SECTION 905 -- PROPOSAL (CONTINUED)

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO.	**1**	DATED	**7/20/2010**	ADDENDUM NO.		DATED	
ADDENDUM NO	**2**	DATED	**8**/17/2010	ADDENDUM NO.		DATED	

Number	Description
1	Revised Documents Revised Bidsheets, replace same; Revised or Added Plan Sht. Nos. 2, 4, 5, 8, 12, 17, 21, 34, 46, 48, 49, 50, 51, 52, 53, 54, 55, 73, & 86; Amendment EBS Download Required.
2	Table of Content, replaces same; Revised Advertisement; Revised Notice To Bidder No. 3098, replaces same; Add SP. Nos. 907-237-3, 907-304-12, & 907-703-8; Revised SP. 907-242-22 Documents, replace the same; Revised Bidsheets, replace same; Revised Plan Sht. Nos. 2, & 4; Amendment EBS Download Required.

TOTAL ADDENDA: **2**
(Must agree with total addenda issued prior to opening of bids)

Respectfully Submitted,

DATE _____

_____
Contractor

BY _____
Signature

TITLE _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE _____

FAX _____

E-MAIL _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

_____
President Address

_____
Secretary Address

_____
Treasurer Address

The following is my (our) itemized proposal.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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PROJECT: BWO-1180-41(001) / 501637301 -- Lee County

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SECTION 905 - PROPOSAL,
PROPOSAL BID SHEETS,
COMBINATION BID PROPOSAL,
STATE BOARD OF CONTRACTORS REQUIREMENTS,
CERTIFICATION REGARDING NON-COLLUSION, DEBARMENT AND SUSPENSION,
SECTION 902 - CONTRACT FORM, AND SECTION 903 - CONTRACT BOND FORM.

(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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SECTION 00 01 10

PROJECT: **DISTRICT HEADQUARTERS BUILDING AT TUPELO, LEE COUNTY, MISSISSIPPI**

PROJECT NUMBER: **BWO-1180-41(001) 501637**

REVISED DATE: **AUGUST 11, 2010**

DESCRIPTION A: The Department of Transportation shall clear and grub the site and have in place a building pad of compact select material within one foot of finish floor. This Work shall consist of minor site work and all construction work necessary in constructing the District Headquarters Building at Tupelo, Lee County, Mississippi, in accordance with these Specifications and conforming to the Drawings.

It is the intention of these Specifications to provide the necessary items and instruction for a complete building including all code compliance. Omission of items or instruction necessary or considered standard good practice for the proper installation and construction of the building shall not relieve the Contractor of furnishing and installing such items and conforming to the building codes having jurisdiction.

(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

END OF SECTION

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 901 - ADVERTISEMENT

Sealed bids will be received by the Mississippi Transportation Commission in the Office of the Contract Administration Engineer, Room 1013, Mississippi Department of Transportation Administration Building, 401 North West Street, Jackson, Mississippi, until 10:00 o'clock A.M., Tuesday, August 24, 2010, and shortly thereafter publicly opened on the Sixth Floor for:

Construction of a New District Headquarters Building in Tupelo, known as State Project No. BWO-1180-41(001) / 501637301, in the County of Lee, State of Mississippi.

The attention of bidders is directed to the predetermined minimum wage rate set by the U. S. Department of Labor under the Fair Labor Standards Act.

The Mississippi Department of Transportation hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, age, disability, religion or national origin in consideration for an award.

Plans and specifications are on file in the offices of the Mississippi Department of Transportation.

Bid proposals must be acquired from the MDOT Contract Administration Division. These proposal are available at a cost of Ten Dollars ($10.00) per proposal. Specimen proposals are also available at the MDOT Contract Administration Division at a cost of Ten Dollars ($10.00) per proposal, or can be viewed or downloaded at no cost at www.gomdot.com.

Plans may be acquired on a cost per sheet basis from MDOT Plans Print Shop, MDOT Shop Complex, Building C, Room 114, 2567 North West Street, Jackson, Mississippi 39216, Telephone (601) 359-7460 or e-mail at plans@mdot.state.ms.us or FAX (601) 359-7461. Plans will be shipped upon receipt of payment.

Bid bond, signed or countersigned by a Mississippi Agent or Qualified Nonresident Agent, with Power of Attorney attached or on file with the Contract Administration Engineer of the Department, a Cashier's check or Certified Check for five (5%) percent of bid, payable to STATE OF MISSISSIPPI, must accompany each proposal.

The attention of bidders is directed to the provisions of Subsection 102.07 pertaining to irregular proposals and rejection of bids.

LARRY L. “BUTCH” BROWN
EXECUTIVE DIRECTOR

(SPWP)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3098 **CODE: (SP)**

DATE: 08/17/2010

SUBJECT: Contract Time

PROJECT: BWO-1180-41(001) / 501637301 -- Lee County

The calendar date for completion of work to be performed by the Contractor for this project shall be **July 31, 2012** which date or extended date as provided in Subsection 108.06 shall be the end of contract time. It is anticipated that the Notice of Award will be issued no later than **September 14, 2010** and the effective date of the Notice to Proceed / Beginning of Contract Time will be **October 7, 2010** .

Should the Contractor request a Notice to Proceed earlier than **October 7, 2010** and it is agreeable with the Department for an early Notice to Proceed, the requested date will become the new Notice to Proceed / Beginning of Contract Time date.

A progress schedule as referenced to in Subsection 108.03 will not be required for this contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-237-3 **CODE: (SP)**

DATE: 01/14/2010

SUBJECT: Wattles

Section 907-237, Wattles, is hereby added to and made a part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-237 - WATTLES

907-237.01--Description. This work consists of furnishing, constructing and maintaining wattles for the retention of soil around inlets, swale areas, small ditches, sediment basins and other areas as necessary. Also, the work includes removing and disposing of the wattles and silt accumulations.

Measurement and payment for wattles will be made only when a pay item is included in the bid schedule of the proposal. The quantity is estimated for bidding purposes only and will be dependent upon actual conditions which occur during construction of the project.

907-237.02--Materials. Wattles used around inlets shall have a minimum diameter of twelve inches (12") and a length adequate to meet field conditions. Wattles used at other locations shall have a minimum diameter of twenty inches (20") and a length adequate to meet field conditions. The stakes used in securing the wattles in place shall be placed approximately three feet (3') apart throughout the length of the wattle. Stakes shall be wooden and of adequate size to stabilize the wattles to the satisfaction of the Engineer.

In addition to the requirements of this specifications, wattles shall be listed on the Department's "Approved Sources of Materials".

907-237.03--Construction Requirements.

907-237.03.1--General. The wattles shall be constructed at the locations and according to the requirements shown on the erosion control plan.

907-237.03.2--Maintenance and Removal. The Contractor shall maintain the wattles and remove and dispose of silt accumulations.

When the wattles are no longer needed, they shall be removed and the Contractor shall dispose of silt accumulations and treat the disturbed areas in accordance with the contract requirements.

907-237.04--Method of Measurement. Wattles of the size specified will be measured per linear foot.

907-237.05--Basis of Payment. Wattles, measured as prescribed above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for installation, maintaining and removal of the wattles, the removal and disposal of silt accumulations and any required restoration of the disturbed areas.

Payment will be made under:

907-237-A: Wattles, Size	- per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-304-12 **CODE: (IS)**

DATE: 06/01/2009

SUBJECT: Granular Courses

Section 907-304, Granular Courses, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-304.02--Materials. After the first paragraph of Subsection 304.02.1 on page 183, add the following:

When the contract includes pay item 907-304-E, Granular Material, LVM, RAP, it shall be milled recycled asphalt pavement and shall be visually inspected by the Engineer to insure it is free from chunks and deleterious materials.

Crushed concrete meeting the requirements of Subsection 907-703.04.4 may be used in lieu of other crushed courses specificed in the contract.

907-304.03--Construction Requirements.

907-304.03.5--Shaping, Compacting and Finishing. Delete the sixth paragraph of Subsection 304.03.5 on page 185.

Delete the first table in Subsection 304.03.5 on page 186 and substitute the following:

Granular Material Class	Lot Average	Individual Test
7,8,9 or 10	97.0	93.0
5 or 6	99.0	95.0
3 or 4	100.0	96.0
1 or 2	102.0	98.0
Crushed Courses*	99.0	95.0

* When placed on filter fabric on untreated subgrade, the individual tests and the average of the five (5) tests shall equal or exceed the following values:

Lot Average	Individual Test
96.0	92.0

Before the last paragraph of Subsection 304.03.5 on page 186, add the following:

Unless otherwise specified, density for granular material, RAP, shall be achieved by two passes of an approved roller and density tests will not be required.

907-304.05--Basis of Payment. Add the “907” prefix to the pay items listed on page 187.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-703-8

DATE: 07/16/2010

SUBJECT: Aggregates

Delete Subsection 907-703.04.1 on page 1 and substitute the folowing:

907-703.04.1--Coarse Aggregate. Delete the first paragraph of Subsection 703.04.1 on page 611, and substitute the following:

Coarse aggregate, defined as material retained on No. 8 sieve, shall be either crushed stone, slag, granite, shell, concrete, or combination thereof.

Delete Subsection 907-703.04.2 on page 1 and substitute the folowing:

907-703.04.2--Fine Aggregate. Delete the first sentence of the first paragraph of Subsection 703..04.2 on page 612, and substitute the following:

Fine aggregate, defined as material passing no. 8 sieve, shall be material resulting from the crushing of stone, slag, concrete, or combination thereof.

After Subsection 907-703.04.4 on page 2, add the following:

907-703.06--Aggregates for Hot Mix Asphalt.

907-703-06.1.2--Fine Aggregates. Delete the last sentence of Subsection 703.06.1.2 on page 614.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-703-8 **CODE: (IS)**

DATE: 06/01/2009

SUBJECT: Aggregates

Section 703, Aggregates, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-703.03.2.4--Gradation. Delete the last sentence of the last paragraph of Subsection 703.03.2.4 on page 611.

907-703.04--Aggregate for Crushed Stone Courses.

907-703.04.1--Coarse Aggregate. Delete the first sentence of the first paragraph of Subsection 703..04.1 on page 611, and substitute the following:

Coarse aggregate, defined as material retained on No. 8 sieve, shall be either crushed stone, slag, granite, shell, gravel, concrete, or combination thereof.

907-703.04.2--Fine Aggregate. Delete the first sentence of the first paragraph of Subsection 703..04.2 on page 611, and substitute the following:

Fine aggregate, defined as material passing no. 8 sieve, shall be material resulting from the crushing of stone, slag, gravel, concrete, or combination thereof.

907-703.04.3--Gradation. Add the following to the "TABLE OF SIZES AND GRADATION OF CRUSHED STONE AGGREGATE" in Subsection 703.04.3 on page 613.

Sieve Size	Percent Passing By Weight	
	Size No. 825	**Crushed Stone**
2 inch	100	
1 1/2 inch	90 - 100	100
1 inch	75 - 98	90 - 100
3/4 inch		
1/2 inch	60 - 85	62 - 90
3/8 inch		
No. 4	40 - 65	30 - 65
No. 8	28 - 54	
No. 10		15 - 40
No. 16	19 - 42	
No. 40		
No. 50	9 - 27	
No. 200	4 - 18	3 - 16

After the "TABLE OF SIZES AND GRADATION OF CRUSHED STONE AGGREGATE" in Subsection 703.04.3 on page 613, add the following:

907-703.04.4--Crushed Concrete. Crushed reclaimed concrete shall also be allowed as a crushed aggregate course provided it meets the requirements of Subsection 703.04 and the following.

Crushed Concrete

Sieve Size	Percent Passing By Weight
2 inch	
1 1/2 inch	100
1 inch	90 - 100
3/4 inch	
1/2 inch	60 - 85
3/8 inch	
No. 4	40 - 65
No. 8	28 - 54
No. 10	
No. 16	19 - 42
No. 40	
No. 50	9 - 27
No. 200	2 - 18

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-242-22 **CODE: (SP)**

DATE: 08/17/2010

SUBJECT: District Headquarters Building

PROJECT: BWO-1180-41(001) / 501637301 -- Lee County

Section 907-242, District Headquarters Building, is hereby added to and made part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-242-- DISTRICT HEADQUARTERS BUILDING

The following specifications are to be used ONLY for the District Headquarters Building. Measurement and payment will be lump sum under pay item 907-242-A.

The Mississippi Standard Specifications for Road and Bridge Construction shall be used for all items of work other than the building construction..

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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PROJECT: **DISTRICT HEADQUARTERS BUILDING AT TUPELO, LEE COUNTY, MISSISSIPPI**

PROJECT NUMBER: **BWO-1180-41(001) 501637**

REVISED DATE: **AUGUST 11, 2010**

DESCRIPTION A: The Department of Transportation shall clear and grub the site and have in place a building pad of compact select material within one foot of finish floor. This Work shall consist of minor site work and all construction work necessary in constructing the District Headquarters Building at Tupelo, Lee County, Mississippi, in accordance with these Specifications and conforming to the Drawings.

It is the intention of these Specifications to provide the necessary items and instruction for a complete building including all code compliance. Omission of items or instruction necessary or considered standard good practice for the proper installation and construction of the building shall not relieve the Contractor of furnishing and installing such items and conforming to the building codes having jurisdiction.

(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

END OF SECTION

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

ADDENDUM No. 2
SECTION 00 91 14

DATE: **AUGUST 11, 2010**

PROJECT: **DISTRICT HEADQUARTERS BUILDING AT TUPELO, LEE COUNTY, MISSISSIPPI**

PROJECT NUMBERS: **BWO-1180-41(001) 501637**

PART 1 - GENERAL

1.01 DESCRIPTION

A. Bidders are hereby advised that the following changes are to be made to this Contract.

1.02 SPECIFICATIONS – ARCHITECTURAL

A. Section 00 01 10 - Table of Contents. Delete Table of Contents and replace with attached Table of Contents with Revised date of 8-11-10. The Specification Sections listed in this Table of Contents are included as one Lump Sum for Special Provision 907-242-22 and listed as Pay Item 907-242-A006. Note: Section 32 14 16 – Brick Pavers, Section 32 32 23 – Segmental Retaining Wall, and Section 32 92 00 – Turf and Grasses (includes Grasspave) shall be included in Pay Item 907-242-A006.

1. Pay Items listed on Working Number C-1.1 / Sheet 4 and Working Number C-1.2 / Sheet 5, Summary of Quantities shall be used for Work not included in Special Provision 907-242-22.

B. Section 09 72 17 – Fabric Wall Covering. Article 1.03, Add Paragraph F as follows: Mockup: Provide mockup yardage only to show seaming pattern on mockup of wall substrate to establish quality control of seaming and installation. Once seaming mockup has been reviewed and approved by the Owner and Architect, the balance of materials may be ordered for complete installation.

C. Section 09 80 00 – Acoustical Wall Panels. Add attached Section dated August 11, 2010.

D. Section 26 32 13 – Engine Generators. Delete this Section and replace with attached Section 26 32 13 with revised date of 8-11-10. Paragraph 2.08 Outdoor Generator-Set Enclosure is revised in this Section.

E. Section 28 10 00 – Electronic Access Control and Intrusion Detection. Article 1.06, Paragraph D, Item 1. Delete 'and shall be identified on the Bid Form'.

F. Section 31 20 00 – Earth Moving. Article 2.01, Add Paragraph F. Stone (Grandular) Base Course: Crushed stone material, sized ¾-inch and down, in accordance with sections 304 and 703 of MDOT Specifications. Article 3.16, Add Paragraph B. On prepared subgrade, place subbase course and base course under pavements in accordance with section 304 of MDOT Specifications.

G. Section 32 16 15 – Concrete Curbs and Walks. Delete this Section from Special Provision 907-242-22 and refer to Pay Item 608-B – Concrete Sidewalk With Reinforcement and 609-D – Combination Curb and Gutter, Type 3A for this Work.

H. Section 32 92 00 – Turf and Grasses. Article 2.07, Add Paragraph H. Subbase Course: Crushed stone material, sized ¾-inch and down, in accordance with section 703 of MDOT Specifications. Install in accordance with section 304 of MDOT Specifications. Subbase course to be included in grasspave unit cost.

1.03. DRAWINGS

A. Make the following changes to Sheet Number 2, Working Number T-1.1:

1. Revise the Revision Block indicated by Revision No. 5 dated 8-11-10.

B. Make the following changes to Sheet Number 4, Working Number C-1.1:

1. Add Pay Item 907-304-H002 as indicated on this sheet dated 8-11-10.

C. Make the following changes to Sheet Number 96, Working Number E3.7:

1. In the Lighting Fixture Schedule, the Catalog Number for fixture Type “T” shall be 84936-U.

1.04 CLARIFICATIONS AND QUESTIONS / ANSWERS

A. Comply with the Following:

1. Q. Will MDOT take possession of the Project and close out the Contract earlier than the specified completion date of June 29, 2012 if construction activities are complete?

A. Yes; there is no penalty for early completion.

2. Q. Special Provision No. 907-258-9 – Miscellaneous Site Amenities lists several items that are not shown on the drawings. Are these to be considered part of our bid?

A. Only Parking Bumper item in 907-258-9 is included in this Contract.

3. Q. There is mention of a DBE / WBE participation requirement, however there is no percentage goal listed. Confirm what percent DBE / MBE participation we should meet?

A. There is no DBE / MBE goal required in this Contract.

4. Q. On Working Number A6.1.2 / Sheet 49, Detail 1, there is a window type T shown. However, there is no window type T shown on the Elevations (A5.3). Clarify what this designation refers.

A. Wall is solid as indicated on plans, sections, and elevations. There is no window type "T."

5. Q. On A5.2.2 / Sheet 43 the frame on door 212B is shown to be Hollow Metal. However, the detail on 14/A5.6 shows the frame to be Wood. Confirm that the frame is Wood.

   A. Detail is correct. The pocket door frames are wood.

6. Q. Provide a list of Owner provided equipment for Section 28 10 00 – Electronic Access Control & Intrusion Detection and Section 28 23 00 – Video Surveillance?

   A. No equipment in Sections 28 10 00 or 28 23 00, 2.02 will be provided by MDOT.

7. Q. FWC #1 is shown in Finish Schedules on Working Number A5.1.1 / Sheet 40, but Section 09 72 17 indicates FWC #1 – Not Used.

   A. FWC #2 and FWC #3 will not be used and use the following information for FWC #1:

   FWC#1
   Manufacturer: Knoll Textiles
   Style: Gravity WC1328
   Color: Chromosphere
   Total Weight: 12 oz per linear yard
   Backing: Acrylic
   Roll Width: 54 inches
   UL Ratings: ASTM E-84 (adhered) Class A

8. Q. What is the 1" x 1/4" bar referenced in 1/A6.10?

   A. This is the 1" x 1" x 1/8" bronze "T" trim piece in the reveal joint of the millwork panels.

9. Q. Detail 5/A5.4 shows a 4" jamb. Are all jambs 4" or only those indicated as 4" on A5.3?

   A. All frames are 2 1/2" as specified unless shown as 4" on A5.3.

10. Q. What is the bronze trim at the reception desk? Section 05 07 00 does not indicate a size.

    A. Provide 1" x 1" x 1/8" bronze "T" by Nationwide Architectural Metals, Inc. 800-851-5030, www.architecturalmetals.com, or equal.

11. Q. Can you provide a source for the 1" diameter bronze rod specified in 05 70 00 needed to fabricate the leg for the reception desk?

    A. Nationwide Architectural Metals, Inc. 800-851-5030, www.architecturalmetals.com

12. Q. Signage on Exterior Building Elevation shown on Sheet Number 24, Working Number A3.1 is hard to read. What does it need to say?

    A. MISSISSIPPI DEPARTMENT, OF TRANSPORTATION, DISTRICT ONE, HEADQUARTERS.

END OF ADDENDUM No. 2

SECTION 09800 ACOUSTICAL WALL PANELS

PART 1 GENERAL

1.01. SUMMARY

A. This Section includes factory manufactured Acoustical Panels as indicated on drawings.

1.02. SUBMITTALS

A. Submit manufacturer's product data and installation instructions.

B. Submit shop drawings for acoustical insulation showing fabrication and installation of Acoustical Panels including plans, elevations, sizes, sections, details of components, and attachments to other construction.

C. Submit installer qualifications.

D. Submit manufacturer’s full range of Acoustical Panel fabrics. Include representative samples of installation devices and accessories, if required.

E. Submit product test reports from and based on tests performed by a qualified independent testing agency acceptable to authorities having jurisdiction, evidencing that Acoustical Panels comply with requirements specified for fire-test-response characteristics and sound absorption performance.

F. Submit product certificates signed by manufacturers of Acoustical Panels certifying that their products comply with specified requirements.

G. Submit 2 sets of color samples for all components requiring color selection. Samples shall be on actual materials and shall not be printed on paper.

1.03. QUALITY ASSURANCE

A. Provide Acoustical Panels with surface-burning characteristics as indicated below, as determined by testing assembled materials composed of facings and backings identical to those required in this Section, per ASTM E 84.

1. Classification: Class "A"

2. Flame Spread: 25 or less

3. Smoke Developed: 450 or less

B. Manufacturer shall have a minimum of 5 years experience in the production of wall and ceiling panels similar in design to the work of this project.

C. Obtain each type of Acoustical Panel from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

D. Panel installer shall have a minimum of five years experience in the installation of systems similar in size, scope and complexity to the work of this project.

1.04. DELIVERY, STORAGE AND HANDLING

A. Protect Acoustical Panels from excessive moisture in shipment, storage and handling. Do not deliver material to building until wet-work, such as concrete and plaster, has been completed and cured to a condition of equilibrium.

1.05. PROJECT CONDITIONS

A. Environmental Conditions: Do not begin installation until area to receive Acoustical Wall Panels has been enclosed and maintained at approximately the same humidity and temperature conditions as planned for occupancy. Maintain temperature and humidity as recommended by panel manufacturer.

B. Field Measurements: Installing contractor to check wall surfaces and adjacent work including millwork and take accurate field measurements before fabrication and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

PART 2 PRODUCTS

2.01 ACOUSTICAL PANELS, GENERAL

A. Manufacture panels to sizes and configurations indicated. Attach facing materials, with acoustically transparent adhesive, to cores to produce installed panels with visible surfaces fully covered and free from waves, wrinkles, sags, blisters, seams, adhesive, or other foreign matter.

B. Dimensional Tolerances of Finished Units: Overall height, width, thickness, edge straightness, chords, radii, diameters, and squareness from corner to corner of panels - Plus or minus 1/16 inch, in accordance with industry standards as established by the Acoustical Wall Panel Committee of the Ceilings and Interior Systems Construction Association (CISCA).

C. Sound Absorption Performance: Provide Acoustical Ceiling Panels with minimum noise reduction coefficients (NRC) indicated, as determined by testing per ASTM C 423 for mounting type specified under individual product requirements.

2.02. ACCEPTABLE MANUFACTURERS

A. Sound Concepts Inc, 599 Henry Avenue, Winnipeg, Manitoba, Tel: 204-783-6297, Fax (204)783-7806.

B. Or Equal.

2.03. MATERIALS

A. Provide fabric covered “Reflect” Impact Resistant Acoustical Panels

2.04. ACOUSTICAL WALL PANELS

A. Fabric Faced Acoustical Wall Panels: Manufacturer's standard panel construction consisting of facing material laminated to front, edges and back to minimum 1 inches of the fiberglass core, with acoustically transparent adhesive, to ensure against warpage and damage; corners to be tailored and heat fused; complying with the following requirements:

1. Core Densities and Construction: Impact-resistant fiberglass with a density of not less than 6 lb./cu. ft. shall constitute core material.
2. Thickness and NRC:
   a. Nominal overall thickness of 1 inch wall panels with corresponding NRC of 1.10 as tested in accordance with ASTM C-423.
3. Facing Material: As selected by the Architect from manufacturer's full color range.
4. Panel Size: As indicated on drawings.
5. Edge Profile: Square
6. Corner Details: Square
7. Mounting: Z-clip with end angle on wood frame as indicated in the drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of Acoustical Wall Panels. Do not proceed with installation until satisfactory conditions have been corrected.

3.02. INSTALLATION

A. Install Acoustical Panels in locations indicated on drawings and in conformance with details and sections with surfaces and edges plumb, and in alignment with other panels, scribed to fit adjoining work accurately at borders and at penetrations. Comply with panel manufacturer's printed instructions for installation of panels using type of mounting accessories indicated or, if none indicated, as recommended by manufacturer.

B. Provide manufacturer's standard Z-clip installation with end angles where indicated.

C. Cut units to be at least 50 percent of unit width, with facing material extended over cut edge to match uncut edge. Scribe Acoustical Wall Panels to fit adjacent work. Butt joints tightly.

1. Construction Tolerances: Variation from Plumb and Level - Plus or minus 1/16 inch.
2. Remove and replace panels that are damaged and are unacceptable to the Architect.

3.03. CLEANING

A. Obtain and follow cleaning instructions from the manufacturer.

3.04. PROTECTION

A. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and the Installer that ensures that Acoustical Panels are without damage or deterioration at the time of Substantial Completion.

B. Replace panels that cannot be cleaned and repaired, in a manner acceptable to the Architect, prior to the time of Substantial Completion. In all cases, labor shall be for the account and responsibility of the Installer.

END OF SECTION

SECTION 26 32 13 ENGINE GENERATORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes packaged engine-generator sets for emergency power supply with the following features:

1. Diesel engine.
2. Unit-mounted cooling system.
3. Unit-mounted and remote-mounting control and monitoring.
4. Performance requirements for sensitive loads.
5. Load banks.
6. Outdoor enclosure.

B. Related Sections include the following:

1. Division 26 Section "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.

1.03 DEFINITIONS

A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

B. LP: Liquid petroleum.

1.04 SUBMITTALS

A. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:

1. Thermal damage curve for generator.
2. Time-current characteristic curves for generator protective device.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
2. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.

3. Vibration Isolation Base Details: Signed and sealed by a qualified professional engineer. Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include base weights.
4. Wiring Diagrams: Power, signal, and control wiring.

C. Qualification Data: For installer, manufacturer and testing agency.

D. Source quality-control test reports.

1. Certified summary of prototype-unit test report.
2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
3. Certified Summary of Performance Tests: Certify compliance with specified requirement to meet performance criteria for sensitive loads.
4. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
5. Report of sound generation.
6. Report of exhaust emissions showing compliance with applicable regulations.
7. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

E. Field quality-control test reports.

F. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.

G. Warranty: Special warranty specified in this Section.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

1. Maintenance Proximity: Not more than four hours' normal travel time from Installer's place of business to Project site.
2. Engineering Responsibility: Preparation of data for vibration isolators and seismic restraints of engine skid mounts, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 200 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.

C. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL), and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

D. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

F. Comply with ASME B15.1.

G. Comply with NFPA 37.

H. Comply with NFPA 70.

I. Comply with NFPA 99.

J. Comply with NFPA 110 requirements for Level 1 emergency power supply system.

K. Comply with UL 2200.

L. Engine Exhaust Emissions: Comply with applicable state and local government requirements.

M. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.06 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Architect no fewer than two days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Architect's written permission.

B. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: 5 to 40 deg C.
2. Relative Humidity: 0 to 95 percent.
3. Altitude: Sea level to 1000 feet.

1.07 COORDINATION

A. Coordinate size and location of concrete bases for package engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.08 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 5 years from date of Substantial Completion.

1.09 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

1.10 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: One for every 10 of each type and rating, but no fewer than one of each.
2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Caterpillar; Engine Div.
2. Generac Power Systems, Inc.
3. Kohler Co.; Generator Division.
4. Onan/Cummins Power Generation; Industrial Business Group.

2.02 ENGINE-GENERATOR SET

A. Factory-assembled and -tested, engine-generator set.

B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.

1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and generator-set center of gravity.

C. Capacities and Characteristics:

1. Power Output Ratings: Nominal ratings as indicated.
2. Output Connections: Three-phase, four wire.
3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

D. Generator-Set Performance:

1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
7. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
8. Start Time: Comply with NFPA 110, Type 10, system requirements.

E. Generator-Set Performance for Sensitive Loads:

1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.
   a. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.
2. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage from no load to full load.
3. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.

4. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency from no load to full load.
5. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
6. Transient Frequency Performance: Less than 2-Hz variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.
7. Output Waveform: At no load, harmonic content measured line to neutral shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
8. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.
9. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.
    a. Provide permanent magnet excitation for power source to voltage regulator.
10. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.03 ENGINE

A. Fuel: Fuel oil, Grade DF-2

B. Rated Engine Speed: 1800 rpm.

C. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm.

D. Lubrication System: The following items are mounted on engine or skid:

1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.

E. Engine Fuel System:

1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
2. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.

F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity.

G. Governor: Adjustable isochronous, with speed sensing.

H. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.

1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.
   a. Rating: 50-psig maximum working pressure with coolant at 180 deg F, and noncollapsible under vacuum.
   b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

I. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.

1. Minimum sound attenuation of 25 dB at 500 Hz.
2. Sound level measured at a distance of 10 feet from exhaust discharge after installation is complete shall be 85 dBA or less.

J. Air-Intake Filter: Standard-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

K. Starting System: 12-V electric, with negative ground.

1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Battery: Adequate capacity within ambient temperature range specified in Part 1 "Project Conditions" Article to provide specified cranking cycle at least twice without recharging.
5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
6. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater shall be arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in Part 1 "Project Conditions" Article. Include accessories required to support and fasten batteries in place.
7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.

8. Battery Charger: Current-limiting, automatic-equalizing and float-charging type. Unit shall comply with UL 1236 and include the following features:
   a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
   b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
   c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
   d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
   e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
   f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.04 FUEL OIL STORAGE

A. Comply with NFPA 30.

B. Base-Mounted Fuel Oil Tank: Factory installed and piped, complying with UL 142 fuel oil tank. Features include the following:

1. Tank level indicator.
2. Capacity: Fuel for 36 hours' continuous operation at 100 percent rated power output.
3. Vandal-resistant fill cap.
4. Containment Provisions: Comply with requirements of authorities having jurisdiction.

2.05 CONTROL AND MONITORING

A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.

B. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.

C. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.

D. Indicating and Protective Devices and Controls: As required by NFPA 110 for Level 1 system, and the following:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Running-time meter.
8. Ammeter-voltmeter, phase-selector switch(es).
9. Generator-voltage adjusting rheostat.
10. Fuel tank derangement alarm.
11. Fuel tank high-level shutdown of fuel supply alarm.
12. Generator overload.

E. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.

F. Common Remote Audible Alarm: Comply with NFPA 110 requirements for Level 1 systems. Include necessary contacts and terminals in control and monitoring panel.

1. Overcrank shutdown.
2. Coolant low-temperature alarm.
3. Control switch not in auto position.
4. Battery-charger malfunction alarm.
5. Battery low-voltage alarm.

G. Common Remote Audible Alarm: Signal the occurrence of any events listed below without differentiating between event types. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset.

H. Remote Alarm Annunciator: Comply with NFPA 99. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.

I. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

2.06 GENERATOR OVERCURRENT AND FAULT PROTECTION.

A. Generator Circuit Breaker: Molded-case, thermal-magnetic type; 100 percent rated; complying with NEMA AB 1 and UL 489.

1. Tripping Characteristic: Designed specifically for generator protection.
2. Trip Rating: Matched to generator rating.

3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
4. Mounting: Adjacent to or integrated with control and monitoring panel.

B. Generator Protector: Microprocessor-based unit shall continuously monitor current level in each phase of generator output, integrate generator heating effect over time, and predict when thermal damage of alternator will occur. When signaled by generator protector or other generator-set protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from load circuits. Protector shall perform the following functions:

1. Initiates a generator overload alarm when generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other generator-set malfunction alarms.
2. Under single or three-phase fault conditions, regulates generator to 300 percent of rated full-load current for up to 10 seconds.
3. As overcurrent heating effect on the generator approaches the thermal damage point of the unit, protector switches the excitation system off, opens the generator disconnect device, and shuts down the generator set.
4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.

C. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground-fault. Integrate ground-fault alarm indication with other generator-set alarm indications.

2.07 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1.

B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.

C. Electrical Insulation: Class H or Class F.

D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.

E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

F. Enclosure: Dripproof.

G. Instrument Transformers: Mounted within generator enclosure.

H. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.

1. Adjusting rheostat on control and monitoring panel shall provide plus or minus 5 percent adjustment of output-voltage operating band.

I. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

K. Subtransient Reactance: 12 percent, maximum.

2.08 OUTDOOR GENERATOR-SET ENCLOSURE

A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to 100 mph (160 km/h). Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.

B. Description: Prefabricated enclosure with the following features:

1. Construction: Galvanized-steel, metal-clad, integral structural-steel-framed enclosure.
2. Structural Design and Anchorage: Comply with ASCE 7 for wind loads.
3. Louvers: Equipped with bird screen and filter arranged to permit air circulation when engine is not running while excluding exterior dust, birds, and rodents.
4. Hinged Doors: With padlocking provisions.
5. Ventilation: Louvers equipped with bird screen and filter arranged to permit air circulation while excluding exterior dust, birds, and rodents.
6. Muffler Location: External to enclosure.

C. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.

1. Louvers: Fixed-engine, cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.
2. Automatic Dampers: At engine cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.

D. Convenience Outlets: Factory wired, GFCI. Arrange for external electrical connection.

2.09 VIBRATION ISOLATION DEVICES

A. Elastomeric Isolator Pads: Oil- and water-resistant elastomer or natural rubber, arranged in single or multiple layers, molded with a nonslip pattern and galvanized-steel baseplates of sufficient stiffness for uniform loading over pad area, and factory cut to sizes that match requirements of supported equipment.

1. Material: Standard neoprene.
2. Durometer Rating: 30.
3. Number of Layers: Three.

2.10 FINISHES

A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.

2.11 SOURCE QUALITY CONTROL

A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Tests: Comply with NFPA 110, Level 1 Energy Converters and with IEEE 115.

B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:

1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
2. Full load run.
3. Maximum power.
4. Voltage regulation.
5. Transient and steady-state governing.
6. Single-step load pickup.
7. Safety shutdown.
8. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.
9. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.

B. Examine roughing-in of piping systems and electrical connections. Verify actual locations of connections before packaged engine-generator installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.

B. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.

C. Install packaged engine generator with elastomeric isolator pads having a minimum deflection of 1 inch on 4 inch high concrete base. Secure sets to anchor bolts installed in concrete bases.

D. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.03 CONNECTIONS

A. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.04 IDENTIFICATION

A. Identify system components according to Division 23 Section "Identification for HVAC Piping and Equipment" and Division 26 Section "Identification for Electrical Systems."

3.05 FIELD QUALITY CONTROL.

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.

B. Perform tests and inspections and prepare test reports.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Perform tests recommended by manufacturer and each electrical test and visual and mechanical inspection **(**except those indicated to be optional) for "AC Generators and for Emergency Systems" specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
    a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
    b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
    c. Verify acceptance of charge for each element of the battery after discharge.
    d. Verify that measurements are within manufacturer's specifications.
4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.

8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
9. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.
10. Noise Level Tests: Measure A-weighted level of noise emanating from generator-set installation, including engine exhaust and cooling-air intake and discharge, at four locations on the property line, and compare measured levels with required values.

D. Coordinate tests with tests for transfer switches and run them concurrently.

E. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.

F. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

G. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

H. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

I. Remove and replace malfunctioning units and retest as specified above.

J. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

K. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

L. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each power wiring termination and each bus connection. Remove all access panels so terminations and connections are accessible to portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies terminations and connections checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.06 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION

Construction of a New District Headquarters Building in Tupelo, known as State Project No. BWO-1180-41(001) / 501637301, in the County of Lee, State of Mississippi.

I (We) agree to complete the entire project within the specified contract time.

***** SPECIAL NOTICE TO BIDDERS *****
BIDS WILL NOT BE CONSIDERED UNLESS BOTH UNIT PRICES AND ITEM TOTALS ARE ENTERED.
BIDS WILL NOT BE CONSIDERED UNLESS THE BID CERTIFICATION LOCATED AT THE END OF THE BID SHEETS IS SIGNED

*****BID SCHEDULE*****

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Item Amount	
						Dollar	Ct	Dollar	Ct
Roadway Items									
0010	203-A003	(E)	125	Cubic Yard	Unclassified Excavation, FM, AH				
0020	209-A001		18	Square Yard	Geotextile Stabilization, Type V				
0030	216-B004		779	Square Yard	Solid Sodding, Bermuda				
0040	224-A001		1,012	Square Yard	Soil Reinforcing Mat				
0050	234-A001		880	Linear Feet	Temporary Silt Fence				
0060	235-A001		29	Bale	Temporary Erosion Checks				
0070	602-A001	(S)	724	Pounds	Reinforcing Steel				
0080	603-CB014	(S)	6	Each	15" Reinforced Concrete End Section				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0090	604-B001		2,664	Pounds	Gratings				
0100	604-C001	(S)	1	Linear Feet	Precast Manhole, 48" Diameter				
0110	608-B001	(S)	368	Square Yard	Concrete Sidewalk, With Reinforcement				
0120	609-D008	(S)	410	Linear Feet	Combination Concrete Curb and Gutter Type 3A				
0130	620-A001		1	Lump Sum	Mobilization	XXXXXXXX	XXX		
0140	815-A001	(S)	3	Square Yard	Loose Riprap, Size 100				
0150	907-227-A001		1	Acre	Hydroseeding				
0155 Added 07/20/2010	907-237-A003		200	Linear Feet	Wattles, 20"				
0160	907-258-N001		3	Each	Car Stop				
0165 Added 08/17/2010	907-304-H002	(GY)	420	Cubic Yard	3/4" and Down Crushed Stone Base, LVM				
0170	907-601-B003	(S)	8	Cubic Yard	Class "B" Structural Concrete, Minor Structures				
0180	907-601-PP002	(S)	22	Each	18" x 18" Polymer Catch Basin				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0190	907-603-PVC02	(S)	15	Linear Feet	24" Corrugated Poly Vinyl Chloride Pipe				
0200	907-603-PVC05	(S)	390	Linear Feet	6" Corrugated Poly Vinyl Chloride Pipe				
0210	907-603-PVC06	(S)	320	Linear Feet	12" Corrugated Poly Vinyl Chloride Pipe				
0220	907-603-PVC07	(S)	140	Linear Feet	15" Corrugated Poly Vinyl Chloride Pipe				
0230	907-611-PP005	(S)				XXXXXXXX	XXX	XXXXXXXX	XXX
Deleted 07/20/2010									
0240	907-809-PP005	(S)				XXXXXXXX	XXX	XXXXXXXX	XXX
Deleted 07/20/2010									
Building Items									
0250	907-242-A006		1	Lump Sum	Construction of a District Headquarters Building	XXXXXXXX	XXX		

*** BID CERTIFICATION ***

TOTAL BID.....$_____

*** SIGNATURE STATEMENT ***

BIDDER ACKNOWLEDGES THAT HE/SHE HAS CHECKED ALL ITEMS IN THIS PROPOSAL FOR ACCURACY AND CERTIFIED THAT THE FIGURES SHOWN THEREIN CONSTITUTE THEIR OFFICIAL BID.

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BIDDER'S SIGNATURE

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BIDDER'S COMPANY

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BIDDER'S FEDERAL TAX ID NUMBER