

SPECIFICATIONS - RENOVATIONS AND UPGRADES
OF AN EXISTING
UNINTERRUPTIBLE POWER SYSTEM & AND EQUIPMENT

THE CITY OF LAGRANGE
LAGRANGE TECHNOLOGY CENTER
LAGRANGE, GEORGIA

L. LEIGH MORGAN, JR.
CONSULTING ENGINEER

P.O. BOX 6

SENOIA, GA.

JOB NO. 15003

JUNE 24, 2015

INVITATION TO BID

An invitation to bid is hereby extended for a sealed bid on a Contract for the Renovations and Upgrades of an Existing Uninterruptible Power System and Equipment for The City of LaGrange, LaGrange Technology Center, 309 Church Street, LaGrange, Georgia 30240 including all specified equipment and accessories.

By: THE CITY OF LAGRANGE
200 RIDLEY AVENUE
LAGRANGE, GEORGIA 30240
ATTENTION: Ms. Michelle Leady – Telecommunications Manager

For: RENOVATIONS AND UPGRADES OF
AN EXISTING UNINTERRUPTIBLE POWER SYSTEM & EQUIPMENT
LAGRANGE TECHNOLOGY CENTER
309 CHURCH STREET
LAGRANGE, GEORGIA 30240

Bids shall be delivered for a public bid opening at:

**2 P.M. EST, WEDNESDAY, JULY 15, 2015, at 200 RIDLEY AVENUE, ROOM 301,
OFFICE OF PURCHASING CITY HALL, LAGRANGE, GEORGIA 30240, ATTN: ROBI
HIGGINS.**

No Bid shall be accepted after **2 PM EST, WEDNESDAY, JULY 15, 2015.**

Two (2) two copies of the completed Bid Package shall be provided to the Owner's Representative at the above noted location and (1) copy shall be provided to the Engineer at the below noted location. The Engineer's copy may be faxed to his office after delivery of the submission to the Owner, delivered by overnight mail on the day of the submission, or by e-mail to leighmorgan@mindspring.com. Failure to submit a copy to the Engineer on the date of the Bid shall result in rejection of the Contractor's Bid.

Note that it is the Owner's intent that a single Contract be awarded for all associated portions of the work and that each Electrical Contractor, acting as the Prime Contractor, shall be required to coordinate this work with all other Contractors involved in the Project.

Invited bidders shall receive PDFs, transmitted via e-mail, of the Bidding Drawings and Bidding Specifications as a portion of the Bidding Documents.

Invited bidders may secure additional prints of Project Drawings by contacting Buster's Reprographics & Digital Printing in Forest Park, Georgia, via either e-mail (busters@bustersrepro.com) or phone (404-366-0870) and placing an order for LaGrange Technology Center, UPS Renovations and Upgrades drawings. Should you need to set up an account with them, one of their representatives shall be happy to do so.

All equipment shall be in accordance with the Bidding Documents, which are on file at the following locations:

LaGrange Technology Center
309 Church Street
LaGrange, Georgia 30240
Attention: Ms. Michelle Leady
Telecommunications Manager
706/883-2004, Fax 706/883-2007
E-mail: mleady@lagrange.org

L. Leigh Morgan, Jr., Consulting Engineer
Post Office Box 6
Senoia, Georgia 30276
Attention: Mr. Leigh Morgan
770/599-3840, Fax 770/599-0801
E-mail: leighmorgan@mindspring.com

Bids may not be withdrawn or modified for a period of 30 days from time stated for receipt of bids. The Owner reserves the right to accept or reject any bid or waive any informality in bidding.

All bidders shall **complete and submit with any bid** a notarized affidavit (forms attached) in compliance with O.C.G.A. Section 13-10-91 attesting to the Bidder's registration with the Federal work authorization program (E-VERIFY).

Copies of the Project Bid Form in Microsoft Word Format are available via e-mail from the Engineer's Office. To request a copy, please send an e-mail to leighmorgan@mindspring.com with the desired return e-mail address.

Any questions regarding the Project shall be provided to the Engineer for response via e-mail at leighmorgan@mindspring.com with a copy to the Owner's Representative, Ms. Michelle Leady, at mleady@lagrange.org.

It is intended that the ELECTRICAL CONTRACTOR shall be the PRIME CONTRACTOR for the Project and that all costs of the work associated with the Project shall be provided in the Bid of the PRIME CONTRACTOR.

All visits to the Site for inspection and review of the areas associated with this Project shall be scheduled a minimum of 48 hours in advance with Ms. Michelle Leady. It is recognized that each Contractor and Sub-Contractor needs to visit the area, but the number of visits and the number of visitors should be held to a minimum. No visits shall be made to the area without prior approval and authorization from Ms. Michelle Leady.

A Pre-Bid Meeting and Walk Through of the Project Facility shall be held at 3 PM EST, WEDNESDAY, JULY 1, 2015. All Bidders are invited and strongly encouraged to attend this meeting and responses to any questions raised or asked shall be provided to all Bidders. Each Bidder should provide the names of the individuals who shall attend the Pre-Bid Meeting by email to both the Engineer (leighmorgan@mindspring.com) and the Owner (mleady@lagrangeqa.org) before Noon on July 1.

Bid of _____

BID FORM - RENOVATIONS AND UPGRADES OF
AN EXISTING UNINTERRUPTIBLE POWER SYSTEM & EQUIPMENT
LAGRANGE TECHNOLOGY CENTER
309 CHURCH STREET
LAGRANGE, GEORGIA 30240

DATE _____,

Dear Sirs:

The undersigned Bidder declares that he has read and understands the "Documents for Renovations and Upgrades of an Existing Uninterruptible Power System and Equipment for LaGrange Technology Center, LaGrange, Georgia", identified as Job No. 15003, prepared by L. Leigh Morgan, Consulting Engineer, Senoia, Georgia.

The undersigned Bidder declares that he shall furnish the equipment, including all accessories, called for or implied in the above mentioned Specifications and/or on the Drawings, and that he will accept as complete compensation therefore the sum of

_____ Dollars(\$ _____)

which is hereinafter referred to as the BASE BID.

For cost evaluation by the Owner, the following items including all associated labor, materials, and equipment are identified separately below (indicate "N/A" where work is not provided or required as a portion of this Bid):

Demolition	\$ _____
General Construction	\$ _____
Mechanical Systems	\$ _____
Electrical Systems	\$ _____
All Other Work (Including Daily Cleanup of Site)	\$ _____

The undersigned bidder further declares that if awarded the Contract, he shall complete all work associated with the Installations at the Owner's Site in ____ total consecutive calendar days from the date of award of the Contract.

For evaluation by the Owner, the following listing of Subcontractors is provided for the work to be performed:

General Construction Sub-Contractor (When Required)

Mechanical Sub-Contractor (When Required)

For evaluation by the Owner, the following listing of Equipment Manufacturers is provided for the work to be performed:

Equipment Manufacturer (UPS and Associated Equipment)

Equipment Manufacturer (Electrical Panelboards)

The following Alternate Costs are to be provided for evaluation by the Owner:

Alternate No. 1: Furnish and Install a Second Battery Cabinet with the UPS

This alternate shall provide for the purchase and installation of one additional Battery Cabinet to match the Battery Cabinet provided in the Base Bid.

This work shall include all required materials, equipment, shipping, handling, installation, etc., to furnish and install the additional Battery Cabinet. If this is purchased as a part of the Project, the Contractor shall be notified within seven (7) days of the award of the Bid.

The undersigned declares that the Owner may ADD to/DEDUCT from the Base Bid noted above the following sum:

Furnish and install Second Battery Cabinet

ADD/DEDUCT \$ _____

Alternate No. 2: Furnish and Install an additional Power Panelboard

This alternate shall provide for the purchase and installation of one additional Power Panelboard (RP-UPS-B-4) to match the Power Panelboards provided in the Base Bid.

This work shall include all required materials, equipment, shipping, handling, installation, etc., to furnish and install the additional Power Panelboard. If this is purchased as a part of the Project, the Contractor shall be notified within seven (7) days of the award of the Bid.

The undersigned declares that the Owner may ADD to/DEDUCT from the Base Bid noted above the following sum:

Furnish and install Second Battery Cabinet

ADD/DEDUCT \$_____

The Owner reserves the right to accept any or all of the above noted Alternates at the time of or within seven (7) days of the award of the Contract.

If this Proposal and Bid be accepted, and the undersigned Bidder should fail to enter into Contract, as aforesaid, within fifteen (15) days from the date of mailing to him a written notice, at the address herein given, that the Contract is ready for signature, the Owner may, at his option, declare that the Bidder has abandoned the Contract, and thereupon this Proposal and the acceptance thereof shall become null and void.

The undersigned Bidder hereby agrees that his Bid shall not be withdrawn within sixty (60) days from the time set for the receipt of bids.

The undersigned Bidder acknowledges hereunder the receipt of all Addenda received by him. The undersigned Bidder further states that:

All equipment and services quoted are in strict accordance with the Documents prepared by L. Leigh Morgan, Consulting Engineer, dated June 24, 2015, and identified as Job No. 15003, unless exception is noted on the attached page BF-5.

SIGNED: _____
(Title)

BY: _____
(Company Name)

(Business Address)

(Witnessed)

Addendum Receipt. The receipt of the following addendum or addenda is acknowledged:

Addendum No. 1 Date

Addendum No. 2 Date

The following exceptions are noted to the "Renovations and Upgrades of an Existing Uninterruptible Power System and Equipment for LaGrange Technology Center, LaGrange, Georgia", identified as Job No. 15003.

In the event that this page is **NOT** attached to the Bid Form it shall be understood by all parties that **NO** exceptions are taken to the above Specifications.

If the Bidder is **NOT** providing all equipment requested in this bid, he shall indicate on this page the equipment which is **NOT** supplied as a part of this Bid. In addition, in the spaces provided for evaluation on the previous pages, the Bidder shall enter "N/A" for items which are **NOT** supplied.

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with the CITY OF LAGRANGE, GEORGIA has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with CITY OF LAGRANGE, contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the CITY OF LAGRANGE at the time the subcontractor(s) is retained to perform such service.

EEV / Basic Pilot Program* User Identification Number

Company Name

BY: Authorized Officer or Agent
(Contractor Name)

Date

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS
THE ____ DAY OF _____, 20__.

Notary Public
My Commission Expires: _____

* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

(End of Form)

SUBCONTRACTOR AFFIDAVIT

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____
_____ (name of contractor) on behalf of **CITY OF LAGRANGE** has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

EEV / Basic Pilot Program* User Identification Number

Company Name

BY: Authorized Officer or Agent
(Subcontractor Name)

Date

Title of Authorized Officer or Agent of Subcontractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON
THIS THE _____ DAY OF _____, 20____.

Notary Public
My Commission Expires: _____

* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

(End of Form)

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SECTION G

GENERAL CONDITIONS

01 GENERAL:

The GENERAL CONDITIONS shall apply to the work as a whole and to each and all branches of the work. Subcontractors shall be supplied with a copy of these GENERAL CONDITIONS and no arrangement or contracts with the subcontractors are to be such as to conflict with same. These Conditions shall also apply to any modifications or extra work.

02 DEFINITIONS:

The Contract Documents consist of the Contract, the Specifications and modifications thereof, the Drawings and modifications thereof, incorporated in the Documents before their execution, and the signed Proposal and Bid. These form the Contract Documents.

Wherever the term "Specifications" is used, throughout the Contract Documents, it shall be construed to embrace SPECIAL CONDITIONS, GENERAL CONDITIONS, and all specifications, supplements, addenda, instructions to Bidders, Form of Proposal, etc., issued prior to the receipt of bids and/or signing of Contract.

The Owner, the Contractor, and the Engineer are those mentioned as such in the agreement. They are treated throughout the Contract Documents as if each were of the singular number and masculine gender.

Whenever the term "Contractor" or "General Contractor" or "Prime Contractor" occurs on the Drawings or in the Specifications, it shall refer to the Contractor for the work included in these Specifications and the Drawings accompanying them.

The term "Prime Contractor" shall be substituted for "General Contractor" throughout these Specifications and Drawings when the Mechanical or Electrical Contractor is designated to be the Prime Contractor and the Building Contractor is designated to be a Subcontractor to the Prime Contractor.

The "Subcontractor", as employed herein, includes only those having a direct contract with the General Contractor, and it includes one who furnishes material worked to a special design according to the Drawings and Specifications of this work, but does not include one who merely furnishes material not so worked.

Written notice shall be deemed to have been fully served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for which it is intended, or if delivered or sent by mail to the last business address known to him who gives the notice.

The term "work" of the Contractor or Subcontractor includes labor or materials or both.

The law of the place, the Atlanta, Georgia, in which the building is erected, shall govern the construction of the Contract.

03 NOTICE TO BIDDER:

Should any Bidder be in doubt as to the intention and meaning of the Drawings or Specifications he may make inquiry to the Engineer in writing. The question and answer will be communicated to all Bidders. Verbal answers are not binding.

By the submission of the proposal, the Bidder shall be held to have fully informed himself as to the scope of the work required in accordance with the intent and meaning of the Drawings and Specifications, also as to existing conditions, and to have made all necessary surveys and other investigations; and no allowances will subsequently be made in behalf of the Contractor by reason of failure upon his part to properly inform himself, or for any alleged misunderstanding of the materials to be furnished or work to be done.

04 OBSERVATION OF WORK:

The Engineer and his representatives, while observing the work in progress on behalf of the Owner, will give the Contractor all possible assistance in interpreting the terms of the Contract. Such assistance shall not relieve the Contractor from responsibility for his work, in accordance with the Contract requirements and any work which proves faulty shall be made right by the Contractor.

Representatives of the Engineer are without authority to alter or relax the terms of the Contract. Any alteration or relaxation of terms of the Contract shall be valid only if made in accordance with the procedures set forth under CHANGES IN THE WORK.

Upon request of the Contractor, decisions, instructions, or interpretations of the Engineer's representatives will be issued in writing. Any claim by the Contractor that any decisions, instructions, or interpretations are not within the scope of the work, or that they entail costs beyond the scope of the Contract, shall be made to the Engineer, in writing, and within five (5) days of such ruling, and before the work involved is performed; otherwise, it will be considered that such decisions, instructions, or interpretations are accepted without question.

The Engineer and his representatives shall at all times have safe access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and observation.

If the Specifications, the instructions of the Engineer, laws, ordinances, and/or any public authority require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection, and if the inspection is to be made by another authority, on the date fixed for such inspection. Inspections made by the Engineer shall be made promptly and, where practicable in the opinion of the Engineer, at the source of supply.

If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination at the Contractor's expense. Re-examination of questioned work may be ordered by the Engineer, and if so ordered, the work must be uncovered by the Contractor. If such work be found to be in accordance with the Contract Documents, the Owner shall pay the cost of uncovering and replacement. If such work be found to be not in accordance with the Contract Documents, the Contractor shall pay the cost.

05 RESIDENT ENGINEER:

The Engineer may, on behalf of the Owner, place a Resident Engineer on the site to observe the conduct of the Contractor's work. He is not empowered to act as an agent for the Owner nor to alter or relax any requirements of the Contract. He shall render assistance to the Contractor in understanding and carrying out the requirements of the Contract, under the same conditions and limitations applicable to representatives of the Engineer as set forth under OBSERVATION OF WORK.

06 SPECIFICATIONS:

The Specifications, the Drawings accompanying them, and the other Contract Documents, shall be supplementary to each other, and any material, workmanship, and/or service which may be in one but not called for in the others, shall be as binding as if indicated, called for, or implied by all.

While the Specifications are subdivided into trades, the General Contractor will be held to furnishing all labor and materials necessary to complete the whole work as contemplated by the Drawings and Specifications and shall be responsible therefor.

The General Contractor shall see to it that his work overlaps the work of all his Subcontractors, on the job, and agrees to assume all responsibility for liability, workmanship, and quality of materials concerning any work done by said Subcontractors.

07 SPECIFICATIONS AND DRAWINGS TO BE COOPERATIVE:

These Specifications and the Drawings accompanying them are intended to describe and provide for a finished piece of work. They are intended to be cooperative and what is called for by either shall be as binding as if called for by both.

The Contractor shall understand that the work herein described shall be complete in every detail, notwithstanding every item necessarily involved is not particularly mentioned and the Contractor shall be held to provide all labor and material necessary for the completion of the indicated work.

The Contractor shall, before the award of the Contract, report in writing to the Engineer, any discrepancy which he may discover between the Drawings and Specifications. If the Contractor fails to call such discrepancy to the attention of the Engineer, the subsequent decision of the Engineer as to which is correct shall be binding and final.

Should any error or inconsistency appear in the Drawings or Specifications, the Contractor, before proceeding with the work, shall make mention of the same to the Engineer for proper adjustment and in no case shall he proceed with the work in uncertainty.

08 DRAWINGS:

The Drawings generally show work fully drawn out on only a portion of the Drawings, the remainder being in outline. The drawn out work must be understood as applying to other like or similar places.

Large scale or full size details shall be furnished by the Engineer for work which, in his opinion, shall require such drawings, but these shall be considered as explanatory of the Drawings and Specifications, and not as indicating additional work. Details shall be accurately followed and any deviations therefrom shall be cause for the rejection of any work so executed.

All necessary dimensions are given on the Drawings and shall in all cases, except where a discrepancy occurs, be followed exactly.

The figures and notes on the Drawings, showing the indicating dimensions, shall be used instead of scaling. No dimensions may be determined by scaling except details drawn to a 3" scale or larger, and these only when dimensions are not specifically given or implied.

All Drawings and Specifications issued to the Contractor are understood to be the property of the Engineer and are to be returned to him when no longer required for use at the building, whether paid for or not, and shall not be duplicated or copied without his permission.

09 SCHEDULES:

The Schedules are a part of the Drawings and Specifications of this Contract, and the Contractor is cautioned to thoroughly scrutinize the same, estimating and including all work in his line that may be listed thereon.

10 CONTRACTOR'S SHOP DRAWINGS:

Contractor shall furnish the Engineer with at least six (6) copies of all shop drawings and schedules for approval. Two (2) finally approved copies will be returned to the Contractor for his use. If additional copies are required by the Contractor for his use, the quantity furnished to the Engineer shall be increased by the Contractor at the time of submittal. In the event that additional copies are required by the Contractor after the shop drawings have been returned, the Contractor shall resubmit the shop drawings to the Engineer as if no prior submittal has been made (i.e. - six (6) copies plus the additional copies required).

If any drawings or schedules are submitted for approval that does not contain at least six (6) copies, they shall be returned to the General Contractor before they are checked by the Engineer.

Shop drawings and schedules of all trades shall be submitted only by the General Contractor who shall indicate by a signed stamp on the drawings that he has checked the shop drawings and that the work shown on them is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved. Under no conditions are shop drawings to be submitted to the Engineer by any other than the General Contractor.

If any drawings or schedules are submitted for approval that have not been checked and signed by the General Contractor, they will be returned to the General Contractor for checking, before they are checked by the Engineer.

The approval of such drawings or schedules by the Engineer shall not relieve the Contractor from responsibility for deviations from the Drawings or Specifications unless he has in writing called attention to such deviations and the Engineer approves the changes or deviations in writing at the time of submission, nor shall it relieve him from the responsibility for errors of any kind in shop drawings or schedules. When the Contractor does call such deviations to the attention of the Engineer, he shall state in his letter whether or not such deviations involve any extra cost. If this is not mentioned, it will be assumed that no extra cost is involved for making the change. Letters regarding the work must be submitted to the Engineer through the General Contractor.

11 INSTRUCTIONS, CHANGES, ETC.:

All changes, alterations, or instructions in regard to any feature of the work that differs from the Drawings and Specifications MUST be in writing in all cases, and no verbal orders will be regarded as a basis for claims for extras.

All claims for extra work must be made in writing within five (5) days after the instructions are issued; otherwise, it will be assumed that the instructions or changes incur no additional cost.

No extra work is to be performed or any changes made that involve any extra cost until the Engineer has authorized the Contractor to proceed, in writing, except in emergency endangering life or property when the procedure shall be as set forth under CHANGES IN THE WORK.

12 CONTRACTOR'S SUPERINTENDENT:

The Contractor shall keep on the work continuously during the progress of the work a competent general superintendent and any necessary assistants, all to be satisfactory to the Engineer.

The superintendent shall not be removed from the work and another substituted for him except with the consent of the Engineer, unless the superintendent becomes unsatisfactory or ceases to be in the Contractor's employ. The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given directly to the Contractor.

13 ASSIGNMENT:

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any monies due, or to become due to him hereunder without the previous consent of the Owner.

14 SUBCONTRACTORS:

The Contractor shall as soon as practicable after the execution of the Contract, and before any subcontracts are awarded, notify the Engineer in writing of the names of Subcontractors proposed to be used in the various parts of the work.

When the names of the Subcontractors are submitted for approval, the Contractor shall give the Engineer the name and quality/quantity of the material and the name of the Manufacturer of the material which the Subcontractor proposes to use.

No subcontract shall be awarded until the Contractor has received approval in writing from the Engineer on the proposed Subcontractor.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his Subcontractors and of persons, whether directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relation between the Subcontractor and the Owner.

15 SEPARATE CONTRACTS:

The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results. His failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work except as to defects which may develop in the other contractor's work after the execution of his own work.

To insure proper execution of his subsequent work, the Contractor shall measure work already in place and shall report at once to the Engineer any discrepancy between the executed work and the Drawings.

16 MUTUAL RESPONSIBILITY OF CONTRACTORS:

Should the Contractor cause damage to any other contractor on the work, this Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration, if he will so settle. If such other contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend such proceedings, and if any judgment against the Owner arises therefrom, the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.

17 ACQUAINTANCE WITH CONDITIONS:

The Contractor shall have examined the premises so as to compare them with the Drawings and Specifications and to have satisfied himself as to the condition of the site, and obstructions, the actual levels, and all excavation, filling in, etc., necessary in carrying out the work, before delivery of his proposal, and no allowance shall subsequently be made in behalf of the Contractor of his failure to do so.

Immediately upon beginning the job, the Contractor shall check all dimensions of the present work, including the work done by other contractors on this project, which affect his work, and shall report to the Engineer any discrepancy between these dimensions and those shown on the Drawings.

18 POSSESSION OF SITE AND RESPONSIBILITY:

After taking possession of the site, the Contractor shall be responsible thereafter until completion, for the management, care, and maintenance of the site, both new and existing work, and shall be solely responsible for damage thereto and for any and all injury to persons or property incident to or on account of the execution of this work, and shall adjust all the claims of suits arising therefrom, without loss or expense to the Engineer or the Owner.

19 PERMITS AND REGULATIONS:

The Contractor shall obtain and pay for all permits and licenses, but not permanent easements, and shall give all notices, pay all fees, and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor shall ascertain that the Drawings and Specifications are at variance with any of the above mentioned requirements, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the Engineer, he shall bear all costs, fines, and damages arising therefrom.

On completion of the work, the Contractor shall obtain certificates of compliance, approval, and/or acceptance from all authorities having jurisdiction over the work and shall deliver these certificates to the Engineer. He shall also deliver to the Engineer the Official Receipts of the proper authorities certifying that he has paid for all Municipal and State Permits, fees, and licenses to which the work under the Contract is subject.

The work shall not be deemed to have reached a state of completion until such certificates and receipts shall have been so obtained and delivered.

20 MATERIAL, APPLIANCES, EMPLOYEE'S RESPONSIBILITY:

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, appliances, light, power, transportation, and all facilities necessary for the proper execution and satisfactory completion of the work.

Unless otherwise specified, all materials shall be new, and both materials and workmanship shall be of best quality. The Contractor shall, if required, furnish satisfactory evidence of the kind and quality of materials intended to be used.

Should any dispute arise as to the quality or fitness of any materials or workmanship, the decision shall rest with the Engineer and shall be based on the requirements that all materials furnished and all work done shall be of best quality and what might be usual and customary in the erection of other structures shall in no wise enter into any consideration or decision.

It is not incumbent upon the Engineer to notify the Contractor to begin, to cease, or to resume work, or to give early notice of the rejection of faulty materials or workmanship, or in any case to superintend to the extent of relieving the Contractor of responsibility or of any consequence of neglect or carelessness of himself or of his subordinates. All materials and labor shall be delivered and furnished at such time as shall be for the best interests of all contractors concerned, to the end that the combined work of all may be properly and fully completed on time.

21 PROGRESS SCHEDULE:

The Contractor shall prepare and present to the Engineer a carefully prepared "Schedule of Work" which shall set forth the series of dates upon which the Contractor proposes to begin and finish the different parts of the work. This schedule shall be submitted within five (5) days of award of Contract to the Contractor.

22 SAMPLES:

The Contractor shall furnish to the Engineer for approval complete samples of all the materials which he proposes to use, where samples are called for in the Specifications or required by the Engineer.

All samples submitted must be clearly labeled as to the name of the Contractor, name of the Manufacturer, quality of material, and the name of the job. Unless the samples are labeled as outlined above, they will not be approved.

The samples are to be submitted direct by the Contractor and no samples will be accepted from any Subcontractor.

After the samples have been approved, they will be sent to the job to be compared with the materials as they arrive on the job. All materials shall be in strict accordance with the approved samples.

23 PATENTS AND ROYALTIES:

The Contractor shall forever protect and defend the Owner in the full and free use and enjoyment of any and all rights to any invention, machine, or device, which may be applied as a part of the work, either in the construction or after construction, against all demands whatsoever. The Contractor shall notify the Owner in writing as to any such of the above upon which he may have to pay any royalty.

24 CONTRACTOR'S HOLD HARMLESS AGREEMENT - INSURANCE:

The General Contractor shall be responsible from the time of signing the Contract, or from the time of the beginning of the first work, whichever shall be the earlier, for all injury or damage of any kind resulting from this work, to persons or property.

The Contractor hereby assumes the obligation to save the Owner and the Engineer, harmless and to indemnify the Owner and the Engineer, from every expense, liability, or payment arising out of or through injury to any person or persons, including death, or damage to property of any person or the City or State in which the work is located, suffered through:

- A. Any act or omission of the Contractor or any Subcontractor, or anyone directly or indirectly employed by or under the supervision of any of them.
- B. Any act or omission incident to the inspection or supervision by the Owner or his representatives, of the work included in this Contract.

The Contractor agrees to carry Workmen's Compensation Insurance and to have all Subcontractors likewise carry compensation insurance.

Before the starting of any work, the Contractor shall furnish to the Owner:

- A. Certificates of Insurance in companies acceptable to the Owner and the Engineer, covering:
 - 1. Workmen's Compensation Insurance.
 - 2. Comprehensive Liability Insurance covering all operations and automobiles:
 - a) with limits of \$100/300,000 Bodily Injury.
 - b) with limit of \$100,000 Property Damage, inclusive of protection against damage due to excavation, shoring, underpinning, and blasting, to the extent to which such risks are present.
 - c) including Contractor's Protective Coverage for any Subcontractor's operations.
 - d) including an endorsement incorporating the Hold Harmless Agreement assumed by the Contractor under the terms of this Contract.
 - e) these certificates to contain an agreement that the policies certified will not be changed or cancelled without ten (10) days prior notice to the Owner and the Engineer.
 - f) when such hazards are or become present on the premises, within the scope of operations under the Contract, the Contractor shall provide additional insurance as follows:
 - i. Explosion insurance in an amount not less than \$50,000.00 to cover all damage caused by bursting of boilers or other pressure containers.
- B. The Contractor shall be wholly responsible for securing Certificates of Insurance coverage as set forth in paragraph A above from all Subcontractors who are engaged in this work.

25 SOCIAL SECURITY TAX:

The Contractor assumes and is liable specifically for all State and Federal so-called Payroll or Social Security Taxes and guarantees to hold the Owner harmless in every respect against same.

26 SALES TAX:

The Contractor assumes and is liable specifically for all State and Federal Sales and Use Taxes that may be in force at the time of the award of the Contract.

27 USE OF PREMISES:

The Contractor shall confine his apparatus, the storage of materials, and the operations of his workmen to the limits defined by law, ordinances, permits, or directions of the Engineer and shall not unduly encumber the premises with his materials.

The Contractor shall not load nor permit any part of the structures to be loaded with a weight which will endanger their safety. Before materials are stored in the building, the Contractor shall consult the Owner's representative as to the location and quantity to be stored.

The Contractor shall enforce the instruction of the Engineer regarding signs, advertisements, fire, and smoking.

28 GUARDS, LIGHTS, ETC.:

The General Contractor shall provide all barricades, guards, lights, and/or other such protection and walks around his work as are required by the City Regulations or County, State, or Federal Laws and shall assume all responsibility of same, and keep them in repair. All barricades, etc., shall be promptly removed on completion of the work.

29 LINES AND LEVELS:

The Contractor shall carefully lay out the work in accordance with the dimensions of the Drawings and be responsible for all his grades and floor levels. He shall check carefully all dimensions before starting any work and report to the Engineer any discrepancies for correction. He shall use strong batterboards to fix all main lines of the buildings in accordance with the general layout and grades shown.

30 MOVING MATERIALS:

If it becomes necessary at any time during the renovations and upgrades of the building to move materials which are to enter into the construction, which materials have been temporarily placed, the Contractor or Subcontractor shall, when so directed by the Engineer, move them or cause them to be moved without additional cost to the Owner.

31 CLEANING DURING CONSTRUCTION AND AT COMPLETION OF WORK:

The General Contractor shall keep the premises clean at all times and shall remove all rubbish as often as directed by the Engineer or his representative, or the Owner. If the Contractor does not at all times provide men to attend to the cleaning up, on request, in a manner satisfactory to the Engineer or Owner, the Engineer or Owner may employ such men direct and charge the cost of same to the account of the Contractor.

Upon completion of the work, the Contractor shall clean around the building and leave the grounds in a neat and clean condition.

The walls and floors inside of the building and in all work areas shall be cleaned to remove all smears, stains, dirt, and rubbish.

32 OWNER'S RIGHT TO DO WORK:

If the Contractor should neglect to prosecute the work properly, and in a diligent manner or fail to perform the provisions of the Contract, the Owner may, after three (3) days' written notice to the Contractor without prejudice to any other remedy, make good such deficiencies and may deduct the net cost thereof from the payment then or thereafter due the Contractor, provided, however, the Engineer shall approve such action and the amount charged to the Contractor.

33 OWNER'S RIGHT TO TERMINATE CONTRACT:

If the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to Subcontractors or for materials or labor, or persistently disregard laws, ordinances, or instructions of the Engineer, or otherwise be guilty of a substantial violation of any provisions of the Contract, then the Owner upon Certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the Contractor three (3) days' written notice, terminate the employment of the Contractor and take possession of the premises and all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient.

In such case the Contractor shall not be entitled to any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work including compensation of additional managerial and administrative service, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Engineer.

34 WORK NOT SHOWN ON DRAWINGS:

In the carrying out of this work as contemplated by the Drawings and Specifications, there may arise certain items of work for which definite plans have not yet been decided upon. All such work when authorized shall be paid for as provided in "CHANGES IN THE WORK".

35 CHANGES IN THE WORK:

The Owner without invalidating the Contract may order extra work or make changes by altering, adding to, or deducting from the work, the Contract Sum being adjusted accordingly. All such work shall be executed under the conditions of the original Contract, except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

In giving instructions, the Engineer shall have authority to make any minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the building, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from the Engineer stating that the Owner has authorized extra work or changes, and no claim for an addition to the Contract Sum shall be valid unless so ordered.

The value of such extra work or change shall be determined by one or more of the following methods, at the option of the Owner:

- A. By estimate and acceptance in a lump sum.
- B. By unit prices named in the Contract, or subsequently agreed upon.
- C. By cost plus percentage.
- D. By cost plus a fixed fee.

If none of the above methods are agreed upon, the Contractor, provided he receives an order as above, shall proceed with the work. In such case, and also under cases C and D as noted above, he shall keep and present in such form as the Engineer may direct, a correct account of the net cost of materials and labor, together with vouchers. In any case, the Engineer shall certify to the amount including reasonable allowance for overhead and profit due the Contractor. Pending final determination of value, payments on account of changes shall be made on certificates of the Engineer.

36 REMOVAL OF MATERIALS AND CORRECTION OF WORK:

The Contractor shall promptly remove from the premises all work found not to conform to the Contract, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract, and without expense to the Owner, and shall bear the expense of such removal and replacement. He shall also reimburse the Owner for all expense, including engineering and testing, incurred by the Owner in: investigating and determining the extent of any work performed not in accordance with the Contract Documents; determining the adequacy of remedial measures proposed; and observing and testing the remedial work performed in order to assure the Owner that the work is in accordance with the Requirements of the Contract Documents.

If the Contractor does not remove such defective work and materials within a reasonable time, fixed by written notice, the Owner may remove them and store the materials at the expense of the Contractor. If the Contractor does not pay to the Owner the expense of such removal, within ten (10) days' time thereafter, the Owner may upon ten (10) days' notice sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deduction of all costs and expenses that rightly should have been borne by the Contractor.

37 DEDUCTIONS FOR UNCORRECTED WORK:

If the Engineer and the Owner decide that it is inexpedient to have work corrected that is injured or done not in accordance with the terms of the Contract Documents, an equitable deduction from the Contract Price shall be made therefor.

38 SUPPLEMENTARY DRAWINGS:

If no agreement is made by the Contractor in writing establishing the dates upon which supplemental or shop drawings shall be furnished or approved by the Engineer, then no claim for delays or damage shall be allowed on account of failure to furnish drawings upon dates subsequently fixed by the Contractor.

39 DELAYS AND EXTENSION OF TIME:

Should the Contractor be delayed at any time in the progress of the work by strikes, lockouts, fire, unavoidable casualties, or by any cause beyond the control of the Contractor, and any of such above causes the Engineer shall decide to be sufficient ground for extending the time of completion, then the time of completion shall be extended for such period as the Engineer may decide to be reasonable.

Should any such delay occur the Contractor shall, within seven (7) days of such delay, request an extension of time from the Engineer; otherwise, no claim for an extension of time for delays shall be allowed.

40 UNFORESEEN DELAYS:

The Contractor shall take the whole responsibility of the work and should any unforeseen difficulties arise from bad weather or from any other cause, except as otherwise provided herein, involving a greater expenditure of money than the Contractor expected at the time of bidding, he shall proceed with the remainder of the work, and no allowance shall be made for such casualty.

41 PAYMENTS:

Payment shall be made by the Owner to the Contractor as follows:

On or about the tenth day of each calendar month, ninety percent (90%) of the value, based on the Contract Price of labor and acceptable materials incorporated in the work, and ninety percent (90%) of the net value, exclusive of the Contractor's overhead and profit, of acceptable material suitably stored at the site, up to the first day of the month as estimated by the Engineer, less the aggregate of previous payments, it being agreed that the Engineer shall have the right to finally determine the amount currently due to the Contractor and that the aggregate of all payments made prior to the acceptance of the completed work shall in no event exceed ninety percent (90%) of the total Contract Price; the remainder of the Contract Price after deducting all monthly payments, shall be paid within thirty (30) days after acceptance of the completed work by the Owner. Provided, however, that neither said Contract Price nor any part thereof, nor any amount agreed upon additional thereto, shall be due and payable until the Contractor shall have executed and/or delivered to the Owner, any and all affidavits, statements, certificates, releases, receipts, or waivers required by the Mechanic's Lien Law of the State in which the work is performed, or which the Owner may reasonably require as evidence of the fact that no right to Lien exists in favor of the Contractor, Subcontractor, Laborers, and/or material men.

In lieu of, or in addition to, any or all of the above provisions, the Owner reserves the right to make final payment payable to the joint account of the Contractor and the Bonding Company.

42 APPLICATION AND CERTIFICATE FOR PAYMENT:

The Contractor shall submit to the Engineer an application for each payment and, if required, receipts of other vouchers showing his payment for materials and labor, including payments to Subcontractors.

Before submitting the first application for payment, the Contractor shall submit to the Engineer a schedule of values for the various parts of the work, showing separately for each part of the value of materials and the value of work in place, and including quantities aggregating the total sum of the Contract, made out on AIA Form G702, and if required, supported by such evidence as to its correctness as the Engineer may direct. This schedule, when approved by the Engineer, shall be used as a basis for certificates of payment.

Within a reasonable time after receipt of application by the Contractor, the Engineer shall issue a certificate of payment to the Contractor of such amount as he decides to be properly due.

All work covered by partial payments made shall thereupon become the sole property of the Owner, and materials so covered shall become the property of the Owner reserved for the sole purpose of furthering the work under this Contract, but these provisions shall not be construed as relieving the Contractor from responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work or as a waiver of the right of the Owner to require the fulfillment of any of the terms of the Contract.

43 PAYMENT WITHHELD:

The Engineer may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to such extent as may be necessary to protect the Owner from loss on account of defective work not remedied, claims filed, or reasonable evidence indicating probable filing of claims, failure of the Contractor to make payments properly to Subcontractors, or for materials or labor, a reasonable doubt that the Contract can be completed for the balance then unpaid or damage to another Contractor.

When the above grounds are removed, payments shall be made for the amounts withheld because of them.

44 LIEN:

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and if required in either case, an affidavit that insofar as he has knowledge or information, the releases and receipts include all the materials and labor for which a lien might be filed, but the Contractor may, if any Subcontractor refuses to furnish a release of claims or receipts in full, furnish a bond satisfactory to the Owner to indemnify him against any lien. If any lien should remain unsatisfied after all payments are made, then the Contractor shall refund to the Owner all monies that thereafter may be compelled to pay in discharging such liens including all costs and reasonable attorneys' fees.

45 GUARANTEE AND CORRECTION OF WORK AFTER FINAL PAYMENT:

Unless otherwise specified under the several captions, the Contractor shall guarantee all of the work for a period of one (1) year from the date of the final certificate of payment.

In addition to the responsibility of the Contractor for remedying observed defects in his work during the guarantee period, the Contractor shall also reimburse the Owner for all additional expense, including engineering and testing, incurred by the Owner in: investigating and determining the extent of any work performed not in accordance with the Contract Documents; determining the adequacy of remedial measures proposed; and observing and testing the remedial work performed in order to assure the Owner that the work is in accordance with the requirements of the Contract Documents.

Neither the final certificate of payment nor any provision relieves the Contractor of responsibility for faulty materials or workmanship, and unless otherwise specified, he shall make right any defects due thereto and pay for the damage to other work resulting therefrom which occurs within the said period.

The Owner shall give notice of observed defects with reasonable promptness.

SECTION 1A

SPECIAL CONDITIONS

01 PROPOSAL AND BID:

All bids shall be submitted on a Bid Form, furnished by the Engineer and each item listed on the Bid Form shall be completed.

Each proposal and bid shall be accompanied by a certified check or bid bond for five percent (5%) of the amount of the Bid.

The Owner reserves the right to waive all informalities and to reject any or all bids.

02 SITE:

The Contractor shall accept the premises in its present condition and carry out all work in accordance with the requirements of the Specifications, as shown on the Drawings.

The Contractor shall be responsible for removing all obstructions of every nature, unless specifically noted on Drawings or specified herein to be removed by others.

The present and finish elevations are shown on the Drawings, but the Contractor shall, before submitting his Bid, visit the site and acquaint himself with the actual conditions of the building, the actual ground elevations, and the location of any or all obstructions that may exist on the site, and he shall remove any and all obstructions encountered which are not covered by specific instructions above.

03 EXISTING CONDITIONS:

Existing work is indicated in accordance with best available information and shall be checked in the field by each Bidder before submission of his Bid. Extra compensation for costs arising from discrepancies between indicated and actual conditions will not be allowed, if, in the opinion of the Engineer, reasonable survey should have revealed such discrepancies.

04 PERFORMANCE BOND:

The successful Bidder will be required to furnish a Performance Bond and Labor and Material Payment Bond, AIA Document A-311, both parts being executed for the full amount of the Contract by a Surety Company satisfactory to the Owner. The cost of this Bond shall be paid by the General Contractor.

05 COMPLETION OF THE WORK:

The Contractor shall and will commence said work at once and carry it forward in a prompt and diligent manner to completion in all respects as covered by the Drawings and Specifications.

The length of time which the Contractor shall require to complete the work for the Owner will have considerable weight in the award of the Contract, and the Contractor in his proposal shall state the quickest time he can economically complete the work. Time stated shall begin at date of award of Contract and shall terminate at date of acceptance of finished work.

The Owner will make all shipments of equipment, etc., on the basis of the Contractor completing the Contract on time. If the Contractor does not complete his Contract within the stipulated time, he, the Contractor, will be required to furnish at his own expense all necessary heat, cooling, watchman's services and lights to properly protect the buildings, equipment, etc., until the Contract has been fully completed and the Owner takes over the work.

The Engineer will make the final observation of the work before the Owner will accept the work and the date of acceptance shall be determined solely by the Engineer.

06 DRAWINGS:

The Drawings which accompany and form a part of these Specifications are listed in, LIST OF DRAWINGS, having been prepared by L. Leigh Morgan, Consulting Engineer, Senoia, Georgia, acting as the Owner's representative.

Wherever the terms "Drawings" or "Plans" occur in any of the Contract Documents, they shall refer to the above Drawings.

Additional details will be supplied if necessary during the progress of the job for further clarification of the Drawings.

Additional details will be supplied if necessary during the progress of the job for further clarification of the Drawings. Such additional Drawings shall be equally binding upon the Contractor as the original Drawings.

07 SEQUENCE OF OPERATIONS:

The sequence of the work shall be arranged in accordance with a schedule adopted in the early stages of construction, in order that those portions requiring extended construction time will be completed at the earliest possible date. Such work schedule shall be submitted within five (5) days after award of Contract and shall be approved by the Engineer and Owner.

08 DRAWINGS FOR CONSTRUCTION PURPOSES:

The Contractor will be furnished six (6) complete sets of Drawings, Detail, and Specifications to be used during the course of construction on the building. If more than six (6) sets are needed, the Contractor will be required to pay the actual cost of printing and handling.

09 PRESENT DOCUMENTS GOVERN:

The Contractor shall in no case claim a waiver of any Specification requirements on the basis of previous approval of material or workmanship on other jobs of like nature or what might be considered "standard" for material or workmanship in any particular location. The Contract Documents for this job shall govern the work.

10 PERMITS, FEES, AND LAWS:

The Contractor shall obtain and pay for all necessary permits, licenses, fees, etc., as required for the successful completion of the Contract, and shall conform in every respect with all building codes, laws, and regulations applicable to the work.

If an authority having jurisdiction over this work should indicate to the Contractor any deviations from requirements of the Law, the Contractor shall promptly notify the Engineer, in writing, and any necessary changes will be made and Contract will be adjusted accordingly. If the Contractor performs any work knowing it to be contrary to such Law and without such notice to the Engineer, he shall bear all costs, fines, and damages arising therefrom.

11 WORK BY CITY AND UTILITIES:

The Contractor shall be responsible for all cutting and repairing of streets and curbs, all indicated construction beyond the property lines, all connections to utilities, and complying with the City and/or Utility requirements, and shall pay for all required work in connection therewith whether performed by himself, the City, or a Public Utility.

12 SHORING:

All permanent and temporary shoring, anchoring, and bracing required by the nature of his work, in order to make all parts absolutely stable and rigid, shall be provided, even when such shoring, anchoring, and bracing are not explicitly called for. The Contractor shall be held strictly accountable for any damage on the premises resulting from failure to provide it, either through lack of proper judgment or for any other cause.

13 COORDINATION:

The Contractor shall set axis lines and maintain them throughout the construction period for laying out all of the trades in connection therewith.

14 PRESENT WORK:

The present buildings, fences, sidewalks, etc., bordering the property shall be maintained by the Contractor through the life of the Contract.

Repairs required to be made at the close of the job due to damage caused by work under this Contract shall be made with new materials and without extra cost to the Owner.

15 TEMPORARY HEATING AND COOLING:

The Contractor shall provide temporary heating and cooling, covering, and enclosures as necessary to protect all work and materials against damage by dampness, cold, and heat and facilitate completion of the work.

Temporary heating, cooling, covering, enclosures, and ventilation shall be provided to dry out the work properly. The use of "Salamanders" will not be permitted.

Areas where temperature conditions are controlled by the use of installed equipment shall be maintained by the Contractor to eliminate excessive use of the equipment. I.e. – doors, ceilings, openings, etc., which connect to adjacent interior and/or exterior spaces shall be kept closed and not be left open for extended periods of time during the construction.

16 COOPERATION WITH OTHER CONTRACTORS:

Other contracts will be carried on within the building as the work progresses, and this Contractor shall issue at least two (2) weeks in advance a schedule of construction which will indicate the necessity for the building-in of inserts, sleeves, etc. This shall be followed with a confirmation one (1) week prior to the actual commencement of that portion of the work involved.

17 MAINTENANCE OF OPERATION:

It shall be a condition of the Contract that the work shall be performed with the least possible interference with the normal operations of the present facilities.

18 PROPERTY CONFINES:

The Contractor has no authority to permit the use of any portion of the premises by any one, except for business connected with the construction in which this Contract is concerned.

19 SPECIFICATION DIVISIONS:

For convenience of reference, this Specification is divided into various sections and sub-headings, but such divisions do not make the Owner or Engineer responsible for or relieve the Contractor of limitations in the Contract of any Subcontractor.

20 CONTRACTOR' S SHOP DRAWINGS AND SUBMITTAL DATA:

The Contractor shall furnish the Engineer with at least six (6) copies of all shop drawings, submittal data, cut sheets, and schedules for approval. Two (2) final approved copies will be returned to the Contractor for his use. If more than two (2) copies are required by the Contractor for his use or to meet the Contract requirements, then additional copies must be submitted with the above six (6) required copies.

Shop drawings, submittal data, cut sheets, and schedules of all trades shall be submitted only by the Prime Contractor who shall indicate by a signed stamp on the drawings that he has checked the shop drawings and that the work shown on them is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved. Under no conditions are shop drawings to be submitted to the Engineer by any other than the Prime Contractor.

If any shop drawings are submitted for approval that have not been checked and signed by the Prime Contractor, they will be returned to the Prime Contractor for checking, before they are checked by the Engineer.

The approval of such drawings or schedules by the Engineer shall not relieve the Contractor from responsibility for deviations from the Drawings or the Specifications unless he has in writing called attention to such deviations and the Engineer approves the changes or deviations in writing at the time of submission, nor shall it relieve him from the responsibility for errors of any kind in shop drawings or schedules. when the contractor does call such deviations to the attention of the Engineer, he shall state in his letter whether or not such deviations involve any extra cost. If this is not mentioned, it will be assumed that no extra cost is involved for making the change. Letters regarding the work must be submitted to the Engineer through the Prime Contractor.

21 "AS-BUILT" DRAWINGS:

The Contractor shall maintain one (1) complete set of all Drawings (Engineer's Design Drawings and Contractor's Shop Drawings and Submittal Data) at the job site during the construction and shall clearly mark on the Drawings any alterations or changes required due to field conditions along with any deviations made during the installation of the work. The Contractor shall submit his set of Design Drawings, and two (2) corrected copies of his shop drawings indicating all changes, to the Engineer at the completion of the work.

SECTION 1B

SCHEDULING OF WORK

01 GENERAL:

GENERAL and SPECIAL CONDITIONS govern all work under this Section.

This section of the Specifications is supplementary to the Special and General Conditions and governs all applicable work for this Project.

02 SCOPE:

This portion of the work is herein defined as Scheduling of the Work and shall be adhered to under all circumstances involved with this Project.

03 SEQUENCE OF SCHEDULING:

In order that the Owner may maintain the existing facility in operation throughout the course of this Project, the Contractor shall prepare a complete schedule of all activities associated with this Project. The items requested in this Schedule shall allow the Owner to prepare for in-house functions such as relocation of personnel or equipment, vacating of Contractor's work spaces, etc. and are therefore considered to be critical to the Project.

The following shall pertain to the work to be performed under this Project, and shall be incorporated into the Schedule required under Section 1A, Paragraph 07, of these Specifications.

The Contractor shall determine the final sequence of all events and shall determine the most efficient path to accomplish the work. All work shall be scheduled to minimize the required shutdowns of the building Mechanical and Electrical systems and to minimize the overtime work associated with this Project wherever possible. Coordination of events with all Contractors performing work associated with this Project shall be the responsibility of this Contractor and the Schedule shall include all critical points where work is to be performed and or required to be completed by all Contractors.

All submittal data shall be entered on the above Schedule to note the time of submittal and the required time of return.

04 RESTRICTIONS AND CONTRACTOR NOTIFICATIONS:

The following restrictions and contractor notifications shall pertain to all work under this Project:

- A) Work shall be performed on Mondays through Fridays during the hours of 8:00 AM and 5:00 PM. All cleanup shall be performed during these hours also. Air conditioning systems must be fully operable during this period of time without exception.
- B) Work creating noise shall NOT be performed during the hours of 9:00 A.M. and 10:00 A.M. on Wednesday morning.
- C) All core drilling of building slabs and walls shall be scheduled during the hours of 10:00 A.M. and 4:00 P.M.
- D) All electrical building service shutdowns, including emergency power systems, shall occur between the hours of 10:00 A.M. and 4:00 P.M., and shall be scheduled with the Owner a minimum of 10 days in advance of the shutdown. Electrical power shutdowns shall be limited to either the "A" side or the "B" side for critical systems.
- E) Where existing building services (waste systems, electrical power, air, water, steam, hot water heating, etc.) are required to be shutdown, the Contractor shall notify the Owner ten (10) days prior to the shutdown and shall minimize the period of the shutdown. The Owner shall approve all shutdowns before the Contractor proceeds with any tie-in work.
- F) Special work requiring continuous periods of electrical power shutdown time shall be scheduled with the Owner for possible Sunday, Holiday, or long weekend periods. These shall be scheduled a minimum of 10 days in advance of the start of the work.
- G) All outside areas where new construction shall occur shall be surveyed by the Contractor for hidden (buried) utilities prior to the start of the construction. Any damage to hidden utilities shall be repaired immediately by the Contractor to insure continued operation of the existing facility. All repair costs shall be the responsibility of the Contractor.
- H) The Contractor shall be restricted from any work during Special Functions and or Events, and the Owner shall provide 10 days prior notice of these times as they arise.
- I) The Contractor's personnel shall be limited to and restricted to the assigned areas of the work in progress. Any personnel found in areas other than those designated work areas shall be immediately removed from the Project and the Project site.

- J) The Contractor shall be provided with a staging area for material preparation and storage. This area shall be kept in an orderly and tidy manner at all times during the course of the Project.
- K) All materials and equipment delivered to the site shall be scheduled with the Owner prior to the delivery in order to insure clear access through the building to the construction area.
- L) Certain limitations shall be placed on the Contractor by the Owner regarding the removal of the materials from the space and collection and removal of the materials from the property. These items shall be discussed with the Contractor prior to the start of the work.
- M) The Contractor shall be limited to certain paths of travel when entering and leaving the areas of work and the property. Parking shall be in assigned areas only with entrance and exit as designated by the Owner.
- N) The Contractors and Sub-contractors employees shall use the designated restroom facilities on the First Floor only during the course of the work.
- O) Smoking is only permitted in the designated outdoor area. Workers failing to adhere to this policy shall be asked to leave the property.
- P) The Contractors and Sub-contractors individual employees shall each wear a readily seen identification/name tag bearing the individuals name and the company by whom he is employed at all times while on the property. Workers failing to adhere to this policy shall be asked to leave the property.

05 INTENT:

It is the intent of this Section to assure that the Contractor understands that protection of the existing property, building finishes, services, and equipment along with the scheduling prior to the performance of the work is a requirement of and essential to this Contract.

It is not intended that this Section shall hamper, impede, or create undue cost to the Contractor and/or Owner for performance of this work or that the Contractor must restrict his work forces in an unduly manner to perform this Project.

06 SPECIAL CONSTRUCTION REQUIREMENTS:

The Contractor shall direct special attention to the following construction requirements as they pertain to the Project and the Owner's use of the existing Facility:

- A) The Owner's Building is open for building occupants 24 hour per day/7 day per week and Building Systems shall not be shutdown except for a scheduled time period established at least 10 days in advance and only with full prior approval by the Owner. Any scheduled shutdown time shall be minimized with all work to be performed documented prior to the shutdown to ensure an organized effort and completion of the work within the time allowed.
- B) The Contractor shall define the minimum period of time required for the shutdown of the existing electrical power and/or UPS Units serving the Datacenter/Colocation Room and Service Areas, if required by the Project.
- C) After notification by the Contractor of the time required under Items A and B above, a "shutdown window" shall be established by the Owner to accomplish this work with a determination of the sequence of the risers to be shutdown.
- D) All systems (Electrical, Controls, etc.) associated with the electrical power and UPS Units that are required for full operation shall be fully functional and fully operational at the conclusion of the designated shutdown period.
- E) The Contractor shall be responsible for all coordination, permitting, and expenditures with The City of LaGrange and other authorities where special conditions exist that involve the public on adjacent roads, streets, and property not owned and or controlled by the Owner.
- F) The Contractor shall be responsible for all temporary connections, delivery costs, rental costs, servicing, and fuel costs required for the work involved.

SECTION 1C

LIST OF DRAWINGS

<u>DRAWING NUMBER</u>	<u>TITLE</u>
COVER SHEET	BUILDING DATA AND SITE LOCATION PLAN LAGRANGE TECHNOLOGY CENTER UPS UPGRADE – UPS B
15003 E-1.1	FIRST FLOOR PLAN ELECTRICAL EQUIPMENT LAYOUT LAGRANGE TECHNOLOGY CENTER UPS UPGRADE – UPS B
13004 E-1.5	PART FIRST FLOOR PLAN ELECTICAL POWER UPS B LAGRANGE TECHNOLOGY CENTER UPS UPGRADE – UPS B
13004 E-1.10	PARTIAL ELEC. RISER DIAGRAM EMERGENCY POWER SYSTEMS LAGRANGE TECHNOLOGY CENTER UPS UPGRADE – UPS B
13004 E-20.1	PANELBOARD SCHEDULES ELECTICAL POWER UPS B LAGRANGE TECHNOLOGY CENTER UPS UPGRADE – UPS B

SECTION 16A

SUPPLEMENTARY CONDITIONS FOR ELECTRICAL SYSTEMS

01 GENERAL:

SPECIAL and GENERAL CONDITIONS govern work under this Section.

This Section of the Specifications is supplementary to SPECIAL and GENERAL CONDITIONS and governs the work under all Electrical Sections insofar as it may be applicable.

All Electrical Contractors and Subcontractors to electrical trades shall be supplied with a copy of these SUPPLEMENTARY CONDITIONS FOR ELECTRICAL SYSTEMS and no arrangements or contracts with Contractors or Subcontractors are to be such as to conflict with same. These conditions shall also apply to any modifications or extra work.

02 INSTALLATION REQUIREMENTS:

Special attention is directed to the requirement that all equipment, apparatus, conduits, accessories, specialties, and all other building materials or other electrical equipment mentioned in these Specifications and/or indicated on the Drawings shall be furnished, except where otherwise specifically noted, completely installed, adjusted, tested, and left in a safe and satisfactory operating condition. All equipment necessary for the successful operation of the system shall be furnished and installed as a part of the work of the Contractor to the complete satisfaction of the Engineer.

03 SPACE REQUIREMENTS:

All equipment, apparatus, conduits, etc., shall fit into the space provided in the building or within the property and shall be installed at such time and in such manner as to avoid damage to the building structure or property and as required by the job progress. Equipment, apparatus, and accessories requiring normal servicing or maintenance shall be made easily accessible.

All conduits, raceways, etc., must be kept as close as possible to walls, ceilings, columns, etc., so as to take up a minimum amount of space. All off-sets, fittings, etc., required to accomplish this shall be furnished and installed at no additional cost to the Owner.

04 INTERFERENCE:

The Drawings accompanying these Specifications are generally diagrammatic and do not show all details such as hangers, couplings, bolts, nuts, connectors, etc., required for the completed work. The Contractor shall be responsible for arranging his work so as to avoid interference with doors, windows, structural members, equipment, ductwork, and/or other systems.

It shall be assumed the Contractor is thoroughly competent and familiar with the class of work involved and has familiarized himself with the job conditions and its detailed requirements. The Contractor shall harmonize the work of the different trades so that interference will be avoided as far as possible, but in case interference develops, the Engineer shall decide which equipment, ducts, conduits, etc., must be relocated, regardless of which was first installed. Any changes shall be made without additional cost to the Owner.

The Contractor shall carefully lay out the work and be responsible for all locations, grades, and levels. He shall check all dimensions before starting any work and report any discrepancies or interferences to the Engineer for correction.

05 CUTTING, PATCHING, CARPENTRY, AND MASONRY WORK:

The Contractor shall do all cutting, patching, carpentry, and masonry work required for work and all shall be done as required by the job progress. All patching shall conform to the surrounding surfaces in every respect, including painting, tiling, etc. No cutting or patching shall be performed without first obtaining approval of the Owner's authorized representative and cutting and patching of new concrete or masonry will not be permitted unless absolutely necessary.

06 COOPERATION WITH OTHER TRADES:

The Contractor shall cooperate and coordinate with the Owner and with other trades in the scheduling of work, moving of equipment, delivery and location of anchor bolts, sleeves, and starters, etc.

07 WORKMANSHIP:

All equipment, materials, specialties, etc., shall be installed and connected in accordance with the best engineering practice and standards for this type of work. Unless otherwise specified or shown on the Drawings, the recommendations and instructions of the Manufacturer shall be followed for installing the work.

All persons employed for this work shall be competent, orderly, and satisfactory to the Owner. All "skilled labor" work shall be performed by persons particularly skilled in the class of work to be performed.

Should any employee of the Contractor or his Subcontractors, in the opinion of the Engineer, give evidence of disloyalty, carelessness, or incompetence, that employee or employees shall be permanently dismissed from this project.

The Contractor shall at all times be responsible for enforcing good discipline and order among all persons under his direction and control or under the direction and control of any subcontractor.

The Contractor shall keep a competent superintendent and any necessary assistants, satisfactory to the Owner and the Engineer, in charge during the progress of the work. The Contractor's superintendent shall properly coordinate and time the electrical work with the work of other trades and in particular with concrete, masonry, and form work to avoid errors and delays. The Contractor shall bear all costs arising from his failure to comply with these requirements or his failure to acquaint himself with the work and progress of the other trades.

Should any dispute arise as to the quality or fitness of any material or workmanship, the decision shall rest with the Engineer.

08 EXECUTION OF WORK:

In the execution of the work under this Contract, the Contractor shall take all precautions to avoid damage to the buildings and services, roofs and roofing, production equipment, and materials stored or in production. When and where any welding is performed, the Contractor shall provide necessary fireproof tarpaulin covers, etc., and exercise all necessary precautions.

The Contractor shall make all conduits passing through walls, roofs, floors, etc., waterproof and airtight.

09 ORDINANCES AND PERMITS:

The Contractor shall promptly notify the Engineer in writing of any instances on the Drawings and/or Specifications that are in conflict with any of the governing authorities so that any required changes shall be adjusted before the Contract is awarded. If the Contractor performs any work contrary to such laws, rules, or regulations without notice, he shall bear all cost arising therefrom.

10 UNDERWRITER'S REQUIREMENTS:

All materials and work covered by these Specifications shall conform to the applicable standards of the Owner's insurer and shall be acceptable to the inspection department having jurisdiction.

11 SINGULAR NUMBER:

In all cases where a device or part of equipment is herein referred to in the singular number (such as the "switch"), such reference shall be intended to supply to as many as such devices as are required to complete the installation as specified and shown on the Drawings.

12 KIND AND QUALITY OF MATERIALS:

All equipment, materials, and accessories shall be new and of the best quality and grade and shall be in strict accordance with the Specifications and Drawings. All electrical equipment shall be the product of a reputable manufacturer and major components of the equipment shall have the Manufacturer's name, address, and catalogue number on a nameplate securely affixed in a conspicuous place.

13 CHOICE OF MATERIAL:

Certain manufacturers' product names, figure numbers, etc., are used in these Specifications to establish qualities of materials, workmanship, and performance required. In such cases, the item mentioned is a product known to the Engineer which offers the design, materials, workmanship, and performance required. Proposals and Contract shall be based on the use of named products, and no other.

The Contractor may submit alternate proposals for use of other products, which can be considered by the Engineer as being full equal of and similar in all respects to those mentioned and will be approved for use upon submission of descriptive and technical data sufficient to demonstrate quality beyond question. The burden of proof in questions of equality lies with the Contractor, and the sole judge of equality shall be the Engineer.

14 SHOP DRAWINGS AND SUBMITTAL DATA:

The Contractor shall, before purchasing materials and equipment, submit lists of the products proposed for use in the installation. Lists shall be accompanied by bulletins, plates, drawings, and schedules which shall indicate the relative characteristics and ratings with capacities of the respective items of equipment.

When standard equipment is modified to suit the conditions required by the Drawings and/or Specifications, the lists shall be supplemented with certification from the manufacturers indicating the operating conditions, rating, and capacity of the equipment proposed. Six (6) copies of the lists, drawings, cuts, etc., shall be submitted to the Engineer for appropriate action and distribution.

Shop drawings submitted by the Contractor shall be checked for accuracy, coordinated with other work, and corrected, if necessary, before submission to the Engineer. Where shop drawings indicate elevations of conduit which would place the conduit below lights or ceilings or that would require the lowering of lights or ceilings, special attention shall be directed in writing of the requirement to the Engineer.

Approval of shop drawings or equipment schedules by the Engineer shall not relieve the Contractor from responsibility for errors of any kind on his part or responsibility for meeting the requirements of the Specifications.

Each print and shop drawing submitted shall bear on its face the approval stamp of the Contractor indicating that the submission has been thoroughly checked by the Contractor.

15 SAMPLES:

When requested by the Engineer, samples of all materials shall be submitted for approval by the Engineer.

16 TRANSPORTATION AND DELIVERY:

The Contractor shall provide and pay for all freight, express, trucking, transportation, cartage, and handling of equipment and materials. Materials, etc., shall be delivered to the job site in ample quantities to insure uninterrupted progress of the work. Extra handling and shipping expenses incurred in expediting materials, etc., to prevent interruption of the overall job progress shall be paid for by the Contractor.

17 PROTECTION OF MATERIALS AND EQUIPMENT:

Contractor shall properly protect all equipment from the elements and other causes during shipment, storage, and erection until final acceptance by the Owner. Any damages, losses, or liabilities incurred as a result of Contractor's failure to reasonably protect said equipment shall be solely the Contractor's responsibility and all costs and expense relating thereto shall be borne by the Contractor.

18 TOOLS AND SPECIAL WRENCHES:

The Contractor shall provide one complete new set of any special tools and wrenches required for normal operation, adjustment, and maintenance of each dissimilar piece of equipment. Each set of tools and wrenches shall be contained in a suitable metal tool box and shall be delivered to the Owner or his authorized representative at the completion of the work.

19 MOTORS AND MOTOR CONTROL EQUIPMENT:

All motor and motor control equipment shall conform to the requirements of these Specifications.

All starters, pushbutton stations, switches, etc., shall be marked with laminated plastic labels on their covers, bearing a suitable name, number, or other legend to indicate which piece of equipment the apparatus controls or regulates.

Unless otherwise specified to the contrary, all motors to be furnished under this Contractor shall not exceed 1800 RPM, and shall be of the ODP Type. The Electrical Contractor shall verify this with the other trades furnishing the required motors. All motors shall meet NEMA Standards for continuous duty and shall be the approved equal of motors manufactured by Westinghouse, General Electric or Louis Allis.

Except as otherwise specified or indicated, motors shall be furnished for operation with the following characteristics:

- A. 1/2 hp and larger: 208 volts, 3 phase, 60 Hz.
- B. 1/3 hp and smaller: 115 volts, 1 phase, 60 Hz.

Motors for operation on three (3) phase current shall be of the squirrel-cage induction type, for normal starting torque and normal starting current.

Motors for operation on single phase current shall be of the repulsion induction type or capacitor type as required.

Each motor shall be equipped with a conduit terminal box of ample size with removable cover to permit easy access to external connections.

Starters, pilot devices, and like devices required for this work shall be furnished under the Electrical portion of these Specifications or a separate Electrical Contract if so defined in these documents.

20 MOTOR CONTROLLERS:

Motor controllers shall be provided under the Electrical portion of these Specifications or a separate Electrical Contract if so defined in these documents, unless otherwise specified for a particular piece of Equipment.

21 POWER AND CONTROL WIRING:

Unless otherwise specified herein or indicated on the Drawings, all circuits requiring power of 115 volt, 1 phase, 60 Hz and higher shall be furnished and installed under the Electrical portion of this work and all circuits having power requirements less than 115 volts shall be provided by the Contractor furnishing and installing the controls or the associated equipment.

22 LABELING AND IDENTIFICATION:

Unless otherwise specified herein or indicated on the Drawings, all incoming service switchgear, transformers, panelboards, disconnect switches, etc., shall be marked with laminated plastic labels on their covers or faces, bearing the name or designation indicated on the Drawings.

Each panelboard shall contain a typed directory indicating the panel designation and each circuit's use. Circuits shall be numbered to agree with the directory information.

23 ANCHOR BOLTS:

Where anchor bolts are required for equipment installation, the Contractor furnishing the equipment shall also furnish the required anchor bolts. Anchor bolts shall be sized per the equipment manufacturer's instructions and/or requirements, with suitable threaded lengths to ensure that exposed threads shall remain above the top of the nut after the equipment is installed.

All anchor bolts shall be installed by the Contractor responsible for the installation of the supporting piers, pads, etc., and in the event that this work is performed by a contractor other than the contractor furnishing the anchor bolts, all locations shall be coordinated by the contractor who furnishes the anchor bolts. Coordination shall consist of shop drawings, supplied to the installing Contractor, indicating all dimensions pertinent to the installation and field supervision and verification that the anchor bolts are properly set at the time of installation.

Proper location and installation shall be the full responsibility of the Contractor furnishing the anchor bolts, and should removal and replacement of the anchor bolts be required, all costs shall be paid by this Contractor.

Delivery of anchor bolts to the job site shall be made to ensure proper lead time to avoid delays in the progress of the work.

24 LEVELING AND GROUTING:

The Contractor shall level and align all equipment in accordance with the respective manufacturer's published data.

Switchgear, transformers, etc., on concrete foundations shall be rigidly shimmed with shim stock, bolts tightened, and all cavities and/or spaces between foundations and bearing surfaces or plates rammed tightly with grout to solidly and evenly support all equipment. Grout shall be made of 2-1/2 parts sand to 1 part of Type 1 Portland cement, thoroughly mixed, and then a minimum amount of water added. No patented grouts shall be acceptable.

25 MISCELLANEOUS CONCRETE:

The Contractor shall provide miscellaneous concrete work as required or indicated for supporting piers, pads and similar work. Concrete shall be as noted on the Drawings or as specified herein.

26 INSPECTION AND TEST:

The Contractor shall test all of the equipment installed under these Specifications and demonstrate its proper operation to the Engineer. The Contractor must notify the Engineer, by letter or telegram, of any test of equipment at least forty-eight (48) hours prior to such test. No consideration shall be given to notices from Subcontractors.

The Contractor shall furnish all required labor, testing, instruments, and devices as required for test and shall pay for all expenses involved in conducting such test. If tests show that the work or equipment is defective or at variance with the Specifications and/or Drawings, the Contractor shall immediately make all changes necessary to correct the work and performance to the satisfaction of the Engineer.

The Contractor shall be given a reasonable time to correct any defects in materials or in performance of equipment, and if such defects or performance requirements are neglected on the part of the Contractor, the right is reserved to have defects remedied or changes made and to charge the cost of same against the account of the Contractor.

All equipment shall be subject to inspection by the engineer after delivery and before installation, if so required by the Project. Any equipment found not to be in accordance with the Contract requirements, or if damaged in any way, shall be rejected and satisfactory equipment shall be provided thereafter without additional cost to the Owner. If the equipment is not inspected by the Engineer before installation by the Contractor, and such equipment is found not to be in accordance with the Contract requirements, or if damaged in any way, the equipment is subject to rejection, removal, and replacement without additional cost to the Owner.

The Contractor shall not cause or allow any work to be covered up or enclosed before it has been tested, inspected, and approved by the Owner's authorized representative. Any work enclosed before it has been approved shall be uncovered for inspection and again enclosed at the Contractor's expense. The Engineer and his authorized representatives shall at all times be provided with safe access by the Contractor to the work wherever it is in preparation or progress.

No conduit or equipment shall be buried or covered until hydrostatic or other required tests to demonstrate tightness and freedom from defects have been completed and approved.,

27 OPERATING AND MAINTENANCE INSTRUCTIONS:

The Contractor shall furnish to the Engineer five (5) sets of printed, mimeographed, or multilithed instruction books on a good grade of paper together with spare parts lists bound in brochure form covering each item of equipment and operation of each system in detail.

28 INSTRUCTIONS TO OPERATING PERSONNEL:

As specified herein, the Contractor shall, with the assistance of his Subcontractors and/or equipment suppliers, instruct the Owner's operating personnel in the safe and correct procedure for normal and emergency starting and stopping, cleaning, checking, logging, lubricating, periodic testing, trouble-shooting, and normal operation of all equipment and/or systems. The instructions shall be in the form of qualified personnel of the Contractor and his Subcontractors reviewing the installation and all operating, maintenance, and similar literature provided as specified herein with the Owner's operating personnel.

Emphasis shall be placed on keeping all components clean, etc., and maintaining safe operating limits, air flows where required, etc., that are required to prevent damage to the Equipment.

The Contractor shall provide the Owner and the Engineer a signed statement, cosigned by the Owner's personnel who have received these instructions, that all of the above has been done.

29 LUBRICATION:

After the systems and equipment have been installed, all equipment requiring oil or grease which were furnished and/or installed by the Contractor shall be properly lubricated by the Contractor with lubricants as recommended by the Manufacturer.

30 CLEANING UP:

After the fixtures, equipment, etc., have been set and are ready for use, and before final inspection is made, the Contractor shall thoroughly clean all fixtures, equipment, conduit, covering, etc. All plaster, paint, sticker, rust, stains, and other foreign matter or discoloration shall be removed and the systems left in clean and acceptable condition and ready for use.

31 SPECIALIZED SERVICES:

As herein specified, or as otherwise required, the Contractor shall provide any necessary specialized services, such as accredited direct factory representatives or manufacturers, as may be required for supervision of erection and/or adjusting and placing equipment operation.

32 OPERATING TESTS:

In addition to any other tests herein specified, each system, after completion, shall be tested in operation for at least five (5) days and shown to be in satisfactory operating condition.

The Contractor shall maintain a competent representative at the project after the operation of the systems has started to properly instruct the operating personnel in the correct operation of the equipment, apparatus, and systems. Should any of the equipment or apparatus furnished by the Contractor require the services of a Factory Representative for installation or placing in proper service and/or adjustment, the Contractor shall provide same without additional cost to the Owner.

All specialties, and/or other equipment of every description shall be properly tested and adjusted in a manner applicable to the particular item of equipment requiring adjustment.

As herein specified, the systems shall also be tested as in service to demonstrate freedom from fault, and compliance with Contract conditions and the intent of these Specifications.

After the systems have been placed in service and following not less than two (2) weeks of trouble-free operation, all devices shall be checked for proper adjustments and shall be thoroughly cleaned, by the Contractor, of any accumulated foreign matter.

33 CONDUIT - GENERAL DESIGN AND CONSTRUCTION:

All conduit shall be run true to grade and shall be arranged to make the best possible appearance. Except where otherwise required by conditions of installation, all conduits shall be symmetrical and parallel with lines of buildings or structure in which it is installed.

Conduits shall be fabricated to measurements established on the job and shall be carefully worked into place without springing or forcing. Adequate provisions shall be made for absorbing all expansion and contraction without undue stress in any part of the system.

The interior surfaces of all conduits shall be kept clean at all times and shall be free of fins and burrs.

During the process of construction, open ends of conduits, fittings, etc., shall be properly protected at all times to prevent the admission of foreign matter.

All conduit and/or equipment shall be properly supported and guided. Anchors shall be provided where shown and where required to absorb or transmit thrust and/or eliminate vibration or pulsation. Hangers and/or supports shall be provided near each change of direction. Supports shall be so located or shall be of such type as not to unduly restrict the movement of the conduit due to lateral or longitudinal expansion. Hangers shall be uniformly spaced and symmetrically arranged.

The Contractor shall provide all supplementary and/or intermediate steel or other structural members as may be required for transmission of loads to members forming part of the building structure.

Threads of screw jointed conduits shall be full, clean, sharp, and true.

34 HANGERS AND SUPPORTS:

Beam clamps shall be used for supporting conduits and equipment from structural steel members; no punching or burning of holes in building structural steel members for conduit or equipment supports shall be allowed.

The Contractor shall furnish any special type equipment supports required for properly supporting, guiding, or anchoring all conduit and equipment, and details of such supports shall be approved. Supports from roof joists shall be at panel points, or joists shall have supplemental reinforcing as required.

The Contractor shall furnish and install any intermediate supporting steel necessary for properly supporting, guiding, or anchoring the complete piping system or equipment. Supplemental steel must be provided where indicated or required.

All supplemental steel shall be "Structural Grade" in accordance with the Standard Specifications of the ASTM for "Steel for Building and Bridges," Serial Designation A7-1949T.

Vertical risers shall be properly supported and/or guided at each floor with approved pipe clamps, pipe clamps and brackets, or as detailed on the Drawings. "Free End" risers shall be guided near the free end and at intermediate points as required.

35 SLEEVES AND FLOOR, WALL, AND CEILING PLATES:

Sleeves for conduits passing through masonry or concrete walls, floors, concrete slabs, etc., shall be of Schedule 40 steel pipe.

All sleeves shall be of proper diameter to allow conduits to pass through easily, and shall allow not less than 1/4" space between conduits and sleeves. Sleeves in floors and/or slabs shall extend a minimum of 3" above finished floors.

Holes in grating for conduits, equipment supports, etc., shall be cut symmetrically, then banded to give a neat and finished appearance. Conduits and wireways passing through walls shall be provided with sheet metal closure plates.

Should it be necessary to drill holes through concrete slabs, such drilling shall be performed with core drills. The use of star drills will not be permitted.

Chromium plated floor, wall, and ceiling plates with set screws for holding in place, or chromium plated spun steel plates with springs, shall be used on all lines in finished spaces.

All conduit sleeves through wall which run from finished floor to underside of floor or steel above, shall be sealed air tight between sleeve and wall and between conduit and sleeve with a suitable fire retardant sealant.

36 FLASHING:

All conduits passing through the roof shall be flashed in an approved manner. Flashing shall be perfectly watertight.

All cutting and repairing of roofing shall be performed by qualified roofers and shall comply with all requirements necessary to leave roofing in equal condition as existed before the roofing was cut.

Unless pitchpockets are provided or otherwise detailed on the Drawings, where conduits pass through roof, they shall be flashed and counterflashed with roof cone type flashing made watertight. Flashing shall be made of not less than 20 ounce copper. Base flashing shall extend not less than 8" beyond the periphery of the conduit. Cap or counterflashing shall be clamped to the conduit.

37 CONTRACTOR'S RESPONSIBILITY:

It shall be the sole responsibility of the Contractor to ascertain that all requirements of these Supplementary Conditions are met.

SECTION 16B

ELECTRICAL SYSTEMS

01 GENERAL:

GENERAL and SPECIAL CONDITIONS, and SUPPLEMENTARY CONDITIONS FOR ELECTRICAL SYSTEMS shall govern all work under this Section to the full extent applicable to the installation.

02 SCOPE:

This Section and the accompanying Drawings are intended to provide for the furnishing of all labor, materials, and equipment required for the Electrical Systems, as described herein and as required to make the installation complete whether specifically mentioned or not.

The Drawings and Specifications shall be considered as supplementary, one to the other, so that materials and labor indicated, called for, or implied by one and not the other shall be supplied and installed as though specifically called for by both.

Should any discrepancies or omissions be discovered in the Drawings and Specifications, such must be reported to the Engineer immediately.

03 CODE REQUIREMENTS:

All work indicated on the Drawings and/or herein specified shall conform to the applicable portion of NFPA 70, the National Electrical Code, and all applicable State and local codes having jurisdiction.

The code shall govern the minimum requirements only. Where the Drawings and/or Specifications call for materials, sizes, etc. in excess of the code requirements, the Drawings and Specifications shall be followed.

04 SHOP DRAWINGS AND SUBMITTAL DATA:

The Drawings accompanying these Specifications are not intended to be used as working drawings. Working drawings (shop drawings) shall be prepared by the Contractor, who shall be responsible for coordination of the Electrical systems with the building structure and mechanical systems.

Submittal data shall be prepared and issued per Section 16A of these Specifications, SUPPLEMENTARY CONDITIONS FOR ELECTRICAL SYSTEMS.

05 STANDARDS FOR MATERIALS:

All material shall be new and shall be listed by the Underwriters' Laboratories, Inc. as conforming to its standards in every case where such a standard has been established for particular type of material in question or except as otherwise specified or implied herein.

06 WARRANTY OF EQUIPMENT:

The Contractor shall provide the Owner with a minimum one year warranty on all new equipment and all labor from date of acceptance (Final Payment from the Owner to the Prime Contractor).

07 UTILITY CONNECTIONS:

All utilities such as electrical connections, drain piping, etc., shall be provided by the applicable portion of these Specifications and reference shall be made to the Drawings for tie-in locations.

08 ELECTRICAL SYSTEM CHARACTERISTICS:

Electrical system characteristics are as follows:

Incoming Power from Power Company and Building Lighting and Power Systems
– 480/277 Volt, 3 Phase, 60 Hertz power.

Utility Power - 120/208 Volt, 3 Phase, 60 Hertz power using 120 volt, 1 phase for receptacles and miscellaneous power.

09 CONDUITS:

All wiring shall be installed in conduit unless other wise specified herein. All conduit installed inside the building and above grade shall be galvanized steel electrical metallic tubing except where rigid or intermediate steel conduit is shown on the drawings or required by Code. All conduit installed underground outside the building or in/beneath the building floor slab shall be rigid galvanized steel conduit. All conduit shall be UL listed.

A green ground wire of the size required by Table 250-95 in the National Electrical Code shall be installed in every PVC conduit used for current-carrying conductor.

Conduits shall be supported on not more than 8-0" centers when concealed and 5-0" centers when exposed. Conduits shall be supported by means of approved galvanized iron clamps or hangers, attached to masonry with inserts and bolts or lead expansion shields, or to structural members by means of approved galvanized iron clamps or hangers. Where installed exposed, conduits shall be parallel with, or at right angles to, walls or ceilings.

Except where terminating in a threaded hub fitting, all conduits shall terminate in outlet boxes, junction boxes, pull boxes, cabinets, etc., with one locknut installed outside the box and one locknut and a bushing inside the box. The locknuts shall be tight to make both a mechanical and electrical connection. Bushings for all rigid conduit shall be O.Z. Manufacturing Company's Type B insulating end bushing, and shall be grounding type where required.

EMT coupling and box connectors shall be set screw type as manufactured by Appleton, Steel City, or T & B.

10 FLEXIBLE CONDUIT:

Flexible metal conduit connections shall be furnished and installed to all motors and to all equipment subjected to vibration. Minimum size shall be 1/2". Length shall be approximately 15" minimum and shall not exceed 6'-0" maximum.

Nominal size 3/8" flexible metal conduit in lengths not exceeding 6'-0" may be used for connecting lighting fixtures.

"Sealtight" conduit and Appleton or T & B liquid-tight gasket assembly shall be furnished at all flexible connections subject to weather.

11 CONDUCTORS FOR CONDUIT SYSTEMS:

All wire, cable, and connectors shall be furnished and installed as required for the electrical installation. All conductors shall be copper except where aluminum is indicated on the Drawings. Aluminum wire shall be alloy aluminum equal to Alcoa Excelloy. All sizes shall be AWG. Minimum size for power and lighting circuits shall be #12. Minimum size for low voltage (24 volts) control circuits shall be #18. Minimum size for 120 volt control circuits shall be #14. Minimum insulation rating on all conductors shall be 600 volts.

Insulation shall be as follows, except as otherwise noted on the Drawings:

Main Service Connectors	Type THHN/THWN
Feeders	Type THHN/THWN
Branch Circuits	Type THHN/THWN

No lubricant other than powdered soapstone product shall be used to facilitate the pulling of wires. Lubricants shall be used on all feeder cables and as otherwise required.

12 WIRING CONNECTIONS:

Splices, joints, and taps in outlet boxes, pull boxes, or wiring troughs shall be made with Ideal Industries' "Wire Nut" connectors, or Minnesota Mining and Manufacturing Company's "Scotch-Loc" electrical spring connectors for conductors #8 and smaller. Joints or taps in conductors larger and #8 shall be made with electrical tape. Tape shall be half-lapped and applied to 1-1/2 times thickness of conductor insulation.

13 WIRING TROUGHS:

All necessary wiring troughs shall be furnished and installed at panels, starter or built-up control center locations, and where noted on the Drawings. The troughs shall be of adequate length and size to contain all power wiring and control wiring.

Wiring troughs shall be steel, Code gauge, all seam welded, no knock-outs, and with screw cover.

14 SUPPORTS:

Supports shall be furnished and installed for all equipment and materials installed under these Specifications. Supports shall be steel angle or channel, or Kindorf or Unistrut channel, and fittings shall be as approved. Minimum size for rods shall be 3/8".

15 CIRCUIT BREAKERS:

All individually mounted circuit breakers shall be furnished and installed as indicated on or required by the Drawings. Circuit breakers shall have NEMA 1 enclosures, surface or flush mounted as indicated. Circuit breakers shall be as manufactured by General Electric or an approved equal by ITE, Square-D, Westinghouse, or Cutler-Hammer.

Where new circuit breakers are required in existing panels, they shall be of the same type and ratings as the existing circuit breakers installed in the panels.

16 SAFETY SWITCHES:

All fusible or non-fusible safety switches shall be furnished and installed as indicated on the Drawings. Safety switches shall be general duty type with NEMA 1 enclosures when installed inside the building and NEMA 3R raintight enclosures when installed outside. Safety switches shall have the number of poles and wires and the voltage rating for the load served. Safety switches shall be as manufactured by General Electric or an approved equal by ITE, Square-D, Westinghouse, or Cutler-Hammer.

Safety switches shall be provided under this Section of the Specification unless otherwise provided with the equipment furnished by others. Each individual piece of equipment shall be provided with a fused safety switch unless it is specifically noted that none is required.

17 FUSES:

All fuses for all fuse holders shall be furnished and installed whether equipment is furnished under this Section of the Specifications or not. Fuses shall be as specified herein or as required to match the Owner's existing fuses in both Manufacturer and type.

Labels shall be installed in all fused devices indicating proper size and type installed under this Contract.

Three (3) spare fuses of each size and type installed under this Contract shall be furnished and supplied to the Owner.

Fuses for all motor branch circuits shall be Bussman, size and voltage as noted on the Drawings.

18 MOTOR STARTERS:

All separately mounted motor starters provided under other Sections of the Specifications shall be installed and connected.

19 MOTORS, EQUIPMENT, CONTROLS.& CONTROL WIRING:

All fan motors, air conditioning units, heating units, etc., shall be furnished and installed under other Sections of the Specifications.

Power connections shall be provided for all equipment furnished and installed under other Sections of these Specifications.

Control connections shall be provided for all equipment and devices noted on the Drawings.

The installation, connection, and operation of controls not noted on the Drawings shall be done under other Sections of these Specifications, including the furnishing and installing of conduits, wiring, outlet boxes, control components, and all connections.

Control wiring shall be in accordance with the Drawings and/or the Manufacturer's certified and approved wiring diagrams.

Control wiring shall be marked with "E-Z" tape markers at all terminal points. All terminal blocks shall be marked to correspond to wire terminated.

20 MOUNTING HEIGHTS:

Unless otherwise directed or indicated on the Drawings, mounting heights above floor shall be as follows:

Lighting Switch	Current Floor Standard
Receptacle - General	Located in Wall Base
Thermostats	Current Floor Standard
Safety Switches	6'-6" to top
Panelboards	6'-6" to top
Motor Starters	6'-6" to top
Telephone Outlets	1'-0" to center
Fire Alarm Pull Station	5'-0" to center
Fire Alarm Horn	7'-6" to center

21 GROUNDING:

All wiring systems including conduit, panelboards, safety switches, lighting fixtures, and wiring devices shall be grounded in accordance with Article 250 of the National Electrical Code.

The neutral conductor shall be grounded at the supply side of the service disconnecting device by connecting the grounding conductor indicated on the Drawings to the neutral inside the service disconnect device enclosure.

All splices in grounding conductors shall be made with Cadwell connections. All connections to equipment and boxes shall be made with T & B two bolt hole "Lock-Tite" lugs. Connections to water pipes or ground rods shall be made with T & B heavy duty ground clamps.