Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Purchase Order

Order Date: 02-05-2026

CORRECT ORDER NUMBER MUST APPEAR ON ALL PACKAGES, INVOICES, AND SHIPPING PAPERS. QUESTIONS CONCERNING THIS ORDER SHOULD BE DIRECTED TO THE DEPARTMENT CONTACT.

Order Number:	CPO 0211 4001 GSD2600000012 1	**Change Order No:**	**Procurement Folder:** 1795974
Document Name:	Remodel of WB-1& WB-2 (W. Wing) Bldg.1		**Reason for Modification:**
Document Description:	Remodel of WB-1& WB-2 (W. Wing) Bldg.1		
Procurement Type:	Central Purchase Order		
Buyer Name:	David H Pauline		
Telephone:	304-558-0067		
Email:	david.h.pauline@wv.gov		
Shipping Method:	Best Way		**Effective Start Date:**
Free on Board:	FOB Dest, Freight Prepaid		**Effective End Date:**

VENDOR

Vendor Customer Code: 000000206691
BPI INC
PO BOX 7

Winfield WV 25213
US
Vendor Contact Phone: 999-999-9999 **Extension:**

Discount Details:

	Discount Allowed	Discount Percentage	Discount Days
#1	No	0.0000	0
#2	Not Entered		
#3	Not Entered		
#4	Not Entered		

DEPARTMENT CONTACT

Requestor Name: David K Parsons
Requestor Phone: 304-352-5486
Requestor Email: david.k.parsons@wv.gov

2026
FILE LOCATION _____

INVOICE TO

GENERAL SERVICES DIVISION
DEPARTMENT OF ADMINISTRATION
112 CALIFORNIA AVENUE
BLDG 4, 6TH FLOOR
CHARLESTON WV 25305
US

SHIP TO

DEPARTMENT OF ADMINISTRATION
GENERAL SERVICES DIVISION BLDG 1
1900 KANAWHA BLVD E
CHARLESTON WV 25305
US

CR 2-9-26

Total Order Amount:	$451,000.00

Purchasing Division's File Copy

TL 2/4/26

PURCHASING DIVISION AUTHORIZATION	**ATTORNEY GENERAL APPROVAL AS TO FORM**	**ENCUMBRANCE CERTIFICATION**
DATE: 2/6/26	**DATE:** 2/10/2026	**DATE:** 2-10-26
ELECTRONIC SIGNATURE ON FILE	**ELECTRONIC SIGNATURE ON FILE**	**ELECTRONIC SIGNATURE ON FILE**

Extended Description:

CENTRAL PURCHASE ORDER
CONSTRUCTION

The Vendor, BPI, Inc., agrees to this construction contract with the WV Department of Administration, General Services Division ("Agency" and "Owner"), to provide all materials, labor, and equipment necessary to complete all Construction Services .The Vendor shall furnish any incidental work, materials, labor, and equipment that are necessary to complete the Construction Services, even if such incidental work is not explicitly included in the Project Plans. The Buildout to finish of area commonly known as WB-I&2 to include but is not limited to, the following: 1 .Wiring electrical panels, lighting, emergency lighting, exit lighting and transformers; 2 .Plumbing to include domestic and sanitary.; 3 .General construction to include demolition, wall construction, doors and finishes; 4 .Flooring preparation and tile work; 5 .Mechanical work to include ductwork, dampers and grills, and drum louvres and 6 .Fire alarm devices and connections including dampers, detectors, visual and audible alarming devices, per the bid requirements, specifications, terms and conditions, Exhibit A - Pricing Page; Exhibit B - Project Plans; Exhibit C - Drawings; Exhibit D - Project Specifications; Addendum No. 1 issued 11/19/2025; Addendum No. 2 issued 11/26/2025; Addendum No. 3 issued 12/02/2025 and the Vendor's submitted bid dated 12/16//2025 incorporated herein by reference and made a part hereof.

Line	Commodity Code	Quantity	Unit	Unit Price	Total Price
1	72121103	0.00000		0.000000	451000.00
Service From	**Service To**	**Manufacturer**		**Model No**	

Commodity Line Description: Remodel of WB-1& WB-2 (W. Wing) Bldg.1

Extended Description:
Per attached Project Plans, see Exhibit A Pricing Page, Base Bid

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of an Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance by the State of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid, or on the Contract if the Contract is not the result of a bid solicitation, signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or **"Proposal"** means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☐ **Term Contract**

Initial Contract Term: The Initial Contract Term will be for a period of _____ _____. The Initial Contract Term becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as _____), and the Initial Contract Term ends on the effective end date also shown on the first page of this Contract.

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

☐ **Alternate Renewal Term** – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☑ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within One Hundred and Eighty (180) days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that:

☐ the contract will continue for _____ years;

☐ the contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's Office (Attorney General approval is as to form only).

☐ **One-Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Construction/Project Oversight:** This Contract becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as _____), and continues until the project for which the vendor is providing oversight is complete.

☐ **Other:** Contract Term specified in _____

4. AUTHORITY TO PROCEED: Vendor is authorized to begin performance of this contract on the date of encumbrance listed on the front page of the Award Document unless either the box for "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked in Section 3 above. If either "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked, Vendor must not begin work until it receives a separate notice to proceed from the State. The notice to proceed will then be incorporated into the Contract via change order to memorialize the official date that work commenced.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☐ **Open End Contract:** Quantities listed in this Solicitation/Award Document are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One-Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

☑ **Construction:** This Contract is for construction activity more fully defined in the specifications.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One-Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked in this section must be provided to the Purchasing Division by the Vendor as specified:

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits upon request and in a form acceptable to the State. The request may be prior to or after contract award at the State's sole discretion.

☐

☐

☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether that insurance requirement is listed in this section.

Vendor must maintain:

☑ **Commercial General Liability Insurance** in at least an amount of: $1,000,000.00 per occurrence.

☑ **Automobile Liability Insurance** in at least an amount of: $1,000,000.00 per occurrence.

☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: _____ per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.

☑ **Commercial Crime and Third Party Fidelity Insurance** in an amount of: $1,000,000.00 per occurrence.

☐ **Cyber Liability Insurance** in an amount of: _____ per occurrence.

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

☐ **Pollution Insurance** in an amount of: _____ per occurrence.

☐ **Aircraft Liability** in an amount of: _____ per occurrence.

☑ Certificate of Insurance must indicate Additional Insured.

☑ Certificate Holder should indicate:
General Services Division
1900Kanawha Blvd. E
Chareston, WV 25305

☐

☐

9. WORKERS' COMPENSATION INSURANCE: Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. VENUE: All legal actions for damages brought by Vendor against the State shall be brought in the West Virginia Claims Commission. Other causes of action must be brought in the West Virginia court authorized by statute to exercise jurisdiction over it.

11. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ _____ for _____.

☐ Liquidated Damages Contained in the Specifications.

☑ Liquidated Damages Are Not Included in this Contract.

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

14. PAYMENT IN ARREARS: Payments for goods/services will be made in arrears only upon receipt of a proper invoice, detailing the goods/services provided or receipt of the goods/services, whichever is later. Notwithstanding the foregoing, payments for software maintenance, licenses, or subscriptions may be paid annually in advance.

15. PAYMENT METHODS: Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia, included in the Contract, or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available. If that occurs, the State may notify the Vendor that an alternative source of funding has been obtained and thereby avoid the automatic termination. Non-appropriation or non-funding shall not be considered an event of default.

19. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

20. TIME: Time is of the essence regarding all matters of time and performance in this Contract.

21. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code, or West Virginia Code of State Rules is void and of no effect.

22. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

> **SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

23. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

24. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

25. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

26. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

27. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

28. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

29. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in www.state.wv.us/admin/purchase/privacy.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR NON-CONFLICT: Neither Vendor nor its representatives are permitted to have any interest, nor shall they acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. NO DEBT CERTIFICATION: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State. By submitting a bid, or entering into a contract with the State, Vendor is affirming that (1) for construction contracts, the Vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, neither the Vendor nor any related party owe a debt as defined above, and neither the Vendor nor any related party are in employer default as defined in the statute cited above unless the debt or employer default is permitted under the statute.

38. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

39. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☑ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.division@wv.gov.

40. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check. Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

41. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process.

c. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

    1. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

    2. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

42. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

43. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least $1 million, the Vendor must submit to the Agency a disclosure of interested parties prior to beginning work under this Contract. Additionally, the Vendor must submit a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-work interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

44. PROHIBITION AGAINST USED OR REFURBISHED: Unless expressly permitted in the solicitation published by the State, Vendor must provide new, unused commodities, and is prohibited from supplying used or refurbished commodities, in fulfilling its responsibilities under this Contract.

45. VOID CONTRACT CLAUSES: This Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

46. ISRAEL BOYCOTT: Bidder understands and agrees that, pursuant to W. Va. Code § 5A-3-63, it is prohibited from engaging in a boycott of Israel during the term of this contract.

ADDITIONAL TERMS AND CONDITIONS (Construction Contracts Only)

1. CONTRACTOR'S LICENSE: Until June 15, 2021, West Virginia Code § 21-11-2, and after that date, § 30-42-2, requires that all persons desiring to perform contracting work in this state be licensed. The West Virginia Contractors Licensing Board is empowered to issue the contractor's license. Applications for a contractor's license may be made by contacting the West Virginia Contractor Licensing Board.

The apparent successful Vendor must furnish a copy of its contractor's license prior to the issuance of a contract award document.

2. BONDS: The following bonds must be submitted:

☑ **BID BOND:** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. **THE BID BOND MUST BE SUBMITTED WITH THE BID OR VENDOR'S BID WILL BE DISQUALIFIED.**

☑ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award. (Attorney General requires use of the State approved bond forms found at: www.state.wv.us/admin/purchase/forms2.html)

☑ **LABOR/MATERIAL PAYMENT BOND**: The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award. (Attorney General requires use of the State approved bond forms found at: www.state.wv.us/admin/purchase/forms2.html)

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system if the work impacts an existing roof. The amount of the bond must be equal to the price associated with the percentage of the project impacting the roof. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award. (Attorney General requires use of the State approved bond forms found at: www.state.wv.us/admin/purchase/forms2.html)

At a minimum, all construction projects require a bid bond, performance bond, and labor/material payment bond. Failure on the part of the state of West Virginia to checkmark the required bonds above does not relieve the vendor from the legal requirement of providing these bonds.

In lieu of the Bid Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of the bid bond must be of the same amount required of the Bid Bond and delivered with the bid.

3. DRUG-FREE WORKPLACE AFFIDAVIT: W. Va. Code § 21-1D-5 provides that any solicitation for a public improvement contract requires each Vendor that submits a bid for the work to submit an affidavit that the Vendor has a written plan for a drug-free workplace policy. If the affidavit is not submitted with the bid submission, the Purchasing Division shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the affidavit within one business day of the request. Failure to submit the affidavit within one business day of receiving the request shall result in disqualification of the bid. To comply with this law, Vendor should complete the enclosed drug-free workplace affidavit and submit the same with its bid. Failure to submit the signed and notarized drugfree workplace affidavit or a similar affidavit that fully complies with the requirements of the applicable code, within one business day of being requested to do so shall result in disqualification of Vendor's bid. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

3.1. DRUG-FREE WORKPLACE POLICY: Pursuant to W. Va. Code § 21-1D-4, Vendor and its subcontractors must implement and maintain a written drug-free workplace policy that complies with said article. The awarding public authority shall cancel this contract if: (1) Vendor fails to implement and maintain a written drug-free workplace policy described in the preceding paragraph, (2) Vendor fails to provide information regarding implementation of its drug-free workplace policy at the request of the public authority; or (3) Vendor provides to the public authority false information regarding the contractor's drug-free workplace policy.

Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

4. DRUG FREE WORKPLACE REPORT: Pursuant to W. Va. Code § 21-1D-7b, no less than once per year, or upon completion of the project, every contractor shall provide a certified report to the public authority which let the contract. For contracts over $25,000, the public authority shall be the West Virginia Purchasing Division. For contracts of $25,000 or less, the public authority shall be the agency issuing the contract. The report shall include:

(1) Information to show that the education and training service to the requirements of West Virginia Code § 21-1D-5 was provided;

(2) The name of the laboratory certified by the United States Department of Health and Human Services or its successor that performs the drug tests;

(3) The average number of employees in connection with the construction on the public improvement;

(4) Drug test results for the following categories including the number of positive tests and the number of negative tests: (A) Pre-employment and new hires; (B) Reasonable suspicion; (C) Post-accident; and (D) Random.

Vendor should utilize the attached Certified Drug Free Workplace Report Coversheet when submitting the report required hereunder. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

5. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the attached AIA documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein.

6. PROHIBITION AGAINST GENERAL CONDITIONS: Notwithstanding anything contained in the AIA Documents or the Supplementary Conditions, the State of West Virginia will not pay for general conditions, or winter conditions, or any other condition representing a delay in the contracts. The Vendor is expected to mitigate delay costs to the greatest extent possible and any costs associated with Delays must be specifically and concretely identified. The state will not consider an average daily rate multiplied by the number of days extended to be an acceptable charge.

7. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July 1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

8. LOCAL LABOR MARKET HIRING REQUIREMENT: Pursuant to West Virginia Code §21-1C-1 et seq., Employers shall hire at least seventy-five percent of employees for public improvement construction projects from the local labor market, to be rounded off, with at least two employees from outside the local labor market permissible for each employer per project.

Any employer unable to employ the minimum number of employees from the local labor market shall inform the nearest office of Workforce West Virginia of the number of qualified employees needed and provide a job description of the positions to be filled.

If, within three business days following the placing of a job order, Workforce West Virginia is unable to refer any qualified job applicants to the employer or refers less qualified job applicants than the number requested, then Workforce West Virginia shall issue a waiver to the employer stating the unavailability of applicant and shall permit the employer to fill any positions covered by the waiver from outside the local labor market. The waiver shall be in writing and shall be issued within the prescribed three days. A waiver certificate shall be sent to both the employer for its permanent project records and to the public authority.

Any employer who violates this requirement is subject to a civil penalty of $250 per each employee less than the required threshold of seventy-five percent per day of violation after receipt of a notice of violation.

Any employer that continues to violate any provision of this article more than fourteen calendar days after receipt of a notice of violation is subject to a civil penalty of $500 per each employee less than the required threshold of seventy-five percent per day of violation.

The following terms used in this section have the meaning shown below.

(1) The term "construction project" means any construction, reconstruction, improvement, enlargement, painting, decorating or repair of any public improvement let to contract in an amount equal to or greater than $500,000. The term "construction project" does not include temporary or emergency repairs;

(2) The term "employee" means any person hired or permitted to perform hourly work for wages by a person, firm or corporation in the construction industry; The term "employee" does not include:(i) Bona fide employees of a public authority or individuals engaged in making temporary or emergency repairs;(ii) Bona fide independent contractors; or(iii) Salaried supervisory personnel necessary to assure efficient execution of the employee's work;

(3) The term "employer" means any person, firm or corporation employing one or more employees on any public improvement and includes all contractors and subcontractors;

(4) The term "local labor market" means every county in West Virginia and any county outside of West Virginia if any portion of that county is within fifty miles of the border of West Virginia;

(5) The term "public improvement" includes the construction of all buildings, roads, highways, bridges, streets, alleys, sewers, ditches, sewage disposal plants, waterworks, airports and all other structures that may be let to contract by a public authority, excluding improvements funded, in whole or in part, by federal funds.

9. DAVIS-BACON AND RELATED ACT WAGE RATES:

☐ The work performed under this contract is federally funded in whole, or in part. Pursuant to _____, Vendors are required to pay applicable Davis-Bacon wage rates.

☑ The work performed under this contract is not subject to Davis-Bacon wage rates.

10. SUBCONTRACTOR LIST SUBMISSION: In accordance with W. Va. Code § 5-22-1, the apparent low bidder on a contract valued at more than $250,000.00 for the construction, alteration, decoration, painting or improvement of a new or existing building or structure shall submit a list of all subcontractors who will perform more than $25,000.00 of work on the project including labor and materials. (This section does not apply to any other construction projects, such as highway, mine reclamation, water or sewer projects.) The subcontractor list shall be provided to the Purchasing Division within one business day of the opening of bids for review.
If the apparent low bidder fails to submit the subcontractor list, the Purchasing Division shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the subcontractor list within one business day of the request. Failure to submit the subcontractor list within one business day of receiving the request shall result in disqualification of the bid.

If no subcontractors who will perform more than $25,000.00 of work are to be used to complete the project, the apparent low bidder must make this clear on the subcontractor list, in the bid itself, or in response to the Purchasing Division's request for the subcontractor list.

a. Required Information. The subcontractor list must contain the following information:

i. Bidder's name

ii. Name of each subcontractor performing more than $25,000 of work on the project.

iii. The license number of each subcontractor, as required by W. Va. Code § 21-11-1 et. seq.

iv. If applicable, a notation that no subcontractor will be used to perform more than $25,000.00 of work. (This item iv. is not required if the vendor makes this clear in the bid itself or in documentation following the request for the subcontractor list.)

b. Subcontractor List Submission Form: The subcontractor list may be submitted in any form, including the attached form, as long as the required information noted above is included. If any information is missing from the bidder's subcontractor list submission, it may be obtained from other documents such as bids, emails, letters, etc. that accompany the subcontractor list submission.

c. Substitution of Subcontractor. Written approval must be obtained from the State Spending Unit before any subcontractor substitution is permitted. Substitutions are not permitted unless:

i. The subcontractor listed in the original bid has filed for bankruptcy;

ii. The subcontractor in the original bid has been debarred or suspended; or

iii. The contractor certifies in writing that the subcontractor listed in the original bid fails, is unable, or refuses to perform his subcontract.

Subcontractor List Submission (Construction Contracts Only)

Bidder's Name: March-Westin Company

☐ Check this box if no subcontractors will perform more than $25,000.00 of work to complete the project.

Subcontractor Name	License Number if Required by W. Va. Code § 21-11-1 et. seq.
AJ Vater	WV001397
A Durer INC	WV043370
Hatzel & Buehler	WV032098

Attach additional pages if necessary

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) J. Christian Wells - President

(Address) PO Box 7, Winfield, WV 25213

(Phone Number) / (Fax Number) (304)760-8909 ext. 4

(email address) cwells@bpi-gc.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

BPI, Inc.
(Company)

(Signature of Authorized Representative)
J. Christian Wells - President
(Printed Name and Title of Authorized Representative) (Date)
(304)760-8909 ext. 4
(Phone Number) (Fax Number)
cwells@bpi-gc.com
(Email Address)

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Request for Quote
Construction

Proc Folder: 1795974 **Doc Description:** Remodel of WB-1& WB-2 (W. Wing) Bldg.1 **Proc Type:** Central Purchase Order			**Reason for Modification:** Addendum No. 3
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2025-12-02	2025-12-16 13:30	CRFQ 0211 GSD2600000010	4

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:

Vendor Name :

Address :

Street :

City :

State : **Country :** **Zip :**

Principal Contact :

Vendor Contact Phone: **Extension:**

FOR INFORMATION CONTACT THE BUYER
Tara Lyle
(304) 558-2544
tara.l.lyle@wv.gov

Vendor Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION

Addendum No. 3 -

1. To publish reponses to Vendor Technical Questions, per Attachment A.

2. To publish corrected Exhibit A - Pricing Page, per Attachment A.

3, The bid opening date and time remains on 12/16/2025 at 1:30 pm EST.

No other changes.

INVOICE TO		SHIP TO	
DEPARTMENT OF ADMINISTRATION		DEPARTMENT OF ADMINISTRATION	
112 CALIFORNIA AVENUE		GENERAL SERVICES DIVISION BLDG 1	
BLDG 4, 6TH FLOOR		1900 KANAWHA BLVD E	
CHARLESTON	WV	CHARLESTON	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Remodel of WB-1& WB-2 (W. Wing) Bldg.1				

Comm Code	Manufacturer	Specification	Model #
72121103			

Extended Description:
Per attached Project Plans, see Exhibit A Pricing Page, Base Bid

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Mandatory prebid at 10:00 am	2025-11-18
2	Technical questions due by 12:00 pm	2025-11-24

SOLICITATION NUMBER: CRFQ GSD2600000010
Addendum Number: 3

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[✔] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[✔] Correction of error

[ ] Other

Description of Modification to Solicitation:

Addendum is issued to publish and distribute the following information to the Vendor community.

1. To publish reponses to Vendor Technical Questions, per Attachment A.

2. To publish corrected Exhibit A - Pricing Page, per Attachment A.

3, The bid opening date and time remains on 12/16/2025 at 1:30 pm EST.

No other changes.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

Remodel of WB-1 and WB-2 in the West Wing of Building 1
Technical Questions and Responses

Q 1. Is test and balance required?

A 1. Yes.

Q 2. Is existing ductwork to be demoed?

A 2. Yes.

Q 3. Regarding note #2 on drawing 3 of 7 stating "Provide perforated metal duct liner…" What should the thickness of the liner be?

A 3. ½ inch minimum.

Q 4. Can bid date be extended by 7 days to account for holiday interruption?

A 4. Bid date will be extended to 12/11/2025 at 1:30pm.

Q 5. General Construction Specifications
A.10.3 Standard Work Hours
I. Can standard work hours be modified to 6:00 am - 5:00pm?

A 6. Yes, with Project Manager approval.

Q 7. Is Builder's Risk a requirement for this project?

A 7. No.

Q 8. Fire Alarm Specifications
a. 1.2.2. A.1
i. Are new sprinkler waterflow and supervisory switches part of this project? If so, where are they located in relation to the room being remodeled?
b. 1.2.2. A.4
i. Are elevator recall control circuits part of this project.

c. 2.3.3.1
i. Are Magnetic Door Holders included in this project? If so, which doors?

A 8. a. i. Disregard.
b. i. Disregard.
c. i. This will be the responsibility of the tenant agency.

Q 9. EXHIBIT A: Pricing Page
a. Wording specifies "Construction of New Building 37 Signage"

A 9. See attached revised pricing page.

Q 10. EXHIBIT E: Products
a. Will there be hardware schedule provided for doors?
b. Do doors need to be keyed to match building's master system?
c. What types of lights are specified for this project?
d. Is sink and/or refrigerator to be included in this project?

A 10. **a.** See attached spec sheets, door and hardware need to match existing door on WB-6 (electrical room)

Q 11. The specs say ENT. Is this correct, or is it supposed to be EMT?

A 11. EMT

Q 12. How many cables are in each data drop?

A 12. 2

Q 13. Where is the headend location for the Tele/Data?

A 13. WB-5, only responsible for conduit /box - actual cable will be pulled by each agency

Conduit to the perimeter WB-1 mechanical room - furnish pull box and label locations.

Remodel of WB-1 and WB-2 in the West Wing of Building 1
Technical Questions and Responses

Q 14. Is the Tele/Data headend existing or is the EC responsible for providing it? If so, What are the requirements for the headend and the feed for the headend?

A 14. New cable agency responsibility.

Q 15. Where is the spec located for the light fixtures? If there is no spec, What are the make/model of the ceiling fixtures, emergency wall packs, and the exit lights?

A 15. Lights- 2x2 LED CPANL Lithonia surface mount - 10 ft spacing 5 ft from walls

Exit Lights-

Wall pathway Lights-

See tech sheets and location sheet-

Q 16. On the drawing in number one General notes it states to install new flooring and go to the attached schedule. I did not receive an attachment.

A 16. Armstrong, 12x12 standard excelon #52513- installed and floor prep per manufacturer instructions. 4" rubber wall base with Toe- color selected from submittal

Q 17. On the drawings it states to install vinyl flooring. What type of flooring, what style and what company to buy from?

A 17. See Q16.

Q 18. Is base going to be installed? What type, what company?

A 18. See Q16.

Q 19. Is the General Contractor responsible for demo of the flooring.

A 19. Yes, and floor prep- most flooring has already been removed to

Bare concrete which will require clean an prep prior to floor installation.

Q 20. Do we install flooring in all of the rooms in the drawing?

A 20. Yes- with exception to AHU room.

Q 21. Will owner remove all contents.

A 21. Yes- prior to start date by owning agencies.

Q 22. Is there a door schedule and specification for new doors.

A22. See Q 10.

Q 23. Is there an electrical light and fixture schedule and specifications.

A 23. See Q 15.

Q 24. Is there a flooring schedule and specifications

A 24. See Q 16.

Q 25. Is there a wall and ceiling finish schedule.

A 25. See attached- Benjamin Moore Regal Select flat N547 white- submittal by color card For approval. Primer High Build Peel Bonding Primer BP-1100.

Q 26. Is there a cabinet layout drawing.

A 26. See attached.

Remodel of WB-1 and WB-2 in the West Wing of Building 1
Technical Questions and Responses

Q 27. Is there specifications for cabinets and hardware.

A 27. See attached.

Q 28. Is the refrigerator existing ? If not existing, is there a specification for the refrigerator.

A 28. No, refrigerator furnished by tenant.

Q 29. Is there a specification for the new sink and sink fixture.

A 29. Double bowl stainless, goose neck (Price Pfister) or equal chrome with disposal ¾ hp.

Q 30. Is there a specification for the new countertop.

A 30. Standard laminate- color selection by submittal.

Q 31. Is it possible for the owner to remove contents and then schedule another walk-through date for subcontractors, especially the kitchen area.

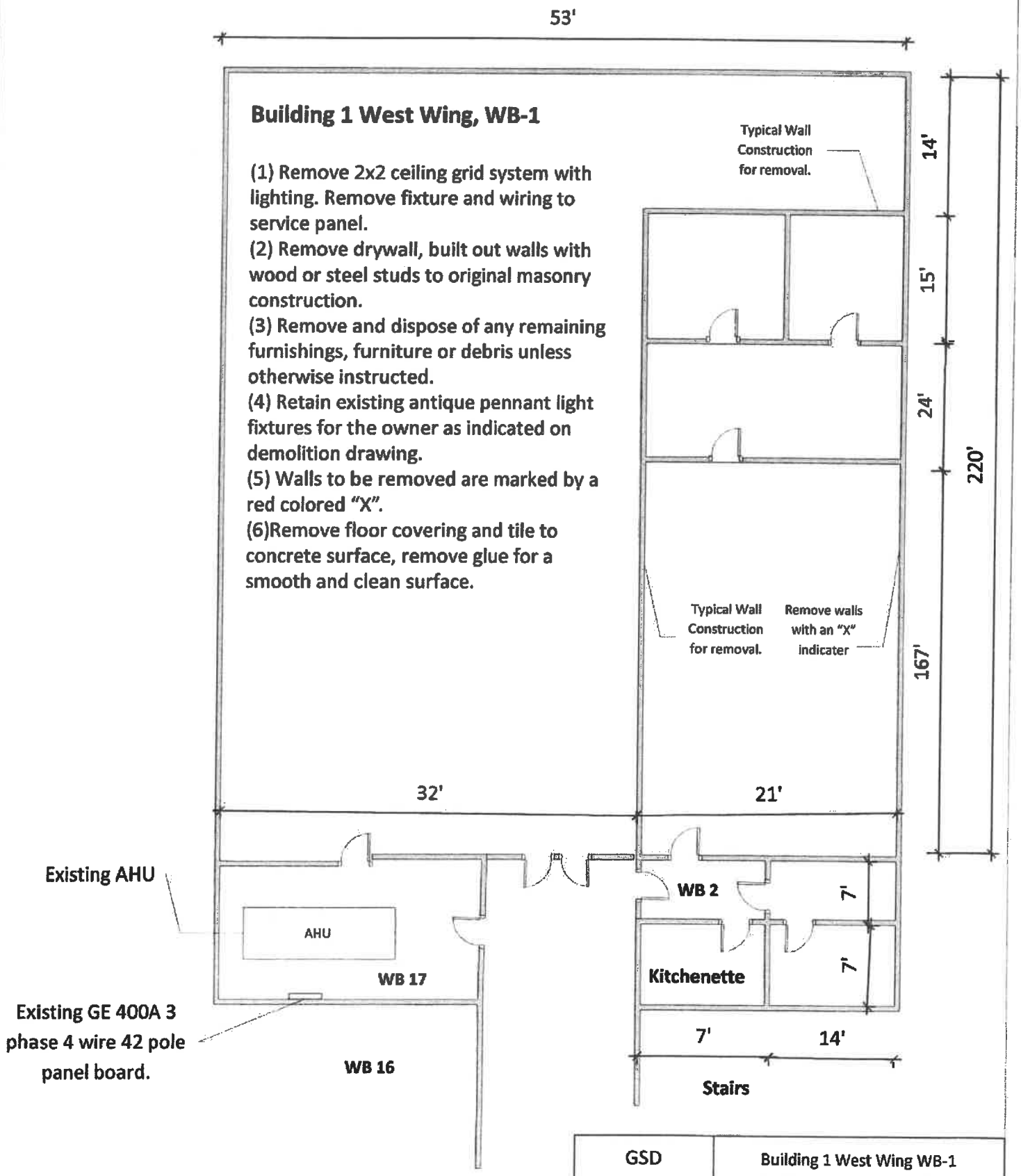
A 31. No, space clearing responsibility of tenant and would exceed timetable.

Q 32. Can the bid submittal date be extended to allow subcontractors time to review answers to questions.

A 32. See Q 4.

Building 1 West Wing, WB-1

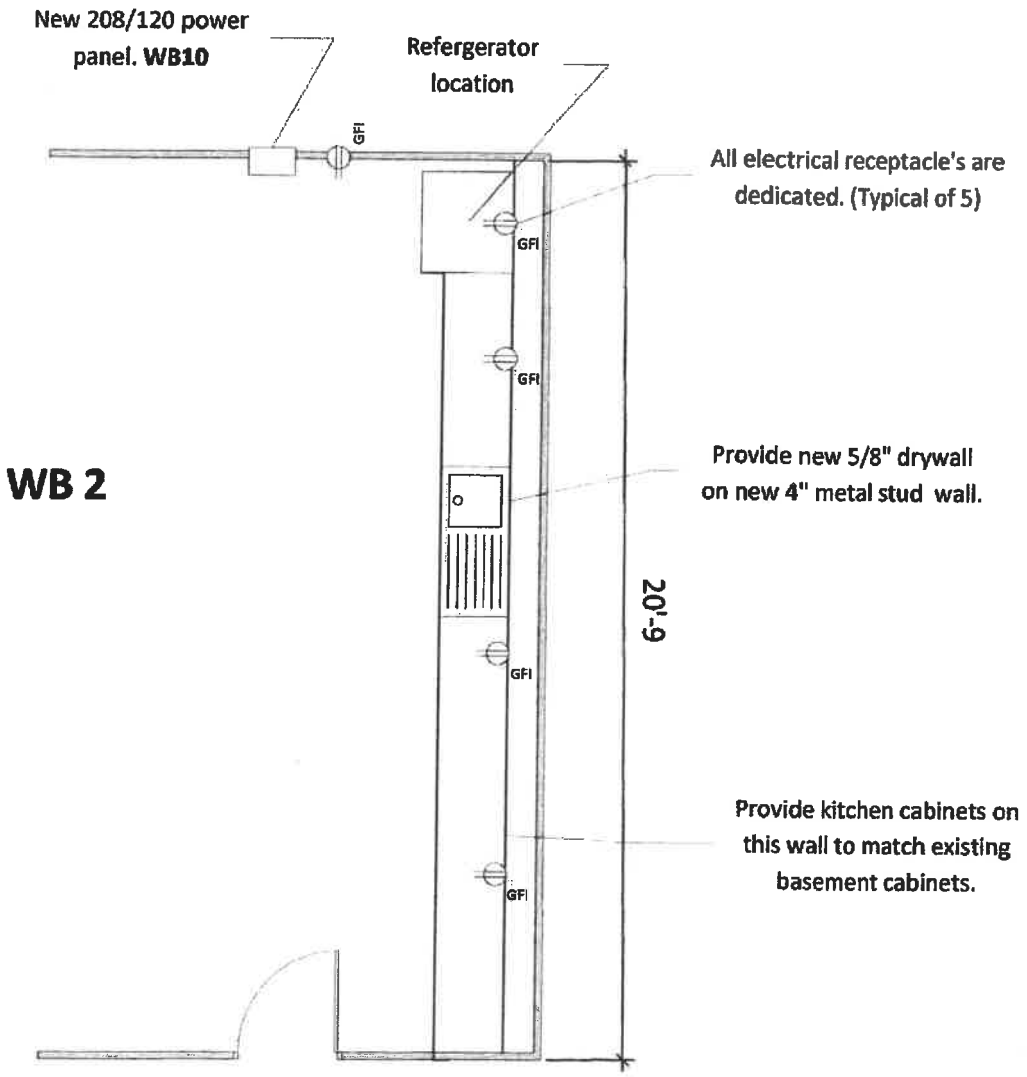
(1) Remove 2x2 ceiling grid system with lighting. Remove fixture and wiring to service panel.
(2) Remove drywall, built out walls with wood or steel studs to original masonry construction.
(3) Remove and dispose of any remaining furnishings, furniture or debris unless otherwise instructed.
(4) Retain existing antique pennant light fixtures for the owner as indicated on demolition drawing.
(5) Walls to be removed are marked by a red colored "X".
(6)Remove floor covering and tile to concrete surface, remove glue for a smooth and clean surface.



Note: All dimensions are in feet, field verify all dimensions before any work is done.

GSD Energy Department	Building 1 West Wing WB-1			
	WB-1 Floor Plan			
	SIZE	FSCM NO	DWG NO	REV
	SCALE NTS	3	SHEET 9 OF 9	

Note: All dimensions are in feet, field verify all dimensions before any work is done.



Notes:

(1) Provide domestic water tap at ceiling above existing drinking fountain in basement corridor below. Provide sanitary tie in at existing cleanout at 10" sanitary in basement corridor. Provide new domestic water line to kitchenette sink and hot water heater. Provide new sanitary line to kitchenette sink. (See products section for Remote sink drain system)

(2) Provide new electric hot water heater located in cabinet under new kitchen sink. Provide new 120V power circuit to water heater. Provide electrical disconnect.

(3) Paint room to match adjacent in basement. Provide vinyl floor covering to match adjacent basement floor.

GSD Energy Department	Building 1 West Wing WB1,WB2			
	WB 2 Kitchenette Plan			
	SIZE	FSCM NO	DWG NO	REV
	SCALE NTS		SHEET 7 of 7	

Halco
LIGHTING TECHNOLOGIES

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

Exit & Emergency

Evade Exit Series

- Compact, Led Thermoplastic Exit Sign
- Choice Of Red or Green Stencil Face
- Remote Capacity Option
- Multiple Mounting Options
- Universal Single / Double Face
- Led Life-Cycle Exceeding 10 Years

Specifications

Description

The Evade Exit Sign Series offers a code compliant exit sign solution for hallway, stairwell, and other Life Safety applications. The low profile design makes it ideal to mount on ceilings or walls in surface or end mount configurations, indicating the path of egress for a minimum of 90 minutes after a power loss. Available with remote capacity.

Electrical

- 120 / 277 VAC, 60Hz input
- Emergency test button and battery charging indicator
- Long-life maintenance free NiCad battery
- 24 hour recharge time
- 10°C - 40°C operating temperature

Construction & Mounting

- Rugged, injection-molded, flame retardant, high-temperature, white thermoplastic housing
- Fully illuminated 6" characters with 3/4" stroke
- Field-selectable, snap in and out chevrons
- Suitable for wall, ceiling and end mount
- Universal J-Box mounting pattern on back plate

Certifications

- UL924 Damp Location listed
- NFPA 101 and NFPA 70
- CEC T20 Compliant

Halco Lighting Technologies 2940 Pacific Drive | Norcross, GA 30071 | Toll Free 800.677.3334 | Phone 770.242.3612 | Fax 800.880.0822 | halcolighting.com | Atlanta | Chicago | Cleveland | Houston | Phoenix

Halco LIGHTING TECHNOLOGIES

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

Exit & Emergency

Evade Exit Series

Ordering Information

Product SKU	Product Code	Product Description
95000	EV-EXE-GR	Evade Exit Sign with Green Lettering
95001	EV-EXE-RD	Evade Exit Sign with Red Lettering
95002	EV-EXE-GR-RC	Evade Exit Sign with Green Lettering and Remote Capacity
95003	EV-EXE-RD-RC	Evade Exit Sign with Red Lettering and Remote Capacity
Remote Heads		
95015	EV-RHE-1-IND	Evade Single Indoor Square Remote Head
95016	EV-RHE-2-IND	Evade Double Indoor Square Remote Head
96012	EV-RH-1-OUT	Evade Single Outdoor Round Remote Head
95013	EV-RH-2-OUT	Evade Double Outdoor Round Remote Head

Specifications Table

	EV-EXE-GR	EV-EXE-RD	EV-EXE-GR-RC	EV-EXE-RD-RC
Letter Color	Green	Red	Green	Red
Input	.30mA Max		.40mA Max	
Wattage	2.3W		2.7W	
Battery	Ni-cad 2.4V300mAh		N-cad HT 4.8V1000mAh	
Recharge Time	24 Hours			
Input Voltage	120 or 277 VAC			
Output Voltage	4.8V DC			
Frequency	60Hz			
Housing	Injection-Molded Thermoplastic Housing			
Testing Function	Manual Push to Test Button			
Operating Temperature	10°C to 40°C			
Listings & Compliance	UL 924, CEC Title 20, NFPA 70 & NFPA 101			
Environment	Damp Location Listed			
Warranty*	2 Year			

*All life safety equipment, including emergency lighting for path of egress must be maintained, serviced, and tested in accordance with all National Fire Protection Association (NFPA) and local codes. Failure to perform the required maintenance, service, or testing could jeopardize the safety of occupants and will void all warranties.

Halco Lighting Technologies 2940 Pacific Drive | Norcross, GA 30071 | Toll Free 800.677.3334 | Phone 770.242.3612 | Fax 800.880.0822 | halcolighting.com | Atlanta | Chicago | Cleveland | Houston | Phoenix

Halco
LIGHTING TECHNOLOGIES

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

Exit & Emergency

Evade Exit Series

Remote Head Specifications

Product SKU	Product Code	Input Voltage	Input Wattage	Lumens
95015	EV-RHE-1-IND	4.8VDC	.8W	53
95016	EV-RHE-2-IND	4.8VDC	1.4W	96
96012	EV-RH-1-OUT	3.6-24VDC	.8W	90
95013	EV-RH-2-OUT	3-12VDC	1.5W	180

Remote Head

EV-RHE-1-IND

- Single, White, Indoor Remote Head
- Suitable for Damp Location. UL, cUL Listed

EV-RHE-2-IND

- Double, White, Indoor Remote Head
- Suitable for Damp Location. UL, cUL Listed

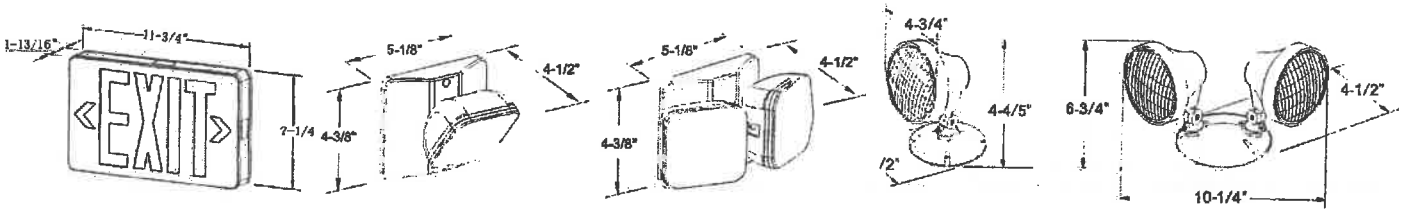
EV-RH-1-OUT

- Single, Gray, Outdoor Remote Head
- Suitable for Wet Location. UL, cUL Listed

EV-RH-2-OUT

- Double, White, Outdoor Remote Head
- Suitable for Wet Location. UL, cUL Listed

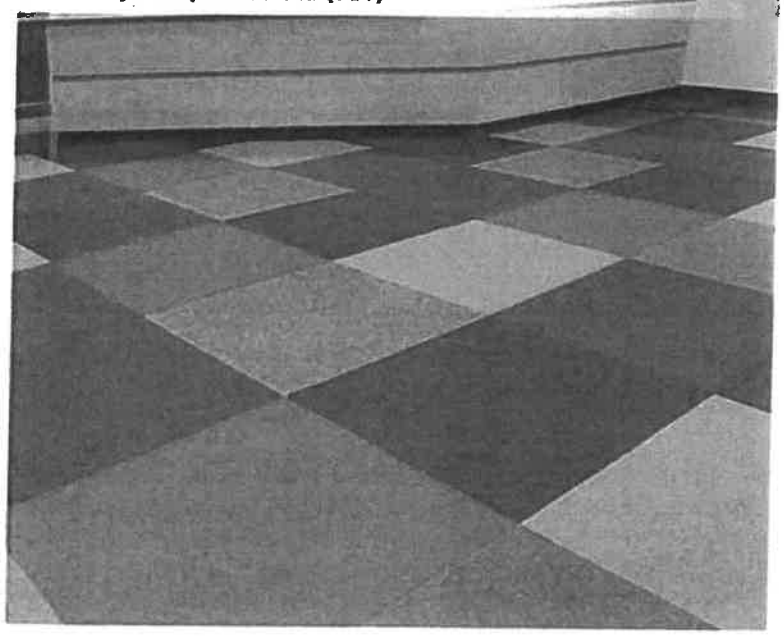
Dimensions



Standard EXCELON®

Imperial® Texture • Imperial Texture Rave® • MultiColor™

Vinyl Composition Tile (VCT)

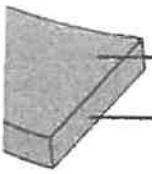


Armstrong
COMMERCIAL FLOORING

Sustainability Facts

Sold by	As Sawed
Imperial Texture	
Certified to meet LEED® EQ Credit: Low Emitting Interiors	✓
Pre-Consumer Recycled Content	1%
Regional Materials*	Kankakee, IL Southgate, CA Jackson, MS
Adhesives	
Certified to meet LEED® EQ Credit: Low Emitting Interiors	✓
FloorScore™ Certified to CDPH Standard Method V1.1-2010	✓
Collaborative for High Performance Schools CHPS-IEQC 5.2 & LABS-21 IEQ4.5	✓
U.S. Green Building Council Member	✓
Canada Green Building Council Member	✓
NSF/ANSI 332 Gold Level Certified	✓

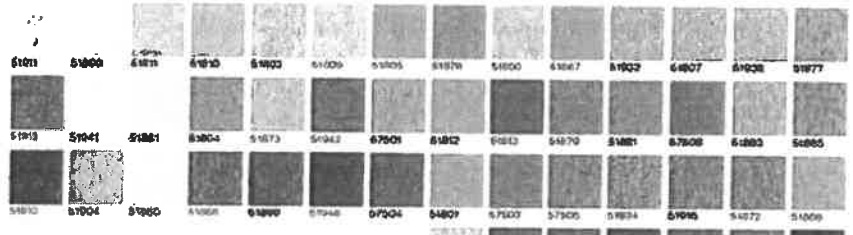
*Based on project volume



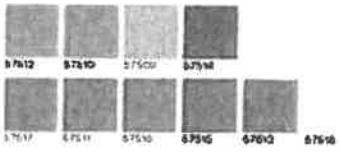
Factory applied acrylic finish for protection during installation and uniform gloss

Filled vinyl chips

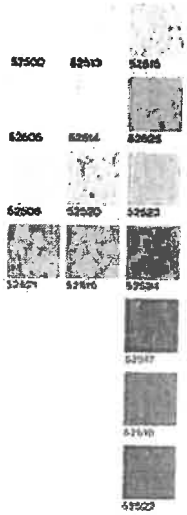
Imperial Texture



Imperial Texture Rave



MultiColor



Imperial Texture Classics

Vinyl Composition Tile
Installation System

Product	Adhesive/Full Spread	Adhesive/Tile-On	Comment
Imperial Texture MultiColor RAVE Stonetex Companion Square Feature Tile/Strips	S-89, S-515, S-700 or S-750	S-515 or S-750	Stonetex—lay with directional arrows pointing in the same direction.
ARTEFFECTS	S-89, S-515, S-700 or S-750	S-515 or S-750	For best overall visual effect, install with the directional arrows pointing in the same direction.
SAFETY ZONE	S-89, S-515, S-700, S-750 or S-230	S-515 or S-750	Roll tile with 100-lb. roller. Lay arrows in same direction. For S-230, follow instructions for Specialty Areas.
Vinyl No-Wax (Dry Back)	S-515 or S-750	S-515 or S-750	Roll tile with 100-lb. roller
Urethane No-Wax (Dry Back)	S-89, S-515, S-700 or S-750	S-515 or S-750	Roll tile with 100-lb. roller

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter IV, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the Vinyl Composition Tile Installation System.

Full Spread:
- Concrete
- Approved Suspended Wood
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass, Bronze
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

Tile-On:
- Existing Resilient Sheet Floors
- Vinyl Composition, Vinyl Asbestos, Asphalt, Rubber and Vinyl Tile-on Grade or Suspended Only

Job Conditions/Preparation:

- Substrates must be dry, clean, smooth and free from paint, varnish, wax, oils, solvents and other foreign matter. In renovation or remodel work, remove any existing adhesive residue* so that no ridges or puddles are evident and a thin, smooth film remains.

**Some previously manufactured asphaltic "cutback" adhesives contained asbestos (see warning statement on page xii). For removal instructions, refer to the Resilient Floor Covering Institute's publication Recommended Work Practices for Removal of Resilient Floor Coverings.*

- When using S-230, remove any existing adhesive residue* so that 80% of the overall area of the original substrate is exposed. If these requirements are not followed, curled and/or loose tile could result. For Tile-On, remove wax or other finishes with a commercially available liquid wax stripper. Replace or repair indented or otherwise damaged areas.
- Allow all flooring materials and adhesives to condition to the room temperature a minimum of 48 hours before starting the installation.
- The area to receive resilient flooring should be maintained at a minimum of 65°F (18°C) and a maximum of 100°F (38°C) for 48 hours before, during and for 48 hours after completion. **When using S-230 Epoxy Adhesive the maximum room temperature should not exceed 85°F (29°C).**
- During the service life of the floor the temperature should never fall below 55°F (13°C). The performance of the flooring material and adhesives can be adversely affected below this minimum temperature.
- Conduct calcium chloride tests or percent relative humidity tests. Bond Tests should also be conducted for compatibility with the substrate. Please refer to Chapter IV, Subfloors and Underlayments.
- Radiant-heated substrates must not exceed a maximum surface temperature of 85°F (29°C).
- Concrete floors should be tested for alkalinity. The allowable readings for the installation of Armstrong flooring are 5 to 9 on the pH scale.

Fitting:

See Chapter VII, Layout and Fitting, for room layout.

Before installing the material, plan the layout so tile joints fall at least 6″ (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

When installing over an existing resilient floor, plan the layout so the new joints are a minimum of 6″ (15.2 cm) away from the original seams. When installing over tile floors, joints should fall in the center of the tile.

When installing 12″ × 12″ (30.5 cm × 30.5 cm) tiles, avoid having border pieces less than 6″ (15.2 cm) wide.

Abutting Different Gauges of Resilient Flooring: When installing thinner gauge material next to thicker gauge materials, install thicker material first and then butt a 12″ (30.5 cm) wide piece of S-153 Scribing Felt against the thicker material. Adhere the Scribing Felt to the subfloor with S-235 Adhesive. Use the fine notching of the Armstrong S-891 Trowel over nonporous substrates such as existing resilient flooring, and use the regular notching of the Armstrong S-891 Trowel over porous subfloors such as wood and concrete. Use Armstrong S-184 Fast-Setting Cement-Based Patch and Skim Coat or S-194 Patch, Underlayment and Embossing Leveler to feather the edge of the S-153 Scribing Felt to the level of the substrate. Allow the patch to dry completely before installing the flooring. Scribing Felt is not recommended to be used under the entire installation.

**Some previously manufactured asphaltic "cutback" adhesives contained asbestos (see warning statement on page xii). For removal instructions, refer to the Resilient Floor Covering Institute's publication Recommended Work Practices for Removal of Resilient Floor Coverings.*

Adhesive Open Times and Working Times

Adhesive	Open Time	Working Time
S-89	60 minutes or more	18 hours
S-515	Approximately 30 minutes or more	24 hours
S-700	Approximately 30 minutes or more	18 hours
S-750	Approximately 30 minutes or more	6 hours
S-230	Minimum 20 minutes	1 hour

NOTE: All adhesives except S-230 should be dry-to-touch before installing tile. The amount of open time will vary according to job conditions, temperature, humidity, air flow and type of substrate. All adhesives are applied with fine notching [1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart].

Procedure:

See Chapter VI, Adhesives, Trowel Notchings and Seam Treatments.

When using tile from two or more cartons, check to be sure all pattern and lot numbers are the same to ensure proper color match. On larger installations, open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next.

Tile products with directional arrows on the back should be installed with the arrows all pointing in the same direction.

■ Tile Installed Using S-89, S-515, S-700 or S-750:

1. Line off entire area to be installed.
2. Apply the adhesive over the area not covering the chalk lines and using the fine notching of the S-891 Trowel. You may prefer to spread and install one quarter of the room at a time.
3. Allow the adhesive to set until dry-to-touch (except S-230) following the recommended open time. To test, press your thumb lightly on the surface of the adhesive in several places. If the surface feels slightly tacky as your thumb is drawn away and does not stick to your thumb, the adhesive is ready for the installation.
4. Install the tile along the chalk lines, laying the field area first and then fitting in the border tile.
5. Roll all residential tile and SAFETY ZONE in both directions within the adhesive working time using a 100-lb. roller.
6. Clean adhesive from the surface of the tile using a clean white cloth dampened with a neutral detergent and water.
7. Tile should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

■ SAFETY ZONE in Specialty Areas:

1. Line off entire area to be installed (Fig. 1).
2. Move chalk lines to one corner or end of the area farthest from the doorway. These lines should be two or three feet from the wall depending on your reach (Fig. 2).

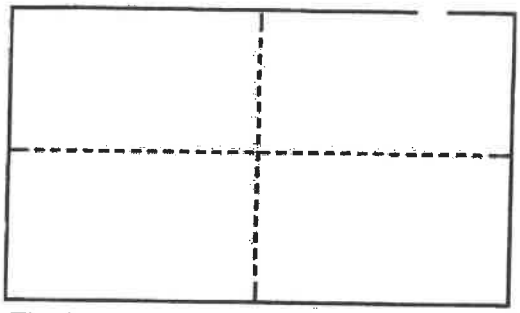


Fig. 1

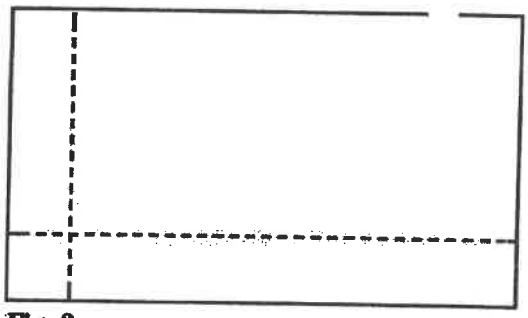


Fig. 2

3. Remove the bottom of S-230 cans Part A and Part B with a can opener. Mix entire contents of Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-230 Adhesive on the subfloor surface.
4. **Immediately pour the entire unit of mixed adhesive onto the subfloor. Do not leave mixed adhesive in cans because it shortens pot life and working time, and may generate excessive heat.** Maximum pot life of the S-230 Adhesive is approximately 10 minutes depending on temperature and atmospheric conditions.
5. Apply S-230 Adhesive for only two or three rows of tile (Fig. 3). Working time of S-230 is approximately one hour.
6. Tile may be placed into the adhesive immediately, but allowing a 15–20 minute open time and fitting border tile tightly will reduce tile shifting and adhesive oozing. Do not allow the adhesive to dry completely.
7. Install tile with the arrows on the back of the tile pointing in the same direction.

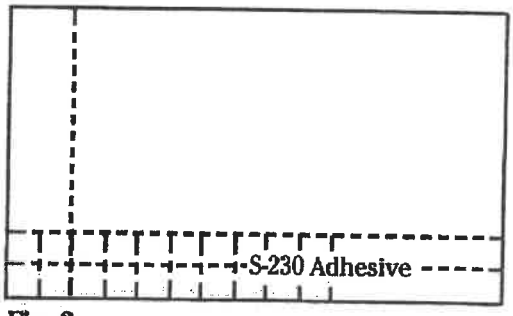


Fig. 3

8. Roll tile in both directions within one hour of spreading S-230 Adhesive using a 100-lb. roller. Re-roll one hour later in both directions. Remove adhesive residue from the surface of all the tile immediately using a clean white cloth dampened with neutral detergent and water. Dried S-230 Adhesive cannot be removed.
9. Do not work on newly adhered tile except to roll tile. Use a kneeling board if necessary.

10. Continue Steps 4 through 9 until entire area is completed.
11. Do not allow traffic on tile for 24 hours after installation.
12. Flooring should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

Precautions:

- S-230 Adhesive is recommended for SAFETY ZONE in areas that may be exposed to frequent surface moisture and/or cooler temperatures.
- S-230 Adhesive may also be used to install the first 3 to 5 rows of SAFETY ZONE when used in areas that will be affected by surface moisture and/or cooler temperatures.
- Tiles are to be heated from the back only, never the face.
- Do not wash tile for at least four days after installation. This will allow the tile to become well seated in the adhesive and prevent excess moisture and cleaning agents from interfering with the adhesive bond.
- Products installed using the Tile-On System may have less resistance to indentation. We strongly recommend the use of Armstrong Floor Protectors.
- S-89 is not recommended over wood substrates.

Benjamin Moore®

Regal® Select

Premium Interior Paint & Primer+

Flat N547

General Description

A premium quality, 100% acrylic paint and primer with excellent hide, spatter resistance, and seamless touch-ups. It offers exceptional flow and leveling for a smooth application, and quick dry time. This elegant flat finish is ideal for ceilings and low-traffic areas.

- Proprietary stain release technology
- Exceptional flow and leveling
- Excellent hide and coverage
- Paint and primer together
- Provides a mildew-resistant coating
- Engineered with Gennex® Color Technology

Usage

New or previously painted wallboard, plaster, masonry and wood; primed or previously painted metal; new or coated acoustic ceilings. It is ideal for surfaces where maximum durability is required and lasting color is desired.

Colors	White (01), Super White (02), Decorators White (04), White Dove (06), Linen White (70), Black (80).
Bases	1X, 2X, 3X & 4X
Colorant System	Gennex®

Technical Data

Vehicle		Proprietary 100% Acrylic
Pigment		Titanium Dioxide
Volume Solids		46 ± 2%
Spread Rate Per Gallon		400 – 450 Sq. Ft.
Recommended Film Thickness	Wet:	3.6 – 4.0 mils
	Dry:	1.6 – 1.9 mils

Depending on surface texture and porosity. Be sure to estimate the right amount of paint for the job. This will ensure color uniformity and minimize the disposal of excess paint.

Dry Time @ 77 °F (25 °C) @ 50% RH	To Touch:	1 hour
	To Recoat:	1 – 2 hours

Painted surfaces can be washed after two weeks. High humidity and cool temperatures will result in longer dry, recoat and service times.

Surface Temperature During Application	Min:	50 °F
	Max:	90 °F
Viscosity		98 ± 4 KU
Flash Point		None
Sheen / Gloss		1 – 4 @ 85°
Clean Up		Water
Thinner		refer to page 2
Weight Per Gallon		11.2 lbs.
Storage Temperature	Min:	40 °F
	Max:	90 °F
VOC		< 50 g/L

Primer Systems

Regal® Select is self-priming on most properly prepared surfaces. While the high quality of our products sometimes makes one-coat coverage achievable, Benjamin Moore® recommends two coats to achieve full color development and to optimize performance. On bare substrates, two coats are recommended; previously painted surfaces can be finished with 1 or 2 coats.

Special Note: Certain custom colors may require a Deep Base Primer tinted to a special prescription formula to achieve the desired color. Ask your retailer about our special purpose primers if the surface to be painted is water stained, smoke damaged, grease stained or very slick.

Wood, and engineered wood products:
Self-priming

Bleeding Woods (Redwood, Cedar, etc.):
Fresh Start® Undercoater and Primer/Sealer (032) or Fresh Start® High-Hiding All Purpose Primer (046)

Drywall:
Self-priming

Plaster (Cured):
Self-priming

Rough or Pitted Masonry:
Ultra Spec® Masonry Interior/Exterior High Build Block Filler (571)

Smooth Poured or Pre-cast Concrete:
Self-priming

Ferrous Metal (Steel and Iron):
High Performance Acrylic Metal Primer (HP1100) or High Performance Alkyd Metal Primer (HP1320)

Non-Ferrous Metal (Galvanized & Aluminum):
All new metal surfaces must be thoroughly cleaned with Oil & Grease Emulsifier (HP6000) to remove contaminants. New shiny non-ferrous metal surfaces that will be subject to abrasion should be dulled with very fine sandpaper or a synthetic steel wool pad to promote adhesion. High Performance Acrylic Metal Primer (HP1100)

Repaint, All Substrates:
Prime bare areas with the primer recommended above for the substrate.

+Visit benjaminmoore.com/paintandprimer for more information.

Limitations

- Do not paint when air or surface temperature is below 50 °F (10 °C).

Compliance & Certifications

OTC	✓
OTC II	✓
CARB	✓
CARB07	✓
CARB19	✓
UTAH	✓
AZMC	✓
SCAQMD	✓

Eligible for LEED® v4	✓
CDPH Emissions Certified	✓
Eligible for CHPS low emitting credit (Collaborative for High Performance Schools)	✓
Benjamin Moore's Green Promise®	✓
MPI	142, 143
MPI X-Green™	142, 143

Class A (0-25) over non-combustible surfaces when tested in accordance with ASTM E-84

Anti-microbial - This product contains agents which inhibit the growth of microbes on the surface of this paint film. This product contains antimicrobial additives that inhibit the growth of mold and mildew on the surface of the paint film.

This Benjamin Moore® product has been tested by independent third parties and meets or exceeds the published chemical restriction and performance criteria of the Green Seal™ GS-11 2015 standard.

Benjamin Moore's green promise

Benjamin Moore's green promise® designation is our company's assurance that this product meets – and often exceeds – rigorous environmental and performance criteria regarding VOCs, emissions, application, washability, scrubbability and packaging, while also delivering the premium levels of performance you expect from Benjamin Moore.

Technical Assistance

Available through your local authorized independent Benjamin Moore retailer.

call 1-866-708-9180
visit www.benjaminmoore.com

Surface Preparation

Surfaces to be painted must be clean, dry, and free of dirt, dust, grease, oil, soap, wax, scaling paint, water soluble materials, and mildew. Remove any peeling or scaling paint and sand these areas to feather edges smooth with adjacent surfaces. Glossy areas should be dulled. Drywall surfaces must be free of sanding dust.

New plaster or masonry surfaces must be allowed to cure (30 days) before applying base coat. Cured plaster should be hard, have a slight sheen and maximum pH of 10; soft, porous or powdery plaster indicates improper cure. Never sand a plaster surface; knife off any protrusions and prime plaster before and after applying patching compound. Poured or pre-cast concrete with a very smooth surface should be etched or abraded to promote adhesion after removing all form release agents and curing compounds. Remove any powder or loose particles before priming.

Difficult Substrates: Benjamin Moore offers a variety of specialty primers for use over difficult substrates such as plaster, bleeding woods, grease stains, crayon markings, hard glossy surfaces, galvanized metal or other substrates where paint adhesion or stain suppression is a particular problem. Your Benjamin Moore® retailer or architectural representative can recommend the right problem-solving primer for your special needs.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Informational Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead.

Application

Stir thoroughly before and during use. Apply one or two coats. For best results, use a premium Benjamin Moore® custom-blended nylon/polyester brush, premium Benjamin Moore® roller, or a similar product. Apply paint generously from unpainted area into wet area. This product can also be sprayed.

Spray, Airless:
Pressure / 1,500 – 2,500 PSI
Tip / 0.013 – 0.017

Thinning/Cleaning

Conditioning with Benjamin Moore® 518 Extender may be necessary under certain conditions to adjust open time or spray characteristics.

Add 518 Extender or water - Max of 8 fl. oz. to a gallon paint
Never add other paints or solvents.

Clean Up: Wash brushes, rollers, and other painting tools in warm soapy water immediately after use. Spray equipment should be given a final rinse with mineral spirits to prevent rusting.

USE COMPLETELY OR DISPOSE OF PROPERLY. Dry, empty containers may be recycled in a can recycling program. Local disposal requirements vary; consult your sanitation department or state-designated environmental agency on disposal options.

Environmental Health & Safety Information

Use only with adequate ventilation. Do not breathe spray mist or sanding dust. Ensure fresh air entry during application and drying. Avoid contact with eyes and prolonged or repeated contact with skin. Avoid exposure to dust and spray mist by wearing a NIOSH approved respirator during application, sanding and clean up. Follow respirator manufacturer's directions for respirator use. Close container after each use. Wash thoroughly after handling.

⚠ **WARNING:** Cancer and Reproductive Harm– www.P65Warnings.ca.gov
Refer to the product label & Safety Data Sheet for product specific information.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes; for skin, wash thoroughly with soap and water. If symptoms persist, seek medical attention. If you experience difficulty breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical attention immediately.

IN CASE OF SPILL – Absorb with inert material and dispose of as specified under "Clean up".

KEEP OUT OF REACH OF CHILDREN
PROTECT FROM FREEZING

Refer to Safety Data Sheet for additional health and safety information.

SUBMITTAL COVER SHEET

(To be attached to each copy of each submittal)

PROJECT: **B1 HVAC Phase V Supreme Court Room/Library Rehabilitation**

ARCHITECT/ENG.: WVGSD A/E PROJ. #: GSD25*14

GENERAL CONTRACTOR: Dougherty Co., Inc.

SUBCONTRACTOR/
SUPPLIER: Wiseman Construction Co., Inc./Arrow Structural Engineering

MANUFACTURER: NA

ITEM SUBMITTED: Paintings and Coatings SUBMITTAL #: **GC USE ONLY**

SPEC. SECTION: 09900 PARAGRAPH:

DRAWING REFERENCE: DRAWING DETAIL:

CERTIFICATION: (Circle one)

X A. Certified to comply with contract drawings and specifications.

B. Certified to comply with contract drawings and specifications except as noted on attached sheet.

Andy Wiseman 11/6/2025

Signature: Subcontractor/Supplier Date Signature: General Contractor Date

PROJECT NO. 315 SUBMITTAL NO. GC USE ONLY	
PROJECT NAME: Bldg. 1 Phase V Supreme Court Room/Library Rehabilitation	
ARCHITECT WVGSD 103 Michigan Ave. Charleston, WV	
CONTRACTOR Dougherty Co., Inc. 600 50th Street, SE Charleston, WV 25304	
SUBCONT. WCC	
SUPPLIER	
MANUFACT. NA	
SPEC. SECTION 09900 Paint and Coatings	
DATE 11/6/2025 REVIEWED BY JAW	

(General Contractor's Approval Stamp) (Architect/Engineer Review Stamp)

HIGH BUILD PEEL BONDING PRIMER

BP-1100

Features

- Glues down and stops peeling paint
- Seals and prevents cracking
- Remains flexible and breathable over time
- Apply up to 20 mils wet
- Blocks tannin and rust bleed
- Provides a mildew resistant coating
- Top coat in two hours

General Description

A water-based, acrylic primer designed to smooth, seal, and extend the life of weathered surfaces. It applies as a milky white color for ease of visibility during application and top coating. High Build Peel Bonding Primer glues down peeling, cracking or chalking paint, reducing surface preparation. It provides a mildew resistant coating and is effective in blocking stains from rust as well as mild tannin bleed. It is recommended to topcoat with a water-based paint.

Recommended For

Use on interior and exterior surfaces including drywall, plywood, wood siding, fences, stucco, concrete, and galvanized metal in residential and commercial applications.

Limitations

- Apply when surface and ambient temperature is above 35 °F and below 90 °F
- Not for use on floors, decks or other walking surfaces
- Not for Immersion service or areas of pooling water

Product Information

Colors — Standard:

White (BP-1100)

White can be tinted with up to 2 fl. oz. of Benjamin Moore® Gennex®, Color Preview® or Universal colorant

— Tint Bases:

NA

— Special Colors:

Contact your dealer.

Certifications & Qualifications:

VOC compliant in all regulated areas

The product supported by this data sheet contains a maximum of 50 grams per liter VOC/VOS (0.42 lbs. /gal.) excluding water and exempt solvents.

Technical Assistance:

Available through your local authorized independent dealer.
For the location of the dealer nearest you, call 1-866-708-9180 or visit www.insl-x.com

Technical Data◊		White
Vehicle Type		Acrylic
Pigment Type		Titanium Dioxide
Volume Solids		41.5 ± 1.0%
Coverage per Gallon at Recommended Film Thickness		150 – 350 Sq. Ft.
Recommended Film Thickness	– Wet	4.8 – 10.8 mils
	– Dry	2.0 – 4.5 mils
Depending on surface texture and porosity. Apply at a rate of 80 sq. ft. per gallon when applied at 20 mils (WFT).		
Dry Time @ 77 °F (25 °C) @ 50% RH	– Tack Free	1 Hour
	– To Recoat	2 Hours
High humidity and cool temperatures will result in longer dry, recoat and service times.		
Dries By		Coalescence
Viscosity		97 ± 5 KU
Flash Point		NA
Gloss / Sheen		Flat
Surface Temperature at Application	– Min.	35 °F
	– Max.	90 °F
Thin With		Do not Thin
Clean Up Thinner		Warm Soapy Water
Weight Per Gallon		10.1 lbs.
Storage Temperature	– Min.	40 °F
	– Max.	90 °F

Volatile Organic Compounds (VOC)

45.5 Grams/Liter 0.38 Lbs./Gallon

◊ Reported values are for White.

Surface Preparation

All surface areas to be painted should be clean, dry, sound and free of all dirt, grease, oils, waxes, mildew and any other surface contaminants that can cause paint failure. Dirt and chalk should be thoroughly removed by scrubbing with warm soapy water. Grease residue should be removed with a cleaner.

Peel Bonding Primer PB-1100 works great over marginally prepared surfaces, however removing as much loose or peeling paint as practical will increase the longevity of the finish. For best results, remove loose, cracking and peeling paint from previously coated surfaces. Remove loose rust, mill scale, rust as well as dull glossy surfaces by lightly sanding. Remove sanding dust before application.

Repair/replace any seriously damaged and/or delaminated surface areas. Lightly feather sand all rough paint edges to adjacent surface area. All glossy surface areas should be lightly sanded to effectively dull any existing sheen and create a more suitable surface for painting. Mildew – Surface areas affected by mildew should be thoroughly hand scrubbed with a soft to medium bristle scrub brush and a solution of one cup Tri-Sodium Phosphate or a non-ammoniated detergent cleaner mixed with one part household bleach* and three parts warm water, per gallon solution, Allow solution to stand on the affected surface areas for approximately 10 – 20 minutes, then rinse thoroughly with clean water and allow 24 hours to dry.

*Follow bleach manufacturer's instructions for safe handling and use of bleach solution.

Stains – As a stain blocker, High Build Peel Bonding Primer will block rust stains and mild tannin stains. Two coats maybe required to seal difficult staining on tannin-rich wood.

WARNING! If you scrape, sand or remove old paint, you may release lead dust. **LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH**-approved respirator to control lead exposure. Carefully clean up with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead.

Application

High Build Peel Bonding Primer applies easily with a quality brush, roller, airless or conventional spray methods. Stir product thoroughly before using. For best results, it is recommended to apply by brush or roller application to effectively work primer into surface pores. If applying by airless sprayer, it is recommended to use a unit with a minimum of 2,000 PSI of pressure with a 0.018 – 0.022 fluid spray tip. When applying by airless sprayer, it is recommended that the surface area should be back-rolled/brushed to insure proper adhesion, even application and effectively work primer into surface pores. It is important to maintain a wet edge during all methods of paint application by brushing or rolling into previously applied coating area.

For a high-build application, apply at a spread rate of 80 sq. ft. per gallon, at 20 mils (wet film thickness).

Apply when surface and ambient temperature are above 35 °F and below 90 °F. Avoid paint application outside when weather conditions are threatening, and late in the afternoon when there is a threat of moisture condensing on wet primer. Do not prime if surface temperature is within 5 °F of the dew point.

Clean Up

Remove all spatters immediately with soap and water. Wash all equipment with soap and water immediately after use.

USE COMPLETELY OR DISPOSE OF PROPERLY. Dry empty containers may be recycled in a can recycling program. **Local disposal requirements vary; consult your sanitation department or state-designated environmental agency on disposal options.**

Environmental Health & Safety Information

Use only with adequate ventilation. Do not breathe spray mist or sanding dust. Ensure fresh air entry during application and drying. Avoid contact with eyes and prolonged or repeated contact with skin. May cause allergic skin reaction. Avoid exposure to dust and spray mist by wearing a NIOSH approved respirator during application, sanding and clean up. Follow respirator manufacturer's directions for respirator use. Close container after each use. Wash thoroughly after handling.

WARNING: Cancer and Reproductive Harm– www.P65warnings.ca.gov

WARNING: This product contains isothiazolinone compounds at levels of <0.1%. These substances are biocides commonly found in most paints and a variety of personal care products as a preservative. Certain individuals may be sensitive or allergic to these substances, even at low levels.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes; for skin, wash thoroughly with soap and water. If symptoms persist, seek medical attention. If you experience difficulty breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical attention immediately.

IN CASE OF SPILL – Absorb with inert material and dispose of as specified under "Clean Up".

KEEP OUT OF REACH OF CHILDREN
PROTECT FROM FREEZING

Refer to Safety Data Sheet for additional health and safety information.

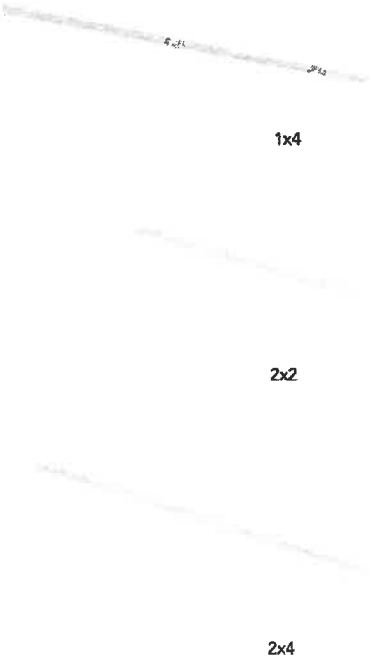
Manufactured by Benjamin Moore & Co. 101 Paragon Drive, Montvale, NJ 07645 Tel: 866-708-9180 www.insl-x.com M72 BP-1100 EN 040121

CPANL™

LED Switchable Flat Panel

9-in-1 Panel for Everyday Ease

CPANL from Lithonia Lighting® offers the ultimate in mounting versatility, color temperature flexibility and lumen options. The integrated driver allows this low-profile panel to mount directly to a hard ceiling, integrate in to a standard T-grid ceiling or suspend with aircraft cables. CPANL is the ideal solution when traditional flat panels with external drivers will not accommodate the project's mounting requirements. The switchable lumen and switchable color temperature feature adds to the versatility of CPANL, providing nine panel solutions in one. CPANL is ideal for both new construction and renovation for applications such as healthcare facilities, education, commercial office, retail and more.

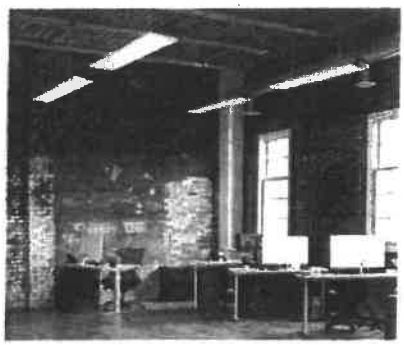


Features and Benefits:

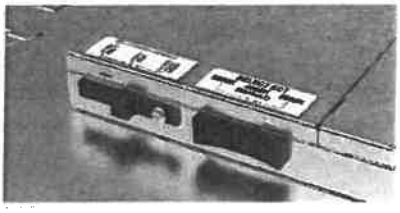
- Switchable lumen range supports a variety of tasks and mounting heights
- Switchable color temperature feature provides flexibility to adjust CCT right on the jobsite
- Ultra-thin housing design enables surface flush, surface box, suspension and recessed mounting options
- Integrated driver capable of 10% dimming and 120-277VAC operation
- High-performance LEDs provide more than 60,000 hours of reliable illumination
- Available in 1x4, 2x2 and 2x4 configurations to suit your application needs
- All sizes fixtures are a part of the Contractor Select™ program

CPANL™ LED Flat Panel

CPANL Offers Maximum Versatility



CPANL is precision-engineered for unrestricted mounting opportunities. The integral driver sits recessed below the frame making it perfect for direct ceiling mounting the CPANL to a hard surface. CPANL's rigidity and ultra thin design creates clean lines for suspension mounting. Integral T-grid clips make mounting in a T-grid ceiling a breeze.



- CPANL offers 3 sizes (1x4, 2x2, 2x4) each with adjustable lumen output (ALO) for three lumen packages in one panel and switchable color temperature (SWW) for three color temperatures in one panel
- Distributors can stock 24 less SKU's by stocking 3 CPANL ALO/SWW SKUs
- Contractors have a 9x better chance they have what the customer needs and can make game time decisions on jobsite

Direct Ceiling Mount Kit

The CPANL fixture paired with a Direct Ceiling Mount Kit (DCMK) bracket provides a crisp and clean aesthetic with a solution that extends less than 1.6" below your ceiling. DCMK accessory bracket sold separately with minor assembly required.

- Minimal 5/16" gap from ceiling to fixture
- Accommodate all 3 sizes of CPANL with only 2 DCMK SKUs
- Audible locking click let's you know exactly when the CPANL is correctly in place
- Clip teather cable for easy wiring

See CPANL specification sheet for full list of compatible accessories.

Ordering Information

Catalog Number	UPC	Description	Nominal Lumens	Color Temperature	CRI	Voltage
CPANL 1X4 ALO1 SWW7 M4	194995124930	1x4 Fully Switchable Flat Panel	4,000/5,000/6,000	3500/4000/5000K	80CRI	MVOLT (120-277V)
CPANL 2X2 ALO1 SWW7 M4	194995124923	2x2 Fully Switchable Flat Panel	2,200/3,300/4,400	3500/4000/5000K	80CRI	MVOLT (120-277V)
CPANL 2X4 ALO5 SWW7 M2	194995124916	2x4 Fully Switchable Flat Panel	4,000/5,000/6,000	3500/4000/5000K	80CRI	MVOLT (120-277V)
DCMK 14	19499531726	DCMK Accessory Bracket for 1x4 CPANL				
DCMK 224	194995031719	DCMK Accessory Bracket for 2x2 and 2x4 CPANL				

Installed switched to 3,300 Lumen/3500K

One Lithonia Way, Conyers, GA 30012 | Phone: 800.705.7378 | www.acuitybrands.com

AcuityBrands.

CURRIES®

ASSA ABLOY

High Definition 2-Panel Embossed Doors

Features:

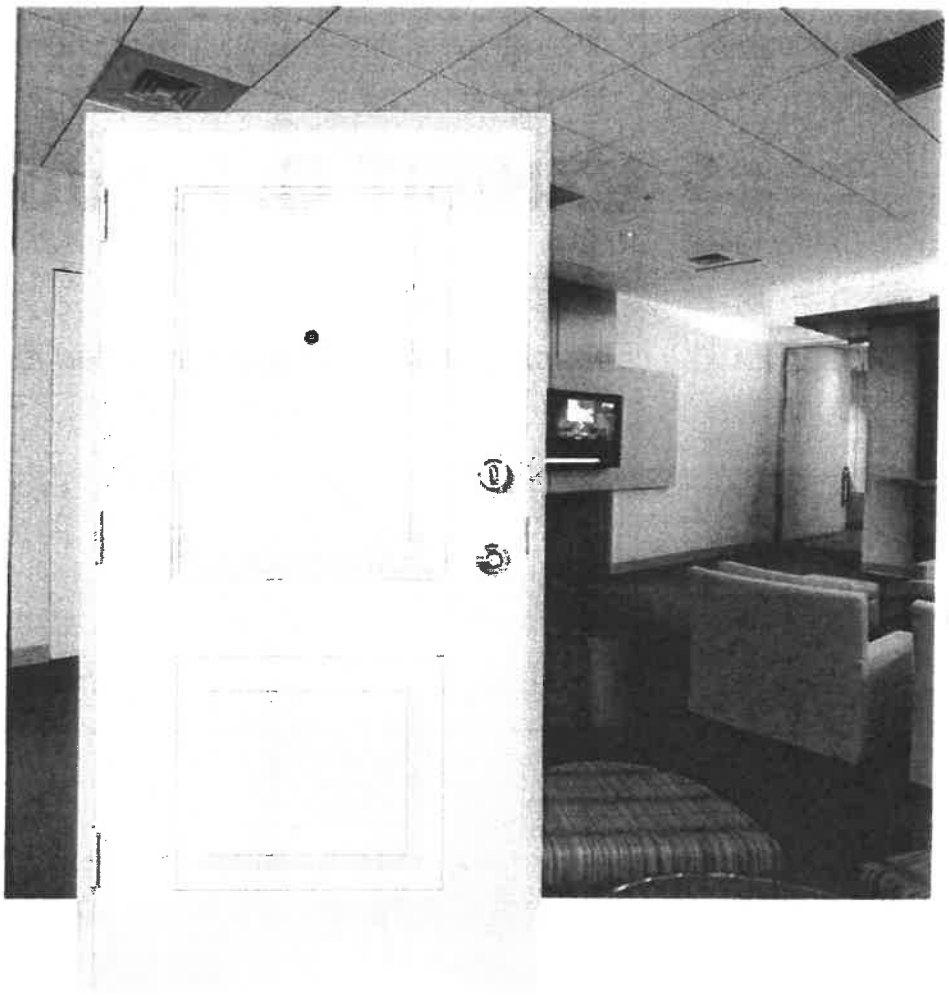
- 18 gauge galvannealed face sheets
- 2868, 2870, 3068, 3070 and 3080 available sizes
- WH & UL fire ratings up to 3 hours
- ADA compliant designs available

Applications:

- Condominiums
- Assisted living complexes
- Multi-family entrances
- Hotels
- Office buildings

Other Features and Options:

- Foamed in place polyurethane or reinforced foamed in place polyurethane or polystyrene cores provide total surface support, impact resistance and exceptional thermal resistance
- Handed and non-handed doors available
- Most common lock preps available
- Mechanically interlocked seamed edges are standard with optional seamless edges
- ElectroLynx® pre-wired quick connect cable options available
- Choose from hundreds of available prefinish paint colors



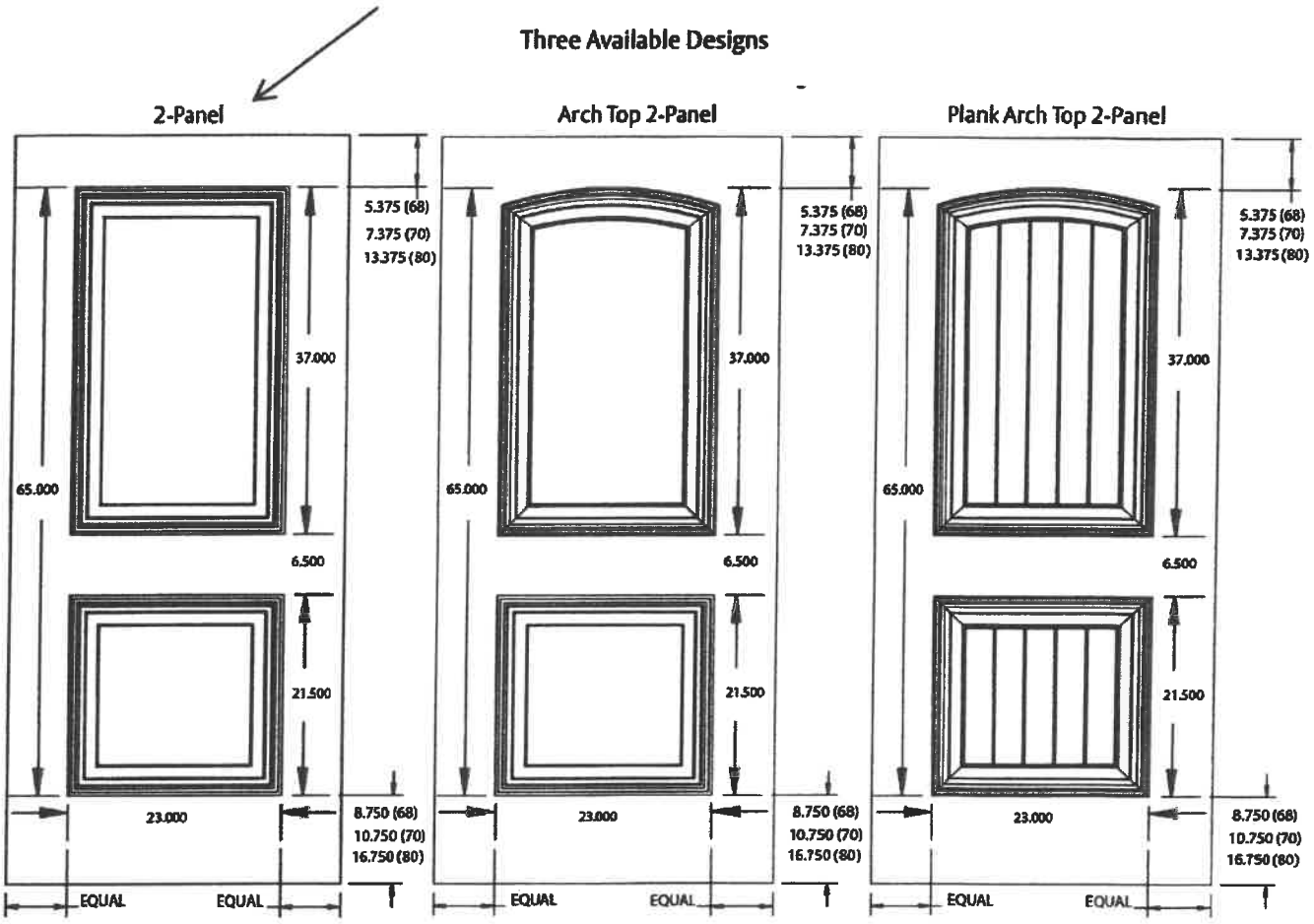
Adds elegance and sophistication to any room or entrance

The Curries HD 2-Panel Doors feature distinct high definition embossed designs. HD 2-Panel doors are offered in three architectural designs 2-Panel, Arch Top 2-Panel and Plank Arch Top 2-Panel. All three designs make a grand impression and add elegance and sophistication to any room or entrance.

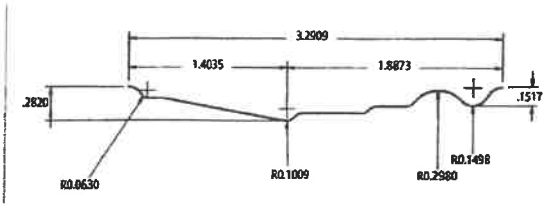
Log onto www.curries.com to learn about the complete line of 2-panel high definition doors along with the complete line of commercial steel doors and frames.

High Definition 2-Panel Embossed Doors

Three Available Designs



High Definition 2-Panel Embossed Design



The ASSA ABLOY Group is the global leader in access solutions. Every day, we help billions of people experience a more open world.

ASSA ABLOY Opening Solutions leads the development within door openings and products for access solutions in homes, businesses and institutions. Our offering includes doors, frames, door and window hardware, mechanical and smart locks, access control and service.

1502 12th Street NW
Mason City • IA 50401
Phone: 641-423-1334
Fax: 641-424-8305

CUR-167- 05/19

CPANL™

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1x4

2x2

2x4

Features and Benefits:

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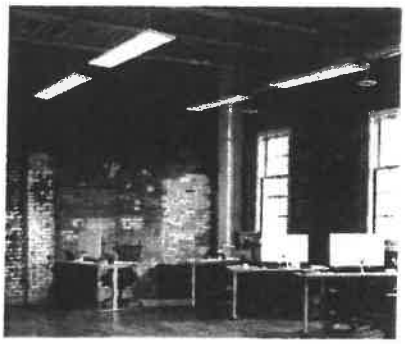

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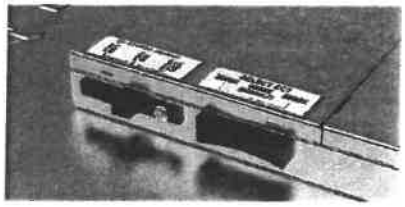

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CPANL 2X4 ALO6 SWW7 M2	194995124916	2x4 Fully Switchable Flat Panel	4,000/5,000/6,000	3500/4000/5000K	80CRI	MVOLT (120-277V)
DCMK 14	19499531726	DCMK Accessory Bracket for 1x4 CPANL				
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Installed switched to 3,300 Lumen/3500K

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REQUEST FOR QUOTATION
Remodel of WB-I and WB-2 in the West Wing of Building 1

EXHIBIT A – Pricing Page - Amended by Addendum No. 3

Name of Bidder:

The Bidder, being familiar with and understanding the Bidding Documents and having examined the site and being familiar with all local conditions affecting the project hereby proposes to furnish all labor, material, equipment, supplies for Remodel of WB-I and WB-2 in the West Wing of Building 1 in accordance with the Bidding Documents within the time set forth for the sum of:

Commodity Line 1 - Base Bid (Which shall include all Unit Price Items from the attached pricing page.)

$_____(A)

(Show amount in both words and numbers)

_____
Vendor Name

_____
Authorized Signature

_____
Date

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ GSD2600000010

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- [x] Addendum No. 1
- [x] Addendum No. 2
- [x] Addendum No. 3
- [ ] Addendum No. 4
- [ ] Addendum No. 5
- [ ] Addendum No. 6
- [ ] Addendum No. 7
- [ ] Addendum No. 8
- [ ] Addendum No. 9
- [ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

BPI, Inc.
Company

Authorized Signature

12/16/2025
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

REQUEST FOR QUOTATION
CRFQ GSD26*10 - Remodel of WB-I and WB-2 in the West Wing
Building 1 State Capitol Complex

GENERAL CONSTRUCTION SPECIFICATIONS (No AIA Documents)

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the General Services Division to establish a contract for the following:

   The Buildout to finish of area commonly known as WB-l&2 to include but is not limited to, the following:
   1 .Wiring electrical panels, lighting, emergency lighting, exit lighting and transformers.
   2 .Plumbing to include domestic and sanitary.
   3 .General construction to include demolition, wall construction, doors and finishes.
   4 .Flooring preparation and tile work.
   5 .Mechanical work to include ductwork, dampers and grills, and drum louvres.
   6 .Fire alarm devices and connections including dampers, detectors, visual and audible alarming devices.

   The Vendor shall furnish all materials, labor, and equipment necessary to complete all Construction Services .The Vendor shall furnish any incidental work, materials, labor, and equipment that are necessary to complete the Construction Services, even if such incidental work is not explicitly included in the Project Plans.

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions and in the Project Plans as defined below.

   2.1. **"Construction Services"** means remodel of existing rooms WB-1 and WB-2, in the basement of the West Wing of Bldg. 1 as more fully described in the Project Plans.

   2.2. **"Pricing Page"** means the pages contained in *wv*OASIS, attached hereto as Exhibit A, or included in the Project Plans upon which Vendor should list its proposed price for the Construction Services.

   2.3. **"Project Plans"** means documents developed by an architect, an engineer, the Agency, or another design professional, which are attached hereto as Exhibit B, that provide detailed instructions on how the Construction Services are to be performed .In the event that Project Plans contain drawings or other documents too large to attach in Exhibit B, Vendors can obtain copies in accordance with Section 9 of these Specifications.

2.4. **"Solicitation"** means the official notice of an opportunity to supply the State with Construction Services that is published by the Purchasing Division.

3. **ORDER OF PRECEDENCE:** This General Construction Specifications document will have priority over, and supersede, anything contained in the Project Plans.

4. **QUALIFICATIONS:** Vendor, or Vendor's staff if requirements are inherently limited to individuals rather than corporate entities, shall have the following minimum qualifications:

4.1. **Experience:** Vendor, or Vendor's supervisory staff assigned to this project, must have successfully completed at least 10 projects that involved work similar to that described in these specifications or the Project Plans .Compliance with this experience requirement will be determined prior to contract award by the State through references provided by the Vendor upon request, through knowledge or documentation of the Vendor's past projects, through confirmation of experience requirements from the architect assisting the State in this project, or some other method that the State determines to be acceptable .Vendor must provide any documentation requested by the State to assist in confirmation of compliance with this provision .References, documentation, or other information to confirm compliance with this experience requirement may be requested after bid opening and prior to contract award.

4.1.1. Minimum of 10 years' experience as a general contractor.

4.1.2. Subcontractors must have a minimum of 5 years' experience in electrical/mechanical trades.

5. **CONTRACT AWARD:** The Contract is intended to provide Agency with a purchase price for the Construction Services. The Contract will be awarded to the lowest qualified responsible bidder meeting the required specifications. If the Pricing Pages contain alternates/add-ons, the Contract will be awarded based on the grand total of the base bid and any alternates/add-ons selected.

6. **SELECTION OF ALTERNATES:** Pursuant to W .Va .Code § 5-22-1(f), any solicitation of bids shall include no more than five alternates .Alternates, if accepted, shall be accepted in the order in which they are listed on the bid form .Any unaccepted alternate contained within a bid shall expire 90 days after the date of the opening of bids for review .Determination of the lowest qualified responsible bidder shall be based on the sum of the base bid and any alternates accepted.

7. **PERFORMANCE:** Vendor shall perform the Construction Services in accordance with this document and the Project Plans.

8. **SUBSTITUTIONS:** Any substitution requests must be submitted in accordance with the official question and answer period described in the INSTRUCTIONS TO VENDORS SUBMITTING BIDS, Paragraph 4. Vendor Question Deadline. Vendors submitting substitution requests should submit product brochures and product specifications during the official question and answer period.

9. **PROJECT PLANS:** There are no additional Project Plans other than those attached hereto as Exhibit B or any subsequent addenda modifying Exhibit B.

10. **CONDITIONS OF THE WORK**

10.1. **Permits:** The Vendor shall procure all necessary permits and licenses to comply with all applicable Federal, State, or Local laws, regulations and ordinances of any regulating body.

10.2. **Existing Conditions**: If discrepancies are discovered between the existing conditions and those noted in the specifications, Vendor must immediately notify the Agency's representative. Vendor must also immediately notify the Agency if suspected hazardous materials are encountered.

10.3. **Standard Work Hours**: The standard hours of work for this Contract will be 7:00am to 3:00pm Monday through Friday excluding holidays recognized by the State of West Virginia .Any work outside of the standard hours of work must be approved in advance at the Agency's sole discretion .Authorization of work outside of the standard hours of work will not entitle Vendor to additional compensation.

10.4. **Project Closeout**: Project Closeout shall include the following:

10.4.1. **Final Cleanup:** Vendor shall perform the final cleanup activities listed below, along with any other final cleanup activities normally associated with the work performed under this Contract, prior to final inspection:

10.4.1.1. Punch list completion.

10.4.1.2. Documents as required for equipment warranties.

10.4.1.3. As built drawings.

10.4.1.4. Final acceptance documents may be required.

10.4.2. **Final Inspection:** Vendor shall participate in a final inspection with the Agency's project manager. The purpose of the final inspection will be to identify deficiencies that need to be remedied prior to Agency's final acceptance of the work. Vendor shall at all times be obligated to perform in accordance with the Contract and must take all actions necessary to ensure that work complies with requirements of Contract prior to final acceptance .Final acceptance does not waive or release Vendor from its obligation to ensure that work complies with the Contract requirements .Vendor shall submit any warranty documents to the Agency project manager at final inspection.

11. **FACILITIES ACCESS:** Performance of Contract Services may require access cards and/or keys to gain entrance to Agency's facilities. In the event that access cards and/or keys are required:

11.1. Vendor must identify principal service personnel which will be issued access cards and/or keys to perform service.

11.2. Vendor will be responsible for controlling cards and keys and will pay replacement fee, if the cards or keys become lost or stolen.

11.3. Vendor shall notify Agency immediately of any lost, stolen, or missing card or key.

11.4. Anyone performing under this Contract will be subject to Agency's security protocol and procedures.

11.5. Vendor shall inform all staff of Agency's security protocol and procedures.

12. MISCELLANEOUS:

12.1. **Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract .The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract .Vendor should list its Contract manager and his or her contact information below.

Contract Manager: J. Christian Wells

Telephone Number: (304)760-8909 ext. 4

Fax Number: N/A

Email Address: cwells@bpi-gc.com

Remodel of WB-1 and WB-2 In the West Wing of Building 1
List of Exhibits

EXHIBIT A – PRICING PAGE

EXHIBIT B – PROEJECT PLANS

EXHIBIT C – PROJECT PLANS

1 of 7 – WB-I and WB-2 Demolition Plan
2 of 7 - WB-I and VB-2 New Floor Plan
3 of 7 – WB-I and VB-2 Mechanical Plan
4 of 7 - WB-I and WB-2 Power Plan
5 of 7 – WB-I and WB-2 Receptacle and Data Plan
6 of 7 – WB-I and WB-2 Lighting Plan
7 of 7 - WB-2 Kitchenette Plan

EXHIBIT D – PROJECT SPECIFICATIONS

Interior Painting
Network Cabling and Physical Plant Infrastructure for all Communications Devices
Fire Alarm Specification

EXHIBIT E – PROJECT PRODUCTS

Interior Doors
Light Fixtures
Remote sink/drain system
Fire block Foam
Kitchen Cabinets

EXHIBIT F – Jobsite Safety Handbook

REQUEST FOR QUOTATION
Remodel of WB-I and WB-2 in the West Wing of Building 1

EXHIBIT A – Pricing Page - Amended by Addendum No. 3

Name of Bidder:

BPI, Inc.

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Commodity Line 1 - Base Bid (Which shall include all Unit Price Items from the attached pricing page.)

$ 451,000.00 (A)

Four Hundred Fifty One Thousand Dollars

(Show amount in both words and numbers)

BPI, Inc.
Vendor Name

Authorized Signature

12/16/2025
Date

EXHIBIT B – PROJECT PLANS

1. GENERAL REQUIREMENTS/SPECIFICATIONS

1.1. All Construction Services must comply with the specifications in the following Exhibits:

Exhibit A – Pricing Page
Exhibit B – this document – Project Plans
Exhibit C – Project Plans (Drawings)
Exhibit D - Project Specifications
Exhibit E – Project Products
Exhibit F – GSD Jobsite Safety Handbook

2. PERFORMANCE: Vendor and Agency shall agree upon a schedule for performance of Contract Services and Contract Services Deliverables, unless such a schedule is already included herein by Agency. In the event that this Contract is designated as an open-end contract, Vendor shall perform in accordance with the release orders that may be issued against this Contract.

2.1. The Vendor shall provide the Agency Project Manager with an overall project schedule within seventy-two (72) hours of Award of the Contract .The proposed project schedule shall indicate areas to be worked .Where coordination or disruption of adjacent workspaces or occupants may be required, provide at least one week's advance notice prior to conducting work in those areas .Vendor shall adhere to the schedule provided and coordinate through the Agency Project Manager.

2.2. Work shall be conducted as a single project. The work schedule shall be reviewed and approved by the Agency Project Manager prior to commencement of work. The Vendor shall coordinate the schedule around the Agency's work requirements

3. TRAVEL: Vendor shall be responsible for all mileage and travel time associated with performance of this contract. Any anticipated mileage or travel costs may be included in the Vendor's bid, but such costs will not be paid by the Agency separately.

4. PROJECT SPECIFIC CONDITIONS OF THE WORK

4.1. Limits of Work

Work areas will be limited to those spaces required for access to the jobsite .The tenant State Agencies or Agency will be responsible for clearing work areas of furniture and property prior to work commencement per the work schedule.

Some interior space may be utilized for temporary (overnight) storage of equipment and tools .Coordinate storage needs with the Agency Project Manager. Agency facilities shall remain in use during this contract .Contractor shall work with the Building Manager to coordinate the temporary access to work areas and otherwise provide for the Contractor needs to complete work .Contractor shall minimize disruption to building work areas and loading dock access. Contractor shall be permitted reasonable use of building utilities including power, water and sanitary sewage disposal as required for conducting the work .Contractor shall coordinate the location of service connections or use of receptacles with the Building Manager to avoid overloading existing circuits.

4.2. Contractor Visitor Badges

Contractor shall provide a list of all personnel working on this project within the building .This list shall include a copy of a valid driver's license or other legal identification and include date of birth and cell phone number .Workers shall carry valid Contractor Photo ID Badges to be worn when working in the building .Under no circumstances shall a worker be assigned to this project without the validation first being submitted to the General Services Division and approval given.

4.3. Work Restrictions

Access to the building shall be coordinated with the Owner. Contractor shall not leave open doors unattended and shall close doors when not in use.

This is a non-smoking building. Smoking is not permitted within the building or near entrances, operable windows, or outdoor air intakes.

4.4. Parking

Some parking is available on the project site .Parking in non-designated areas is not permitted .Parking is the responsibility of the contractor .With prior approval, contractor's vehicles may be brought on-site for loading & unloading or to provide equipment necessary for conducting the work.

Use of loading dock areas or sidewalk areas for parking is strictly prohibited.

Vendor must coordinate with the Agency on how best to minimize disruption of employee parking during the execution of the work.

4.5. Workmanship

Contractor shall complete all work in a neat and workmanlike manner. All work shall be done using new materials in a manner that meets commercial quality standards. Work shall be neat, true, plumb, and square, as applicable. Contractor shall verify all dimensions.

4.6. General Services Division Jobsite Safety Handbook

Prior to beginning any work covered by the Contract, Vendor shall have read, reviewed, and acknowledged in writing the attached Jobsite Safety Handbook (Exhibit F).

4.7. Warranty

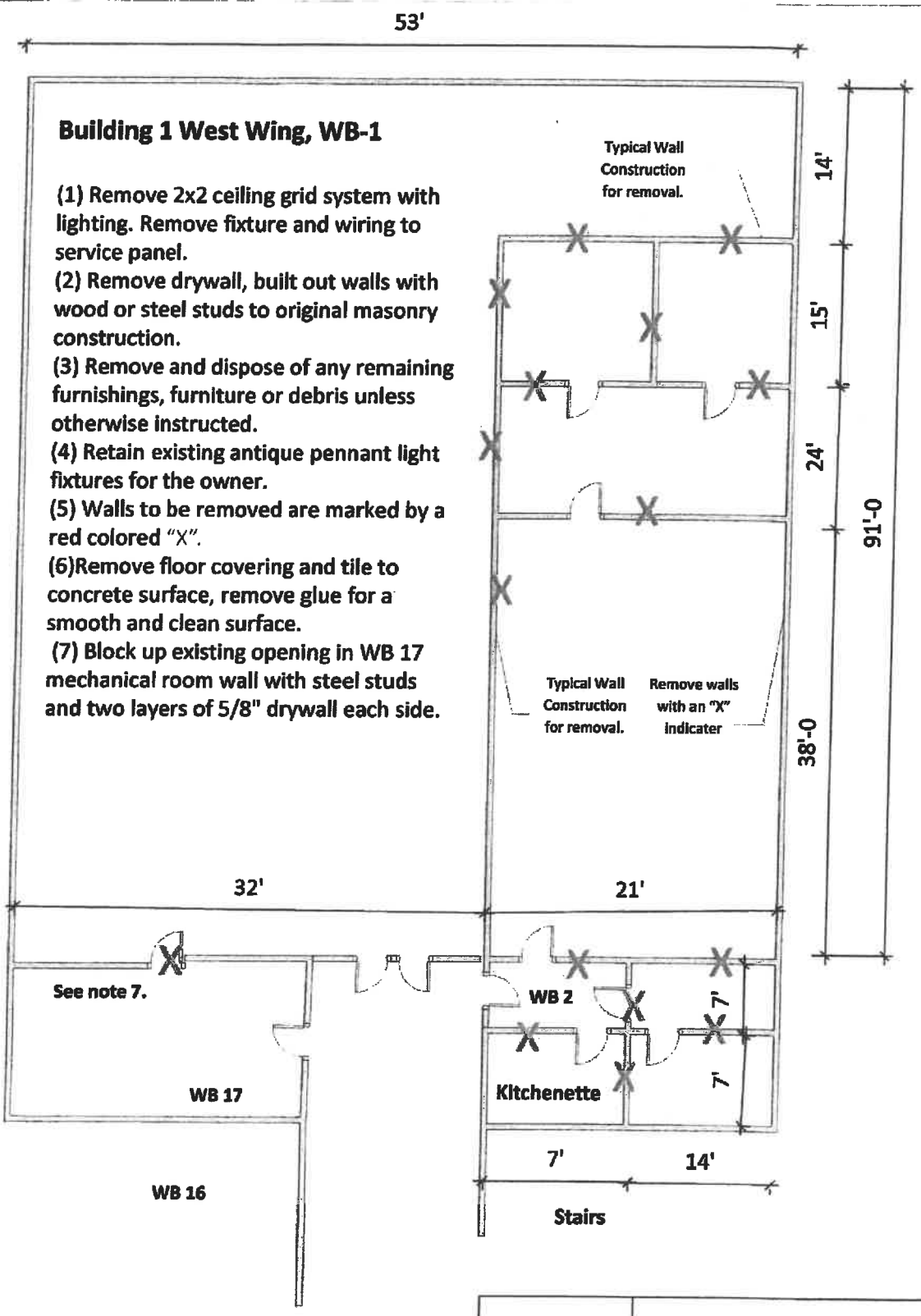
A one-year warranty on labor is required.

Exhibit C: Drawings

This exhibit contains drawings included for work in this contract.

Building 1 West Wing, WB-1

(1) Remove 2x2 ceiling grid system with lighting. Remove fixture and wiring to service panel.
(2) Remove drywall, built out walls with wood or steel studs to original masonry construction.
(3) Remove and dispose of any remaining furnishings, furniture or debris unless otherwise instructed.
(4) Retain existing antique pennant light fixtures for the owner.
(5) Walls to be removed are marked by a red colored "X".
(6)Remove floor covering and tile to concrete surface, remove glue for a smooth and clean surface.
(7) Block up existing opening in WB 17 mechanical room wall with steel studs and two layers of 5/8" drywall each side.

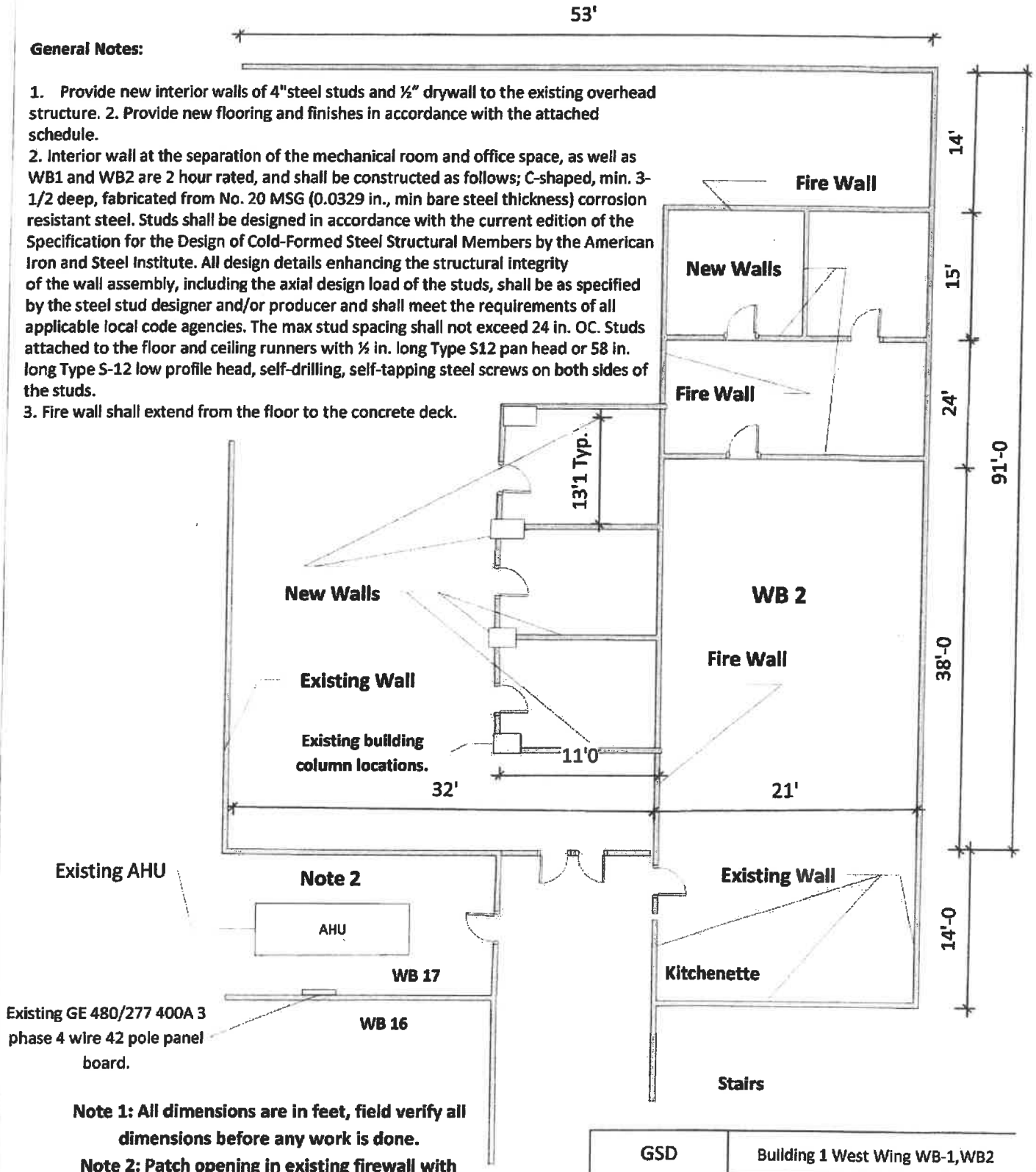


Note: All dimensions are in feet, field verify all dimensions before any work is done.

GSD Energy Department	Building 1 West Wing WB-1,WB2				
	WB-1,WB2 Demolition Plan				
	SIZE	FSCM NO	DWG NO		REV
	SCALE NTS	3	SHEET 1 of 7		

General Notes:

1. Provide new interior walls of 4"steel studs and ½" drywall to the existing overhead structure. 2. Provide new flooring and finishes in accordance with the attached schedule.
2. Interior wall at the separation of the mechanical room and office space, as well as WB1 and WB2 are 2 hour rated, and shall be constructed as follows; C-shaped, min. 3-1/2 deep, fabricated from No. 20 MSG (0.0329 in., min bare steel thickness) corrosion resistant steel. Studs shall be designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer and shall meet the requirements of all applicable local code agencies. The max stud spacing shall not exceed 24 in. OC. Studs attached to the floor and ceiling runners with ½ in. long Type S12 pan head or 58 in. long Type S-12 low profile head, self-drilling, self-tapping steel screws on both sides of the studs.
3. Fire wall shall extend from the floor to the concrete deck.

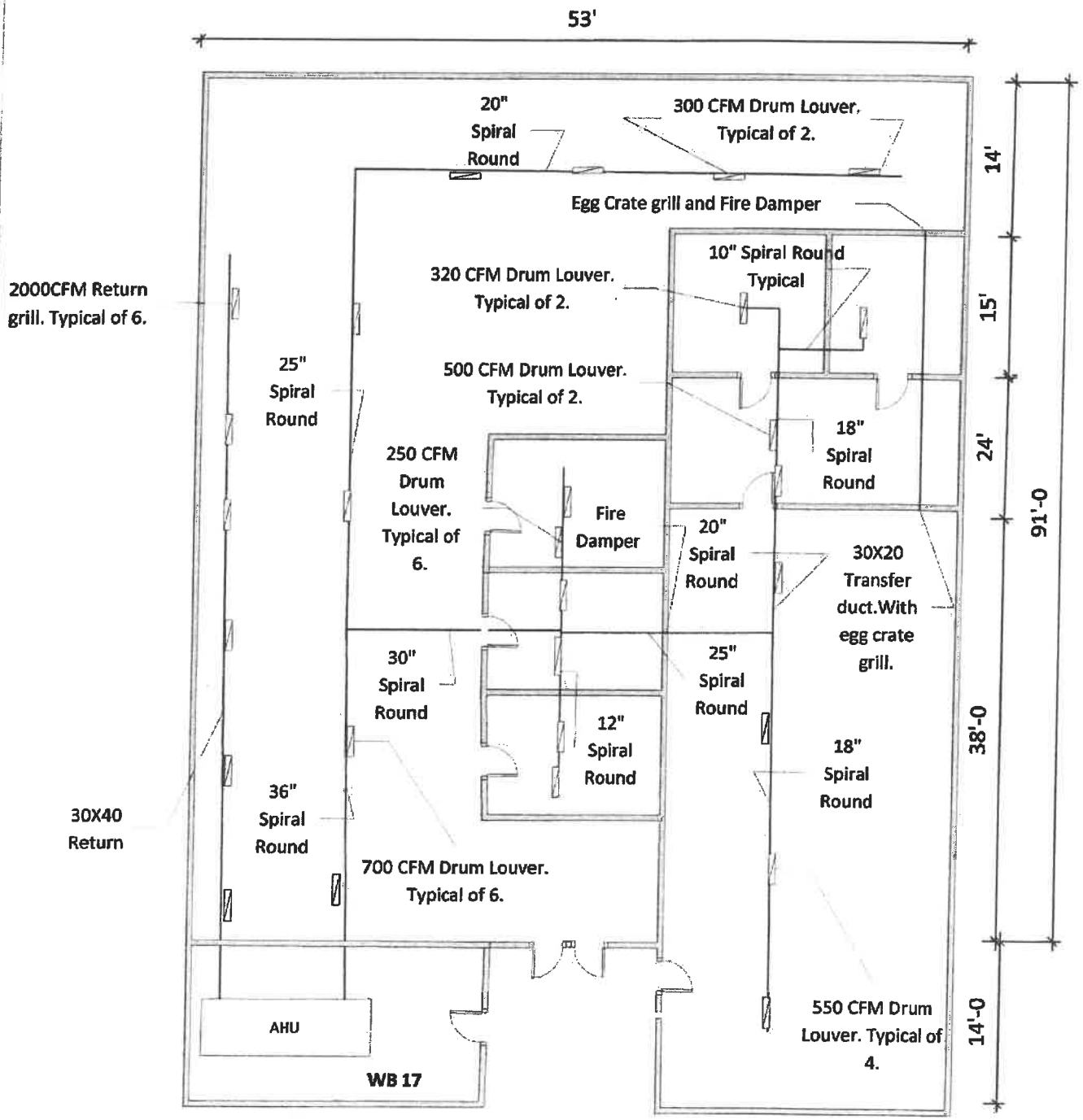


Note 1: All dimensions are in feet, field verify all dimensions before any work is done.
Note 2: Patch opening in existing firewall with studs and 2 layers of 5/8" drywall both sides.

GSD Energy Department	Building 1 West Wing WB-1,WB2			
	WB-1 & WB-2 New Floor Plan			
	SIZE	FSCM NO	DWG NO	REV
	SCALE NTS	3	SHEET 2 of 7	

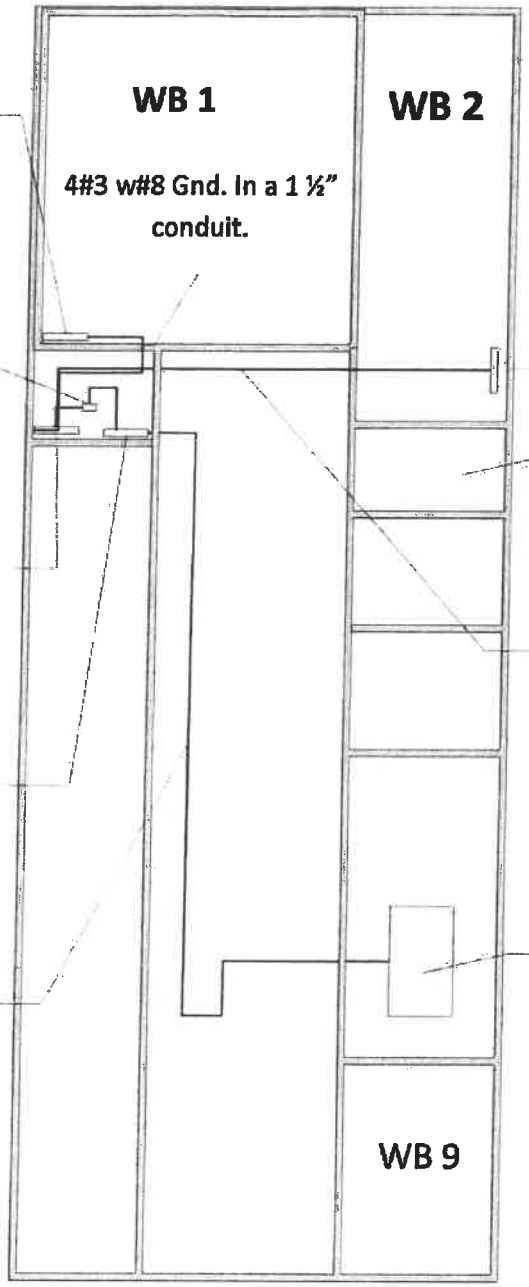
General Notes Ductwork:

1. Provide insulated metal ductwork of the pressure class to match the new unit. Provide proper reinforcement to prevent oil canning.
2. Provide perforated metal duct liner, flex connectors at unit connections and at connection to existing at mechanical room wall.
3. Connection to existing: supply is 20"X66", return is 16"x66".
4. Ductwork shall comply with SMACNA "HVAC Duct Construction Standards".
5. Test ductwork in accordance with SMACNA "HVAC Air Duct Leakage Test Manual".



6. Ductwork to be primed and painted. Color to be chosen by owner.
7. Provide 4 zone sensor, average space temperatures to maintain space temperature and humidity within state guidelines. When space temperatures are within guidelines air to ramp down to a 25% minimum.

GSD Energy Department	Building 1 West Wing WB-1,WB2			
	WB-1 & WB-2 Mechanical Plan			
	SIZE	FSCM NO	DWG NO	REV
	SCALE NTS	3	SHEET 3 of 7	



New 208/120 power panel. 100A 208/120 3 phase 42 pole. **WB9**

New 150KVA NEMA 1 copper winding K4 Xformer

Existing GE 400A,480/277 3 phase 4 wire 42 pole panel board.

New GE 208/ 120 400A 3 phase 4 wire 42 pole panel board.

Existing GE 400A 3 phase 4 wire feeder

New 208/120 power panel. 100A 208/120 3 phase 42 pole. **WB10**

Existing GE unit substation 12.47KV to 480/3/60

Note: All dimensions are in feet, field verify all dimensions before any work is done.

General Notes Fire Alarm

1.. Install flush mounted quad electrical box and ½" ENT conduit to daylight above ceiling at locations shown for Fire Alarm devices in the studded wall.

2. See Exhibit E for fire alarm Specifications.

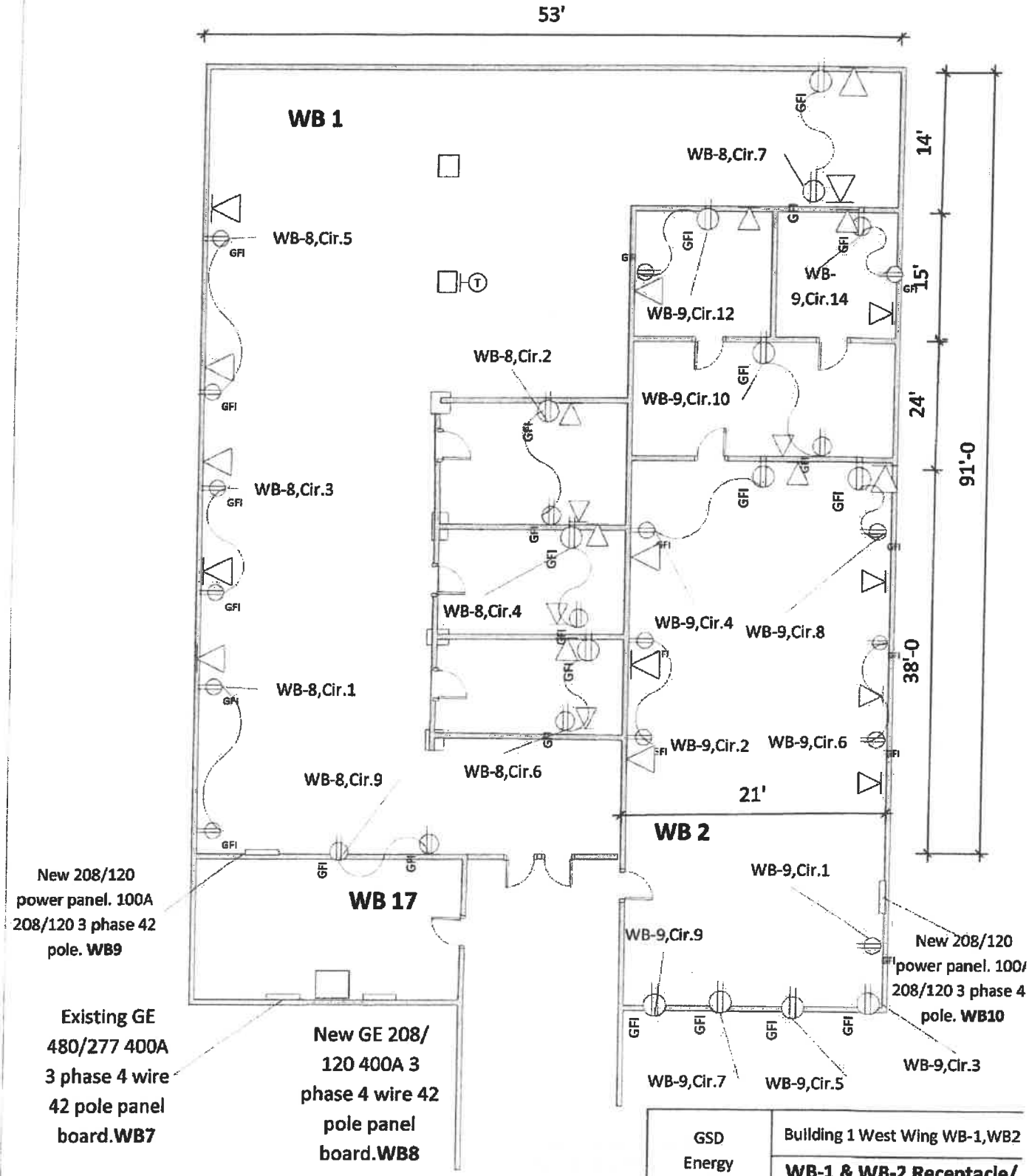
3. Smoke detector (SD)

General Notes Network

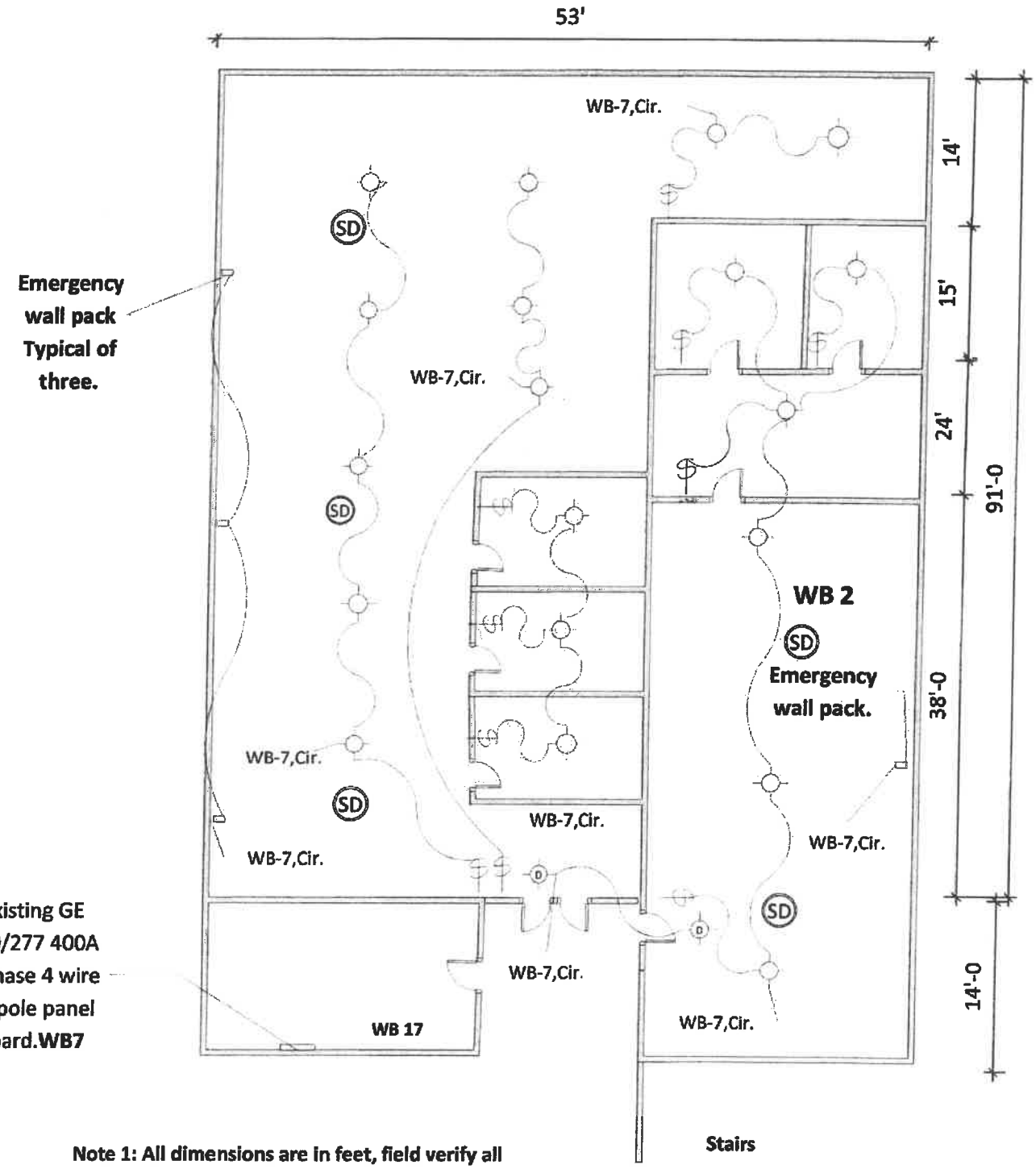
1.. Install flush mounted quad electrical box and ½" ENT conduit to daylight above ceiling at locations shown for network.

2. Install blank device covers on quad boxes.

GSD Energy Department	Building 1 West Wing WB1,WB2			
	WB-1 & WB-2 Power Plan			
	SIZ -	FSCM NO	DWG NO	RE
	SCALE NTS	3	SHEET	4 Of 7



GSD Energy Department	Building 1 West Wing WB-1,WB2			
	WB-1 & WB-2 Receptacle/ Data Plan			
	-	FSCM NO	DWG NO	
	SCALE NTS	3	SHEET 5 of 7	



Note 1: All dimensions are in feet, field verify all dimensions before any work is done.

Note 2 Smoke Detector (SD)

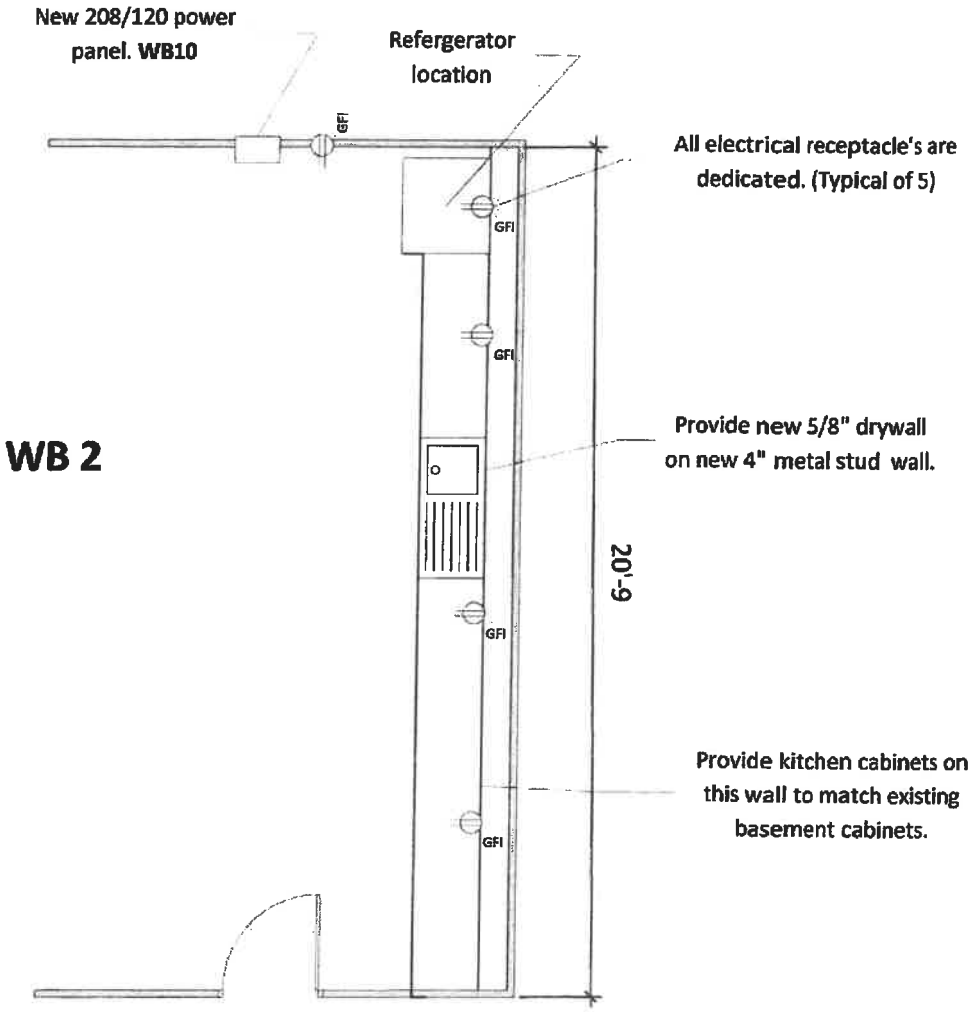
Note 3 ceiling mounted fixture

Note 4 Self contained emergency wall pack.

Note 5: Exit light.

GSD Energy Department	Building 1 West Wing WB-1,WB2			
	WB-1 & WB-2 Lighting Plan			
	-	FSCM NO	DWG NO	REV
	SCALE NTS	3	SHEET 6 of 7	

Note: All dimensions are in feet, field verify all dimensions before any work is done.



Notes:

(1) Provide domestic water tap at ceiling above existing drinking fountain in basement corridor below. Provide sanitary tie in at existing cleanout at 10" sanitary in basement corridor. Provide new domestic water line to kitchenette sink and hot water heater. Provide new sanitary line to kitchenette sink.

(2) Provide new electric hot water heater located in cabinet under new kitchen sink. Provide new 120V power circuit to water heater. Provide electrical disconnect.

(3) Paint room to match adjacent in basement. Provide vinyl floor covering to match adjacent basement floor.

GSD Energy Department	Building 1 West Wing WB1,WB2			
	WB 2 Kitchenette Plan			
	SIZE	FSCM NO	DWG NO	REV
	SCALE NTS		SHEET 7 of 7	

Exhibit D:

Specifications

This exhibit contains specifications included for work in this contract.

EXHIBIT G.1 SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Project Plans, including Exhibits, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates.

1. Concrete.
2. Concrete masonry units (CMUs).
3. Steel and iron.
4. Galvanized metal.
5. Wood.
6. Gypsum board.
7. Plaster.

B. Section includes previously painted and unpainted existing surfaces.

1. Surface preparation of substrates including cleaning, small crack repair, and sealing.

1.3 DEFINITIONS

A. MPI Gloss Level 1 (flat): Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.

B. MPI Gloss Level 3 (eggshell like): 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

C. MPI Gloss Level 5 (semi-gloss): 35 to 70 units at 60 degrees, according to ASTM D523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

1.5 QUALITY ASSURANCE

A. Final approval of color selections will be based on Samples.

1.6 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Benjamin Moore & Co.
2. PPG Architectural Finish, Inc.
3. Sherwin Williams

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. VOC Content: For field applications, verify paints and coatings comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Flat Paints and Coatings: 50 g/L.
2. Non-Flat Paints and Coatings: 50 g/L.
3. Dry-Fog Coatings: 150 g/L.
4. Primers, Sealers, and Undercoaters: 100 g/L.
5. Rust-Preventive Coatings: 100 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 100 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Shellacs, Clear: 730 g/L.
9. Shellacs, Pigmented: 550 g/L.

C. Colors: As selected by Owner and indicated in color schedule or Exhibit.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for maximum moisture content and other conditions affecting performance of the painting.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Masonry (Clay and CMUs): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Gypsum Board Substrates: Verify that the finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
2. Provide, as necessary, hand tool, detergent, solvent, and power tool cleaning.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:

1. SSPC-SP 3, "Power Tool Cleaning."

G. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

A. Existing Surfaces: Unless indicated otherwise, paint exposed interior surfaces except:

1. Surfaces with factory / shop applied final finishes.
2. Existing historic and other surfaces that typically do not receive paint e.g,, stone, anodized aluminum, surfaces scheduled to be treated otherwise or left untouched.
3. Surfaces to receive other finishes, such as transparent finishes or intumescent paint finishes

B. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

C. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

D. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

E. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in occupied spaces:

a. Doors, jambs and door closers.
b. Other items as directed by Agency.

2. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Agency, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

1.2.1. Fire

Provide all permits, labor, equipment, materials and services to furnish and install a fully tested functional, UL Listed, code compliant, intelligent addressable networked fire alarm, emergency communications and active smoke control system including but not limited to all initiation and notification appliances, all raceways and wiring, connection to a central monitoring station.
The system supplied under this specification shall utilize modular low voltage design with direct wired, node to node, peer-to-peer network communications. The system shall utilize independently addressed, fire detection devices, input/output control modules, audio amplifiers, telephone communications and notification appliances as described in this specification. Network panels shall contain the required user interfaces for all functions. All equipment shall be new and the current products of a single manufacturer, actively engaged in the manufacturing and sale of digital fire detection devices for over ten years.
Also included are system wiring, raceways, pull boxes, terminal cabinets, mounting boxes, and any accessories and miscellaneous items required for a code compliant system.
The system drawings show the intended of coverage and suggested device locations. Final device quantity, location, and AHJ approval are the responsibility of the contractor.
The final system shall be complete, tested, and ready for operation as described elsewhere in this specification, before owner acceptance.
Strict conformance to this specification is required to ensure that the installed and programmed system will function as designed, is compatible with existing systems, and will accommodate the future requirements and operations of the building owner. All specified operational features must be met without exception.

1.2.2. Related Work - Fire

A. The Contractor shall coordinate work in this Section with all related trades. Work and/or equipment provided in other Sections and related to the fire alarm system shall include, but not be limited to:

1. Sprinkler waterflow and supervisory switches shall be furnished and installed by the fire protection contractor, but wired and connected by the electrical contractor. Modification of existing sprinkler devices to accommodate monitoring by the new fire alarm system shall be the responsibility of the fire alarm system installing contractor.

2. Duct smoke detectors shall be furnished, wired and connected by the electrical contractor. The HVAC contractor shall furnish necessary duct opening to install the duct smoke detectors.

3. New air handling and smoke exhaust system fan control circuits and status contacts to be furnished by the HVAC control equipment.

4. Elevator recall control circuits to be provided by the elevator control equipment. Modifications to the existing elevator controls to accommodate ANSI A17.1 shunt trip activation shall be provided by the elevator controls contractor. Any shunt trip circuit breakers and related wiring required for ANSI A17.1 compliance shall be provided by the electrical contractor (see power riser for more details).

5. Sprinkler waterflow and supervisory switches shall be furnished and installed by the fire protection contractor, but wired and connected by the electrical contractor. Modification of existing sprinkler devices to accommodate monitoring by the new fire alarm system shall be the responsibility of the fire alarm system installing contractor.

6. Duct smoke detectors shall be furnished, wired and connected by the electrical contractor. The HVAC contractor shall furnish necessary duct opening to install the duct smoke detectors.

7. New air handling and smoke exhaust system fan control circuits and status contacts to be furnished by the HVAC control equipment.

8. Elevator recall control circuits to be provided by the elevator control equipment. Modifications to the existing elevator controls to accommodate ANSI A17.1 shunt trip activation shall be provided by the elevator controls contractor. Any shunt trip circuit breakers and related wiring required for ANSI A17.1 compliance shall be provided by the electrical contractor (see power riser for more details).

1.3. References

1.3.1. Codes-General

All work and materials shall conform to all applicable federal, state and local codes and regulations governing the installation. If there is a conflict between the referenced standards, federal, state or local codes, and this specification, it is the bidder's responsibility to immediately bring the conflict to the attention of the engineer for resolution. National standards shall prevail unless local codes are more stringent.

The bidder shall not attempt to resolve conflicts directly with the local authorities unless specifically authorized by the engineer.

1.3.2. Fire Code

The equipment and installation shall comply with the provisions of the following codes and standards unless the authority having jurisdiction has adopted an earlier version:

National Fire Protection Association (NFPA)

NFPA 70 - 2011 *National Electric Code®*
NFPA 72 - 2010 *National Fire Alarm Code®*
NFPA 90A - 2012 *Installation of Air-Conditioning and Ventilating Systems*
NFPA 92A - 2009 *Smoke-Control Systems Utilizing Barriers and Pressure Differences*
NFPA 92B - 2009 *Smoke Management Systems in Malls, Atria, and Large Areas*
NFPA 101- 2012 *Life Safety Code®*

Underwriter's Laboratories, Inc

- UL 864 - Control Units for Fire Protective Signaling Systems.
- UL 268 - Smoke Detectors for Fire Protective Signaling Systems.
- UL 268A - Smoke Detectors for Duct Applications.
- UL 217 - Single and Multiple Station Smoke Alarms
- UL 521 - Heat Detectors for Fire Protective Signaling Systems.
- UL 228 - Door Closers-Holders, With or Without Integral Smoke Detectors.
- UL 464 - Audible Signaling Appliances.
- UL 38 - Manually Actuated Signaling Boxes for Use with Fire-Protective Signaling Systems
- UL 346 - Waterflow Indicators for Fire Protective Signaling Systems.
- UL 1971 - Signaling Devices for the Hearing-Impaired.
- UL-1480 - Speakers for Fire Alarm, Emergency, and Commercial and Professional Use
- UL 1481 - Power Supplies for Fire Protective Signaling Systems.
- UL 1711 - Amplifiers for Fire Protective Signaling Systems.
- UL 1635 - Digital Alarm Communicator System Units
- UL-1638 - Signaling Appliances - Private Mode Emergency and General Utility Signaling

Factory Mutual (FM) approval

International Code Council

- International Building Code
- International Fire Code
- International Mechanical Code

Federal Codes and Regulations

- Americans with Disabilities Act (ADA)

Electrical Industries Association

- EIA-232-D: Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange
- EIA-485: Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems

1.3.3. Definitions and Abbreviations

ACU: Autonomous Control Unit.
ADA: Americans with Disabilities Act.
AFF: Above Finished Floor.
AHJ: Authority Having Jurisdiction.
Approved: Unless otherwise stated, materials, equipment or submittals approved by the Authority or AHJ.
Circuit: Wire path from a group of devices or appliances to a control panel or transponder.
CCS: Central Control Station.
CPU: The central computer of a multiplex fire alarm or voice command control system.
ECS: Emergency Communication System.
FACP: Fire Alarm Control Panel.
FCC: Fire Command Center.
FM: FM Global (Factory Mutual)
FSCP: Firefighter's Smoke Control Panel.
HPSA: High Power Speaker Array.
HVAC: Heating Ventilating and Air Conditioning.
IDC: Initiating Device Circuit.
LCD: Liquid Crystal Display.
LED: Light Emitting Diode.
LOC: Local Operating Console.
MN: Mass Notification.
MNEC: Mass Notification Emergency Communications.
NAC: Notification Appliance Circuit.
NFPA: National Fire Protection Association.
NICET: National Institute for Certification in Engineering Technologies
NRTL: Nationally Recognized Testing Laboratory
PTR: Printer.
RCP: Remote Control Panel
SLC: Signaling Line Circuit.
Style 1: As defined by NFPA 72, Class B.
Style 4: As defined by NFPA 72, Class B.
Style 6: As defined by NFPA 72, Class A.
Style 7: As defined by NFPA 72, Class A.
Style B: As defined in NFPA 72, Class B.
Style D: As defined in NFPA 72, Class A.
Style Y: As defined in NFPA 72, Class B.
UL or ULI: Underwriters Laboratories, Inc.
UL Listed: Materials or equipment listed and included in the most recent edition of the UL Fire Protection Equipment Directory.
Zone: Combination of one or more circuits or devices in a defined building area, i.e. 3 speaker circuits on a floor combined to form a single zone.

1.4. System Description - Fire

1.4.1. General Fire

The system supplied under this specification shall be a new UL Listed modular fire alarm network that uses independently addressed fire detection devices, input/output control modules, and notification appliances.

The network shall utilize token ring, peer-to-peer communications. The network shall consist of a main panel and remote-control panels. To enhance survivability, each panel shall be an equal, active functional member of the network, capable of making all local decisions and initiating network tasks for other panels. In the event of a panel failure or communications failure between panels, panels shall be capable of forming sub-networks and remain operational between communicating panels. Master/slave system configurations shall not be considered as equal.

The system shall be fully field programmable such that virtually any combination of system output functions may be correlated to any type of input event(s). Inputs may be combined using Boolean logic, be time dependent or under manual control, as defined by required system operation. All software operations are to be stored in a non-volatile programmable memory within the fire alarm control panels. There shall be no limit, other than maximum system capacity, as to the number of addressable devices which may be in alarm simultaneously.

Addressable smoke detector sensitivity settings for both pre-alarm and alarm activation shall be automatically individually configurable for both daytime and nighttime operation. Addressable smoke detectors shall be UL listed for automatic sensitivity testing.

Ease of maintenance shall be facilitated by the use of panel based and PC based system diagnostics.

1. The system shall automatically test smoke detector sensitivity, eliminating the need for manual sensitivity testing.
2. Ground fault detection and annunciation shall be by individual module address for supervised input and output devices.
3. System test operation shall be configurable by individual addressable devices, and not disable entire circuits.
4. The system shall be capable of generating a graphical map of connected all addressable devices to aide in circuit troubleshooting.
5. Placement supervision of addressable devices shall couple a device's location (not its address) to the programmed system response.

The system shall be designed, inspected, tested and approved to provide occupant notification audibility levels of 15 dBA over ambient conditions.

The system shall support CO and security detection devices with appropriate independent annunciation and signal processing.

The system shall interface with other building systems as required by the fire codes.

The system shall transmit required signals to a central monitoring station.

FIRE ALARM

System panels and annunciators shall utilize configurable message routing and selective event messaging to direct event information only to the required system displays and printers as determined by the event type and location.

The existing fire alarm shall be networked with new control panels, power supplies, audio/visual indicating appliances (wiring may be reused if warranted as new and will work with new system if electrically sound) and related equipment shall be installed as specified.

The system shall be designed, inspected, tested and approved to provide occupant notification audibility levels of 15 dBA over ambient conditions.

The system shall support CO and security detection devices with appropriate independent annunciation and signal processing.

The system shall interface with other building systems as required by the fire codes.

The system shall transmit required signals to a central monitoring station.

System panels and annunciators shall utilize configurable message routing and selective event messaging to direct event information only to the required system displays and printers as determined by the event type and location.

The existing fire alarm shall be networked with new control panels, power supplies, audio/visual indicating appliances (wiring may be reused if warranted as new and will work with new system if electrically sound) and related equipment shall be installed as specified.

1.4.2. Fire Alarm Performance

1.4.2.1. General Requirements

A. Comply with the provisions of NFPA 72 and the operational requirements of this specification.

B. The system shall identify all off normal conditions and log each condition into the system as an event.

1. The system shall automatically display on the control panel Liquid Crystal Display (LCD) the first (oldest) event of the highest priority by type and the most recent event. The event priority shall be alarm, supervisory, trouble, and monitor.
2. The system shall utilize four sequential event queues.
3. For each event, the display shall include the event number, the type of event, a 40 character custom user description, and acknowledgement status.
4. The user shall be able to review the event queue using the rotary controller.
5. New alarm, supervisory, or trouble events shall sound a distinct, silenceable audible signal at the control panel.
6. The LCD shall show the system time and the number of active and disabled points in the system, and the number of events in the alarm, supervisory, trouble and monitor queues.
7. **Specific input/output devices shall operate in accordance with the alarm, supervisory, trouble, monitor sections that follow and the input/output matrix.**

C. All critical systems, sub-systems and circuits shall be monitored for integrity. System faults shall be annunciated.

D. Strobes shall be synchronized on each floor.

E. Batteries shall be sized to support the system for 24 Hrs. of standby operation followed by 5 minutes of alarm operation at the end of the 24-Hour period.

F. Off premises reporting of the loss of AC mains power to any system component shall be automatically delayed for a period of time acceptable to the AHJ to reduce traffic at the central monitoring station due to wide-area power failures.

G. The system shall provide configurable service groups to facilitate "one man" testing of the system based on the physical layout of the building. Each service group shall be capable of supporting any combination of system devices, independent of the circuit on which they are installed. Systems that disable entire circuits, circuits serving multiple floors or fire zones for testing shall not be considered as equal. Activated devices on a service group shall be capable of initiating alternative system test responses to facilitate system maintenance and minimizing occupant disturbances while in test mode.

H. Event processing and display shall be prioritized as follows:
   1. Fire alarms
   2. Supervisory events
   3. Trouble events
   4. Monitor events

1.4.2.2. Alarm Operation

Upon the **alarm activation** of any area smoke detector, heat detector, manual pull station, sprinkler waterflow, duct smoke detector, the following functions shall automatically occur:

The system shall remain in the alarm mode until all initiating devices are reset and the fire alarm panel is manually reset and restored to normal.
The internal audible device shall sound at the control panel or command center.
Display the alarm event on the graphical workstation.
The LCD display shall indicate all applicable information associated with the alarm condition including; zone, device type, device location and time/date.
All system activity/events shall be documented on the system printer and logged into system history.
Any remote or local annunciator LCD/LED's associated with the alarm zone shall be illuminated.

Activate notification audible appliances on general alarm evacuation.
Activate visual strobes notification appliances on general alarm evacuation. The visual strobe shall continue to flash until the system has been reset. The visual strobe shall stop operating when the "Alarm Silence" is pressed.
Or

Audible alarm signals shall be silenced from the fire alarm control panel by an alarm silence switch.
Visual signals shall be programmable to flash until system reset or alarm silencing, as required.

The notification appliance dedicated to sprinkler system water flow alarm shall not be silenced while the sprinkler system is flowing at a rate of flow equal to a single head.

Transmit signal to the building automation system.
Transmit signal to the central monitoring station with point identification.
Activate automatic smoke control sequences.
Activate emergency lighting control.
Activate emergency shutoffs for gas and fuel supplies.
All automatic events programmed to the alarm point shall be executed and the associated outputs activated.

1. Activation of elevator lobby or elevator equipment room smoke detectors shall initiate recall of the bank of elevators to the 1st floor and lockout the elevator controls. Activation of the first floor elevator lobby smoke detector shall recall shall be to an alternate floor, and lockout the elevator controls.
2. Activation of heat detectors in elevator shafts and machine rooms shall activate the elevator power shunt trip circuit breaker.

All stairwell/exit doors shall unlock throughout the building.
All self-closing fire/smoke doors held open shall be released.
Transmit alarm text messages to "alpha-numerical" display pagers.

Direct the closed-circuit TV cameras to the alarm event and start video recording.

1.4.2.3. Supervisory Operation

Upon **supervisory activation** of any sprinkler valve supervisory switch, waterflow, CO detector, fire pump off-normal, clean agent fire suppression system trouble, elevator shunt trip supervision, the following functions shall automatically occur:
The internal supervisory event audible device shall sound at the control panel.
Display the event on the graphical workstation and display a pictorial image.
The LCD display shall indicate all applicable information associated with the supervisory condition including; zone, device type, device location and time/date.
All system activity/events shall be documented on the system printer and logged to system history.
Any remote or local annunciator LCD/LED's associated with the supervisory zone shall be illuminated.
Transmit signal to the central monitoring station with point identification.

1.4.2.4. Trouble Operation

Upon activation of a **trouble condition** or signal from any device or internal system integrity monitoring function on the system, the following functions shall automatically occur:

The internal panel audible device shall sound at the control panel.
Display the event on the graphical workstation and display a pictorial image.
The LCD keypad display shall indicate all applicable information associated with the trouble condition including; zone, device type, device location and time/date.

Trouble conditions that have been restored to normal shall be automatically removed from the trouble display queue and not require operator intervention. This feature shall be software selectable and shall not prevent the logging of trouble events to the historical file.

All system activity/events shall be documented on the system printer and logged to system history.

Any remote or local annunciator LCD/LED's associated with the trouble zone shall be illuminated.

Transmit a trouble signal to the central monitoring station with point identification.

1.4.2.5. Monitor Operation

Upon activation of any device connected to a **monitor circuit**, the following functions shall automatically occur:

The LCD display shall indicate all applicable information associated with the status condition including; zone, device type, device location and time/date.

All system activity/events shall be documented on the system printer and logged to system history.
Any remote or local annunciator LCD/LED's associated with the monitor circuit shall be illuminated.

1.5. Submittals
1.6.
1.6.1. Submittal General

A. The contractor shall not purchase any equipment for the specified system until the owner has approved the project submittals in their entirety and has returned them to the contractor.

B. Approved submittals allow the contractor to proceed with the installation and shall not be construed to mean that the contractor has satisfied the requirements of these specifications.

C. Each submittal shall include a detailed list of variations that the submittal may have from the requirements of the contract documents.

D. The contractor shall provide specific notation on each shop drawing, sample, data sheet, installation manual, etc. submitted for review and approval, of each variation.

E. Any conflicts in the contract documents and/or with Authority Having Jurisdiction (AHJ) requirements shall be submitted to the owner in writing 7 days prior to bid.

F. **Submittals shall be approved by authorities having jurisdiction prior to submitting them to the Agency Project Manager.**

1.6.2. Product Data

System components proposed in this specification shall be UL listed to operate together as a system. The supplier shall provide evidence, with his submittal, of listings of all proposed equipment and combinations of equipment.

For each product submitted provide the following information:

1. Manufacturer's catalog data, to include material description, agency approvals, operating characteristics, electrical characteristics, dimensions, mounting requirements and accessories.

   Product data sheets for system components shall be highlighted to indicate the specific products, features, or functions required to meet this specification.

   Alternate or as-equal products submitted under this contract shall provide a detailed line-by-line comparison of how the submitted product meets, exceeds, or does not comply with this specification.

2. Manufacturer's product installation sheets: A copy of the documentation that is required to be shipped with all listed products by UL.

1.6.3. Design Calculations

Battery Capacity

Provide battery capacity calculations for each power supply that uses batteries for secondary power. Identify all loads. Identify any loads shed during alarm operation. Use the manufacturer's recommended methods and/or forms.

24 VDC Notification Appliance Circuits

For each 24VDC NAC, provide worst case voltage drop calculations. The load shall be treated as a lump sum at the end of the circuit. *Worst case power supply terminal voltage shall include all applicable internal power supply losses.* Using 85% of nominal circuit voltage (20.4VDC) shall not be accepted as lowest terminal voltage without manufacturer's published documentation stating there are no internal losses in the power supply.

Fiber Optic Circuits

Provide optical fiber loss (budget) calculations per segment of optical fiber. Fiber loss per segment shall not exceed 80% of equipment manufacturer's permitted loss.

1.6.4. Shop Drawings

Submit for approval three (3) sets of shop drawings to the consulting engineer for review and comment. Drawings shall be either D-size or E-size blue line drawings and of a sufficient resolution to be completely read. Drawing sets shall be bound. Additional copies may be required at no additional cost to the project.

Contained in the title block of each drawing shall be symbol legends with device counts, wire tag legends, circuit schedules for all addressable and notification appliance circuits, the project name/address, and a drawing description which corresponds to that indicated in the drawing index on the coversheet drawing. A section of each drawing title block shall be reserved for revision numbers and notes.

Shop drawings shall meet the following requirements:

1. Shop drawings shall be prepared by persons with the following qualifications:
    a. Trained and certified by the manufacturer of the submitted equipment in fire-alarm system design.
    b. NICET-certified fire-alarm technician, Level III minimum or West Virginia registered Professional Engineer.
2. **Coversheet** with project name, address and drawing index.
3. **General notes** drawing with peripheral device backbox size information, part numbers, device mounting height information, and the names, addresses, point of contact, and telephone numbers of all contract project team members.

4. Provide device **floor plans** for all areas served by the fire alarm system. Floor plans shall indicate accurate locations for all control and peripheral devices. Drawings shall be NO LESS THAN 1/8-INCH SCALE. If individual floors need to be segmented to accommodate the 1/8" scale requirements, KEY PLANS and BREAK-LINES shall be provided on the plans in an orderly and professional manner.

    - All addressable devices shall be shown. Coordinate the device address with the same device shown on the riser diagram.
    - Identify all notification appliances with a circuit and item number. Coordinate the circuit and item number with the same device shown on the riser diagram.

5. Device **riser diagram**, which individually depict all control panels, annunciators, addressable devices, and notification appliances. Shall include a specific, proposed device description above each addressable device. Shall include a specific, discrete device address that corresponds to addresses shown on the floor plans. Drawings shall provide wire specifications, and wire identification for all conductors depicted on the riser diagram. All circuits shall have identifiers that shall correspond with those required on the control panel and floor plan drawings. End-of-line resistors (and values) shall be depicted.

6. Provide typical **device wiring diagrams** that show all system components, and the respective field wiring. Wire type, gauge, and jacket shall be indicated. When an addressable module is used in multiple configurations for monitoring or controlling equipment, provide a drawing for each application. End-of-line resistors (and values) shall be shown.

7. Provide a fire alarm system **function matrix** that illustrates alarm input/out events in association with initiation devices. Matrix summary shall include system supervisory and trouble output functions.

8. **System Calculations** as detailed elsewhere in this specification.

Upon receipt of approved drawings from the Authority Having Jurisdiction, the supplier shall immediately forward two sets of drawings to the owner. These drawings shall either be stamped approved or a copy of the letter stating approval shall be included.

1.6.5. Closeout

Two (2) copies of the following documents shall be delivered to the building owner's representative at the time of system acceptance.

Project specific operating and maintenance manuals covering the system as installed. The manuals shall contain a description of the system architecture, inputs, notification signaling, auxiliary functions, annunciation, sequence of operations, expansion capability, application considerations and limitations. A generic instruction and operation manual shall not be acceptable.

Technical literature (manufacturer's data sheets and installation manuals/instructions) for all parts of the system, including control panels, smoke detectors, batteries, manual stations, alarm notification appliances, power supplies, and remote alarm transmission means.

Software and Firmware Operational Documentation:

THE END-USER SHALL RETAIN COMPLETE RIGHTS AND OWNERSHIP TO ALL SITE-SPECIFIC SOFTWARE RUNNING IN THE SYSTEM. The fire alarm equipment supplier shall provide hard and soft copies of the software database to the end-user at the end of the warranty period. The database provided shall be useable by any authorized and certified distributor of the product line, and shall include all applicable passwords necessary for total and unrestricted use and modification of the database.

Drawings

Provide "As Built" drawings of record of all the shop drawings used in the installation of the system.

Refer to the Submittals - Shop Drawings section of this specification for drawing requirements.

Record of Completion

System supplier and contractor shall provide a certified test report to verify that the system and all components functioned properly and as intended.
A filled out Record of Completion similar to NFPA 72, 2007 edition figure 4.5.2.1 shall be provided.

Warranty

Provide copies of the warranty documentation as detailed in the Warranty section of this specification.

Service Organization

Provide the name, address and telephone of the authorized factory representative.

Training

Conduct the required training as detailed in the Startup and Commissioning - Training section of this specification.

1.7. Quality Assurance

1.7.1. Qualifications of Supplier

The system supplier shall have a minimum of 10 years of experience in distribution and service of the proposed equipment brand.

The supplier shall have successfully designed and installed similar system fire detection, evacuation voice and visual signaling control components on a previous project of comparable scope, size and complexity.

The supplier shall have in-house engineering and project management capability consistent with the requirements of this project. The project shall be supervised by personnel certified by NICET as fire alarm Level IV technicians.

The supplier shall employ qualified and manufacturer certified system designers to perform the detailed engineering design, system calculations, for all the system equipment and programming.

The supplier shall produce all panel and equipment drawings, submittals, and operating manuals, as detailed elsewhere in this specification.

The supplier shall be responsible for providing qualified on site representative(s) for coordination of system installation, and final system testing and commissioning in accordance with these specifications.

1.7.2. Qualifications of Installer

Before commencing work, submit evidence showing that the equipment installer has successfully installed systems of the similar scope, type and design as specified.

The contractor/installer shall submit copies of all required Licenses and Bonds as required in the State having jurisdiction.

The contractor/installer shall be responsible for retaining qualified and authorized representative(s) of the system manufacturer (The Supplier) specified for detailed system design and documentation, coordination of system installation requirements, and final system testing and commissioning in accordance with these specifications.

The contractor/installer shall employ on staff a minimum of one NICET level II technician or a professional engineer, registered in the State of the installation.

Contractors unable to comply with the provisions of Qualification of Installers shall present proof of engaging the services of a subcontractor qualified to furnish the required services.

1.8. Handling

1.8.1. Delivery and Storage

Receiving

The Contractor shall be responsible for all receiving, handling, and storage of his materials at the job site.

Overnight storage of materials is limited to the assigned storage area. Materials brought to the work area shall be installed the same day, or returned to the assigned storage area unless previously approved by the Owner.

The Contractor shall remove rubbish and debris resulting from his work on a daily basis. Rubbish not removed by the Contractor will be removed by the Owner and back-charged to the Contractor.

1.9. Project Conditions

1.9.1. Responsibility

It shall be the contractor's responsibility to inspect the job site and become familiar with the conditions under which the work will be performed.

A pre-bid meeting will be held to familiarize the contractors with the project. Failure to attend the pre-bid meeting may be considered cause for rejection of the contractor's bid.

1.10. Startup and Commissioning

1.10.1. Test and Inspection – Fire

A. Testing, general

1. In addition to tests required in this section, the contractor shall perform all electrical and mechanical tests required by the equipment manufacturer, the architect and the authority having jurisdiction.

2. The contractor shall perform all testing in occupied facilities at times of day that present the lowest impact and disruption to business and activities. Coordinate all testing in occupied buildings with the building owner's representative to assure that fire alarm system testing does not interrupt operations. This may require extensive after hours work to perform such testing.

3. All equipment, instruments, tools and labor required to conduct the system tests shall be provided by the installing contractor. At a minimum, the following equipment shall be made available testing:

   a. Ladders and scaffolds as required to reach all installed equipment.

   b. Meters for reading voltage, current and resistance.

   c. Two-way communication devices

   d. Simulated smoke, heat-producing devices for heat detectors, extension poles for introducing smoke into detectors, as needed.

   e. Manufacturer's instruments to measure air flow through duct smoke detectors.

   f. Decibel meter.

   g. Status and diagnostic software and PC.

B. All testing shall utilize a written acceptance test plan for testing the system components and operation in accordance with NFPA 72 and this specification. The contractor shall be responsible for the performance of the acceptance test plan, demonstrating the function of the system and verifying the correct operation of all system components, circuits, and system programming.

   1. The systems operation matrix created by the equipment supplier shall be used to identify each alarm input and verify all associated output functions.

C. The system test plan shall include but not be limited to the following:

   1. Visually inspect all wiring.

   2. Verify the absence of unwanted voltages between circuit conductors and ground. The tests shall be accomplished at the preliminary test with results available at the final acceptance test.

   3. System wiring shall be tested to demonstrate correct system response for the following conditions:

      a. Open, shorted and grounded signal line circuits.

      b. Open, shorted and grounded notification appliance circuits.

D. Testing, general

1. In addition to tests required in this section, the contractor shall perform all electrical and mechanical tests required by the equipment manufacturer, the architect and the authority having jurisdiction.

2. The contractor shall perform all testing in occupied facilities at times of day that present the lowest impact and disruption to business and activities. Coordinate all testing in occupied buildings with the building owner's representative to assure that fire alarm system testing does not interrupt operations. This may require extensive after hours work to perform such testing.

3. All equipment, instruments, tools and labor required to conduct the system tests shall be provided by the installing contractor. At a minimum, the following equipment shall be made available testing:

   a. Ladders and scaffolds as required to reach all installed equipment.

   b. Meters for reading voltage, current and resistance.

   c. Two-way communication devices

   d. Simulated smoke, heat-producing devices for heat detectors, extension poles for introducing smoke into detectors, as needed.

   e. Manufacturer's instruments to measure air flow through duct smoke detectors.

   f. Decibel meter.

   g. Status and diagnostic software and PC.

E. All testing shall utilize a written acceptance test plan for testing the system components and operation in accordance with NFPA 72 and this specification. The contractor shall be responsible for the performance of the acceptance test plan, demonstrating the function of the system and verifying the correct operation of all system components, circuits, and system programming.

1. The systems operation matrix created by the equipment supplier shall be used to identify each alarm input and verify all associated output functions.

F. The system test plan shall include but not be limited to the following:

1. Visually inspect all wiring.

2. Verify the absence of unwanted voltages between circuit conductors and ground. The tests shall be accomplished at the preliminary test with results available at the final acceptance test.

3. System wiring shall be tested to demonstrate correct system response for the following conditions:

   a. Open, shorted and grounded signal line circuits.
   b. Open, shorted and grounded notification appliance circuits.

G. System indications shall be demonstrated as follows:
1. Correct message content for each alarm input at all system displays.
2. Correct annunciator light for each alarm input at each graphic display.
3. Correct history logging for all system activity.
4. Correct sensitivity for all smoke detection devices. The use of system generated sensitivity reports is acceptable in meeting this requirement.
   a. Correct signals sent to the Central Monitoring Station.
5. Notification appliances shall be demonstrated as follows:
   a. All alarm notification appliances actuate as programmed
   b. Audibility and visibility at required levels. Measure sound levels at 5 ft. above finished floor with the room doors closed.
   c. For 24VDC NACS, measure and record the voltage at the most remote appliance on each notification appliance circuit, while operating.
6. System control functions shall be demonstrated as follows:
   a. In accordance with the system operation matrix.
7. System off premises reporting functions shall be demonstrated as follows:
   a. Correct information received for each alarm and trouble event
8. Secondary power supply (battery) capacity capabilities shall be demonstrated as follows:
   a. System battery voltages and charging currents shall be measured and recorded at the fire alarm control panels.
   b. System primary power shall be disconnected for 24 hours. At the end of that period, an alarm condition shall be created and the system shall perform as specified for a period of 5 minutes.
   c. System primary power shall be restored for forty-eight (48) hours.
   d. System battery voltages and charging currents shall again be measured and recorded at the fire alarm control panels.
9. Verify the "As Built" record drawings are accurate.

Preliminary Testing

Conduct preliminary tests to ensure that all devices and circuits are functioning properly. Tests shall meet the requirements of the written test plan. Correct any deficiencies, omissions or anomalies and retest the affected devices to assure proper function per the specification.

Acceptance Testing

1. A final acceptance test shall not be scheduled until the system manuals are provided to and approved by the owner and the following are provided at the job site:
   (1) "As Built" record drawings of the system as actually installed

(2) A copy of the system operation matrix.

2. The acceptance inspector shall use the system "As Built" record drawings in combination with the system operation matrix and the written acceptance test plan during the testing to verify system operation.

3. Should the system not perform to the above criteria it shall not be accepted and the contractor shall correct all deficiencies and shall re-test the system at contractor's expense in the presence of the architect using the same test criteria.

4. The building owner's representative shall witness the final tests.

5. The central monitoring station and/or fire department shall be notified before final test in accordance with local requirements.

6. Operate every installed device to verify proper operation and correct annunciation at control panel.

7. Open signaling line circuits and notification appliance circuits in at least 2 locations to verify presence of supervision.

Test Reports

A "Fire Alarm System Record of Completion" per the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in shall be prepared by the Contractor. Submit three (3) copies to the Architect. The report shall include, but not be limited to:

A list of all equipment installed and wired.

Certification that all equipment is properly installed and functions and conforms with these specifications.

Sensitivity settings for each ionization and photoelectric detector as measured in place with the HVAC system operating.

Technician's name, certificate number and date.

1.10.2. Training

The system supplier shall schedule and present a minimum of eight (8) hours of formal site specific instruction for the building owner, detailing the proper operation and maintenance of the installed system.

The instruction shall be presented in an organized and professional manner by a person factory trained in the operation and maintenance of the equipment and who is also thoroughly familiar with the installation.

The instruction shall cover the schedule of maintenance required by NFPA 72 and any additional maintenance recommended by the system manufacturer.

Copies of all training aids, presentations, etc. shall be left with the owner.

1.11. Maintenance

1.11.1. Spare Parts

The contractor shall furnish the following extra material that matches the products installed. Spares shall be packaged with protective covering for storage and identified with labels describing contents.

Automatic detection devices - Two (2) percent of the installed quantity of each type, no less than one piece.

Manual fire alarm stations - Two (2) percent of the installed quantity of each type, no less than one piece.

Audible and visible devices - One (1) percent of the installed quantity of each type, but no less than two (2) devices.

Keys - A minimum of three (3) sets of keys shall be provided and appropriately identified.

2. Part 2 - Products

2.1. Fire Alarm Panel

2.1.1. General - Fire

Overview

All materials, equipment, accessories, devices and other facilities and appurtenances covered by these specifications or noted on the drawings shall be new, best suited for the intended use and shall conform to applicable and recognized standards for their use, and supplied by a single manufacturer. Should any equipment provided under this specification be supplied by a different manufacturer, that equipment shall be recognized compatible by BOTH manufacturers and listed as such as required by Underwriters' Laboratories.

The fire alarm control panel(s) shall be a multi-processor based networked system designed specifically for fire, one-way emergency audio communications, smoke control, and guard patrol applications. The control panel shall be listed and approved for the application standard(s) as listed in the References section of this specification.

The control panel shall include all required hardware, software and site specific system programming to provide a complete and operational system. The control panel(s) shall be designed such that interactions between any applications can be configured, and modified using software provided by the manufacturer. The control panel(s) operational priority shall assure that life safety takes precedence among the activities coordinated by the control panel.

The operating controls shall be located in a steel enclosure behind a locked door with viewing window. All control modules shall be labeled, and all zone locations shall be identified. All panel modules shall be placement supervised for and signal a trouble if damaged or removed.

System Features
Each control panel shall include the following capabilities:

Supervision of the system electronics, wiring, detection devices and software
Up to 1500 analog/addressable input/output points
Network connections with up to 8 other control panels.
Support multiple dialers (DACTs) and modems
An RS-232 serial communication port
An internal audible signal with different patterns to distinguish between alarm, supervisory, trouble and monitor events
Support four 24 VDC and eight channel Audio NACs
NACs
User configurable switches and LED indicators to support auxiliary functions
Log up to 1100 chronological events
The ability to download all applications and firmware from the configuration computer at a single location on the fire network
A real-time clock for time stamps and timed event control
Electronic addressing of intelligent addressable devices
Provide an independent hardware watchdog to supervise software and CPU operation
"Dry" alarm, trouble and supervisory relay contacts
An optional 10/100 Base-T Ethernet port for network programming, diagnostics and monitoring.
Central Station Communication, e-mail, text messaging and Graphical User Interface connections.
Control panel modules shall plug in to a chassis assembly for ease of maintenance
Field wiring shall connect to the panel using removable connectors

User Oriented Features
Each control panel shall include the following user oriented features:

An LCD user interface control/display that shall annunciate and control system functions.
Provide discreet system control switches for reset, alarm silence, panel silence, and acknowledge.
A Rotary Control shall be provided to simplify scrolling through the display and entering data.
A "lamp test" feature shall verify operation of all visual indicators on the panel.
An authorized user shall have the ability to operate or modify system functions including system time, date, passwords, holiday dates, restart the system and clear control panel event history file.
An authorized user shall have the ability to disable/enable devices, zones, actions, timers and sequences.
An authorized user shall have the ability to activate/restore outputs, actions, sequences, and simulate detector smoke levels.
An authorized user shall have the ability to enter time and date, reconfigure an external port for download programming, initiate programming and change passwords.

An authorized user shall have the ability to test the functions of the installed system.
Service groups shall facilitate one-man walk testing. Service/test groups shall be capable of being configured with any combination of addressable devices, independent of SLC wiring. It shall be possible to program alternate device responses when the device's service group is active. Devices not in an active service group shall process all events normally.

Provide internal system diagnostics and maintenance user interface controls to display/report the power, communication, and general status of specific panel components, detectors, and modules.

SLC loop controller diagnostics shall identify common alarm, trouble, ground fault, Class A fault, and map faults. Map faults include wire changes, device type changes by location, device additions/deletions and conventional open, short, and ground conditions. Ground faults on the supervised circuit wiring of remote addressable modules shall be identified by device address.

An authorized user shall have the ability to generate a report history for alarm, supervisory, monitor, trouble, smoke verification, watchdog, and restore activity.

System reports shall provide detailed description of the status of system parameters for corrective action or for preventative maintenance programs. Reports shall be displayed by the operator interface or capable of being printed on a printer.

An authorized user shall have the ability to display/report the condition of addressable analog detectors. Reports shall include device address, device type, percent obscuration, and maintenance indication. The maintenance indication shall provide the user with a measure of contamination of a device upon which cleaning decisions can be made.

Programmability
A Windows-based Configuration Utility (CU) shall be used to create the site-specific system programming. The utility shall facilitate programming of any input point to any output point. The utility shall allow customization of fundamental system operations using initiating events to start actions, timers, sequences and logical algorithms.

- Zoning of initiation devices.
- Initiation of events by time of day, day of week, day of year.
- Initiation of events by matrix groups (X-Y coordinate relationships) for releasing systems.
  Initiation of events using OR, AND, NOT and counting functions.
  Prioritizing system events.
- Programmable activation of detector sounder bases by detector, groups of bases, or all bases.
- Directing selected device messages to specific panel annunciators
- Detector sensitivity selection by time of day
- Support of 256 Central Monitoring Station accounts and directing selected device messages to any one of ten Central Monitoring Stations.

The configuration utility shall time and date stamp all changes to the site-specific program, and shall facilitate program versioning and shall store all previous program version data. The utility shall provide a compare feature to identify the differences between different versions of the site-specific program.

The configuration utility shall be capable of generating reports which detail the configurations of all fire alarm panels, addressable devices and their configuration settings including generating electrical maps of the addressable device SLCs.

The configuration utility shall support the use of bar code readers to expedite electronic addressing and custom programming functions.

Please refer to the *General, System Description Section* for this project's site-specific system operating requirements.

The fire alarm control panel shall be an EDWARDS EST3X provided by Electronic Specialty Company, Dunbar, WV 304-766-6277. The operating controls shall be located behind locked door with viewing window.

2.1.2. Power Supply

System power supply(s) shall be a high efficiency switched mode design providing four (4) supervised power limited 24 VDC output circuits as required by the panel and external loads fed by the panel. Initial power supply loading shall not exceed 80% of power supply capacity in order to allow for future system expansion.

Each system power supply shall be individually supervised. Power supply trouble signals shall identify the specific supply and the nature of the trouble condition.

Upon failure of normal (AC) power, the affected portion(s) of the system shall automatically switch over to secondary power without losing any system functionality. When powered from batteries, the power supply shall employ "Voltage Boost" technology to insure that output voltage never drops below 22.5 VDC regardless of battery voltage.

All system power supplies shall be capable of recharging their associated batteries, from a fully discharged condition to a capacity sufficient to allow the system to perform consistent with the requirements of this section, in 48 hours maximum.

All standby batteries shall be continuously monitored by the power supply. The power supply shall be able to perform an automatic test of batteries and indicate a trouble condition if the batteries fall outside a predetermined range. Power supplies shall incorporate the ability to adjust the charge rate of batteries based on ambient temperatures. The power supply shall automatically disconnect the battery before low voltage damages the battery. Low battery and disconnection of battery power supply conditions shall immediately annunciated as battery trouble.

Batteries shall utilize sealed lead acid chemistry. Initial battery capacity shall provide 125% of calculated capacity requirements in order to allow for future system expansion.

All AC power connections shall be to the building's designated emergency electrical power circuit and shall meet the requirements of NFPA 70 and NFPA 72. The power circuit disconnect means shall be clearly labeled FIRE ALARM CIRCUIT CONTROL and shall have a red marking. The location of the circuit disconnect shall be labeled permanently inside the each control panel the disconnect serves.

The power supply shall be an EDWARDS PS10-4B.

2.1.3. User Interface

2.1.3.1. Panel LCD and Common Controls

The system shall be designed and equipped to receive, monitor, and annunciate signals from devices and circuits installed throughout the facility.

Each fire alarm control panel (system node) shall be capable of supporting a backlit LCD display. The display on each system node shall be configurable to *display* the status of any and/or all combinations of all alarm, supervisory, trouble, monitor, or service group event messages on the network. Each LCD display on the system shall be capable of being programmed to allow *control* functions of any combination of nodes on the entire network.

The LCD display shall provide separate alarm, trouble, supervisory, and monitor event queues of to minimize operator confusion. Receipt of alarm, trouble, and supervisory signals shall activate integral audible devices at the control panel(s) and at each remote annunciation device. The integral audible devices shall produce a sound output upon activation of not less than 85 dBA at 10 feet.

The LCD display shall contain the following system status indicators:

- System Power Indicator
- System CPU Fail Indicator
- Ground Fault Indicator
- Disabled Points Indicator
- System Common Alarm Indicator
- System Common Trouble Indicator
- System Common Supervisory Indicator

The LCD display shall contain the following system switch/indicators:

- System Reset Switch with Indicator
- System Alarm Silence Switch with Indicator
- System Panel Silence Switch with Indicator
- Acknowledge Switch with Indicator

The LCD display shall contain the following system function control:

- Rotary Controller/Switch - to scroll through the display and enter data.

960 Character Backlit Liquid Crystal Text Display

The user interface shall provide a backlit LCD that will allow custom event messages of up to 42 characters. The interface shall provide a minimum of 24 lines by 40 characters and provide the emergency user hands free viewing of the first seven (7) and last highest priority events. The last highest priority event shall always display and update automatically. Events shall be automatically placed in one of four queues: alarm, trouble, supervisory and monitor. The total number of active events by type shall be displayed. Visual indication shall be provided of any event type that has not been acknowledged. It shall be possible to customize the designation of all user interface LEDs and Switches for local language requirements.

Instructional text messages support a maximum of 2,000 characters each.

The system 960 character LCD display shall be an EDWARDS 4X-LCD

2.1.3.2. LEDs and Switches

A modular series of switches and LED indicators shall be available to customize the fire alarm control panel operation in accordance with this specification. All LED and switch functions shall be software programmable. Switches shall be configurable for momentary, maintained, toggle, or "exclusive or" operation as required by the application. LEDs shall be configurable for slow flash, fast flash or steady operation. LED/Switch modules shall be capable of mounting in any available fire panel module position. All LED/Switch modules shall be supervised. LEDs shall be available in a variety of colors to facilitate identification from a distance. The LED/Switch modules shall provide ample room for custom function text labels under a protective membrane.

The LED/Switch modules shall be EDWARDS 3-24x series, 3-12xx series, and 3-6/3S1xxx series devices.

2.1.3.3. Reports

The system shall provide the operator with system reports that give detailed description of the status of system parameters for corrective action, or for preventative maintenance programs. The system shall provide these reports via the main LCD, and shall be capable of being printed on any system printer.

The system shall provide a report that gives a sensitivity listing of all detectors that have less than 80% environmental compensation remaining. The system shall provide a report that provides a sensitivity (% Obscuration per foot) listing of any particular detector.

When addressable CO detectors are installed, performing a "sensitivity" check from the panel shall report the approximate number months of sensor life remaining.

The system shall provide a report that gives a listing of the sensitivity of all of the detectors on any given panel in the system, or any given analog/addressable device loop within any given panel.

The system shall provide a report that gives a chronological listing of at least the last 1000 system events.

The system shall provide a listing of all of the firmware revision listings for all of the installed components in the system.

2.1.4. Signaling Line Circuits

2.1.4.1. Fire Network Wiring

The network inter panel wiring shall be Class A. The network media shall be copper except where fiber optic cable is specified on the drawings.

The system supplied under this specification shall utilize node to node, direct wired peer-to-peer network operations. The system shall utilize independently addressed, smoke detectors, heat detectors and input/output modules as described in this specification. The peer-to-peer network shall contain multiple nodes consisting of the command center, main controller, remote control panels, LCD/LED annunciation nodes, and workstations. Each node is an equal, active functional node of the network, which is capable of making all local decisions and generating network tasks to other nodes in the event of node failure or communications failure between nodes.

When a network is wired in a Class B configuration, a single break or short on the network wiring isolates the system into two groups of panels. Each group continues to function as a peer-to-peer network working with their combined databases. When wired using a Class A configuration, a single break or short on the network wiring causes the system to isolate the fault, and network communication continues uninterrupted, without any loss of function. Should multiple wiring faults occur, the network re-configures into many sub-networks and continues to respond to alarm events from every panel that can transmit and receive network messages.

The copper network interface shall be an EDWARDS 3X-NET(8) series.

2.1.4.2. EST3X System

The signaling line circuit connecting panels/nodes to intelligent addressable devices including, detectors, monitor modules, control modules, isolation modules, intrusion detection modules and notification circuit modules shall be Class B (style 4). All signaling line circuits shall be supervised and power limited.

When the addressable devices on a signaling line circuit cover more than one designated fire/smoke compartment, a wire-to-wire short on the circuit shall not affect the operation of the addressable devices in other fire/smoke compartments.

Each SLC shall support 125 addressable detector addresses and 125 module addresses. The SLC shall support 100% of all addressable devices in alarm and provide support for a 100% compliment of detector isolator bases. Initial circuit loading shall not exceed 80% in order to allow for future system expansion.

T-taps (branching) shall be permitted on Class B circuits. Where possible, the devices installed at the end of each branch should be easily accessible for troubleshooting, e.g. a pull station at normal mounting height.

The addressable device SLC module shall be UL Listed for use with code compliant, electrically sound existing wiring.

Each intelligent addressable device shall transmit information about its location with respect to other devices on the circuit. This information shall be used to create an "As-Built" wiring diagram as well as provide enhanced supervision of a device's physical location. The device message and programmed system output function shall be associated with the device's location on the SLC circuit location and not a device address.

The SLC module shall allow replacement of "same type" devices without the need to address and reload the "location" parameters on replacement device.

The SLC/Panels shall notify the user when programmed devices are detected on the SLC circuit. The SLC/Panels shall notify the user when the wrong device type is installed at a location configured for a different device type on the SLC circuit.

The addressable device signaling line circuit module shall be an EDWARDS XAL250 series.

2.1.5. Notification Appliance Circuits

2.1.5.1. Notification Appliance Circuits

General

All notification circuits shall be supervised and power limited. Non-power limited circuits are not acceptable. All notification appliance circuits shall be Class B (Style "Y"). Initial circuit loading shall not exceed 80% in order to allow for future system expansion.

24 VDC Notification Appliance circuits

Notification appliance circuits shall utilize a "voltage boost" circuit to insure FACP terminal voltage never drops below 22.5VDC even under low battery conditions.

Notification appliance circuits shall have a minimum circuit output rating of 3 amps @ 24 VDC

24VDC NACs shall be polarized and provide both strobe synchronization and a horn silence signals on a single pair of wires.

2.1.6. Initiating Device Circuits

2.1.6.1. Initiating Device Circuits

Conventional (2-wire) initiating device circuits monitoring manual fire alarm stations, smoke and heat detectors, waterflow switches, valve supervisory switches, fire pump functions, and air pressure supervisory switches shall be Class B.

Initiating device circuits shall be configurable for latched or non-latched operation and configurable to initiate alarm, supervisory or monitor events.

End-of-line resistors for conventional initiating device circuits shall be covered with insulated tubing, terminated with ring lugs and display a UL label.

2.1.7.1. DACT

The system shall provide off premises communications capability using a Digital Alarm Communications Transmitter (DACT) for sending system events to multiple Central Monitoring Station (CMS) receivers over conventional telephone lines.

The dialer shall support up to 255 individual accounts and to send account information to eight (8) different receivers, each having a primary and secondary telephone access number. System events shall be capable of being directed to one or more receivers depending on event type or location as specified by the system design.

In the event of a fire alarm panel CPU failure during a fire alarm condition, the DACT degrade mode shall transmit a general fire alarm signal to the CMS.

The owner shall arrange for two (2) dedicated loop-start phone lines to be terminated using two RJ31X jacks within 5 ft of the main fire alarm control panel.

The DACT shall be an EDWARDS 3-MODCOM(P).

2.2. Remote Booster Power Supply

2.2.1. Remote Booster Power Supply

Install Remote NAC Power Supplies (boosters) at the locations shown on the drawings, as required, to minimize NAC voltage drops. Remote NAC power supplies shall be treated as peripheral NAC devices and shall not be considered fire alarm control units.

The NAC power supplies shall be fully enclosed in a surface mounted steel enclosure with hinged door and cylinder lock, and finished in red enamel. Door keys shall be the identical to FACP enclosure keys. The enclosure shall have factory installed mounting brackets for additional UL listed fire alarm equipment within its cabinet. Enclosures shall be sized to allow ample space for interconnection of all components and field wiring, and up to 10AH batteries. The enclosure shall have provisions for an optional tamper switch. All FACP addressable control modules required to initiate the required NAC power supply output functions shall be installed within the NAC power supply enclosure

Remote NAC power supply *input* circuits shall be configurable as Class B supervised inputs or for connection to any 6 to 45 VDC initiation source.

Remote booster power supplies shall provide four (4) synchronized Class B supervised or two (2) Class A, power limited, 24VDC filtered and regulated Notification Appliance Circuits (NACs). Each NAC output shall be configurable as a continuous 24Vdc auxiliary power output circuit. The booster power supply shall be capable of a total output of 6 amps.

The power supply NACs shall be configurable to operate independently at any one of the following rates: continuous synchronized, or 3-3-3 temporal. It shall be possible to configure the NACs to follow the main FACP NAC or activate from intelligent addressable synchronized modules. All visible NACs within the facility shall be synchronized.

Upon failure of primary AC power, the remote power supply shall automatically switch over to secondary battery power without losing any system functions. It shall be possible to delay reporting of an AC power failure for up to 6 hours. All standby batteries shall be continuously monitored by the power supply. Low battery and disconnection of battery power supply conditions shall immediately annunciated as locally as battery trouble. All power supply trouble conditions (DC power failure, ground faults, low batteries, and IDC/NAC circuit faults) shall identify the specific remote power supply affected at the main FACP. All power supply trouble conditions except loss of AC power shall report immediately. Interconnecting NAC Booster power supplies in a manner which prevents identification of an individual power supply trouble shall not be considered as an equal.

The remote booster power supply shall be capable of recharging up to 24AH batteries to 70% capacity in 24 hours maximum. Batteries provided shall be sized to meet the same power supply performance requirements as the main FACP, as detailed elsewhere in this specification.

All AC power connections shall be to the building's designated dedicated emergency electrical power circuit. The power circuit disconnect means shall be clearly labeled FIRE ALARM CIRCUIT CONTROL and shall have a red marking. The location of the circuit disconnect shall be labeled permanently inside the each remote NAC power supply the disconnect serves.

The remote NAC power supplies shall be EDWARDS model BPS/APS series devices

2.3.1.1.1. General

General Requirements for Intelligent Addressable Heat, Smoke and CO Detectors

Each detector shall contain an integral microprocessor which shall determine if the device is normal, in alarm, or has an internal trouble. The microprocessor's non-volatile memory shall permanently store the detector's serial number, device type and system address. It shall be possible to address each intelligent device without the use of switches. Devices requiring switches for addressing shall not be considered as equal. Memory shall automatically be updated with the hours of operation, last maintenance date, number of alarms and troubles, time of last alarm, and analog signal patterns for each sensing element just before the last alarm.

Each detector shall be capable of identifying up to 32 diagnostic codes. This information shall be available for system maintenance. The diagnostic code shall be stored at the detector.

Each addressable detector on the Signaling Line Circuit (SLC) shall transmit information regarding its location with respect to other intelligent devices on the signaling line circuit to the control panel, creating an "As-Built" circuit map. The circuit mapping function shall provide location supervision of all intelligent devices on the signaling line circuit. An intelligent detector's programmed system response functions shall be associated with the detector's actual *location* on the signaling line circuit and *not with the detector's address*. After system commissioning, detectors improperly installed in the wrong location shall function according to the mapped programmed response for its *location* on the circuit, not its detector's address.

A status indicator shall be provided on each detector. Flashing green shall indicate normal operation; flashing RED shall indicate the alarm state. The indicator shall be visible from any direction.

The system shall allow for changing of detector types for service replacement purposes without the need to reprogram the system. The replacement detector type shall automatically continue to operate with the same programmed sensitivity levels and functions as the detector it replaced, without the need for reprogramming. System shall display an off-normal condition until the proper detector type is installed or a change in the device type profile has been made. Detectors with addressing components in the base shall not be considered as equal.

The intelligent detectors shall be EDWARDS Signature Series devices.

Please refer to the *General, System Description* Section for site-specific detector operating requirements.

2.3.1.1.2. Photoelectric Detector

Provide analog/addressable photoelectric smoke detectors at the locations shown on the drawings.

When mounted in a sounder base, the detector shall initiate a temporal 3-3-3 when smoke is detected.

The photoelectric smoke detector shall be suitable for direct insertion into air ducts up to 3 ft (0.91m) high and 3 ft (0.91m) wide with air velocities up to4,000 ft/min. (0-25.39 m/sec) without requiring specific duct detector housings or supply tubes.

Each smoke detector shall be individually programmable to operate at any one of five (5) sensitivity settings. The detector shall also store pre-alarm and alternate pre-alarm sensitivity settings. Pre alarm sensitivity values shall be configurable in 5% increments of the alarm and alternate alarm sensitivity settings respectively. The detector shall be able to differentiate between a long term drift above the pre alarm threshold and fast rise above the threshold. The detector shall monitor the sensitivity of the smoke sensor. If the sensitivity shifts outside the UL limits, a trouble signal shall be sent to the panel. It shall be possible to automatically change the sensitivity of individual intelligent addressable smoke detectors for day and night (alternate) periods.

Each detector shall utilize an environmental compensation algorithm that shall automatically adjust for background environmental conditions such as dust, temperature, and pressure. The detector shall provide a maintenance alert signal when 80% (dirty) of the available compensation range has been used. The detector shall provide a dirty fault signal when 100% or greater compensation has been used.

The photoelectric smoke detector shall be an EDWARDS SIGA-OSD.

2.3.1.1.3. Fixed Heat Detector

Provide intelligent fixed temperature heat detectors at the locations shown on the drawings.

The detector shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time required to process an alarm. The detector shall utilize a low mass thermistor heat sensor and operate at a nominal fixed temperature alarm point rating of 135°F (57°C). The integral microprocessor shall determine if an alarm condition exists and initiate an alarm based on the analysis of thermistor data. Systems using central intelligence for alarm decisions shall not be considered as equal.

The heat detector shall be rated for ceiling installation at a minimum of 50 ft (15.24m) centers and also be suitable for wall mount applications.

The Intelligent fixed temperature detector shall be an EDWARDS SIGA-HFD.

2.3.1.1.4. Rate of Rise Detector

Provide intelligent combination fixed temperature / rate-of-rise heat detectors at the locations shown on the drawings.

The detector shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time required to process an alarm. The detector shall utilize a low mass thermistor heat sensor and operate at a nominal fixed temperature alarm point rating of 135°F and at a temperature rate-of-rise alarm point of 15°F per minute. The integral microprocessor shall determine if an alarm condition exists and initiate an alarm based on the analysis of thermistor data. Systems using central intelligence for alarm decisions shall not be considered as equal.

The heat detector shall be rated for ceiling installation at a minimum of 50 ft centers and also be suitable for wall mount applications.
The Intelligent combination fixed temperature / rate-of-rise heat detector shall an EDWARDS SIGA-HRD.

2.3.1.1.5. Standard Base

Provide standard detector bases suitable for mounting on either North American 1-gang, 3½ or 4 inch octagon box and 4 inch square box, European BESA or 1-gang box.

The bases shall utilize a twist-lock design and provide screw terminals for all field wiring connections.

The base shall contain no active electronics and support all Signature series detector types.

The base shall be capable of supporting a Remote Alarm LED Indicator. Provide remote LED alarm indicators where shown on the plans.

Removal of the respective detector shall not affect communications with other detectors.

The standard addressable detector base shall be an EDWARDS SIGA-SB4.

The remote LED indicator shall be an EDWARDS SIGA-LED

2.3.1.2. Manual Stations

2.3.1.2.1. Double Action Single Stage

Provide addressable double action, single stage fire alarm stations at the locations shown on the drawings.

The manual station shall be suitable for mounting on North American 2 ½ (64mm) deep 1-gang boxes and 1 ½ (38mm) deep 4 square boxes with 1-gang covers. If indicated as surface mounted, provide manufacturer's surface back box.

The fire alarm station shall utilize red polycarbonate construction with molded, raised-letter operating instructions in a contrasting color; shall show visible indication of operation and incorporate an internal toggle switch.

The manual pull station will have an addressable module integral to the unit.

The station reset key shall match the control panel key.

Manual pull stations that initiated an alarm condition when opening the unit are not acceptable.

The addressable double action, single stage manual fire alarm station shall be an EDWARDS SIGA-278.

2.3.1.3. Modules

2.3.1.3.1. General

Intelligent addressable multifunction modules shall be provided at the locations shown on the drawings to provide the specific system input and output functions described by the operation section and functional matrix found elsewhere in this specification.

The operation of multifunction modules shall be software configurable at the site to meet operational conditions, and may be changed at any time by download changes from the control panel. The intelligent multifunction modules shall utilize electronic addressing. Modules using rotary or DIP switches, memory chips and / or jumpers for addressing shall not be considered as equal.

Each intelligent multifunction module on the Signaling Line Circuit (SLC) shall transmit information regarding its location with respect to other intelligent devices on the signaling line circuit to the control panel, creating an "As-Built" circuit map. The circuit mapping function shall provide location supervision of all intelligent devices on the signaling line circuit. An intelligent device's programmed system response functions shall be associated with the device's actual *location* on the signaling line circuit and *not with the device's address*. After system commissioning, devices improperly installed in the wrong location shall function according to the mapped programmed response for its *location* on the circuit, not its device address.

All input /output status decisions shall be made by the microprocessor within the module. Communications with a control panel shall not be required in order for the module to identify off-normal input/output conditions. Modules with supervised input or output circuits shall be capable of identifying ground fault conditions down to the module address level.

Each module shall be equipped with two (2) diagnostic indicators; a green LED to confirm communications and a red LED to display active status. LEDs shall be visible through the finished cover plate. The module shall be capable of storing a unique serial number and up to 24 diagnostic codes, hours of operation, number of alarms and troubles, and time of last alarm in its memory which can be retrieved for troubleshooting.

Modules shall be rated for operation in the following environment:

- Temperature: 32°F to 120°F (0°C to 49°C)
- Humidity: 0-93% RH, non-condensing

Where multiple modules are mounted in close proximity to each other, plug-in modular versions of the modules and motherboards shall be available to minimize field wiring and facilitate troubleshooting.

The addressable multifunction modules shall EDWARDS Signature Series devices.

2.3.1.3.2. One Input Monitor

Provide addressable single input multifunction modules at the locations shown on the drawings.

The module shall be suitable for mounting on North American 2½" (64mm) deep 1-gang boxes and 1½" (38mm) deep 4" square boxes with 1-gang covers.

Each module shall provide one (1) supervised Class B input circuit configurable as one of the following "personalities."

1. Normally-Open Alarm Latching (for alarm initiation applications)
2. Normally-Open Alarm Delayed Latching (for waterflow switch applications)
3. Normally-Open Active Non-Latching (for limit switch and monitor applications)
4. Normally-Open Active Latching (for tamper switch and supervisory applications)

Each module shall identify and report by device address, ground faults and opens associated with its initiating device circuit, to the control panel. Single function modules or without individual ground fault detection identification capability shall not be considered as equal.

The Intelligent Single Input Module shall be an EDWARDS SIGA-CT1.

2.3.1.3.3. Two Input Monitor

Provide addressable dual input multifunction modules at the locations shown on the drawings.

The module shall be suitable for mounting on North American 2½" (64mm) deep 1-gang boxes and 1½" (38mm) deep 4" square boxes with 1-gang covers.

Each module shall provide two (2) supervised Class B input circuit configurable as one of the following "personalities."

1. Normally-Open Alarm Latching (for alarm initiation applications)
2. Normally-Open Alarm Delayed Latching (for waterflow switch applications)
3. Normally-Open Active Non-Latching (for limit switch and monitor applications)
4. Normally-Open Active Latching (for tamper switch and supervisory applications)

Each module shall identify and report by device address, ground faults and opens associated with its initiating device circuits, to the control panel. Single function modules or without individual ground fault detection identification capability shall not be considered as equal.

The Addressable Dual Input Module shall be an EDWARDS SIGA-CT2.

2.3.1.3.4. Notification Circuit

Provide addressable notification appliance circuit modules at the locations shown on the drawings.

The module shall be suitable for mounting in North American 2 ½" (64mm) deep 2-gang boxes and 1 ½" (38mm) deep 4" square boxes with 2-gang covers, or European 100mm square boxes.

The addressable NAC module shall provide one (1) supervised Class B notification appliance circuit.

The NAC control module shall be configurable for the following operations:

- 24 VDC synchronized NAC circuit, 2 amps @ 24 VDC.

The addressable notification appliance circuit module shall be an EDWARDS SIGA-CC1(S)

2.3.1.3.5. Relay

Provide addressable control relay modules at the locations shown on the drawings.

The module shall be suitable for mounting on a North American 2 ½" (64mm) deep 1-gang box or 1 ½" (38mm) deep 4" square box with 1-gang covers.

The module shall provide one (1) form C dry relay contacts rated at 24Vdc @ 2 amps (pilot duty) to control external appliances or equipment. The position of the relay contact shall be confirmed by the system firmware. The relay coil shall be magnetically latched to reduce wiring and ensure 100% of the relays on the SLC can be energized at same time.

The addressable control relay module shall be an EDWARDS SIGA-CR.

2.3.1.3.6 Isolation Module

Provide addressable isolator modules at the locations shown on the drawings.

The module shall be suitable for mounting on North American 2½" (64mm) deep 1-gang boxes and 1½" (38mm) deep 4" square boxes with 1-gang covers.

In the event the Class A signaling line circuit on which the intelligent isolator module is installed is shorted, each module shall open the SLC. Isolator modules shall then sequentially reconnect the isolated circuit segments until only the segment with the short is left out of the circuit, leaving the balance of the circuit operational.

The addressable Isolator Module shall be an EDWARDS SIGA-IM.

2.3.1.3.7. Universal Modules

Provide intelligent universal Class A/B multifunction modules at the locations shown on the drawings.

The module shall be suitable for mounting on North American 2½" (64mm) deep 2-gang boxes and 1½" (38mm) deep 4" square boxes with 2-gang covers.

Each universal module shall be configurable as one of the following "personalities."

1. Two (2) supervised Class B Normally-Open Alarm Latching. (for alarm initiation applications)
2. Two (2) supervised Class B Normally-Open Alarm Delayed Latching. (for waterflow switch applications)
3. Two (2) supervised Class B Normally-Open Active Non-Latching. (for limit switch and monitor applications)
4. Two (2) supervised Class B Normally-Open Active Latching. (for tamper switch and supervisory applications)
5. One (1) form "C" dry relay contact rated at 2 amps @ 24 Vdc. (for circuit control applications)
6. One (1) supervised Class A Normally-Open Alarm Latching. . (for alarm initiation applications)
7. One (1) supervised Class A Normally-Open Alarm Delayed Latching. . (for waterflow switch applications)
8. One (1) supervised Class A Normally-Open Active Non-Latching. (for limit switch and monitor applications)
9. One (1) supervised Class A Normally-Open Active Latching. . (for tamper switch and supervisory applications)
10. One (1) supervised Class A 2-wire Smoke Alarm Non-Verified. (for alarm initiation applications)
11. One (1) supervised Class B 2-wire Smoke Alarm Non-Verified. (for alarm initiation applications)
12. One (1) supervised Class A 2-wire Smoke Alarm Verified (for alarm initiation applications)
13. One (1) supervised Class B 2-wire Smoke Alarm Verified(for alarm initiation applications)
14. One (1) supervised Class A Signal Circuit, 24Vdc @ 2A.(for occupant notification applications)
15. One (1) supervised Class B Signal Circuit, 24Vdc @ 2A. .(for occupant notification applications)

Each module shall identify and report ground faults, opens and shorts associated with its supervised input / output circuits, by device address, to the control panel. Single function modules or without individual ground fault detection identification capability shall not be considered as equal.

The Universal Class A/B Module shall an EDWARDS SIGA-UM.

2.3.2. Notification Appliances

2.3.2.1. General

All appliances supplied for the requirements of this specification shall be UL Listed for Fire Protective Service, and shall be capable of providing the "equivalent facilitation" which is allowed under the Americans with Disabilities Act Accessibilities Guidelines (ADA(AG)), and shall be UL 1971 Listed.

All appliances shall be of the same manufacturer as the fire alarm control panel specified to insure absolute compatibility between the appliances and the control panels, and to insure that the application of the appliances are done in accordance with the single manufacturer's instructions.

Any appliances that do not meet the above requirements, and are submitted for use must show written proof of their compatibility for the purpose intended. Such proof shall be in the form of documentation from all manufacturers that clearly states that their equipment (as submitted) is 100% compatible with each other for the purpose intended.

All strobes shall be provided with lens markings oriented for wall mounting. Exterior mounted devices shall be provided with a weatherproof backbox.

All visual appliances shall be synchronized. Light and audible output levels shall be designed to meet ADA and NFPA requirements

All notification appliances shall be red unless noted otherwise on the drawings.

2.3.2.2.1. Horns

Provide low profile wall mounted horns at the locations shown on the drawings.

Low profile horns shall mount in a North American 1-gang box, and protrude less than 1" from the finished wall. The word FIRE shall be prominently displayed on the housing.

The horns shall provide an audible output of 85 dBA at 10 ft. when measured in reverberation room per UL-464, and have a selectable steady or synchronized temporal (3-3-3) output pattern.

Horn power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

The horns shall be EDWARDS Genesis G4 Series.

2.3.2.2.2. Horns-Weatherproof

Provide low profile weatherproof horns at the locations shown on the drawings.

The weatherproof horns shall mount in a North American 4" square 1 ½"deep electrical box for indoor applications and a factory supplied back box for weatherproof applications.

The horns shall be suitable for wall or ceiling mount and operate in temperatures from -40 to 151 degrees F. The word FIRE shall be prominently displayed on the housing.

The horn shall provide a user configurable high/low audible output of 89.7/85.4 dBA @ 10' for a steady output and an 84.2/81.7 4 dBA @ 10' for a temporal (3-3-3) output when measured in reverberation room per UL-464.

Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

The weatherproof horns shall be EDWARDS Genesis WG4 Series.

2.3.2.2.3. Strobes

Provide low profile wall mounted strobes at the locations shown on the drawings.

Low profile strobes shall mount in a North American 1-gang box, and protrude less than 1" from the finished wall. The word FIRE shall be prominently displayed on the housing.

The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd & 110cd. Selected strobe rating shall be visible when the strobe is in its installed position. Amber lens strobes shall be available with outputs of 12/24/60/88cd. Light shall be evenly distributed throughout the required volume using cavity and mask "FullLight" technology to prevent hot spots. Strobes using specular reflectors shall not be considered as equal.

When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules.

Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

The strobes shall be EDWARDS Genesis G4 Series.

2.3.2.2.4. Strobes-Weatherproof

Provide low profile weatherproof strobes at the locations shown on the drawings.

The weatherproof strobes shall mount in a North American 4" square 1 ½"deep electrical box for indoor applications and a factory supplied back box for weatherproof applications.

The strobe shall be suitable for wall or ceiling mount and operate in temperatures from -40 to 151 degrees F. The word FIRE shall be prominently displayed on the housing.

The strobe output shall be switch selectable as required by its application from the following available settings:

		Standard Candela Output Strobes				High Candela Output Strobes			
		Strobe Switch Position							
Listing	Location	D	C	B	A	D	C	B	A
UL 1971	Indoor	15 cd	29 cd	70 cd	87 cd	102 cd	123 cd	147 cd	161 cd
UL 1638	Outdoor (-35C)	6 cd	12 cd	28 cd	35 cd	41 cd	50 cd	60 cd	65 cd

Selected strobe rating shall be visible when the speaker-strobe is in its installed position

When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules.

Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

The weatherproof strobes shall be EDWARDS Genesis WG4 Series.

2.3.2.2.5. Horn-Strobes

Provide low profile wall mounted horn-strobes at the locations shown on the drawings.

Low profile horn-strobes shall mount in a North American 1-gang box, and protrude less than 1" from the finished wall. The word FIRE shall be prominently displayed on the housing. The word FIRE be prominently displayed on the housing.

The horn-strobe shall provide an audible output of 85 dBA at 10 ft. when measured in reverberation room per UL-464, and have a selectable steady or synchronized temporal (3-3-3) output pattern.

The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd & 110cd. Selected strobe rating shall be visible when the horn-strobe is in its installed position. Amber lens strobes shall be available with outputs of 12/24/60/88cd. Light shall be evenly distributed throughout the required volume using cavity and mask "FullLight" technology to prevent hot spots. Strobes using specular reflectors shall not be considered as equal.

When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules.

Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

The horn-strobes shall be EDWARDS Genesis G4 Series.

2.3.2.2.6. Horn-Strobes-Weatherproof

Provide low profile weatherproof horn-strobes at the locations shown on the drawings.

The weatherproof horn-strobes shall mount in a North American 4" square 1 ½"deep electrical box for indoor applications and a factory supplied back box for weatherproof applications.

The horn-strobe shall be suitable for wall or ceiling mount and operate in temperatures from -40 to 151 degrees F. The word FIRE shall be prominently displayed on the housing.

The horn-strobe shall provide a user configurable high/low audible output of 89.7/85.4 dBA @ 10' for a steady output and an 84.2/81.7 4 dBA @ 10' for a temporal (3-3-3) output when measured in reverberation room per UL-464.

The strobe output shall be switch selectable as required by its application from the following available settings:

		Standard Candela Output Horn-Strobes				High Candela Output Horn-Strobes			
		Strobe Switch Position							
Listing	Location	D	C	B	A	D	C	B	A
UL 1971	Indoor	15 cd	29 cd	70 cd	87 cd	102 cd	123 cd	147 cd	161 cd
UL 1638	Outdoor (-35C)	6 cd	12 cd	28 cd	35 cd	41 cd	50 cd	60 cd	65 cd

Selected strobe rating shall be visible when the speaker-strobe is in its installed position

When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules.

Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

The weatherproof horn-strobes shall be EDWARDS Genesis WG4 Series.

2.3.3. Accessories

2.3.3.1. Magnetic Door Holders

Provide wall mounted fail safe electromagnetic door holders as shown on the drawings.

Holders shall provide approximately 25-lbf nominal holding force when energized. The units shall have an aluminized finish and contain no moving parts. The contact plate shall have an integral nylon swivel to absorb shock and adjust to any door angle.

Flush and semi-flush models shall be designed for concealed wiring applications and shall mount on standard 1-gang electrical box. Floor mounted electromagnet units shall consist of a floor plate, gaskets, and housing. Incoming conduit shall connect directly into floor plate. The housing and gaskets shall mount on the floor plate to form a weatherproof junction box Door holders shall be listed to UL-228.

All holders shall be normally be energized, and a release shall be accomplished by interrupting the circuit.

The electromagnetic door holders shall be EDWARDS 1500 series.

2.3.3.2. Surge Suppression Devices

The system shall utilize the following electrical surge protection devices to prevent damage and nuisance alarms caused by nearby lightning strikes, stray currents, or voltage transients.

On the AC Input of all fire alarm panels, remote power supplies and HPSA sites: Transtector ACO100BWN3, Leviton OEM-120EFI, EFI HWM-120, Ditek DTK-120HW or DTK-120/240 CM. ***AC Surge protectors shall be installed at the electrical panel board feeding the fire alarm equipment.*** Excess lead length shall be trimmed. The branch circuit conductor shall be formed into a 5-10 turn 1" diameter tie-wrapped coil just downstream of the suppressor connection.

On each DC fire alarm circuit entering or leaving the building: Transtector TSP8601, Citel American B280 -24V, Edco P264 and P642, Ditek DTKxLVL series, or equal.

DC Surge protectors shall be installed on each required circuit at the point of entry into the building.

2.3.3.3. Inspection Bar Codes

A. Inspection bar codes shall be installed on all initiating devices, addressable modules, annunciators, control panels and power supplies.

B. Inspection bar codes used by the system must utilize Code 3 of 9 or other approved format, and contain a minimum of eight (8) digits that comprise a unique serial identifier within the Web-based Reporting System. There shall be no duplication of device ID numbers. The ID number shall be printed below the bar code for identification purposes.

C. Inspection bar codes shall be limited in size to no more than 2" (5cm) in width, and 3/8" (2 cm), in height and shall include a Mylar® or other protective coating to protect the bar code from fading due to sunlight or exposure.

D. Inspection bar codes shall be installed on each device in such a manner as to require that scanning of the bar code take place no further than 12" from the device during inspection.

3. Part 3 - Execution

3.1. Installation

3.1.1. General

General

A. The entire system shall be installed in a skillful manner in accordance with approved manufacturer's installation manuals, shop drawings and wiring diagrams.

B. All work shall be performed in accordance with the requirements of NFPA 70 and NFPA 72.

C. Coordinate locations of all devices with all other divisions' drawings and specifications.

D. All fire alarm devices shall be accessible for periodic maintenance. Should a device location indicated on the contract drawings not meet this requirement, it shall be the responsibility of the installing contractor to bring it, in writing, to the attention of the Project Engineer.

E. Fasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.

F. All systems and system components listed to UL864 Control Units for Fire Protective Signaling Systems maybe installed within a common conduit raceway system, in accordance with the manufacture's recommendations. System(s) or system components not listed to the UL864 standard shall utilize a separate conduit raceway system for each of the sub-systems.

G. No wiring except life safety system circuits and system power supply circuits shall be permitted in the control panel enclosures.

H. Any low-voltage copper wiring that leaves the protection of a building shall be provided with a compatible UL 497B listed transient protection devices where the circuit leaves the building and where it enters the next building.

I. Devices containing end-of-line resistors shall be appropriately labeled. Devices should be labeled such that removal of the device is not required to identify the EOL device.

J. Fiber Optic Cable
   1. Only glass filament cable permitted. Plastic filament fiber optic cables are not acceptable.
   2. ST connectors shall be used at all equipment terminations.

K. Concrete floors shall be X-rayed prior to core drilling on post tension slabs. Verify with engineer on type of slab prior to bid.

3.1.2. Electrical

Electrical

1.01 BOXES, ENCLOSURES AND WIRING DEVICES

A. Boxes shall be installed plumb and firmly in position.

B. Extension rings with blank covers shall be installed on junction boxes where required.

C. Junction boxes served by concealed conduit shall be flush mounted.

D. Fire alarm system junction box covers shall be painted red.

E. Wiring within cabinets, enclosures, boxes, junction boxes and fittings shall be installed in a neat and workmanlike manner, installed parallel with or at right angles to the sides and back of any box, enclosure or cabinet, and routed to allow access for maintenance. All conductors that are terminated, spliced, or otherwise interrupted in any enclosure, cabinet, mounting or junction box shall be connected to terminal blocks. Mark each terminal in accordance with the wiring diagrams of the system. Make all connections with approved pressure type terminal blocks, which are securely mounted. All terminal block screws shall have pressure wire connectors of the self-lifting or box lug type. No more than two conductors shall be installed under one connection. Wire nuts, crimp splices and similar devices shall not be used.

FIRE ALARM

1.02 CONDUCTORS

A. Each conductor shall be identified as shown on the drawings at terminal points. Permanent wire markers shall be located within 2 inches of the wire termination. Marker text shall be visible with protective doors or covers removed.

B. Maintain a consistent color code for fire alarm system conductor functions throughout the installation.

C. All wiring shall be installed in compliance with the National Electric Code, NFPA 70, and the equipment manufacturer's requirements.

Wiring for Signaling Line Circuit and Initiating Device Circuit field wiring shall be solid copper, No. 18 AWG twisted pair conductors at a minimum. Speaker circuits; 16 AWG twisted pair at a minimum. Telephone circuits shall be 18 AWG twisted-shielded pair at a minimum. 24VDC visual and audible Notification Appliance Circuits shall be solid copper No. 14 AWG size conductors at a minimum. The wiring sizes listed herein are minimum sizes. Use larger wire sizes when recommended by the manufacturer, based on system configuration and project specific calculations.

Where shielded wiring is used, the shield shall be grounded at only one point, which shall be in or adjacent to the FACP or other control equipment. Shields shall be continuous, treated as a third conductor, and insulated from ground except as noted.

T-taps (branches) are permitted in Style 4 SLC circuits with interconnections occurring on terminal strips.

Circuits to third-party systems (HVAC, Elevators, fire pumps, etc.) shall terminate in terminal cabinets within three (3) feet of the controllers for those systems.
AC power wiring shall be No. 12 AWG solid copper having insulation rated for 600 volts.

Crimp type spade lugs shall be used for terminations of stranded conductors to binder screws or stud type terminals.

D. All wiring shall be checked and tested to insure that there are no grounds, opens or shorts.

1.03 DEVICES

A. All devices and appliances shall be mounted to or in an approved electrical box.

1.04 Raceways

A. Conduits shall be sized according to the conductors contained therein. Cross sectional area percentage fill for system conduits shall not exceed 40%.

B. Install all conductors in rigid metal conduit or electro-metallic tubing, utilizing compression type fittings and couplings, with a minimum diameter 3/4". The use of flexible metal conduit not exceeding a six (6) foot length shall be permitted for initiating device circuits.

C. All fire alarm conduit systems shall be routed and installed to minimize the potential for physical, mechanical or fire damage, and shall not to interfere with existing building systems, facilities or equipment.

D. Run conduit or tubing concealed in finished areas unless specifically shown otherwise on the drawings. Conduit may be exposed in unfinished mechanical/electrical rooms, and basement levels.

E. All system conduits, junction boxes, pull boxes, terminal cabinets, electrical enclosures and device back box locations shall be readily accessible for inspection, testing, service and maintenance.

1.05 Open cable

A. Power Limited cable, when not installed in UL listed metal conduit or raceway, shall be mechanically protected by building construction features par NFPA 70, Article 760.
   1. Installation shall be in areas not subjected to mechanical injury.
   2. All circuits shall be supported by the building structure. Cable shall be attached by straps or bridal rings to the building structure at intervals not greater than 10 feet. The use of staples is prohibited. Fire alarm wiring shall not be bundled or strapped to existing conduit, pipe or wire in the facility.
   3. Where wiring is installed above drop ceilings, cable shall not be laid on ceiling tiles.
   4. Cable shall not be fastened in a manner that puts tension on the cable.

B. Power Limited Cable shall be FPLP, FPLR or FPL, or permitted substitute.

3.1.3. FA Components

FA Components

1.01 DEVICES

1. All devices and appliances shall be mounted to or in an approved electrical box.

2. All wall mounted *control equipment* shall comply with requirements defined by the International Building Code and Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems (AC-156) using a seismic component importance factor of 1.5.

A. Fire Alarm Control Panels

   a. Mount the enclosure with the top of the cabinet 72" above the finished floor or center the cabinet at 63", whichever is lower.
   b. Label the fire alarm panels with the room number, electrical panel number and circuit breaker number feeding them.
   c. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.
   d. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.

e. Grounds shall comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Remote Annunciator
   a. Mount the panel; with the top of the panel 72" above the finished floor or center the panel at 63", whichever is lower.

C. Remote power supplies and auxiliary fire alarm panels
   a. Locate the panel or cabinet with the top of the panel 72" above the finished floor or center the panel at 63", whichever is lower.
   b. Do not locate these panels above ceilings or where inaccessible by a person standing on the finished floor of the space.
   c. Label the power supplies and auxiliary FACPs with the room number, electrical panel number and circuit breaker number feeding them.
   d. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.
   e. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.

D. Manual Pull Stations
   a. Mount stations so that their operating handles are between 42" and 48" above the finished floor.

E. Notification Appliances: Mount assemblies as follows:
   a. All wall mounted audio/visual devices shall be mounted so the entire lens is between 80" and 96" above the finished floor. Where low ceilings exist, devices shall be mounted within 6" of the ceiling.
   b. Each speaker's (horn) output shall be set to the wattage value indicated for its specific location as shown on the drawings.
   c. Each strobe's output shall be set to the candela value indicated for its specific location as shown on the drawings.
   d. Each speaker (horn)-strobe's outputs shall be set to the wattage/candela value indicated for its specific location as shown on the drawings.
   e. Where ceiling height exceeds 30 feet, appliances shall be suspended from the ceiling to a height of 30 feet maximum above the finished floor.
   f. Appliances installed outdoors shall be UL listed for outdoor use.

F. Smoke Detectors:
   b. Smoke and heat detector heads shall not be installed until after construction clean-up is completed. Detector heads installed prior to construction clean-up shall be cleaned by the manufacturer or replaced.
   c. Detectors located on the wall shall have the top of the detector at least 4" and not more than 12" below the ceiling.
   d. On smooth ceilings, detectors shall not be installed over 30 ft. apart in any direction.
   e. Install smoke detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.
   f. Locate detectors no closer than 12" from any part of a lighting fixture.

G. Duct Smoke Detectors:
   a. Install sampling tubes so they extend the full width of ducts exceeding 36".
   b. Detectors shall be located to facilitate ease of maintenance.
   c. All penetrations near detectors located on/in return ducts shall be sealed to prevent air entry.

H. End-of-Line Resistors
   a. Devices containing end-of-line resistors shall be appropriately labeled.

I. Remote Status and Alarm Indicators:
   a. Install near each duct smoke detector and each sprinkler water-flow switch and

valve-tamper switch that is not readily visible from normal viewing position.

J. CO Detectors
   a. Ceiling mounted CO detectors should be kept 12" from sidewalls.
   b. Wall mounted CO detectors should be at least 48" above the finished floor, but less than 6" from the ceiling.
   c. Locate at least 60" from fuel burning appliances.
   d. Install CO detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.

K. Heat Detectors
   a. Heat detectors shall be installed in strict accordance with their UL listing and the requirements of NFPA 72.
   b. Heat detectors installed in the elevator machinery room to meet ANSI A17.1 requirements for elevator power disconnect, shall be located adjacent to each sprinkler head. Coordinate temperature rating and location with sprinkler rating and location.

L. Addressable Control (relay) Modules
   a. Install the module less than 3 feet from the device controlled.
   b. Orient the device mounting for best maintenance access.
   c. Label all addressable control modules as to their function.
   d. Provide a dedicated 24VDC circuit to feed all auxiliary relays required for inductive loads (auxiliary relays, door holders). Circuits shall be supervised via an end-of-line relay and addressable input module. Auxiliary relays shall not derive their power from the starter or load being controlled.

State of West Virginia Office of Technology
Policy: NETWORK CABLING AND PHYSICAL PLANT INFRASTRUCTURE FOR ALL COMMUNICATIONS DEVICES

Issued by the CTO

1.0 PURPOSE

The purpose of this document is to provide a guideline for the standardization of the telecommunications cabling and wireless installations at all State of WV facilities.

The intention of this specification is to provide the comprehensive source of information and guidance for those involved with low voltage cabling installations at all State of WV facilities.

Review of, and changes to this document will be the responsibility of the West Virginia Office of Technology (WVOT). Their recommendations will be based on industry standards groups, peer review and professional knowledge.

The web site for the West Virginia Office of Technology address is www.WVGOT.org

2.0 SCOPE

It shall be mandatory that these specifications are adhered to by all State of WV staff and external contractors, for telecommunications related work at all State of WV facilities.

This policy cannot provide procedures to cover every possible situation. It expresses the State of West Virginia's philosophy and sets forth general principles to be applied to all moves, additions, and changes at all State of WV facilities.

This policy will supersede all other previous communication policies within the Executive Branch. All agencies within the Executive Branch must adhere to this policy, unless exempted by West Virginia Code. The WV Department of Administration strongly recommends all exempt agencies adopt this policy. This policy does not address nor does it affect the enforcement of building construction policies implemented by the General Services Division (GSD).

3.0 BACKGROUND

Under the provisions of West Virginia Code 5A-6-4a, the Chief Technology Officer (CTO) is granted both the authority and the responsibility to develop information

technology policy, promulgate that policy, audit for policy compliance, and require corrective action where compliance is found to be unsatisfactory or absent.

The Governor's Executive Order No. 6-06, signed on August 16, 2006, empowers the CTO to "issue information security policies applicable to all Executive Branch department-level organizations."

This policy is one in a series of Information Technology (IT) related policies intended to define and enable the incorporation of appropriate practices into all activities using technology in the State of West Virginia.

4.0 RELEVANT DOCUMENTS/MATERIAL

4.1 http://www.wvgot.gov

4.2 http://ftp.tiaonline.org/tr-42/tr425/Public/TR425-05-10-010a_working_dictionary.pdf

5.0 RESPONSIBILITY/REQUIREMENTS

Networking and Telecommunications Domain

The networking and telecommunications standards address infrastructure and services architecture requirements for executive branch agencies in the State of West Virginia. These standards provide requirements that will assist agencies in meeting their current needs while moving towards the future vision for networking and telecommunications in the State. Future networks will be highly integrated and will accommodate numerous end-to-end services that will coexist in this integrated infrastructure. Conceptually, the future network for participating agencies will be one network.

The networking and telecommunications architecture addresses two topics: facilities telecommunications infrastructure and telecommunications.

Facilities telecommunications infrastructure addresses the cabling, pathways and documentation that are tied to a physical location (e.g., building, office space, outdoor space, or campus of buildings).

Telecommunications addresses all other infrastructure and services, whether provided by the State or by external service providers. Included in services are Local Area Networking (LAN), Wide Area Networking (WAN), and other telecommunications services (e.g., telephone or any IP telephone or otherwise network attached endpoint including phones, data, wireless transmitters of all types, multimedia, or monitoring device).

Domain-wide Requirements

The following domain-wide requirements pertain to all topics and components in the Network and Telecommunications Domain

Networking and Telecommunications Changes Due to Agency Facility Changes.

Networking and telecommunications infrastructure requirements must be an integral part of agency office change plans, whether the changes involve moving, expansion, construction, renovation, or lease changes.

Agencies served by WVOT that are planning changes must involve WVOT in the early planning to determine the lead time required to ensure the availability of business critical telecommunications services.

Inter-building Connections.

Agencies, except for institutions of higher education, which require network interconnections between two or more buildings, shall work with the WVOT to determine a solution.

Single Pipeline Planning Data.

The WVOT will design and report connectivity information and connection usage data when requested by the State's Chief Technology Officer (CTO). Such reporting requirements must have pre-defined, decision-based uses. All exempt agencies are advised to participate as requested.

Facilities Telecommunications Infrastructure

This topic addresses requirements for infrastructure that is typically used by an agency but not owned by the agency. When an agency is occupying a facility, it will have use of the building cabling, electrical systems, and access closets that together constitute much of the physical portion of the agency's premises networking and

telecommunications solution. Facilities telecommunications infrastructure is currently limited to cabling plants and their documentation. In the future, wireless infrastructure may become a common part of the facilities telecommunications infrastructure.

Cabling Requirements.
All cabling installations are to be submitted to the WVOT for approval to ensure the use of ANSI/TIA/EIA (American National Standards Institute/Telecommunications Industry Association/Electronic Industries Alliance) standards-based designs, topologies, components, distances, installation methods, cable testing, and cable administration. All related minimum requirements or mandatory criteria that must be met (unless exceptions are noted in this document) are addressed in the State adopted NEC 2005 and the international standard ANSI/TIA/EIA standards. Agencies are encouraged to follow the BICSI Best Practices procedures found in the most current release of the BICSI TDMM (current rev. 11). WVOT has the authority to grant exceptions when warranted.

This document embraces but is not limited to the following codes and standards.

- **National Electric Code**
  - 2005 Edition
- **TIA/EIA-568-B.1, B.2, B.3:**
  - Design Guidelines for Telecommunications Wiring System in Commercial Buildings
- **TIA/EIA-569 (CSA-T530):**
  - Building Facilities, Design Guidelines for Telecommunications
- **TIA/EIA-606 (CSA-T528):**
  - Telecommunications Administration Standards for Commercial Buildings
- **TIA/EIA-607 (CSA-T527):**
  - Bonding and Grounding for Telecommunications in Commercial Buildings
- **BICSI TDMM (current rev. 11)**
  - Other applicable building codes and standards.

http://ftp.tiaonline.org/tr-42/tr425/Public/TR425-05-10-010a_working_dictionary.pdf

• ANSI/TIA/EIA 568-B.1, Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements.
This standard addresses cabling infrastructure design, installation and field testing for horizontal cabling, backbone cabling, and work areas. It also covers requirements for telecommunications rooms, equipment rooms, and entrance facilities. This standard recommends the use of ANSI/TIA/EIA T568B, which specifies the wiring scheme to be used with the RJ-45 modular plug (8 position jack) and optionally allows use of T568A. The 568-B.1 standard is typically used in conjunction with the National Electric Code to provide an appropriate cable plant.

The WVOT may grant exceptions where warranted. Agencies shall ensure use of the ANSI/TIA/EIA T568B wiring scheme for RJ-45 modular plugs in agency occupied space and shall not use T568A.

The WVOT mandates the use of T568B consistently throughout their cabling plant. T568B provides compatibility with both one-pair and two-pair wiring schemes. T568A will only be used when the installation is accommodating the needs of existing users. WVOT will develop a plan to convert T658A to T568B as building cabling is replaced. When an agency is replacing all horizontal cabling, the agency is required to implement the T568B standard.

• ANSI/TIA/EIA 568-B.2, Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components.
This standard addresses specifications for horizontal four-pair cables and backbone multi-pair cables and components. All Category 6, Category 5e and Category 3 cable specifications and testing are addressed.
At a minimum, certified Category 5e cable will be required when installing new or replacement telecommunications horizontal cabling in agency occupied space.

• ANSI/TIA/EIA 568-B.3, Commercial Building Telecommunications Cabling Standard, Part 3: Optical Fiber Cabling Components Standard.
This standard addresses multi-mode (50/125µm and 62.5/125µm) and single-mode fiber optic cabling components, transmission standards, and field testers.
The use of 50/125µm multi-mode fiber optic cable will be required for all new or replacement backbone building runs. For all devices connected to the Complex

backbone fiber system, agencies shall provide a minimum of four fibers (two pairs). This will enable the use of redundant connections for equipment that may be deemed critical at a later point (e.g., implementation of Voice over Internet Protocol).
Consideration should be given to having two dark fibers (one pair) for every four active fibers (two pairs) installed, this will provide adequate backup for critical equipment if a problem occurs on one of the active pairs.

• ANSI/TIA/EIA 569-B, Commercial Building Standard for Telecommunications Pathways and Spaces.
This Standard addresses specific pathway and space design and construction practices in support of telecommunications media and equipment within buildings. For agency occupied office space that has an average office density (one office per 100 square feet) all specifications in related addenda to ANSI/TIA/EIA 569-B for) must be applied.
Pathway and room size requirements must be adjusted for higher and lower densities of telecommunications outlets or equipment than are expected in the average situation.

• ANSI/TIA/EIA 606-A, Administration Standard for Commercial Telecommunications Infrastructure.
This standard specifies administration for a generic telecommunications cabling system that will support a multi-product, multi-vendor environment. It also provides information that may be used for design of administration products.
Cable plant documentation that meets the minimum requirements of ANSI/TIA/EIA-606-A Class 3 administration as indicated in Clause 7 of the standard is required when alterations are made. In addition, all cable plant documentation will be stored in a central repository using the documentation format (e.g., data names, data elements, data tables, data types, and/or spreadsheet column order) as specified.

• ANSI/TIA/EIA 607, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
The purpose of this standard is to enable the planning, design, and installation of a telecommunications grounding and bonding system which supports a multi-vendor environment and implements various system

installation practices.

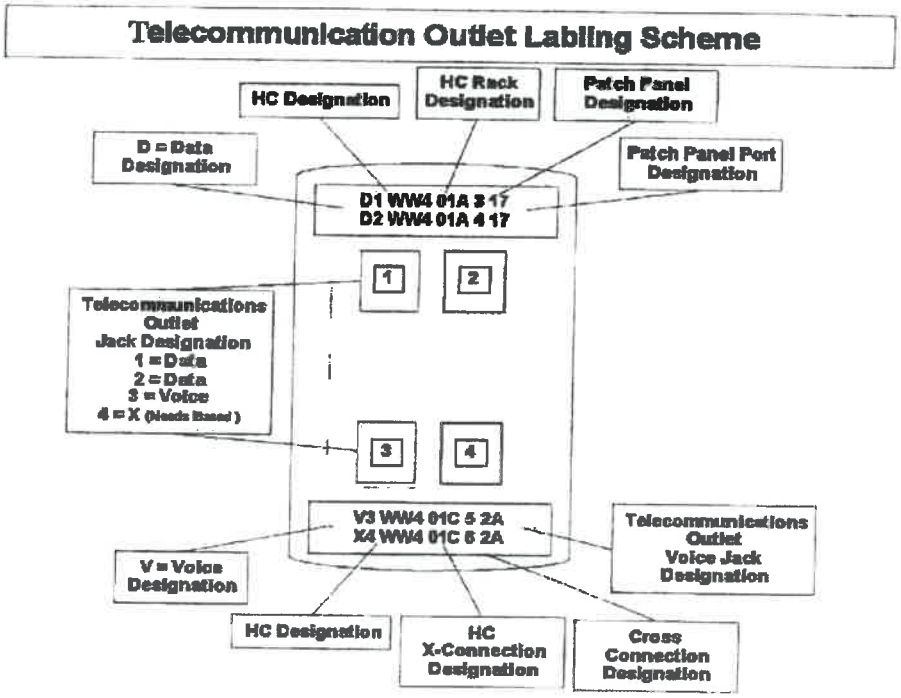
Central Repository.

GS shall provide CAD drawings of State of WV facilities to the Real Estate Division of the Department of Administration as required for the purpose of maintaining a central repository.
The Real Estate Division in conjunction with the West Virginia Office of Technology shall provide a spreadsheet template (flat file) and optional database schema for use by agencies in providing required data to the central repository.

Color Coding

Backboard / Cable Labeling	Color
1st Level Backbone	White
Reserved	Red
Reserved	Black
Miscellaneous / Auxiliary (alarms, maintenance, security)	Yellow
PBX - Hybrid / IP	Violet
Horizontal	Blue
Network / Demarcation	Orange
Entrance Facilities	Green
Inter Building Backbone	Brown
2nd Level Backbone	Slate

Labeling Example



Telecommunications

Telecommunications includes the hardware, software, services, and documentation related to electronic transmissions of data, voice, and multimedia content needed to conduct agency business. Components include telecommunications protocols, wired and wireless services, switches, routers and similar items. Also included are applications that provide end-to-end telecommunications services such as Voice over Internet Protocol (VoIP). Local and wide area networks are the infrastructure, signaling and services that enable numerous practical office applications including receiving and sending email, saving documents and email, printing documents on office or workgroup

printers, Voice over Internet Protocol (VoIP) telephoning, Blackberry email, always on Internet and more.

- A local area network (LAN) is generally a private network. It is under the control of the owner and used by a set of related individuals and/or workgroups, typically within a single building or over a group of neighboring buildings.
- A wide area network (WAN) is a geographically dispersed telecommunications network. A wide area network may be privately owned or rented, but the term usually connotes the inclusion of public networks including the public telephone system.
- Telecommunications are services or applications that run on local and wide area networks. Telecommunications connect people, servers, applications tiers, businesses and more.

Approved Installers
The installation of the communications cabling is a specialized function, which shall only be performed by companies and workgroups who have established verifiable credentials. All work performed at all State of WV facilities must be carried out by a workgroup, of which at least 75% of the members has completed a WVOT approved installation training program (e.g., BICSI). Proof of accreditation of external contractors will be included in all bid responses and quotations.
WVOT or their designee shall consider applications from external contractors who submit a detailed schedule of experience and reference sites.

Removal of Obsolete / Abandoned Cabling
The WVOT mandates that a plan must be submitted prior to removing obsolete and abandoned cable. Care must be taken to avoid damaging any other cable that may be run in the same area as that cable which is to be removed. Records including type of cable, origin and destination of cable removed must be submitted to WVOT.

Removal of Obsolete / Abandoned Equipment
Obsolete and abandoned equipment shall be removed. Care must be taken to avoid damaging any other equipment that may be housed in the same area as that equipment which is to be removed. Records including type of equipment, location and previous user of equipment removed must be submitted to WVOT.

Protocols Requirements

LAN Protocols. All LAN services must meet a minimum standard of IEEE 802.3 Fast Ethernet (100 Mbps Switched Ethernet) or to a higher bandwidth Ethernet service (802.3 Full duplex Fast Ethernet, 802.3ab Gigabit Ethernet over copper, 802.3ad, or 802.3z Gigabit Ethernet over fiber).

IP Access to LAN Nodes. The WVOT will approve all LAN node and LAN segments and the WVOT will ensure the nodes or segments may be accessed using IP addressing.

Routing. The WVOT has set IP as the standard addressing protocol for all routed transmissions. IP addressing for all new and replacement connections to external business partners, local governments, and state agencies will be employed by the WVOT. If other protocols are used as a transitional strategy, when routed, these protocols will be tunneled through IP.

Switches, Routers and Similar Items Requirements

Network Hardware. New network hardware (i.e. firewalls, routers, switches, etc.) will be approved through the WVOT and must be Simple Network Management Protocol (SNMP) compliant. The WVOT has set SNMP (Simple Network Management Protocol compliant) device management as the standard protocol. This enables management information for a network element such as a switch to be inspected by our remote managers.

Wiring Closets. Well-ventilated and air conditioned wiring closets are required to protect investments and to ensure services.

Networking Devices. Agencies must submit their desired requirements to the WVOT for their network service providers who establish contracts for 500 or more of a single network device type (e.g., a particular router, switch or hub), and must have validated performance and cost comparison data (e.g. price, quality, availability, service quality, reliability and support costs) for a second brand for the device type during a particular acquisition cycle. This data may be obtained from a small-dedicated network segment, a separate network, or from a third party. The intent is that the Agencies or their service

providers be able to use comparison results in acquisition and maintenance negotiations.

IP Addresses in the Enterprise Network. The WVOT enterprise network shall acquire IPv4 address space at the request of any agency and grant approval for using its own address space. Any served agency with its own address space must notify WVOT of the address space renewal date. No served agency may increase their use of RFC1918 addresses. Any served agency currently using the private address range (RFC1918) must request this use with WVOT and prepare to discontinue this use when the served agency's network is integrated with other agencies' networks for the purpose of common management. The WVOT will require agencies to only use registered IPv6 addresses assigned by WVOT when they switch to IPv6. Also, WVOT reserves the right to revoke and reassign address space as dictated by future network designs.

Notes: An RFC is a document distributed as a request for comments. In many instances, RFCs are treated as industry standard recommendations. Many standards groups issue RFCs.
A Freedom of Information Act (FOIA) exception to the sharing of WVOT recorded IP address information with anyone other than agency specified personnel shall be obtained prior to enforcing this requirement.
Served agencies are strongly encouraged to employ only registered IPv4 addresses when routing over COVANET and to eliminate all RFC1918 address space use as soon as practical.

Wireless Services

All departments, agencies, and individuals who wish to install wireless network access devices anywhere in a State of WV facility must adhere to the directions and requirements outlined by the WVOT. The objective is to maintain the integrity of the State of WV Network Infrastructure and to minimize interference caused by incorrectly configured equipment. Any department, agency, or individual that wishes to have wireless networking within a building or area must submit a request to the WVOT. Upon request, the WVOT Technical Consultant will perform a site survey to determine the optimal number and location of wireless access points. The Technical Consultant will also assign a channel for the access points, and assist in securing IP addresses on the appropriate subnet.

WVOT will maintain a registry of all wireless networks and access points in any State location and/or facility.

6.0 ENFORCEMENT

Any employee that intentionally, without justifiable cause as determined by the situation and the employees' direct supervisor, who violates this policy may be subject to the disciplinary action up to and including dismissal.

7.0 DEFINITIONS

Additional definitions can by found at the following location:

http://ftp.tiaonline.org/tr-42/tr425/Public/TR425-05-10-010a_working_dictionary.pdf

7.1 Administration - The method for labeling, documentation and usage needed to implement moves, additions and changes of the telecommunications infrastructure.
7.2 Backboard - A panel (e.g., wood or metal) used for mounting connecting hardware and equipment.
7.3 Backbone Cabling - Cabling that distributes from the entrance facility to the equipment room, telecommunications rooms, and between buildings.
7.4 Bend Radius - The radius that cable can bend before the risk of damage or decrease in transmission performance.
7.5 Bonding - The permanent joining of metallic parts to form an electrically conductive path that will assure electrical continuity, the capacity to conduct safely any current likely to be imposed.
7.6 Cable Tray - A ladder, trough, spline, solid bottom or channel raceway system intended for the support of telecommunications cable.
7.7 Campus - State of WV Capitol Complex owned or occupied buildings.
7.8 Conduit - A rigid or flexible metallic or non-metallic raceway of circular cross-section through which cables can be pulled.
7.9 Cross - Connection - A connection scheme between cabling runs, subsystems, and equipment using patch cords or jumpers that attach to connecting hardware on each end.

7.10 Delay Skew - The difference in the propagation delay between any pairs in the same cable.
7.11 Earth Ground - An electrical connection to earth obtained by a grounding electrode system.
7.12 Electromagnetic Interference - The interference in signal transmission or reception resulting from the coupling of electrical or magnetic fields.
7.13 ELFEXT - Equal Level Far End Crosstalk is the ratio of the attenuated signal on one pair to the crosstalk on an adjacent pair at the far end.
7.14 Employee - Individuals employed on a temporary or permanent basis by the State of West Virginia; as well as contractors, contractors' employees, volunteers and entities who are determined by the State to be subject to this policy.
7.15 Entrance Facility - An entrance to a building for both public and private network service cables including the entrance point at the building wall and continuing to the entrance room space.
7.16 Firestop - A material, device, or assembly of parts in a fire rated wall or floor, to prevent passage of flame, smoke or gases through the rated barrier.
7.17 Firewall - A wall that helps prevent fire spreading from one fire zone or area to another and that runs from structural floor to structural ceiling.
7.18 Horizontal Cabling - Consists of cabling that extends between and includes the horizontal cross-connect and the telecommunications outlet.
7.19 Horizontal Cross-connect - A cross-connect of horizontal cabling to other cabling, e.g., horizontal, backbone, equipment.
7.20 Innerduct - Additional conduit placed inside a larger diameter conduit.
7.21 Intermediate Cross-connect – A cross-connect between the main cross-connect and the horizontal cross-connect in backbone cabling.
7.22 Interbuilding Backbone - A backbone network providing communications between more than one building.
7.23 Intrabuilding Backbone - A backbone network providing communications within a building.
7.24 Low Voltage Cabling - The medium, either copper or fiber, used to distribute telecommunications signals.
7.25 Nominal Velocity of Propagation - Refers to the velocity of the signal in a cable, typically expressed as a fraction of the speed of light.

7.26 Open Office Cabling - The cabling that distributes from the telecommunications room to the open office area utilizing a consolidation point or multi-user telecommunications outlet.
7.27 Pathway - A facility for the placement of telecommunications cable.
7.28 Penetration - Opening made in fire-rated barrier (architectural structures or assemblies).
7.29 Power Sum NEXT - Power Sum assumes all pairs in a cable contribute to crosstalk, using a formula that totals crosstalk power.
7.30 Propagation Delay - The time interval required for a signal to be transmitted from one end of the circuit to the other.
7.31 Pull Strength - The maximum pulling force that can be safely applied to a cable without incurring damage.
7.32 Raceway - Any enclosed channel designed expressly for holding wires or cables.
7.33 Split Pairs - When the physical pairs are separated but pair continuity is maintained.
7.34 Telecommunications - A branch of technology concerned with the transmission, emission and reception of signs, signals, writing, images and sound: that is, information of any nature by cable, radio, optical or other electromagnetic systems.
7.35 Telecommunications Room - An enclosed space for housing telecommunications equipment, cable terminations, and cross-connects.
7.36 State of WV Capitol Complex Campus - State of WV Capitol Complex owned or occupied buildings. (See Campus).
7.37 Work Area - A building space where the occupants interact with telecommunications terminal equipment.
7.38 Work Group - In the case of this document, a workgroup refers to the individuals responsible for installing structured cable systems.

8.0 LEGAL AUTHORITY

The CTO is charged with securing state government information and the data communications infrastructure from unauthorized uses, intrusions, or other security threats. The CTO has authority to issue policies, procedures, and standards to accomplish this mission. This policy will apply across the Executive Branch, with the exclusion of the West Virginia State Police, the Division of Homeland Security and Emergency Management, any constitutional officers, the West Virginia Board of

Education, the West Virginia Department of Education, and the county boards of education. To the extent that there are policies in place which provide less security than this policy, they will be superseded by this policy. In instances where existing state and federal laws and regulations are more restrictive than IT policies issued by the West Virginia OT, the more restrictive provisions will prevail.
This policy is consistent with the following federal and state authorities:

- Omnibus Reconciliation Act of 1990, § 2201(c), 42 U.S.C. § 405(c)(2)(C)(viii)(I).
- Health Insurance Portability and Accountability Privacy Rule, 45 CFR 160 and 164
- Confidentiality of Substance Abuse Records, 42 U.S.C. 290dd-2; 42 CFR Part 2
- Gramm-Leach Bliley Act (GLBA), 15 U.S.C. § 6801, 16 CFR § 313
- Fair Credit Reporting Act, 15 U.S.C. § 1681 *et seq.*
- Driver's Privacy Protection Act, 18 U.S.C. § 2721
- Telemarketing Sales Rules, 16 CFR Part 310
- NIST SP 800-14 and NIST SP 800-53
- Executive Order No. 6-06 (August 16,2006)
- W. Va. Code § 5A-6-4a
- Freedom of Information Act, W. Va. Code § 29B-1-1 *et seq.*
- Records Management and Preservation of Essential Records Act, W. Va. Code §§ 5A-8-21, 22
- State Health Privacy Laws, **www.wvdhhr.org/hipaa/privacy.asp**
- Confidentiality and Disclosure of Tax Returns and Return Information, W. Va. Code § 11-10-5d

· Uniform Motor Vehicle Records Disclosure Act, W. Va. Code 17A-2A-1 to14 WV Governmental Ethics Act, W. Va. Code § 6B-1-1 *et seq.*

9.0 INDEX