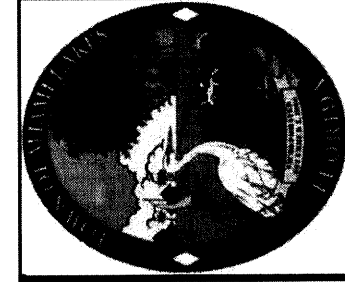
- ① EXISTING MAIN ELECTRICAL ROOM.
- ② EXISTING ELECTRICAL SERVICE MAIN #1 OF 1.
- ③ EXISTING "CAM-LOCK" GENERATOR CONNECTION BOX.
- ④ NEW GENERATOR BUILDING CONTAINS DIESEL GENERATOR WITH SUB-BASE FUEL TANK. SEE DRAWINGS E-3.0.
- ⑤ EXISTING FIRE ALARM SYSTEM REMOTE ANNUNCIATOR.
- ⑥ NEW GENERATOR EMERGENCY SHUT DOWN PUSH BUTTON.
- ⑦ NEW GENERATOR REMOTE ANNUNCIATOR. SEE ADDITIONAL NOTES FOR ANNUNCIATOR ON DRAWING E-4.0. INSTALL CONDUIT CONCEALED, CUT, PATCH AND PAINT WALL AS REQUIRED.
- ⑧ GENERATOR FEEDER RUN AT 24" BELOW GRADE.
- ⑨ CONTROL, ANNUNCIATOR, AND GENERATOR HOUSING ELECTRICAL PANEL WIRING RUN AT 24" BELOW GRADE.
- ⑩ SAW CUT CONCRETE WALK TO INSTALL RACEWAYS FOR ITEMS NUMBER 8 AND 9 NOTED ABOVE. AFTER INSTALLATION RETURN SURFACES TO LIKE NEW CONDITION. IN ADDITION RESTORE ANY DAMAGE GRASS AND LANDSCAPE ITEMS DAMAGED DURING RACEWAY INSTALLATION PROCESS.
- ⑪ CONDUITS FOR ITEMS NOTED IN NUMBER 9 ABOVE. RUN UP EXTERIOR SURFACE OF THE BUILDING WALL. "LB" 9" INTO ELECTRICAL ROOM.
- ⑫ EMERGENCY SHUT DOWN WIRING RUN AT 24" BELOW GRADE.
- ⑬ 4" PVC SLEEVE WITH LONG SLEEP 80" INTO GENERATOR FOR FUTURE NATURAL GAS CONNECTION CAP CONDUIT BELOW GRADE IN LANDSCAPE AREA.



REVISIONS	BY
1	12-2-2014 B.D.C.
2	12-10-2014 FIRE REV.
3	01-09-2015 OWNER REV.
4	04-09-2015 WALL REV.
5	10-25-2016 GEN. BLDG.



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ELECTRICAL SITE PLAN

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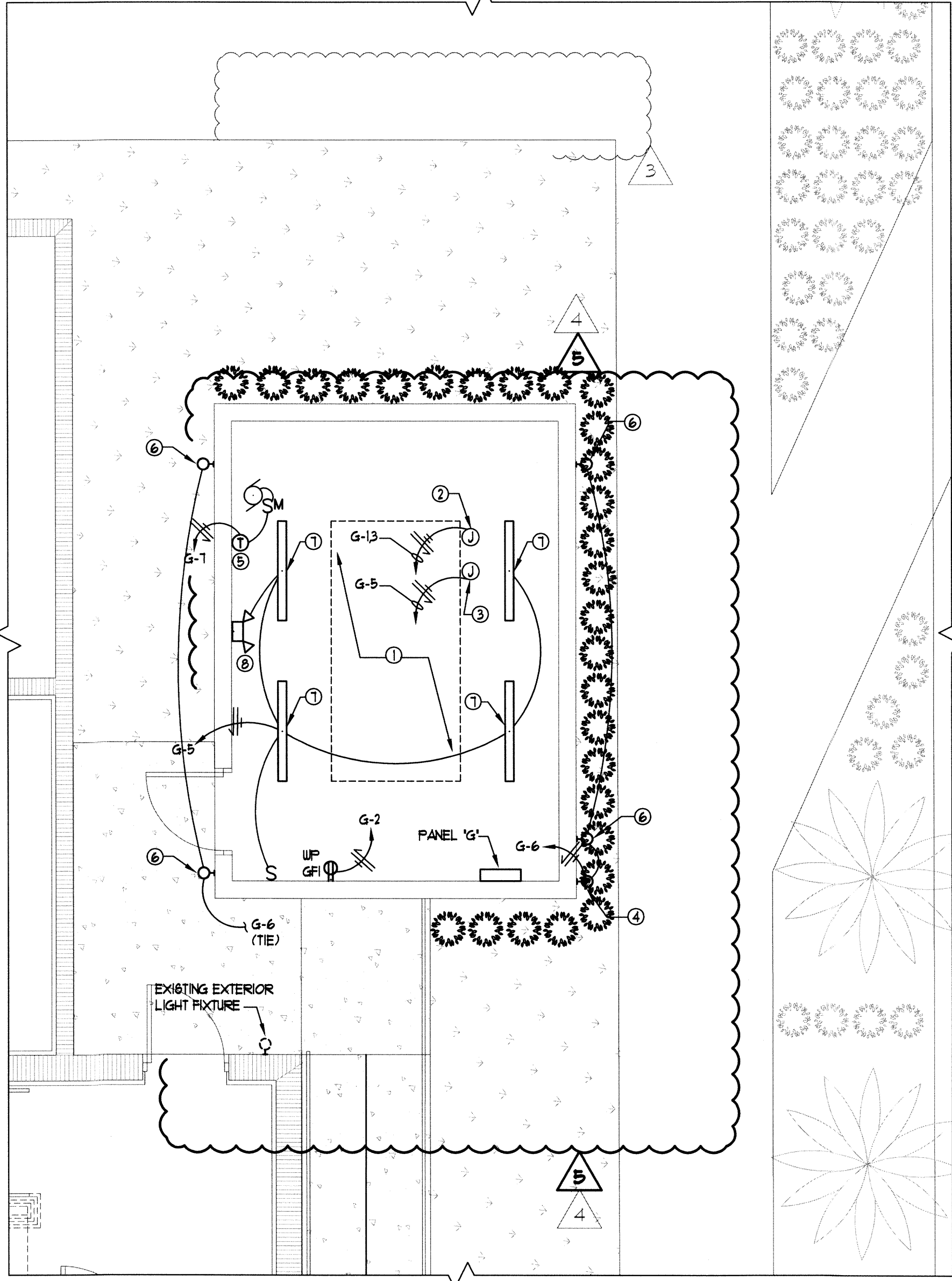
PANEL: LIRI										GE PANEL BOARD		10,000 A.I.C. 200 A. M.L.O. SURFACE MTD.	
EXISTING										120/208V, 3 PH, 4 W.			
CKT.	WIRE	COND.	BKR.	SERVES	LOAD A * B * C *	V-A B * C *	SERVES	BKR.	COND.	WIRE	CKT.		
85			20	EXISTING LOAD			EXISTING LOAD	20			86		
87			20	EXISTING LOAD			EXISTING LOAD	20			88		
89			20	EXISTING LOAD			EXISTING LOAD	20			90		
91			20	EXISTING LOAD			EXISTING LOAD	20			92		
93			20	EXISTING LOAD			EXISTING LOAD	20			94		
95			20	EXISTING LOAD			SPACE	20			96		
97			20	EXISTING LOAD			EXISTING LOAD	20			98		
99			20	EXISTING LOAD			SPACE	20			100		
101			20	EXISTING LOAD			SPACE	20			102		
103			20	SPACE			SPACE	20			104		
105			20	SPACE			SPACE	20			106		
107			20	SPACE			SPACE	20			108		
109			20	SPACE			SPACE	20			110		
111			20	SPACE			SPACE	20			112		
113			20	SPACE			SPACE	20			114		
115			20	SPACE			SPACE	20			116		
117			20	SPACE			SPACE	20			118		
119			20	SPACE			SPACE	20			120		
121			20	SPACE			RECEPTACLE	20	3/4"	12	122		
123			20	SPACE				2			124		
125			20	SPACE			NEW PANEL 'G'	2			126		
										CONNECTED V-A PER Ø			
										TOTAL AMPS. PER Ø			

① RECEPTACLE EXISTING CIRCUIT BREAKERS WITH SIZE SHOWN
② SEE ELECTRICAL RISER

LOAD SUMMARY N.E.C. 220.87	
EXISTING 12 MONTH DEMAND LOAD PER FLORIDA POWER AND LIGHT COMPANY	= 1325 KVA
1325 KVA X 125%	= 1656 KVA
ADDED LOAD	= 50 KVA
TOTAL LOAD	= 1706 KVA = 205 AMPS
SERVICE CAPACITY	= 400 AMPS
GENERATOR CAPACITY	= 400 AMPS

PANEL: G										50 "10" N2 PANEL BOARD - COPPER BUS		10,000 A.I.C. ① 60A M.L.O. SURFACE MTD.	
										120/208V, 1PH, 3W.			
CKT.	WIRE	COND.	BKR.	SERVES	LOAD A * B * C *	V-A B * C *	SERVES	BKR.	COND.	WIRE	CKT.		
1	12	3/4"	2	WATER JACKET HEATER			RECEPTACLE	20	3/4"	12	2		
3			20				LIGHTING - INTERIOR	20	3/4"	12	4		
5	12	3/4"	20	BATTERY CHARGER			LIGHTING - EXTERIOR	20	3/4"	12	6		
7	12	3/4"	20	EXHAUST FAN			SPACE				8		
9				SPACE			SPACE				10		
11				SPACE			SPACE				12		
										CONNECTED V-A PER Ø			
										TOTAL AMPS. PER Ø			

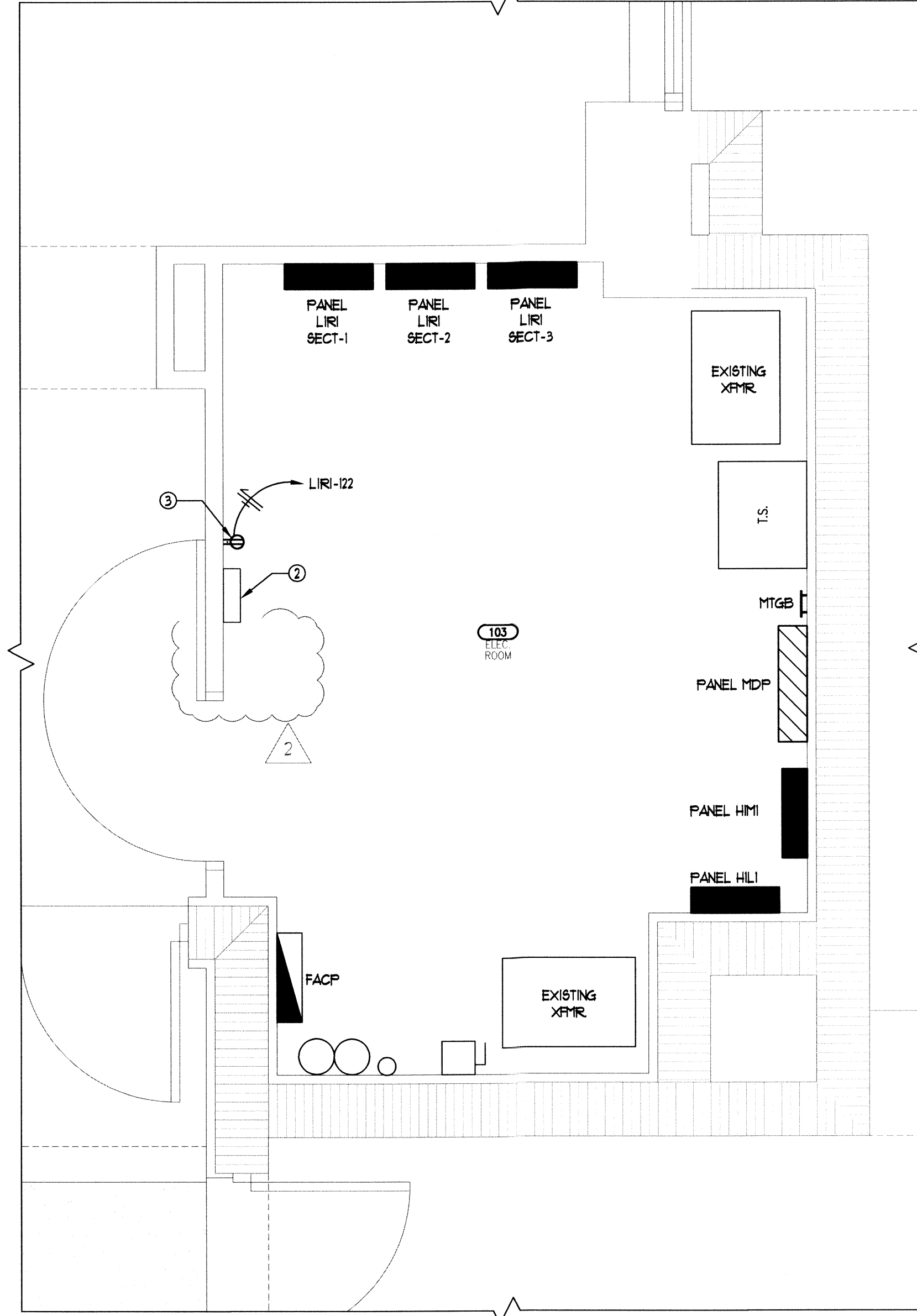
① INDIVIDUALLY MOUNTED CIRCUIT BREAKER



GENERATOR PARTIAL PLAN
SCALE: 1/4" = 1'-0"

GENERATOR ROOM KEYED NOTES

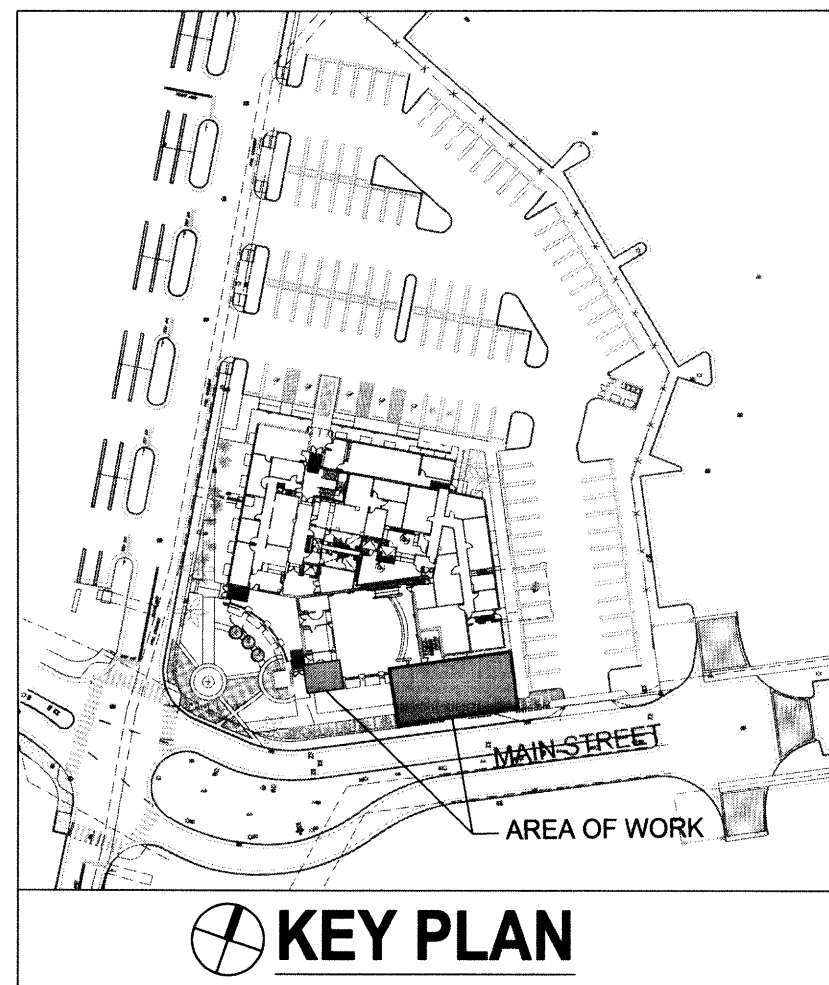
- ① GENERATOR
- ② JUNCTION BOX FOR GENERATOR WATER JACKET HEATER CONNECTION.
- ③ JUNCTION BOX FOR GENERATOR BATTERY CHARGER CONNECTION.
- ④ 120 VOLT PHOTOCELL "TWIST-LOCK" RECEPTACLE AND PHOTOCELL.
- ⑤ 120 VOLT THERMOSTAT.
- ⑥ EXTERIOR WALL MOUNTED LIGHTS TO MATCH EXISTING AND TO BE INSTALLED AT 6'4" ELEVATION.
- ⑦ PENDANT MOUNTED LIGHT FIXTURE BEGHELLI * BS100LED-4-HT-80W-WT41-120-DPK-55
- ⑧ EMERGENCY LIGHT BEGHELLI * HDT-12V30-2LR-35W-AT-NC



MAIN ELECTRICAL ROOM ENLARGED PLAN
SCALE: 1/2" = 1'-0"

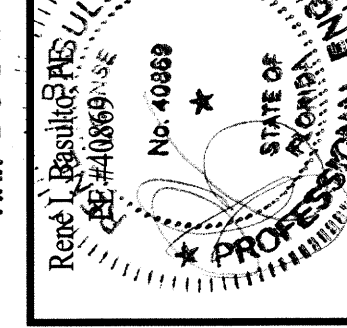
MAIN ELECTRICAL ROOM KEYED NOTES

- ① NOT USED.
- ② GENERATOR "DIGITAL" COMMUNICATOR
- ③ 20 AMP SIMPLEX RECEPTACLE MOUNTED AT 12" AFF. FOR COMMUNICATOR POWER SUPPLY.



KEY PLAN

REVISIONS	BY
1 12-2-2014 B.D.C.	C.Y.
2 12-10-2014 FIRE REV.	C.Y.
4 04-09-2015 WALL REV.	R.I.B.
5 10-25-2016 GEN. BLDG.	R.I.B.



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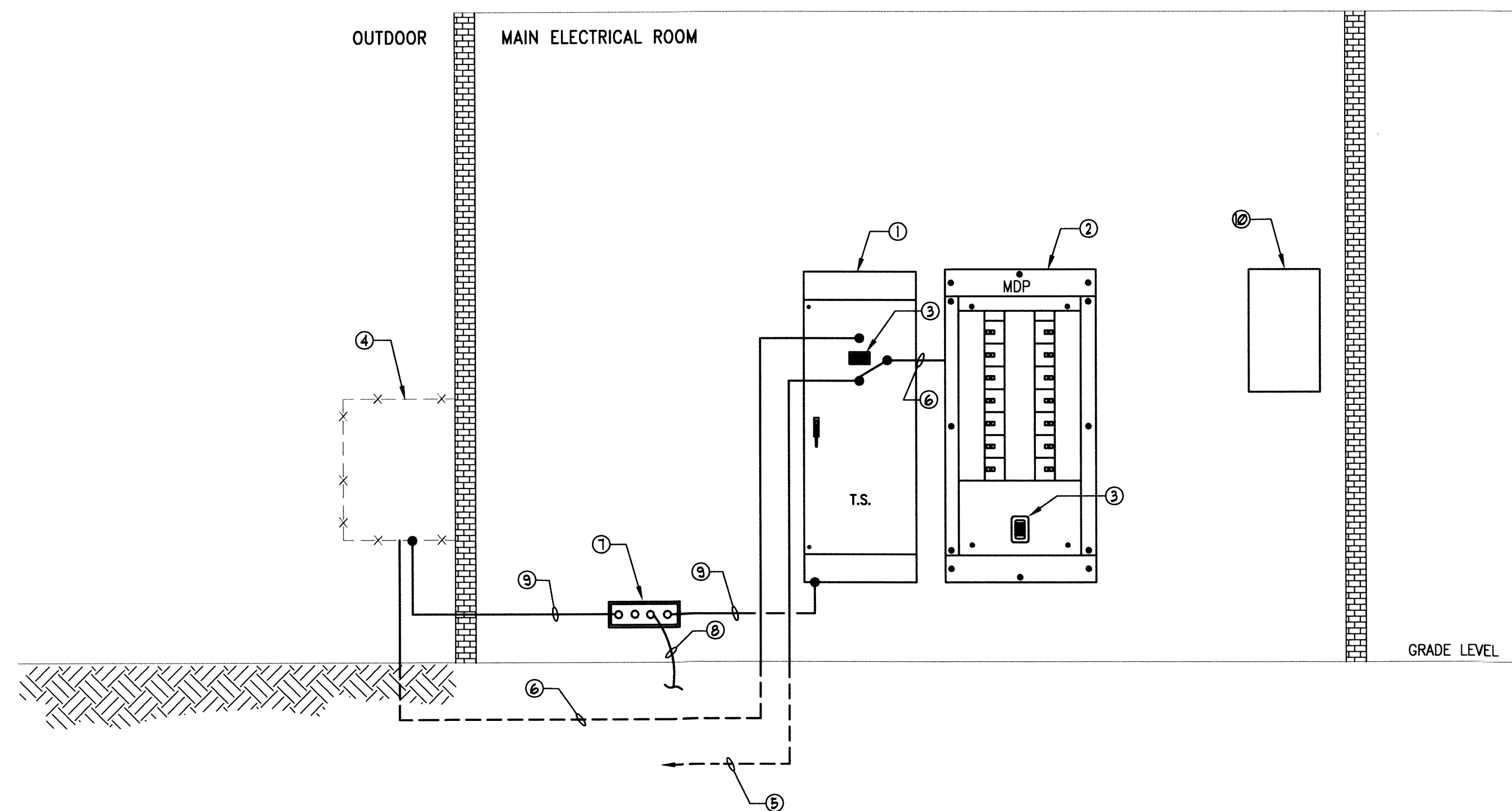


ELECTRICAL ROOM & GENERATOR ROOM ENLARGED PLAN

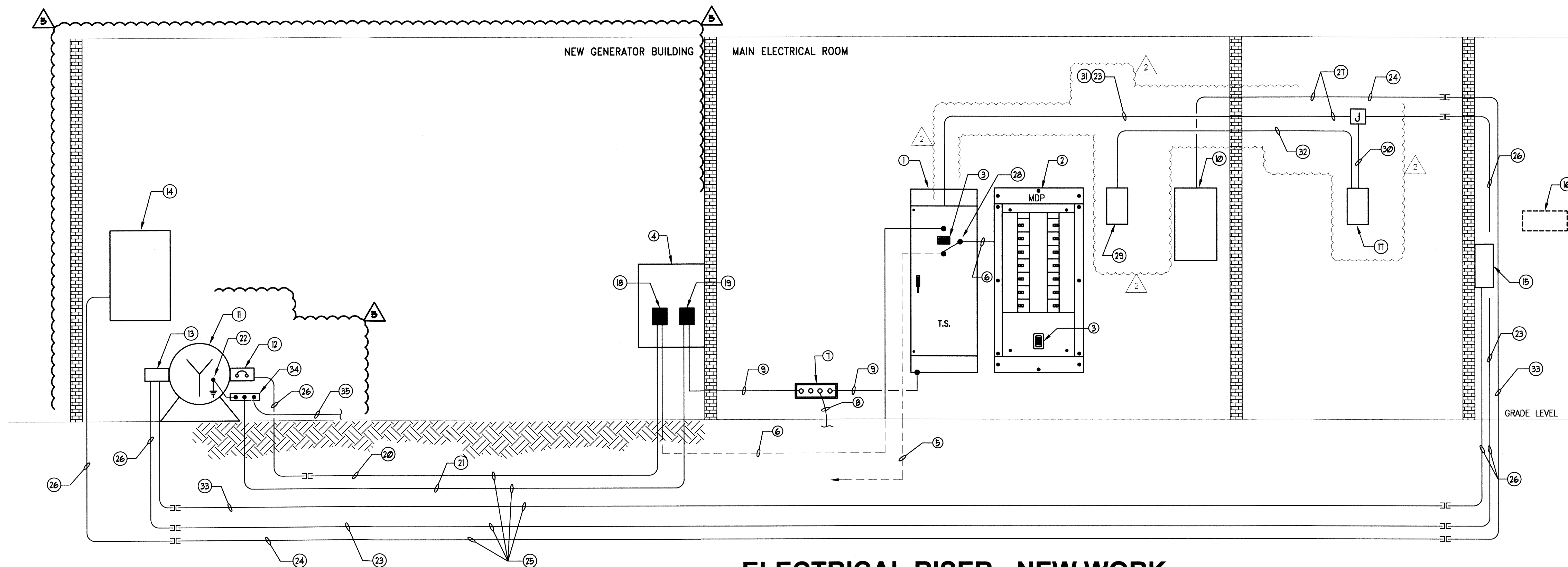
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CHECKED C.Y.
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ELECTRICAL RISER - DEMOLITION
N.T.S.



ELECTRICAL RISER - NEW WORK
N.T.S.

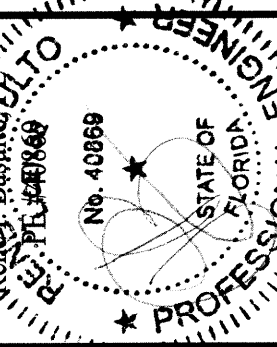
ELECTRICAL RISER DEMOLITION KEY NOTES

- ① EXISTING FOUR POLE 800 AMP SERVICE ENTRANCE ELECTRICAL SERVICE MAIN #1 OF 1 TO REMAIN.
- ② EXISTING PANEL "MDP" TO REMAIN.
- ③ EXISTING CIRCUIT BREAKER "TRIP UNIT" TO BE REMOVED AND REPLACED.
- ④ EXISTING "CAM-LOCK" BOX TO BE REMOVED.
- ⑤ EXISTING ELECTRICAL SERVICE LATERAL TO FLORIDA POWER AND LIGHT COMPANY PAD MOUNTED TRANSFORMER TO REMAIN. 2 SETS (4 * 600 KCM THIN COPPER IN 4" CONDUIT)
- ⑥ EXISTING 2 SETS (4 * 600 KCM AND 1 * 1/2 (G) THIN COPPER IN 4" CONDUIT) TO REMAIN.
- ⑦ EXISTING GROUNDING ELECTRICAL SYSTEM COLLECTOR BUS TO REMAIN.
- ⑧ EXISTING * 3/0 COPPER GROUNDING CONDUCTOR TO GROUNDING ELECTRODE SYSTEM TO REMAIN.
- ⑨ EXISTING * 3/0 COPPER GROUNDING ELECTRODE CONDUCTOR TO REMAIN.
- ⑩ EXISTING PANEL "LIRI" (SECTION 3) TO REMAIN.

ELECTRICAL RISER NEW WORK KEY NOTES

- ① EXISTING FOUR POLE 800 AMP SERVICE ENTRANCE ELECTRICAL SERVICE MAIN #1 OF 1.
- ② EXISTING PANEL "MDP".
- ③ NEW 400 AMP "TRIP UNIT" TO REPLACE EXISTING.
- ④ NEW NEMA 3R JUNCTION BOX WITH SCREW DOWN COVER. PAINT COVER TO MATCH BUILDING EXTERIOR.
- ⑤ EXISTING ELECTRICAL SERVICE LATERAL TO FLORIDA POWER AND LIGHT COMPANY PAD MOUNTED TRANSFORMER. 2 SETS (4 * 600 KCM THIN COPPER IN 4" CONDUIT)
- ⑥ EXISTING 2 SETS (4 * 600 KCM AND 1 * 1/2 (G) THIN COPPER IN 4" CONDUIT).
- ⑦ EXISTING GROUNDING ELECTRICAL SYSTEM COLLECTOR BUS.
- ⑧ EXISTING * 3/0 COPPER GROUNDING CONDUCTOR TO GROUNDING ELECTRODE SYSTEM.
- ⑨ EXISTING * 3/0 COPPER GROUNDING CONDUCTOR.
- ⑩ EXISTING PANEL "LIRI" (SECTION 3)
- ⑪ NEW 277/480 VOLT, 3 PHASE 230 KW/2815 KVA DIESEL FUELED GENERATOR AND TANK. SEE GENERATOR NOTES AND DETAILS FOR ADDITIONAL INFORMATION.
- ⑫ NEW GENERATOR MOUNTED 3 POLE, 400 AMP, 100 PERCENT RATED CIRCUIT BREAKER.
- ⑬ NEW GENERATOR CONTROL PANEL.
- ⑭ NEW ELECTRICAL PANEL "13"
- ⑮ NEW "GENERATOR EMERGENCY STOP" PUSH BUTTON. SAFETY TECHNOLOGY INTERNATIONAL * 88-221-CUSTOM-LBL WITH LABEL STATING "EMERGENCY GENERATOR STOP".
- ⑯ WHITE PLASTIC SIGN WITH ENGRAVED 2" HIGH RED LETTERS STATING "EMERGENCY GENERATOR STOP". SIGN TO BE MOUNTED TO WALL WITH ANCHORS AND STAINLESS STEEL SCREWS ABOVE THE PUSH BUTTON AT 8'-0" ABOVE FINISHED GRADE.
- ⑰ NEW GENERATOR REMOTE ANNUNCIATOR PROVIDED BY GENERATOR MANUFACTURER. SEE GENERATOR NOTES FOR ADDITIONAL INFORMATION SEE NOTE ⑫ BELOW.
- ⑱ SPlice EXISTING GENERATOR FEEDER CONDUCTORS TO NEW CONDUCTORS WITH HYDRAULICALLY PRESSED CONNECTOR (BURNDY HYPPRESS) AND INSULATE WITH SCOTCH 3M "COLD SHRINK" TUBING.
- ⑲ SPlice EXISTING GENERATOR GROUNDING ELECTRODE CONDUCTOR TO NEW CONDUCTOR WITH HYDRAULICALLY PRESSED CONNECTOR (BURNDY HYPPRESS) AND INSULATE WITH SCOTCH 3M "COLD SHRINK" TUBING.
- ⑳ NEW GENERATOR FEEDER CONDUCTORS. 2 SETS (4 * 3/0 AND 1 * 3 (G) THIN COPPER IN 2" CONDUIT). PAINT CONDUITS TO MATCH BUILDING EXTERIOR.
- ㉑ 1 * 3/0 THIN COPPER GROUNDING ELECTRODE CONDUCTOR RUN IN 1" SCHEDULE 40 PVC CONDUIT. PAINT CONDUIT TO MATCH BUILDING EXTERIOR.
- ㉒ GENERATOR IS CONSIDERED A "SEPARATELY DERIVED SYSTEM". THE NEUTRAL TO GROUND WITHIN THE GENERATOR SHALL BE BONDED TOGETHER PER NATIONAL ELECTRICAL CODE REQUIREMENTS.
- ㉓ GENERATOR REMOTE ANNUNCIATOR AND "START" CONTROL WIRING RUN IN 1" CONDUIT PER MANUFACTURER'S REQUIREMENTS. PAINT CONDUIT TO MATCH BUILDING EXTERIOR.
- ㉔ FEEDER FOR GENERATOR HOUSING PANEL. 3 * 3 AND 1 * 6 THIN COPPER IN 1-1/4" CONDUIT.
- ㉕ SCHEDULE 40 PVC CONDUIT.
- ㉖ RIGID GALVANIZED STEEL TUBING.
- ㉗ ELECTRICAL METALLIC TUBING.
- ㉘ EXISTING AUTOMATIC TRANSFER SWITCH TO BE CONVERTED FROM MANUAL TO AUTOMATIC BY MEANS OF REPLACING PROGRAMMING "PLUG" AND REPROGRAMMING THE "MX" CONTROLLER. THIS WORK TO BE PERFORMED BY GE-ZENTH FIELD SERVICES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THIS WORK WITH GE-ZENTH AND INCLUDE ALL COSTS RELATED TO IT IN HIS BID PRICE.
- ㉙ GENERATOR CELLULAR UNIT TYPE DIGITAL COMMUNICATOR TO PROVIDE TROUBLE/FAILURE ALERTS TO FACILITY PERSONNEL VIA CELLULAR/TEXT MESSAGE.
- ㉚ CONTROL WIRING IN 3/4" CONDUIT TO MONITOR GENERATOR STATUS.
- ㉛ CONTROL WIRING IN 3/4" CONDUIT TO MONITOR AUTOMATIC TRANSFER SWITCH STATUS.
- ㉜ REQUIRED WIRING TO INTER-CONNECT REMOTE ANNUNCIATOR AND DIGITAL COMMUNICATOR.
- ㉝ GENERATOR REMOTE STOP WIRING RUN IN 3/4" CONDUIT PER MANUFACTURER'S REQUIREMENTS. PAINT CONDUIT TO MATCH BUILDING EXTERIOR.
- ㉞ NEW 1/4" x 4" x 12" GROUND COLLECTOR BUS.
- ㉟ 3/0 COPPER GROUND TO 3/4" x 10'-0" COPPER CLAD GROUND ROD AND BUILDING STEEL EXOTHERMIC WELD ALL CONNECTIONS.

REVISIONS	BY
12-2-2014 B.D.C.	C.Y.
12-10-2014 FIRE REV.	C.Y.
10-25-2016 GEN. BLDG.	R.I.B.



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DIESEL GENERATOR SET SPECIFICATION

PART 1 - GENERAL

1) RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL CONDITIONS APPLY TO THIS SECTION.

12) SUMMARY

A. THIS SPECIFICATION INCLUDES PACKAGED ENGINE-GENERATOR SET SUITABLE FOR USE IN MISSION CRITICAL APPLICATIONS WITH THE FEATURES AS SPECIFIED AND INDICATED. ENGINE GENERATOR WILL BE USED AS THE STANDBY POWER SOURCE FOR THE SYSTEM, BUT SHALL BE CAPABLE OF PROVIDING RELIABLE POWER WITH NO RUN-TIME LIMITATIONS WHILE THE PRIMARY SOURCE OF POWER IS UNAVAILABLE.

13) DEFINITIONS

A. EMERGENCY STANDBY POWER (ESP): PER ISO 8528: THE MAXIMUM POWER AVAILABLE DURING A VARIABLE ELECTRICAL POWER SEQUENCE, UNDER THE STATED OPERATING CONDITIONS, FOR WHICH A GENERATING SET IS CAPABLE OF DELIVERING IN THE EVENT OF A UTILITY POWER OUTAGE OR UNDER TEST CONDITIONS FOR UP TO 2000 HOURS OF OPERATION PER YEAR WITH THE MAINTENANCE INTERVALS AND PROCEDURES BEING CARRIED OUT AS PRESCRIBED BY THE MANUFACTURERS. THE PERMISSIBLE AVERAGE POWER OUTPUT (PFP) OVER 24 HOURS OF OPERATION SHALL NOT EXCEED 10 PERCENT OF THE PFP UNLESS OTHERWISE AGREED BY THE RIC ENGINE MANUFACTURER.

B. PRIME POWER (PRP): PER ISO 8528: THE MAXIMUM POWER WHICH A GENERATING SET IS CAPABLE OF DELIVERING CONTINUOUSLY WHILE SUPPLYING A VARIABLE ELECTRICAL LOAD WHEN OPERATED FOR AN UNLIMITED NUMBER OF HOURS PER YEAR UNDER THE AGREED OPERATING CONDITIONS WITH THE MAINTENANCE INTERVALS AND PROCEDURES BEING CARRIED OUT AS A PRESCRIBED BY THE MANUFACTURER. THE PERMISSIBLE AVERAGE POWER OUTPUT (PFP) OVER 24 HOURS OF OPERATION SHALL NOT EXCEED 10 PERCENT OF THE PRP UNLESS OTHERWISE AGREED BY THE RIC ENGINE MANUFACTURER.

C. LIMITED RUNNING POWER (LRP): PER ISO 8528: THE MAXIMUM POWER AVAILABLE UNDER THE AGREED OPERATING CONDITIONS, FOR WHICH THE GENERATOR SET IS CAPABLE OF DELIVERING FOR UP TO 5000 HOURS OF OPERATION PER YEAR WITH THE MAINTENANCE INTERVALS AND PROCEDURES BEING CARRIED OUT AS PRESCRIBED BY THE MANUFACTURERS.

D. CONTINUOUS OPERATING POWER (COP): PER ISO 8528: THE MAXIMUM POWER WHICH A GENERATING SET IS CAPABLE OF DELIVERING CONTINUOUSLY WHILE SUPPLYING A CONSTANT ELECTRICAL LOAD WHEN OPERATED FOR AN UNLIMITED NUMBER OF HOURS PER YEAR UNDER THE AGREED OPERATING CONDITIONS WITH THE MAINTENANCE INTERVALS AND PROCEDURES BEING CARRIED OUT AS A PRESCRIBED BY THE MANUFACTURER.

E. DATA CENTER CONTINUOUS (DCC): THE MAXIMUM POWER WHICH A GENERATING SET IS CAPABLE OF DELIVERING CONTINUOUSLY WHILE SUPPLYING A VARIABLE OR CONSTANT ELECTRICAL LOAD WHEN OPERATED FOR AN UNLIMITED NUMBER OF HOURS IN A DATA CENTER APPLICATION UNDER THE AGREED OPERATING CONDITIONS WITH THE MAINTENANCE INTERVALS AND PROCEDURES BEING CARRIED OUT AS A PRESCRIBED BY THE MANUFACTURER. THE PERMISSIBLE AVERAGE POWER OUTPUT (PFP) OVER 24 HOURS OF OPERATION SHALL NOT EXCEED 100 PERCENT OF THE DCC RATING.

F. OPERATIONAL BANDWIDTH: THE TOTAL VARIATION FROM THE LOWEST TO HIGHEST VALUE OF A PARAMETER OVER THE RANGE OF CONDITIONS INDICATED, EXPRESSED AS A PERCENTAGE OF THE NOMINAL VALUE OF THE PARAMETER.

14) ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PACKAGED ENGINE GENERATOR INDICATED, INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES. IN ADDITION, INCLUDE THE FOLLOWING:

1. THERMAL DAMAGE CURVE FOR GENERATOR.
2. TIME-CURRENT CHARACTERISTIC CURVES FOR GENERATOR PROTECTIVE DEVICE.
3. SOUND TEST DATA BASED ON A FREE FIELD REQUIREMENT.
4. SHOP DRAWINGS: DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.

1. DIMENSIONED OUTLINE PLAN AND ELEVATION DRAWINGS OF ENGINE-GENERATOR SET AND OTHER COMPONENTS SPECIFIED.

2. WIRING DIAGRAMS: CONTROL INTERCONNECTION, CUSTOMER CONNECTIONS.

C. CERTIFICATIONS:

1. SUBMIT STATEMENT OF COMPLIANCE WHICH STATES THE PROPOSED PRODUCT(S) IS CERTIFIED TO THE EMISSIONS STANDARDS REQUIRED BY THE LOCATION FOR EPA STATIONARY EMERGENCY APPLICATION.

15) INFORMATIONAL SUBMITTALS

A. SOURCE QUALITY-CONTROL TEST REPORTS.

1. CERTIFIED SUMMARY OF PROTOTYPE-UNIT TEST REPORT. SEE REQUIREMENTS IN PART 2 "SOURCE QUALITY CONTROL" ARTICLE PART A INCLUDE STATEMENT INDICATING TORSIONAL COMPATIBILITY OF COMPONENTS.

2. CERTIFIED TEST REPORT: PROVIDE CERTIFIED TEST REPORT DOCUMENTING FACTORY TEST PER THE REQUIREMENTS OF THIS SPECIFICATION, AS WELL AS CERTIFIED FACTORY TEST OF GENERATOR SET SENSORS PER NFPA10 LEVEL 1.

3. LIST OF FACTORY TESTS TO BE PERFORMED ON UNITS TO BE SHIPPED FOR THIS PROJECT.

4. REPORT OF EXHAUST EMISSIONS AND COMPLIANCE STATEMENT CERTIFYING COMPLIANCE WITH APPLICABLE REGULATIONS.

B. WARRANTY:

1. SUBMIT MANUFACTURER'S WARRANTY STATEMENT BEING PROVIDED FOR THIS PROJECT.

16) QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: MANUFACTURER'S AUTHORIZED REPRESENTATIVE WHO IS TRAINED AND APPROVED FOR INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT.

B. MANUFACTURER QUALIFICATIONS: A QUALIFIED MANUFACTURER SHALL MAINTAIN WITHIN MIAMI - DADE COUNTY, FLORIDA, A SERVICE CENTER CAPABLE OF PROVIDING TRAINING, PARTS, AND EMERGENCY MAINTENANCE REPAIRS.

C. SOURCE LIMITATIONS: OBTAIN PACKAGED GENERATOR SETS AND AUXILIARY COMPONENTS THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.

D. COMPLY WITH NFPA 97 STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES.

E. COMPLY WITH NFPA 10 (NATIONAL ELECTRICAL CODE, EQUIPMENT SHALL BE SUITABLE FOR USE IN SYSTEMS IN COMPLIANCE TO ARTICLE 100, 101, AND 102).

F. COMPLY WITH NFPA 110 (EMERGENCY AND STANDBY POWER SYSTEMS) REQUIREMENTS FOR LEVEL 1 EMERGENCY POWER SUPPLY SYSTEM.

G. COMPLY WITH UL 2200.

17) PROJECT CONDITIONS

A. ENVIRONMENTAL CONDITIONS: ENGINE-GENERATOR SYSTEM SHALL WITHSTAND THE FOLLOWING ENVIRONMENTAL CONDITIONS WITHOUT MECHANICAL OR ELECTRICAL DAMAGE OR DEGRADATION OF PERFORMANCE CAPABILITY:

1. AMBIENT TEMPERATURE: 00 DEG C (32.0 DEG F) TO 43.33 DEG C (110.0 DEG F).

2. RELATIVE HUMIDITY: 0 TO 95 PERCENT.

3. ALTITUDE: SEA LEVEL TO 1020 FEET (3048 M).

18) WARRANTY

A. EXTENDED WARRANTY: MANUFACTURER SHALL PROVIDE EXTENDED WARRANTY COVERAGE OF 5 YEARS FROM DATE OF REGISTERED COMMISSIONING AND START-UP.

B. WARRANTY PERIOD SHALL COMMENCE UPON FINAL ACCEPTANCE BY THE OWNER.

PART 2 - PRODUCTS

21) MANUFACTURERS

A. MANUFACTURERS: PROPOSED GENERATORS SHALL MEET THE FULL INTENT OF THESE SPECIFICATIONS WITH REGARDS TO GENERATOR PERFORMANCE AND CONSTRUCTION. THE ENGINEER AND OWNER WILL DETERMINE IF THE PROPOSED CONFORMS TO THESE SPECIFICATIONS. THE CONTRACTOR SHALL INCLUDE AS PART OF HIS BID, A COMPLETE GENERATOR SHOP DRAWING SUBMITTAL FOR OWNER/ENGINEER EVALUATION.

22) ENGINE-GENERATOR SET

A. FACTORY-ASSEMBLED AND -TESTED, ENGINE-GENERATOR SET.

B. MOUNTING FRAME: MAINTAIN ALIGNMENT OF MOUNTED COMPONENTS WITHOUT DEPENDING ON CONCRETE FOUNDATION AND HAVE LIFTING ATTACHMENTS.

1. RIGGING INFORMATION: INDICATE LOCATION OF EACH LIFTING ATTACHMENT, GENERATOR-SET CENTER OF GRAVITY, AND TOTAL PACKAGE WEIGHT IN SUBMITTAL DRAWINGS.

C. CAPACITIES AND CHARACTERISTICS:

1. POWER OUTPUT RATINGS: ELECTRICAL OUTPUT POWER RATING FOR STANDBY OPERATION OF NOT LESS THAN 2300 KW, AT 80 PERCENT LAGGING POWER FACTOR, 271/480, SERIES WYE, THREE PHASE, 3-WIRE, 60 HERTZ.

2. ALTERNATOR SHALL BE CAPABLE OF ACCEPTING MAXIMUM 9200 KVA IN A SINGLE STEP AND BE CAPABLE OF RECOVERING TO A MINIMUM OF 90% OF RATED NO LOAD VOLTAGE, FOLLOWING THE APPLICATION OF THE SPECIFIED KVA LOAD AT NEAR ZERO POWER FACTOR APPLIED TO THE GENERATOR SET.

3. NAMEPLATES: FOR EACH MAJOR SYSTEM COMPONENT TO IDENTIFY MANUFACTURER'S NAME AND ADDRESS, AND MODEL AND SERIAL NUMBER OF COMPONENT. THE ENGINE-GENERATOR NAMEPLATE SHALL INCLUDE INFORMATION OF THE POWER OUTPUT RATING OF THE EQUIPMENT.

D. GENERATOR-SET PERFORMANCE:

1. STEADY-STATE VOLTAGE OPERATIONAL BANDWIDTH: 05 PERCENT OF RATED OUTPUT VOLTAGE FROM NO LOAD TO FULL LOAD.

2. TRANSIENT VOLTAGE PERFORMANCE: NOT MORE THAN 20 PERCENT VARIATION FOR 50 PERCENT STEP-LOAD INCREASE OR DECREASE. VOLTAGE SHALL RECOVER AND REMAIN WITHIN THE STEADY-STATE OPERATING BAND WITHIN 5 SECONDS. ON APPLICATION OF A 100% LOAD STEP THE GENERATOR SET SHALL RECOVER TO STABLE VOLTAGE WITHIN 10 SECONDS.

3. STEADY-STATE FREQUENCY OPERATIONAL BANDWIDTH: 025 PERCENT OF RATED FREQUENCY FROM NO LOAD TO FULL LOAD.

4. STEADY-STATE FREQUENCY STABILITY: WHEN SYSTEM IS OPERATING AT ANY CONSTANT LOAD WITHIN THE RATED LOAD, THERE SHALL BE NO RANDOM SPEED VARIATIONS OUTSIDE THE STEADY-STATE OPERATIONAL BAND AND NO HUNTING OR BURNING OF SPEED.

5. TRANSIENT FREQUENCY PERFORMANCE: NOT MORE THAN 15 PERCENT VARIATION FOR 50 PERCENT STEP-LOAD INCREASE OR DECREASE. FREQUENCY SHALL RECOVER AND REMAIN WITHIN THE STEADY-STATE OPERATING BAND WITHIN 5 SECONDS. ON APPLICATION OF A 100% LOAD STEP THE GENERATOR SET SHALL RECOVER TO STABLE FREQUENCY WITHIN 10 SECONDS.

6. OUTPUT WAVEFORM: AT FULL LOAD, HARMONIC CONTENT MEASURED LINE TO LINE OR LINE TO NEUTRAL SHALL NOT EXCEED 5 PERCENT TOTAL AND 3 PERCENT FOR ANY SINGLE HARMONIC. TELEPHONE INFLUENCE FACTOR, DETERMINED ACCORDING TO NEMA MG 1, SHALL NOT EXCEED 50.

7. SUSTAINED SHORT-CIRCUIT CURRENT: FOR A 3-PHASE, BOLTED SHORT CIRCUIT AT SYSTEM OUTPUT TERMINALS, SYSTEM SHALL SUPPLY A MINIMUM OF 300 PERCENT OF RATED RULL-LOAD CURRENT FOR NOT LESS THAN 8 SECONDS WITHOUT DAMAGE TO GENERATOR SYSTEM COMPONENTS. FOR A 1-PHASE, BOLTED SHORT CIRCUIT AT SYSTEM OUTPUT TERMINALS, SYSTEM SHALL REGULATE BOTH VOLTAGE AND CURRENT TO PREVENT OVER-VOLTAGE CONDITIONS ON THE NON-FAULTED PHASES.

8. START TIME: COMPLY WITH NFPA 110 LEVEL 1, TYPE 10, SYSTEM REQUIREMENTS.

9. AMBIENT CONDITION PERFORMANCE: ENGINE GENERATOR SHALL BE DESIGNED TO ALLOW OPERATION AT FULL RATED LOAD IN AN AMBIENT TEMPERATURE UNDER SITE CONDITIONS, BASED ON HIGHEST AMBIENT CONDITION. AMBIENT TEMPERATURE SHALL BE AS MEASURED AT THE AIR INLET TO THE ENGINE GENERATOR FOR ENCLOSED UNITS, AND AT THE CONTROL OF THE ENGINE GENERATOR FOR MACHINES INSTALLED IN EQUIPMENT ROOMS.

10. NOISE OUTPUT: ENGINE GENERATOR SHALL BE TESTED BY THE MANUFACTURER PER ANSI S12.34. DATA DOCUMENTING PERFORMANCE SHALL BE PROVIDED WITH SUBMITTAL DOCUMENTATION.

23) ENGINE

A. FUEL: ASTM D915 #2 DIESEL FUEL.

B. RATED ENGINE SPEED: 1800 RPM.

C. LUBRICATION SYSTEM: THE FOLLOWING ITEMS ARE MOUNTED ON ENGINE OR SKID:
1. LUBE OIL PUMP: SHALL BE POSITIVE DISPLACEMENT, MECHANICAL, RUL PRESSURE PUMP.

2. FILTER AND STRAINER: PROVIDED BY THE ENGINE MANUFACTURER OF RECORD TO PROVIDE ADEQUATE FILTRATION FOR THE PRIME MOVER TO BE USED.

3. CRANKCASE DRAIN: ARRANGED FOR COMPLETE GRAVITY DRAINAGE TO AN EASILY REMOVABLE CONTAINER WITH NO DISASSEMBLY AND WITHOUT USE OF PUMPS, SIPHONS, SPECIAL TOOLS, OR APPLIANCES.

D. ENGINE FUEL SYSTEM: THE ENGINE FUEL SYSTEM SHALL BE INSTALLED IN STRICT COMPLIANCE TO THE ENGINE MANUFACTURER'S INSTRUCTIONS.

E. MAIN FUEL PUMP: MOUNTED ON ENGINE. PUMP ENSURES ADEQUATE PRIMARY FUEL FLOW UNDER STARTING AND LOAD CONDITIONS.

F. COOLANT JACKET HEATER: ELECTRIC-IMMERSION TYPE, FACTORY INSTALLED IN COOLANT JACKET SYSTEM. COMPLY WITH NFPA 110 REQUIREMENTS FOR LEVEL 1 EQUIPMENT FOR HEATER CAPACITY AND PERFORMANCE.

1. DESIGNED FOR OPERATION ON A SINGLE 240 VAC, SINGLE PHASE, 60HZ POWER CONNECTION.

2. INSTALLED WITH ISOLATION VALVES TO ISOLATE THE HEATER FOR REPLACEMENT OF THE ELEMENT WITHOUT DRAINING THE ENGINE COOLING SYSTEM OR SIGNIFICANT COOLANT LOSS.

3. PROVIDED WITH A 24VDC THERMOSTAT, INSTALLED AT THE ENGINE THERMOSTAT HOUSING.

G. GOVERNOR: ADJUSTABLE ISOCRONOUS, WITH SPEED SENSING. THE GOVERNING SYSTEM DYNAMIC CAPABILITIES SHALL BE CONTROLLED AS A FUNCTION OF ENGINE COOLANT TEMPERATURE TO PROVIDE FAST, STABLE OPERATION AT VARYING ENGINE OPERATING TEMPERATURE CONDITIONS. THE CONTROL SYSTEM SHALL ACTIVELY CONTROL THE FUEL RATE AS APPROPRIATE TO THE STATE OF THE ENGINE GENERATOR. FUEL RATE SHALL BE REGULATED AS A FUNCTION OF STARTING, ACCELERATING TO START DISCONNECT SPEED, ACCELERATING TO RATED SPEED, AND OPERATING IN VARIOUS ISOCRONOUS STATES.

H. COOLING SYSTEM: CLOSED LOOP, LIQUID COOLED.

1. THE GENERATOR SET MANUFACTURER SHALL PROVIDE PROTOTYPE TEST DATA FOR THE SPECIFIC HARDWARE PROPOSED DEMONSTRATING THAT THE MACHINE WILL OPERATE AT RATED STANDBY LOAD IN AN OUTDOOR AMBIENT CONDITION OF 40 DEG C.

2. COOLANT: SOLUTION OF 50 PERCENT ETHYLENE-GLYCOL-BASED ANTIFREEZE AND 50 PERCENT WATER, WITH ANTICORROSION ADDITIVES AS RECOMMENDED BY ENGINE MANUFACTURER.

3. SIZE OF RADIATOR OVERFLOW TANK: ADEQUATE TO CONTAIN EXPANSION OF TOTAL SYSTEM COOLANT FROM COLD START TO 10 PERCENT LOAD CONDITION.

4. EXPANSION TANK: CONSTRUCTED OF WELDED STEEL PLATE AND RATED TO WITHSTAND MAXIMUM CLOSED-LOOP COOLANT SYSTEM PRESSURE FOR ENGINE USED. EQUIP WITH GAGE GLASS AND PETCOCK.

5. TEMPERATURE CONTROL: SELF-CONTAINED, THERMOSTATIC-CONTROL VALVE MODULATES COOLANT FLOW AUTOMATICALLY TO MAINTAIN OPTIMUM CONSTANT COOLANT TEMPERATURE AS RECOMMENDED BY ENGINE MANUFACTURER.

6. DUCT FLANGE: GENERATOR SETS INSTALLED INDOORS SHALL BE PROVIDED WITH A FLEXIBLE RADIATOR DUCT ADAPTER FLANGE.

I. MUFFLERS/SILENCER: SELECTED WITH PERFORMANCE AS REQUIRED TO MEET SOUND REQUIREMENTS OF THE APPLICATION, SIZED AS RECOMMENDED BY ENGINE MANUFACTURER AND SELECTED WITH EXHAUST PIPING SYSTEM TO NOT EXCEED ENGINE MANUFACTURER'S ENGINE BACKPRESSURE REQUIREMENTS. FOR GENERATOR SETS WITH OUTDOOR ENCLOSURES THE SILENCER SHALL BE INSIDE THE ENCLOSURE.

J. AIR-INTAKE FILTER: ENGINE-MOUNTED AIR CLEANER WITH REPLACEABLE DRY-FILTER ELEMENT AND RESTRICTION INDICATOR.

K. STARTING SYSTEM: 12 OR 24V, AS RECOMMENDED BY THE ENGINE MANUFACTURER; ELECTRIC, WITH NEGATIVE GROUND.

L. COMPONENTS: SIZED SO THEY WILL NOT BE DAMAGED DURING A FULL ENGINE-CRANKING CYCLE WITH AMBIENT TEMPERATURE AT MAXIMUM SPECIFIED IN PART 1 "PROJECT CONDITIONS" ARTICLE.

2. CRANKING CYCLE: AS REQUIRED BY NFPA 110 FOR LEVEL 1 SYSTEMS.

3. BATTERY CABLE: SIZE AS RECOMMENDED BY ENGINE MANUFACTURER FOR CABLE LENGTH AS REQUIRED, INCLUDE REQUIRED INTERCONNECTING CONDUCTORS AND CONNECTION ACCESSORIES.

4. BATTERY COMPARTMENT: FACTORY FABRICATED OF METAL WITH ACID-RESISTANT FINISH.

5. BATTERY-CHARGING ALTERNATOR: FACTORY MOUNTED ON ENGINE WITH SOLID-STATE VOLTAGE REGULATION. THE BATTERY CHARGING ALTERNATOR SHALL HAVE SUFFICIENT CAPACITY TO RECHARGE THE BATTERIES WITH ALL PARASITIC LOADS COMPLETED WITHIN 4 HOURS AFTER A NORMAL ENGINE STARTING SEQUENCE.

6. BATTERY CHARGERS: UNIT SHALL COMPLY WITH UL 1236, PROVIDE FULLY REGULATED, CONSTANT VOLTAGE, CURRENT LIMITED, BATTERY CHARGER FOR EACH BATTERY BANK. IT WILL INCLUDE THE FOLLOWING FEATURES:

A. OPERATION: EQUALIZING-CHARGING RATE BASED ON GENERATOR SET MANUFACTURER'S RECOMMENDATIONS SHALL BE INITIATED AUTOMATICALLY AFTER BATTERY HAS LOST CHARGE UNTIL AN ADJUSTABLE EQUALIZING VOLTAGE IS ACHIEVED AT BATTERY TERMINALS. UNIT SHALL THEN BE AUTOMATICALLY SWITCHED TO A LOWER FLOAT-CHARGING MODE AND SHALL CONTINUE TO OPERATE IN THAT MODE UNTIL BATTERY IS DISCHARGED AGAIN.

B. AUTOMATIC TEMPERATURE COMPENSATION: ADJUST FLOAT AND EQUALIZE VOLTAGES FOR VARIATIONS IN AMBIENT TEMPERATURE FROM MINUS 20 DEG C TO PLUS 40 DEG C TO PREVENT OVERCHARGING AT HIGH TEMPERATURES AND UNDERCHARGING AT LOW TEMPERATURES.

C. AUTOMATIC VOLTAGE REGULATION: MAINTAIN CONSTANT OUTPUT VOLTAGE REGARDLESS OF INPUT VOLTAGE VARIATIONS UP TO PLUS OR MINUS 10 PERCENT.

D. SAFETY FUNCTIONS: SENSE ABNORMALLY LOW BATTERY VOLTAGE AND CLOSE CONTACTS PROVIDING LOW BATTERY VOLTAGE INDICATION ON CONTROL AND MONITORING PANEL. SENSE HIGH BATTERY VOLTAGE AND LOSS OF AC INPUT OR DC OUTPUT OF BATTERY CHARGER. EITHER CONDITION SHALL CLOSE CONTACTS THAT PROVIDE A BATTERY-CHARGER MALFUNCTION INDICATION AT SYSTEM CONTROL, AND MONITORING PANEL.

E. PROVIDE LOW BATTERY CHARGER CONDITION, INCLUDING CHARGING, FAULTS, AND MODES. PROVIDE A LCD DISPLAY TO INDICATE CHARGE RATE AND BATTERY VOLTAGE. CHARGER SHALL PROVIDE RELAY CONTACTS FOR FAULT CONDITIONS AS REQUIRED BY NFPA10.

F. ENCLOSURE AND MOUNTING: NEMA TYPE 1, WALL-MOUNTED CABINET.

24 FUEL OIL STORAGE

A. COMPLY WITH NFPA 30.

B. SUB BASE-MOUNTED FUEL OIL TANK: PROVIDE A DOUBLE WALL, SECONDARY CONTAINMENT TYPE SUB BASE FUEL STORAGE TANK. THE TANK SHALL BE CONSTRUCTED OF CORROSION RESISTANT STEEL AND SHALL BE UL 142 LISTED AND LABELED. THE FUEL TANK SHALL INCLUDE THE FOLLOWING FEATURES:

1. CAPACITY: 549 GALLONS

2. TANK RAILS AND LIFTING EYES SHALL BE RATED FOR THE FULL DRY WEIGHT OF THE TANK, GENSET, AND ENCLOSURE.

3. ELECTRICAL STUB UPS)

4. NORMAL 4 EMERGENCY VENTS

5. LOCKABLE FUEL FILL

6. MECHANICAL FUEL LEVEL GAUGE

7. HIGH AND LOW LEVEL SWITCHES TO INDICATE FUEL LEVEL

8. LEAK DETECTOR SWITCH

9. SUB BASE TANK SHALL INCLUDE A WELDED STEEL CONTAINMENT BASIN, SIZED AT A MINIMUM OF 120% OF THE TANK CAPACITY TO PREVENT ESCAPE OF FUEL INTO THE ENVIRONMENT IN THE EVENT OF A TANK RUPTURE.

10. FILL PORT WITH OVERFILL PREVENTION VALVE (OPFV)

11. 5 GALLON FILL/FILL DAM OR BUCKET

12. TANK DESIGN SHALL MEET THE REGIONAL REQUIREMENTS FOR THE PROJECT LOCATION

25) CONTROL AND MONITORING

A. ENGINE GENERATOR CONTROL SHALL BE MICROPROCESSOR BASED AND PROVIDE AUTOMATIC STARTING, MONITORING, PROTECTION AND CONTROL FUNCTIONS FOR THE UNIT.

B. AUTOMATIC STARTING SYSTEM SEQUENCE OF OPERATION: WHEN MODE-SELECTOR SWITCH ON THE CONTROL AND MONITORING PANEL IS IN THE AUTOMATIC POSITION, REMOTE-CONTROL, CONTACTS IN ONE OR MORE SEPARATE AUTOMATIC TRANSFER SWITCHES INITIATE STARTING AND STOPPING OF GENERATOR SET. WHEN MODE-SELECTOR SWITCH IS SWITCHED TO THE ON POSITION, GENERATOR SET STARTS. THE OFF POSITION OF SAME SWITCH INITIATES GENERATOR-SET SHUTDOWN. (SWITCHES WITH DIFFERENT CONFIGURATIONS BUT EQUAL FUNCTIONS ARE ACCEPTABLE.) WHEN GENERATOR SET IS RUNNING, SPECIFIED SYSTEM OR EQUIPMENT FAILURES OR DERANGEMENTS AUTOMATICALLY SHUT DOWN GENERATOR SET AND INITIATE ALARMS. OPERATION OF THE LOCAL (GENERATOR SET-MOUNTED) AND/OR REMOTE EMERGENCY-STOP SWITCH ALSO SHUTS DOWN GENERATOR SET.

C. MANUAL STARTING SYSTEM SEQUENCE OF OPERATION: SWITCHING ON-OFF SWITCH ON THE GENERATOR CONTROL PANEL TO THE ON POSITION STARTS GENERATOR SET. THE OFF POSITION OF SAME SWITCH INITIATES GENERATOR-SET SHUTDOWN. WHEN GENERATOR SET IS RUNNING, SPECIFIED SYSTEM OR EQUIPMENT FAILURES OR DERANGEMENTS AUTOMATICALLY SHUT DOWN GENERATOR SET AND INITIATE ALARMS. OPERATION OF THE LOCAL (GENERATOR SET-MOUNTED) AND/OR REMOTE EMERGENCY-STOP SWITCH ALSO SHUTS DOWN GENERATOR SET.

D. CONFIGURATION: OPERATING AND SAFETY INDICATIONS, PROTECTIVE DEVICES, SYSTEM CONTROLS, ENGINE GAGES AND ASSOCIATED EQUIPMENT SHALL BE GROUPED IN A COMMON CONTROL AND MONITORING PANEL. MOUNTING METHOD SHALL ISOLATE THE CONTROL PANEL FROM GENERATOR-SET VIBRATION. AC OUTPUT POWER CIRCUIT BREAKERS AND OTHER OUTPUT POWER EQUIPMENT SHALL NOT BE MOUNTED IN THE CONTROL ENCLOSURE.

E. INDICATING AND PROTECTIVE DEVICES AND CONTROLS: AS REQUIRED BY NFPA 110 FOR LEVEL 1 SYSTEM, AND THE FOLLOWING:
1. AC VOLTMETER (3-PHASE, LINE TO LINE AND LINE TO NEUTRAL VALUES).

2. AC AMPHETER (3-PHASES).

3. AC FREQUENCY METER.

4. AC KW OUTPUT (TOTAL AND FOR EACH PHASE). DISPLAY SHALL INDICATE POWER FLOW DIRECTION.

5. AC KVA OUTPUT (TOTAL AND FOR EACH PHASE). DISPLAY SHALL INDICATE POWER FLOW DIRECTION.

6. AC POWER FACTOR (TOTAL AND FOR EACH PHASE). DISPLAY SHALL INDICATE LEADING OR LAGGING CONDITION.

7. AMPHETER-VOLTMETER DISPLAYS SHALL SIMULTANEOUSLY DISPLAY CONDITIONS FOR ALL THREE PHASES.

8. EMERGENCY STOP SWITCH: SWITCH SHALL BE A RED "MUSHROOM HEAD" PUSHBUTTON DEVICE COMPLETE WITH LOCK-OUT/TAO-OUT PROVISIONS. DEPRESSING SWITCH SHALL CAUSE THE GENERATOR SET TO IMMEDIATELY STOP THE GENERATOR SET AND PREVENT IT FROM OPERATING.

9. FAULT RESET SWITCH: SUPPLY A DEDICATED CONTROL SWITCH TO RESET/CLEAR FAULT CONDITIONS.

10. DC VOLTMETER (ALTERNATOR BATTERY CHARGING).

11. ENGINE-COOLANT TEMPERATURE GAUGE.

12. ENGINE LUBRICATING-OIL PRESSURE GAUGE.

13. RUNNING-TIME METER.

14. GENERATOR-VOLTAGE AND FREQUENCY DIGITAL RAISE/LOWER SWITCHES. REOESTATS FOR THESE FUNCTIONS ARE NOT ACCEPTABLE. THE CONTROL SHALL ADJUSTMENT OF THESE PARAMETERS IN A RANGE OF PLUS OR MINUS 5% OF THE VOLTAGE AND FREQUENCY OPERATING SET POINT (NOT NOMINAL VOLTAGE AND FREQUENCY VALUES). THE VOLTAGE AND FREQUENCY ADJUSTMENT FUNCTIONS SHALL BE DISABLED WHEN THE PARALLELING BREAKER IS CLOSED.

15. FUEL TANK DERANGEMENT ALARM.

16. FUEL TANK HIGH-LEVEL SHUTDOWN OF FUEL SUPPLY ALARM.

17. AC PROTECTIVE EQUIPMENT: THE CONTROL SYSTEM SHALL INCLUDE OVER/UNDER VOLTAGE, REVERSE KW, REVERSE KW OVER LOAD (KW) SHORT CIRCUIT, OVER CURRENT, LOSS OF VOLTAGE REFERENCE, AND OVER EXCITATION SHUT DOWN PROTECTION. THERE SHALL BE A GROUND FAULT ALARM FOR GENERATOR SETS RATED OVER 1000 AMPS, OVERLOAD WARNING, AND OVERCURRENT WARNING ALARM.

18. STATION LED INDICATING LAMPS TO EXISTING REMOTE START SIGNAL PRESENT AT THE CONTROL. EXISTING SHUTDOWN CONDITION, EXISTING ALARM CONDITION, NOT IN AUTO, AND GENERATOR SET RUNNING.

19. A GRAPHICAL DISPLAY PANEL WITH APPROPRIATE NAVIGATION DEVICES SHALL BE PROVIDED TO VIEW ALL INFORMATION NOTED ABOVE, AS WELL AS ALL ENGINE STATUS AND ALARMS/SHUTDOWN CONDITIONS (INCLUDING THOSE FROM AN INTEGRATED ENGINE EMISSION CONTROL SYSTEM). THE DISPLAY SHALL ALSO INCLUDE INTEGRATED PROVISIONS FOR ADJUSTMENT OF THE GAIN AND STABILITY SETTINGS FOR THE GOVERNING AND VOLTAGE REGULATION SYSTEMS.

20. PANEL LIGHTING SYSTEM TO ALLOW VIEWING AND OPERATION OF THE CONTROL WHEN THE GENERATOR ROOM OR ENCLOSURE IS NOT LIGHTED.

21. DATA LOGGING: THE CONTROL SYSTEM SHALL LOG THE LATEST 20 DIFFERENT ALARM AND SHUTDOWN CONDITIONS. THE TOTAL NUMBER OF TIMES EACH ALARM OR SHUTDOWN HAS OCCURRED, AND THE DATE AND TIME THE LATEST OF THESE SHUTDOWN AND FAULT CONDITIONS OCCURRED.

22. DC CONTROL POWER MONITORING: THE CONTROL SYSTEM SHALL CONTINUOUSLY MONITOR DC POWER SUPPLY TO THE CONTROL, AND ANNUNCIATE LOW OR HIGH VOLTAGE CONDITIONS. IT SHALL ALSO PROVIDE AN ALARM INDICATING IMMINENT FAILURE OF THE BATTERY BANK BASED ON DEGRADED VOLTAGE RECOVER ON LOADING (ENGINE CRANKING).

F. CONTROL HEATER: GENERATOR SETS THAT ARE INSTALLED IN OUTDOOR ENCLOSURES, OR ARE IN TROPICAL OR COASTAL ENVIRONMENTS SHALL BE PROVIDED WITH CONTROL HEATERS FOR ANTI-CONDENSATION PROTECTION.

G. COMMON REMOTE AUDIBLE ALARM: COMPLY WITH NFPA 110 REQUIREMENTS FOR LEVEL 1 SYSTEMS. INCLUDE NECESSARY CONTACTS AND TERMINALS IN CONTROL AND MONITORING PANEL.

1. OVERCRANK SHUTDOWN.

2. COOLANT LOW-TEMPERATURE ALARM.

3. CONTROL SWITCH NOT IN AUTO POSITION.

4. BATTERY-CHARGER MALFUNCTION ALARM.

5. BATTERY LOW-VOLTAGE ALARM.

H. REMOTE ALARM ANNUNCIATOR: COMPLY WITH NFPA 110, AN LED LABELED WITH PROPER ALARM CONDITIONS SHALL IDENTIFY EACH ALARM EVENT AND A COMMON AUDIBLE SIGNAL SHALL SOUND FOR EACH ALARM CONDITION.

I. REMOTE EMERGENCY-STOP SWITCH: FLUSH MOUNTED, UNLESS OTHERWISE INDICATED, AND LABELED. PUSH BUTTON SHALL BE PROTECTED FROM ACCIDENTAL OPERATION.

26) GENERATOR OVERCURRENT AND FAULT PROTECTION

A. GENERATOR OVERCURRENT PROTECTION: THE GENERATOR SET SHALL BE PROVIDED WITH A UL LISTED/CSA CERTIFIED PROTECTIVE DEVICE THAT IS COORDINATED WITH THE ALTERNATOR PROVIDED TO PREVENT DAMAGE TO THE GENERATOR SET ON ANY POSSIBLE OVERLOAD OR OVERCURRENT CONDITION EXTERNAL TO THE MACHINE. THE PROTECTIVE DEVICE SHALL BE LISTED AS A UTILITY GRADE PROTECTIVE DEVICE UNDER UL CATEGORY NRGUL. THE CONTROL SYSTEM SHALL BE SUBJECT TO UL FOLLOW-UP SERVICE AT THE MANUFACTURING LOCATION TO VERIFY THAT THE PROTECTIVE SYSTEM IS FULLY OPERATIONAL AS MANUFACTURED. PROTECTOR SHALL PERFORM THE FOLLOWING FUNCTIONS:

1. INITIATES A GENERATOR KW OVERLOAD ALARM WHEN GENERATOR HAS OPERATED AT AN OVERLOAD EQUIVALENT TO 110 PERCENT OF FULL-RATED LOAD FOR 60 SECONDS. INDICATION FOR THIS ALARM IS INTEGRATED WITH OTHER GENERATOR-SET MALFUNCTION ALARMS.

2. UNDER SINGLE PHASE OR MULTIPLE PHASE FAULT CONDITIONS, OR ON OVERLOAD CONDITIONS, INDICATES AN ALARM CONDITION WHEN THE CURRENT FLOW IS IN EXCESS OF 100% OF RATED CURRENT FOR MORE THAN 10 SECONDS.

3. UNDER SINGLE PHASE OR MULTIPLE PHASE FAULT CONDITIONS, OPERATES TO SWITCH OFF ALTERNATOR EXCITATION AT THE APPROPRIATE TIME TO PREVENT DAMAGE TO THE ALTERNATOR.

4. THE OPERATOR PANEL SHALL INDICATE THE NATURE OF THE FAULT CONDITION AS EITHER A SHORT CIRCUIT OR AN OVERLOAD.

5. SENSES CLEARING OF A FAULT BY OTHER OVERCURRENT DEVICES AND CONTROLS RECOVERY OF RATED VOLTAGE TO AVOID OVERSHOOT GREATER THAN 10% OF NOMINAL VOLTAGE.

6. THE PROTECTIVE SYSTEM PROVIDED SHALL NOT INCLUDE AN INSTANTANEOUS TRIP FUNCTION.

B. GROUND-FAULT INDICATION: COMPLY WITH NFPA 110, "EMERGENCY SYSTEM" SIGNALS FOR GROUND-FAULT. INTEGRATE GROUND-FAULT ALARM INDICATION WITH OTHER GENERATOR-SET ALARM INDICATIONS.

27) GENERATOR EXCITER AND VOLTAGE REGULATOR

A. COMPLY WITH NEMA MG 1.

B. DRIVE: GENERATOR SHAFT SHALL BE DIRECTLY CONNECTED TO ENGINE SHAFT.

EXCITER SHAFT BE ROTATED INTEGRALLY WITH GENERATOR ROTOR.

C. ELECTRICAL INSULATION: CLASS H.

D. TEMPERATURE RISE: 80 / CLASS B ENVIRONMENT.

E. CONSTRUCTION SHALL PREVENT MECHANICAL, ELECTRICAL, AND THERMAL DAMAGE DUE TO VIBRATION, OVER SPEED UP TO 10% PERCENT OF RATING, AND HEAT DURING OPERATION AT 110 PERCENT OF RATED CAPACITY.

F. PERMANENT MAGNET GENERATOR (PMG) SHALL PROVIDE EXCITATION POWER FOR OPTIMUM MOTOR STARTING AND SHORT CIRCUIT PERFORMANCE.

G. ENCLOSURE: DRIP-PROOF.

INFORMATION NO LONGER APPLICABLE
AS GENERATOR IS NOW IN DEDICATED
BUILDING

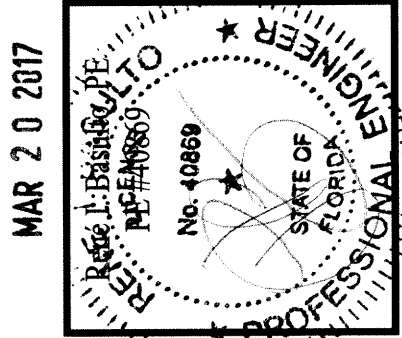
GENERATOR ENCLOSURE SPECIFICATION

- 10 RESPONSIBILITY
11. MANUFACTURER
- 11.1. IT SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER TO ASSEMBLE THE ENCLOSURE PACKAGE AT THE MANUFACTURING PLANT.
- 11.2. A MANUFACTURER'S PROPOSED GENERATOR ENCLOSURE SHALL MEET THE FULL INTENT OF THESE SPECIFICATIONS WITH REGARDS TO MATERIALS AND CONSTRUCTION. THE ENGINEER AND OWNER WILL DETERMINE IF THE PROPOSED ENCLOSURE CONFORMS TO THESE SPECIFICATIONS. THE CONTRACTOR SHALL INCLUDE AS PART OF HIS BID, A COMPLETE GENERATOR ENCLOSURE SHOP DRAWING SUBMITTAL FOR OWNER/ENGINEER EVALUATION.
12. INSTALLER
- 12.1. THE INSTALLING CONTRACTOR SHALL COORDINATE THE DELIVERY AND SITE INSTALLATION OF THE EQUIPMENT.
- 12.2. DUE TO THE PHYSICAL SIZE OF THE EQUIPMENT, IT MAY BE NECESSARY TO SHIP THE GENERATOR SET, ENCLOSURE, SUB-BASE TANK, AND ENCLOSURE INTAKE AND DISCHARGE AIR FLENNING AND HOODS AS SEPARATE ITEMS. THE INSTALLING CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER'S TECHNICAL REPRESENTATIVES TO ASSEMBLE AND INSTALL ANY SEPARATE ITEMS AT THE SITE.
- 20 CODES GOVERNING ENCLOSURE CONSTRUCTION AND INSTALLATION
21. UL PUBLICATIONS, UL 2200, STANDARD FOR SAFETY STATIONARY ENGINE GENERATOR ASSEMBLIES, UNDERWRITERS LABORATORIES, INC, 333 FIFTH STREET, NORTH BROOMFIELD, IL 60062-2036.
22. NFPA PUBLICATIONS, ANSI/NFPA 70: NATIONAL ELECTRIC CODE® (NEC) NATIONAL FIRE PROTECTION ASSOCIATION, 1 BATTERY MARCH PARK, QUINCY, MA 02269-1471.
23. FBC: FLORIDA BUILDING CODE, DEPARTMENT OF COMMUNITY AFFAIRS - FLORIDA BUILDING CODE ONLINE CODES AND STANDARDS, 2555 SHUMARD OAK BOULEVARD, TALLAHASSEE, FL 32399-2100.
24. OSHA PUBLICATIONS: 29 CFR PART 1910, U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION, 200 CONSTITUTION AVENUE, WASHINGTON, DC, 20210.
- 30 ENCLOSURE LABELING REQUIREMENTS
31. THE ENCLOSURE SHALL BE LISTED AND LABELED AS FOLLOWS:
- 31.1. ENCLOSURE SHALL BE LISTED AS MANUFACTURED BY A VENDOR APPROVED BY THE FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS TO MANUFACTURE ENCLOSURES THAT MEET THE HURRICANE MISSILE IMPACT RESISTANCE REQUIREMENTS OF THE CURRENT EDITION OF THE BUILDING CODE.
- 40 DESIGN CRITERIA
41. PRODUCT SHALL BE DESIGNED AS WALK-IN TYPE, WEATHER PROTECTED, AND ALUMINUM SOUND ATTENUATED ENCLOSURE. IT SHALL COMPLETELY ENCLOSE THE GENERATOR SET AND ASSOCIATED AUXILIARY EQUIPMENT.
42. THE ENCLOSURE SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF FLORIDA, TO BE DESIGNED AND CONSTRUCTED TO WITHSTAND 200MPH WIND LOAD PER ASCE 7-10. CONSTRUCTION SHALL HAVE PASSED THIRD PARTY TESTING NECESSARY TO MEET THE MISSILE IMPACT REQUIREMENTS OF FBC SECTIONS 418 AND 1626.2 - 1626.4.
- 42.1. PRIOR TO SITE DELIVERY, THE RESIDENT ENGINEER SHALL BE PROVIDED WITH SIX ORIGINALS AND SIX COPIES OF THE PE-STAMPED/CERTIFIED WIND LOAD CALCULATIONS AND REPORT, AS WELL AS DRAWINGS INDICATING COMPLIANCE FOR THE SPECIFIC ENCLOSURE. MANUFACTURER'S ENCLOSURE DRAWINGS SHALL INCLUDE DESIGN AND CONSTRUCTION COMPLIANCE, WIND LOAD RATING, AND COMPLIANCE WITH SPECIFIED FBC SECTIONS.
43. ENCLOSURE SHALL BE DESIGNED TO ADEQUATELY ACCOMMODATE GENERATOR AND APPLICABLE WALK-IN WORKING SPACE FOR OPERATION AND MAINTENANCE PURPOSES IN ACCORDANCE WITH NEC, NFPA, AND OSHA REQUIREMENTS.
- 43.1. MINIMUM WALK-AROUND SPACE OF 24" SHALL BE PROVIDED ON EACH SIDE OF GENERATOR SET FRAME RAIL.
- 43.2. AT THE REAR, A MINIMUM 36" OF NEC CLEARANCE SHALL BE PROVIDED BEHIND THE GENERATOR CONTROL PANEL.
44. ENCLOSURE CONSTRUCTION
- 44.1. ENCLOSURE SHALL INCLUDE INDIVIDUAL COMPONENTS GENERALLY CONSISTING OF A ROOF, TWO SIDE WALLS AND TWO END WALLS OF FORMED ALUMINUM, ENCLOSURE MOUNTED INTAKE AND DISCHARGE AIR ACOUSTIC HOODS OR FLENNING, AND NON-ASBESTOS ACOUSTICAL INSULATION AND SECUREMENT LININGS. ALL ATTACHING HARDWARE SHALL BE STAINLESS STEEL.
- 44.2. ENCLOSURE ROOF
- 44.2.1. ENCLOSURE ROOF SHALL BE CONSTRUCTED OF 5052 MARINE GRADE, MILL FINISH, INTERLOCKING-TYPE FORMED ALUMINUM PANELS OF MINIMUM 0.025" THICKNESS.
- 44.2.2. A WEATHERPROOF MASTIC / SEALANT SHALL BE USED ALONG THE ROOF PERIMETER AND ANY ROOF SKIN JOINTS.
- 44.2.3. THE ROOF RAIL PERIMETER SHALL HAVE TWO ROOF LIFTING RINGS INTERNALLY INSTALLED ON EACH SIDE, PROVIDING A TOTAL OF FOUR POINTS FOR LIFTING OF THE COMPLETE ENCLOSURE. EACH RING SHALL HAVE A LIFTING CAPACITY OF 10,000 LBS.
- 44.2.4. ALL EXTERNAL ROOF HARDWARE SHALL BE STAINLESS STEEL SCREW TYPE MECHANICAL FASTENER WITH NEOPRENE WATERTIGHT WASHERS.
- 44.2.5. ROOF SHALL BE DESIGNED AND BUILT TO WITHSTAND LOAD OF 15 POUNDS PER SQUARE FOOT.
- 44.2.6. ROOF SHALL INCORPORATE AN ALUMINUM OR STAINLESS STEEL RAIN COLLAR AND RAIN SHIELD FOR THE GENERATOR EXHAUST SILENCER PIPING. THESE SHALL BE INSTALLED AT THE ROOF PENETRATION POINT TO PREVENT THE ENTRY OF RAINWATER INTO THE ENCLOSURE, AS WELL AS ALLOW FOR EXPANSION AND VIBRATION OF THE EXHAUST PIPING WITHOUT STRESS TO THE EXHAUST SYSTEM.
- 44.2.7. RAIN COLLARS AND SHIELDS SHALL BE FURNISHED FOR ALL SUB-BASE TANK VENTS THAT PENETRATE THE ENCLOSURE ROOF.
- 44.2.8. ROOF INTERIOR SHALL CONTAIN NON-ASBESTOS THERMAL ACOUSTIC INSULATION WITH FIRE-RETARDANT PROPERTIES. THE INSULATION SHALL BE COMPLETELY COVERED BY MILL FINISH 0.025" PERFORATED ALUMINUM LINING SECURED TO THE ENCLOSURE INTERIOR.
- 44.2.9. WHEN THE INSTALLED HEADROOM ABOVE THE RADIATOR IS LESS THAN 24", A BECKSON DECKPLATE FOR RADIATOR FILL ACCESS SHALL BE INSTALLED, CENTERED ABOVE EACH RADIATOR FILL PORT. DECKPLATE SHALL BE SEALED TO ROOF PANELS TO PREVENT WATER PENETRATION.
- 44.3. ENCLOSURE WALLS
- 44.3.1. ENCLOSURE WALLS SHALL BE CONSTRUCTED OF FORMED 5052 MARINE GRADE, MILL FINISH INTERLOCKING TYPE FORMED ALUMINUM PANELS OF MINIMUM 0.025" THICKNESS.
- 44.3.2. ALL INTERIOR SIDEWALLS SHALL CONTAIN NON-ASBESTOS THERMAL ACOUSTIC INSULATION WITH FIRE-RETARDANT PROPERTIES. THE INSULATION SHALL BE COMPLETELY COVERED BY MILL FINISH 0.025" PERFORATED ALUMINUM LINING SECURED TO THE ENCLOSURE INTERIOR.
- 44.3.3. ALL ATTACHING HARDWARE SHALL BE STAINLESS STEEL SCREW TYPE MECHANICAL FASTENER.

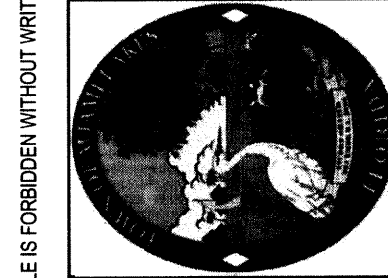
- 4.4.4. ENCLOSURE AIR TREATMENT
- 4.4.4.1. AIR INTAKE
- 4.4.4.1.1. AIR SHALL ENTER THE ENGINE ROOM THROUGH THE UNDERSIDE OF AN OVERHANGING HOOD EQUIPPED WITH PUNCHED ALUMINUM PANELS. THE PANELS SHALL HAVE NO MORE THAN A 20% REDUCTION IN FREE AREA AT THE OPENING IN ORDER TO PREVENT ENTRY OF PARTICLES EXCEEDING 1" DIAMETER. THE AIR INTAKE SHALL BE DESIGNED AND CONSTRUCTED TO MINIMIZE WATER PENETRATION INTO THE ENCLOSURE DURING HEAVY RAINFALL.
- 4.4.4.1.2. THE INTAKE SHALL BE SIZED ACCORDING TO THE GENERATOR'S AIRFLOW REQUIREMENTS TO ENCOMPASS COMBUSTION AIR AND RADIATOR COOLING AIR, TO REDUCE THE ENTRY OF WATER, AIRFLOW VELOCITY SHALL NOT EXCEED 1250 FPM.
- 4.4.4.2. AIR DISCHARGE
- 4.4.4.2.1. DISCHARGE AIR SHALL BE EXPELLED FROM THE ENGINE ROOM THROUGH ALUMINUM GRAVITY-OPERATED DAMPERS WITH COUNTERBALANCE WEIGHTS.
- 4.4.4.2.2. DISCHARGE AIR SHALL BE TURNED 90° AND EXIT THE ENCLOSURE THROUGH A DISCHARGE FLENNING SIZED ACCORDING TO THE GENERATOR'S AIRFLOW REQUIREMENTS TO ENCOMPASS RADIATOR COOLING AIR. THE TOP OF THE DISCHARGE FLENNING SHALL BE EQUIPPED WITH AN ALUMINUM BAR GRATE COVER THAT ALLOWS PROPER AIRFLOW AND PASSES ALL THIRD PARTY TESTING NECESSARY TO MEET THE MISSILE IMPACT REQUIREMENTS OF FBC SECTIONS 418 AND 1626.2 - 1626.4.
- 4.4.4.2.3. DISCHARGE AIR SHALL BE DUCTED TO THE ENGINE ROOM DISCHARGE WALL WITH AN ADAPTER CONSTRUCTED OF HEAVY NEOPRENE.
- 4.4.4.2.4. THE AIR DISCHARGE FLENNING SHALL BE FURNISHED WITH A TURNING VANE WITH WATER COLLECTION BASIN AND BOTTOM DRAIN EXTENSION LINES FOR THE REMOVAL OF RAINWATER FROM THE FLENNING.
- 4.4.4.2.5. THE COMBINED AIR INLET AND DISCHARGE SYSTEM SHALL BE DESIGNED TO MAINTAIN A COMBINED TOTAL STATIC PRESSURE RESTRICTION OF NO MORE THAN 2% OF WATER GAUGE THROUGH THE ENCLOSURE WITH THE GENERATOR SET OPERATING AT FULL RATED LOAD AND DUTY.
- 4.4.5. ENCLOSURE DOORS
- 4.4.5.1. TWO PERSONNEL DOORS SHALL BE INSTALLED ON EITHER SIDE OF THE ENCLOSURE, FOR A TOTAL OF FOUR ACCESS DOORS. DOORS SHALL BE 36" X 80".
- 4.4.5.2. ALL DOORS SHALL BE CONSTRUCTED OF 0.025" THICK 5052 MILL FINISH ALUMINUM WITH A CONTINUOUS PIANO HINGE OF OPEN WIDTH 15" AND A 1/2" DIAMETER STAINLESS STEEL HINGE PIN.
- 4.4.5.3. DOORS SHALL BE INSTALLED INTO 0.025" MILL FINISH ALUMINUM FRAMES WITH COMPRESSIBLE WEATHER-STRIPPING.
- 4.4.5.4. THE DOORS SHALL BE EQUIPPED WITH COMMERCIALY AVAILABLE THREE-POINT LATCHING PANIC-PUSH BAR ASSEMBLIES WITH KEY-LOCKABLE EXTERIOR HANDLE. LATCHING ASSEMBLY SHALL BE A MIAMI-DADE APPROVED PRODUCT.
- 4.4.5.5. EACH DOOR SHALL INCLUDE PNEUMATIC SUING-LIMITING HARDWARE.
- 4.4.5.6. DOOR HANDLE STRIKE PLATES SHALL BE INCLUDED ON ENCLOSURE WALLS ADJACENT TO THE DOOR TO PROVIDE IMPACT PROTECTION FROM THE DOOR HANDLE.
- 4.4.5.7. DRIP RAILS SHALL BE MOUNTED OVER EACH DOOR.
- 4.4.6. ENCLOSURE FITTINGS
- 4.4.6.1. OIL AND WATER DRAINS SHALL BE EXTENDED TO THE EXTERIOR, LUGGED AND LABELED. A 1/2-GAUGE STAINLESS STEEL FITTING PLATE WITH 1/2" STAINLESS STEEL COUPLING SHALL BE AFFIXED AT THE ENCLOSURE WALL PASS-THROUGH.
- 4.4.6.2. FUMES EXHAUST DISPOSAL TUBE SHALL TERMINATE INTO EXTERIOR RADIATOR EXHAUST FLENNING WALL. A STAINLESS STEEL FITTING PLATE WITH STAINLESS STEEL FITE SIZED FOR ENGINE REQUIREMENT SHALL BE AFFIXED AT THE ENCLOSURE WALL PASS-THROUGH.
- 4.4.7. ENCLOSURE ACCESS
- 4.4.7.1. THE MANUFACTURER SHALL FURNISH GALVANIZED STEEL STAIRWAYS AND PLATFORMS FOR PERSONNEL ACCESS TO EACH OF THE GENERATOR ENCLOSURE DOORS.
- 4.4.7.2. THE STAIRS AND PLATFORMS SHALL INCLUDE HANDRAILS IN COMPLIANCE WITH OSHA REGULATIONS.
- 4.4.7.3. THE GENERATOR VENDOR SHALL COORDINATE WITH THE INSTALLING CONTRACTOR FOR STAIR/PLATFORM INSTALLATION LOCATIONS AND PROVIDE DETAILS FOR ALL ANCHORING/MOUNTING POINTS.
- 4.4.7.4. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING CONCRETE FOUNDATIONS FOR THE STAIR/PLATFORM ASSEMBLIES, AS WELL AS INSTALLING AND ANCHORING THE ASSEMBLIES ON-SITE AS COORDINATED WITH THE SITE ENGINEER AND GENERATOR VENDOR.
- 4.5. ENCLOSURE SOUND-ATTENUATING PERFORMANCE
- 4.5.1. THE PUBLISHED COMBINED ENGINE AND EXHAUST SOURCE SOUND LEVEL SHALL BE REDUCED BY 25 DBA AT A SEVEN METER DISTANCE IN ANY DIRECTION FROM THE ENCLOSURE, MEASURED IN A FREE FIELD ENVIRONMENT.
- 4.6. ENGINE EXHAUST SYSTEM
- 4.6.1. EXHAUST SYSTEM SHALL NOT EXCEED MAXIMUM BACK PRESSURE LEVELS REQUIRED BY ENGINE MANUFACTURER.
- 4.6.2. THE EXHAUST SILENCER SHALL BE LOCATED ON THE INTERIOR OF THE ENCLOSURE AND SHALL BE CRITICAL GRADE AND INTERNALLY INSULATED.
- 4.6.3. EXHAUST SILENCER SHALL BE CONNECTED TO THE ENGINE USING STAINLESS STEEL FLEXIBLE ELEMENTS OF MINIMUM LENGTH 12" WITH THERMAL INSULATING BLANKETS. EXHAUST SHALL EXIT THE SILENCER THROUGH A SHORT RADIUS CARBON STEEL ELBOW WHICH SHALL PENETRATE A MINIMUM OF 12" ABOVE THE ENCLOSURE ROOF. THE ELBOW SHALL BE THERMALLY INSULATED AND SHALL TERMINATE IN A CORROSION-RESISTANT EXHAUST RAIN CAP.
- 4.7. ELECTRICAL
- 4.7.1. SINGLE-PHASE 120/208V LOAD CENTER NEMA 1 ENCLOSURE WITH 10 KAIC MINIMUM INTERRUPTING CAPACITY SHALL BE PROVIDED AND INSTALLED. THE MAIN CIRCUIT BREAKER SHALL BE SIZED FOR CUSTOMER REQUIRED LOADS.
- 4.7.2. PLUG-IN TYPE BRANCH BREAKERS SHALL BE PROVIDED FOR INDIVIDUAL CIRCUITS, INCLUDING LIGHTS, RECEPTACLES, AND ENGINE AC LOADS.
- 4.8. ENCLOSURE FINISH
- 4.8.1. PREPARATION: ENCLOSURE SHALL BE PREPARED ACCORDING TO 80PC/8PL SURFACE SHALL BE FREE OF DIRT, OIL, AND OTHER FOREIGN MATERIALS.
- 4.8.2. PRIMER COAT: ENCLOSURE SHALL BE PRIMED WITH ONE COAT OF DTM WASH PRIMER TO A THICKNESS OF 0.7-1.3 MILS DFT.
- 4.8.3. FINISH COAT: ENCLOSURE SHALL BE FINISH COATED WITH ALIPHATIC POLYURETHANE TO A THICKNESS OF 3-35 MILS DFT, COLOR TO MATCH EXISTING BUILDING EXTERIOR FINISH. OWNER TO APPROVE FINISH COLOR PRIOR TO FABRICATION.

- 50 TESTING
51. THE ENCLOSURE DESIGN SHALL BE PHYSICALLY TESTED TO DEMONSTRATE COMPLIANCE WITH FBC REQUIREMENTS. TESTING SHALL BE PERFORMED BY A STATE OF FLORIDA APPROVED INDEPENDENT TESTING LABORATORY.
- 60 ENCLOSURE WARRANTY
61. THE ENCLOSURE SHALL BE WARRANTED AGAINST FAILURE IN MATERIAL OR WORKMANSHIP THAT WOULD MAKE THE ENCLOSURE UNUSABLE FOR ITS INTENDED PURPOSE. "FAILURE" ENCOMPASSES STRUCTURAL FAILURES, SUCH AS CRACKING, BREAKUP, AND COLLAPSE. THE MANUFACTURER SHALL REPAIR OR REPLACE THE DEFECTIVE ENCLOSURE DURING NORMAL WORKING HOURS, PROVIDED IT HAS REMAINED AT ITS ORIGINAL DELIVERY POINT. WARRANTY SHALL COMMENCE UPON FINAL ACCEPTANCE BY THE OWNER.

REVISIONS	BY
3 01-09-2015 OWNER REV.	R.I.B.
8 10-25-2016 GEN. BLDG.	R.I.B.



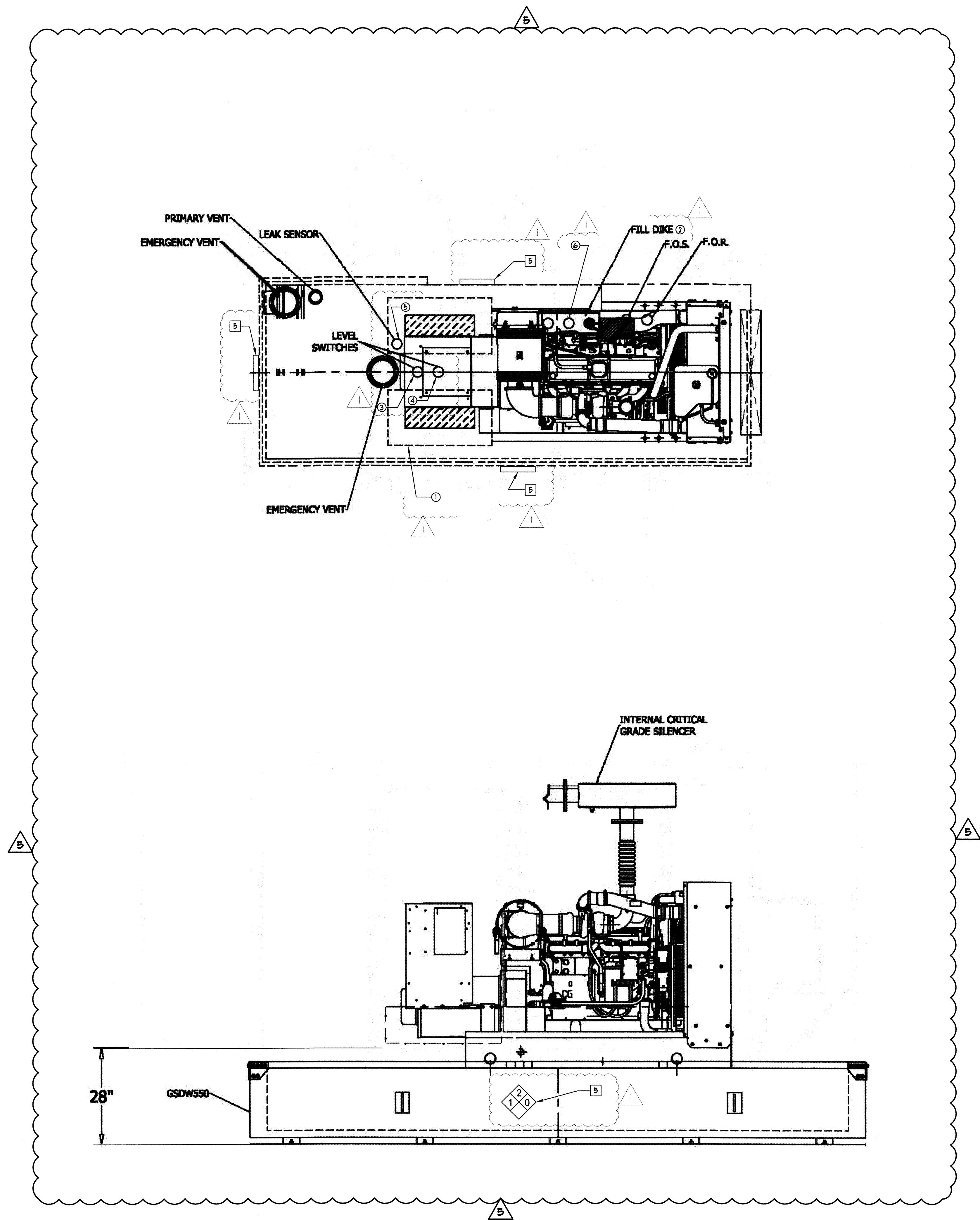
TOWN OF MIAMI LAKES
GOVERNMENT CENTER
GENERATOR INSTALLATION
6601 MAIN STREET, MIAMI LAKES 33016



GENERATOR
ENCLOSURE
SPECIFICATION

BASULTO & ASSOCIATES, INC.
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CHECKED
S.V.
DATE 10-25-2016
SCALE AS SHOWN
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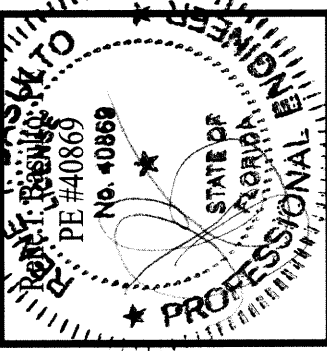


FUEL SPILL PROVISIONS	
THE CONTRACTOR SHALL PROVIDE TO THE OWNER THE FOLLOWING MATERIALS:	
(1) FUEL SPILL KIT (GATOR INTERNATIONAL MSP-58) TO INCLUDE:	
(1) 55 GALLON DRUM	
(1) 30 POUND BAG 'GATOR' OIL ABSORBENT	
(4) 5' x 10' ABSORBENT 'BOOMS'	
(8) 4' x 4' ABSORBENT 'SOCKS'	
(100) ABSORBENT PADS	
(2) DUST MASKS	
(2) PAIRS RUBBER GLOVES	
(2) GOGGLES	
(1) BROOM AND DUST PAN	
(2) DISPOSAL BAGS	
(1) PACKAGE LEAK PLUGS	

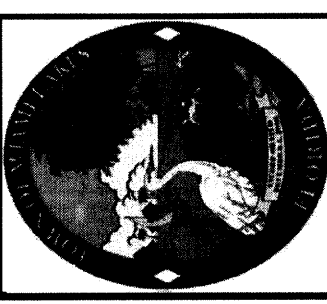
FDEP DIESEL FUEL TANK INFORMATION			
ITEM #	ITEM DESCRIPTION	MANUFACTURER	EQ# NOTES
①	549 GALLON UL 142 DOUBLE WALL STEEL SUB-BASE FUEL TANK	PHOENIX	675
②	SPILL / FILL CONTAINMENT BOX	MORRISON	345
③	HIGH LEVEL FUEL SWITCH	MADISON MT000	682 CONNECTED AS AN INDIVIDUAL POINT TO GENERATOR ANNUNCIATOR PANEL
④	LOW LEVEL FUEL SWITCH	MADISON MT000	682 CONNECTED AS AN INDIVIDUAL POINT TO GENERATOR ANNUNCIATOR PANEL
⑤	FUEL LEAK SWITCH	FINEUMERCATOR L5600LDEN	589 CONNECTED AS AN INDIVIDUAL POINT TO GENERATOR ANNUNCIATOR PANEL
⑥	VISUAL FUEL LEVEL GAUGE	KRUEGER TYPE H	730

- GENERATOR NOTES:**
- ① GENERATOR FUEL SOURCE IS DIESEL
 - ② GENERATOR SOUND LEVELS ARE 14 'DBA' AT 23 FEET (7 METERS)
 - ③ GENERATOR IS NOT CONSIDERED A LIFE SAFETY SYSTEM AS BUILDING EMERGENCY LIGHTING AND FIRE ALARM SYSTEM IS SUPPORTED BY BACK-UP BATTERIES.
 - ④ GENERATOR PER NFPA 110 IS LISTED AS CLASS 40, TYPE 60, LEVEL 2 EMERGENCY POWER SUPPLY SYSTEM.
 - ⑤ PROVIDE NFPA 704 SIGNAGE FOR DIESEL FUEL ON ALL SIDES.
 - ⑥ GENERATOR INSTALLATION SHALL COMPLY WITH NFPA 110, FLORIDA BUILDING CODE AND FLORIDA FIRE PREVENTION CODE.

REVISIONS	BY
12-2-2014 B.D.C.	C.Y.
10-25-2016 GEN. BLDG.	R.I.B.



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6601 MAIN STREET, MIAMI LAKES 33016

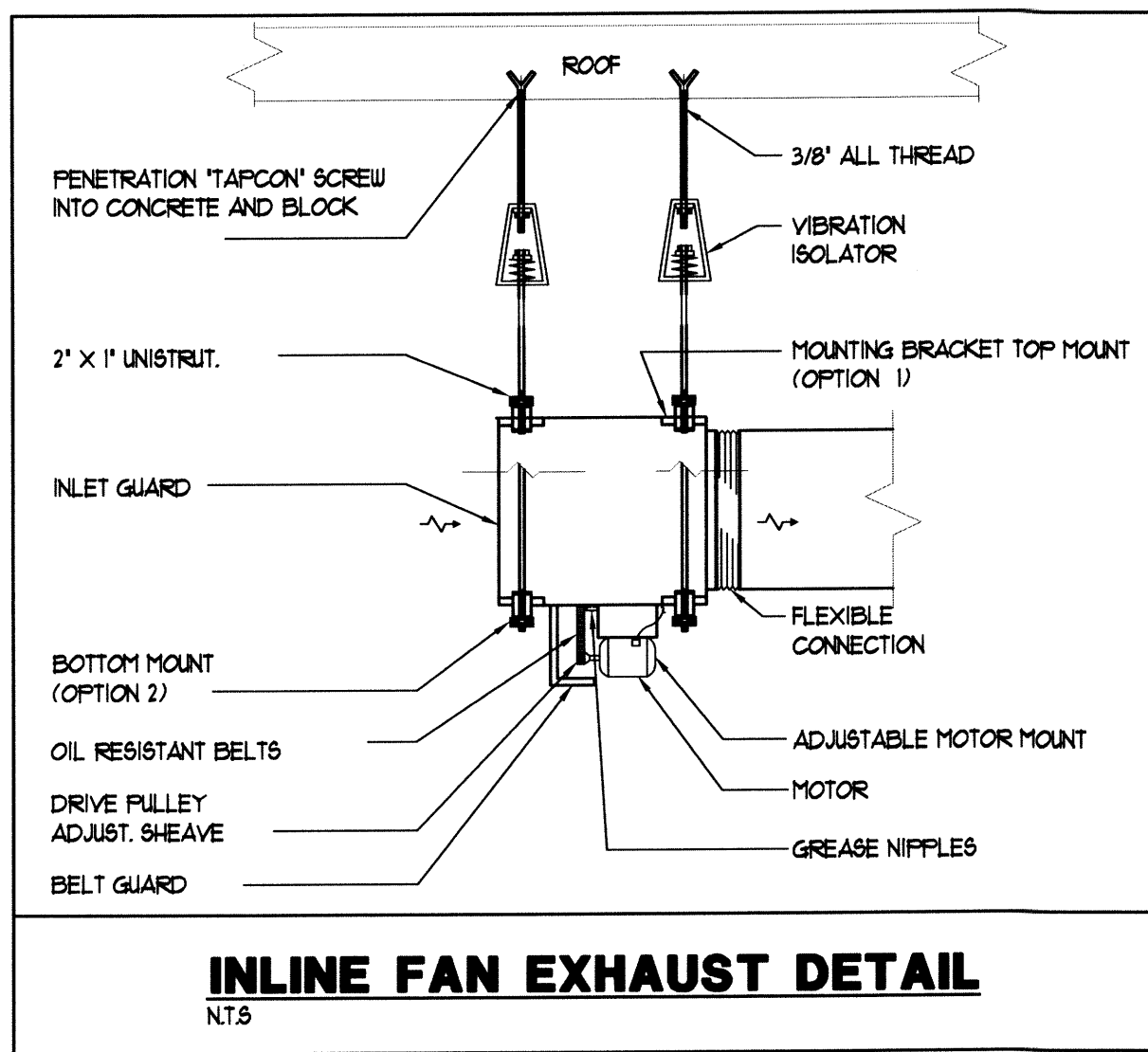


GENERATOR
ENCLOSURE
DETAIL

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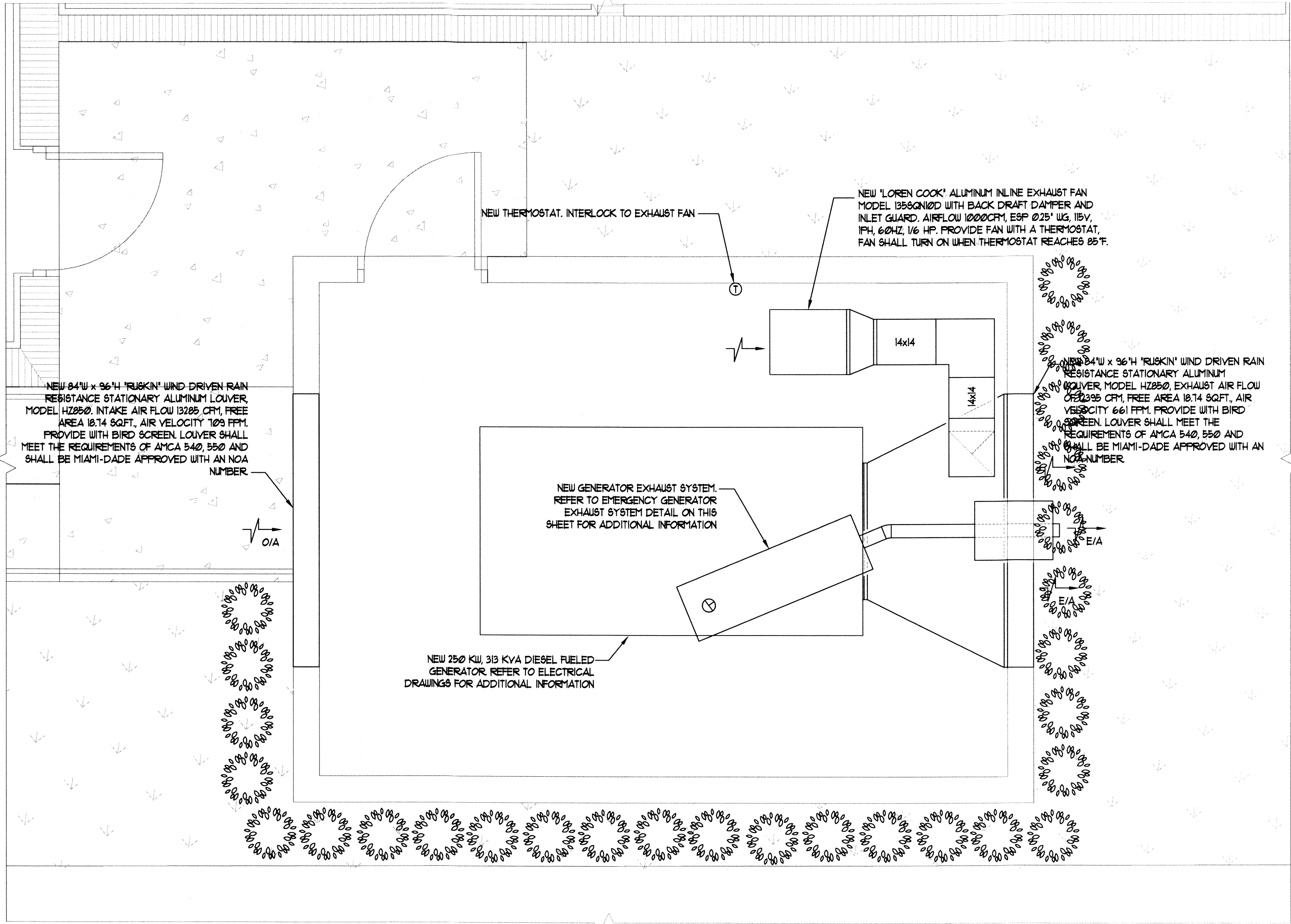
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DATE 10-25-2016
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JOB NO. 14124
SHEET E-7.0
OF SHEETS

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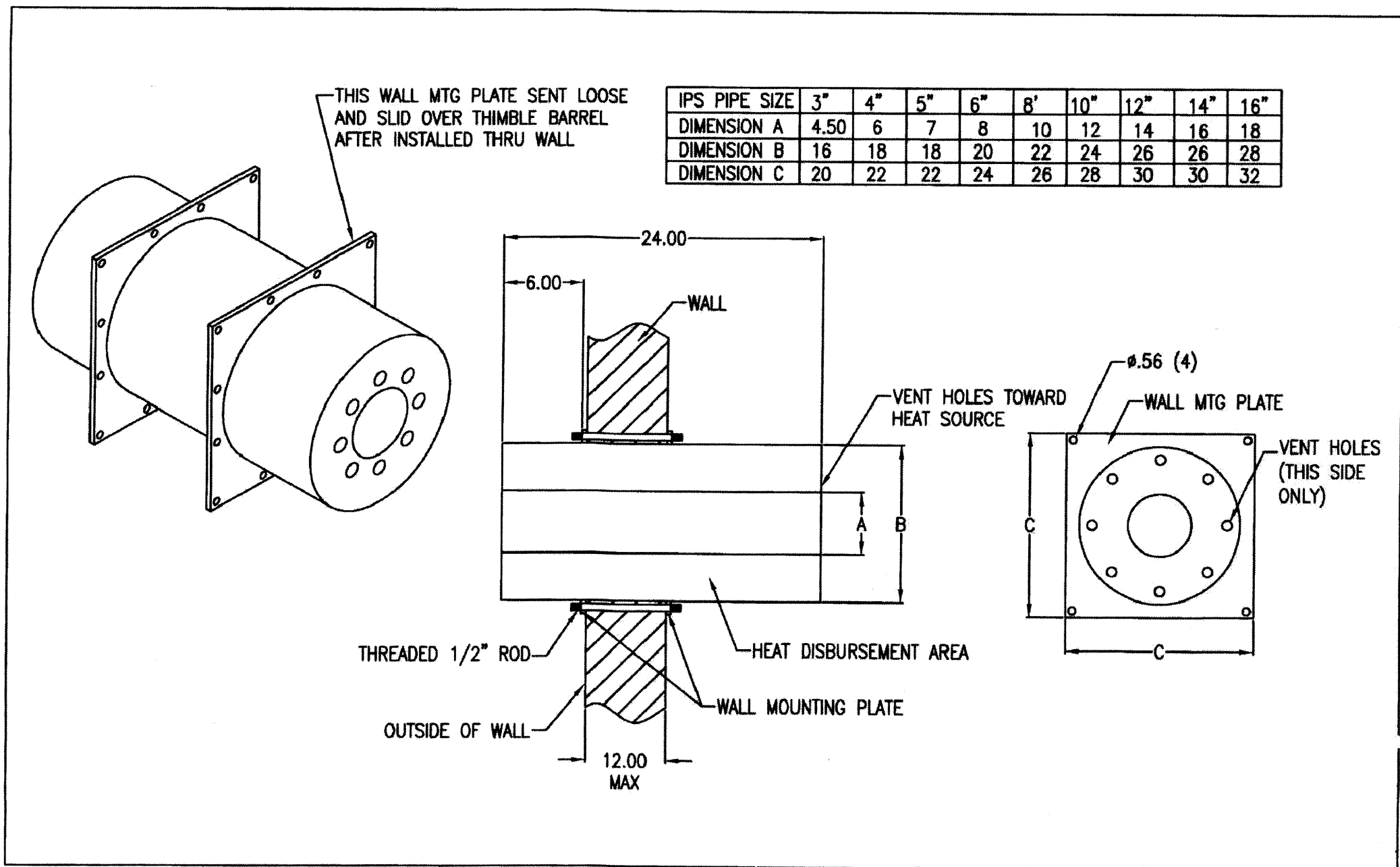
H.V.A.C. GENERAL NOTES:

- THE WORK THAT IS TO BE DONE UNDER THIS HEADING INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, PERMITS, FEES, INSPECTIONS, TEST, INSURANCE, ETC. REQUIRED FOR THE COMPLETION OF THE VENTILATION SYSTEM SHOWN ON THE DRAWINGS AND/OR LISTED BELOW.
- OBTAIN FULL INFORMATION REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF THE EQUIPMENT AND MATERIALS UNDER CONTRACT AND PROVIDE READY ACCESSIBILITY TO DAMPERS, VALVES AND OTHER APPURTENANCES INCLUDING ANY PART OF THE SYSTEM REQUIRED TO BE REACHED FOR BALANCING, TESTING, MAINTENANCE AND OPERATION.
- PLANS ARE GENERALLY DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND ALL PLANS RELATED TO PROJECT SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.
- ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION AND IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS. WORK SHALL ALSO BE COORDINATED WITH STRUCTURE AND AVAILABLE SPACE TO ENSURE FIT AND PROPER CLEARANCES ARE BEING PROVIDED. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT - ENGINEER IMMEDIATELY.
- CUT ALL OPENINGS AND CHASES REQUIRED TO ACCOMMODATE THE WORK UNDER THIS DIVISION, AND REPAIR ALL FLOORS, WALLS, ETC. DAMAGED BY WORK. ALL WORK PERFORMED UNDER THIS HEADING SHALL CONFORM IN EVERY RESPECT TO THE FINISH AND QUALITY OF MATERIALS AND WORKMANSHIP SPECIFIED UNDER APPROPRIATE SECTIONS FOR THE BUILDING.
- SUBMIT SHOP DRAWINGS OF ALL MATERIALS AND EQUIPMENT FOR APPROVAL PRIOR TO FABRICATION. DUCTWORK SHOP DRAWINGS SHALL BE SUBMITTED AT 1/4\"/>



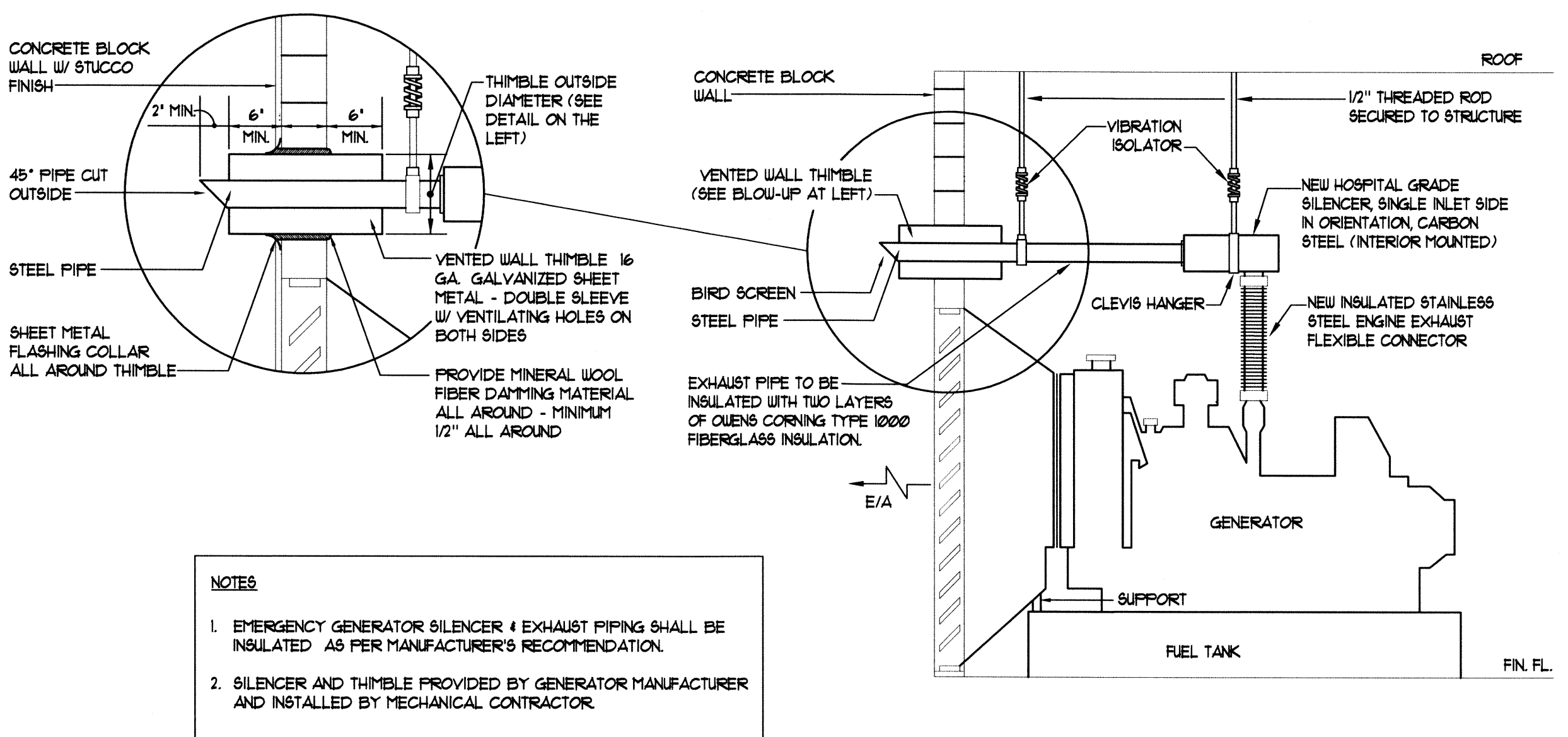
GENERATOR ROOM FLOOR PLAN- MECHANICAL

SCALE: 1/2"=1'-0"

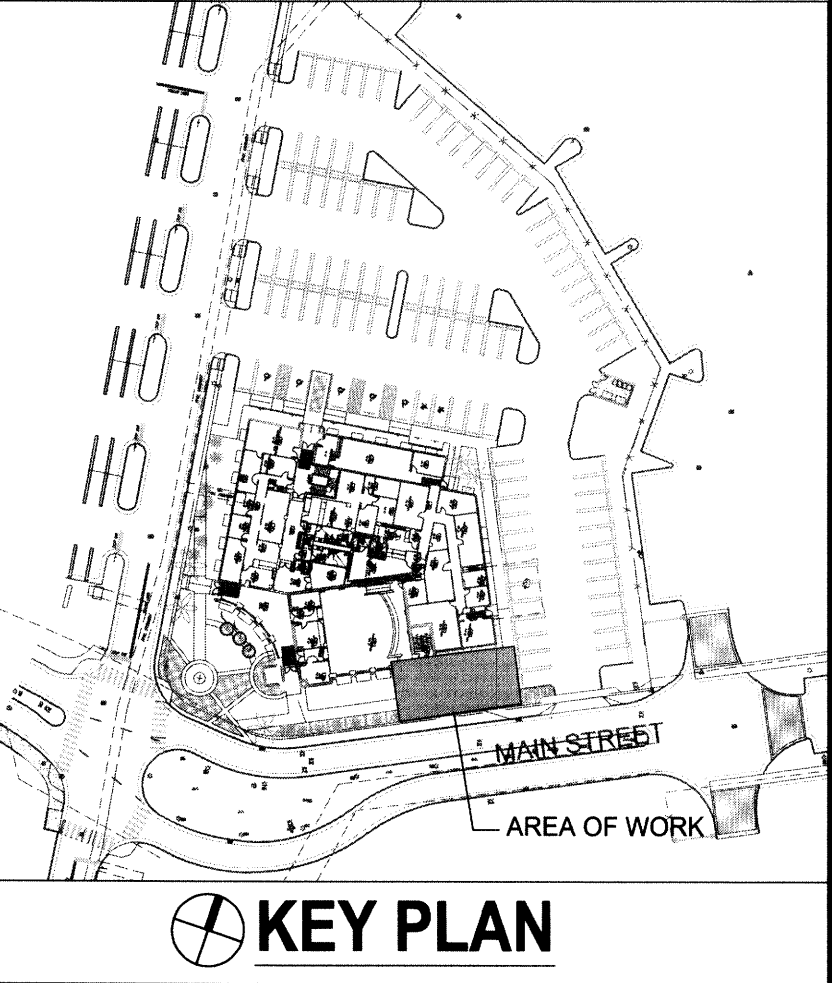


EMERGENCY GENERATOR EXHAUST SYSTEM DETAIL

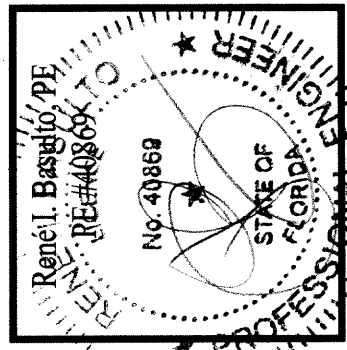
NTS



- NOTES
- EMERGENCY GENERATOR SILENCER & EXHAUST PIPING SHALL BE INSULATED AS PER MANUFACTURER'S RECOMMENDATION.
 - SILENCER AND THIMBLE PROVIDED BY GENERATOR MANUFACTURER AND INSTALLED BY MECHANICAL CONTRACTOR.



REVISIONS	BY



TOWN OF MIAMI LAKES
GOVERNMENT CENTER
GENERATOR INSTALLATION
6601 MAIN STREET, MIAMI LAKES 33016



GENERATOR ROOM
MECHANICAL PLAN,
DETAILS AND NOTES

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SCALE	AS SHOWN
JOB NO.	14124
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EXHIBIT B – Spill Prevention and Response Plan

**Structural Calculations
For the
Generator Building
for the
Town of Miami Lakes Government
Center**

**At
6601 Main Street
Miami Lakes, Florida**

Santiago Aranegui P.E.

6431 SW 145 street
Coral Gables, Florida 33158
Voice: 305.431-6747 Fax: 786-573-3538.

Job No.: 2017-0096

March 7, 2017



**Santiago Aranegui, P.E.
Structural Engineer #48106**

MECAWind Version 2.1.1.0 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright 2017

Date : 3/7/2017
Company Name :
Address :
City :
State :
File Location: C:\Program Files\MECAWind\Default.wnd

Project No. :
Designed By :
Description :
Customer Name :
Proj Location :

Directional Procedure All Heights Building (Ch 27 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of .6

Basic Wind Speed(V)	=	175.00 mph		
Structural Category	=	II	Exposure Category	= C
Natural Frequency	=	N/A	Flexible Structure	= No
Importance Factor	=	1.00	Kd Directional Factor	= 0.85
Damping Ratio (beta)	=	0.01		
Alpha	=	9.50	Zg	= 900.00 ft
At	=	0.11	Bt	= 1.00
Am	=	0.15	Bm	= 0.65
Cc	=	0.20	l	= 500.00 ft
Epsilon	=	0.20	Zmin	= 15.00 ft
Slope of Roof	=	0 : 12	Slope of Roof(Theta)	= .00 Deg
Ht: Mean Roof Ht	=	20.92 ft	Type of Roof	= Monoslope
RHt: Ridge Ht	=	15.00 ft	Eht: Eave Height	= 15.00 ft
OH: Roof Overhang at Eave	=	.00 ft	Roof Area	= 14335 ft^2
Bldg Length Along Ridge	=	19.00 ft	Bldg Width Across Ridge	= 14.00 ft

Gust Factor Category I Rigid Structures - Simplified Method

Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm: $0.6 \cdot H_t$ = 15.00 ft
lzm: $C_c \cdot (33/Z_m)^{0.167}$ = 0.23
Lzm: $1 \cdot (Z_m/33)^{\text{Epsilon}}$ = 427.06 ft
Q: $(1/(1+0.63 \cdot ((B+H_t)/L_{zm})^{0.63}))^{0.5}$ = 0.94
Gust2: $0.925 \cdot ((1+1.7 \cdot l_{zm} \cdot 3.4 \cdot Q)/(1+1.7 \cdot 3.4 \cdot l_{zm}))$ = 0.89

Gust Factor Summary

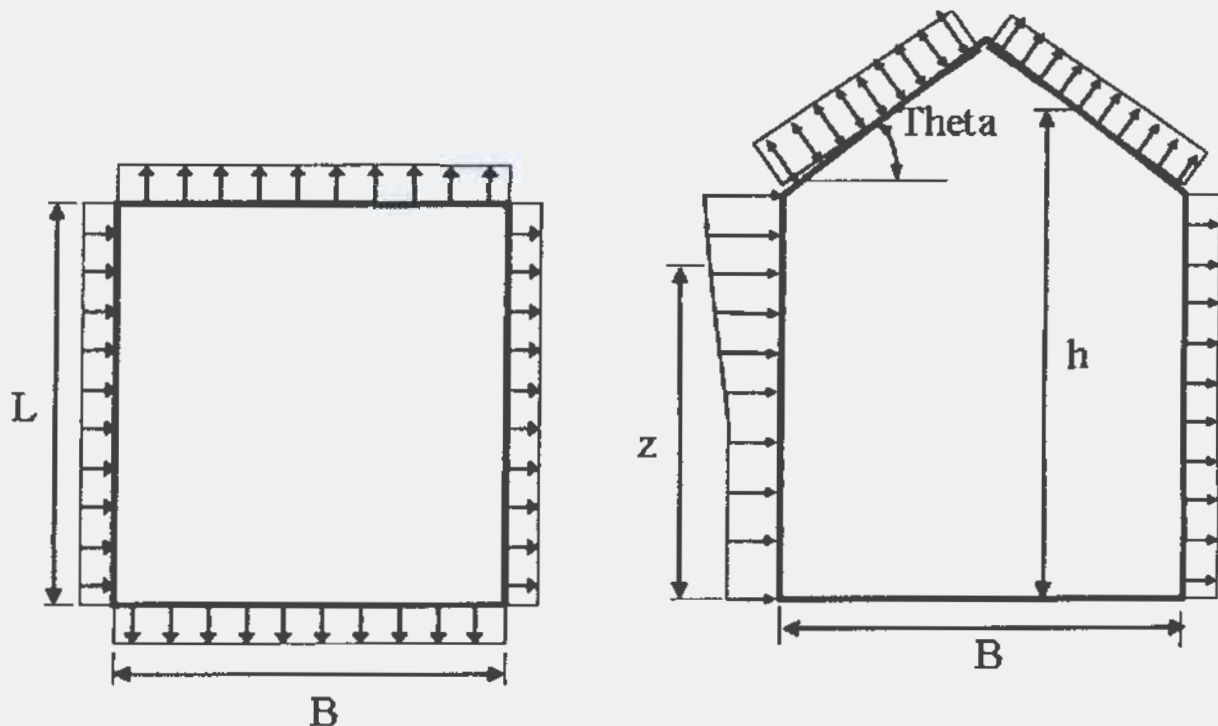
Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCpi : Internal Pressure Coefficient = +/-0.18

Figure 27.4-1. External Pressure Coefficients

Cp - Loads on Main Wind-Force Resisting Systems



$K_h: 2.01 \cdot (H_t/Z_g)^{(2/\alpha)}$ = 0.91
 K_{ht} : Topographic Factor (Figure 6-4) = 1.00
 $Q_h: .00256 \cdot (V)^2 \cdot I \cdot K_h \cdot K_{ht} \cdot K_d$ = 36.40 psf
 C_{pww} : Windward Wall C_p (Ref Fig 6-6) = 0.80
 Roof Area = 14335.00 ft²
 Reduction Factor based on Roof Area = 0.80

MWERS-Wall Pressures for Wind Normal to 19 ft wall (Normal to Ridge)

Wall	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-22.02	-8.92
Side Walls	-0.70	-28.21	-15.11

Wall	Elev ft	K_z	K_{zt}	q_z psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	20.92	0.91	1.00	36.40	18.20	31.31	40.23
Windward	20.00	0.90	1.00	36.06	17.97	31.07	39.99
Windward	10.00	0.85	1.00	33.94	16.53	29.63	38.55

Note: 1) Total = Leeward GCpi + Windward GCpi

Roof - Dist from Windward Edge	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
0.0 ft to 10.5 ft	-1.04	-38.73	-25.63
10.5 ft to 14.0 ft	-0.70	-28.21	-15.11

MWERS-Wall Pressures for Wind Normal to 14 ft wall (Along Ridge)

Wall	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.43	-19.81	-6.71
Side Walls	-0.70	-28.21	-15.11

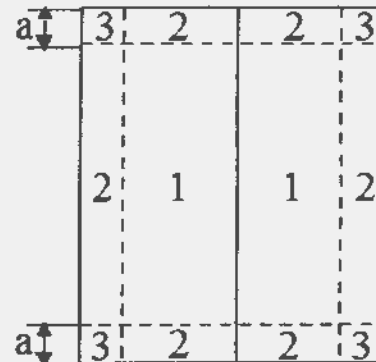
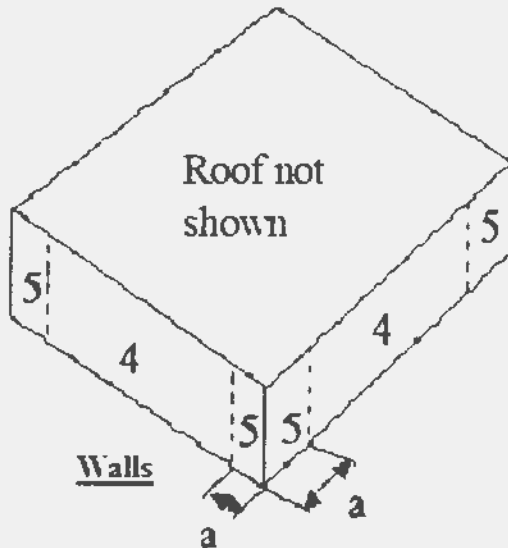
p3: Positive Wall Pressure on Back of Parapet (Zone 4)	=	53.10	psf
p3: Positive Wall Pressure on Back of Parapet (Zone 5)	=	53.10	psf
p4: Negative Wall Pressure on Back of Parapet (Zone 4)	=	-40.07	psf
p4: Negative Wall Pressure on Back of Parapet (Zone 5)	=	-73.44	psf

MECAWind Version 2.1.1.0 ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright 2017

Date : 3/7/2017
 Company Name :
 Address :
 City :
 State :
 File Location: C:\Program Files\MECAWind\Default.wnd

Project No. :
 Designed By :
 Description :
 Customer Name :
 Proj Location :



Gable Roof $\theta \leq 7$

Wind Pressure on Components and Cladding (Ch 30 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of .6

Width of Pressure Coefficient Zone "a" = 3 ft

Description	Width ft	Span ft	Area Zone ft ²	Max GCp	Min GCp	Max P psf	Min P psf
ROOF	2.00	5.00	10.0	0.30	-1.00	17.47	-42.96
ROOF	2.00	5.00	10.0	0.30	-1.80	17.47	-72.08
ROOF	2.00	5.00	10.0	0.30	-2.80	17.47	-108.48
ROOF	2.00	5.00	10.0	0.30	-1.70	16.00	-61.89
ROOF	2.00	5.00	10.0	0.30	-2.80	16.00	-101.93
ROOF	2.00	10.00	33.3	0.25	-0.95	16.00	-41.05
ROOF	2.00	10.00	33.3	0.25	-1.43	16.00	-58.76
ROOF	2.00	10.00	33.3	0.25	-1.91	16.00	-76.12
ROOF	2.00	10.00	33.3	0.25	-1.65	16.00	-59.98
ROOF	2.00	10.00	33.3	0.25	-1.75	16.00	-63.86
ROOF	25.00	2.00	50.0	0.23	-0.93	16.00	-40.41
ROOF	25.00	2.00	50.0	0.23	-1.31	16.00	-54.27
ROOF	25.00	2.00	50.0	0.23	-1.61	16.00	-65.23
ROOF	25.00	2.00	50.0	0.23	-1.63	16.00	-59.34
ROOF	25.00	2.00	50.0	0.23	-1.40	16.00	-51.04
ROOF	25.00	3.00	75.0	0.21	-0.91	16.00	-39.77
ROOF	25.00	3.00	75.0	0.21	-1.19	16.00	-49.78
ROOF	25.00	3.00	75.0	0.21	-1.31	16.00	-54.33
ROOF	25.00	3.00	75.0	0.21	-1.61	16.00	-58.70
ROOF	25.00	3.00	75.0	0.21	-1.05	16.00	-38.22
ROOF	50.00	2.00	100.0	0.20	-0.90	16.00	-39.32
ROOF	50.00	2.00	100.0	0.20	-1.10	16.00	-46.60
ROOF	50.00	2.00	100.0	0.20	-1.10	16.00	-46.60
ROOF	50.00	2.00	100.0	0.20	-1.60	16.00	-58.25
ROOF	50.00	2.00	100.0	0.20	-0.80	16.00	-29.12

WALL	2.00	10.00	33.3	4	0.82	-0.91	36.29	-39.57
WALL	2.00	10.00	33.3	5	0.82	-1.09	36.29	-46.37
WALL	3.00	12.00	48.0	4	0.79	-0.88	35.37	-38.65
WALL	3.00	12.00	48.0	5	0.79	-1.04	35.37	-44.54
WALL	4.00	15.00	75.0	4	0.76	-0.85	34.25	-37.53
WALL	4.00	15.00	75.0	5	0.76	-0.98	34.25	-42.30
ROLL UP DOOR	7.00	8.00	56.0	4	0.78	-0.87	34.99	-38.26
ROLL UP DOOR	7.00	8.00	56.0	5	0.78	-1.02	34.99	-43.76
DOOR	3.00	7.00	21.0	4	0.85	-0.94	37.45	-40.73
DOOR	3.00	7.00	21.0	5	0.85	-1.16	37.45	-48.69

Khcc:Comp. & Clad. Table 6-3 Case 1

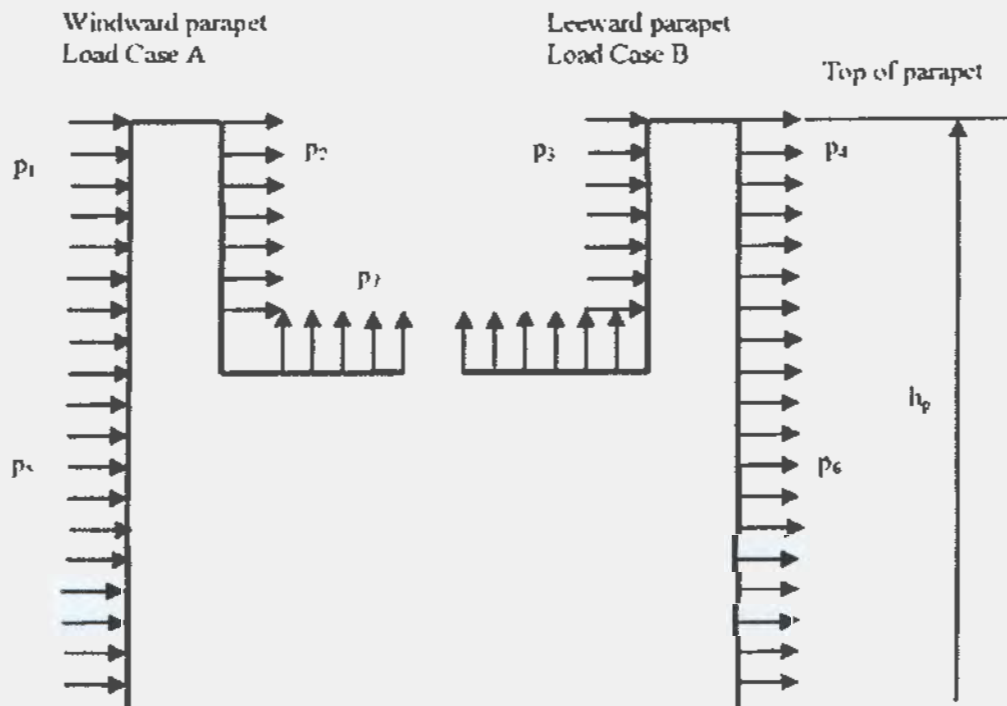
= 0.91

Qhcc:.00256*V^2*Khcc*Kht*Kd

= 36.40 psf

Parapets Components & Cladding (Ch 30 Part 4, Para 30.7.1.2)

Pressures taken from Table 30.7-2 at top of Parapet and multiplied by Exposure Adjustment Factor (EAF = 1.000), Topographic Factor (Kzt = 1.00) and Reduction Factor (RF = 1.0). The effective area for the parapet is 10 sq ft [0.929 sq m] to be conservative, which makes the Reduction Factor 1.



Load Case A - Apply Positive Wall Pressure to Front and negative roof pressure to back.

p1: Positive Wall Pressure on Front of Parapet (Zone 4) = 53.10 psf
p1: Positive Wall Pressure on Front of Parapet (Zone 5) = 53.10 psf

p2: Negative Roof Pressure on Back of Parapet (Zone 2) = -91.98 psf
p2: Negative Roof Pressure on Back of Parapet (Zone 3) = -125.36 psf

Load Case B - Apply Positive Wall Pressure to Back and Negative Wall Pressure to the front.

SANTIAGO ARANEGUI P.E.**ENGINEERS**

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Tel: (305) 431-6747

Fax: (786) 573-3538

JOB

Hurricane

SHEET NO.

OF

PROJECT NO.

CALCULATED BY

DATE

LOADS

$$\begin{array}{rcl} \text{Roof Live Load} & = & 30 \text{ PSF} \times 1.6 = 48 \text{ PSF} \\ \text{Roof Structure DW} & = & 15 \text{ PSF} \times 1.2 = 18 \text{ PSF} \\ \text{Roof S.D.C.} & = & 15 \text{ PSF} \times 1.2 = 18 \text{ PSF} \\ & & \hline & & 120 \text{ PSF} \end{array}$$

Wind Loads: ASCE 7-10

V = 125 KPH / Exposure "C"

$$\text{Analyze Roof Slab. } L_{DN} = 12-8"$$

$$M_u = 15 \text{ KIP} (12.67)^2 / 8 = 31.30 \text{ KIP-FT}$$

(REFER TO FURZALE)

USE 6" CON. SLAB / #5 @ 12" O.C.

 $M_n = 6 \text{ KIP-FT}$

Analyze Masonry Walls:

$$\text{Wall Height} = 12-0"$$

$$\begin{array}{rcl} \text{Wind Pressure} & = & -39.6 \text{ PSF} \quad \text{ZONE 4} \\ & & -46.4 \text{ PSF} \quad \text{ZONE 5} \end{array}$$

$$\begin{array}{rcl} \text{Gravity Loads:} & & \\ \text{H.L.} & = & 30 \text{ PSF} (7') = 210 \text{ PSF} \\ \text{D.L.} & = & 90 \text{ PSF} (7') = 630 \text{ PSF} \\ & & \hline & & 840 \text{ PSF} \end{array}$$

(REFER TO FURZALE)

SANTIAGO ARANEGUI P.E.**ENGINEERS**

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JOB Miami Lakes
 SHEET NO. 2 OF
 PROJECT NO.
 CALCULATED BY
 DATE

ANALYZE FOUNDATIONS:

$$\text{Wall Loads} = 840 \text{ ft} + 65 \text{ ft} (16') = 1880 \text{ ft}$$

$$\text{FOUNDATION AREA} = \frac{1880 \text{ ft}}{200 \text{ ft}} = 9'0" \text{ (29' PROPOSED)}$$

ANALYZE COLUMN (C1) (8x12)

$$\text{Gravity Loads} = 120 \text{ ft} (4) (4.5) = 2160 \text{ ft}$$

$$(0.67) (4.5) (150 \text{ ft}) (4.5) = 2055 \text{ ft}$$

$$(0.67) (1) (150) (16') = 1608 \text{ ft}$$

$$\text{Wind Loads} = 39.6 \text{ ft} (4.5) = 178 \text{ ft}$$

$$\underline{5803 \text{ ft}}$$

(DIFFER TO EXERCISE)

$$\text{FOUNDATION (DIFFER)} = \frac{5803 \text{ ft}}{200 \text{ ft}} = 2.9 \text{ ft} = 2' \times 1.5'$$

(C1)ANALYZE DEEP BEAM:

$$\text{LL} = 100 \text{ ft} \times 1.6 = 160 \text{ ft}$$

$$\text{DL} = 75 \text{ ft} \times 1.2 = 90 \text{ ft}$$

$$\underline{250 \text{ ft}}$$

$$M_u = 250 \text{ ft} (5) / 8 = 156.25 \text{ ft-k}$$

PER MOMENTS:

6" Char. Bars w/ #4 @ 12" O.C.

Min 3.6 ft²

3403 NW 82nd Avenue, Suite 320-B
 Miami, Florida 33122
 305.599.8133
 305.599.8076 FAX

Title :
 Dsgnr:
 Description :
 Scope :

Job #
 Date: 11:33PM, 16 OCT 15

Rev: 580001
 User: KW-0604804, Ver 5.8.0, 1-Dec-2003
 (c)1983-2003 ENERCALC Engineering Software

Masonry Wall Design

1.scrw Calculations

Description Typical Wall

General Information

Code Ref: ACI 530-02

Wall Height	12.00 ft	Seismic Factor	0.3300	f _m	1,500.0 psi
Parapet Height	0.00 ft	Calc of Em = f _m *	900.00	F _s	24,000.0 psi
Thickness	8.0 in	Duration Factor	1.330	Special Inspection	
Rebar Size	5	Wall Wt Mult.	1.000	Grout @ Rebar Only	
Rebar Spacing	40 in			Medium Weight Block	
Depth to Rebar	3.810 in @ Center			Equivalent	
				Solid Thickness	4.700 in

Loads

Uniform Load		Concentric Axial Load		Wind Load	46.400 psf
Dead Load	630.000 #/ft	Dead Load	0.000 #/ft		
Live Load	210.000 #/ft	Live Load	0.000 #/ft		
Load Eccentricity	0.000 in	Roof Load			
Roof Load					

Design Values

E	1,350,000 psi	Rebar Area	0.093 in ²	n _p	0.04370	j	0.91495
n : Es / Em	21.481	Radius of Gyration	2.521 in	k	0.25514	2 / k _j	8.56756
Wall Weight	53.000 psf	Moment of Inertia	358.350 in ⁴				
Max Allow Axial Stress = 0.25 f _m (1-(h/140r) ²) * Splnsp			312.56 psi				
Allow Masonry Bending Stress = 0.33 f _m * Splnsp =			495.00 psi				
Allow Steel Bending Stress =			24,000.00 psi				

Load Combination & Stress Details Summary

	Moment in-#	Axial Load lbs	Steel psi	Bending Stresses Masonry psi	Axial Compression psi
Top of Wall					
DL + LL	0.0	840.0	0.0	0.0	14.89
DL + LL + Wind	0.0	630.0	0.0	0.0	11.17
DL + LL + Seismic	0.0	630.0	0.0	0.0	11.17
Between Base & Top of Wall					
DL + LL	0.0	1,158.0	0.0	0.0	20.53
DL + LL + Wind	10,022.4	948.0	30,914.6	492.9	16.81
DL + LL + Seismic	3,777.8	948.0	11,653.0	185.8	16.81

Summary

12.00ft high wall with 0.00ft parapet, Med Wt Block w/ 8.00in wall w/ #5 bars at 40.00ino.c. at center

Max. Bending Compressive Stress	509.75 OK
Allowable	658.35 OK
Max. Axial Only Compressive Stress	20.53 psi
Allowable	312.56 OK
Max Steel Bending Stress	30,914.64 psi
Allowable	31,920.00 OK

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Description :
Scope :

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Rev: 580001
User: KW-0604804, Ver 5.8.0, 1-Dec-2003
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Masonry Wall Design

1.ecw Calculations

Description Typical Wall

Final Loads & Moments

Wall Weight moment @ Mid Ht	318.00 lbs	Wind Moment @ Mid Ht	10,022.40 in-#
		Seismic Moment @ Mid Ht	3,777.84 in-#
Dead Load Moment @ Top of Wall	0.00 in-#		
Dead Load Moment @ Mid Ht	0.00 in-#	Total Dead Load	630.00 lbs
		Total Live Load	210.00 lbs
Live Load Moment @ Top of Wall	0.00 in-#		
LiveLoad Moment @ Mid Ht	0.00 in-#		
Maximum Allow Moment for Applied Axial Load =		7,780.70 in-#	
Maximum Allow Axial Load for Applied Moment =		17,628.31 lbs	

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Rectangular Concrete Column

1 row Calculations

Description Column C1

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Width	12.000 in	fc	3,000.0 psi	Total Height	12.000 ft
Depth	8.000 in	Fy	60,000.0 psi	Unbraced Length	12.000 ft
Rebar:		Seismic Zone	4	Eff. Length Factor	1.000
2- # 5 d =	2.000 in	LL & ST Loads Act Separately		Column is BRACED	
2- # 5 d =	6.000 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity	
Axial Loads	4.000 k	4.000 k	k		in
Lateral Uniform Loads				Start Loc	End Loc
# 1	k/ft	0.400 k/ft	k/ft		ft
# 2	k/ft	k/ft	k/ft		ft

Summary

Column is OK

12.00 x 8.00in Column, Rebar: 2-#5 @ 2.00in, 2-#5 @ 6.00in

	ACI C-1	ACI C-2	ACI C-3
Applied : Pu : Max Factored	12.40 k	5.60 k	3.60 k
Allowable : Pn * Phi @ Design Ecc.	15.64 k	170.15 k	170.15 k
M-critical	12.24 k-ft	0.39 k-ft	0.25 k-ft
Combined Eccentricity	11.845 in	0.840 in	0.840 in
Magnification Factor	1.09	1.00	1.00
Design Eccentricity	12.859 in	0.840 in	0.840 in
Magnified Design Moment	13.29 k-ft	0.39 k-ft	0.25 k-ft
Po * .80	252.83 k	252.83 k	252.83 k
P : Balanced	77.14 k	77.14 k	77.14 k
Ecc : Balanced	4.517 in	4.517 in	4.517 in

Slenderness

per ACI 318-95 Section 10.12 & 10.13

Actual k Lu / r	60.000	Elastic Modulus	3,122.0 ksi	Beta	0.850
		ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3	
Neutral Axis Distance		2.1200 in	7.6000 in	7.6000 in	
Phi		0.8056	0.7000	0.7000	
Max Limit k/r		34.0000	34.0000	34.0000	
Beta = M:sustained/M:max		0.4516	1.0000	1.0000	
Cm		1.0000	0.6000	0.6000	
EI / 1000		440.47	319.69	319.69	
Pc : pi^2 EI / (k Lu)^2		209.65	152.16	152.16	
alpha: MaxPu / (.75 Pc)		0.0789	0.0491	0.0315	
Delta		1.0856	1.0000	1.0000	
Ecc: Ecc Loads + Moments		11.845	0.840	0.840 in	
Design Ecc = Ecc * Delta		12.859	0.840	0.840 in	

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

BRITTLE AND DUCTILE FAILURES IN CONCRETE

This document determines the load carrying capabilities of a slab on a unit width basis.

Enter the problem conditions:

Ramp Slab

Compressive strength of concrete	$f_c' := 3000 \cdot \frac{\text{lbf}}{\text{in}^2}$	
Yield strength of reinforcing steel	$f_y := 60000 \cdot \frac{\text{lbf}}{\text{in}^2}$	
Understrength factor	$\phi := 0.9$	
Unit Width	$b := 12 \cdot \text{in}$	
Slab depth	$h := 6 \cdot \text{in}$	
Concrete Cover	$\bar{c}_c := 1.5 \cdot \text{in}$	
Size of bar	$d_b := 4$	
Spacing of bars	$\bar{s}_c := 12 \cdot \text{in}$	
Depth to reinforcing	$d = 4.25 \cdot \text{in}$	
Area of Steel Provided	$A_s = 0.1963 \cdot \text{in}^2$	
Steel Ratio Provided	$\rho := \frac{A_s}{b \cdot d}$	$\rho = 3.85 \times 10^{-3}$
Beta factor	$\beta = 0.85$	
$\rho_b := \frac{0.85 \cdot \beta \cdot f_c'}{f_y} \cdot \left(\frac{87000}{87000 + f_y'} \right)$	$\rho_b = 0.0214$	
$\rho_{\max} := 0.75 \cdot \rho_b$	$\rho_{\max} = 0.016$	
$\rho_{\min} := \frac{200}{f_y'}$	$\rho_{\min} = 3.3333 \times 10^{-3}$	
Compression block	$a := \frac{A_s \cdot f_y}{0.85 \cdot f_c' \cdot b}$	$a = 0.38 \cdot \text{in}$
Ultimate moment	$M_u := \phi \cdot (A_s \cdot f_y) \cdot \left(d - \frac{a}{2} \right)$	
	$M_u = 3.6 \cdot \text{kip} \cdot \text{ft}$	
Shear Strength	$V_s := 0.85 \cdot (2 \cdot \sqrt{f_c'} \cdot b \cdot d) \cdot \frac{\text{lbf}}{\text{in}^2}$	
	$V_s = 5 \cdot \text{kip}$	



GENERATOR FUEL CONSUMPTION WORKSHEET

Facility: MIAMI LAKES GOVERNMENT CENTER Process/Permit #: _____
Address: 6601 MAIN ST. MIA. LAKES Folio Number #: 32-2013-001-0432
Date: 3/20/2017 Reviewed by: _____

GENERATOR	
1. Type of Fuel:	☒ Diesel ☐ Gasoline ☐ Propane ☐ Natural Gas
2. Number of Generators: (include new and existing for entire site)	New: ☒ Existing: _____
3. Fuel Consumption of all Emergency Generators at full (100%) load (Table 1): (gallon / hour)	<u>19.4</u>
4. Exercise time: (hour / week) <u>1 Hour</u>	5. Annual Fuel Usage (gal / yr): = (3) × (4) × (52 weeks / yr) <u>1008.8</u>
6. Is (5) greater than any of the following amounts? [5,400 gallons of gasoline; 64,000 gallons of diesel fuel; 288,000 gallons of propane; 8.8 million standard cubic feet of natural gas] ☐ Yes. STOP . State and County Air Permit Applications need to be completed. Contact Air Facilities Section at 305.372.6925 for instructions. ☒ No. Go to line 7.	
7. Potential Annual Fuel Consumption (gal / yr): = (3) × 500 (hr/year) <u>9,700</u>	
8. Is (7) greater than any of the following amounts? [5,400 gallons of gasoline; 64,000 gallons of diesel fuel; 288,000 gallons of propane; 8.8 million standard cubic feet of natural gas] ☐ Yes. STOP . County Air Permit Application needs to be completed. ☒ No. Go to line 9.	
9. Is there any other source of air emissions? ☐ Yes. STOP . County Air Permit Application needs to be completed. ☒ No. Resubmit your plans w/completed worksheet or make an appt. 786.315.2800 to see an AIR Reviewer.	

Table 1: List of Generators*						
No.	Manufacturer	Model	kW	Fuel	Fuel Consumption @ full (100%) load	New/ Existing
1	CATERPILLAR	C-9	250	DIESEL	19.4	NEW
2						
3						
4						
5						
				Total		gal/hr

*Attach generator's specifications.

The information provided above is true to the best of my knowledge and corresponds to the referenced project site.

CHARLES YOST, BASULTO & ASSOC
Name in Print Responsible Party / Title ENGINEER

Signature Chab yost



Image shown may not reflect actual package.

STANDBY
250 ekW 313 kVA
60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

- EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response
- Cooling system designed to operate in 50°C / 122°F ambient temperatures with an air flow restriction of 0.5 in. water

UL 2200 / CSA – Optional

- UL 2200 Listed
- CSA Certified

Certain restrictions may apply.

Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S•O•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT C9 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation
- CSA Certified

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

SEISMIC CERTIFICATION*

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight and concrete strength.
IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010

*Not available with some options – consult with your Cat Dealer.

STANDBY 250 kW 313 kVA
60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Disposable air filter	☐ Canister type, dual element ☐ Heavy duty air cleaner
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	☐ Industrial ☐ Residential / Critical
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines • IP23 Protection	☐ Permanent magnet excitation (PMG) ☐ Anti-condensation space heater ☐ Coastal insulation protection ☐ Internal excitation (IE) / AREP
Power Termination	• Power terminal strips	☐ Circuit breakers – 100% rated assembly, UL Listed ☐ SUSE (Suitable for use as service equipment)
Control Panels	• EMCP 4.2	☐ EMCP 4.3 ☐ EMCP 4.4 ☐ Local and remote annunciator modules ☐ Remote monitoring software
Mounting	• Rubber vibration isolators	
Starting/Charging	• 24 volt starting motor & charging alternator • Batteries	☐ Battery chargers ☐ Oversize batteries ☐ Jacket water heater
General	• Paint – Caterpillar Yellow except rails and radiators gloss black • Narrow skid base	The following options are based on regional and product configuration: ☐ Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010 ☐ UL 2200 Listed package ☐ CSA Certified ☐ Wide skid base ☐ Sound attenuated enclosure ☐ Weather protective enclosure ☐ Integral dual wall UL Listed 8 hr fuel tank ☐ Sub-base dual wall UL Listed 24 hr fuel tank ☐ Sub-base dual wall UL Listed 48 hr fuel tank

STANDBY 250 kW 313 kVA

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

STANDARD CAT GENERATOR	
Frame size	LC5014H
Excitation	Self Excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of leads	12
Insulation	UL 1446 Recognized Class H
IP Rating	IP23
Alignment	Pilot shaft
Overspeed capability (%)	125
Wave form deviation (%)	2
Voltage regulator	Three phase sensing
Voltage regulation	+/- 0.25% (steady state)
- Consult your Cat dealer for available voltages	
CAT DIESEL ENGINE	
C9 ATAAC, I-6, 4-Stroke Water-cooled Diesel	
Bore	112.00 mm (4.41 in)
Stroke	149.00 mm (5.87 in)
Displacement	8.80 L (537.01 in ³)
Compression ratio	16.1:1
Aspiration	Air-to-air aftercooled
Fuel system	Hydraulic electronic unit injection
Governor type	Caterpillar ADEM™ control system

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- kW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAR) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 250 ekW 313 kVA

60 Hz 1800 rpm 480²/volts



TECHNICAL DATA

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM8501	
EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)		
Generator Set Package Performance Genset power rating @ 0.8 pf Genset power rating with fan	313 kVA 250 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	73.3 L/hr 58.8 L/hr 43.8 L/hr	19.4 gal/hr 15.5 gal/hr 11.6 gal/hr
Cooling System¹ Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 600 m ³ /min 46.7 L 22.0 L 24.7 L	0.48 in. water 21189 cfm 12.3 gal 5.8 gal 6.5 gal
Inlet Air Combustion air inlet flow rate	25.2 m ³ /min	890 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	456°C 63.6 m ³ /min 127.0 mm 10.0 kPa	852°F 2246 cfm 5.0 in 40.1 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	104 kW 277 kW 82 kW 18 kW 19.7 kW	5914 Btu/min 15753 Btu/min 4663 Btu/min 1024 Btu/min 1120 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Insulation class Temperature rise	543 skV LC5014H H 150°C	270°F
Lubrication System Sump refill with filter	39.0 L	10.3 gal
Emissions (Nominal)³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	2.91 g/hp-hr 0.37 g/hp-hr 0.09 g/hp-hr 0.081 g/hp-hr	

¹ For site specific ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

³ Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:

AS1359, CSA C22.2 No100-04, UL142,UL489,
UL869, UL2200, NFPA37, NFPA70, NFPA99,
NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22,NEMA MG1-33, 72/23/EEC, 98/37/
EC, 2004/108/EC.

Standby – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16°C or 60°F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

STANDBY 250 kW 313 kVA

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions		
Length	2870 mm	113.0 in
Width	1622 mm	63.9 in
Height	2065 mm	81.3 in
Weight*	2106 kg	4643 lb

*With Oil and Coolant.

NOTE: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Performance No.: DM8501

Feature Code: C09DE47

Gen. Arr. Number: 449-0571

Source: U.S. Sourced

LEHE0489-00 (02/14)

www.Cat-ElectricPower.com

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Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

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**SPILL PREVENTION AND RESPONSE PLAN
(SPRP)**

☒ New

☐ Amendment

Effective date: 3/20/2017

This plan is required of all sites with aboveground tanks with a capacity greater than 550 gallons that contain regulated substances, hazardous materials, or pollutants as defined in Florida Statute 376.3.

FACILITY NAME: MIAMI LAKES GOVERNMENT CENTER

FACILITY OWNER: TOWN OF MIAMI LAKES

FACILITY OPERATOR (person in charge): CARLOS ACOSTA

FACILITY ADDRESS: 6601 MAIN STREET
MIAMI LAKES, FLORIDA 33014

TELEPHONE NUMBER: 305-364-6100 24 HOUR NUMBER: 305-364-6100

All aboveground tanks with a capacity greater than 550 gallons containing pollutants and all underground tanks with a capacity of 110 gallons or greater that contain regulated substances shall comply with Chapter 62-761, FAC. Please list in Table I all above (A) or underground (U) storage tanks at this facility and attach a scaled site sketch (8.5"x11") indicating the location of all tanks and monitoring wells on site.

TABLE I

Tank No.	Installation Date	Tank Capacity (Gallons)	Material of Construction	A U	Product Stored
1	8-15-17	549	STEEL	A	DIESEL

If more lines are needed, please attach a separate page.

The aboveground tank(s) is/are provided with secondary containment by

- ☒ a) an FDEP approved doublewalled tank or
☐ b) an impermeable diked area with a capacity of 110% of the volume of the largest tank within the diked area.

SPILL RESPONSE

If the aboveground tank is secondarily contained within a diked area, this dike shall contain any spill. Any spilled product within the diked area shall be pumped out or recovered with an absorbent material, containerized and disposed of properly or else the facility's specific spill response plan must be provided. Be advised that all work, including all applicable safety requirements, must comply with the applicable requirements of Chapter 24 of the Miami-Dade County Code, Chapter 62-770, and 62-761 of the Florida Administrative Code (FAC), United States Occupational Safety and Health Administration (OSHA), and National Fire Prevention Association (NFPA) and all other applicable regulations.

If the aboveground tank is doublewalled, a breach in the primary tank will discharge into the secondary tank and be detected through the interstitial monitoring provided for the tank.

Any discharges outside the secondary containment shall be recovered with an absorbent material, containerized and disposed of properly.

****Attach a list of equipment and/or materials on-site to handle spills from a failure of a tank.****

ROUTINE INSPECTIONS

The operator of regulated aboveground storage tanks shall comply with the requirements of Chapter 62-761 for inventory, release detection and recordkeeping. All paperwork shall be made available for routine annual inspections.

For all other unregulated aboveground tanks, a schedule for in-house tank inspections and recordkeeping to be performed must be maintained. Attached please find a recommended schedule.

CERTIFICATION

I hereby certify and attest that the information contained herein and in the construction plans submitted with this SPRP, is true, correct and complete to the best of my knowledge. Furthermore, I agree to maintain and operate this facility in compliance with this plan.

Signature of Responsible Party (Must be notarized.)

Print Name and Title

Sworn to and subscribed before me this _____ day of _____ 19____

Notary Public

RECOMMENDED IN-HOUSE INSPECTION SCHEDULE

INSPECTION/TEST RECORD	FREQUENCY
---------------------------	-----------

Tank integrity - visual	Monthly
Tank supports and foundation - visual	Daily
Liquid sensing devices, interstitial monitoring device or site glass, monitoring wells - visual	Weekly
Aboveground valves, piping, fittings - visual	Daily
Corrective actions, maintenance	As required

FUEL SPILL PROVISIONS

THE CONTRACTOR SHALL PROVIDE TO THE OWNER THE FOLLOWING MATERIALS:

(1) FUEL SPILL KIT (GATOR INTERNATIONAL #SP-58) TO INCLUDE:

- (1) 58 GALLON DRUM
- (1) 30 POUND BAG 'GATOR' OIL ABSORBENT
- (4) 5' x 10' ABSORBENT 'BOOMS'
- (8) 4' x 4' ABSORBENT 'SOCKS'
- (100) ABSORBENT PADS
- (2) DUST MASKS
- (2) PAIRS RUBBER GLOVES
- (2) GOGGLES
- (1) BROOM AND DUST PAN
- (2) DISPOSAL BAGS
- (1) PACKAGE LEAK PLUGS

EXHIBIT C – Structural Calculation for Generator

**Structural Calculations
For the
Generator Building
for the
Town of Miami Lakes Government
Center**

**At
6601 Main Street
Miami Lakes, Florida**

Santiago Aranegui P.E.

6431 SW 145 street
Coral Gables, Florida 33158
Voice: 305.431-6747 Fax: 786-573-3538.

Job No.: 2017-0096

March 7, 2017



**Santiago Aranegui, P.E.
Structural Engineer #48106**

MECAWind Version 2.1.1.0 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright 2017

Date : 3/7/2017
Company Name :
Address :
City :
State :
File Location: C:\Program Files\MECAWind\Default.wnd

Project No. :
Designed By :
Description :
Customer Name :
Proj Location :

Directional Procedure All Heights Building (Ch 27 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of .6

Basic Wind Speed(V)	=	175.00 mph		
Structural Category	=	II	Exposure Category	= C
Natural Frequency	=	N/A	Flexible Structure	= No
Importance Factor	=	1.00	Kd Directional Factor	= 0.85
Damping Ratio (beta)	=	0.01		
Alpha	=	9.50	Zg	= 900.00 ft
At	=	0.11	Bt	= 1.00
Am	=	0.15	Bm	= 0.65
Cc	=	0.20	l	= 500.00 ft
Epsilon	=	0.20	Zmin	= 15.00 ft
Slope of Roof	=	0 : 12	Slope of Roof(Theta)	= .00 Deg
Ht: Mean Roof Ht	=	20.92 ft	Type of Roof	= Monoslope
RHt: Ridge Ht	=	15.00 ft	Eht: Eave Height	= 15.00 ft
OH: Roof Overhang at Eave	=	.00 ft	Roof Area	= 14335 ft^2
Bldg Length Along Ridge	=	19.00 ft	Bldg Width Across Ridge	= 14.00 ft

Gust Factor Category I Rigid Structures - Simplified Method

Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm: $0.6 \cdot H_t$ = 15.00 ft
lzm: $C_c \cdot (33/Z_m)^{0.167}$ = 0.23
Lzm: $1 \cdot (Z_m/33)^{\text{Epsilon}}$ = 427.06 ft
Q: $(1/(1+0.63 \cdot ((B+H_t)/L_{zm})^{0.63}))^{0.5}$ = 0.94
Gust2: $0.925 \cdot ((1+1.7 \cdot l_{zm} \cdot 3.4 \cdot Q)/(1+1.7 \cdot 3.4 \cdot l_{zm}))$ = 0.89

Gust Factor Summary

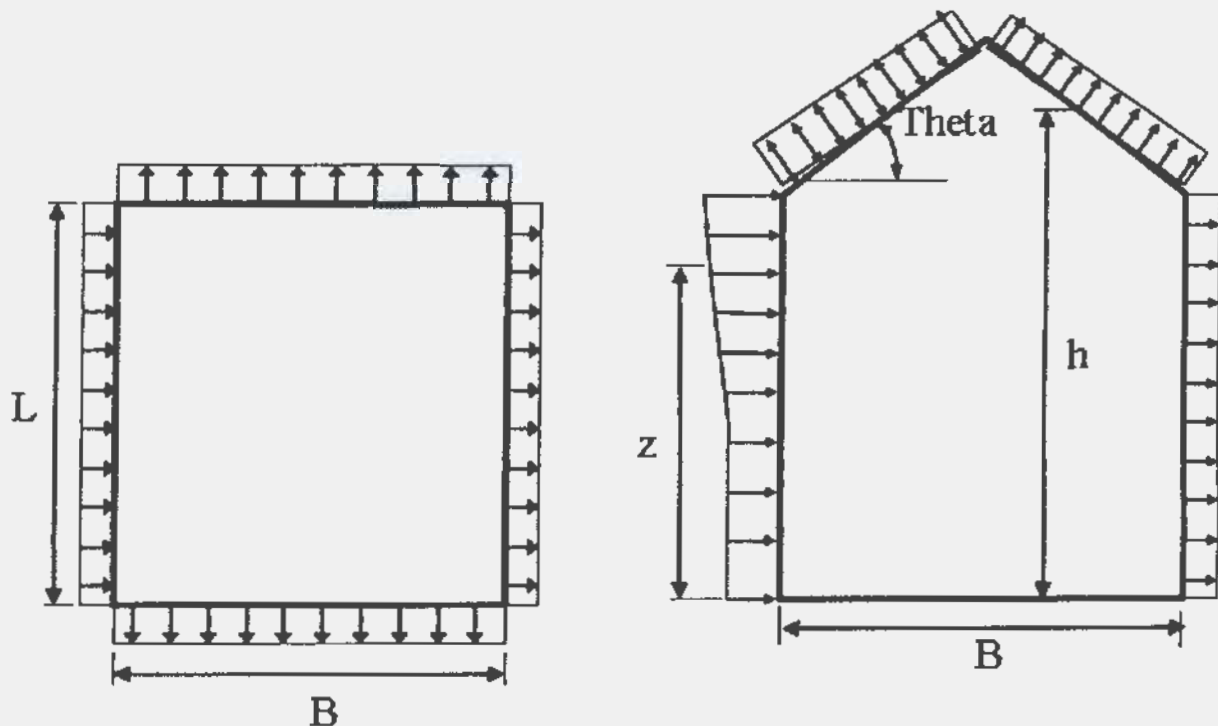
Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCpi : Internal Pressure Coefficient = +/-0.18

Figure 27.4-1. External Pressure Coefficients

Cp - Loads on Main Wind-Force Resisting Systems



$K_h: 2.01 \cdot (H_t/Z_g)^{(2/\alpha)}$ = 0.91
 K_{ht} : Topographic Factor (Figure 6-4) = 1.00
 $Q_h: .00256 \cdot (V)^2 \cdot I \cdot K_h \cdot K_{ht} \cdot K_d$ = 36.40 psf
 C_{pww} : Windward Wall C_p (Ref Fig 6-6) = 0.80
 Roof Area = 14335.00 ft²
 Reduction Factor based on Roof Area = 0.80

MWERS-Wall Pressures for Wind Normal to 19 ft wall (Normal to Ridge)

Wall	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-22.02	-8.92
Side Walls	-0.70	-28.21	-15.11

Wall	Elev ft	K_z	K_{zt}	q_z psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	20.92	0.91	1.00	36.40	18.20	31.31	40.23
Windward	20.00	0.90	1.00	36.06	17.97	31.07	39.99
Windward	10.00	0.85	1.00	33.94	16.53	29.63	38.55

Note: 1) Total = Leeward GCpi + Windward GCpi

Roof - Dist from Windward Edge	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
0.0 ft to 10.5 ft	-1.04	-38.73	-25.63
10.5 ft to 14.0 ft	-0.70	-28.21	-15.11

MWERS-Wall Pressures for Wind Normal to 14 ft wall (Along Ridge)

Wall	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.43	-19.81	-6.71
Side Walls	-0.70	-28.21	-15.11

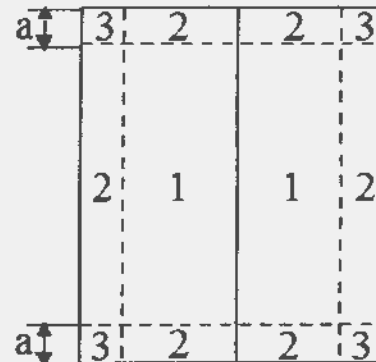
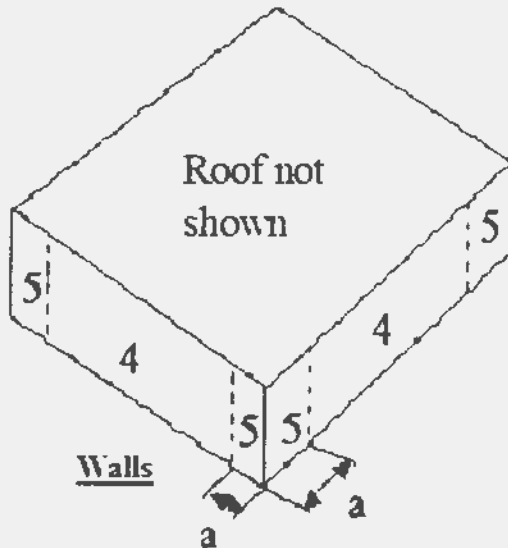
p3: Positive Wall Pressure on Back of Parapet (Zone 4)	=	53.10	psf
p3: Positive Wall Pressure on Back of Parapet (Zone 5)	=	53.10	psf
p4: Negative Wall Pressure on Back of Parapet (Zone 4)	=	-40.07	psf
p4: Negative Wall Pressure on Back of Parapet (Zone 5)	=	-73.44	psf

MECAWind Version 2.1.1.0 ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright 2017

Date : 3/7/2017
 Company Name :
 Address :
 City :
 State :
 File Location: C:\Program Files\MECAWind\Default.wnd

Project No. :
 Designed By :
 Description :
 Customer Name :
 Proj Location :



Gable Roof $\theta \leq 7$

Wind Pressure on Components and Cladding (Ch 30 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of .6

Width of Pressure Coefficient Zone "a" = 3 ft

Description	Width ft	Span ft	Area Zone ft ²	Max GCp	Min GCp	Max P psf	Min P psf
ROOF	2.00	5.00	10.0 1	0.30	-1.00	17.47	-42.96
ROOF	2.00	5.00	10.0 2	0.30	-1.80	17.47	-72.08
ROOF	2.00	5.00	10.0 3	0.30	-2.80	17.47	-108.48
ROOF	2.00	5.00	10.0 2H	0.30	-1.70	16.00	-61.89
ROOF	2.00	5.00	10.0 3H	0.30	-2.80	16.00	-101.93
ROOF	2.00	10.00	33.3 1	0.25	-0.95	16.00	-41.05
ROOF	2.00	10.00	33.3 2	0.25	-1.43	16.00	-58.76
ROOF	2.00	10.00	33.3 3	0.25	-1.91	16.00	-76.12
ROOF	2.00	10.00	33.3 2H	0.25	-1.65	16.00	-59.98
ROOF	2.00	10.00	33.3 3H	0.25	-1.75	16.00	-63.86
ROOF	25.00	2.00	50.0 1	0.23	-0.93	16.00	-40.41
ROOF	25.00	2.00	50.0 2	0.23	-1.31	16.00	-54.27
ROOF	25.00	2.00	50.0 3	0.23	-1.61	16.00	-65.23
ROOF	25.00	2.00	50.0 2H	0.23	-1.63	16.00	-59.34
ROOF	25.00	2.00	50.0 3H	0.23	-1.40	16.00	-51.04
ROOF	25.00	3.00	75.0 1	0.21	-0.91	16.00	-39.77
ROOF	25.00	3.00	75.0 2	0.21	-1.19	16.00	-49.78
ROOF	25.00	3.00	75.0 3	0.21	-1.31	16.00	-54.33
ROOF	25.00	3.00	75.0 2H	0.21	-1.61	16.00	-58.70
ROOF	25.00	3.00	75.0 3H	0.21	-1.05	16.00	-38.22
ROOF	50.00	2.00	100.0 1	0.20	-0.90	16.00	-39.32
ROOF	50.00	2.00	100.0 2	0.20	-1.10	16.00	-46.60
ROOF	50.00	2.00	100.0 3	0.20	-1.10	16.00	-46.60
ROOF	50.00	2.00	100.0 2H	0.20	-1.60	16.00	-58.25
ROOF	50.00	2.00	100.0 3H	0.20	-0.80	16.00	-29.12

WALL	2.00	10.00	33.3	4	0.82	-0.91	36.29	-39.57
WALL	2.00	10.00	33.3	5	0.82	-1.09	36.29	-46.37
WALL	3.00	12.00	48.0	4	0.79	-0.88	35.37	-38.65
WALL	3.00	12.00	48.0	5	0.79	-1.04	35.37	-44.54
WALL	4.00	15.00	75.0	4	0.76	-0.85	34.25	-37.53
WALL	4.00	15.00	75.0	5	0.76	-0.98	34.25	-42.30
ROLL UP DOOR	7.00	8.00	56.0	4	0.78	-0.87	34.99	-38.26
ROLL UP DOOR	7.00	8.00	56.0	5	0.78	-1.02	34.99	-43.76
DOOR	3.00	7.00	21.0	4	0.85	-0.94	37.45	-40.73
DOOR	3.00	7.00	21.0	5	0.85	-1.16	37.45	-48.69

Khcc:Comp. & Clad. Table 6-3 Case 1

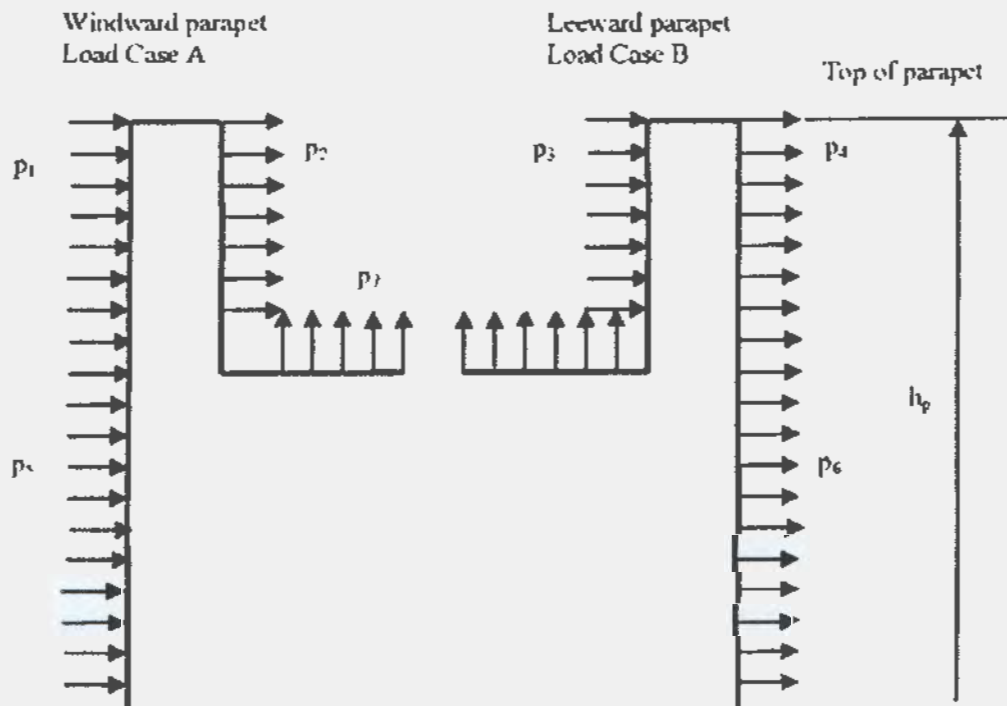
= 0.91

Qhcc:.00256*V^2*Khcc*Kht*Kd

= 36.40 psf

Parapets Components & Cladding (Ch 30 Part 4, Para 30.7.1.2)

Pressures taken from Table 30.7-2 at top of Parapet and multiplied by Exposure Adjustment Factor (EAF = 1.000), Topographic Factor ($K_{zt} = 1.00$) and Reduction Factor ($R_F = 1.0$). The effective area for the parapet is 10 sq ft [0.929 sq m] to be conservative, which makes the Reduction Factor 1.



Load Case A - Apply Positive Wall Pressure to Front and negative roof pressure to back.

p_1 : Positive Wall Pressure on Front of Parapet (Zone 4) = 53.10 psf

p_1 : Positive Wall Pressure on Front of Parapet (Zone 5) = 53.10 psf

p_2 : Negative Roof Pressure on Back of Parapet (Zone 2) = -91.98 psf

p_2 : Negative Roof Pressure on Back of Parapet (Zone 3) = -125.36 psf

Load Case B - Apply Positive Wall Pressure to Back and Negative Wall Pressure to the front.

SANTIAGO ARANEGUI P.E.**ENGINEERS**

6431 SW 145 Street, Coral Gables, FL 33158

Tel: (305) 431-6747

Fax: (786) 573-3538

JOB

Hurricane

SHEET NO.

OF

PROJECT NO.

CALCULATED BY

DATE

LOADS

$$\begin{array}{rcl} \text{Roof Live Load} & = & 30 \text{ PSF} \times 1.6 = 48 \text{ PSF} \\ \text{Roof Structure DW} & = & 15 \text{ PSF} \times 1.2 = 18 \text{ PSF} \\ \text{Roof S.D.C.} & = & 15 \text{ PSF} \times 1.2 = 18 \text{ PSF} \\ & & \hline & & 120 \text{ PSF} \end{array}$$

Wind Loads: ASCE 7-10

V = 125 KPH / Exposure "C"

$$\text{Analyze Roof Slab. } L_{\text{Roof}} = 12'-8"$$

$$M_u = 156 \text{ PSF} (12.67')^2 / 8 = 31.30 \text{ KIPS}$$

(REFER TO FURTHER)

USE 6" CON. SLAB / #5 @ 12" O.C.

 $M_n = 6 \text{ KIPS}$

Analyze Masonry Walls:

$$\text{Wall Height} = 12'-0"$$

$$\begin{array}{rcl} \text{Wind Pressure} & = & -39.6 \text{ PSF} \quad \text{ZONE 4} \\ & & -46.4 \text{ PSF} \quad \text{ZONE 5} \end{array}$$

$$\begin{array}{rcl} \text{Gravity Loads: } & & \\ \text{DL} & = & 30 \text{ PSF} (7') = 210 \text{ PSF} \\ \text{PL} & = & 90 \text{ PSF} (7') = 630 \text{ PSF} \\ & & \hline & & 840 \text{ PSF} \end{array}$$

(REFER TO FURTHER)

SANTIAGO ARANEGUI P.E.**ENGINEERS**

6431 SW 145 Street, Coral Gables, FL 33158

Tel: (305) 431-6747

Fax: (786) 573-3538

JOB Miami Lakes
 SHEET NO. 2 OF
 PROJECT NO.
 CALCULATED BY
 DATE

ANALYZE FOUNDATIONS:

$$\text{Wall Loads} = 840 \text{ ft} + 65 \text{ ft} (16') = 1880 \text{ ft}$$

$$\text{FOUNDATION AREA} = \frac{1880 \text{ ft}}{200 \text{ ft}} = 9'0" \text{ (29' PROPOSED)}$$

ANALYZE COLUMN (C1) (8x12)

$$\text{Gravity Loads} = 120 \text{ ft} (4) (4.5) = 2160 \text{ ft}$$

$$(0.67) (4.5) (1880 \text{ ft}) (4.5) = 2055 \text{ ft}$$

$$(0.67) (1) (150) (16') = 1608 \text{ ft}$$

$$\text{Wind Loads} = 31.6 \text{ ft} (4.5) = 178 \text{ ft}$$

$$\underline{5803 \text{ ft}}$$

(DIFFER TO EXERCISE)

$$\text{FOUNDATION (DIFFER)} = \frac{5803 \text{ ft}}{200 \text{ ft}} = 2.9 \text{ ft} = 2' \times 1.5'$$

(C1)ANALYZE DECK SLAB:

$$\text{LL} = 100 \text{ ft} \times 1.16 = 160 \text{ ft}$$

$$\text{DL} = 75 \text{ ft} \times 1.2 = 90 \text{ ft}$$

$$\underline{250 \text{ ft}}$$

$$M_u = 250 \text{ ft} (5) / 8 = 156.25 \text{ ft-k}$$

PER MOMENTS:

6" Char. Bars w/ #4 @ 12" O.C.

Min 3.6 ft²

3403 NW 82nd Avenue, Suite 320-B
 Miami, Florida 33122
 305.599.8133
 305.599.8076 FAX

Title :
 Dsgnr:
 Description :
 Scope :

Job #
 Date: 11:33PM, 16 OCT 15

Rev: 580001
 User: KW-0604804, Ver 5.8.0, 1-Dec-2003
 (c)1983-2003 ENERCALC Engineering Software

Masonry Wall Design

1.sdw Calculations

Description Typical Wall

General Information

Code Ref: ACI 530-02

Wall Height	12.00 ft	Seismic Factor	0.3300	f _m	1,500.0 psi
Parapet Height	0.00 ft	Calc of E _m = f _m *	900.00	F _s	24,000.0 psi
Thickness	8.0 in	Duration Factor	1.330	Special Inspection Grout @ Rebar Only Medium Weight Block Equivalent Solid Thickness 4.700 in	
Rebar Size	5	Wall Wt Mult.	1.000		
Rebar Spacing	40 in				
Depth to Rebar	3.810 in @ Center				

Loads

Uniform Load		Concentric Axial Load		Wind Load	46.400 psf
Dead Load	630.000 #/ft	Dead Load	0.000 #/ft		
Live Load	210.000 #/ft	Live Load	0.000 #/ft		
Load Eccentricity	0.000 in	Roof Load			
Roof Load					

Design Values

E	1,350,000 psi	Rebar Area	0.093 in ²	n _p	0.04370	j	0.91495
n : E _s / E _m	21.481	Radius of Gyration	2.521 in	k	0.25514	2 / k _j	8.56756
Wall Weight	53.000 psf	Moment of Inertia	358.350 in ⁴				
Max Allow Axial Stress = 0.25 f _m (1-(h/140r) ²) * Splnsp			312.56 psi				
Allow Masonry Bending Stress = 0.33 f _m * Splnsp =			495.00 psi				
Allow Steel Bending Stress =			24,000.00 psi				

Load Combination & Stress Details Summary

	Moment in-#	Axial Load lbs	Steel psi	Bending Stresses Masonry psi	Axial Compression psi
Top of Wall					
DL + LL	0.0	840.0	0.0	0.0	14.89
DL + LL + Wind	0.0	630.0	0.0	0.0	11.17
DL + LL + Seismic	0.0	630.0	0.0	0.0	11.17
Between Base & Top of Wall					
DL + LL	0.0	1,158.0	0.0	0.0	20.53
DL + LL + Wind	10,022.4	948.0	30,914.6	492.9	16.81
DL + LL + Seismic	3,777.8	948.0	11,653.0	185.8	16.81

Summary

12.00ft high wall with 0.00ft parapet, Med Wt Block w/ 8.00in wall w/ #5 bars at 40.00ino.c. at center

Max. Bending Compressive Stress	509.75 OK
Allowable	658.35 OK
Max. Axial Only Compressive Stress	20.53 psi
Allowable	312.56 OK
Max Steel Bending Stress	30,914.64 psi
Allowable	31,920.00 OK

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(c)1983-2003 ENERCALC Engineering Software

Masonry Wall Design

1.ecw Calculations

Description Typical Wall

Final Loads & Moments

Wall Weight moment @ Mid Ht	318.00 lbs	Wind Moment @ Mid Ht	10,022.40 in-#
		Seismic Moment @ Mid Ht	3,777.84 in-#
Dead Load Moment @ Top of Wall	0.00 in-#		
Dead Load Moment @ Mid Ht	0.00 in-#	Total Dead Load	630.00 lbs
		Total Live Load	210.00 lbs
Live Load Moment @ Top of Wall	0.00 in-#		
LiveLoad Moment @ Mid Ht	0.00 in-#		
Maximum Allow Moment for Applied Axial Load =		7,780.70 in-#	
Maximum Allow Axial Load for Applied Moment =		17,628.31 lbs	

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Title :
Dsgnr:
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Scope :

Job #
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User: KW-0604804, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Rectangular Concrete Column

1 row Calculations

Description Column C1

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Width	12.000 in	f _c	3,000.0 psi	Total Height	12.000 ft
Depth	8.000 in	F _y	60,000.0 psi	Unbraced Length	12.000 ft
Rebar:		Seismic Zone	4	Eff. Length Factor	1.000
2- # 5 d =	2.000 in	LL & ST Loads Act Separately		Column is BRACED	
2- # 5 d =	6.000 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity	
Axial Loads	4.000 k	4.000 k	k		in
Lateral Uniform Loads				Start Loc	End Loc
# 1	k/ft	0.400 k/ft	k/ft		ft
# 2	k/ft	k/ft	k/ft		ft

Summary

Column is OK

12.00 x 8.00in Column, Rebar: 2-#5 @ 2.00in, 2-#5 @ 6.00in

	ACI C-1	ACI C-2	ACI C-3
Applied : P _u : Max Factored	12.40 k	5.60 k	3.60 k
Allowable : P _n * Phi @ Design Ecc.	15.64 k	170.15 k	170.15 k
M-critical	12.24 k-ft	0.39 k-ft	0.25 k-ft
Combined Eccentricity	11.845 in	0.840 in	0.840 in
Magnification Factor	1.09	1.00	1.00
Design Eccentricity	12.859 in	0.840 in	0.840 in
Magnified Design Moment	13.29 k-ft	0.39 k-ft	0.25 k-ft
P _o * .80	252.83 k	252.83 k	252.83 k
P : Balanced	77.14 k	77.14 k	77.14 k
Ecc : Balanced	4.517 in	4.517 in	4.517 in

Slenderness per ACI 318-95 Section 10.12 & 10.13

Actual k L _u / r	60.000	Elastic Modulus	3,122.0 ksi	Beta	0.850
		ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3	
Neutral Axis Distance		2.1200 in	7.6000 in	7.6000 in	
Phi		0.8056	0.7000	0.7000	
Max Limit k/l/r		34.0000	34.0000	34.0000	
Beta = M:sustained/M:max		0.4516	1.0000	1.0000	
C _m		1.0000	0.6000	0.6000	
EI / 1000		440.47	319.69	319.69	
P _c : pi^2 EI / (k L _u)^2		209.65	152.16	152.16	
alpha: MaxP _u / (.75 P _c)		0.0789	0.0491	0.0315	
Delta		1.0856	1.0000	1.0000	
Ecc: Ecc Loads + Moments		11.845	0.840	0.840 in	
Design Ecc = Ecc * Delta		12.859	0.840	0.840 in	

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

BRITTLE AND DUCTILE FAILURES IN CONCRETE

This document determines the load carrying capabilities of a slab on a unit width basis.

Enter the problem conditions:

Ramp Slab

Compressive strength of concrete	$f_c' := 3000 \cdot \frac{\text{lbf}}{\text{in}^2}$	
Yield strength of reinforcing steel	$f_y := 60000 \cdot \frac{\text{lbf}}{\text{in}^2}$	
Understrength factor	$\phi := 0.9$	
Unit Width	$b := 12 \cdot \text{in}$	
Slab depth	$h := 6 \cdot \text{in}$	
Concrete Cover	$\bar{c}_c := 1.5 \cdot \text{in}$	
Size of bar	$d_b := 4$	
Spacing of bars	$\bar{s}_c := 12 \cdot \text{in}$	
Depth to reinforcing	$d = 4.25 \cdot \text{in}$	
Area of Steel Provided	$A_s = 0.1963 \cdot \text{in}^2$	
Steel Ratio Provided	$\rho := \frac{A_s}{b \cdot d}$	$\rho = 3.85 \times 10^{-3}$
Beta factor	$\beta = 0.85$	
$\rho_b := \frac{0.85 \cdot \beta \cdot f_c'}{f_y} \cdot \left(\frac{87000}{87000 + f_y'} \right)$	$\rho_b = 0.0214$	
$\rho_{\max} := 0.75 \cdot \rho_b$	$\rho_{\max} = 0.016$	
$\rho_{\min} := \frac{200}{f_y'}$	$\rho_{\min} = 3.3333 \times 10^{-3}$	
Compression block	$a := \frac{A_s \cdot f_y}{0.85 \cdot f_c' \cdot b}$	$a = 0.38 \cdot \text{in}$
Ultimate moment	$M_u := \phi \cdot (A_s \cdot f_y) \cdot \left(d - \frac{a}{2} \right)$	
	$M_u = 3.6 \cdot \text{kip} \cdot \text{ft}$	
Shear Strength	$V_s := 0.85 \cdot (2 \cdot \sqrt{f_c'} \cdot b \cdot d) \cdot \frac{\text{lbf}}{\text{in}^2}$	
	$V_s = 5 \cdot \text{kip}$	



GENERATOR FUEL CONSUMPTION WORKSHEET

Facility: MIAMI LAKES GOVERNMENT CENTER Process/Permit #: _____
Address: 6601 MAIN ST. MIA. LAKES Folio Number #: 32-2013-001-0432
Date: 3/20/2017 Reviewed by: _____

GENERATOR	
1. Type of Fuel:	☒ Diesel ☐ Gasoline ☐ Propane ☐ Natural Gas
2. Number of Generators: (include new and existing for entire site)	New: ☒ Existing: _____
3. Fuel Consumption of all Emergency Generators at full (100%) load (Table 1): (gallon / hour)	<u>19.4</u>
4. Exercise time: (hour / week) <u>1 Hour</u>	5. Annual Fuel Usage (gal / yr): = (3) × (4) × (52 weeks / yr) <u>1008.8</u>
6. Is (5) greater than any of the following amounts? [5,400 gallons of gasoline; 64,000 gallons of diesel fuel; 288,000 gallons of propane; 8.8 million standard cubic feet of natural gas] ☐ Yes. STOP . State and County Air Permit Applications need to be completed. Contact Air Facilities Section at 305.372.6925 for instructions. ☒ No. Go to line 7.	
7. Potential Annual Fuel Consumption (gal / yr): = (3) × 500 (hr/year) <u>9,700</u>	
8. Is (7) greater than any of the following amounts? [5,400 gallons of gasoline; 64,000 gallons of diesel fuel; 288,000 gallons of propane; 8.8 million standard cubic feet of natural gas] ☐ Yes. STOP . County Air Permit Application needs to be completed. ☒ No. Go to line 9.	
9. Is there any other source of air emissions? ☐ Yes. STOP . County Air Permit Application needs to be completed. ☒ No. Resubmit your plans w/completed worksheet or make an appt. 786.315.2800 to see an AIR Reviewer.	

Table 1: List of Generators*						
No.	Manufacturer	Model	kW	Fuel	Fuel Consumption @ full (100%) load	New/ Existing
1	CATERPILLAR	C-9	250	DIESEL	19.4	NEW
2						
3						
4						
5						
				Total		gal/hr

*Attach generator's specifications.

The information provided above is true to the best of my knowledge and corresponds to the referenced project site.

CHARLES YOST, BASULTO & ASSOC
Name in Print Responsible Party / Title ENGINEER

Signature Chab yost



Image shown may not reflect actual package.

STANDBY
250 ekW 313 kVA
60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

- EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response
- Cooling system designed to operate in 50°C / 122°F ambient temperatures with an air flow restriction of 0.5 in. water

UL 2200 / CSA – Optional

- UL 2200 Listed
- CSA Certified

Certain restrictions may apply.

Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S•O•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT C9 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation
- CSA Certified

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

SEISMIC CERTIFICATION*

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight and concrete strength.
IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010

*Not available with some options – consult with your Cat Dealer.

STANDBY 250 kW 313 kVA
60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Disposable air filter	☐ Canister type, dual element ☐ Heavy duty air cleaner
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	☐ Industrial ☐ Residential / Critical
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines • IP23 Protection	☐ Permanent magnet excitation (PMG) ☐ Anti-condensation space heater ☐ Coastal insulation protection ☐ Internal excitation (IE) / AREP
Power Termination	• Power terminal strips	☐ Circuit breakers – 100% rated assembly, UL Listed ☐ SUSE (Suitable for use as service equipment)
Control Panels	• EMCP 4.2	☐ EMCP 4.3 ☐ EMCP 4.4 ☐ Local and remote annunciator modules ☐ Remote monitoring software
Mounting	• Rubber vibration isolators	
Starting/Charging	• 24 volt starting motor & charging alternator • Batteries	☐ Battery chargers ☐ Oversize batteries ☐ Jacket water heater
General	• Paint – Caterpillar Yellow except rails and radiators gloss black • Narrow skid base	The following options are based on regional and product configuration: ☐ Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010 ☐ UL 2200 Listed package ☐ CSA Certified ☐ Wide skid base ☐ Sound attenuated enclosure ☐ Weather protective enclosure ☐ Integral dual wall UL Listed 8 hr fuel tank ☐ Sub-base dual wall UL Listed 24 hr fuel tank ☐ Sub-base dual wall UL Listed 48 hr fuel tank

STANDBY 250 kW 313 kVA

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

STANDARD CAT GENERATOR	
Frame size	LC5014H
Excitation	Self Excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of leads	12
Insulation	UL 1446 Recognized Class H
IP Rating	IP23
Alignment	Pilot shaft
Overspeed capability (%)	125
Wave form deviation (%)	2
Voltage regulator	Three phase sensing
Voltage regulation	+/- 0.25% (steady state)
- Consult your Cat dealer for available voltages	
CAT DIESEL ENGINE	
C9 ATAAC, I-6, 4-Stroke Water-cooled Diesel	
Bore	112.00 mm (4.41 in)
Stroke	149.00 mm (5.87 in)
Displacement	8.80 L (537.01 in ³)
Compression ratio	16.1:1
Aspiration	Air-to-air aftercooled
Fuel system	Hydraulic electronic unit injection
Governor type	Caterpillar ADEM™ control system

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- kW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAR) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 250 ekW 313 kVA

60 Hz 1800 rpm 480²/volts



TECHNICAL DATA

Open Generator Set - 1800 rpm/60 Hz/480 Volts	DM8501	
EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)		
Generator Set Package Performance Genset power rating @ 0.8 pf Genset power rating with fan	313 kVA 250 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	73.3 L/hr 58.8 L/hr 43.8 L/hr	19.4 gal/hr 15.5 gal/hr 11.6 gal/hr
Cooling System¹ Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 600 m ³ /min 46.7 L 22.0 L 24.7 L	0.48 in. water 21189 cfm 12.3 gal 5.8 gal 6.5 gal
Inlet Air Combustion air inlet flow rate	25.2 m ³ /min	890 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	456°C 63.6 m ³ /min 127.0 mm 10.0 kPa	852°F 2246 cfm 5.0 in 40.1 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	104 kW 277 kW 82 kW 18 kW 19.7 kW	5914 Btu/min 15753 Btu/min 4663 Btu/min 1024 Btu/min 1120 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Insulation class Temperature rise	543 skV LC5014H H 150°C	270°F
Lubrication System Sump refill with filter	39.0 L	10.3 gal
Emissions (Nominal)³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	2.91 g/hp-hr 0.37 g/hp-hr 0.09 g/hp-hr 0.081 g/hp-hr	

¹ For site specific ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

³ Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:

AS1359, CSA C22.2 No100-04, UL142,UL489,
UL869, UL2200, NFPA37, NFPA70, NFPA99,
NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22,NEMA MG1-33, 72/23/EEC, 98/37/
EC, 2004/108/EC.

Standby – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16°C or 60°F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

STANDBY 250 kW 313 kVA

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions		
Length	2870 mm	113.0 in
Width	1622 mm	63.9 in
Height	2065 mm	81.3 in
Weight*	2106 kg	4643 lb

*With Oil and Coolant.

NOTE: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Performance No.: DM8501

Feature Code: C09DE47

Gen. Arr. Number: 449-0571

Source: U.S. Sourced

LEHE0489-00 (02/14)

www.Cat-ElectricPower.com

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Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

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EXHIBIT D – Generator Fuel Consumption Report

**Structural Calculations
For the
Generator Building
for the
Town of Miami Lakes Government
Center**

**At
6601 Main Street
Miami Lakes, Florida**

Santiago Aranegui P.E.

6431 SW 145 street
Coral Gables, Florida 33158
Voice: 305.431-6747 Fax: 786-573-3538.

Job No.: 2017-0096

March 7, 2017



**Santiago Aranegui, P.E.
Structural Engineer #48106**

MECAWind Version 2.1.1.0 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright 2017

Date : 3/7/2017
Company Name :
Address :
City :
State :
File Location: C:\Program Files\MECAWind\Default.wnd

Project No. :
Designed By :
Description :
Customer Name :
Proj Location :

Directional Procedure All Heights Building (Ch 27 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of .6

Basic Wind Speed(V)	=	175.00 mph		
Structural Category	=	II	Exposure Category	= C
Natural Frequency	=	N/A	Flexible Structure	= No
Importance Factor	=	1.00	Kd Directional Factor	= 0.85
Damping Ratio (beta)	=	0.01		
Alpha	=	9.50	Zg	= 900.00 ft
At	=	0.11	Bt	= 1.00
Am	=	0.15	Bm	= 0.65
Cc	=	0.20	l	= 500.00 ft
Epsilon	=	0.20	Zmin	= 15.00 ft
Slope of Roof	=	0 : 12	Slope of Roof(Theta)	= .00 Deg
Ht: Mean Roof Ht	=	20.92 ft	Type of Roof	= Monoslope
RHt: Ridge Ht	=	15.00 ft	Eht: Eave Height	= 15.00 ft
OH: Roof Overhang at Eave	=	.00 ft	Roof Area	= 14335 ft^2
Bldg Length Along Ridge	=	19.00 ft	Bldg Width Across Ridge	= 14.00 ft

Gust Factor Category I Rigid Structures - Simplified Method

Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm: $0.6 \cdot H_t$ = 15.00 ft
lzm: $C_c \cdot (33/Z_m)^{0.167}$ = 0.23
Lzm: $1 \cdot (Z_m/33)^{\text{Epsilon}}$ = 427.06 ft
Q: $(1/(1+0.63 \cdot ((B+H_t)/L_{zm})^{0.63}))^{0.5}$ = 0.94
Gust2: $0.925 \cdot ((1+1.7 \cdot l_{zm} \cdot 3.4 \cdot Q)/(1+1.7 \cdot 3.4 \cdot l_{zm}))$ = 0.89

Gust Factor Summary

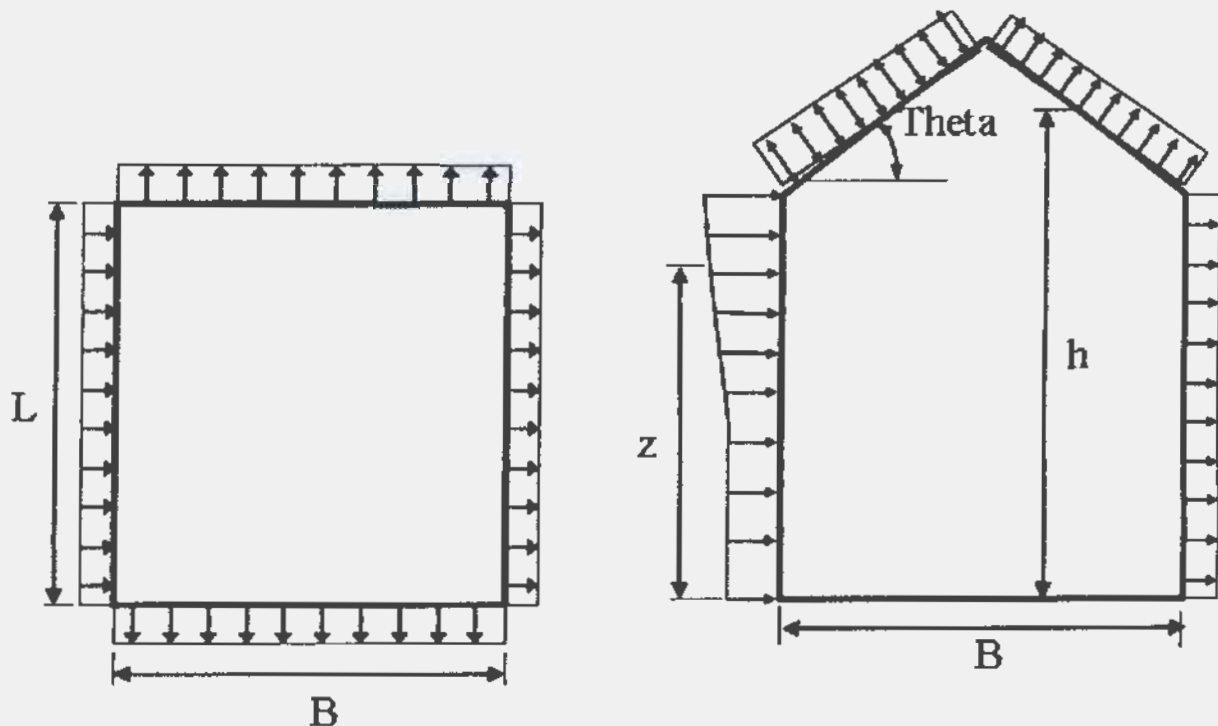
Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCpi : Internal Pressure Coefficient = +/-0.18

Figure 27.4-1. External Pressure Coefficients

Cp - Loads on Main Wind-Force Resisting Systems



$K_h: 2.01 * (H_t / Z_g)^{(2 / \alpha)}$ = 0.91
 K_{ht} : Topographic Factor (Figure 6-4) = 1.00
 $Q_h: .00256 * (V)^2 * I * K_h * K_{ht} * K_d$ = 36.40 psf
 C_{pww} : Windward Wall C_p (Ref Fig 6-6) = 0.80
 Roof Area = 14335.00 ft²
 Reduction Factor based on Roof Area = 0.80

MWERS-Wall Pressures for Wind Normal to 19 ft wall (Normal to Ridge)

Wall	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-22.02	-8.92
Side Walls	-0.70	-28.21	-15.11

Wall	Elev ft	K_z	K_{zt}	q_z psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	20.92	0.91	1.00	36.40	18.20	31.31	40.23
Windward	20.00	0.90	1.00	36.06	17.97	31.07	39.99
Windward	10.00	0.85	1.00	33.94	16.53	29.63	38.55

Note: 1) Total = Leeward GCpi + Windward GCpi

Roof - Dist from Windward Edge	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
0.0 ft to 10.5 ft	-1.04	-38.73	-25.63
10.5 ft to 14.0 ft	-0.70	-28.21	-15.11

MWERS-Wall Pressures for Wind Normal to 14 ft wall (Along Ridge)

Wall	C_p	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.43	-19.81	-6.71
Side Walls	-0.70	-28.21	-15.11

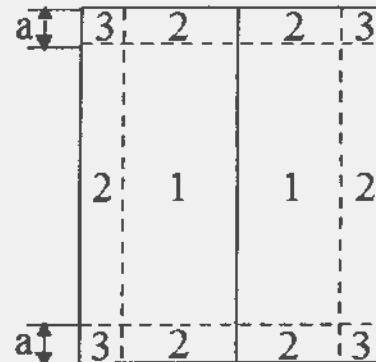
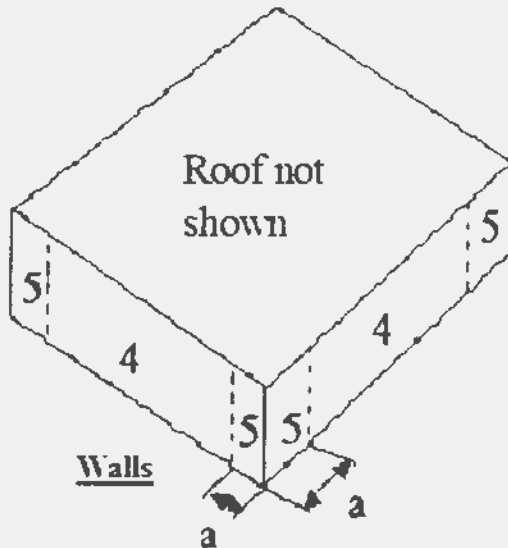
p3: Positive Wall Pressure on Back of Parapet (Zone 4)	=	53.10	psf
p3: Positive Wall Pressure on Back of Parapet (Zone 5)	=	53.10	psf
p4: Negative Wall Pressure on Back of Parapet (Zone 4)	=	-40.07	psf
p4: Negative Wall Pressure on Back of Parapet (Zone 5)	=	-73.44	psf

MECAWind Version 2.1.1.0 ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright 2017

Date : 3/7/2017
 Company Name :
 Address :
 City :
 State :
 File Location: C:\Program Files\MECAWind\Default.wnd

Project No. :
 Designed By :
 Description :
 Customer Name :
 Proj Location :



Gable Roof $\theta \leq 7$

Wind Pressure on Components and Cladding (Ch 30 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of .6

Width of Pressure Coefficient Zone "a" = 3 ft

Description	Width ft	Span ft	Area Zone ft ²		Max GCp	Min GCp	Max P psf	Min P psf
ROOF	2.00	5.00	10.0	1	0.30	-1.00	17.47	-42.96
ROOF	2.00	5.00	10.0	2	0.30	-1.80	17.47	-72.08
ROOF	2.00	5.00	10.0	3	0.30	-2.80	17.47	-108.48
ROOF	2.00	5.00	10.0	2H	0.30	-1.70	16.00	-61.89
ROOF	2.00	5.00	10.0	3H	0.30	-2.80	16.00	-101.93
ROOF	2.00	10.00	33.3	1	0.25	-0.95	16.00	-41.05
ROOF	2.00	10.00	33.3	2	0.25	-1.43	16.00	-58.76
ROOF	2.00	10.00	33.3	3	0.25	-1.91	16.00	-76.12
ROOF	2.00	10.00	33.3	2H	0.25	-1.65	16.00	-59.98
ROOF	2.00	10.00	33.3	3H	0.25	-1.75	16.00	-63.86
ROOF	25.00	2.00	50.0	1	0.23	-0.93	16.00	-40.41
ROOF	25.00	2.00	50.0	2	0.23	-1.31	16.00	-54.27
ROOF	25.00	2.00	50.0	3	0.23	-1.61	16.00	-65.23
ROOF	25.00	2.00	50.0	2H	0.23	-1.63	16.00	-59.34
ROOF	25.00	2.00	50.0	3H	0.23	-1.40	16.00	-51.04
ROOF	25.00	3.00	75.0	1	0.21	-0.91	16.00	-39.77
ROOF	25.00	3.00	75.0	2	0.21	-1.19	16.00	-49.78
ROOF	25.00	3.00	75.0	3	0.21	-1.31	16.00	-54.33
ROOF	25.00	3.00	75.0	2H	0.21	-1.61	16.00	-58.70
ROOF	25.00	3.00	75.0	3H	0.21	-1.05	16.00	-38.22
ROOF	50.00	2.00	100.0	1	0.20	-0.90	16.00	-39.32
ROOF	50.00	2.00	100.0	2	0.20	-1.10	16.00	-46.60
ROOF	50.00	2.00	100.0	3	0.20	-1.10	16.00	-46.60
ROOF	50.00	2.00	100.0	2H	0.20	-1.60	16.00	-58.25
ROOF	50.00	2.00	100.0	3H	0.20	-0.80	16.00	-29.12

WALL	2.00	10.00	33.3	4	0.82	-0.91	36.29	-39.57
WALL	2.00	10.00	33.3	5	0.82	-1.09	36.29	-46.37
WALL	3.00	12.00	48.0	4	0.79	-0.88	35.37	-38.65
WALL	3.00	12.00	48.0	5	0.79	-1.04	35.37	-44.54
WALL	4.00	15.00	75.0	4	0.76	-0.85	34.25	-37.53
WALL	4.00	15.00	75.0	5	0.76	-0.98	34.25	-42.30
ROLL UP DOOR	7.00	8.00	56.0	4	0.78	-0.87	34.99	-38.26
ROLL UP DOOR	7.00	8.00	56.0	5	0.78	-1.02	34.99	-43.76
DOOR	3.00	7.00	21.0	4	0.85	-0.94	37.45	-40.73
DOOR	3.00	7.00	21.0	5	0.85	-1.16	37.45	-48.69

Khcc:Comp. & Clad. Table 6-3 Case 1

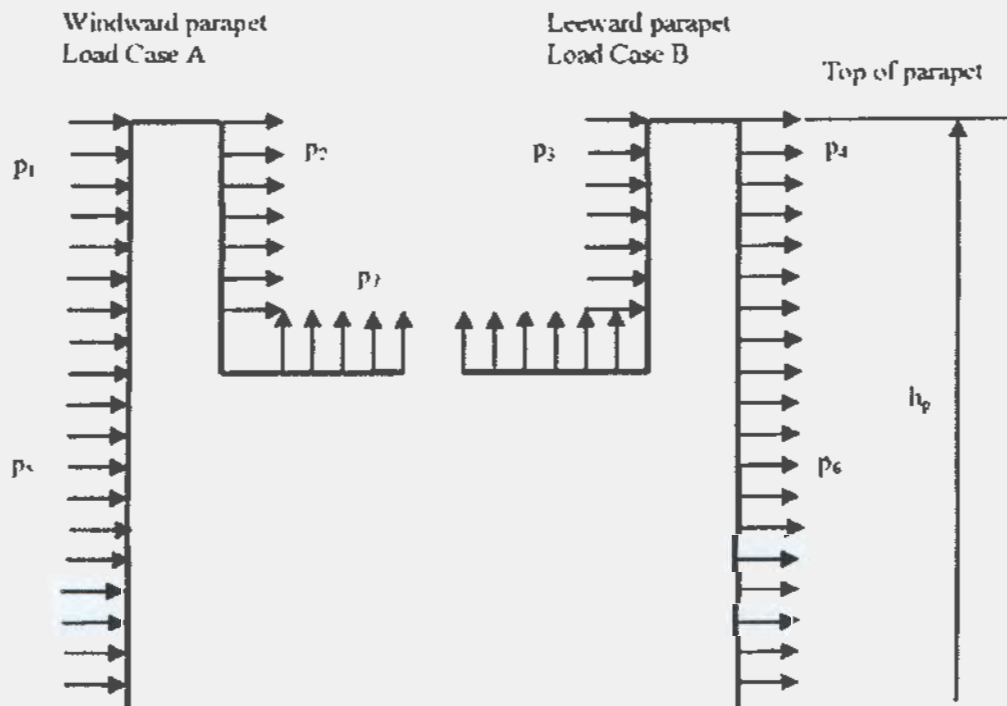
= 0.91

Qhcc:.00256*V^2*Khcc*Kht*Kd

= 36.40 psf

Parapets Components & Cladding (Ch 30 Part 4, Para 30.7.1.2)

Pressures taken from Table 30.7-2 at top of Parapet and multiplied by Exposure Adjustment Factor (EAF = 1.000), Topographic Factor ($K_{zt} = 1.00$) and Reduction Factor ($R_F = 1.0$). The effective area for the parapet is 10 sq ft [0.929 sq m] to be conservative, which makes the Reduction Factor 1.



Load Case A - Apply Positive Wall Pressure to Front and negative roof pressure to back.

p_1 : Positive Wall Pressure on Front of Parapet (Zone 4) = 53.10 psf
 p_1 : Positive Wall Pressure on Front of Parapet (Zone 5) = 53.10 psf

p_2 : Negative Roof Pressure on Back of Parapet (Zone 2) = -91.98 psf
 p_2 : Negative Roof Pressure on Back of Parapet (Zone 3) = -125.36 psf

Load Case B - Apply Positive Wall Pressure to Back and Negative Wall Pressure to the front.

SANTIAGO ARANEGUI P.E.

ENGINEERS

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Fax: (786) 573-3538

JOB Hurricane

SHEET NO. 1 OF 1

PROJECT NO. _____

CALCULATED BY _____

DATE _____

LOADS

$$\begin{aligned} \text{Roof Live Load} &= 30 \text{ PSF} \times 1.6 = 48 \text{ PSF} \\ \text{Roof Structure DW} &= 15 \text{ PSF} \times 1.2 = 18 \text{ PSF} \\ \text{Roof S.D.C.} &= 15 \text{ PSF} \times 1.2 = 18 \text{ PSF} \\ \hline &120 \text{ PSF} \qquad 156 \text{ PSF} \end{aligned}$$

Wind Loads: ASCE 7-10
V = 125 KPH / Exposure "C"

Analyze Rod Smb. $L_{DN} = 12-8"$

$$M_u = 156 \text{ PSF} (12.67)^2 / 8 = 3130 \text{ FTS}$$

(REFER TO FURZALE)

USE 6" CON. Smb. #5 12" O.C.
 $M_n = 6 \text{ FTS}$

Analyze Masonry Walls:

Wall Height = 12-0"

Wind Pressure = -39.6 PSF ZONE 4
-46.4 PSF ZONE 5

Gravit. Loads: $H.L. = 30 \text{ PSF} (7') = 210 \text{ PSF}$
 $D.L. = 90 \text{ PSF} (7') = 630 \text{ PSF}$
(REFER TO FURZALE) 840 PSF

SANTIAGO ARANEGUI P.E.

ENGINEERS

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JOB Miami Lakes
SHEET NO. 2 OF
PROJECT NO.
CALCULATED BY
DATE

ANALYZE FOUNDATIONS:

$$\text{Wall Load} = 840 \text{ ft} + 65 \text{ ft} (16') = 1880 \text{ ft}$$

$$\text{FOUNDATION AREA} = \frac{1880 \text{ ft}}{200 \text{ ft}} = 9'0" \text{ (29' PROPOSED)}$$

ANALYZE COLUMN (C1) (8x12)

$$\text{Gravity Load} = 120 \text{ ft} (4) (4.5) = 2160 \text{ ft}$$

$$(0.67) (4.5) (150 \text{ ft}) (4.5) = 2055 \text{ ft}$$

$$(0.67) (1) (150) (16') = 1608 \text{ ft}$$

$$\text{Wind Load} = 31.6 \text{ ft} (4.5) = 178 \text{ ft}$$

$$5803 \text{ ft}$$

(DIFFER TO EXERCISE)

$$\text{FOUNDATION (DIFFER)} = \frac{5803 \text{ ft}}{200 \text{ ft}} = 2.9 \text{ ft} = 2' \times 1.5'$$

(C1)

ANALYZE DEEP BEAM:

$$\text{LL} = 100 \text{ ft} \times 1.6 = 160 \text{ ft}$$

$$\text{DL} = 75 \text{ ft} \times 1.2 = 90 \text{ ft}$$

$$250 \text{ ft}$$

$$\text{Mu} = 250 \text{ ft} (5) / 8 = 156.25 \text{ ft}$$

PER MOMENTS:

6" Char. Bars w/ #4 @ 12" O.C

Min 3.6 ft

3403 NW 82nd Avenue, Suite 320-B
 Miami, Florida 33122
 305.599.8133
 305.599.8076 FAX

Title :
 Dsgnr:
 Description :
 Scope :

Job #
 Date: 11:33PM, 16 OCT 15

Rev: 580001
 User: KW-0604804, Ver 5.8.0, 1-Dec-2003
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Masonry Wall Design

1.scrw Calculations

Description Typical Wall

General Information

Code Ref: ACI 530-02

Wall Height	12.00 ft	Seismic Factor	0.3300	f _m	1,500.0 psi
Parapet Height	0.00 ft	Calc of E _m = f _m *	900.00	F _s	24,000.0 psi
Thickness	8.0 in	Duration Factor	1.330	Special Inspection Grout @ Rebar Only Medium Weight Block Equivalent Solid Thickness 4.700 in	
Rebar Size	5	Wall Wt Mult.	1.000		
Rebar Spacing	40 in				
Depth to Rebar	3.810 in @ Center				

Loads

Uniform Load		Concentric Axial Load		Wind Load	46.400 psf
Dead Load	630.000 #/ft	Dead Load	0.000 #/ft		
Live Load	210.000 #/ft	Live Load	0.000 #/ft		
Load Eccentricity	0.000 in	Roof Load			
Roof Load					

Design Values

E	1,350,000 psi	Rebar Area	0.093 in ²	n _p	0.04370	j	0.91495
n : E _s / E _m	21.481	Radius of Gyration	2.521 in	k	0.25514	2 / k _j	8.56756
Wall Weight	53.000 psf	Moment of Inertia	358.350 in ⁴				
Max Allow Axial Stress = 0.25 f _m (1-(h/140r) ²) * Splnsp			312.56 psi				
Allow Masonry Bending Stress = 0.33 f _m * Splnsp =			495.00 psi				
Allow Steel Bending Stress =			24,000.00 psi				

Load Combination & Stress Details Summary

	Moment in-#	Axial Load lbs	Steel psi	Bending Stresses Masonry psi	Axial Compression psi
Top of Wall					
DL + LL	0.0	840.0	0.0	0.0	14.89
DL + LL + Wind	0.0	630.0	0.0	0.0	11.17
DL + LL + Seismic	0.0	630.0	0.0	0.0	11.17
Between Base & Top of Wall					
DL + LL	0.0	1,158.0	0.0	0.0	20.53
DL + LL + Wind	10,022.4	948.0	30,914.6	492.9	16.81
DL + LL + Seismic	3,777.8	948.0	11,653.0	185.8	16.81

Summary

12.00ft high wall with 0.00ft parapet, Med Wt Block w/ 8.00in wall w/ #5 bars at 40.00ino.c. at center

Max. Bending Compressive Stress	509.75 OK
Allowable	658.35 OK
Max. Axial Only Compressive Stress	20.53 psi
Allowable	312.56 OK
Max Steel Bending Stress	30,914.64 psi
Allowable	31,920.00 OK

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Dsgnr:
Description :
Scope :

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Date: 11:33PM, 16 OCT 15

Rev: 580001
User: KW-0604804, Ver 5.8.0, 1-Dec-2003
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Masonry Wall Design

1.ecw Calculations

Description Typical Wall

Final Loads & Moments

Wall Weight moment @ Mid Ht	318.00 lbs	Wind Moment @ Mid Ht	10,022.40 in-#
		Seismic Moment @ Mid Ht	3,777.84 in-#
Dead Load Moment @ Top of Wall	0.00 in-#		
Dead Load Moment @ Mid Ht	0.00 in-#	Total Dead Load	630.00 lbs
		Total Live Load	210.00 lbs
Live Load Moment @ Top of Wall	0.00 in-#		
LiveLoad Moment @ Mid Ht	0.00 in-#		
Maximum Allow Moment for Applied Axial Load =		7,780.70 in-#	
Maximum Allow Axial Load for Applied Moment =		17,628.31 lbs	

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305.599.8076 FAX

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Rectangular Concrete Column

1 row Calculations

Description Column C1

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Width	12.000 in	fc	3,000.0 psi	Total Height	12.000 ft
Depth	8.000 in	Fy	60,000.0 psi	Unbraced Length	12.000 ft
Rebar:		Seismic Zone	4	Eff. Length Factor	1.000
2- # 5 d =	2.000 in	LL & ST Loads Act Separately		Column is BRACED	
2- # 5 d =	6.000 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity	
Axial Loads	4.000 k	4.000 k	k		in
Lateral Uniform Loads				Start Loc	End Loc
# 1	k/ft	0.400 k/ft	k/ft		ft
# 2	k/ft	k/ft	k/ft		ft

Summary

Column is OK

12.00 x 8.00in Column, Rebar: 2-#5 @ 2.00in, 2-#5 @ 6.00in

	ACI C-1	ACI C-2	ACI C-3
Applied : Pu : Max Factored	12.40 k	5.60 k	3.60 k
Allowable : Pn * Phi @ Design Ecc.	15.64 k	170.15 k	170.15 k
M-critical	12.24 k-ft	0.39 k-ft	0.25 k-ft
Combined Eccentricity	11.845 in	0.840 in	0.840 in
Magnification Factor	1.09	1.00	1.00
Design Eccentricity	12.859 in	0.840 in	0.840 in
Magnified Design Moment	13.29 k-ft	0.39 k-ft	0.25 k-ft
Po * .80	252.83 k	252.83 k	252.83 k
P : Balanced	77.14 k	77.14 k	77.14 k
Ecc : Balanced	4.517 in	4.517 in	4.517 in

Slenderness

per ACI 318-95 Section 10.12 & 10.13

Actual k Lu / r	60.000	Elastic Modulus	3,122.0 ksi	Beta	0.850
		ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3	
Neutral Axis Distance		2.1200 in	7.6000 in	7.6000 in	
Phi		0.8056	0.7000	0.7000	
Max Limit k/r		34.0000	34.0000	34.0000	
Beta = M:sustained/M:max		0.4516	1.0000	1.0000	
Cm		1.0000	0.6000	0.6000	
EI / 1000		440.47	319.69	319.69	
Pc : pi^2 EI / (k Lu)^2		209.65	152.16	152.16	
alpha: MaxPu / (.75 Pc)		0.0789	0.0491	0.0315	
Delta		1.0856	1.0000	1.0000	
Ecc: Ecc Loads + Moments		11.845	0.840	0.840 in	
Design Ecc = Ecc * Delta		12.859	0.840	0.840 in	

ACI Factors

(per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

BRITTLE AND DUCTILE FAILURES IN CONCRETE

This document determines the load carrying capabilities of a slab on a unit width basis.

Enter the problem conditions:

Ramp Slab

Compressive strength of concrete	$f_c' := 3000 \cdot \frac{\text{lbf}}{\text{in}^2}$	
Yield strength of reinforcing steel	$f_y := 60000 \cdot \frac{\text{lbf}}{\text{in}^2}$	
Understrength factor	$\phi := 0.9$	
Unit Width	$b := 12 \cdot \text{in}$	
Slab depth	$h := 6 \cdot \text{in}$	
Concrete Cover	$\bar{c}_c := 1.5 \cdot \text{in}$	
Size of bar	$d_b := 4$	
Spacing of bars	$\bar{s}_c := 12 \cdot \text{in}$	
Depth to reinforcing	$d = 4.25 \cdot \text{in}$	
Area of Steel Provided	$A_s = 0.1963 \cdot \text{in}^2$	
Steel Ratio Provided	$\rho := \frac{A_s}{b \cdot d}$	$\rho = 3.85 \times 10^{-3}$
Beta factor	$\beta = 0.85$	
$\rho_b := \frac{0.85 \cdot \beta \cdot f_c'}{f_y} \cdot \left(\frac{87000}{87000 + f_y'} \right)$	$\rho_b = 0.0214$	
$\rho_{\max} := 0.75 \cdot \rho_b$	$\rho_{\max} = 0.016$	
$\rho_{\min} := \frac{200}{f_y'}$	$\rho_{\min} = 3.3333 \times 10^{-3}$	
Compression block	$a := \frac{A_s \cdot f_y}{0.85 \cdot f_c' \cdot b}$	$a = 0.38 \cdot \text{in}$
Ultimate moment	$M_u := \phi \cdot (A_s \cdot f_y) \cdot \left(d - \frac{a}{2} \right)$	
	$M_u = 3.6 \cdot \text{kip} \cdot \text{ft}$	
Shear Strength	$V_s := 0.85 \cdot (2 \cdot \sqrt{f_c'} \cdot b \cdot d) \cdot \frac{\text{lbf}}{\text{in}^2}$	
	$V_s = 5 \cdot \text{kip}$	

GENERATOR FUEL CONSUMPTION WORKSHEET

MIAMI LAKES
Facility: GOVERNMENT CENTER Process/Permit #: _____
Address: 6601 MAIN ST. MIA. LAKES Folio Number #: 38-2013-001-0432
Date: 3/20/2017 Reviewed by: _____

GENERATOR	
1. Type of Fuel:	☒ Diesel ☐ Gasoline ☐ Propane ☐ Natural Gas
2. Number of Generators: (include new and existing for entire site)	New: ☒ Existing: ☐
3. Fuel Consumption of all Emergency Generators at full (100%) load (Table 1): (gallon / hour)	19.4
4. Exercise time: (hour / week)	1 HOUR
5. Annual Fuel Usage (gal / yr): = (3) × (4) × (52 weeks / yr)	1008.8
6. Is (5) greater than any of the following amounts? [5,400 gallons of gasoline; 64,000 gallons of diesel fuel; 288,000 gallons of propane; 8.8 million standard cubic feet of natural gas] ☐ Yes. STOP . State and County Air Permit Applications need to be completed. Contact Air Facilities Section at 305.372.6925 for instructions. ☒ No. Go to line 7.	
7. Potential Annual Fuel Consumption (gal / yr): = (3) × 500 (hr/year)	9,700
8. Is (7) greater than any of the following amounts? [5,400 gallons of gasoline; 64,000 gallons of diesel fuel; 288,000 gallons of propane; 8.8 million standard cubic feet of natural gas] ☐ Yes. STOP . County Air Permit Application needs to be completed. ☒ No. Go to line 9.	
9. Is there any other source of air emissions? ☐ Yes. STOP . County Air Permit Application needs to be completed. ☒ No. Resubmit your plans w/completed worksheet or make an appt. 786.315.2800 to see an AIR Reviewer.	

Table 1: List of Generators*

No.	Manufacturer	Model	kW	Fuel	Fuel Consumption @ full (100%) load	New/ Existing
1	CATERPILLAR	C-9	250	DIESEL	19.4	NEW
2						
3						
4						
5						
*Attach generator's specifications.				Total		gal/hr

The information provided above is true to the best of my knowledge and corresponds to the referenced project site.

CHARLES YOST, BASULTO & ASSOC
Name in Print Responsible Party / Title ENGINEER

Signature



Image shown may not reflect actual package.

STANDBY
250 ekW 313 kVA
60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

- EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response
- Cooling system designed to operate in 50°C / 122°F ambient temperatures with an air flow restriction of 0.5 in. water

UL 2200 / CSA – Optional

- UL 2200 Listed
- CSA Certified

Certain restrictions may apply.

Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S•O•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT C9 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation
- CSA Certified

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

SEISMIC CERTIFICATION*

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight and concrete strength.
IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010

*Not available with some options – consult with your Cat Dealer.

STANDBY 250 kW 313 kVA
60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Disposable air filter	☐ Canister type, dual element ☐ Heavy duty air cleaner
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	☐ Industrial ☐ Residential / Critical
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines • IP23 Protection	☐ Permanent magnet excitation (PMG) ☐ Anti-condensation space heater ☐ Coastal insulation protection ☐ Internal excitation (IE) / AREP
Power Termination	• Power terminal strips	☐ Circuit breakers – 100% rated assembly, UL Listed ☐ SUSE (Suitable for use as service equipment)
Control Panels	• EMCP 4.2	☐ EMCP 4.3 ☐ EMCP 4.4 ☐ Local and remote annunciator modules ☐ Remote monitoring software
Mounting	• Rubber vibration isolators	
Starting/Charging	• 24 volt starting motor & charging alternator • Batteries	☐ Battery chargers ☐ Oversize batteries ☐ Jacket water heater
General	• Paint – Caterpillar Yellow except rails and radiators gloss black • Narrow skid base	The following options are based on regional and product configuration: ☐ Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010 ☐ UL 2200 Listed package ☐ CSA Certified ☐ Wide skid base ☐ Sound attenuated enclosure ☐ Weather protective enclosure ☐ Integral dual wall UL Listed 8 hr fuel tank ☐ Sub-base dual wall UL Listed 24 hr fuel tank ☐ Sub-base dual wall UL Listed 48 hr fuel tank

STANDBY 250 kW 313 kVA

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

STANDARD CAT GENERATOR	
Frame size	LC5014H
Excitation	Self Excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of leads	12
Insulation	UL 1446 Recognized Class H
IP Rating	IP23
Alignment	Pilot shaft
Overspeed capability (%)	125
Wave form deviation (%)	2
Voltage regulator	Three phase sensing
Voltage regulation	+/- 0.25% (steady state)
- Consult your Cat dealer for available voltages	
CAT DIESEL ENGINE	
C9 ATAAC, I-6, 4-Stroke Water-cooled Diesel	
Bore	112.00 mm (4.41 in)
Stroke	149.00 mm (5.87 in)
Displacement	8.80 L (537.01 in ³)
Compression ratio	16.1:1
Aspiration	Air-to-air aftercooled
Fuel system	Hydraulic electronic unit injection
Governor type	Caterpillar ADEM™ control system

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- kW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAR) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 250 ekW 313 kVA

60 Hz 1800 rpm 480²/volts



TECHNICAL DATA

Open Generator Set - 1800 rpm/60 Hz/480 Volts	DM8501	
EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)		
Generator Set Package Performance Genset power rating @ 0.8 pf Genset power rating with fan	313 kVA 250 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	73.3 L/hr 58.8 L/hr 43.8 L/hr	19.4 gal/hr 15.5 gal/hr 11.6 gal/hr
Cooling System¹ Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 600 m ³ /min 46.7 L 22.0 L 24.7 L	0.48 in. water 21189 cfm 12.3 gal 5.8 gal 6.5 gal
Inlet Air Combustion air inlet flow rate	25.2 m ³ /min	890 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	456°C 63.6 m ³ /min 127.0 mm 10.0 kPa	852°F 2246 cfm 5.0 in 40.1 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	104 kW 277 kW 82 kW 18 kW 19.7 kW	5914 Btu/min 15753 Btu/min 4663 Btu/min 1024 Btu/min 1120 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Insulation class Temperature rise	543 skV LC5014H H 150°C	270°F
Lubrication System Sump refill with filter	39.0 L	10.3 gal
Emissions (Nominal)³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	2.91 g/hp-hr 0.37 g/hp-hr 0.09 g/hp-hr 0.081 g/hp-hr	

¹ For site specific ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

³ Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:

AS1359, CSA C22.2 No100-04, UL142,UL489,
UL869, UL2200, NFPA37, NFPA70, NFPA99,
NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22,NEMA MG1-33, 72/23/EEC, 98/37/
EC, 2004/108/EC.

Standby – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16°C or 60°F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

STANDBY 250 kW 313 kVA

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions		
Length	2870 mm	113.0 in
Width	1622 mm	63.9 in
Height	2065 mm	81.3 in
Weight*	2106 kg	4643 lb

*With Oil and Coolant.

NOTE: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Performance No.: DM8501

Feature Code: C09DE47

Gen. Arr. Number: 449-0571

Source: U.S. Sourced

LEHE0489-00 (02/14)

www.Cat-ElectricPower.com

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Materials and specifications are subject to change without notice.
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**SPILL PREVENTION AND RESPONSE PLAN
(SPRP)**

☒ New

☐ Amendment

Effective date: 3/20/2017

This plan is required of all sites with aboveground tanks with a capacity greater than 550 gallons that contain regulated substances, hazardous materials, or pollutants as defined in Florida Statute 376.3.

FACILITY NAME: MIAMI LAKES GOVERNMENT CENTER

FACILITY OWNER: TOWN OF MIAMI LAKES

FACILITY OPERATOR (person in charge): CARLOS ACOSTA

FACILITY ADDRESS: 6601 MAIN STREET
MIAMI LAKES, FLORIDA 33014

TELEPHONE NUMBER: 305-364-6100 24 HOUR NUMBER: 305-364-6100

All aboveground tanks with a capacity greater than 550 gallons containing pollutants and all underground tanks with a capacity of 110 gallons or greater that contain regulated substances shall comply with Chapter 62-761, FAC. Please list in Table I all above (A) or underground (U) storage tanks at this facility and attach a scaled site sketch (8.5"x11") indicating the location of all tanks and monitoring wells on site.

TABLE I

Tank No.	Installation Date	Tank Capacity (Gallons)	Material of Construction	A U	Product Stored
1	8-15-17	549	STEEL	A	DIESEL

If more lines are needed, please attach a separate page.

The aboveground tank(s) is/are provided with secondary containment by

- ☒ a) an FDEP approved doublewalled tank or
☐ b) an impermeable diked area with a capacity of 110% of the volume of the largest tank within the diked area.

SPILL RESPONSE

If the aboveground tank is secondarily contained within a diked area, this dike shall contain any spill. Any spilled product within the diked area shall be pumped out or recovered with an absorbent material, containerized and disposed of properly or else the facility's specific spill response plan must be provided. Be advised that all work, including all applicable safety requirements, must comply with the applicable requirements of Chapter 24 of the Miami-Dade County Code, Chapter 62-770, and 62-761 of the Florida Administrative Code (FAC), United States Occupational Safety and Health Administration (OSHA), and National Fire Prevention Association (NFPA) and all other applicable regulations.

If the aboveground tank is doublewalled, a breach in the primary tank will discharge into the secondary tank and be detected through the interstitial monitoring provided for the tank.

Any discharges outside the secondary containment shall be recovered with an absorbent material, containerized and disposed of properly.

****Attach a list of equipment and/or materials on-site to handle spills from a failure of a tank.****

ROUTINE INSPECTIONS

The operator of regulated aboveground storage tanks shall comply with the requirements of Chapter 62-761 for inventory, release detection and recordkeeping. All paperwork shall be made available for routine annual inspections.

For all other unregulated aboveground tanks, a schedule for in-house tank inspections and recordkeeping to be performed must be maintained. Attached please find a recommended schedule.

CERTIFICATION

I hereby certify and attest that the information contained herein and in the construction plans submitted with this SPRP, is true, correct and complete to the best of my knowledge. Furthermore, I agree to maintain and operate this facility in compliance with this plan.

Signature of Responsible Party (Must be notarized.)

Print Name and Title

Sworn to and subscribed before me this _____ day of _____ 19____

Notary Public

RECOMMENDED IN-HOUSE INSPECTION SCHEDULE

INSPECTION/TEST RECORD	FREQUENCY
---------------------------	-----------

Tank integrity - visual	Monthly
Tank supports and foundation - visual	Daily
Liquid sensing devices, interstitial monitoring device or site glass, monitoring wells - visual	Weekly
Aboveground valves, piping, fittings - visual	Daily
Corrective actions, maintenance	As required

FUEL SPILL PROVISIONS

THE CONTRACTOR SHALL PROVIDE TO THE OWNER THE FOLLOWING MATERIALS:

(1) FUEL SPILL KIT (GATOR INTERNATIONAL #SP-58) TO INCLUDE:

- (1) 58 GALLON DRUM
- (1) 30 POUND BAG 'GATOR' OIL ABSORBENT
- (4) 5' x 10' ABSORBENT 'BOOMS'
- (8) 4' x 4' ABSORBENT 'SOCKS'
- (100) ABSORBENT PADS
- (2) DUST MASKS
- (2) PAIRS RUBBER GLOVES
- (2) GOGGLES
- (1) BROOM AND DUST PAN
- (2) DISPOSAL BAGS
- (1) PACKAGE LEAK PLUGS