



CLIENT	CITY OF RICHMOND
BUILDING	RICHMOND MUNICIPAL AIRPORT
PROJECT	NEW TERMINAL BUILDING
LWC PROJECT NO.	25106.00
ADDENDUM NO.	01

DATE: | **2026-03-27**

TO PROSPECTIVE BIDDERS

This addendum is a modification of the Contract Documents for the above referenced project and is hereby incorporated into and becomes a part of said Contract Documents. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification. It is to be considered in the Proposals and covers additions to or changes in the Contract Documents as indicated below.

ATTACHMENTS

GENERAL ITEMS	None
SPECIFICATIONS	<ul style="list-style-type: none"> 000001 - Index <ul style="list-style-type: none"> - Changes to specifications affecting index 000210 – Federal Provisions and Wage Rates <ul style="list-style-type: none"> - This section replaces 000402. - Section 000400.01 was deleted 000500 – Preliminary Project Schedule <ul style="list-style-type: none"> - Updated schedule 001072 – MODIFICATIONS TO GENERAL CONDITIONS <ul style="list-style-type: none"> - UPDATED WARRANTY LANGUAGE AND DURATIONS. 002600 – PROCUREMENT AND SUBSTITUTION PROCEDURES <ul style="list-style-type: none"> - ADDED PARAGRAPH 1.3, C – REGARDING MANUFACTURERS AND SUBSTITUTIONS DURING BIDDING. 072723 – SPRAY POLYURETHANE FOAM INSULATION <ul style="list-style-type: none"> - ADDED THIS SECTION FOR SPRAY FOAM INSULATION. - SECTION HELPS DEFINE LOCATIONS AND INTENT OF SPRAY FOAM APPLICATIONS 074213.23 – METAL COMPOSITE MATERIAL WALL PANELS <ul style="list-style-type: none"> - CHANGED WARRANTY PERIOD 075423 – TPO ROOFING <ul style="list-style-type: none"> - CHANGED WARRANTY PERIOD 079200 – JOINT SEALANTS <ul style="list-style-type: none"> - CHANGED WARRANTY PERIOD 081416 – FLUSH WOOD DOORS <ul style="list-style-type: none"> - CHANGED WARRANTY PERIOD 084113 – ALUMINUM ENTRANCES-STOREFRONTS AND CURTAINWALLS <ul style="list-style-type: none"> - CHANGED WARRANTY PERIOD

- 087100 – DOOR HARDWARE**
- CHANGED WARRANTY REQUIREMENTS
- 088000 - GLAZING**
- CHANGED WARRANTY PERIOD
- 096813 – CARPET TILE**
- CHANGED WARRANTY PERIOD
- 124813 – ENTRANCE CARPET TILE**
- CHANGED WARRANTY PERIOD
- 124940 – WINDOW SHADES**
- NEW SECTION COVERING ROLLER WINDOW SHADES
- 312000 - EARTHWORK**
- IN PART 1, 1.3-C, THE APPROVED VENDORS LIST WAS REMOVED FROM THE SPECIFICATION AND REPLACED WITH A QUALIFICATION TO BE A CERTIFIED PROFESSIONAL SOIL SCIENTIST.

DRAWINGS

- A101 – Floor Plan and Clerestory Plan**
- Added sheet notes identifying locations of roller shades.
- A503 – Wall Sections and Enlarged Details**
- Modified material notes on Details 5 and 6 identifying typical locations of spray foam insulation and termination of gypsum board at roof deck.

GENERAL NOTES

- None
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END OF ADDENDUM

SPECIFICATION

**For
CITY OF RICHMOND
RICHMOND MUNICIPAL AIRPORT
TERMINAL BUILDING**

SPECIFICATION SECTIONS	
	ISSUED
DIVISION 0 SECTIONS – BIDDING AND CONTRACT REQUIREMENTS	
000001 - Index	ADD 01
000100 – Advertisement for Bids	X
000210 – Federal Provisions and Wage Rates	ADD 01
000211 – A701 Instructions to Bidders	X
000212 – Supplementary Instructions to Bidders	X
000400 – Bid Proposal Form	X
000400.01 – Proposal Pages	X
000401 – Form 96 (Indiana)	X
000402 – Federal Provisions & Wage Rates	ADD 01
000500 – Preliminary Project Schedule	ADD 01
000801 – Indiana Public Works Law Certificate	X
000802 – Indiana E-Verify Affidavit	X
001031 – A101-2017 Standard Form of Agreement	X
001031A – Exhibit A – A101-2017 Insurance and Bonds	X
001031B – Exhibit B – A310-2010 Bid Bond	X
001031C – Exhibit C – A312-2010 Payment Bond	X
001031D – Exhibit D – A312-2010 Performance Bond	X
001071 – A201-2017 General Conditions	X
001072 – Modifications to General Conditions	ADD 01
001073 – Supplementary Conditions	X
002600 – Procurement Substitution Procedures	ADD 01
002600.01 – Substitution Request Form	X
DIVISION 1 SECTIONS – GENERAL CONDITIONS	
012300 - Alternates	X
012500 - Substitutions	X
012600 – Contract Modification Procedures	X
012900 – Payment Procedures	X
013100 – Project Coordination	X
013200 – Construction Progress Documentation	X
013300 – Shop Drawings, Product Data and Samples	X
013310 – Agreement and Waiver for Use of Electronic Information	X
014000 – Quality Control Services	X
014200 – References	ADD 01

015000 – Temporary Facilities and Controls	X
017000 – Project Closeout	X
017300 - Execution	X
017000 – Closeout Procedures	X
017823 – Operation and Maintenance Data	X
017839 – Project Record Documents	X
017900 – Demonstration and Training	X
DIVISION 2 SECTIONS – EXISTING CONDITIONS	
020100 – Maintenance of Existing Conditions	X
024113 – Selective Site Demolition	X
DIVISION 3 SECTIONS - CONCRETE	
031000 – Concrete Formwork	X
032000 – concrete Reinforcement	X
033000 – Cast in Place Concrete	X
033310 – Architectural Concrete Specialties	X
036000 – Epoxy Grout	X
036001 - Grouting	X
036200 – Non-Shrink Grouting	X
DIVISION 4 SECTIONS - MASONRY	
Not Used	
DIVISION 5 SECTIONS - METALS	
051200 – Structural Steel Framing	X
053123 – Steel Roof Decking	X
055000 – Metal Fabrications	X
DIVISION 6 SECTIONS	
061000 – Rough Carpentry	X
061600 - Sheathing	X
064023 – Interior Architectural Woodwork	X
DIVISION 7 SECTIONS	
072100 – Thermal Insulation	X
072723 – Spray Polyurethane foam Insulation	ADD 01
072726 – Fluid Applied Membrane Air Barrier	X
074213 – Metal Composite Wall Panels	ADD 01
074213.13 – Formed Metal Wall Panels	X
075423 – TPO Roofing	ADD 01
076200 – Sheet Metal Flashing	X
077100 – Roof Specialties	X
079200 – Joint Sealants	ADD 01

DIVISION 8 SECTIONS	
081113 – Hollow Metal Doors and Frames	X
081416 – Flush Wood Doors	ADD 01
083113 – Access Doors	X
084113 – Aluminum Entrances, Storefronts and Curtainwalls	ADD 01
087100 – Door Hardware	ADD 01
088000 – Glazing	ADD 01
DIVISION 9 SECTIONS	
092216 – Non-Structural Metal Framing	X
092900 – Gypsum Board	X
093000 – Tiling	X
095113 – Acoustical Panel Ceilings	X
096513 – Resilient Base and Accessories	X
096813 – Tile Carpeting	ADD 01
099123 – Interior Painting	X
099600 – High Performance Coatings	X
DIVISION 10 SECTIONS	
102113 – Polymer Toilet Compartments	X
102800 – Toilet, Bath and Laundry Accessories	X
104400 – Fire Protection Specialties	X
DIVISION 11 SECTIONS	
Not Used	
DIVISION 12 SECTIONS	
124813 – Entrance Carpet Tiles (Walk-off Carpet)	X
124940 – Window Shades	ADD 01
DIVISION 14 SECTIONS	
Not Used	
DIVISION 22 - 26 SECTIONS	
Refer to Index in Mechanical, Plumbing and Electrical Specifications	X
DIVISION 31 – EARTHWORK	
312000 - Earthwork	ADD 01
312500 – Erosion Control	X
DIVISION 32 – SITE IMPROVEMENTS	
321216 – Asphalt Paving	X
321300 – Site Concrete	X

323113 – Chain-link Fences and Gates	X
330500 – Common Work Results for Utilities	X
332100 – Water Supply Wells	X
333000 – Sanitary Sewers	X
334000 – Storm Drainage	X

END OF INDEX

Federal Provisions
(Contract with no DBE Goal)

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A1 ACCESS TO RECORDS AND REPORTS

(References: 2 CFR § 200.334, 2 CFR § 200.337, FAA Order 5100.38)

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 BREACH OF CONTRACT TERMS
(References: 2 CFR Part 200, Appendix II(A))

Any violation or breach of terms of this contract on the part of the *Contractor* or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide *Contractor* written notice that describes the nature of the breach and corrective actions the *Contractor* must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the *Contractor* must correct the breach. Owner may proceed with termination of the contract if the *Contractor* fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A3 BUY AMERICAN PREFERENCE

(References: Title 49 U.S.C. § 50101, Executive Order 14005, *Ensuring the Future is Made in All of America by All of America's Workers*, Infrastructure Investment and Jobs Act (IIJA) L. No. 117-58, Build America, Buy America (BABA))

The Contractor certifies that its bid/offer is in compliance with 49 U.S.C. § 50101, BABA and other related Made in America Laws,¹ U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

The bidder or offeror certifies procurement of certain rolling stock using FAA grant funds will prohibit airports from using Federal financial assistance to procure buses or rail car vehicle rolling stock from covered entities.

¹ Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

A3.3.2 Certification of Compliance with FAA Buy American Preference – Construction Projects

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 U.S.C. § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter “X”.

- Bidder or offeror hereby certifies that it will comply with 49 U.S.C. § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
 - a) Only installing iron, steel and manufactured products produced in the United States;
 - b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
 - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
 - b) To faithfully comply with providing U.S. domestic products.
 - c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
 - d) Certify that all construction materials used in the project are manufactured in the U.S.

- The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 U.S.C. § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 U.S.C. § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
 - a) To the submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
 - b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
 - c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
 - d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
 - e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
- d) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bids and/or offers;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date

Signature

Company Name

Title

A4 CIVIL RIGHTS - GENERAL
(References: 49 USC § 47123)

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin, creed, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A5 CIVIL RIGHTS – TITLE VI ASSURANCE
(References: 49 U.S.C. § 47123, FAA Order 1400.11)

Title VI Solicitation Notice:

The Sponsor, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4), 28 CFR § 50.3, and 49 CFR Part 21, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, all contractors will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of the owner's race, color, national origin, sex, creed, age, or disability in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR Part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964) including amendments thereto;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 *et seq.*) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 U.S.C. § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (P.L. 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 U.S.C. § 12101, *et seq.*) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR Parts 37 and 38;
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681, *et seq.*).

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin), creed, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21 including amendments thereto.
3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the

interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A6 CLEAN AIR AND WATER POLLUTION CONTROL

(References: 2 CFR Part 200, Appendix II(G), 42 U.S.C. § 7401, et seq, 33 U.S.C. § 1251, et seq)

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceed \$150,000.

A7 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS
(References: 2 CFR Part 200, Appendix II(E), 29 CFR § 5.5(b), 40 U.S.C. § 3702, 40 U.S.C. § 3704)

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A8 COPELAND “ANTI-KICKBACK” ACT

(References: 2 CFR Part 200, Appendix II(D), 29 CFR Parts 3 and 5)

Contractor must comply with the requirements of the Copeland “Anti-Kickback” Act (18 U.S.C. 874 and 40 U.S.C. 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A9 DAVIS-BACON REQUIREMENTS

(References: 2 CFR Part 200, Appendix II(D), 29 CFR Part 5, 49 U.S.C. § 47112(b), 40 U.S.C. §§ 3141-3144, 3146, and 3147)

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer

the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.*, the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at

<https://www.dol.gov/agencies/whd/government-contracts/construction/payroll-certification>

or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment,

advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the

Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

A10 DEBARMENT AND SUSPENSION

(References: 2 CFR Part 180 (Subpart B), 2 CFR Part 200, Appendix II(H), 2 CFR Part 1200, DOT Order 4200.5, Executive Orders 12549 and 12689)

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a “covered transaction”, must confirm each lower tier participant of a “covered transaction” under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A11 DISADVANTAGED BUSINESS ENTERPRISE
(References: 49 CFR Part 26 and 49 U.S.C. § 47113)

The requirements of 49 CFR Part 26 including any amendments thereto apply to this contract. It is the policy of the Owner to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Contract Assurance (49 CFR § 26.13)

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26, including any amendments thereto, in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- 1) Withholding monthly progress payments;
- 2) Assessing sanctions;
- 3) Liquidated damages; and/or
- 4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (49 CFR § 26.29)

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contractor receives. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f))

The prime contractor must not terminate a DBE subcontractor listed in response to solicitation language above (or an approved substitute DBE firm) without prior written consent of the Owner. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent Owner. Unless Owner consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

The Owner may provide such written consent only if Owner agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR § 26.53.

Before transmitting to Owner its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to the Owner, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise Owner and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Owner should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), Owner may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to pre-award deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

A12 DISTRACTED DRIVING

(References: Executive Order 13513, DOT Order 3902.10)

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, “Federal Leadership on Reducing Text Messaging While Driving”, (10/1/2009) and DOT Order 3902.10, “Text Messaging While Driving”, (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$15,000 that involve driving a motor vehicle in performance of work activities associated with the project.

A13 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

(References: 2 CFR § 200, Appendix II(K), 2 CFR § 200.216)

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act P.L. 115-232 § 889(f)(1).

A14 DRUG FREE WORKPLACE REQUIREMENTS

(References: 49 CFR Part 32, Drug-Free Workplace Act of 1988 (41 U.S.C. § 8101-8106, as amended))

The Drug-Free Workplace Act of 1988 requires some Federal contractors and all Federal grantees to agree that they will provide drug-free workplaces as a condition of receiving a contract or grant from a Federal agency. The Act does not apply to contractors, subcontractors, or subgrantees, although the Federal grantees workplace may be where the contractors, subcontractors, or subgrantees are working.

A15 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

(References: 29 USC § 201, et seq, 2 CFR § 200.430)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR Part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The *Contractor* has full responsibility to monitor compliance to the referenced statute or regulation. The *Contractor* must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A16 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

(References: 31 U.S.C. § 1352 – Byrd Anti-Lobbying Amendment, 2 CFR Part 200, Appendix II(I), 49 CFR Part 20, Appendix A)

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

A17 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970
(References: 29 CFR Part 1910)

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A18 PROCUREMENT OF RECOVERED MATERIALS

(References: 2 CFR § 200.323, 2 CFR Part 200, Appendix II(J), 40 CFR Part 247, 42 U.S.C. § 6901, et seq (Resource Conservation and Recovery Act (RCRA)))

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

1. The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
2. The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

A19 RIGHT TO INVENTIONS

(References: 2 CFR Part 200, Appendix II(F), 37 CFR Part 401)

RIGHTS TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

A20 SEISMIC SAFETY

(References: 49 CFR Part 41)

SEISMIC SAFETY

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

A21 TAX DELINQUENCY AND FELONY CONVICTIONS

(References: Section 8113 of the Consolidated Appropriations Act, 2022 (P.L 117-103) and similar provisions in subsequent appropriations acts and DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions)

CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

The applicant represents that it is (✓) is not (✓) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

The applicant represents that it is (✓) is not (✓) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A22 TERMINATION OF CONTRACT

(References: 2 CFR Part 200, Appendix II(B), FAA Advisory Circular 150/5370-10, Section 80-09)

TERMINATION FOR CONVENIENCE

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR CAUSE

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

A23 TRADE RESTRICTION CERTIFICATION
(References: 49 U.S.C. § 50104, 49 CFR Part 30)

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
2. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
3. has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1. who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2. whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3. who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

A24 VETERAN'S PREFERENCE

(References: 49 U.S.C. § 47112(c))

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within 49 U.S.C. § 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A25 DOMESTIC PREFERENCES FOR PROCUREMENTS

(References: 2 CFR § 200.322, 2 CFR Part 200, Appendix II(L))

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

A26 PROHIBITION OF COVERED UNMANNED AIRCRAFT SYSTEMS (UAS)

(FAA Reauthorization Act of 2024 (Public Law 118-63), Section 936
49 U.S.C. § 44801 note)

The Bidder or Offeror certifies that they are aware of and comply with relevant Federal statutes and regulations, including those from the Federal Aviation Administration (FAA), for operating unmanned aircraft systems (UAS) in accordance, and in compliance with all related requirements in the FAA Reauthorization Act of 2024 (Public Law 118-63), section 936 (49 U.S.C. § 44801 note).

Contractor warrants that all UAS operations will be conducted in full compliance with all applicable Federal Aviation Administration (FAA) regulations, including but not limited to 14 CFR Part 107, and any other applicable local, state, or Federal laws and regulations.

Sponsors and subgrant recipients cannot use AIP grant funds to enter into, extend, or renew a contract related to covered unmanned aircraft systems (UAS). This includes both procurement and operational contracts, as well as contracts with entities that operate such systems.

WAGE RATES

"General Decision Number: IN20260004 01/30/2026

Superseded General Decision Number: IN20250004

State: Indiana

Construction Type: Building

Counties: Brown, Clark, Dearborn, Decatur, Fayette, Floyd, Franklin, Harrison, Henry, Jennings, Ohio, Randolph, Ripley, Rush, Switzerland, Union and Wayne Counties in Indiana.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes and apartments up to and including 4 stories)

Modification Number	Publication Date
0	01/02/2026
1	01/30/2026

ASBE0008-004 03/01/2025

DEARBORN, FAYETTE, FRANKLIN, OHIO, RIPLEY SWITZERLAND AND UNION COUNTIES

Rates Fringes

Asbestos Workers/Insulator (Includes application of all insulating materials, protective coverings, coatings & finishings to all types of mechanical systems).....\$ 35.23	22.79
HAZARDOUS MATERIAL HANDLER (Includes preparation, wettings, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....\$ 25.00	13.70

ASBE0018-001 06/01/2025

BROWN, DECATUR, HENRY AND RUSH COUNTIES

Rates Fringes

ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials protective coverings, coatings and finishes to all types of mechanical systems).....\$ 40.20	25.68
HAZARDOUS MATERIAL HANDLER (includes preparation, wettings, stripping, removal, scrapping, vacuuming, bagging	

& disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....\$ 23.00 14.40

ASBE0051-005 03/01/2025

CLARK, FLOYD, HARRISON, and JENNINGS Counties

Rates Fringes

ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems).....\$ 30.00	20.89
HAZARDOUS MATERIAL HANDLER (includes preparation, wettings, stripping, removal, scrapping, vaccuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....\$ 19.80	13.30

ASBE0079-002 07/01/2024

RANDOLPH AND WAYNE COUNTIES

Rates Fringes

ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes application of all insulating materials, protective coverings, coatings & finishings to all types of mechanical systems).....\$ 38.56	18.70
HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)).....\$ 38.56	18.70

BOIL0374-001 05/01/2025

REMAINING COUNTIES

Rates Fringes

BOILERMAKER.....\$ 43.24	38.17
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BOIL0374-005 01/01/2025

DEARBORN and SWITZERLAND COUNTIES

	Rates	Fringes
BOILERMAKER.....	\$ 43.24	38.17

BRIN0004-019 06/01/2024

LOUISVILLE
CLARK, FLOYD AND HARRISON COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 33.70	16.57
Marble, Tile Layer & Terrazzo Worker.....	\$ 27.26	8.09
TILE FINISHER.....	\$ 18.58	6.69

BRIN0004-022 06/01/2024

BROWN, DEARBORN, DECATUR, JENNINGS, OHIO, RIPLEY and SWITZERLAND
COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 35.21	18.19
TERRAZZO FINISHER.....	\$ 25.33	14.19
TERRAZZO WORKER/SETTER.....	\$ 37.97	18.06
Tile & Marble Finisher.....	\$ 24.33	13.16
Tile & Marble Setter; Mosaic Worker.....	\$ 35.63	17.23

BRIN0019-002 06/01/2023

MUNCIE
FAYETTE, FRANKLIN, HENRY, RANDOLPH, RUSH, UNION and WAYNE
COUNTIES

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner.....	\$ 33.83	20.14
TERRAZZO FINISHER.....	\$ 23.38	13.15
TERRAZZO WORKER/SETTER.....	\$ 36.38	17.24
Tile & Marble Finisher.....	\$ 23.38	13.15
Tile & Marble Setter; Mosaic Worker.....	\$ 35.63	17.23

CARP0002-021 04/01/2025

DEARBORN, JENNINGS, OHIO, RIPLEY AND SWITZERLAND COUNTIES

	Rates	Fringes
CARPENTER		
Carpenter.....	\$ 32.43	25.78
Piledriver.....	\$ 33.43	25.78

CARP0104-001 10/01/2025

FAYETTE, HENRY, RANDOLPH, UNION AND WAYNE COUNTIES

Rates Fringes

Carpenters:

Carpenters, Drywall Installers, Piledrivers.....	\$ 33.81	23.39
Millwright.....	\$ 39.10	25.95
Soft Floor Layers.....	\$ 35.54	22.12

CARP0175-002 04/01/2025

CLARKE, FLOYD AND HARRISON COUNTIES

Rates Fringes

CARPENTER

Carpenter.....	\$ 31.38	26.27
Piledriver.....	\$ 32.38	26.27

CARP0999-009 06/01/2024

CLARK, FLOYD, AND HARRISON COUNTIES

Rates Fringes

MILLWRIGHT.....	\$ 33.96	28.17
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CARP1080-003 06/01/2025

DEARBORN, JENNINGS, OHIO, RIPLEY AND SWITZERLAND COUNTIES

Rates Fringes

MILLWRIGHT.....	\$ 39.10	25.95
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CARP1775-001 10/01/2025

BROWN, DECATUR, FRANKLIN AND RUSH COUNTIES

Rates Fringes

Carpenters:

Carpenters, Drywall Installers, Piledrivers.....	\$ 33.07	20.07
Millwright.....	\$ 39.10	25.95
Soft Floor Layers.....	\$ 35.54	22.12

ELEC0071-006 01/02/2024

DEARBORN, OHIO, and SWITZERLAND COUNTIES

Rates Fringes

Line Construction:

Equipment Operator.....	\$ 39.11	4%+15.57
Groundman.....	\$ 25.90	4%+12.93
Lineman & Cable Splicers....	\$ 44.52	4%+16.65

ELEC0212-009 06/07/2025

DEARBORN, OHIO, and SWITZERLAND COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 38.05	22.32

 ELEC0369-009 05/31/2025

CLARK, FLOYD, and HARRISON COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 40.96	22.44
Line Construction:		
Groundman.....	\$ 13.83	6.35
Lineman; Equipment Operator.....	\$ 22.25	6.35

 ELEC0481-002 05/31/2025

DECATUR, JENNINGS, RIPLEY AND RUSH COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 45.45	28.19

 ELEC0725-001 10/01/2024

BROWN COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 43.30	25.32

 ELEC0725-008 06/01/2022

BROWN COUNTY

	Rates	Fringes
Communication Technician.....	\$ 30.00	18.07

Includes the installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound and vision production and reproduction apparatus, equipment and appliances used for domestic, commercial, education, entertainment and private telephone systems.

 ELEC0855-001 06/01/2025

FAYETTE, FRANKLIN, HENRY, RANDOLPH, UNION AND WAYNE COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 40.18	22.15

 ELEV0011-003 01/01/2025

DEARBORN, OHIO and SWITZERLAND COUNTIES

	Rates	Fringes
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ELEVATOR MECHANIC.....	\$ 57.41	38.435+a+b
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PAID HOLIDAYS:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Vetern's Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years' service.

 ELEV0020-002 01/01/2025

CLARK, FLOYD and HARRISON COUNTIES

	Rates	Fringes
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ELEVATOR MECHANIC.....	\$ 56.57	38.435+a+b
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PAID HOLIDAYS:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Vetern's Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years' service.

 ELEV0034-003 01/01/2025

BROWN, DECATUR, FAYETTE, FRANKLIN, HENRY, JENNINGS, RANDOLPH, RIPLEY, RUSH, UNION and WAYNE COUNTIES

	Rates	Fringes
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ELEVATOR MECHANIC.....	\$ 60.17	38.435+a+b
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a) PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Vetern's Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b) Employer contributes 8% of regular hourly rate to vacation pay credit for employee with more than 5 years of service; 6% for less than 5 years' service.

 ENGI0103-006 04/01/2025

FAYETTE, HENRY, RANDOLPH, RUSH, UNION, and WAYNE COUNTIES

	Rates	Fringes
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Power equipment operators:		
GROUP 1.....	\$ 40.48	22.70
GROUP 2.....	\$ 39.53	22.70

GROUP 3.....	\$ 35.48	22.70
GROUP 4.....	\$ 31.78	22.70

Rates Fringes

Power equipment operators:

GROUP A.....	\$ 43.43	19.60
GROUP B.....	\$ 35.30	19.60

POWER EQUIPMENT OPERATORS

GROUP 1: Air Compressor (pressurizing Shafts, tunnels & drivers) Air Tugger; Auto Patrol; Back Filler; Back Hoe; Boom Cat; Boring Machine; Bull Dozer; Caisson Drilling Machine; Cherry Picker; Compactor (with dozer blade); Concrete Mixer (dual drum); Concrete plant; Concrete Pump; Crane with all attachments; Crane- Electric overhead; Derrick; Ditching Machine (18' and over); Dredge; Elevators (when hoisting material or tools); Fork Lift (machinery); Formless Paver; Generator (power for welders of compressor); Gradall; Helicopter; Helicopter Winch Operator; High Lift-Front End Loader; Hoist-Material and/or Personnel over 3 Floors; Locomotive; Mechanic on job site; Mucking Machine; Panel Board Concrete Plant; Pile Driver; Push Cat; Scoop & Tractor; Scraper-Rubber Tired; Spreader-Tractor Mounted; Straddle Carrier- Ross Type; Sub Base Finish Machine (C.M.I. or smiliar); Tower Crane; Tractor with Backhoe (over 1/2 yard); Welder (craft)

GROUP 2: A Frame Truck; Batcher Plant (automatic dry batch); Bending Machine-Power Driven; Bituminous Mixer; Bituminous Paver; Bituminous Plant Engineer; Boatman; Bull Float; Compactor or Tamper-Self Propelled; Concrete Mixer (21 cu. ft. or over); Concrete Spreader-Power Driven; Dinkey Engine; Ditching Machine; Ditching Machine (less than 18'"); Drilling Machine; Finish Machine & Bull Float; Finishing Machine; Fireman-Pile Driving and Boilers; Fork Lift-Masonry & Material; Guniting Machine; Head Greaser; Hoist-Material and/or personnel 3 floors and under; Mechanic in shop; Mesh Depresser-Mesh Placer; P.C.C. Concrete Belt Placer; Ruller-Asphalt, stone & sub base; Sheepsfoot Roller- Self Propelled; Shop Mule; Spreader or Base Paver-Self Propelled; Sub Grader; Throttle valve with air compressor or boiler; Tractor with Backhoe (1/2 yard & under); Tractor-high lift-farm type; Tractor-Industrial Type; Tractor with Winch; Well Points; Winch Trick

GROUP 3: Air Compressor (210 cu. ft. & over); bituminous Distributor; Chair Cart; Concrete Curing Machine; Concrete Saw; Dope Pot Power Agitated; Flex Plane; Form Grader; Hydrohammer; Jacks-Hydraulic-Power Driven; Minor Equipment opr. 3,4, or 5; Paving Joint Machine; Post Hole Digger; Roller-Earth; Throttle Valve; Track Jack-Power Driven; Tractor-Farm Type; Truck Crane Driver

GROUP 4: Air Compressor (less than 210 cu. ft.); Concrete Mixer (under 21cu. ft.); Conveyor; Generator; Mechanical Heater; Oiler; Operator-2 pieces of miner equipment; Power Broom; Pump; Welding Machine

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP A: A-Frame Winch Truck, Articulating dump, autograde (CMI), auto patrol, ballast regulator (RR), batcher plant (electrical control concrete), bending machine (pipe), bituminous plant (engineer), bituminous plant, bituminous mixer travel plant, bituminous paver, bituminous roller, boring machine, buck hoist, bull dozer, cable way, Chicago boom, chimney hoist, clamshell concrete mixer (21 cu. ft. or over), concrete paver, concrete pump (crete), construction elevator (Allmac or similar) crane, craneman, crawler backhoe, crawler high-lift, crusher plant, derrick, derrick boat, dinkey, directional/boring machine, dope pots (pipeline), double drum tugger (electric or air), dragline, dredge operator, dredge engineer, drill operator, elevating grader, extendable boom forklift, formless paver, gantry creane, gator (or similar type tiller), gradeall, grader, grademan, greaser (on grease facility servicing heavy equipment), G.P.S System (on equipment within the classifications), grout pump, head greaser, helicopter crew, Hetherington paver, hoist (motroized, gas or disel), hydraulic crane, hydro blaster, Industrial type forklift (over 9,000 lbs), laser concrete screed, laser or remote controlled equipment (within the classifications), locomotive crane, locomotive, mechanic, mobile mixer, motor crane, mucking machine, multiple tamping machine (RR) overhead crane, pile driver, pulls push dozer, push boats, roller (sheep foot), rough terrain crane, R.T. backhoe, R.T. endloader, Ross carrier, scoop, shovel, side boom, skidsteer loader (bobcat or similar type), swing crane, tail boom, tar machine (pipeline), tower crane, trench machine, welder (heavy duty), truck mounted concrete pump, truck-mounted drill, vacuum truck, well point, whirleys.

GROUP B: Air Compressor (1 or more, 600 cfm and over) air compressor with throttle valve, bituminous distributor, brakeman, bullfloat, cement gun, concrete mixer, concrete mixer, concrete saw, concrete spreader or puddlers, conveyor, deck hand oiler, deck engine, drill helper, earth roller, electric vibrator compactor (earth or rock), elevator (in-plant, automatic), finishing machine, fireman, form grader, generator, guard-rail dfriver, heater, oiler, Industrial type forklift (9,000 lbs and under), material pump, motor boats, paving joint machine, post hole digger, power broom, power traffic signals, rock roller, rocker spreader, Roller (earth or rock), spike machine (RR), steam jenny, sub grader, tamping machine, truck crane oiler, truck mounted drill oiler, Tugger (one-drum, air or electric) vibrator, vibro-piling hammer-hydraulic hammer or auger, water pump, widener (apsco or similar type) welding machine, JLG lifts and scissor lifts or similar machine.

ENGI0181-012 04/01/2025

BROWN, CLARK, DEARBORN, DECATUR, FLOYD, FRANKLIN, HARRISON, JENNINGS, OHIO, RIPLEY, and SWITZERLAND COUNTIES

IRON0022-002 06/01/2025

BROWN, DECATUR (W 3/4), FAYETTE (W 1/2), FRANKLIN (NW TIP), HENRY, JENNINGS (NW TIP), RANDOLPH (SW TIP), AND RUSH COUNTIES:

EXCLUDING WINCHESTER BUT INCLUDING UNION CITY) UNION AND WAYNE COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 38.00	26.39

	Rates	Fringes
IRONWORKER.....	\$ 32.69	24.50

The following holidays shall be observed: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the day after Thanksgiving and Christmas Day. Any holiday which occurs on a Sunday shall be observed the following Monday, unless the legal observance of these holidays is changed by law.

LABO0741-002 06/01/2025

BROWN, DEARBORN, DECATUR, FRANKLIN, JENNINGS, OHIO, and RIPLEY COUNTIES

IRON0044-007 06/01/2025

DEARBORN, DECATUR (REMAINDER OF COUNTY), FAYETTE (SE CORNER), FRANKLIN (S. 3/4), OHIO, RIPLEY (REM. OF COUNTY), SWITZERLAND (REM. OF COUNTY), & JENNINGS (NE TIP) COUNTIES:

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 28.38	18.55
GROUP 2.....	\$ 29.13	18.55
GROUP 3.....	\$ 30.38	18.55

LABORERS CLASSIFICATIONS

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for masons or plasterers); Railroad Workers; Masonry Wall Washers (interior & exterior); Portable Water Pumps with Discharge up to 3 Inches; Handling of Creosote Lumber or Like Treated Material (excluding railroad material); Asphalt Rakers and Lutemen; Earth Compactors; Jackmen and Sheetmen working ditches deeper than six (6) feet in depth; Laborers in Ditches six (6) feet in depth or deeper; Assembly of Unicrete Pump; Tile Layers (sewer or field) and Sewer Pipe Layers (metallic or non-metallic); Motor driven wheelbarrows and concrete buggies; Hyster Operators; Pump Crete Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handler (bulk or bag); Handling of toxic material damaging to clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water main and cable ducking (metallic and non-metallic); Screed Man or Screw Operator on Asphalt Paver; Chain Saw and Demolition Saw Operators; Concrete Saw; Concrete Conveyor Assemblers; Applying of Curing Compound; Sinking of Wellpoints; Dewatering Header Systems.

GROUP 2: Plaster Tenders; Mortar Mixers; Welders (acetylene or electric); Cutting Torch or Burner; Cement Nozzle Laborers; Cement Gun Operators; Scaffold Builders for Plasterers; Scaffold Builders for Masons; Water Blast Machine Operators; Air Tool Operators and all Pneumatic Tool Operators; Air and Electric Vibrators and Chipping Hammer Operators; Asbestos Removal; Hazardous Waste Removal; All Boiler Setters Laborers, including Expeditors, Bottom Men and Bell Men.

GROUP 3: Dynamite Men, Mason Tenders, Drillers-air track or wagon drilling for explosives.

	Rates	Fringes
IRONWORKER		
Fence Erectors.....	\$ 35.88	23.90
Structural & Ornamental.....	\$ 37.77	23.90

IRON0070-007 06/01/2025

CLARK, FLOYD, HARRISON, JENNINGS (S 2/3), SWITZERLAND (SW TIP), AND RIPLEY (SW TIP) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 36.17	25.80

IRON0070-019 06/01/2025

DEARBORN, DECATUR (REM. OF COUNTY), FAYETTE (SE CORNER), FRANKLIN (S. 3/4), OHIO, RIPLEY (REM. OF COUNTY), SWITZERLAND (REM. OF COUNTY) and JENNINGS (NE TIP) COUNTIES

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 36.17	25.80

IRON0147-003 06/01/2025

RANDOLPH COUNTY

	Rates	Fringes
IRONWORKER.....	\$ 35.40	26.92

IRON0290-003 06/01/2023

FAYETTE (REMAINDER OF COUNTY), RANDOLPH (S. PART OF COUNTY

LABO0795-001 06/01/2025

CLARK, FLOYD, HARRISON, and SWITZERLAND COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 26.40	18.90
GROUP 2.....	\$ 27.40	18.90
GROUP 3.....	\$ 28.15	18.90

LABORER CLASSIFICATIONS:

GROUP 1: Building and Construction Laborers, Scaffold Builders (other than for Masons or Plasterers), Mechanic Tenders, Rodmen & Chainmen, Signalmen & Flagmen, Window Washers & Cleaners, Waterboys & Toolhousemen, Railroad Workers, Masonry Wall Washers (interior & Exterior), All Portable Water Pumps with Discharge up to three (3) inches, Waterproofing, Handling of creosote lumber or like treated Material (excluding Railroad Material), Asphalt Rakers & Luteman, Kettlemen, Air Tool Operators and all Pneumatic Tool Operators, Air and Electric Vibrators and Chipping Hammer Operators, Earth Compactors, Jackman & Sheetmen working Ditches Deeper Than Six (6) feet in depth, Laborers working Ditches Six (6) feet in Depth or Deeper, Assembly of Unicrete Pump, Tile Layers (sewer or field) & Sewer Pipe Layers (metallic or non- metallic), Motor Driven Wheelbarrows and Concrete Buggies Hyster Operators, Pump Crete Assemblers, Core Drill Operators, Cement, Lime or Silica Clay Handlers (bulk or bag), Handling of Toxic Materials Damaging to Clothing, Pneumatic Spikers, Deck Engine & Winch Operators, Water Main & Cable Ducking (Metallic and Non-Metallic), Screed Man or Screw Operator on Asphalt Paver, Chain Saw and Demolition Saw Operators, Concrete Conveyor Assemblers, Asbestos Removal, Hazardous Waste Removal.

GROUP 2: Plaster Tenders, Mortar Mixers, Welders (Acetylene or Electric), Cutting Torch or Burner, Cement Nozzle Laborers, Cement Gun Operators, Scaffold Builders when Working for Plasterers, Scaffold Builders When Working for Masons Water Blast Machine Operators.

GROUP 3: Dynamite Men, Mason Tenders, Drillers-Air Track or Wagon Drilling for Explosives.

LABO1112-002 06/01/2025

RANDOLPH COUNTY

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 28.06	18.55
GROUP 2.....	\$ 28.81	18.55
GROUP 3.....	\$ 30.06	18.55

LABORER CLASSIFICATIONS

GROUP 1: Building and construction laborers; scaffold builders (other than for masons of plasterers); mechanic tenders; window washers and cleaners; railroad workers;

masonry wall washers; portable water pumps with discharge up to 3 inches; signal & flag person

GROUP 2: Waterproofing; hauling of creosote lumber or like treated material (excluding railroad material); asphalt rakers and lutemen; kettlemen; air tool operator; pneumatic tool operator; air & electric vibrators and chipping hammer operator; earth compactors; jackman & sheetmen in ditches more than 6 feet deep; laborers in ditches 6' deep or deeper; assembly of unicrete pump; tile layers (sewer or field); sewer pipe layers; motor- driven wheelbarrows and concrete buggies; hyster operator; pumpcrete assemblers; core drill operator; cement, lime or silica clay handlers; handling of toxic materials damaging to clothing; pneumatic spikers; deck engine & winch operator; water main & cable ducking; screed man or screw operator on asphalt paver; chain saw & demolition saw operator; concrete conveyor assembler; asbestos removal; hazardous waste removal

GROUP 3: Plaster tenders; mortar mixers; welders (acetylene or electric); cutting torch or burner; cement nozzle laborers; cement gun operators; scaffold builders for plasterers; scaffold builders; water blast machine operator

LABO1112-004 06/01/2025

FAYETTE, HENRY, RUSH, WAYNE, and UNION COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 28.06	18.55
GROUP 2.....	\$ 28.81	18.55
GROUP 3.....	\$ 30.06	18.55

LABORER CLASSIFICATIONS

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for Masons or Plasterers); Mechanic Tenders; Civil Engineer Tenders and Surveyor tenders; Rodmen & Chainmen; Signalmen & Flagmen; Window Washers & Cleaners; Waterboys & Toolhousemen; Railroad Workers; Masonry Wall Washers (interior & exterior); Cement Finisher Helpers; All Portable Water Pumps with discharge up to three (3) inches, Waterproofing; Handling of Creosote Lumber or like treated material (excluding railroad material); Asphalt Rakers & Lutemen; Kettlemen; Air Tool Operators and all pneumatic tool operators, air and electric vibrators and chipping hammer operators); Earth Compactors; Jackmen & Sheetmen working ditches deeper than six (6) feet in depth; Laborers working ditches six (6) feet in depth or deeper; Assembly of Unicrete Pump; Tile Layers (sewer or field) & sewer pipe layers (metallic or non- metallic); Motor driven wheelbarrows and concrete buggies; Hyster Operators; Pump Crete Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handlers (bulk or bag); Handling of Toxic Materials Damaging to Clothing; Pneumatic Spikers; Deck Engine & Winch Operators; Water Main & Cable Ducking (metallic and non-metallic); Screed man or screw operator

on asphalt paver; Chain saw and demolition saw operators; Concrete conveyor assemblers; Asbestos removal; Hazardous waste removal.

GROUP 2: Plaster tenders; Mortar mixers; Welders (acetylene or electric); Cutting torch or burner; Cement nozzle laborers; Cement gun operators; Scaffold builders when working for plasterers; Scaffold builders when working for masons; Water blast machine operators.

GROUP 3: Dynamite men; Mason Tenders; Drillers-air track or wagon drilling for explosives.

PAIN0012-006 05/01/2024

COMMERCIAL AND INDUSTRIAL

DEARBORN, OHIO, RIPLEY AND SWITZERLAND COUNTIES:

Rates Fringes

PAINTER

Bridges, Lead Abatement.....\$ 31.68	14.46
Brush & Roller,	
Paperhanger, Drywall Taping.\$ 30.34	14.46
Sandblasting, Waterblasting.\$ 31.68	14.46
Spray.....\$ 28.79	14.46

PAIN0047-001 06/01/2024

BROWN, DECATUR AND JENNINGS COUNTIES

Rates Fringes

PAINTER

Brush, Roller.....\$ 31.02	16.86
Spray and Sand-Blasting.....\$ 32.02	16.86

PAIN0118-007 06/01/2024

CLARK, FLOYD AND HARRISON COUNTIES

Rates Fringes

PAINTER

Brush, Roller,	
Paperhanger, Spray,	
Sandblast & Waterblast.....\$ 23.21	15.85

PAIN0387-004 11/01/2023

DEARBORN, FRANKLIN, OHIO, RIPLEY, and SWITZERLAND COUNTIES

Rates Fringes

GLAZIER.....\$ 31.95	17.75
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PAIN0669-002 05/01/2024

FAYETTE, FRANKLIN, HENRY, RANDOLPH, RUSH, UNION AND WAYNE

Rates Fringes

Painters:

Brush; Roller;		
Paperhanging; Drywall		
Finishers.....\$ 25.10	16.39	
Spray/Waterblasting;		
Sandblasting.....\$ 26.10	16.39	

PAIN1165-008 07/01/2025

CLARK, FLOYD, HARRISON COUNTIES

Rates Fringes

GLAZIER.....\$ 35.13	19.57
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PAIN1165-015 01/01/2025

BROWN, DECATUR, FAYETTE, HENRY, JENNINGS, RANDOLPH, RUSH, UNION, and WAYNE COUNTIES

Rates Fringes

GLAZIER.....\$ 36.03	20.55
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PLAS0132-007 06/22/2018

DEARBORN, FRANKLIN (Southern half, south of a line running East and West established South of Brookville), OHIO, RIPLEY and SWITZERLAND COUNTIES

Rates Fringes

PLASTERER.....\$ 24.25	14.65
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PLAS0692-003 06/01/2025

AREA #46

BROWN and CLARK COUNTIES

Rates Fringes

PLASTERER.....\$ 31.50	18.32
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PLAS0692-011 06/01/2025

AREA #83

DECATUR, FAYETTE, FRANKLIN, HENRY, RANDOLPH, RUSH, UNION and WAYNE COUNTIES

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...\$ 32.55	22.04
PLASTERER.....\$ 30.60	17.19

PLAS0692-027 04/01/2025

AREA #566

CRAWFORD, DAVIESS, DUBOIS, GIBSON, HARRISON, KNOX, MARTIN, PERRY, PIKE, POSEY, SPENCER, VANDERBURGH and WARRICK COUNTIES

Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...\$ 32.50	20.77

PLAS0692-033 05/01/2025

BROWN, CLARKE, DEARBORN, FLOYD, FRANKLIN (SOUTHERN 1/2), JENNINGS, OHIO, RIPLEY AND SWITZERLAND COUNTIES

Rates	Fringes
CEMENT MASON/CONCRETE FINISHER AREA #821.....\$ 30.02	18.20

PLUM0136-002 04/01/2025

REMAINING COUNTIES

Rates	Fringes
Plumbers and Pipefitters.....\$ 46.42	21.33

PLUM0392-006 06/01/2024

DEARBORN, OHIO, RIPLEY, AND SWITZERLAND COUNTIES

Rates	Fringes
Plumbers and Pipefitters.....\$ 40.70	29.52

PLUM0440-004 06/01/2025

FAYETTE, FRANKLIN, HENRY, RANDOLPH, RUSH, UNION and WAYNE COUNTIES

Rates	Fringes
Plumber and Steamfitter.....\$ 50.05	20.39

PLUM0502-001 08/01/2016

CLARK, FLOYD AND HARRISON COUNTIES

Rates	Fringes
PLUMBER/PIPEFITTER.....\$ 32.00	20.13

ROOF0042-005 08/01/2024

DEARBORN, OHIO and RIPLEY COUNTIES

Rates Fringes

Roofers:

Roofer.....\$ 33.00	19.51
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ROOF0106-013 07/01/2025

CLARK, FLOYD, HARRISON and SWITZERLAND COUNTIES

Rates Fringes

ROOFER.....\$ 30.97	14.66
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ROOF0119-005 09/01/2025

Rates Fringes

ROOFER.....\$ 32.00	16.61
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* SHEE0020-012 07/01/2025

BROWN, DECATUR, FAYETTE, FRANKLIN, HENRY, JENNINGS, RIPLEY, RUSH AND UNION

Rates Fringes

Sheet metal worker.....\$ 45.81	26.57
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SHEE0024-006 06/01/2023

RANDOLPH and WAYNE COUNTIES

Rates Fringes

Sheet metal worker.....\$ 31.23	25.79
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SHEE0024-012 06/01/2023

DEARBORN AND OHIO COUNTIES

Rates Fringes

Sheet metal worker.....\$ 34.32	22.82
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SHEE0110-007 12/01/2013

CLARK, FLOYD, HARRISON and SWITZERLAND COUNTIES

Rates Fringes

Sheet Metal Worker.....\$ 28.66	18.03
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TEAM0135-002 04/01/2025

BROWN, CLARK, DEARBORN, DECATUR, FAYETTE, FLOYD, FRANKLIN, HENRY, JENNINGS, OHIO, RANDOLPH, RIPLEY, RUSH, SWITZERLAND, UNION, AND WAYNE COUNTIES

Rates Fringes

Truck drivers:

GROUP 1.....	\$ 32.67	.42+a+b
GROUP 2.....	\$ 33.17	.42+a+b
GROUP 3.....	\$ 33.37	.42+a+b
GROUP 4.....	\$ 33.52	.42+a+b
GROUP 5.....	\$ 34.02	.42+a+b

A: \$36.40 PER DAY & 450.00 PER WEEK.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Single Axle Trucks seven(7) cu.yds. or less than ten and one-half (10 1/2) tons, dumpsters, scoop-mobiles five (5) cu. yds. and under or less than seven and one-half (7 1/2) tons, mixer trucks three (3) cu.yds. and under, air compressors and welding machines, including those pulled by separate units, batch trucks - wet or dry - 2'''34-E batches or less, truck driver helpers, warehousemen, mechanic's helpers, greasers and tiremen, all pick-up trucks and other vehicles. Drivers on dumpsters or similar dumpsters, mounted on a four (4) wheel truck rate two (2) cu.yds. or less and small pallet type fork-lift operator and drivers on pallet jacks or similar type equipment.

GROUP 2: Drivers on tandem axle eighteen (18) cu.yds. or twenty-four (24) tons gross, six (6) wheel trucks, Koehring or similar dumpsters, tract trucks, Euclids, hug bottom dumps, tournapulls, tournatrailers, tournarockers, or similar equipment when used for transportation purposes under nine (9) cu.yds. or less than thirteen and one-half (13 1/2) tons, tandems and semi-trailer service trucks, mixer trucks over three (3) cu.yds. and including six and one-half (6 1/2) cu.yds., fork lift, four (4) wheel A frame trucks when used for transportation purposes, four (4) wheel winch trucks, pavement breakers, batch trucks-wet or dry-over 2 up to and including 4-'''34-E''' batches, two (2) men oil distributors, fork-lift under four (4) ton and vacuum trucks.

GROUP 3: Koehring or similar dumpsters, tract trucks, sem-trailer water trucks, Euclids, hug bottom dumps, tournapulls, tournatrailers, tournarockers, tractor trailers, tandems Q frame winch trucks, hydrolift trucks or similar equipment when used for transportation purposes, mixer trucks over six and one-half (6 1/2) cu.yds. batch trucks wet or dry over 4-'''34-E'''batches single axle low boy trailers, and contractor's mechanics when working on equipment operated by employees within the bargaining unit; six (6) wheel pole trailers and one (1) man oil distributors, fork-lift over four (4) ton and mobile mixers

GROUP 4: Drivers on heavy equipment over sixteen (16) cu.yds. or twenty-four ton, such as Koehring or similar dumpsters, tract trucks, Euclids, hug bottom dumps, trounapulls, trounarockers or similar equipment when used for transportation purposes, pole trailers over six (6) wheels, water pulls, low-boy trailers tandem axles, quad axle or more no-weight limitation, diesel and /or heavy equipment mechanics when working on equipment

operated by employees within the bargaining unit.

GROUP 5: Mechanic, with his own tools.

TEAM0215-006 04/01/2025

HARRISON COUNTY

Rates Fringes

Truck drivers:

GROUP 1.....	\$ 27.08	21.52
GROUP 2.....	\$ 27.54	21.52
GROUP 3.....	\$ 27.76	21.52

GROUP 1 Pickup Trucks, Winch Trucks, Warehouseman, Mechanic, Street Sweepers, Single axle Trucks

GROUP 2 Tandem Trucks or Dump Trucks; Farm Tractor-Pulling Trailer; Bituminous Distributors, Pavement Breakers

GROUP 3 Mixer Trucks, all types; Lowboys, all types; Semi-trucks, all types; All Tri-axle Dump Trucks; Articulated End Dumps; End Dumps; Heavy Equipment Type Water Wagons; Hazardous Waste Warehouseman; Hazardous Waste Driver; and Drivers on equipment when not self-loaded or pusher loaded, such as Koehring or similar dumpsters, track trucks, Euclid bottom dump and hug bottom dump, Tournatrailers, Tournarockers or similar equipment

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been

renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than "SU", "UAVG", "SA", or "SC" denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The "SU" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

SECTION 000500 – PRELIMINARY PROJECT SCHEDULE – ADDENDUM 01

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PROJECT SCHEDULE

- A. First Advertisement: By March 20, 2026
- B. Second Advertisement: By March 27, 2026
- C. Pre-bid Meeting: March 31, 2026, 10:00am at Richmond Municipal Airport
- D. Last Day for Bidder Questions: April 13, 2026
- E. Date of Last Addendum: April 13, 2026
- F. Bids Due: April 16, 2026, 2:00pm at Richmond Municipal Airport, 5169 State Road 227, Richmond, IN 47374.
- G. Bid Opening: April 16, 2026, 5:00PM; Richmond City Building, 50 North 5th Street, 3rd Floor Law Conference Room.
- H. **April 17 thru April 24, 2026: Meetings with Lowest Responsive Bidders to evaluate and determine Lowest Responsible Bidder. (ADD 01)**
- I. Notice of Award: **Pending Federal Grant Approvals – September 28, 2026 – (ADD 01)**
- J. Issue Notice to Proceed: **Pending Federal Grant Approval – September 29, 2026 – (ADD 01)**
 - 1. Prepare Contracts, obtain signatures
- K. Pre-Construction Conference: **Within 15 Days of Notice to Proceed – (ADD 01):**
- L. Informational Submittals:
 - 1. List of Key Personnel Assignments: Superintendent, Managers contact information.
 - 2. Submittals Schedule: Prepare list of all required submittals, including submission date for each. Critical path submittals shall be identified and scheduled accordingly, allowing 15days for Architects initial review.

- M. **Construction Period: Pending Federal Grant Approval and Notice to Proceed Dates – September 29, 2026 thru June 25, 2027 – (ADD 01)**
1. Prepare critical path shop drawings for submission to A/E
- N. **Substantial Completion Date: Approximately 270 Calendar Days after Notice to Proceed – June 25, 2027 – (ADD 01)**

END OF SECTION

SECTION 001072 – MODIFICATION TO GENERAL CONDITIONS – ADDENDUM 01

These Supplementary Conditions modify, change, delete from or add to the "General conditions of the Contract for Construction" AIA Document A201 / 2017 Edition, and are hereby made a part of the Contract. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph, or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, paragraph, Subparagraph or Clause shall remain in effect.

ARTICLE 1 – GENERAL PROVISIONS

Add the following Subparagraph 1.1.1.1 as follows:

"The Contract Documents shall include the Bidding Documents such as the Invitation to Bid, the Instructions to Bidders, Sample Forms, the Contractor's Bid, all Addenda and other documents as specifically enumerated in the Owner-Contractor Agreement."

Add the following Subparagraphs 1.1.9 through 1.1.16:

1.1.9 The term "products(s)" as used in the Contract Documents refers to the materials, systems, and equipment provided by the Contractor for use in the Work of the Project.

1.1.10 The terms "warranty" and "guarantee" as used in the Contract Documents shall have the same meanings and shall be defined as "legally enforceable assurance of the duration of satisfactory performance or quality of a product or Work."

1.1.11 Where materials, systems, and equipment items are referred to in the singular, such reference shall not serve to limit the quantity required. Furnish quantities as required by the Contract Documents to complete the Work.

1.1.12 The Project Manuals are the volumes which include the Bidding Documents and Bid Forms; the Contracts, Conditions of the Contract and Division 1 - General Requirements, and the specifications noted on the drawings. Requirements set forth in the various sections of the Project Manual are interrelated and are binding on the Contractor in their entirety whether issued as one or multiple documents or volumes.

1.1.13 The term "Contractor" as used in the Contract Documents refers to the Contractor.

1.1.14 The general character and scope of the physical construction are shown by the drawings. Where a portion of the Work is fully drawn and the remainder is merely indicated, the portion fully drawn shall apply.

1.1.15 Calculated dimensions shall be followed in preference to scaled measurements. Dimensions on drawings and within the physical construction are subject to field verification.

1.1.16 Reasonable Time - Whenever a "reasonable time" is specified in any of the Contract Documents, the time allowed shall be forty eight (48) hours, weekends and holidays excluded, unless otherwise indicated or agreed upon. However, if it is necessary for any Contractor or Subcontractor to repair or replace any work after final acceptance of all work, the repair or replacement shall be done forthwith without regard for the foregoing provisions.

Add the following Subparagraphs 1.2.4, 1.2.5, and 1.2.6:

1.2.4 The limits of the Work shall not be restricted because of the arrangement of the Specifications. Where responsibility for particular work is required of a particular trade or contract, that trade or contract shall not be released from that responsibility by reason of the location of the specification working or drawing information which establishes the responsibility.

1.2.4.1 It is understood and agreed by the Contractor that the Work described in the Contract Documents is intended to be as complete as possible. The Contractor shall be held to provide all labor, equipment, materials, and related services necessary for the entire completion of the physical construction described in the Contract Documents and reasonably implied therefrom. The Contract Documents indicate the intended occupancy and utilization of the building and its individual systems, facilities, and components, and it is intended that the Contractor supply a building that is fit for the indicated use.

1.2.5 Should the Contract Drawings and Specifications be in disagreement with each other relative to quality or quantity of Work required, the better quality and/or the greater quantity shall govern, and shall be provided, unless instructions are otherwise furnished to the Contractor by the Architect in writing. If an item is shown on the Drawings, but not specified, the Contractor shall provide the item of a similar quality to other items specified, as determined by the Architect. If an item is specified but not shown on the Drawings, it shall be located as directed by the Architect.

1.2.5.1 Where a number is listed in the Contract Documents (as for gauges, weights, temperatures, amount of time, etc.) the number shall be interpreted as that or better. Variations must be requested in writing by the Contractor and must be approved in writing by the Architect.

1.2.6 The Contractor shall perform its duties hereunder with due diligence; in a good and workman-like manner using new, good quality materials; in full compliance with the Drawings and Specifications; in accordance with all applicable laws, ordinances, and rules, and regulations.

1.5.2 After the last word "consultants," insert the phrase ",which shall not be unreasonably withheld."

ARTICLE 2 - OWNER

Add the following Paragraph 2.6:

2.6 COST OF COMPLETION

2.6.1 Neither the Owner nor its officers, agents, employees, or representatives are in any way liable or accountable to the Contractor for the method by which completion of Work, or any portion thereof,

is accomplished or for the price paid therefore. The Contractor is responsible for all costs of completing the work in excess of the Contract Sum. The Owner does not forfeit the right to recover damages from the Contractor for failure to complete the Contract by taking over the work or declaring the Contractor in default. Maintenance of the work remains the Contractor's responsibility.

ARTICLE 3 - CONTRACTOR

Add the following Subparagraph 3.2.2.1:

3.2.2.1 The Drawings shall not be scaled. Indicated or figured dimensions shall be followed: In case of any discrepancy in the figures, the Contractor shall bring the matter to the attention of the Architect for decision before proceeding with the Work. Failure to follow this procedure shall be at the Contractor's own risk.

To Subparagraph 3.4.1 add the following Clause 3.4.1.1:

3.4.1.1 The Contractor shall place orders for materials and equipment to be incorporated in the Work as soon as possible after award of the Contract and receipt of approvals where applicable. The Contractor shall keep the Architect informed as to availability of all specified materials and equipment.

Add the following Subparagraphs 3.4.4 and 3.4.5:

3.4.4 The Contractor agrees that neither he nor his subcontractors will discriminate against any employee or applicant for employment, to be employed in the performance of this Contract, with respect to hire, tenure, conditions, or privileges of employment, or any matter directly or indirectly related to employment, because of race, age, sex, color, religion, national origin, ancestry, or sexual orientation. Breach of this covenant may be regarded as a material breach of this Contract.

3.4.5 The Contract Sum will not be increased because of increases in labor rates, increases in material and equipment costs, and/or increases in equipment rental charges.

Add the following Subparagraphs to 3.5 as follows:

3.5.3 When so requested by the Architect, the Contractor and his Subcontractors and manufacturers or suppliers shall certify in writing that materials furnished by them comply with requirements described in Specifications and reference standards, including tests, and are so guaranteed by them. Certification shall be by affidavit from Contractor if so requested by the Architect.

3.5.4 As part of the Work, the Contractor shall properly adjust and regulate all systems and equipment so that such systems and equipment will function as intended; and it is understood that such systems and equipment cannot be properly regulated or adjusted until they are in actual use or operation.

3.5.5 The Contractor shall not be relieved of his general warranty obligation by the specification of a particular product or procedure.

3.5.4 The Contractor shall warrant all Work for a period of **one year (ADD 01)** after the date established for substantial completion. Determination of this date shall be at the Architect's sole and absolute discretion and shall be final. The Contractor shall replace, without cost to the Owner or interference with Owner's operation, any defective workmanship or materials. All work shall be completed to the satisfaction of the Owner and Architect.

3.5.5 Manufacturers and fabricators of materials and products shall warrant their materials or products for a minimum period of one year after the date of substantial completion unless otherwise indicated in the Specifications. Owner may request such warranties in writing.

3.5.6 The responsibility for defective work shall not terminate at the end of the guarantee period. The Contractor shall continue to provide even beyond the **one year period (ADD 01)**, without limitation, such additional replacements or repairs required to correct all defective workmanship and materials for which written notice of the failure of compliance with Contract Documents has been given prior to the expiration of the two-year period.

3.5.7 The provisions contained in this paragraph 3.5 shall not be construed as restricting the Contractor's liability (or the Owner's right to recover damages) for breach of Contract by reason of non-conformance with the specifications or defects or faulty workmanship.

To Subparagraph 3.6 add the following Clauses 3.6.1, 3.6.2, 3.6.3, 3.6.4:

3.6.1 The Contractor shall pay all Social Security, unemployment and other taxes required by Federal, State, and Local Laws.

3.6.2 Contractors shall be responsible for informing themselves of tax laws, requirements, regulations, and interpretations as they apply to this Project.

3.6.3 Unless otherwise specified, the Contract Sum shall include all taxes applicable under tax laws in effect as of the date of Bid Opening, and which are applicable to the Work. If tax laws are subsequently amended by legislation, equitable net adjustment to the Contract Sum shall be made upon claim by either party involved. Separate Contractors and Subcontractors shall pay all taxes on materials, labor, or services furnished by them.

3.6.4 As provided in Clause 3.6.1, allowances shall include all applicable taxes, and failure by the Contractor to include applicable taxes shall not be cause to increase the Contract Sum.

Add the following Subparagraph 3.7.1:

3.7.1.1 The Contractor shall obtain and pay for a Certificate of Occupancy as required by governing authorities prior to final acceptance of the Project. Certificate shall be forwarded to the Owner.

3.7.1.2 LWC Incorporated will submit documents to the State and the Contractor shall obtain and pay for the General Building Permit as required by authorities having jurisdiction. All other permits, fees required by local authorities of the Contractor or his Sub-contractors shall be included with the Contractor's Bid. The Contractor shall obtain and pay for the "Occupancy Permit".

3.7.1.3 Submission of documentation of project modifications required subsequent to the initial submission of documents for permitting under Section 3.7.1.2 shall be the responsibility of the Contractor and / or their sub-contractor. The Contractor shall be responsible for any costs associated with such submission. The Architect and their consultants shall provide documentation requested within 21 days, after receiving all necessary information to finalize such modification. The time required to document the modification and any time required for review and approval by the Authority Having Jurisdiction, if required, shall not increase the Contract time.

3.7.1.4 The Contractor shall obtain and pay for required "Tap in Fees".

3.7.1.5 The Contractor shall pay for the "Aid to Construction" charge.

Add the following Paragraph 3.10.4 and Subparagraphs 3.10.4.1 through 3.10.4.4:

3.10.4 When it becomes apparent from the weekly progress meeting that any activity completion date may not be met, the Contractor shall take some or all of the following actions at no additional cost to the Owner or the Architect:

3.10.4.1 Increase construction manpower in such quantities as will eliminate the backlog of work and put the Project back on schedule.

3.10.4.2 Increase the number of working hours per shift, shifts per working day, working days per week, or the amount of construction equipment, or any combination of the foregoing as will substantially eliminate the backlog of work and put the project back on schedule.

3.10.4.3 Reschedule activities to achieve maximum practical concurrency of accomplishment of activities and put the Project back on schedule.

3.10.4.4 If a Contractor fails to take any of the above actions within forty-eight (48) hours after receiving written notice, the Owner may take action to attempt to put the Project back on schedule, and deduct the cost of such actions from the moneys due or to become due the Contractor.

To Subparagraph 3.12.2 add the following Clause 3.12.2.1:

3.12.2.1 All Work shall be furnished and installed in accordance with the Drawings, Specifications, and as additionally required by the manufacturer's printed instructions. The Contractor shall review the manufacturer's instructions, and where conflict occurs between the Drawings or Specifications and the manufacturer's instructions, the Contractor shall request clarification from the Architect prior to commencing the work.

Modify Subparagraph 3.12.8 as follows:

3.12.8 In the first sentence, delete the words "approved submittals" and substitute in lieu thereof the words "submittals reviewed by the Architect" and delete the words "Architect's approval" and substi-

tute in lieu thereof the words "Architect's review". In last sentence, delete the words "Architect's approval" and substitute "Architect's review".

Add the following Subparagraph 3.12.8.1:

3.12.8.1 The Contractor shall provide full information to the manufacturer as to the relevant performance requirements and conditions under which materials, systems, or equipment will be expected to operate. Certifications received shall be in the form of a presentation or assurance of performance at the Project site.

Add the following Subparagraph to 3.14:

3.14.3 Contractor and his Subcontractors shall provide chases, holes, and openings which are in correct location and of proper size, in their own work as may be necessary for proper installation of their own and other Subcontractor's work. Subcontractors shall consult with Contractor and any other Subcontractors concerned regarding proper location and size of chases, holes, and openings. In case of failure to leave or cut same in place, the Contractor, or Subcontractor shall cut them afterwards at his own expense. No excessive cutting will be permitted nor shall any structural members be cut without the consent of the Architect.

3.14.4 Each Contractor shall protect his work from damage at all times in a proper manner, or as the Architect may direct. Erect all necessary barriers, furnish and keep lighted and required danger signals at night, employ necessary watch person when required and take every precaution to prevent injury to persons or property.

3.14.5 Each Contractor shall be responsible for any damage which may accrue to the property of any other Contractor connected with the work, or to adjacent private or public properties, or to any portion of the structure which in any way results from the acts or neglect of his employees.

3.14.6 No Contractor shall cut away any structure, or other parts, or in any case allow the same to be done without the full knowledge and consent of the Architect and shall be held responsible for any damage resulting from any violations of the provisions of this clause.

Add the following Subparagraph 3.15.3 through 3.15.7:

3.15.3 All other Contractors and Subcontractors shall deposit their debris in a dumpster. Each Contractor shall be responsible for the removals daily of his crates and cartons in which materials, equipment, or fixtures are received. Failure of a Contractor to do so will require that this be done by the Owner and labor for doing so be charged to responsible Contractor. Debris removed from work site will be transported to an acceptable disposal site. Any debris, mud, or deleterious material from the building site will be removed from said streets at the end of each working day, or before, if directed by the Local Authority.

3.15.4 At the completion of the project, the Contractor, in addition to removal to accumulated rubbish, shall clean all first floor glass, clean windows both sides, replace any broken glass, remove paint, remove stains, spots, and marks from finish work and hardware.

3.15.5 At the completion of the project, the Contractor shall clean all plumbing fixtures and equipment he installs, including any fixtures which were used during construction.

3.15.6 The Contractor shall clean all light fixtures, including lenses, and miscellaneous devices which will include removing bugs, debris, stains, rust, and dirt after the completion of the building. Re-lamp all re-purposed/re-used fixtures. Re-lamp or furnish lamps to Owner for all fixtures used during construction.

3.15.7 The Contractor, at the completion of the work, shall remove all surplus material.

Add the following Subparagraph 3.18.3:

3.18.3 The Contractor shall be obligated to report errors or inconsistencies to the Architect and shall be liable for extra costs resulting from failure to give adequate notice of errors and inconsistencies.

Add the following Paragraph 3.19:

3.19 LABOR DISPUTES

3.19.1 The Contractor agrees to indemnify and hold the Owner and the Architect harmless from any and all losses or damages arising out of jurisdictional labor disputes or other labor troubles of any kind that may occur during performance of the Contract.

To Subparagraph 4.2 add the following Clauses 4.2.15, 4.2.16, 4.2.17:

4.2.15 The Architect will not be responsible for means and methods indicated by submittals.

4.2.16 The Architect will not be responsible for specified construction procedures. The Contractor shall be responsible for all construction means, methods, materials, and procedures. The Specifications may indicate or specify means, methods, and materials (including manufacturer's instructions, and reference codes and standards). Where the Architect makes such reference, it is merely to indicate a standard by which Work may be judged and to indicate means, methods, materials, and systems whose suitability has been demonstrated by "Rules of the Trade", by certified test data, industry standards, governing regulations, and manufacturer's recommendations. The Contractor shall be responsible for making timely objections, proposing alternative, or making discrepancies known to the Architect when procedures and materials are specified.

4.2.17 Products, materials, or methods, etc., were selected by the Architect and are reasonably fit for the particular purpose and for the use indicated; and the Architect may rely on the sellers, manufacturers, fabricators, referenced standard, or Contractor's judgement regarding the specific uses of materials, methods, or equipment.

ARTICLE 5 - SUBCONTRACTORS

To Subparagraph 5.1.1 add the following Clause 5.1.1.1:

5.1.1.1 Material and equipment suppliers shall be included in the definition of Subcontractors.

Add the following Subparagraph 5.1.3:

5.1.3 If any Contractor, Subcontractor, or Sub-Subcontractor desires to obtain the services of any other Subcontractor or Sub-Subcontractor, the party hired to do the work shall become a Subcontractor or Sub-Subcontractor under the party who has hired him, and shall be subject to all provisions of the Contract Documents which pertain to Subcontractors and Sub-Subcontractors as applicable.

Add the following Subparagraph 5.2.5:

5.2.5 The Contractor shall submit, prior to the award of a Contract, to the Architect a list of the names of the Subcontractors proposed for all portions of the Work. The above list shall be submitted either on AIA Document G805 or on the Contractor's letterhead, in which case the list shall identify the work to be done, the firm's name, the address, the phone number, and the contact representative for each Subcontractor listed.

5.2.5.1 No Work shall be commended and no payment will be approved until the Architect has received the above noted list of Subcontractors.

Add the following Subparagraph 5.3.1:

5.3.1 All subcontracts shall be in writing and the Contractor shall be responsible for forwarding copies to the Architect or Owner upon request.

ARTICLE 6 – CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

To Subparagraph 6.1.3 add the following Clause 6.1.3.1:

6.1.3.1 The Contractor's cooperation, as required by Subparagraph 6.1.3 shall include, but not necessarily be limited to, requirements for phased construction, the Owner's phased occupancy and all other needs for the project.

Add the following Subparagraph 6.1.5:

6.1.5 Any use of the premises and partial occupancy by the Owner shall not be construed as an acceptance of any portion of the Work nor a waiver of any claims.

ARTICLE 7 - CHANGES IN THE WORK

Add the following to Subparagraph 7.1:

7.1.4 The Contractor shall promptly notify the Architect should the Contractor encounter any concealed condition which might result in a claim for adjustment of the Contract Sum including adjustment on the basis of established unit prices. Failure to promptly notify the Architect will waive the right of the Contractor to seek an increase in the Contract Sum.

7.1.5 The Contractor shall verify all information given prior to beginning his work. The Contractor shall make careful investigation to establish the exact location of items indicated on the Drawings. The Contractor shall be responsible for all costs arising out of damage to such items which result from his work.

7.1.6 The Contractor shall be alert to any indication or evidence of existing or concealed utilities not shown on the Drawings and shall notify the Architect of such evidence. If the Contractor encounters such utilities or structures he shall cease operations immediately to minimize damage, and shall notify the Architect. Cost of unavoidable initial damage, and such supplemental and remedial work which is ordered by the Architect, shall be borne by the Owner in accordance with the General Conditions. The Contractor shall bear the cost of damage resulting from his failure to exercise reasonable care in his work, or from continuing operations without notifying the Architect.

7.1.7 Contractors bidding on this work are encouraged to visit the site and determine all local conditions that may in any way affect their work.

7.1.8 After award of the Contract, no substitutions of manufacturer, products, materials, equipment, or technique will be considered unless a formal written request is submitted by the Contractor to the Architect and substantiated by one or more of the following conditions:

7.1.8.1 Required for compliance with code requirements or insurance regulations not existing at the time of award of the Contract.

7.1.8.2 Impossibility of supplying in conformance with the Contract Documents, through no fault of the Contractor.

7.1.8.3 Where the substitution would clearly serve the Owner's best interest, in terms of cost, time, value, or other consideration.

7.1.8.4 Represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;

7.1.8.5 Represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;

7.1.8.6 Certifies that the cost data presented is complete and includes all related costs under this Contract but excludes costs under separate contracts, and excludes the Architect's redesign costs, and

waives all claims for additional costs related to the substitution which subsequently become apparent; and

7.1.8.7 Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

7.1.8.8 Substitution requests shall be timely, stating the reason why the substitution is being proposed and accompanied by complete data on the proposed substitution, substantiating compliance with the Contract Documents including product identification and description; drawings and catalog cuts; performance and test data, references and samples where applicable; and an itemized comparison of the proposed substitution with that as originally specified along with data relating to other portions of the work and the effect of such substitution on the Contract time schedule, design and artistic effect where applicable, and its relationship or effects on separate Contracts, if any; and accurate cost data on the proposed substitution in comparison with that as originally specified whether or not modification of the Contract Sum is to be a consideration.

7.1.8.9 The Architect shall be the judge of all proposed substitutions and his decision shall be final. Acceptable changes shall be incorporated in the Contract by Change Order, by Shop Drawings in accordance with Subparagraph 3.12.8, or other written order.

7.1.9 By making requests for substitutions, the Contractor:

7.1.9.1 Represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that originally specified.

7.1.9.2 Represents that he shall provide the same guarantee or warranty for the substitution that would be required for the item originally specified;

7.1.9.3 Certifies that the cost data presented is complete and includes all related costs under this Contract but excludes costs under Separate Contracts, and excludes the Architect's re-design costs, and further waives all claims for additional costs related to the substitution which subsequently become apparent; and,

7.1.9.4 Shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

7.1.10 Substitutions will not be considered if:

7.1.10.1 They are indicated or implied on Shop Drawings, Product Data, or Sample submissions without the formal written request required in applicable Subparagraph above; or,

7.1.10.2 For their implementation they require a substantial revision of the Contract Documents or work of the Owner or separate contractors in order to accommodate their use.

To Subparagraph 7.2.1 add the following Clauses 7.2.2, 7.2.3, and 7.2.4:

7.2.2 If requested, the Contractor shall submit to the Architect a detailed breakdown.

7.2.3 CHANGE ORDER PRICING GUIDELINES

- A. Labor - all field labor expended by the Trade Contractor at the base rate without fringe benefits. The payroll to be based on straight time (if overtime is needed, it should be included in the proposal), and to include number of hours and rate for each item in Bulletin.
- B. All establishing payroll taxes, assessments and fringe benefits. This may include Bond, FICA, Federal Unemployment, Local Health and Welfare, Local Pension Fund, State Unemployment Workers' Compensation, Public Liability and Property, Local Apprentice Fund. Each of these categories is to be a separate line item.
- C. Rental:
Heavy equipment and trucking.
- D. Travel Expense:
 - 1. Travel expense for men brought to the job specifically for this work.
- E. Overhead:
 - 1. Overhead on Items A, B, C, D: 10 percent.
- F. Materials:
 - 1. All materials purchased by the Trade Contractor for this work.
 - 2. Agreed on value of materials taken from the Contract work, either as used or unused new materials.
- G. Profit on Items A, B, C, D, E, F: 5 percent.
- H. All Trade Subcontractor labor and material (enclose quotations).
- I. Trade Subcontractor Overhead and Profit: 8 percent
- J. Other reimbursable items - (without overhead or profit):
 - 1. Extra "out of pocket" insurance premiums, job connected.
 - 2. Telephone, telegrams, photos, etc.
 - 3. Fees for permits, licenses, inspections, etc.
 - 4. Premium payments for overtime work or special conditions.
- K. The use of the Trade Contractors' small tools, light weight equipment, gear, simple scaffolds, etc., shall be considered a part of the overhead cost.
- L. The Architect reserves the right to approve items entering into the "actual field cost" before commitments are made.
- M. The Owner has the right to audit the Contractor's records insofar as the "line item cost" work is concerned.

7.2.4 Proposals are submitted to the Architect on the approved form. Attached to Proposal shall be an Itemized Breakdown of each Item Applicable A through L used in preparing Estimate.

ARTICLE 8 - TIME

To Subparagraph 8.1.1 add the following Clause 8.1.1.1:

8.1.1.1 The Contract Time is a period of time allotted in the Contract Documents for the Substantial completion of all Work as defined in Subparagraph 8.1.3, including authorized adjustments thereto. The Contract Time includes the time required for clean up and preparation for Owner move in. The time required for Contractor shall be in accordance with the durations established in the Progress Schedule.

To Subparagraph 8.1.2 add the following Clause 8.1.2.1:

8.1.2.1 Notice to proceed will be issued to the Contractor. The Contractor shall obtain insurance and permits, file documents, and notices as required and necessary, and shall commence the Work immediately.

Add the following Subparagraphs 8.2.4 and 8.2.5:

8.2.4 Each Contractor and Subcontractor shall prosecute the work regularly and diligently at a rate of progress that maintains the Project Schedule and that insures the achievement of Substantial completion and the issuance of a "Certificate of Substantial Completion" no later than that date specified by the Project Schedule.

8.2.5 The items listed in the Architect's Certificate of Substantial Completion to be completed or corrected shall be completed by the Contractor and Subcontractor within 10 days after the Owner's and Contractor's written acceptance of the responsibilities assigned to them in such Certificate, as stated in Paragraph 9.8 of the General Conditions. Items not completed or corrected within 10 days of the date of Substantial Completion shall be completed or corrected by the Contractor and Subcontractor within the next 30 days but only during non-business hours of the Owner's facility, at no additional cost to the Owner.

8.3.1 Delete the term "binding dispute resolution".

To Subparagraph 8.3.1 add the following Clauses 8.3.1.1 and 8.3.1.2:

8.3.1.1 Wherever any provisions of any Section of the Contract Documents conflict with any agreements or regulations of any kind at any time in force among members of any Trade Associations, Unions, or Councils which regulate or distinguish what work shall or shall not be included in the work of any particular trade, the Contractor shall make all necessary arrangements to reconcile any such conflict without delay, recourse, damage, or cost to the Owner or the Architect.

8.3.1.2 In case the progress of the Work is affected by any undue delay in furnishing or installing any items of material or equipment required under the Contract Documents because of a conflict involving any such Labor Union agreement or regulation, the Owner or Architect may require that other material or equipment of equal kind or quality be provided at no additional cost to the Owner or Architect.

Add the following Subparagraphs 8.3.4, 8.3.5, 8.3.6:

8.3.4 Contractor's written claims for extension of time shall be accompanied by detailed dates, correspondence, notices, and other data which provide proof of the events which are the basis for the claim.

8.3.5 Delays due to tardy shop drawings submittal, tardy material ordering, or shipment, or any other delays caused by a supplier or a Subcontractor of the Contractor shall not be deemed valid causes for delay and shall not be accepted as a basis for claims for extension of time, as the scheduling and control of suppliers and Subcontractors is a part of each Contractor's responsibility.

8.3.6 Time extensions will be granted for legitimate cause to a Contractor on an individual basis. Granting of a time extension to one Contractor does not imply nor will it necessarily constitute the granting of similar time extensions to other contractors. Extensions of time, when granted, will be by written Change Order, which shall be the only valid form. Where a change in the Work is ordered by written Change Order, any agreed upon extension of time required because of the change in the Work shall be a part of the Change Order. No extension of time will be granted subsequent to the execution of a change order, on account of work which is changed by said Change Order. Permitting the Contractor to continue and finish the work after the dates to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the Owner of any of his rights under the Contract.

Add the following Paragraph 8.4 and related Subparagraphs 8.4.1 through 8.4.6:

8.4 RECOVERY OF DAMAGES

8.4.1 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract, of the work to be done hereunder, are essential conditions of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the Notice to Proceed.

8.4.2 The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is an achievable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

8.4.3 There is no liability for damages upon work resulting from delay caused by third persons which is not the result of interference on the part of the Owner as a contracting party. Any loss that may ensue that is caused by the failure of the Contractor to finish his work at a scheduled time is the responsibility of the Contractor.

8.4.4 It is further agreed that time is of the essence of each and every portion of this Contract and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract provided that the Contractor shall not be charged with damages when the delay in completion of the work is due:

1. To any preference, priority, or allocation order duly issued by the Government.

2. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, or the public enemy, acts or omissions of another Contractor in the performance of a Contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; and
3. To any delays by Subcontractors or Suppliers occasioned by any of the causes specified in 1 and 2 of this Subparagraph.
4. To a stop work order which may only be issued by the Owner or the Architect with a copy of the order sent by registered mail.
5. To sizable Change Orders that affect timing and cause delays that involve extra work on the part of the Contractor.

Provided further, that the Contractor shall, within twenty (20) days from the beginning of such delay, inform the Architect in writing of the cause of delay. Within fifteen (15) days of the Contractor's request, the Architect will recommend or approve with comments concerning data or circumstances for the delay. Delay time will be evaluated near the completion of the Project and consideration will then be given for any extensions the Owner believes have been justified.

ARTICLE 9 - PAYMENTS AND COMPLETION

To Subparagraph 9.3.1 add the following Clause 9.3.1.3:

9.3.1.3 Pay application to be submitted on AIA G703.

Add the following Subparagraphs 9.3.4, 9.3.5, 9.3.6, and 9.3.7:

9.3.4 Until the Work is 50 percent (50%) complete, the Owner will pay 94 percent (94%) of the amount due the Contractor on account of progress payments for labor. There shall be paid to the Contractor a sum at the rate of 94% of the invoice costs, not to exceed the bid price for material delivered to the site or other approved storage area, but not incorporated into the work. At the time the Work is 50 percent complete and thereafter, if the manner of completion of the Work and its progress are and remain satisfactory to the Architect and Owner and in the absence of other good and sufficient reasons, the Architect with the consent of the Owner, will (on presentation by the Contractor of Consent of Surety for each Application) and at the request of the Contractor, may, at his discretion, deduct the increment retained in connection with any subsequent progress payments, or make any subsequent progress payments in full. Unconditional waiver of lien must be included with pay application.

9.3.4.1 The full retainage of 6% of the entire Contract Amount may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Owner, or the Architect, or if the Surety withholds its consent, or for other good and sufficient reasons.

9.3.5 The Contractor shall pay for transportation, services, materials, tools, expendables, and subcontract work. Each payment shall be in an amount equal to the percentage of completion allowed to the

Contractor for each item or category, less the same percentage retained from payments to the Contractor.

9.3.6 In order to facilitate the Contractors' timely ordering and delivery of materials so as to minimize the Contractor's difficulties which could arise out of failure to have proper materials and equipment on hand when needed for construction, the Owner will make payment on account of materials or equipment not incorporated in the Work, but delivered and suitably stored at some other location, if prior approval has been obtained from the Architect for such storage. Owner's payment will be contingent upon receipt of the Contractor's statement of responsibility in a form acceptable to the Owner. The Owner's payment for off-site stored materials will not include the Contractor's overhead and profit. Contractor's statement of responsibility shall as a minimum:

9.3.6.1 Accurately describe the material and/or equipment for which payment is being requested.

9.3.6.2 State the amount of payment being requested. The amount of payment being requested shall not include the Contractor's overhead and profit.

9.3.6.3 Be accompanied by such invoices or bills of sale as the Owner or Architect requires in order to verify the amount of payment being requested.

9.3.6.4 Identify the location of the off-site storage.

9.3.6.5 Be accompanied by a Certificate of Insurance showing type and limits of coverage acceptable to the Owner.

9.3.6.6 Include a statement by the Contractor agreeing that the Owner's payment for off-site stored material and/or equipment in no way relieves the Contractor from performing all the Work required by the Contract Documents, and further, indemnifying the Owner against all damages, losses, and expenses arising out of any circumstance associated with loss of damage of off-site stored materials for which the Owner makes payment.

9.3.6.7 Be signed by a person who is authorized to sign agreements on behalf of the Contractor, said signature being witness by a Notary Public.

9.3.7 Contractor shall be fully responsible for all procedures necessary to protect himself from damages, losses, and expenses arising out of loss or damage to off-site stored materials for which the Owner has made payment, which procedures may include but not limited to Bonded Warehousing, adequate insurance, etc.

In Subparagraph 9.5.1 add the following to the list concerning the withholding of payments:

- .8 Erroneous estimates by the Contractor of the value of the work performed.
- .9 Unauthorized deviations by the Contractor from the Contract Documents.
- .10 Failure of the Contractor to provide record documents.
- .11 Failure to provide materials and subcontractor list prior to initial pay request.
- .12 Failure to provide and update Progress Schedule.

- .13 Failure to provide contract cost breakdown prior to first pay request.
- .14 Failure to provide a neat, error-free, legible request; one copy of which must be an "original" copy.
- .15 Failure to keep record documents up to date on a monthly basis.
- .16. Funds may also be withheld on account of damages resulting from the Contractor's failure to give notice of errors and inconsistencies.

Delete Subparagraph 9.10.4 entirely.

Add Subparagraph 9.10.6

9.10.6 The acceptance by the Contractor of final payment shall further constitute a release of the Owner and Architect from all uninsured liability for all things done or furnished in connection with the Work and for every uninsured act of omission or neglect by the Owner and Architect relating to or arising out of the Work. Each Contractor, before final payment, shall also execute and deliver a general release to the Architect of all liability as set forth in the preceding sentence.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

To Subparagraph 10.1 add the following Clause 10.1.1:

10.1.1 Contractor shall provide methods and equipment for protecting the building, all materials, and personnel from fire damage prior to starting work. Methods and equipment are subject to approval of the local fire department or State Fire Marshal which shall have jurisdiction.

To Subparagraph 10.2.2 add the following Clause 10.2.2.1:

10.2.2.1 The Contractor shall comply with the Department of Labor Occupational Safety and Health Act (OSHA). "Act" means the William-Stiger Occupational Safety and Health Act of 1970 (84-State 1590). The Contractor shall also comply with all applicable provisions of the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Inc., and ~~IC-3 of the Industrial Commission of Ohio.~~ **(ADD 01)**

Delete Subparagraph 10.2.8 and substitute the following:

10.2.8 If any party suffers injury or damage to person or property because of an act or omission of another party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

ARTICLE 11 – INSURANCE AND BONDS

Delete Subparagraph 11.1.2 and substitute the following:

11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages shall be written on an occurrence basis and be maintained without interruption from the date of the commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

11.1.2.1 The Insurance required by Subparagraph 11.1.1 shall be written for not less than the following:

1. Worker's Compensation

- (a) State Statutory
- (b) Applicable Federal Statutory
(e.g., Longshoremen's)

2. Contractor's Liability Insurance

- (a) The Contractor shall acquire and maintain during the term of the Contract Bodily Injury and Property Damage Liability Insurance under a standard Comprehensive General/Automobile Liability Policy which shall provide and include coverage on all Contractor's Operations, Contractor's Protective (Sublet) Liability, Contractual Liability, Completed Operations Liability, Owned Automobiles, and Non-Owned and Hired Automobiles.
- (b) Coverage for an "if any" basis. Property Damage Liability Insurance shall be provided on any demolition, blasting, excavating, shoring or similar operation on an "if any" basis.
- (c) Bodily Injury Liability limits shall be for an amount of no less than Five Hundred Thousand Dollars (\$500,000.00) for injuries, including wrongful death to any one person, and subject to the same limit for each person, in an amount of not less than One Million Dollars (\$1,000,000.00) on the account of any one occurrence..
- (d) Property Damage Liability Insurance in an amount of not less than Five Hundred Thousand Dollars (\$500,000.00) per occurrence with General Liability extended to provide "Broad Form Property Damage Liability", and in an amount of not less than Two Million Five Hundred Thousand Dollars (\$2,500,000.00) aggregate for damage on account of all occurrences.
- (e) Any combination of underlying Comprehensive General/Automobile Liability coverage with Umbrella/Excess Liability coverage which provides no less than Two Million Five Hundred Thousand Dollars (\$2,500,000.00) Single Limit Bodily Injury & Property Damage Liability Insurance for the Contractor will also be acceptable.

Add the following Subparagraph 11.1.4 as follows:

11.1.4.1 The Contractor shall furnish one (1) copy of each Certificate of Insurance herein required for each copy of any applicable agreement which shall specifically set forth evidence of all coverage re-

quired. The form of the Certificates shall be AIA Document G705 or similar form. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits.

Add the following Subparagraph 11.1.5:

11.1.5 No Contractor shall be allowed to continue to work on site after the expiration of full insurance coverage. Contractor progress payments shall be withheld until current Certificates of Insurance are submitted to the Architect. It is agreed that it is the Contractor's responsibility to maintain the insurance coverages noted below. If the Contractor fails to maintain these coverages, all Liabilities shall be borne by the Contractor, and the Contractor shall Hold Harmless the Owner and the Architect.

To Paragraph 11.2.1 add the following Subparagraph 11.2.1.1:

11.2.1.1 During the term of the Contract, the Owner will furnish the following Property Insurance as provided for in the General Conditions.

- .1 Endorsements: All-risk.
- .2 On the following form: Completed value.
- .3 In the names of the Owner, as their interests may appear with limits as follows: Full insurable value of the Work.

Add the following Subparagraph 11.4.1:

11.4.1 Simultaneously with his delivery of the executed Contract and if required by the Owner the Contractor shall furnish Performance Bond and Labor and Material Payment Bond executed on current AIA forms or related types of forms as required by the Owner. The surety on such bond(s) shall be a duly authorized Surety Company authorized to do business in the State in which the Project is located, and satisfactory to the Owner and Architect. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power of attorney, indicating the monetary limit of such power.

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

Subparagraph 12.2.2.3: Remove the word "not."

Add the following Subparagraph 12.2.6:

12.2.6 In the case of minor repairs to newly finished interior surfaces of the building (not covered by Property Insurance), the cost of said repairs shall be pro-rated to the Contractors in proportion to the manpower employed during the period when the damage occurred if the Contractor causing the damage is unknown. The Architect will endeavor to determine the Contractor or other parties responsible for damage, but inability to determine responsibility shall in no way waive the Architect's right to pro-rate repair costs.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.1 Insert a period (.) after the word "located". Delete the paragraph after that period.

To Subparagraph 13.1 add the following clause 13.1.1:

13.1.1 The governing law shall mean codes or regulations of the State, County, and local municipality where the Project is situated; also, any regulation or requirement of utility companies and insurance companies having jurisdiction of the Work, whether insurance companies having jurisdiction of the Work, whether such regulations are legally mandatory or not, if same are binding upon the Owner. Each trade engaged on the Project shall also be bound by National Codes and standards which apply to materials and practices applying to such respective trades. If, and to the extent that any provision of this contract shall be unlawful or contrary to public policy, the same shall not be deemed to invalidate or otherwise affect the other provisions hereof.

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

Delete Subparagraph 14.1.1 and substitute the following:

14.1.1 If work is stopped for a period of 30 days under any order of a court or any public authority having jurisdiction, or as a result of any act of government, such as declaration of national emergency making materials unavailable, through no act or fault of the Contractor or subcontractor or their agents or employees or any other persons performing any of the work under a contract with the Contractor, then the Contractor may, upon seven days written notice to the Owner and Architect, terminate the Contract and recover from Owner payment for all work executed and for any proven loss resulting upon any material, equipment, tools, construction equipment and machinery, including reasonable profit.

To Subparagraph 14.2.1 add the following:

- .5 Failure to complete the work within the Contract Time or any extension thereof.
- .6 Failure or refusal to comply with any directive of the Architect within a reasonable time.
- .7 Failure or refusal to remove rejected materials.
- .8 Failure or refusal to perform anew any defective or unacceptable work.
- .9 Bankruptcy or insolvency, or making of an assignment for the benefit of creditors.
- .10 Failure to provide qualified superintendent, or subcontractors to carry on the work in an acceptable manner.
- .11 Failure to prosecute the work according to agreed schedule of completion.

In the event of termination pursuant to Paragraph 14.2.1, Contractor shall, if requested, promptly assign to Owner such of Contractor's subcontracts as Owner may request, and Contractor shall remove such materials, tools, and equipment used by Contractor in the performance of the work as Owner may direct."

Add the following Subparagraph 14.2.3.1:

14.2.3.1 Where the Contractor's services have been so terminated by Owner, said termination shall not affect any rights of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys by Owner due Contractor shall not release Contractor from liability.

To subparagraph 15.1.1 add the following Clause 15.1.1.1:

15.1.1.1 Claims for additional cost arising out of an error or inconsistency shall be denied where the Contractor has failed to review the documents or report the error or inconsistency.

Delete Subparagraph 15.1.7 entirely.

15.2.5 Insert a period (.) after the phrase "but subject to mediation" and delete the remainder of that sentence.

15.2.6.1 Insert a period (.) after the word "meditate." Delete the remaining sentence after that period.

15.3.1 Delete references to Paragraphs 9.10.4 and 15.1.6.

15.3.2 Delete the paragraph starting with the sentence "The request may be made concurrently with the filing of binding dispute resolution proceedings but ..."

15.4 ARBITRATION – Delete this article entirely.

Add the following Article 16:

16.1 COMMITMENT TO ECONOMIC INCLUSION AND DIVERSITY

16.1.1 Each Contractor shall be committed to maximizing contracting and subcontracting opportunities for qualified businesses who are certified by an organization or entity or who subcontract with businesses so certified, in one of the following categories: Small Business Enterprise ("SBE"), Minority-Owned Enterprise ("MBE"), or Woman-Owned Enterprise ("WBE") (collectively referred to as "certified diverse businesses").

END OF SECTION 001072

DOCUMENT 002600 - PROCUREMENT SUBSTITUTION PROCEDURES

1.1 DEFINITIONS

- A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.
- B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.2 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.3 PROCUREMENT SUBSTITUTIONS

- A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.
- B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
 - 1. Extensive revisions to the Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
 - 3. The request is fully documented and properly submitted.
- C. **Procurement Substitution Requests will also be considered for any product listed in individual specifications sections that name a single manufacturer and / or list a Design Standard or Basis of Design product. Such substitutions must comply with the requirements of this section and be submitted for approval by A/E prior to Bid. ADD 01**

1.4 SUBMITTALS

- A. Procurement Substitution Request: Submit to Architect. Procurement Substitution Request must be made in writing by prime contract Bidder only in compliance with the following requirements:

1. Requests for substitution of materials and equipment will be considered if received no later than 10 days prior to date of bid opening.
 2. Submittal Format: Submit Procurement Substitution Request, using CSI Substitution Request Form 1.5C.
 3. Submittal Format: Submit Procurement Substitution Request, using email.
 - a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.
 - b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
 - 1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
 - 2) Copies of current, independent third-party test data of salient product or system characteristics.
 - 3) Samples where applicable or when requested by Architect.
 - 4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - 5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 6) Research reports, where applicable, evidencing compliance with building code in effect for Project.
 - 7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.
 - c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
 - d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.
- B. Architect's Action:
1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.
- C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

END OF DOCUMENT 002600

**SECTION 072723 - SPRAY POLYURETHANE FOAM INSULATION AND AIR BARRIER SYSTEM –
ADDENDUM 01**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Spray polyurethane foam insulation and air barrier system, to be installed in locations indicated below:
 - 1. Materials and installation to bridge and seal the following air leakage pathways and gaps to prevent non-conditioned air from infiltrating into interior building spaces.
 - 2. Perimeter of all exterior walls and roof.
 - 3. Non-grouted, structural joist or beam pockets in exterior walls, concealed from view.
 - 4. All roof deck penetrations, all roof drain locations, including the open ends of metal deck flutes and uninsulated roof drain bodies.
 - 5. Expansion joints in walls or roofs.
 - 6. Openings and penetrations of window frames, storefront, and curtain wall.
 - 7. Piping, conduit, duct and similar penetrations in the exterior envelope.
 - 8. Miscellaneous air leakage pathways in the building envelope.
 - 9. Thermal Barriers for exposed spray foam applications.

1.3 DEFINITIONS

- A. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Air barrier shall be capable of performing as a continuous vapor-retarding air barrier. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Material Performance: Provide materials which have an air permeance not to exceed 0.004 cubic feet per minute per square foot under a pressure differential of 0.3 in. water (1.57 psf) (0.02 L/sm @ 75 Pa.) when tested according to ASTM E 2178.
- C. Spray Polyurethane Foam: Material shall meet the following requirements:

1. Class A UL Tested: Smoke development not greater than 450 and flame spread not greater than 25 when tested in accordance with ASTM E 84.
2. Tested in accordance with the acceptance criteria of NFPA 285.
3. Fire resistance compliance in wall and ceiling assemblies in accordance with ASTM E 119.

1.5 SUBMITTALS

- A. Shop Drawings: Show locations and extent of air barrier. Include details for substrate joints and cracks, counter flashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
1. Include details of interfaces with other materials that form part of air barrier.
 2. Include details of mockups showing plans, elevations, large-scale details, and connections to the test apparatus.
 3. Include statement that materials are compatible with adjacent materials for proposed use.
- B. Quality Assurance/Control Submittals:
1. Product Data: For materials proposed and application instructions, including instructions for evaluating, preparing, and treating substrate, temperature, and other limitations of insulation conditions.
 - a. Provide data on materials, describing insulation properties and surface burning characteristics.
 - b. Manufacturer's installation instructions indicating special procedures and perimeter conditions requiring special treatments.
 - c. Include statement that materials are adhesively and chemical compatible with adjacent materials proposed for use.

1.6 QUALITY ASSURANCE

- A. Qualifications of Applicators: Manufacturer shall perform application or an applicator certified by the manufacturer as being fully qualified by experience and training, and as having the proper equipment to satisfactorily complete this installation in strict accordance with the manufacturer's instructions and these Specifications.
- B. Manufacturer: Obtain primary materials from a single manufacturer regularly engaged in manufacturing air barrier membranes. Obtain secondary materials from a source acceptable to the primary materials manufacturer.
- C. Field Quality Assurance: Follow the manufacturer's guidelines for installation and quality control. Cooperate with inspectors and independent testing and inspection agencies engaged by the Owner. Do not cover air barrier until it has been inspected, tested and accepted.
- D. Protect people and materials from over-spray and contact with chemicals and gases.

- E. **Mock-Ups:** Refer to Division 04 Section "Unit Masonry". Mock-up shall be representative of primary exterior wall assemblies and glazing assemblies including backup wall and typical penetrations as acceptable to the A/E.
1. **Mock-Up Tests for Adhesion:** Test mock-up of materials for adhesion in accordance with manufacturer's recommendations. Perform test after curing period recommended by the manufacturer. Record mode of failure and area which failed in accordance with ASTM D4541. When the air barrier material manufacturer has established a minimum adhesion level for the product (in the 60 to 120 pounds range) on the particular substrate, the inspection report shall indicate whether this requirement has been met. Where the manufacturer has not declared a minimum adhesion value for their product/substrate combination, then the inspector shall simply record the value.
- F. **Preinstallation Conference:** Conduct conference at project site. Comply with requirements in Division 01 Section "Project Management and Coordination". A/E will schedule and conduct meeting.
1. **Agenda shall include at a minimum:**
 - a. Construction and testing of mock-up.
 - b. Sequence of construction, coordination with substrate preparation.
 - c. Materials approved for use.
 - d. Compatibility of materials.
 - e. Coordination of installation of adjacent and covering materials, and details of construction.
 2. Attendance is required by representatives of related trades including covering materials, substrate materials and adjacent materials.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Material to be used shall be delivered in original unopened packages bearing the name of the manufacturer and the brand, expiration date, and direction for storage.
- B. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by system manufacturer. Protect materials from direct sunlight. Stock of material is to be rotated and used before its expiration date.
- C. Avoid spillage. Immediately notify Owner or Owner's agent if spillage occurs and start cleanup procedures. Clean spills and leave area as it was prior to spill.

1.8 PROJECT CONDITIONS

- A. **Environmental Conditions:** Apply insulation within range of ambient and substrate temperatures recommended by manufacturer. Do not apply to a damp or wet substrate, unless the manufacturer specifically permits that for the products.
 1. Do not apply in snow, rain, fog, or mist.

2. Do not apply when the temperature of substrate surfaces and surrounding air temperatures are below or above those recommended by the manufacturer.
3. The product shall not be installed after the expiration date printed on the label of each container.

- B. Substrate: Proceed with spray polyurethane foam application only after substrate construction, penetration work, and relating welding and other hot work has been completed. Verify that mortar has cured sufficiently and masonry substrate is dry to manufacturer's requirements.

1.9 SEQUENCING

- A. Sequence and coordinate application of insulation with other related Work specified in other Sections to comply with the following requirements:
1. Ensure that insulating material is installed prior to installation of enclosing or concealing work, with sufficient time allowed for observation, testing, and correction of defective insulation work.
- B. Coordinate installation of insulation with other Work in order to minimize the need for other trades to cut or remove insulation. As other trades successively complete installation of their Work, maintain integrity of insulation coating by patching areas that have been removed or damaged prior to concealment by other Work.
- C. Ducts, piping, conduit, or other suspended equipment that interfere with the uniform application of the insulation material shall be positioned after the application of the sprayed insulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide the following Class A rated, (UL Certified for flame spread and smoke), spray polyurethane foam and applied ignition barrier.
1. Dow – Froth-Pak Spray Polyurethane Foam system.
 2. Icynene ProSeal Eco– MD-R-210
 3. Lapolla
 4. Tiger Foam
- B. Provide one of the following ignition barrier systems for all exposed (Non-concealed or enclosed) installations of spray foam product.
1. DC315 @4 wet mils (3 dry mils)
 2. NoBurn Plus XD @5 wet mils (3 dry mils)

2.2 MATERIALS

- A. **Spray Closed-Cell Polyurethane Foam:** Sprayed-in-place two-component closed-cell polyurethane made by combining an isocyanate (A) component with a polyol (B) component, with the following physical characteristics:

Property	Value	Units	Test Method
Core Density	1.9 – 2.2	lb/ft ³	ASTM D-1622
Water Vapor Transmission	< 1.0 @ 2" thick	perms	ASTM E-96
R-Value	6.0 (min) @ 1" thick	hr/ft ² F/Btu	ASTM C-518
Compressive Strength	23 (min)	psi	ASTM D-1621
Flame Spread	<25		ASTM E-84
Smoke Developed	<450		ASTM E-84
Tensile Bond Strength	>45 for masonry >15 for gypsum sheathing	psi	ASTM C-297
Hydrostatic Pressure Resistance	No failure @ 184.9 cm head pressure		AATCC 127

2.3 AUXILIARY MATERIALS

- A. **Primer:** Water based liquid primer for concrete, masonry, gypsum sheathing, wood, metal, and painted substrates.
- B. **Sheet Membrane Air Barrier Perimeter Seal to Windows, Doors, Curtainwall, and Storefront Systems:** Non-reinforced, cured chloroprene polymer sheet (neoprene) complying with ASTM D2000 Designation 2BC415 to 3BC620, 50 to 65 mils thick.
1. **Adhesive:** Typical contact-type adhesive used for fully-adhered membranes.
 2. **Lap Sealant:** Typical urethane or silicone lap and termination sealant used for membrane edges recommended by manufacturer.
 3. **Termination Bars and Fasteners:** Stainless steel, aluminum bars and stainless steel fasteners, or galvanized steel.
- C. **Sprayed Polyurethane Foam Sealant:** 1 or 2 component, foamed in-place, polyurethane foam sealant, 1.5 to 2.0 lb/cu.ft. density; flame spread index of 25 or less according to ASTM E 162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.
- D. **Provide sealants in accordance with Division 07 Section "Joint Sealants".** Comply with ASTM C920 and ASTM C920 classifications for type, grade, class, and uses.
- E. **Transition Membrane between Air Barrier Membrane and Roofing and Other Adjacent Materials:** Comply with both air barrier manufacturer's recommendations and material manufacturer's recommendations.

- F. Counterflashing for Masonry Through-Wall Flashing: Refer to Division 04 Section "Unit Masonry". Flashing must be compatible with air barrier products and acceptable to spray polyurethane foam air barrier manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which insulation will be applied, with Installer present, for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
 - 1. Do not proceed with installation until after minimum concrete curing period recommended by manufacturer.
 - 2. Ensure that:
 - a. Surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants.
 - b. Concrete surfaces are cured and dry, smooth without large voids, spalled areas or sharp protrusions.
 - c. Masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.
 - 3. Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263.
 - 4. Notify Architect in writing of anticipated problems using insulation over substrate.
 - 5. Commencement of Work shall be deemed as acceptance of existing work and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written installation instructions for preparing substrates indicated to receive insulation.
 - 1. Clean, prepare, and treat substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for application.
 - a. Ensure that penetrating work by other trades is in place and complete.
 - b. Prepare surfaces by brushing, scrubbing, scraping, or grinding to remove loose mortar, dust, oil, grease, oxidation, mill scale and other contaminants which will affect adhesion and integrity of the spray polyurethane foam.
 - c. Wipe down metal surfaces to remove release agents or other noncompatible coatings, using clean sponges or rags soaked in solvent compatible with spray polyurethane foam.
 - d. Ensure veneer anchors are in place.

- B. Prime masonry, concrete substrates with conditioning primer when installing modified asphalt membrane transition membranes.
 - 1. Prime masonry, concrete substrates with conditioning primers.
 - 2. Prime glass-fiber surfaced gypsum sheathing an adequate number of coats to achieve required bond, with adequate drying time between coats.
 - 3. Prime wood, metal, and painted substrates with primer.
 - 4. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through air barrier and at protrusions.
- C. Prime glass-fiber surfaced gypsum sheathing an adequate number of coats to achieve required bond to transition membranes, with adequate drying time between coats.
- D. Cover other Work that might be damaged by fall out or overspray of insulation materials during application.
 - 1. Ensure any required foam stop or back up material are in place to prevent over spray and achieve complete seal.
 - 2. Fill voids between masonry and structural steel with mineral wool.
 - 3. Erect barriers, isolate area and post warning signs to advise non-protected personnel to avoid the spray area.
- E. Remove foreign materials, dirt, grease, oil, paint, laitance, efflorescence, and other substances that will affect application.
- F. Ensure that all work by other trades that may penetrate through insulation is in place and complete.
- G. Install transition membranes to all applicable surfaces and ensure proper adhesion of the transition membranes to the substrate, capable of having spray polyurethane foam insulation.

3.3 APPLICATION

- A. Application of sprayed insulation shall be in accordance with the printed instructions of the material manufacturer and shall be installed by skilled craftsmen. Apply insulation to a reasonably uniform monolithic density without voids.
 - 1. Tolerances: Maximum variation from indicated thickness: Minus (-) 1/4 inch; plus (+) 1/2 inch.
 - 2. Apply in consecutive passes as recommended by manufacturer to thickness as indicated on Drawings. Passes shall be not less than 1/2 inch and not greater than 2 inches.
 - 3. Do not install spray polyurethane foam within 3 inches of heat emitting devices such as light fixtures and chimneys.
 - 4. Finished surface of foam insulation to be free of voids and embedded foreign objects.
 - 5. Remove masking materials and over spray from adjacent areas immediately after foam surface has hardened. Ensure cleaning methods do not damage work performed by other sections.

6. Trim, as required, any excess thickness that would interfere with the application of cladding/covering system by other trades.
 7. Clean and restore surfaces soiled or damaged by work of the Section. Consult with section of work soiled before cleaning to ensure methods used will not damage the work.
 8. Do not permit adjacent work to be damaged by work of this Section. Damage to work of this Section caused by other Sections shall be repaired by this Section at the expense of the contractor / subcontractor causing the damage.
- B. For non-cavity wall locations, substrate surface shall be covered with insulation to a minimum thickness of 1.5 inches and an average of 2 inches for an average R-value of 10, unless otherwise noted.
- C. Provisions shall be made for ventilation to properly dry the insulation after application. In enclosed areas lacking natural ventilation, air circulation and ventilation is to be provided.
- D. Patching and repairing of sprayed insulation damaged by other trades shall be performed under this Section and paid for by the trade(s) causing the damage.
1. Complete connections to other components or repair any gaps, holes or other damage using material.
- E. Repair or replace work that has not been successfully protected.
- F. Shield the spray polyurethane foam from interior exposure with one of the approved thermal barrier systems listed above.
- G. Use sprayed polyurethane foam sealant to fill voids in building envelope, including but not limited to openings and penetrations around window, and storefront frames, piping, conduit, and similar penetrations, unless otherwise noted or included as work of Division 07 Section "Thermal Insulation".
- 3.4 FIELD QUALITY CONTROL
- A. Installer Self-Inspection: The installer shall conduct daily inspections in accordance with ULC S705.2 and record the results of these inspections on a Daily Work Record in accordance with ULC S705.2. These Daily Work Records shall be made available upon request.
 - B. Owner's Inspection and Testing: Cooperate with Owner's testing agency. Allow access to work areas and staging. Notify Owner's testing agency in writing of schedule for Work of this Section to allow sufficient time for testing and inspection. Daily inspection and testing may be required. Do not cover Work of this Section until testing and inspection is accepted.
- 3.5 CLEANING
- A. After completion of the insulation work, equipment shall be removed and exposed wall and floor areas shall be left in a broom-clean condition.

END OF SECTION 072723

SECTION 074213.23 - METAL COMPOSITE MATERIAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. The extent of panel system work is indicated on the drawings and in these specifications.
- B. Panel system requirements include the following components:
 - 1. Aluminum faced composite panels with mounting system. Panel mounting system including anchorages, shims, furring, fasteners, gaskets and sealants, related flashing adapters, for a complete watertight installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal composite material panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trim, flashings, closures, and accessories; and special details.
 - 2. Accessories: Include details of the flashing, trim and anchorage, at a scale of not less than 1-1/2 inches per 12 inches.
- C. Samples for Initial Selection: For each type of metal composite material panel indicated with factory-applied color finishes.
 - 1. Include similar Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 - 1. Metal Composite Material Panels: 12 inches (305 mm) long by actual panel width. Include fasteners, closures, and other metal composite material panel accessories.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each product, tests performed by a qualified testing agency.
- C. Field quality-control reports.
- D. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal composite material panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effect and set quality standards for fabrication and installation.
 - 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal composite material panels, and other manufactured items so as not to be damaged or deformed. Package metal composite material panels for protection during transportation and handling.
- B. Unload, store, and erect metal composite material panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal composite material panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal composite material panels to ensure dryness, with positive slope for drainage of water. Do not store metal composite material panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal composite material panels during installation.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal composite material panels to be performed according to manufacturers' written instructions and warranty requirements.

1.9 COORDINATION

- A. Coordinate metal composite material panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal composite material panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: **1 year (ADD 01)** from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal composite material panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal composite material panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 330:

1. Wind Loads: As indicated on Drawings.

B. Bond Integrity

1. When tested for bond integrity, in accordance with ASTM D1781 (simulating resistance to panel delamination), there shall be no adhesive failure of the bond a) between the core and the skin nor b) cohesive failure of the core itself below the following values:
2. Peel Strength:
 - a. 115 N mm/mm (22.5 in lb/in) as manufactured
 - b. 115 N mm/mm (22.5 in lb/in) after 21 days soaking in water at 70°F
 - c. Fire Performance:
 - 1) ASTM E 84 Flame Spread Index must be less than 25, Smoke Developed Index must be less than 450.
 - 2) ASTM D 1929 A self-ignition temperature of 650°F or greater
 - 3) ASTM D-635 Requires a CC1 classification

2.2 METAL COMPOSITE MATERIAL WALL PANELS

- A. Metal Composite Material Wall Panel Systems:** Provide factory-formed and -assembled, metal composite material wall panels fabricated from two metal facings that are bonded to a solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment assembly components and accessories required for weathertight system.

B. PANEL MANUFACTURER

1. ACM Panel Basis of Design: Reynobond material manufactured by Arconic Architectural Products

C. SYSTEM MANUFACTURERS

1. Sobotec, SL-2000 – Pressure equalized rainscreen.
2. NorthClad, ACM Rainscreen System
3. PacClad, PAC 3000 RS (Design Standard System Manufacturer)

- D. Aluminum-Faced Composite Wall Panels Formed with 0.020-inch- thick, aluminum sheet facings.**

1. Panel Thickness: 0.236 inch.
2. Core: Standard.

E. Exterior Finish:

1. Coil coated KYNAR® 500 or HYLAR® 5000 based Polyvinylidene Fluoride (PVDF) resin in conformance with the following general requirements of AAMA 2605.
 - a. Color:
 - 1) To be selected by Architect from Manufacturers full range of available 2-coat color systems.

F. System Characteristics

1. Plans, elevations, details, characteristics, and other requirements indicated are based upon standards by one manufacturer. It is intended that other manufacturers, receiving prior approval, may be acceptable, provided their details and characteristics comply with size and profile requirements, and material/performance standards.
2. System must not generally have any visible fasteners, telegraphing or fastening on the panel faces or any other compromise of a neat and flat appearance.
3. System shall comply with the applicable provisions of the "Metal Curtain Wall, Window, Storefront, and Entrance Guide Specifications Manual" by AAMA and ANSI/AAMA 302.9 requirements for aluminum windows.
4. Fabricate panel system to dimension, size, and profile indicated on the drawings based on a design temperature of 70°F.
5. Fabricate panel system so that no restraints can be placed on the panel, which might result in compressive skin stresses. The installation detailing shall be such that the panels remain flat regardless of temperature change and at all times remain air and water tight.
6. The finish side of the panel shall have a removable plastic film applied prior to fabrication, which shall remain on the panel during fabrication, shipping, and erection to protect the surface from damage.

G. System Type

1. Rout and return dry system with perimeter extrusion with integral weather-stripping.

H. ACCESSORIES:

1. Extrusions, formed members, sheet, and plate shall conform with ASTM B209 and the recommendations of the manufacturer.
2. Panel stiffeners, if required, shall be structurally fastened or restrained at the ends and shall be secured to the rear face of the composite panel with silicone of sufficient size and strength to maintain panel flatness. Stiffener material and/or finish shall be compatible with the silicone.
3. Sealants and gaskets within the panel system shall be as per manufacturer's standards to meet performance requirements.
4. Fabricate flashing materials from 0.030" minimum thickness aluminum sheet painted to match the adjacent curtain wall / panel system where exposed. Provide a lap strap under the flashing at abutted conditions and seal lapped surfaces with a full bed of non-hardening sealant. Concealed fasteners as recommended by panel manufacturer. Do

not expose fasteners except where unavoidable and then match finish of adjoining metal.

2.3 FABRICATION

- A. General: Fabricate and finish metal composite material panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal composite material panel supports, and other conditions affecting performance of the Work.
- B. Examine roughing-in for components and assemblies penetrating metal composite material panels to verify actual locations of penetrations relative to seam locations of metal composite material panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal composite material panel manufacturer's written recommendations.

3.3 METAL COMPOSITE MATERIAL PANEL INSTALLATION

- A. General: Install metal composite material panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to supports unless otherwise indicated. Anchor metal composite material panels and other components of the Work securely in place, with provisions for thermal and structural movement.
- B. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal composite material panel manufacturer.

- C. Attachment Assembly, General: Install attachment assembly required to support metal composite material wall panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.
- D. Installation: Attach metal composite material wall panels to supports at locations, spacings, and with fasteners recommended by manufacturer to achieve performance requirements specified.

3.4 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal composite material wall panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m), non-accumulative, on level, plumb, and location lines as indicated, and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal composite material wall panel installation, including accessories.
- B. Metal composite material wall panels will be considered defective if they do not pass test and inspections.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

3.6 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal composite material panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal composite material panel installation, clean finished surfaces as recommended by metal composite material panel manufacturer. Maintain in a clean condition during construction.
- B. After metal composite material panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal composite material panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213.23

SECTION 075423 - THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Adhered thermoplastic polyolefin (TPO) roofing system on metal deck, including:
 - a. Substrate board
 - b. Vapor barrier
 - c. Roof insulation.
 - d. Cover board

1.2 DEFINITIONS

- ##### **A. Roofing Terminology:** Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and glossary in applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" for definition of terms related to roofing work in this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review drawings and specifications.
3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
6. Review structural loading limitations of roof deck during and after roofing.

7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
8. Review governing regulations and requirements for insurance and certificates if applicable.
9. Review temporary protection requirements for roofing system during and after installation.
10. Review roof observation and repair procedures after roofing installation.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
 1. Layout and thickness of insulation.
 2. Base flashings and membrane termination details.
 3. Flashing details at penetrations.
 4. Interface with copings and terminations provided by other sub-contractors.
 5. Tapered insulation layout, thickness, and slopes.
 6. Roof plan showing orientation of steel roof deck and orientation of roof membrane, fastening spacings, and patterns for mechanically fastened roofing system.
 7. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
 8. Tie-in with adjoining air barrier.
- C. Samples for Verification: For the following products:
 1. Roof membrane and flashings, of color required.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Approved manufacturer listed in this Section, UL listed for roofing systems comparable to that specified for this Project, with minimum five years' experience in manufacture of thermoplastic roof membrane products in successful use in similar applications.

- C. **Roofing Inspector Qualifications:** A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 - 1. An authorized full-time technical employee of the manufacturer.
 - 2. An independent party certified as a Registered Roof Observer by the International Institute of Building Enclosure Consultants (formerly the Roof Consultants Institute) retained by the Contractor or the Manufacturer and approved by the Manufacturer.
- D. **Manufacturer's Installation Instructions:** Obtain and maintain on-site access to manufacturer's written recommendations and instructions for installation of products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT / FIELD CONDITIONS

- A. **Weather Limitations:** Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
 - 1. Temperature limitations shall be minimum of 40 degrees F and rising.

- B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.
 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 3. Remove temporary plugs from roof drains at end of each day.
 4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.8 SEQUENCING OF WORK

- A. Work shall begin only after opening and penetrations are in place and adjacent work required for complete tie-in are in place. This includes flashing in masonry walls with special attention given to roof to wall transitions.
1. Work shall not begin before the "Preinstallation Conference" and conditions exist necessary for a successful completion of roofing have occurred.
 2. Work shall not begin without the presence of manufacturer's representative, A/E and Testing Laboratory, if required.
- B. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas.
- C. After work on roof is started, no traffic will be permitted on the roof other than necessary for the roofing application and inspection. Materials shall not be piled on the roof to the extent that design live loads are exceeded. Roofing materials shall not be transported over unfinished or finished roofing or existing roofs unless adequate protection is provided.
- D. Roofing work schedules and sequencing shall be coordinated with other contractors on site.

1.9 WIND UPLIFT REQUIREMENTS

- A. Provide and warrant roofing system and components per ASCE/SEI 7-22 requirements for the project location.
1. Exposure Category C
 2. Risk Category III
 3. Elevation 822 ft per NAVD 88.

4. Wind speed 120 Vmph

1.10 WARRANTY

- A. **Manufacturer's Warranty: Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.**
 1. **Form of Warranty: Manufacturer's standard warranty form.**
 2. **Scope of Warranty: Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.**
 3. **Warranty Period: 20 years from date of completion.**
- B. **Manufacturer Inspection Services: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum.**
 1. **Inspections to occur in following years: 2, 5, 10, 15 following completion.**
- C. **Installer Warranty: Installer's warranty signed by Installer, as follows.**
 1. **Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.**
 2. **Scope of Warranty: Work of this Section.**
 3. **Warranty Period: 1 year (ADD 01) from date of completion.**

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. **Roofing Products**
 1. **Holcim-Elevator - Firestone Ultraply TPO 60 mil – Firestone Red Shield Warranty (Design Standard)**
 2. **Carlisle Sure-Weld TPO 60 mil.**
 3. **GAF EverGuard TPO 60 mil.**
 4. **Durolast 60 mil.**
- B. **Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.**

2.2 PERFORMANCE REQUIREMENTS

- A. **General Performance:** Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
1. **Accelerated Weathering:** Roofing system shall withstand 10,000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 2. **Impact Resistance:** Roof membrane shall resist impact damage when tested according to ASTM D3746/D3746M, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.
- B. **Roofing System Design:** Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency in accordance with ANSI/FM 4474, UL 580, or UL 1897, and to resist uplift pressures calculated in accordance with ASCE-7 and applicable code.
- C. **Flashings and Fastening:** Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:
1. FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.
 2. FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.
 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.
- D. **Exterior Fire-Test Exposure:** ASTM E108 or UL 790 Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- E. **Fire-Resistance Ratings:** Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.3 MATERIALS, GENERAL

- A. **Material Compatibility:** Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

2.4 THERMOPLASTIC MEMBRANE MATERIALS

A. TPO Roof Membrane:

1. Thermoplastic Polyolefin (TPO) Sheet: Internal fabric reinforced, ASTM D6878.
 - a. Breaking Strength, at 60 mils, ASTM D751: 390 lbf/in by 220 lbf/in .
 - b. Tear Strength, ASTM D751: 156 lbf.
 - c. Elongation at Break, ASTM D751: 30 percent.
 - d. Membrane Thickness, nominal: 60 mils (1.5 mm).
 - e. Exposed Face Color: White.
 - f. Solar Reflectance Index (SRI), ASTM E1980: 87 (White, initial).

- B. Sheet Flashing: Manufacturer's standard, smooth-backed, sheet flashing of same material, type, reinforcement, thickness, and color as TPO sheet membrane.

2.5 TPO MEMBRANE ACCESSORIES

A. Walkway Pads: Pads or rolls of reinforced white thermoplastic materials with textured walking surface.

1. Install – adhere to TPO surface as recommended by manufacturer.
2. Install where indicated to access each ladder, access door and rooftop equipment location.
3. Provide Holcim – Elevate Ultraply TPO Walkway Pad.

2.6 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

B. Membrane Bonding Adhesive:

1. Contact-type adhesive, fast drying solvent-based, for bonding TPO single ply membranes and flashings to substrates.
 - a. Bonding Adhesive recommended by roof membrane manufacturer.

- b. VOC, maximum, ASTM D3960: 700 g/L.
 - C. Flashing Membrane Adhesive: Same as membrane bonding adhesive.
 - D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.
 - E. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch (25 mm wide by 1.3 mm) thick, prepunched.
 - F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to membrane roofing system manufacturer.
 - G. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.
 - H. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
 - I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.
- 2.7 ROOF INSULATION ACCESSORIES
- A. Insulation Cant Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.
 - B. Wood Cant Strips: Comply with requirements in Division 06 rough carpentry Section.
 - C. Tapered Edge Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.
 - D. Insulation adhesive to adhere insulation to substrate board and to each layer of insulation.
- 2.8 SUBSTRATE BOARDS
- A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch thick.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Georgia-Pacific Corporation; Dens Deck or Dens Deck Prime
 - B. Substrate Board: ASTM C 1278/C 1278M, cellulosic-fiber-reinforced, water-resistant gypsum substrate, 1/2 inch thick.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. USG Corporation; Securock.

C. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate panel to roof deck.

2.8.1 VAPOR BARRIER

A. Self-adhering, multi-layer membrane with a woven polyethylene face and SBS based adhesives. Meets ASTM D 1970, self healing; UV resistant for 90 days.

1. Provide Elevate - V-Force vapor barrier or approved equal.

2.9 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Approvals-approved roof insulation.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.

1. Elevated Isogard GL Insulation

2. Provide insulation in at least 2 layers for a total minimum thickness of 4" and R- 25 minimum.

3. Tapered insulation is in addition to the base 4" thickness required.

4. Apply fully adhered to substrate and subsequent layers.

C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to develop positive slope to drain or scupper at a minimum slope of 1/4 inch per 12 inches unless otherwise indicated.

1. Provide tapered insulation at all roof drain sump areas and between all roof drains and thru-wall scuppers.

2. Provide additional tapered insulation as needed to eliminate ponding and create positive slope to drain.

3. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

4. Provide 48" x 48" x 1" deep, recessed sump at each roof drain, utilizing tapered insulation to transition between surrounding insulation and sump.

5. Apply tapered insulation fully adhered to substrate and subsequent layers.

2.10 COVER BOARD

- A. Cover Board: ASTM C 1289, high density, polyisocyanurate foam, 1/2 inch minimum thickness or as required to achieve wind uplift rating, with glass facers both sides. Minimum R-Value 2.5. Compressive strength 80 psi minimum. Cover board to be fully adhered to insulation over entire re-roofed areas and new roof areas, immediately below epdm membrane.
1. Products: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- ISOGARD HD polyiso board insulation (Design Standard)
 - Carlisle – SecureShield HD

2.11 COVER BOARD

- A. As an alternative to the high density polyisocyanurate cover boards listed above the following cover board may be utilized, as may be required or recommended by roofing system manufacturer.
- B. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch thick.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
- Georgia-Pacific Corporation; Dens Deck Prime

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
- Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - Existing Roof Deck:
 - Verify that deck is securely fastened and properly supported with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION, GENERAL

- A. Install roofing system in accordance with manufacturer's written instructions and approved details.
- B. Install wood cants, blocking, curbs, and nailers in accordance with requirements of Division 06 Section "Miscellaneous Rough Carpentry."
- C. NRCA Installation Details: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations; modify as required to comply with manufacturer's approved details and perimeter fastening requirements of FM Global references if applicable.

3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Tapered Insulation and Crickets: Install tapered insulation under area of roofing to conform to slopes indicated.
 - 1. Where crickets are indicated or required to provide positive slope to drain, make slope of crickets minimum of two times the roof slope, not less than 1/4 inch in 12 inches (1:48).
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (70 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

1. Insulation Drain Sumps: Tapered insulation sumps, not less than 2 by 2 ft. (600 by 600 mm), sloped to roof drain; sump to maximum depth of not more than 1 inch (25 mm) less than the Project-stipulated continuous insulation thickness based upon code requirements.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
- B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Solvent-Based Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow adhesive to become tacky before installing membrane roofing; do not allow adhesive to fully dry. Roll membrane into adhesive. Do not apply adhesive to splice area of membrane.
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
- G. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.

3.7 FIELD QUALITY CONTROL

- A. Roofing Inspector: Owner will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
- B. Roofing Inspector: Contractor shall engage a qualified roofing inspector for a minimum of 1 full-time days on site, per 40-hour crew week, to perform roof tests and inspections and to prepare start up, inter, imand final reports. Roofing Inspector's quality assurance inspections shall comply with applicable criteria established in NRCA's "Quality Control and Quality-assurance Guidelines for the Application of Membrane Roofing Systems."
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- D. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- E. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075423

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:

1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints in dimension stone cladding.
 - d. Joints in glass unit masonry assemblies.
 - e. Joints between metal panels.
 - f. Joints between different materials listed above.
 - g. Perimeter joints between materials listed above and frames of doors, windows and louvers.
 - h. Control and expansion joints in ceilings and other overhead surfaces.
 - i. Other joints as indicated.
2. Exterior joints in the following horizontal traffic surfaces:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Joints between different materials listed above.
 - c. Other joints as indicated.
3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Tile control and expansion joints.
 - d. Vertical joints on exposed surfaces of interior masonry walls and partitions.
 - e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.
 - f. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - g. Other joints as indicated.
4. Interior joints in the following horizontal traffic surfaces:

- a. Isolation joints in cast-in-place concrete slabs.
- b. Control and expansion joints in tile flooring.
- c. Other joints as indicated.

B. Related Sections include the following:

1. Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
2. Division 07 Section "Fire-Resistive Joint Systems" for sealing joints in fire-resistance-rated construction.
3. Division 08 Section "Glazing" for glazing sealants.
4. Division 09 Section "Gypsum Board" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
5. Division 09 Section "Tiling" for sealing tile joints.
6. Division 09 Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters of acoustical ceilings.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- E. Qualification Data: For Installer.
- F. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

- G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- H. Field Test Report Log: For each elastomeric sealant application.
- I. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use ASTM C 1087 and manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than three pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of nonelastomeric sealant and joint substrate indicated.
 - 3. Notify Architect seven days in advance of dates and times when test joints will be erected.

4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 5. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
- E. Mockups: Build mockups incorporating sealant joints, as follows, to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution:
1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or below 40 degrees F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: **1 Year (ADD 01)** from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: 20 years from date of Substantial Completion.
- C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by A/E from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

- B. **Stain-Test-Response Characteristics:** Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. **Suitability for Immersion in Liquids.** Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- D. **Suitability for Contact with Food:** Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- E. **Single-Component Silicone Sealant:**
1. **Available Products:**
 - a. Dow Corning Corporation; 790.
 - b. GE Silicones; SilPruf LM SCS2700.
 - c. Tremco; Spectrem 1 (Basic).
 2. **Type and Grade:** S (single component) and NS (nonsag).
 3. **Class:** 25.
 4. **Use Related to Exposure:** NT (nontraffic).
 5. **Uses Related to Joint Substrates:** M, G, A, and, as applicable to joint substrates indicated, O.
 - a. **Use O Joint Substrates** color anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, brick.
 6. **Stain-Test-Response Characteristics:** Nonstaining to porous substrates per ASTM C 1248.
- F. **Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:**
1. **Available Products:**
 - a. Pecora Corporation; 898.
 - b. Tremco; Tremsil 600 White.
 2. **Type and Grade:** S (single component) and NS (nonsag).
 3. **Class:** 25.
 4. **Use Related to Exposure:** NT (nontraffic).
 5. **Uses Related to Joint Substrates:** G, A, and, as applicable to joint substrates indicated, O.
 - a. **Use O Joint Substrates:** ceramic tile and plumbing fixtures.
- G. **Single-Component Nonsag Urethane Sealant:**

1. Available Products:
 - a. Sika Corporation, Inc.; Sikaflex - 1a.
 - b. Sonneborn, Division of ChemRex Inc.; Ultra.
 - c. Sonneborn, Division of ChemRex Inc.; NP 1.
 - d. Tremco; Vulkem 116.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.
 - a. Use O Joint Substrates: Color anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, brick.

2.4 LATEX JOINT SEALANTS

- A. Latex Sealant: Comply with ASTM C 834, Type P, Grade NF.
- B. Available Products:
 1. Bostik Findley; Chem-Calk 600.
 2. Pecora Corporation; AC-20+.
 3. Schnee-Morehead, Inc.; SM 8200.
 4. Sonneborn, Division of ChemRex Inc.; Sonolac.
 5. Tremco; Tremflex 834.

2.5 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following:
 1. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 2. Available Products:
 - a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
 - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

2.6 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for

applications indicated by sealant manufacturer based on field experience and laboratory testing.

- B. **Elastomeric Tubing Sealant Backings:** Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- C. **Bond-Breaker Tape:** Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. **Primer:** Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. **Cleaners for Nonporous Surfaces:** Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. **Masking Tape:** Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. **Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.**
- B. **Proceed with installation only after unsatisfactory conditions have been corrected.**

3.2 PREPARATION

- A. **Surface Cleaning of Joints:** Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. **Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested**

and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.

- B. **Joint Priming:** Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. **Masking Tape:** Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. **General:** Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. **Sealant Installation Standard:** Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. **Acoustical Sealant Application Standard:** Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 - 4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
 - 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed elastomeric sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, Method B, Exposed Surface Finish Hand Pull Tab, Method C, Field-Applied Sealant Joint Hand Pull Flap, as appropriate for type of joint-sealant application indicated.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
 4. Inspect tested joints and report on the following:
 - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
 - b. Whether sealants filled joint cavities and are free of voids.
 - c. Whether sealant dimensions and configurations comply with specified requirements.
 5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors with wood veneerfaces.
 - 2. Factory finishing flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 SUBMITTALS

- A. Product Data: For each type of door indicated. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate requirements for veneer matching.
 - 4. Indicate doors to be factory finished and finish requirements.
 - 5. Indicate fire-protection ratings for fire-rated doors.
- C. Samples for Initial Selection: For factory-finished doors.
- D. Samples for Verification:
 - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish.
 - 2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
 - a. Provide samples for each species of veneer and solid lumber required.
 - b. Provide samples for each color, texture, and pattern of plastic laminate required.

- c. Finish veneer-faced door samples with same materials proposed for factory-finished doors.

3. Louver blade and frame sections, 6 inches long, for each material and finish specified.

E. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.
- C. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

3. Warranty Period for Solid-Core Interior Doors: **Manufacturer's Standard Warranty (ADD 01)**

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Chappell Door Co.
 2. Eggers Industries.
 3. Graham; an Assa Abloy Group Company.
 4. Marshfield Door Systems, Inc.
 5. Mohawk Flush Doors, Inc.; a Masonite Company.
 6. Oshkosh Architectural Door Company.
 7. VT Industries Inc.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Particleboard-Core Doors:
 1. Particleboard: ANSI A208.1, Grade LD-1 or LD-2 Consider deleting first subparagraph below. Some door manufacturers contend that blocking weakens particleboard-core doors and is not required. If retaining, select one of two options.
 2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
 - a. 5-inch top-rail blocking, in doors indicated to have closers.
 - b. 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c. 5-inch midrail blocking, in doors indicated to have exit devices.
 3. Provide doors with structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.
- B. Structural-Composite-Lumber-Core Doors:
 1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
 - b. Screw Withdrawal, Edge: 400 lbf.
 2. Edge Construction: Where required to meet fire ratings, provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors

1. Grade: Custom (Grade A faces)
2. Species: Red Oak
3. Cut: Plain Sliced
4. Match between Veneer Leaves: Book match.
5. Transom Match: Continuous match
6. Exposed Vertical Edges: Same species as faces
7. Wood veneer bead for light openings.
8. Core: Particleboard
9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.
10. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

2.4 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 1. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
- C. Openings: Cut and trim openings through doors in factory.
 1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Division 08 Section "Glazing."

2.5 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Finish doors at factory.
- C. Finish doors at factory that are indicated to receive transparent finish. Field finish doors indicated to receive opaque finish.

D. Transparent Finish:

1. Grade: Custom.
2. Finish: AWI conversion varnish system.
3. Staining: As selected by Architect from manufacturer's full range.
4. Effect: Filled finish
5. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.
1. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 084113 - ALUMINUM ENTRANCES – STOREFRONTS AND CURTAINWALLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Thermally Broken, Aluminum Entrances, Storefronts and Curtainwalls
 - 2. Aluminum Entrance Doors compatible with storefront and curtainwall systems.

1.2 SYSTEM DESCRIPTION

- A. General: Provide aluminum entrance, storefront and curtainwall systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Glazing: Physically and thermally isolate glazing from framing members.
- C. Glazing-to-Glazing Joints: Provide glazing-to-glazing joints that accommodate thermal and mechanical movements of glazing and system, prevent glazing-to-glazing contact, and maintain required edge clearances.
- D. Thermally Broken Construction: Provide systems that isolate aluminum exposed to exterior from aluminum exposed to interior with a material of low thermal conductance.
- E. Provide continuous sub-sill components at all sill conditions to drain water from storefront system to the exterior.

1.3 PERFORMANCE REQUIREMENTS – STOREFRONT SYSTEMS

- A. Performance Requirements: Provide aluminum storefront and curtainwall systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test method indicated.
- B. Air Infiltration: Completed storefront and curtainwall systems shall have 0.06 CFM/FT² (1.10 m³/h·m²) maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF (299 Pa).
- C. Water Infiltration: No uncontrolled water when tested in accordance with ASTM E 331 at test pressure differential of: 10 PSF (479 Pa) (or when required, field tested in accordance with AAMA 503). Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.

- D. Wind Loads: Completed storefront and curtainwall system shall withstand wind pressure loads normal to wall plane indicated:
1. Exterior Walls: Provide systems capable of withstanding loads indicated on the Structural Drawings
 - a. Positive Pressure: 30 PSF
 - b. Negative Pressure: 45 PSF
 2. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
 3. Without Horizontals: L/175 or 3/4" (19.1mm) maximum.
 4. With Horizontals: L/175 or L/240 + 1/4" (6.4mm) for spans greater than 13'-6" (4.1m) but less than 40'-0" (12.2m).
- E. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.
- F. Thermal Performance: When tested in accordance with AAMA 507, AAMA 1503, and NFRC 100:
1. Condensation Resistance Factor (CRF_f): A minimum of 70
 2. Thermal Transmittance U Value: 0.34 BTU/HR/FT²/°F or less.
- G. Acoustical Performance: Acoustical Performance: When tested in accordance with AAMA 1801:
1. Sound Transmission Class (STC) shall not be less than 32 for 1" standard insulating unit; 36 for laminated glazing.
 2. Outdoor-Indoor Transmission Class (OITC) shall not be less than 27 for 1" standard insulating unit; 30 for laminated glazing.

1.4 PERFORMANCE REQUIREMENTS – ENTRANCE DOORS

- A. Performance Requirements: Provide aluminum swing doors that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test methods indicated.
1. Air Infiltration (Single Acting Butt Hinges, Continuous Hinges, or Offset Pivots): Air infiltration shall be tested in accordance with ASTM E 283 at static pressure of 1.57 PSF (75 Pa). Infiltration shall not exceed 0.50 CFM/FT² for single door or 1.00 CFM/FT² for pair doors.
 2. Structural: Door corner structural strength shall be tested per YKK AP's dual moment test procedure and certified by an independent testing laboratory to ensure corner integrity and weld compliance. Certified test procedures and results are available upon request.
 3. Structural Uniform Load Test:
 - a. Single Doors: ± 50 psf.
 - b. Pair of Doors: ± 33 psf.

4. Thermal Performance:
 - a. When tested in accordance with AAMA 1503.1 and NFRC 102 based on Standard 1" insulating unit:
 - 1) Condensation Resistance Factor (CRF_f): A minimum of 58.
 - 2) Thermal Transmittance U-Value: 0.52 BTU/HR/FT²/°F.
5. Acoustical Performance: Acoustical Performance: When tested in accordance with ASTM E 90, AAMA 1801:
 - a. Sound Transmission Class (STC) shall not be less than: 1" IGU; 33, laminated; 36.
 - b. Outdoor–Indoor Transmission Class (OITC) shall not be less than: 1" IGU; 29, 1" laminated; 32.
6. Forced Entry Resistance: 300 lbs. satisfactory.

1.5 SUBMITTALS

- A. Product Data: For each product specified. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Shop Drawings: For entrance, storefront and curtainwall systems. Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 1. Shop drawings shall be project specific and indicate each jamb, head and sill condition.
 2. Shop drawings shall be based on field verified information and dimensions.
- C. Samples for Verification: Of each type of exposed finish required in manufacturer's standard sizes. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing entrance and storefront systems similar to those required for this Project and who is acceptable to manufacturer.
- B. Engineering Responsibility: Manufacturer to provide engineering and design of entrance, storefront and curtainwall systems to comply with loads indicated. Prepare data for entrance, storefront and curtainwall systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's assemblies specific to this Project.
- C. Testing Agency Qualifications: Owner may require testing of the installed system, contractor shall coordinate with testing agency.
- D. Source Limitations: Obtain each type of entrance and storefront system through one source from a single manufacturer.

- E. **Product Options:** Drawings indicate size, profiles, and dimensional requirements of entrance and storefront systems and are based on the specific systems indicated. Other manufacturers' systems with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."
1. Do not modify intended aesthetic effect, as judged solely by Architect, except with Architect's approval and only to the extent needed to comply with performance requirements. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.
- F. **Preconstruction Sealant Testing:** Perform sealant manufacturers' standard tests for compatibility and adhesion of sealants with each material that will come in contact with sealants and each condition required by system.
1. Test a minimum of 8 samples of each metal, glazing, and other material.
 2. Prepare samples using techniques and primers required for installed systems.
 3. Perform tests under environmental conditions that duplicate those under which systems will be installed.
 4. For materials that fail tests, determine corrective measures required to prepare each material to ensure compatibility with and adhesion of sealants, including, but not limited to, specially formulated primers. After performing these corrective measures on the minimum number of samples required for each material, retest materials.

1.7 PROJECT CONDITIONS

- A. **Field Measurements:** Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.8 WARRANTY

- A. **General Warranty:** The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. **Special Warranty:** Submit a written warranty executed by the manufacturer agreeing to repair or replace components of entrance and storefront systems that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:
1. Structural failures including, but not limited to, excessive deflection.
 2. Adhesive sealant failures.
 3. Cohesive sealant failures.
 4. Failure of system to meet performance requirements.

5. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
6. Failure of operating components to function normally.
7. Water leakage through fixed glazing and frame areas.

C. Warranty Period: **1 Year (ADD 01)** from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Aluminum Storefront . Curtainwall Systems:
 1. Kawneer – Trifab Versaglaze 601T Framing System
 2. Oldcastle Series 6000 Thermal Multiplane (Basis of Design)
 3. YKK – Series YES 600
- C. Aluminum Storefront Systems: (Window Openings, secondary entrances)
 1. Kawneer – Trifab Versaglaze 451T Framing System
 2. Oldcastle Series 3000 Thermal Multiplane (Basis of Design)
 3. YKK – Series YES 45 TU
- D. Aluminum Wide Stile Thermal Entrance Doors: (Where Indicated)
 1. Oldcastle WS500 (Basis of Design)
 2. Equal products from Kawneer and YKK.

2.2 MATERIALS

- A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.
- B. Aluminum Sheet:
 1. Painted Finish: ASTM B 209 (ASTM B 209M), 3003-H14 Aluminum Alloy, 0.080" (1.95 mm) minimum thickness.

2.3 ACCESSORIES

- A. Manufacturer's Standard Accessories:

1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners.
2. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
3. 0.050 Aluminum Sill Flashing End Dams must have 3 point attachment.
4. 0.050 inch aluminum trim is required at perimeter of all aluminum storefront frames to conceal wall construction and to allow for variances in wall panel to window rough openings. Lap vertical trim over end dam flashing noted above. Refer also to Details.

B. Thresholds provided by Aluminum Entrance Manufacturer:

1. Provide manufacturer's recommended thermally broken threshold, ADA compliant with raised weather seal that seals to bottom of door.
 - a. Similar to Pemko 2006 T or equivalent.

2.4 RELATED MATERIALS (Specified In Other Sections)

- A. Glass: Refer to Division 8 Glass and Glazing Section for glass materials.

2.5 FABRICATION

- A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.
1. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive hardware in accordance with manufacturer's recommendations.
 2. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members showing welding bloom or discoloration on finish or material distortion will be rejected.

2.6 ALUMINUM FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. High-Performance Organic Finish: 2-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
1. Color and Gloss: As selected by Architect from manufacturer's full range.

2.7 GLAZING ACCESSORIES

- A. Glazing as specified in Division 8 Section "Glazing."
- B. Glazing Gaskets: Manufacturer's standard pressure-glazing system of black, resilient glazing gaskets, setting blocks, and shims or spacers, fabricated from an elastomer of type and in hardness recommended by system and gasket manufacturer to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.
- C. Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
- D. Structural Silicone Sealant: Type recommended by sealant and system manufacturers that complies with ASTM C 1184 requirements, is compatible with system components with which it comes in contact, and is specifically formulated and tested for use as a structural sealant.
 - 1. Tensile Strength: 100 psi (689.5 kPa) minimum.
 - 2. Provide sealant with modulus of elasticity that will not allow movement of more than 25 percent of joint width, unless less movement is required by structural-sealant-glazed systems' design.
 - 3. Use neutral-cure silicone sealant with insulating-glass units.
- E. Secondary Sealant: For use as weatherseal, compatible with structural silicone sealant and other system components with which it comes in contact, and that accommodates a 50 percent increase or decrease in joint width at the time of application when measured according to ASTM C 719.
 - 1. Color: Black.
 - 2. Use neutral-cure silicone sealant with insulating-glass units.
- F. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
- G. Sealants and joint fillers for joints at perimeter of entrance and storefront systems as specified in Division 7 Section "Joint Sealants."
- H. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements, except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.
 - a. Not less than 27 for 1" standard insulating unit; 30 for laminated glazing.

2.8 COMPONENTS

- A. Brackets and Reinforcements: Provide manufacturer's standard brackets and reinforcements that are compatible with adjacent materials. Provide non-staining, nonferrous shims for aligning system components.
- B. Internal Reinforcements: Provide internal steel reinforcement both vertical and horizontal at door openings and as required at other locations to support and counteract gravity loads and wind loads as required by delegated design and engineering requirements.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Reinforce members as required to retain fastener threads.
 - 2. Do not use exposed fasteners, except for hardware application. For hardware application, use countersunk Phillips flat-head machine screws finished to match framing members or hardware being fastened, unless otherwise indicated.
- D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.
- E. Continuous aluminum sub-sill extrusion, thermally broken and finished to match storefront framing system.
- F. Provide aluminum closure panels, trim and attachment clips with concealed anchorage as indicated in details.
 - 1. Match finish of storefront system.
 - 2. Aluminum shall be a minimum of .125"
- G. Provide miscellaneous aluminum sheet for trim and exposed flashing components in .050" minimum thickness. Finish to match storefront framing system.
- H. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing, compatible with adjacent materials, and of type recommended by manufacturer.
- I. Concealed Flashing: Dead-soft, 0.018-inch- (0.457-mm-) thick stainless steel, complying with ASTM A 666, of type selected by manufacturer for compatibility with system.

2.9 FABRICATION

- A. General: Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.
 - 1. Fabricate components for shear-block frame construction.
 - 2. Fabricate components for head- and sill-receptor frame construction with shear-block construction at intermediate horizontal components.

- B. Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
- C. Prepare components to receive concealed fasteners and anchor and connection devices.
- D. Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
- E. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- F. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated according to FGMA's "Glazing Manual."
- G. Glazing Channels: Provide minimum clearances for thickness and type of plastic sheet indicated according to plastic sheet manufacturer's written instructions.
- H. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- I. Storefront: Fabricate framing in profiles indicated for flush glazing (without projecting stops). Provide sub-frames and reinforcing of types indicated or, if not indicated, as required for a complete system. Factory assemble components to greatest extent possible. Disassemble components only as necessary for shipment and installation.
- J. Field verify conditions of existing framing components to receive new aluminum window system components prior to shop drawing submission.

2.10 STEEL PRIMING

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying primer.
- B. Surface Preparation: Perform manufacturer's standard cleaning operations to remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel.
- C. Priming: Apply manufacturer's standard corrosion-resistant primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of entrance and storefront systems. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling, and installing entrance and storefront systems. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.
- B. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
- D. Set continuous sill members and flashing in a full sealant bed to provide weathertight construction, unless otherwise indicated. Comply with requirements of Division 7 Section "Joint Sealants."
- E. Seal perimeter of all framing components with spray applied foam insulation to seal all gaps and voids. Trim back foam for installation of sealant joints.
- F. Install framing components plumb and true in alignment with established lines and grades without warp or rack of framing members.
- G. Install glazing to comply with requirements of Division 8 Section "Glazing," unless otherwise indicated.
 - 1. Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.
 - 2. Install structural silicone sealant according to sealant manufacturer's written instructions.
 - 3. Mechanically fasten glazing in place until structural sealant is cured.
 - 4. Remove excess sealant from component surfaces before sealant has cured.
- H. Install secondary-sealant weatherseal according to sealant manufacturer's written instructions to provide weatherproof joints. Install joint fillers behind sealant as recommended by sealant manufacturer.

- I. Erection Tolerances: Install entrance and storefront systems to comply with the following maximum tolerances:
 - 1. Variation from Plane: Limit variation from plane or location shown to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
 - 2. Alignment: Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm). Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).
 - 3. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing agency to perform field quality-control testing indicated.
- B. Structural-Silicone-Sealant Adhesion Test: Test installed structural silicone sealant according to field adhesion test method described in AAMA CW #13, "Structural Sealant Glazing Systems (A Design Guide)."
 - 1. Test a minimum of 2 areas.
- C. Water Spray Test: After completing the installation of test areas indicated, test storefront system for water penetration according to AAMA 501.2 requirements.
- D. Repair or remove and replace Work that does not meet requirements or that is damaged by testing; replace to conform to specified requirements.

3.4 ADJUSTING AND CLEANING

- A. Remove excess sealant and glazing compounds, and dirt from surfaces.

3.5 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure entrance and storefront systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 084113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrical door hardware
2. Electronic access control system components

B. Related Sections:

1. Division 08 Sections:
 - a. "Flush Wood Doors"
 - b. "Aluminum-Framed Entrances, Storefronts and Curtainwalls"
2. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors

5. ANSI/SDIA250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
 - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.

- 9) Degree of door swing and handing.
- 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:

- a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
- b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
- d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
- f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

- 1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
- 2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.

D. Closeout Submittals:

- 1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Final approved hardware schedule edited to reflect conditions as installed.
 - d. Final keying schedule
 - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

- 1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
 - a. Fire door assemblies, in compliance with NFPA 80.
 - b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. **Supplier:** Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. **Installer:** Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. **Architectural Hardware Consultant:** Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. **Single Source Responsibility:** Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. **Fire-Rated Door Openings:**
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
2. **Smoke and Draft Control Door Assemblies:**
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
3. **Electrified Door Hardware**
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
4. **Accessibility Requirements:**
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. **Keying Conference**

- a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.
2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
3. Electrified Hardware Coordination Conference:
 - a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings. **(ADD 01)**
 - a. ~~Warranty~~
 - 1) ~~Locks: 10 years~~
 - 2) ~~Exit Devices: 10 years~~
 - 3) ~~Closers: 30 years~~
 - 4) ~~Automatic Operators: 2 years~~

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 - 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

- 1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
 - 2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 - 3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
- 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

- 1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
- 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
- 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series
- 2. Acceptable Manufacturers and Products:
 - a. Hager BB1191/1279 series
 - b. Best FBB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Select
 - b. Pemko

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.

5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Rockwood
 - b. Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.06 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage L9000 series
2. Acceptable Manufacturers and Products:
 - a. No Substitute

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.

6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified and motor based latch retraction locksets that comply with the following requirements:
 - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.
 - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
 - c. Low maximum current draw – maximum 0.4 amps (Lever control) and maximum 2.0 amps (Latch retraction) to allow for multiple locks on a single power supply.
 - d. Low holding current (Lever control or latch retraction) – maximum 0.01 amps to produce minimal heat, eliminate “hot levers” in electrically locked applications and motorized latch retraction applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
 - e. Connections – provide quick-connect Molex system standard.
8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
 - a. Lever Design: 06A

2.07 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin 98/35A series
2. Acceptable Manufacturers and Products:
 - a. No Substitute

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide smooth touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices at pool gates with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturers' approved strikes.
9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.

11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.08 KEYSWITCHES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage 650 series
2. Acceptable Manufacturers and Products:
 - a. Security Door Control 700 series
 - b. Sargent 4370 series
 - c. Securitron MK series

B. Requirements:

1. Provide key switches capable of being configured to momentary or maintained action.
2. Provide key switches that accept a mortise cylinder. Cylinders: Refer to "KEYING" article, herein.

2.09 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage/Von Duprin PS900 Series
2. Acceptable Manufacturers and Products:
 - a. No Substitute

B. Requirements:

1. Provide power supplies approved by manufacturer of supplied electrified hardware.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Provide power supplies with the following features:
 - a. 12/24 VDC Output, field selectable.
 - b. Class 2 Rated power limited output.

- c. Universal 120-240 VAC input.
- d. Low voltage DC, regulated and filtered.
- e. Polarized connector for distribution boards.
- f. Fused primary input.
- g. AC input and DC output monitoring circuit w/LED indicators.
- h. Cover mounted AC Input indication.
- i. Tested and certified to meet UL294.
- j. NEMA 1 enclosure.
- k. Hinged cover w/lock down screws.
- l. High voltage protective cover.

2.10 CYLINDERS

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
 - a. Schlage Everest
- 2. Acceptable Manufacturers and Products:
 - a. Sargent Keso or Signature

B. Requirements:

- 1. Provide cylinders/cores, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.
- 2. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
- 3. Nickel silver bottom pins.

2.11 KEYING

A. Scheduled System:

- 1. New factory registered system:
 - a. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

- 1. Construction Keying:
 - a. Replaceable Construction Cores.
 - 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - a) 3 construction control keys
 - b) 12 construction change (day) keys.
 - 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.
- 2. Permanent Keying:
 - a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.

- 1) Master Keying system as directed by the Owner.
- b. Forward biting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
 - 1) Permanent Control Keys: 3.
 - 2) Master Keys: 6.
 - 3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
 - 4) Key Blanks: Quantity as determined in the keying meeting.

2.12 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Telkee
2. Acceptable Manufacturers:
 - a. HPC
 - b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.13 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4040XP series

2. Acceptable Manufacturers and Products:
 - a. Corbin-Russwin DC8000 series
 - b. Sargent 281 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
11. Closers shall be capable of being upgraded by adding modular mechanical or electronic components in the field.

2.14 ELECTRO-HYDRAULIC AUTOMATIC OPERATORS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4600 series
2. Acceptable Manufacturers and Products:
 - a. Precision D4990 series
 - b. Besam Power Swing

B. Requirements:

1. Provide low energy automatic operator units with hydraulic closer complying with ANSI/BHMA A156.19.
2. Provide automatic operator units complying with 2022 California Building Code Section 11B-404.2.9, Exception 2.
3. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.

4. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check, and opening and closing speed adjustment valves to control door
5. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay.
6. Provide drop plates, brackets, and adapters for arms as required for details.
7. Provide actuator switches and receivers for operation as specified.
8. Provide weather-resistant actuators at exterior applications.
9. Provide key switches with LED's, recommended and approved by manufacturer of automatic operator as required for function described in operation description of hardware group below. Cylinders: Refer to "KEYING" article, herein.
10. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.
11. Provide units with vestibule inputs that allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.

2.15 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Trimco
2. Acceptable Manufacturers:
 - a. Trimco
 - b. Rockwood

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.16 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Trimco
2. Acceptable Manufacturers:
 - a. Ives
 - b. Rockwood

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.

2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.17 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
 - a. Glynn-Johnson
2. Acceptable Manufacturers:
 - a. Sargent
 - b. ABH

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.18 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Trimco
2. Acceptable Manufacturers:
 - a. Ives
 - b. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button or thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.19 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Trimco
2. Acceptable Manufacturers:
 - a. Rockwood
 - b. Ives

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.20 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

B. Scheduled Manufacturer:

1. Pemko

C. Acceptable Manufacturers:

1. Zero

D. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.

1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.
 - a. Provide non-corrosive fasteners for all exterior applications.
 - b. Provide security fasteners where indicated.
2. Provide neoprene, EPDM, silicone, or nylon brush inserts as specified in hardware sets. Provide non brush inserts of solid or sponge cell, as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.

E. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.

F. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.

1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.

G. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.

H. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.

- I. Door Sweeps or Shoes: Apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.
 - 1. Provide solid neoprene, EPDM, silicone, or nylon brush type of seal as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.
- J. Automatic Door Bottoms:
 - 1. Provide closed cell sponge, bulb neoprene. or EPDM type of seal as specified in hardware sets.
 - 2. Door bottom to be mortised, semi mortised, or surface mount as with a minimum thickness as specified in hardware sets.
- K. Rain Drips:
 - 1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.
 - 2. Door sweeps or shoes with integral rain drip must meet ADA requirements
- L. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.
 - 1. Threshold extrusion to be a minimum thickness as specified in hardware sets.

2.21 DOOR POSITION SWITCHES

- A. Manufacturers:
 - 1. Scheduled Manufacturer:
 - a. Schlage
 - 2. Acceptable Manufacturers:
 - a. GE-Interlogix
 - b. Sargent
- B. Requirements:
 - 1. Provide recessed or surface mounted type door position switches as specified.
 - 2. Coordinate door and frame preparations with door and frame suppliers. If switches are being used with magnetic locking device, provide minimum of 4 inches (102 mm) between switch and magnetic locking device.

2.22 FINISHES: As Specified in Sets

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

3.02 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
 - 1. Install construction cores to secure building and areas during construction period.
 - 2. Replace construction cores with permanent cores as indicated in keying section.
 - 3. Furnish permanent cores to Owner for installation.
- J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

- K. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
1. Conduit, junction boxes and wire pulls.
 2. Connections to and from power supplies to electrified hardware.
 3. Connections to fire/smoke alarm system and smoke evacuation system.
 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 5. Connections to panel interface modules, controllers, and gateways.
 6. Testing and labeling wires with Architect's opening number.
- L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.
- M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- N. Overhead Stops/holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- O. Thresholds:
1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
 2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
 3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.
- P. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- Q. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- R. Perimeter Gasketing:
1. Apply to head and jamb, forming seal between door and frame.
 2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.
- S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

147952 OPT0472781 Version 1

Legend:


























-  Link to catalog cut sheet
-  Electrified Opening

Hardware Group No. 01

For use on Door #(s):

101A 101B

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112XY		628	IVE
1	EA	REMOVABLE MULLION	KR4954 STAB		689	VON
1	EA	PANIC HARDWARE	CD-98-EO		630	VON
1	EA	PANIC HARDWARE	CD-98-NL-OP		630	VON
1	EA	FSIC RIM CYLINDER	20-057 ICX W/KEYED CONST. CORE		626	SCH
1	EA	FSIC MORTISE CYLINDER (FOR MULLION)	20-061		626	SCH
2	EA	FSIC MORTISE CYLINDER	20-061 X XQ11-948 36-083 36-082-037		626	SCH
4	EA	FSIC PERMANENT CORE	23-030		626	SCH
2	EA	90 DEG OFFSET PULL	8190EZHD 10" O		630-316	IVE
1	EA	OH STOP	100SE RHR		630	GLY
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS X MTG BRKT, SPCR & PLATE AS REQ		689	LCN
1	EA	SURF. AUTO OPERATOR	4642 TBWMS 120 VAC RHR		 689	LCN
1	EA	WEATHER RING	8310-801			LCN
1	EA	ACTUATOR, TOUCH	8310-853T			LCN
1	EA	DUAL ACTUATOR, WALL MOUNT	8310-855			LCN
2	EA	ACTUATOR MOUNT BOX	8310-867F			LCN
1	EA	MULLION SEAL	8780NBK		BK	ZER
1	SET	SEAL	PERIMETER SEAL BY FRAME MFR			
1	SET	ASTRAGAL	MEETING STILE SEAL BY DOOR MFR			
2	EA	DOOR SWEEP	8198AA		AA	ZER
1	EA	THRESHOLD	2006T SERIES		689	PEM
2	EA	DOOR CONTACT	679-05 TYPE AS REQ		 BLK	SCE
1	EA	POWER SUPPLY	PS902 900-4RL 900-BBK 120/240 VAC (OMIT 4RL BOARD WHERE NOT REQ)			VON

- INGRESS BY KEY.
- FREE EGRESS BY THE ACTUATOR OR THE PUSH PADS.
- COORDINATE POWER SUPPLY WITH SECURITY CONTRACTOR PRIOR TO SUBMITTALS.
- OMIT POWER SUPPLY WHERE PROVIDED BY SECURITY.

Hardware Group No. 02

For use on Door #(s):
 101C

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112XY	☰	628	IVE
2	EA	DUMMY PUSH BAR	350	☰	630	VON
1	EA	FSIC MORTISE CYLINDER	20-061 FOR KEY SWITCH	☰	626	SCH
1	EA	FSIC PERMANENT CORE	23-030 FOR KEY SWITCH	☰	626	SCH
2	EA	90 DEG OFFSET PULL	8190EZHD 10" O	☰	630- 316	IVE
1	EA	OH STOP	100SE RHR	☰	630	GLY
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS X MTG BRKT, SPCR & PLATE AS REQ LHR	☰	689	LCN
1	EA	SURF. AUTO OPERATOR	4642 TBWMS 120 VAC RHR	☰ ⚡	689	LCN
1	EA	ACTUATOR, TOUCH	8310-853T	☰ ⚡		LCN
1	EA	ACTUATOR MOUNT BOX	8310-867F	☰		LCN
1	EA	MULLION SEAL	8780NBK	☰	BK	ZER
1	EA	THRESHOLD	2006T SERIES		689	PEM
1	SET	SEAL	PERIMETER SEAL BY FRAME MFR			
1	EA	KEY SWITCH	653-04 L2 12/24 VDC	☰ ⚡	630	SCE

- FREE EGRESS/INGRESS BY THE ACTUATOR OR THE PUSH PADS.
- KEY SWITCH TURNS AUTOMATIC OPERATOR AND BUTTONS ON/OFF FOR DOORS 101A, 101B AND 101C.

Hardware Group No. 03

For use on Door #(s):
 102

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	224XY	☰	628	IVE
1	EA	PANIC HARDWARE	CD-98-NL	☰	630	VON
1	EA	FSIC RIM CYLINDER	20-057 ICX W/KEYED CONST. CORE	☰	626	SCH
1	EA	FSIC MORTISE CYLINDER	20-061	☰	626	SCH
2	EA	FSIC PERMANENT CORE	23-030	☰	626	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS X MTG BRKT, SPCR & PLATE AS REQ	☰	689	LCN
1	EA	KICK PLATE	10X2 LDW-CSK	☰	630	TRM
1	EA	RAIN DRIP	142AA DW + 4" (OMIT @ COVERED OPENINGS)	☰	AA	ZER
1	SET	GASKETING	429 @ HEAD & JAMBS	☰	AA	ZER
1	EA	DOOR SWEEP	8198AA	☰	AA	ZER
1	EA	THRESHOLD	2006T SERIES		689	PEM
1	EA	DOOR CONTACT	679-05 TYPE AS REQ	☰	BLK	SCE

Hardware Group No. 04

For use on Door #(s):
 103

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	☰	652	IVE
1	EA	OFFICE W/SIM RETRACT	L9056J 06A L583-363	☰	630	SCH
1	EA	FSIC PERMANENT CORE	23-030	☰	626	SCH
1	EA	WALL BUMPER CONCAVE	1270WVCP		630	TRI
3	EA	SILENCERS-MTL	1229-A	☰		TRM

Hardware Group No. 05

For use on Door #(s):
 104A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	☰	652	IVE
1	EA	PASSAGE SET	L9010 06A	☰	630	SCH
1	EA	WALL BUMPER CONCAVE	1270WVCP		630	TRI
3	EA	SILENCERS-MTL	1229-A	☰		TRM

Hardware Group No. 06

For use on Door #(s):
 104B 111

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112XY	☰	628	IVE
1	EA	PANIC HARDWARE	CD-98-NL-OP	☰	630	VON
1	EA	FSIC RIM CYLINDER	20-057 ICX W/KEYED CONST. CORE	☰	626	SCH
1	EA	FSIC MORTISE CYLINDER	20-061	☰	626	SCH
2	EA	FSIC PERMANENT CORE	23-030	☰	626	SCH
1	EA	90 DEG OFFSET PULL	8190EZHD 10" O	☰	630- 316	IVE
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS X MTG BRKT, SPCR & PLATE AS REQ	☰	689	LCN
1	EA	DOOR SWEEP	8198AA	☰	AA	ZER
1	EA	THRESHOLD	2006T SERIES		689	PEM
1	EA	DOOR CONTACT	679-05 TYPE AS REQ	☰	BLK	SCE

Hardware Group No. 07

For use on Door #(s):
 105

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	☰	652	IVE
1	EA	CLASSROOM LOCK	L9070J 06A	☰	630	SCH
1	EA	FSIC PERMANENT CORE	23-030	☰	626	SCH
1	EA	OH STOP	100S	☰	630	GLY
3	EA	SILENCERS-MTL	1229-A	☰		TRM

Hardware Group No. 08

For use on Door #(s):

106 107

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	☰	652	IVE
1	EA	HEAVY DUTY PUSH PLATE	1001-3	☰	630	TRM
1	EA	PULL PLATE 4"X16"	1018		630	TRI
1	EA	SURFACE CLOSER	4040XP RW/PA TBWMS X MTG BRKT, SPCR & PLATE AS REQ	☰	689	LCN
1	EA	KICK PLATE	10X2 LDW-CSK	☰	630	TRM
1	EA	MOP PLATE	4X1 LDW-CSK	☰	630	TRM
1	EA	WALL BUMPER CONCAVE	1270WVCP		630	TRI
3	EA	SILENCERS-MTL	1229-A	☰		TRM

Hardware Group No. 09

For use on Door #(s):

108 112

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	☰	652	IVE
1	EA	STOREROOM LOCK	L9080J 06A	☰	630	SCH
1	EA	FSIC PERMANENT CORE	23-030	☰	626	SCH
1	EA	WALL BUMPER CONCAVE	1270WVCP		630	TRI
3	EA	SILENCERS-MTL	1229-A	☰		TRM

Hardware Group No. 10

For use on Door #(s):

109

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	☰	652	IVE
1	EA	OFFICE W/SIM RETRACT W/ OUTSIDE INDICATOR W/ INSIDE INDICATOR	L9056J 06A L583-363 OS-OCC IS-LOC	☰	630	SCH
1	EA	OH STOP	100S	☰	630	GLY
3	EA	SILENCERS-MTL	1229-A	☰		TRM

Hardware Group No. 11

For use on Door #(s):
 110

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	☰	652	IVE
1	EA	CLASSROOM LOCK	L9070J 06A	☰	630	SCH
1	EA	FSIC PERMANENT CORE	23-030	☰	626	SCH
1	EA	SURFACE CLOSER	4040XP RW/PA TBWMS X MTG BRKT, SPCR & PLATE AS REQ	☰	689	LCN
1	EA	KICK PLATE	10X2 LDW-CSK	☰	630	TRM
1	EA	WALL BUMPER CONCAVE	1270WVCP		630	TRI
3	EA	SILENCERS-MTL	1229-A	☰		TRM

END OF SECTION

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Borrow lite windows.
 - 2. Door lites
 - 3. Exterior and interior glazed entrances and Storefronts
 - 4. Applied film to interior surfaces of glass.

1.2 DEFINITIONS

- A. **Manufacturer:** A firm that produces primary glass or fabricated glass as defined in referenced glazing publications.
- B. **Interspace:** Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.
- C. **Deterioration of Coated Glass:** Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- D. **Deterioration of Laminated Glass:** Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
- E. **Deterioration of Insulating Glass:** Failure of the hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1.3 PERFORMANCE REQUIREMENTS

- A. **General:** Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. **Glass Design:** Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
1. **Glass Thicknesses:** Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. **Specified Design Wind Loads:** Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 6.4.2, "Analytic Procedure," based on mean roof heights above grade indicated on Drawings.
 - b. **Probability of Breakage for Vertical Glazing:** 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
 - 1) **Load Duration:** 60 seconds or less.
 - c. **Maximum Lateral Deflection:** For the following types of glass supported on all four edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch (25 mm), whichever is less.
 - 1) For monolithic-glass lites heat treated to resist wind loads.
 - 2) For insulating glass.
 - d. **Minimum Glass Thickness for Exterior Lites:** Not less than 6 mm.
 - e. **Thickness of Tinted and Heat-Absorbing Glass:** Provide the same thickness for each tint color indicated throughout Project.
- C. **Thermal Movements:** Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. **Temperature Change (Range):** 180 deg F (100 deg C), material surfaces.
- D. **Thermal and Optical Performance Properties:** Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
2. For insulating-glass units, properties are based on units with lites 6 mm thick and a nominal 1/2-inch- (13-mm-) wide interspace.
3. Center-of-Glass U-Values: NFRC 100 methodology using LBL-35298 WINDOW 4.1 computer program, expressed as Btu/ sq. ft. x h x deg F (W/sq. m x K).
4. Center-of-Glass Solar Heat Gain Coefficient: NFRC 200 methodology using LBL-35298 WINDOW 4.1 computer program.
5. Solar Optical Properties: NFRC 300.

1.4 SUBMITTALS

- A. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass.
 1. Each color of tinted float glass.
 2. Insulating glass for each designation indicated.
 3. For each color (except black) of exposed glazing sealant indicated.
- B. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- C. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
- D. Product Test Listings: From UL indicating fire-rated glass complies with requirements, based on comprehensive testing of current product.
- E. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Source Limitations for Clear Glass: Obtain clear float glass from one primary-glass manufacturer.
- C. Source Limitations for Tinted Glass: Obtain tinted, heat-absorbing, and light-reducing float glass from one primary-glass manufacturer for each tint color indicated.
- D. Source Limitations for Coated Glass: Obtain coated glass from one manufacturer for each type of coating and each type and class of float glass indicated.
- E. Source Limitations for Insulating Glass: Obtain insulating-glass units from one manufacturer using the same type of glass and other components for each type of unit indicated.

- F. Source Limitations for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.
- G. Preconstruction Adhesion and Compatibility Testing: Submit to elastomeric glazing sealant manufacturers, for testing indicated below, samples of each glass type, tape sealant, gasket, glazing accessory, and glass-framing member that will contact or affect elastomeric glazing sealants.
1. Use manufacturer's standard test methods to determine whether priming and other specific preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
 - a. Perform tests under normal environmental conditions replicating those that will exist during installation.
 2. Submit not fewer than nine pieces of each type and finish of glass-framing members and each type, class, kind, condition, and form of glass (monolithic, laminated, and insulating units) as well as one sample of each glazing accessory (gaskets, tape sealants, setting blocks, and spacers).
 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 4. For materials failing tests, obtain sealant manufacturer's written instructions for corrective measures, including the use of specially formulated primers.
 5. Testing will not be required if elastomeric glazing sealant manufacturers submit data based on previous testing of current sealant products for adhesion to, and compatibility with, glazing materials matching those submitted.
- H. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.
1. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.
- I. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. GANA Publications: GANA'S "Glazing Manual" and "Laminated Glass Design Guide."
- J. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following inspecting and testing agency:
1. Insulating Glass Certification Council.
- K. Mockups: Before glazing, build mockups for each glass product indicated below to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities

of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups with the following kinds of glass to match glazing systems required for Project, including typical lite size, framing systems, and glazing methods:
 - a. Heat-strengthened coated glass.
 - b. Fully tempered glass.
 - c. Spandrel glass.
 - d. Coated insulating glass.
 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 3. Obtain Architect's approval of mockups before starting fabrication.
 4. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 5. Demolish and remove mockups when directed.
 6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- L. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F (4.4 deg C).

1.8 WARRANTY

- A. **General Warranty:** Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

- B. **Manufacturer's Special Warranty on Coated-Glass Products:** Written warranty, made out to Owner and signed by coated-glass manufacturer agreeing to furnish replacements for those coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. **Warranty Period: Manufacturer's Standard Warranty Period (ADD 01)** from date of Substantial Completion.

- C. **Manufacturer's Special Warranty on Insulating Glass:** Written warranty, made out to Owner and signed by insulating-glass manufacturer agreeing to furnish replacements for insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. **Warranty Period: Manufacturer's Standard Warranty Period (ADD 01)** from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

- A. **Products:** Subject to compliance with requirements, provide one of the products indicated in schedules at the end of Part 3.

2.2 HEAT-TREATED FLOAT GLASS

- A. **Heat-Treated Float Glass:** ASTM C 1048; Type I (transparent glass, flat); Quality q3 (glazing select); class, kind, and condition as indicated in schedules at the end of Part 3.

2.3 INSULATING GLASS

- A. **Insulating-Glass Units:** Preassembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in the Insulating-Glass Schedule at the end of Part 3.
 - 1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.

- B. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated in the Insulating-Glass Schedule at the end of Part 3 are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
- C. Sealing System: Dual seal, with primary and secondary sealants as follows:
 - 1. Manufacturer's standard sealants.
- D. Spacer Specifications: Manufacturer's energy saving, warm edge spacer material and construction.
- E. Provide argon gas filled glazing units.

2.4 ELASTOMERIC GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
 - 1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.5 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: 100% Silicone material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- E. Spacers: Provide manufacturer's energy saving warm-edge spacers.
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.6 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.
- C. Grind smooth and polish exposed glass edges.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep system.
 - 3. Minimum required face or edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where the length plus width is larger than 50 inches (1270 mm) as follows:
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

3.5 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding

into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.6 PROTECTION AND CLEANING

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

3.7 MONOLITHIC FLOAT-GLASS SCHEDULE

- A. Uncoated Clear Float Glass: Where glass as designated below is indicated, provide Type I (transparent glass, flat), Class 1 (clear) glass lites complying with the following:
 - 1. Uncoated Clear Fully Tempered Float Glass]: Kind FT (fully tempered).

3.8 INSULATING-GLASS SCHEDULE

- A. GRAY TINT 1 INCH INSULATED GLAZING UNITS: VITRO ARCHITECTURAL GLASS
 - 1. Insulated Glass Units for gray tinted glass locations.
 - 2. Optigray 1:
 - a. Outer lite: Solarban 60 on Optigray 6mm
 - b. Spacer: 10% Air / 90% Argon
 - c. Inner lite: Clear 6mm

- d. Transmittance UV: 10%
- e. Transmittance Visible: 50%
- f. Exterior Visible Reflectance: 8%
- g. U-Value (Winter Nighttime): 0.24
- h. U-Value (Summer Daytime): 0.22
- i. Shading Coefficient: 0.34
- j. Solar Heat Gain Coefficient: 0.29
- k. Light to Solar Gain: 1.72

B. Equal products from Oldcastle, Pilkington, Viracon will be considered.

3.9 APPLIED PERFORATED WINDOW VINYL

- A. 8 mil, one way view window vinyl. Removable film applied to interior face of window glazing where indicated on the Drawings.
 - 1. 8 MIL, Perforated 65/35 (solid / perforated)
 - 2. Solvent acrylic pressure sensitive , removable adhesive
 - 3. 15 year durability at indoor locations
 - 4. Service temperature -40 degrees to 180 degrees F
- B. Color and Pattern:
 - 1. Final graphics provided by Architect in high resolution vector image file.
- C. Manufacturers:
 - 1. 3M
 - 2. Contra Vision – Piedmont Plastics
 - 3. Continental Graphix
 - 4. Approved equal.

3.10 GLAZING SEALANT SCHEDULE

- A. Medium-Modulus Neutral-Curing Silicone Glazing Sealant:
 - 1. Products: Provide one of the following:
 - a. 756 H.P.; Dow Corning.
 - b. Silglaze II; GE Silicones.
 - c. 895; Pecora Corporation.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25.
 - 4. Additional Movement Capability: 50 percent movement in extension and 50 percent movement in compression for a total of 100 percent movement.
 - 5. Use Related to Exposure: NT (nontraffic)

6. Uses Related to Glazing Substrates: G, A, and, as applicable to glazing substrates indicated, O.

END OF SECTION 088000

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes modular carpet tile.

1.3 SUBMITTALS

- A. **Product Data:** For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.
- B. **Shop Drawings:** Show the following:
 - 1. Carpet tile type, color, and dye lot.
 - 2. Type of subfloor.
 - 3. Type of installation.
 - 4. Pattern type, location, and direction.
 - 5. Type, color, and location of insets and borders.
 - 6. Type, color, and location of edge, transition, and other accessory strips.
 - 7. Transition details to other flooring materials.
- C. **Samples:** For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.
- D. **Product Schedule:** For carpet tile. Use same designations indicated on Drawings.
- E. **Qualification Data:** For Installer.
- F. **Product Test Reports:** Based on evaluation of comprehensive tests performed by a qualified testing agency.

- G. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.
- H. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Mockups: Before installing carpet tile, build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.7 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, dimensional stability, excess static discharge and delamination.
 3. Warranty Period: **Manufacturer's Standard Warranty Period (ADD 01)** from date of Substantial Completion.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd..

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Products: Subject to compliance with requirements, provide one of the following:
1. Refer to Interior Design Drawings for locations:
 - a. Manufacturer: Milliken
 - 1) Equal products from Interface, Patcraft or Mohawk may be considered if submitted for Substitution approval prior to Bid.
 - b. Color and Patterns: Refer to Interior Design Drawings – Finish Materials Schedule.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for

installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

1. VOC Limits: Provide adhesives with VOC content not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. For wood subfloors, verify the following:
 1. Underlayment over subfloor complies with requirements specified in Division 06 Section "Rough Carpentry."
 2. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.

- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 124813 - ENTRANCE CARPET TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Entrance carpet tiles.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show the following:
 - 1. Adjacent flooring materials and transitions.
- C. Samples for Initial Selection: For each type of product indicated.
- D. Samples for Verification: For each type of product indicated submit full sized tile.
- E. Maintenance Data: For floor mats to include in maintenance manuals.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 ENTRANCE CARPET TILES

- A. Performance: Physical properties of the entrance matting shall conform to the following minimums:
 - 1. Tufted, Cut pile, solution dyed nylon
 - 2. .5 inch total thickness
 - 3. 20" x 20"

4. Safety
 - a. Surface flammability ASTM E684 Class 1
5. Performance:
 - a. **Manufacturer's Standard Warranty (ADD 01)**

- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Milliken – OBEX CutX (Basis of Design)
 2. **Equal products approved in advance by Mohawk and Interface. (ADD 01)**
 3. Refer to Interior Design Drawings – Finish Materials Schedule for patterns and colors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and floor conditions for compliance with requirements for location, sizes, minimum recess depth, and other conditions affecting installation of floor mats and frames.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install tiles to comply with manufacturer's written instructions. Set tops at height recommended by manufacturer for most effective cleaning action; coordinate top of mat surfaces with bottom of doors that swing across mats to provide clearance between door and mat.

3.3 PROTECTION

- A. After completing frame installation and concrete work, provide temporary filler of plywood or fiberboard in recesses and cover frames with plywood protective flooring. Maintain protection until construction traffic has ended and Project is near Substantial Completion.

END OF SECTION 124813

SECTION 124940 - WINDOW SHADES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Roller shades.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.
- B. Shop Drawings: Show location and extent of roller shades. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other work, operational clearances, and relationship to adjoining work.
- C. Samples for Verification:
 - 1. Complete, full-size operating unit not less than 16 inches (400 mm) wide for each type of roller shade indicated.
 - 2. For the following products:
 - a. Shade Material: Not less than 12-inch- (300-mm-) square section of fabric, from dye lot used for the Work, with specified treatments applied. Show complete pattern repeat. Mark top and face of material.
- D. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Ceiling suspension system members and attachment to building structure.
 - 2. Ceiling-mounted or penetrating items including light fixtures, air outlets and inlets, speakers, sprinklers, recessed shades, and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.
 - 3. Shade mounting assembly and attachment.
 - 4. Size and location of access to shade operator, motor, and adjustable components.
 - 5. Minimum Drawing Scale: 1/4 inch = 1 foot (1:48).
- E. Product Certificates: For each type of roller shade, signed by product manufacturer.

- F. **Maintenance Data:** For roller shades to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining roller shades and finishes.
 - 2. Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.
 - 3. Operating hardware.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Fabricator of products.
- B. **Source Limitations:** Obtain roller shades through one source from a single manufacturer.
- C. **Fire-Test-Response Characteristics:** Provide roller shade band materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. **Flame-Resistance Ratings:** Passes NFPA 701.
- D. **Product Standard:** Provide roller shades complying with WCMA A 100.1.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in factory packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same designations indicated on Drawings and in a window treatment schedule.

1.6 PROJECT CONDITIONS

- A. **Environmental Limitations:** Do not install roller shades until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. **Field Measurements:** Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operable glazed units' operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.7 WARRANTY

- A. **Special Warranty**
 - 1. **Manual Operating Components and Shade Cloth:** Provide manufacturer's warranty under provision of Division 1. Warranty period to be LIFETIME Limited Warranty to

original purchasers and contain provisions that installation is to remain operational without fault for the warranty period and include all operating parts, including shade cloth, except for the bead chain which is not covered by the warranty and is deemed to be a maintenance/service item. LIFETIME Limited Warranty is defined to be the life of the project for which it was originally purchased, not to exceed 25 years from the date of shipment.

- B. Installation: Provide Contractor's warranty under provisions of Division 1 that installation shall be free from defects for a period of not less than 1 year.
- C. In the event of a warranted product failure, the Shade Contractor shall, at no additional cost to the Owner, facilitate acquisition and delivery of all necessary replacement components to the Owner

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Provide additional 5 percent of the total length of qualified stainless steel chain required on the project, not to exceed the quantity of one 500'-0" spool.
 - 2. Provide additional 5 percent of each type of shade mounting hardware or brackets, but not less than one pair of each type.
 - 3. Provide a quantity of replacement shade bands completely fabricated and ready to attach to roller tubes equal to 5 percent of the total number of shade bands of each fabric and each color in the largest size required for each of those fabrics.
- B. Clearly label all spare components and supply to Owner upon completion in original packaging for storage on site by Owner.

1.9 MAINTENANCE

- A. Maintenance Service: Provide as a separate bid amount the cost for annual maintenance contract providing service 'on demand' for repair and maintenance as may be generally anticipated for the conditions of this project.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product listed below.
 - 1. Mechoshades - Mecho/7 (Basis of Design)

- a. Fabric: 3% openness factor, reversible fabric, dark interior/light color exterior. EuroTwill. Colors to be selected by Architect.

B. Other acceptable manufacturers and products:

1. Levolor; Levolor-Kirsch Window Fashions; a Newell Rubbermaid Company.
2. Draper; Flexshade.
3. Substitutions: In accordance with Section 01630.

2.2 MATERIALS, GENERAL

- A. Volatile Organic Compound (VOC) Emissions and Toxic Substances: Provide materials with minimal or no volatile organic compound (VOC) emissions per state and local regulations and free of toxic substances.

2.3 STANDARD ROLLER SHADES

A. Shade Band Material: PVC-free polyester shades.

1. Thickness: Single, non-raveling 0.030-inch (0.762mm) vinyl fabric woven from 0.018-inch diameter extruded vinyl yarn comprised of 21 percent polyester and 79 percent reinforced vinyl.
2. Color: To be selected from manufacturer's full range of colors.
3. Bottom Hem: Straight.

- B. Rollers: Electrogalvanized or epoxy primed steel or extruded-aluminum tube of diameter and wall thickness required to support and fit internal components of operating system, and the weight and width of shade band material without sagging; designed to be easily removable from support brackets; with manufacturer's standard method for attaching shade material. Provide capacity for one roller shade band per roller, unless otherwise indicated on Drawings.

- C. Direction of Roll: Regular, from back of roller.

- D. Mounting Brackets: Galvanized or zinc-plated steel.

- E. Fascia: L-shaped, formed-steel sheet or extruded aluminum; long edges returned or rolled; continuous panel concealing front and bottom of shade roller, brackets, and operating hardware and operators; length as indicated on Drawings; removable design for access.

1. Fascia End Caps: Fabricated from steel finished to match fascia or headbox.

- F. Top/Back Cover: L-shaped; material and finish to match fascia; combining with fascia and end caps to form a six-sided headbox enclosure sized to fit shade roller and operating hardware inside.

- G. Mounting: Pocket-Style Headbox:

1. U-shaped, formed-steel sheet or extruded aluminum; long edges returned or rolled; with a bottom cover consisting of slot opening of minimum dimension to allow lowering and raising of shade and a removable or an openable, continuous metal access panel concealing shade roller, brackets, and operating hardware and operators within.
 - H. Bottom Bar: Steel or extruded aluminum, with plastic or metal capped ends. Provide concealed, by pocket of shade material, internal-type bottom bar with concealed weight bar as required for smooth, properly balanced shade operation.
- 2.4 ROLLER SHADE FABRICATION
- A. Product Description: Roller shade consisting of a roller, a means of supporting the roller, a flexible sheet or band of material carried by the roller, a means of attaching the material to the roller, a bottom bar, and an operating mechanism that lifts and lowers the shade.
 - B. Concealed Components: Noncorrodible or corrosion-resistant-coated materials.
 1. Lifting Mechanism: With permanently lubricated moving parts.
 - C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F (23 deg C):
 - D. Installation Brackets: Designed for easy removal and reinstallation of shade, for supporting roller, and operating hardware and for hardware position and shade mounting method indicated.
 - E. Installation Fasteners: No fewer than two fasteners per bracket, fabricated from metal noncorrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.
 - F. Color-Coated Finish: For metal components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.
 - G. Colors of Metal and Plastic Components Exposed to View: As selected by Architect from manufacturer's full range, unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, accurate locations of connections to building electrical system, and other conditions affecting performance.

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

3.2 ROLLER SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions, and located so shade band is not closer than 2 inches (50 mm) to interior face of glass. Allow clearances for window operation hardware.
- B. Connections: Connect motorized operators to building electrical system.

3.3 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

- A. Clean roller shade surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain roller shades. Refer to Division 1 Section Demonstration and Training."

END OF SECTION 124940

SECTION 31 20 00 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavation, filling, backfilling and compacting.
2. Trenching and trench backfilling.
3. Mass earthwork and rough grading.
4. Finish grading, including spreading of topsoil.
5. Dewatering.
6. Soil stabilization.
7. Testing and inspection.

B. Related Sections:

1. Division 00 Section "Geotechnical Data".
2. Division 02 Section "Selective Site Demolition".
3. Division 31 Section "Site Clearing".
4. Division 31 Section "Erosion Control".
5. Division 31 Section "Termite Control".

1.2 QUALITY ASSURANCE

A. Testing and Inspection:

1. All testing and inspection shall be performed by an independent Geotechnical Engineering Consultant ("Geotechnical Engineer").
2. The Geotechnical Engineer is responsible for all testing, sampling and inspection.
3. The Geotechnical Engineer is responsible for approving materials, installation and procedures.
4. The Contractor is responsible for providing these services.
5. The Contractor is responsible for all coordination and scheduling with the Geotechnical Engineer.

B. Topsoil:

1. All topsoil shall be tested and approved by the Soil Scientist.
2. Refer to 1.3 Submittals for more information.

- C. Any work in public right-of-way or other areas subject to the jurisdiction of anybody shall be performed either to the requirements of that jurisdiction or to the requirements of this Specification, whichever is more stringent.

1.3 SUBMITTALS

- A. All submittals shall be reviewed and approved by Architect/Engineer and Geotechnical Engineer.
- B. Product Data and Test Reports:
 - 1. Field and laboratory tests and inspections.
 - 2. Drainage file: Include material specifications and sieve analysis. Include signed material certificate from manufacturer/supplier.
 - 3. Chemical modification: Include material specifications and signed material certificate from manufacturer/supplier.
 - 4. Geo-synthetic materials: Include material specifications and signed material certificate from manufacturer/supplier.
- C. Topsoil:
 - 1. Furnish topsoil analysis performed by a soil scientist.
 - a. Soil scientist shall be a Certified Professional Soil Scientist (CPSS)
 - 2. Analysis shall state the following: (Refer to Part 2 for minimum requirements)
 - a. Percentage of organic matter.
 - b. Gradation of sand, silt and clay, Include USDA textural classification.
 - c. Cation exchange capacity.
 - d. Deleterious material.
 - e. ph.
 - f. Mineral and plant nutrient content (phosphorus, potassium, magnesium, calcium).
 - g. Any requirements or recommendations necessary to make it suitable.
 - h. Annual nutrient requirements and recommendations for evergreens shrubs, trees, and flowers.
 - i. Soil test results without recommendations will be rejected. If using A&L request fertilizer recommendation for the following codes
 - a) 102 Lawn Seeding and Establishment
 - b) 114 Broadleaf Shrubs
 - c) 118 Shade Trees
 - 3. This analysis is required for both on site and off-site topsoil.
 - 4. Samples of the topsoil shall be taken under the following conditions:
 - a. Within four (4) weeks prior to placing topsoil, take three representative samples of proposed topsoil.
 - b. Within one week after placing topsoil, take three representative samples of in-place topsoil.
 - c. All samples shall be taken at the witness of the Owner, in areas approved by the Owner. Contractor to coordinate with Owner as required.
 - 5. Provide copies of all topsoil analysis and recommendations to Owner and Architect/Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General:

1. All soil materials shall be approved by the Geotechnical Engineer.
2. All soil materials shall be suitable for each application.
3. Suitable soils are defined as soils which provide proper strength, compaction and drainage requirements and which are approved by the Geotechnical Engineer.
4. Fill material which is unsuitable due to excess moisture will not be classified as unsuitable if it can be dried to optimum moisture specified herein by manipulation, aeration or blending with other materials satisfactorily as approved by the Geotechnical Engineer.

B. Fill Materials:

1. **Note:** The following describes fill materials and their application for use. The materials shall be used for the listed applications, unless designated otherwise on the Drawings. If the Contractor has any questions or concerns regarding the materials or intended application, contact the Architect/Engineer for directions. Compaction requirements are the percentage of maximum dry density per ASTM D698 Standard Proctor Test, unless noted otherwise in the Geotechnical Report.
2. General fill:
 - a. Suitable on-site or off-site fill material free of debris, roots, organic and frozen materials, and stones having a maximum dimension of 2".
 - b. Minimum compaction: 95%.
 - c. Application: General filling and backfilling of excavations and trenches outside of the building.
3. Structural fill:
 - a. Suitable on-site or off-site fill material free of debris, roots, organic and frozen materials, and stones having a maximum dimension of 2".
 - b. Minimum compaction: 100%.
 - c. Application: Compacted subgrade under buildings, foundations and areas subject to structural loads.
4. Granular fill:
 - a. Clean, natural or manufactured sand per requirements of INDOTSS Type "B" borrow, 4.75mm (No. 4) gradation. Pea gravel is not acceptable.
 - b. Minimum compaction: 95%.
 - c. Application: Backfilling of excavations and trenches which are under or within 5' of pavement, and underneath exterior concrete pavement, walks, curbs and slabs on grade.
5. Drainage Fill:

- a. General: Clean, washed fill sand with 100% passing the 4.75mm (No.4) sieve and no more than 5% passing the 0.075 mm (No. 200) sieve. Pea gravel or #53 stone are not acceptable.
 - b. Minimum compaction: 95%.
 - c. Application: Free draining material required for applications such as the outside of basement walls, the back side (earth side) of retaining walls and building slabs on grade.
6. Aggregate fill: Unless otherwise indicated, shall meet the following:
- a. Naturally or artificially graded mixture of natural or crushed gravel, crushed stone and natural or crushed sand.
 - b. ASTM D2940, with 100 percent passing a 1 ½ inch sieve and not more than 8 percent passing a No. 200 sieve.
 - c. Application: base course under concrete and other items per plans.
7. Permeable soil mix:
- a. Permeable soil mix to promote infiltrate and allows runoff to filter through media and sustain vegetation.
 - b. Soil shall consist of the following:
 - a) 50-60% sand.
 - b) 20-30% compost.
 - c) 20-30% topsoil.
 - c. Clay is not permitted.
 - d. Shall have a minimum permeability rate of 1.0 feet per day (0.5 inches per hour)
 - e. Application: Rain Gardens and Bioswales.
- C. Topsoil:
1. Topsoil shall be fertile, friable, natural surface soil obtained from well-drained areas and possessing characteristics of representative soils in the project vicinity that produce heavy growths of crops, grass or other vegetation.
 2. Topsoil shall consist of friable loam, reasonably free of subsoil, clay lumps, brush, roots, weeds or other objectionable vegetation, stones or similar objects larger than 1-1/2" in any dimension, litter or other materials unsuitable or harmful to plant growth.
 3. Supplement on-site topsoil with off-site topsoil as necessary.
 4. Unless otherwise indicated, minimum compacted thickness in lawn areas is 4".
 5. The mechanical analysis of topsoil shall be as follows:
 - a. 1" mesh sieve size; 99%-100% passing.
 - b. 1/4" mesh sieve size: 97%-99% passing.
 - c. No. 100 mesh sieve size: 40%-60% passing.
 - d. No. 200 mesh sieve size: 20%-40% passing.
 6. The following minimum requirements shall also be met:
 - a. Organic matter: 3-5%.
 - b. pH: 6.5 to 7.3.

- c. Sand, silt, clay content: per USDA loam textural classification.
- d. Minerals and nutrients: Per Geotechnical Engineer or Soil Scientist recommendations and amendments suitable for use in local area.

D. Soil Separator Fabric:

- 1. Nonwoven, needle-punched geotextile fabric manufactured from polyolefins or polyesters per ASTM M288, suitable for subsurface drainage and other specified applications.
- 2. Application: subsurface drains and as specified in Contract Documents.
- 3. Specifications (values based on Mirafi 140N):
 - a. Apparent opening size: 70 (U.S. Standard Sieve Size); ASTM D-4751-99A.
 - b. Flow rate: 135 gpm/sf; ASTM D-4491-99A.
 - c. Puncture strength: 65 lbs; ASTM D-4833-00.
 - d. Mullen Burst: 225 lb/sq. in.
 - e. Grab tensile/elongation: 155 lbs/50%.
 - f. UV Resistance: 70% at 500 hours.

E. Geo-synthetic Reinforcement:

- 1. General: H-Series HX165 Geogrid as manufactured by Tensar International Corp., Atlanta Georgia.
- 2. Application: Soil stabilization as required and as recommended by the Geotechnical Engineer.

F. Chemical Modification:

- 1. General: INDOTSS 215.
- 2. Materials: Hydrated lime per INDOTSS 913.04(b) and Type I Portland cement per INDOTSS 901-01(b).
- 3. Quantity: 4.0 +/- 0.5% by dry unit mass of the soils.
- 4. Application: If Geotechnical report indicates that chemical modification may be needed for soil stabilization, then the Contractor shall include provisions for chemical modification in their bid.

G. Other Materials:

- 1. All other materials not specifically described but not required for proper completion of the Work of this Section, shall be selected by the Contractor subject to the approval of the Architect/Engineer and Geotechnical Engineer.

PART 3 - EXECUTION

3.1 REQUIREMENTS

A. General:

- 1. Weather: Do not perform earthwork activities during inclement weather.

2. Dust: Use all necessary and appropriate means, such as water sprinkling, as required to prevent dust from being a nuisance to the Owner, public and concurrent performance of other work on the site.
 3. Conflicts: Should the preceding job conditions or other items specified herein because of actual or possible conflicts, notify the Architect/Engineer immediately and do not proceed until such conflict has been resolved.
 4. Refer to Division 31 Section "Termite Control" for termite protection requirements.
- B. Preparation: Verify that the following has been completed prior to beginning earthwork:
1. Protective fencing has been installed for trees and vegetation to remain.
 2. Site clearing (clearing and grubbing).
 3. Selective site demolition.
 4. Erosion and sediment control measures are in place.
- C. Protection:
1. For items indicated to remain, provide protection to prevent damage from construction activities. Any damage or destruction to items intended to remain intact shall be repaired or replaced to the satisfaction of the Owner at the Contractor's expense.
 2. Topsoil: Protect placed topsoil from heavy machinery traffic. Remove and replace topsoil that is compacted by heavy machinery traffic.
 3. Subgrade: Ditches and drains along the subgrade shall be maintained to always drain effectively. Repair subgrade of any ruts that may occur by reshaping and recompacting as required.
 4. Utilities: Determine locations of existing utilities and the extent to which they may affect earthwork operations. Where service and utility lines are to remain, provide protection to prevent damage or disruption of services.
 5. Damaged utilities shall be repaired immediately at the Contractor's expense.
 6. Open excavation:
 - a. The Contractor is responsible for ensuring all open excavations are properly barricaded and always protected. This includes work such as mass excavation and trenching and includes other potentially dangerous conditions such as retention ponds.
 - b. Provide and install all necessary and appropriate means such as, but not limited to, signage, fencing, traffic barricades, and lighting to warn, discourage, and prevent danger to adjacent workers and the public.
 - c. Unless otherwise indicated, install a minimum 6' 10-gauge chain link fence around all open excavations, retention ponds, and other areas of potential danger, and maintain them while such conditions exist. Increase measures as required by site conditions.

3.2 LAYOUT

- A. Surveyor: Secure the services of a licensed land surveyor, acceptable to the Architect/Engineer and Owner, to layout locations of building, parking areas, drive, walks, curbs, finish elevations and other work, including mechanical and electrical items that are to be installed on the project site.

- B. References: Establish and maintain lines, corners, elevations and general reference points. Verify dimensions indicated on Drawings. If conflicts exist, immediately notify the Architect/Engineer before continuing work.

3.3 EXCESS WATER CONTROL

- A. Excess moisture: If excess moisture is present in soil, do not resume operations until moisture content and density are reported to be satisfactory by the Geotechnical Engineer.
- B. Flooding and Poor Site Drainage: Provide berms or channels to prevent flooding of subgrade. Promptly remove all water collecting in depressions. Poor drainage and flooding can usually be avoided on a site if the contractor properly phases the construction of the permanent drainage system. To dry up a site, temporary drainage accommodations may be required such as temporary swales, and culverts. Added costs due to inclement weather will not be justified if the site is not properly drained during construction.
- C. Softened subgrade: Where soil has been softened or eroded by flooding or placement during inclement weather, remove all damaged areas and recompact as specified for fill and compaction.
- D. Dewatering:
 - 1. Provide and maintain ample means and devices with which to promptly remove and dispose of all water from every source always entering the excavations or other parts of the work during construction.
 - 2. Dewater by means which will ensure dry excavations and the preservation of the final lines and grades at bottom of excavations, such as sump pumps, trenching, etc.
 - 3. Do not use extreme measures or durations to cause adverse effects to Project Site or adjoining properties.

3.4 CHEMICAL MODIFICATION

- A. General:
 - 1. Scarify and/or disc area to a depth of 12" prior to distributing modifiers.
 - 2. Utilize screw type, cyclone, or pressure manifold type distributors to apply modifier.
 - 3. Do not apply when wind conditions create potential hazards or transference of material to adjacent areas.
 - 4. Mix modifiers with rotary speed mixers or disc harrow and continue until a homogenous layer of the required thickness is obtained.
 - 5. Compaction:
 - a. Lime modified soils shall be compacted within 3 days.
 - b. Cement modified soils shall be compacted within 30 minutes.
 - 6. Observation and testing: Quantities of materials, placing, mixing, and compacting shall be, as recommended, observed and tested by the Geotechnical Engineer.

3.5 STOCKPILING

A. General:

1. See drawings for designated stockpiling areas. If Drawings do not designate specific areas, or areas shown are insufficient, contact Architect/Engineer for direction.
2. Stockpile earth materials in manners that will prevent intermixing of different materials and intrusion of trash, debris and organic materials.
3. Slope stockpiled materials to provide adequate surface drainage.
4. Install and maintain erosion control measures. Refer to drawings and Division 31 Section "Erosion Control". At a minimum, silt fences shall be installed around all stockpiled areas. Seed areas which are to remain stockpiled for extended periods of time.
5. Storage or stockpiling of materials on the subgrade is prohibited.

3.6 EXCAVATION

A. General:

1. Excavation shall conform to OSHA and all other applicable safety regulations.
2. Excavation shall conform to the dimensions and elevations indicated on the Drawings, except as specified herein.
3. Excavation shall extend sufficient distance from walls and footings to allow for placing and removal of forms, installation of services and inspection.
4. Remove unsuitable material below indicated depths and replace it with suitable, compacted material or lean concrete, at the Architect/Engineer discretion.
5. Topsoil stripping: Strip topsoil to its depth from areas to be covered by building, by walks and by other work and where existing surface areas required grading to establish new elevations.
6. Subgrade: Unless otherwise indicated, excavate to following subgrades:
 - a. Slab-on-grade: Sub-grade at bottom of drainage fill or at bottom of existing topsoil, whichever is lower.
 - b. Drives and paving: Sub-grade at bottom of aggregate base.
 - c. Footing: Sub-grade at indicated bottom of footing.
 - d. Lawn area: Sub-grade 4" below indicated surface elevation.

3.7 TRENCHING

A. General:

1. All trenching shall conform to OSHA and all other applicable safety standards.
2. Verification:
 - a. Contractor shall verify all existing grades, inverts, utilities, obstacles and topographical conditions prior to any trenching, excavation or underground installations.
 - b. In the event existing conditions are such as to prevent installations in accordance with the Contract Documents, immediately notify the Architect/Engineer and await decision before continuing work.

- c. Architect/Engineer decision will be final and binding upon the Contractor, and installations shall be in accordance with same.
 3. Saw cut existing pavements to proper width for trenching.
 4. Legally dispose materials unsuitable for trench backfilling off-site.
- B. Width:
1. Trenches for piping shall be not less than 12" wide or more than 16" wider than the outside diameter of the pipe to be laid therein, and shall be excavated true-to-line, so that a clear space not less than 6" or more than 8" in width is provided on each side of the pipe.
 2. For sewers, the maximum width of the trench specified shall apply to the width at and below the level at the top of the pipe. The width of the trench above that level may be made as wide as necessary for sheeting and bracing, and proper installation of the Work.
 3. Trenches shall be open vertical construction.
- C. Depth:
1. Trench as required to provide the elevations shown on the drawings.
 2. Where elevations are not shown on the drawings, trench to sufficient depth to give a minimum of 36" of fill above the top of the pipes measured from the adjacent finish grade.
 3. Where trench excavation is inadvertently carried below proper elevation, backfill with approved material and then compact to provide a firm and unyielding subgrade and/or foundation at no additional cost to the Owner.
- D. Trench Bracing:
1. Properly support all trenches in strict accordance with all pertinent rules and regulations.
 2. Brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.
 3. In the event of damage to such improvements, immediately make all repairs and replacements necessary at no additional cost to the Owner.
 4. Arrange all bracing, sheeting, and shoring so as to not place stress on any portion of the completed Work until the general construction thereof has proceeded far enough to provide sufficient strength.
 5. All shoring and sheeting required to perform and protect the excavation and as required for the safety of employees and abutting structures shall be performed. All workmen performing work in 48" or deeper trench or excavation shall be protected by use of a welded sheet steel "safety box."
 6. Removal: Exercise care in the drawing and removal of sheeting, shoring, bracing, and timbering to prevent collapse or caving of the excavation faces being supported.
- E. Bedding:
1. Where pipes or conduits are to be installed, excavate below the proposed alignment of the pipe and backfill with clean sand to provide uniform support unless otherwise noted on the drawings.
 2. Unless shown otherwise on Drawings, minimum bedding to be 4" below pipe.
 3. Storm sewer pipes are to be bedded with stone.
 4. Refer to drawings and details for further information and requirements.

F. Grading and Handling of Trenched Material:

1. During excavation, material shall be stacked in an orderly manner a sufficient distance back from edges of trenches to avoid overloading and prevent slides or cave-ins.
2. Control the temporary stockpiling of trenched material in a manner to prevent water from running into the excavations.
3. Do not obstruct the surface drainage but provide means whereby stormwater is diverted into existing gutters, surface drains or other temporary drains.
4. Any water accumulated in the trenches shall be removed by pumping or by other approved methods.

3.8 FILLING, BACKFILLING AND COMPACTING

A. Prior to filling, backfilling and compacting, proof-roll and remediate subgrade per Part 3 Quality Assurance.

B. Unless otherwise indicated, maximum lift thickness is 8" of un-compacted material.

C. Moisture:

1. Thoroughly mix each layer to assure uniformity of material.
2. Supplement mixing with wetting or drying as required to obtain the moisture content required for the indicated percentages of compaction.
3. All fill shall be placed so that the moisture content is within +/- 2% of the optimum moisture content according to ASTM D698.
4. Do not use frozen materials in the fill or allow the fill to be placed upon frozen materials.

D. Compaction:

1. Compaction shall be accomplished by approved means and shall meet the following densities for various parts of the Work. See Part 2 for density requirements of individual soil materials.
2. Compaction by flooding is not acceptable.
3. In cut areas where pavement is planned, scarify the upper 12" of subgrade prior to compaction.

E. Equipment:

1. Tracked equipment shall not be used as compaction equipment.
2. The static weight of compaction equipment utilized for the compaction of backfill materials near walls as defined in No.3 below shall not exceed 2,000 lbs. for non-vibratory equipment and 1,000 lbs. for vibratory equipment.
3. All heavy equipment, including compaction equipment heavier than noted herein, shall not be allowed closer to walls than 3 feet plus the vertical distance from backfill surface to the bottom of the wall.

3.9 GRADING

A. General:

1. After filling and backfilling operations are complete, neatly and evenly grade areas to be seeded or sodded.
2. Scarify subgrade to a depth of 6" and place minimum 4" topsoil (6" maximum).
3. Grade to obtain the elevations indicated within a tolerance of plus or minus 0.1 foot.
4. Slope finished subgrade surface to provide drainage away from building walls.

B. Treatment After Completion of Grading:

1. After grading is completed and inspected, permit no further excavation, filling, or grading except with the review of and the inspection by the Owner.
2. Use all necessary means to prevent the erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

3.10 QUALITY ASSURANCE

A. Coordination:

1. A representative from the Geotechnical Engineer shall be present to always observe and perform tests earthwork is in progress.
2. Contractor shall provide minimum 72 hour notice to Geotechnical Engineer before each operation requiring testing or inspection.

B. Testing:

1. To verify the adequacy of compaction, the Geotechnical Engineer shall perform field density tests.
2. A grid pattern shall be established with a maximum area of 1,000 square feet.
3. For each grid, provide a minimum of one test per each lift of compacted material.

C. Proof rolling:

1. Proof rolling shall be supervised by the Geotechnical Engineer.
2. Since standard test procedures are not available for proof rolling, the necessary scope and method of testing shall be determined by the Geotechnical Engineer, subject to review by the Architect/Engineer.
3. In areas covered by buildings and other site improvements, and other areas deemed necessary by the Geotechnical Engineer or Architect/Engineer, prepare and test subgrade as follows:
 - a. Using a loaded tri-axle dump truck or other approved method, the Contractor shall proof-roll the exposed subgrade under the observation of the Geotechnical Engineer.
 - b. Based on this observation, plus supplemental testing as required, the Geotechnical Engineer shall determine when and where soft, loose or other undesirable materials are to be removed and replaced.

D. Approval and Remediation:

1. When testing and proof rolling indicate proper compaction has been obtained, and after approval from Geotechnical Engineer has been given, continue fill and backfill work until the indicated elevation is achieved.

2. If required density has not obtained, the Contractor shall remove the defective material and repeat operations until the required density is obtained, and approval is given by the Geotechnical Engineer.
3. Cost of material removal, replacement, compaction and re-testing shall be the responsibility of the Contractor.

3.11 SURPLUS SOIL MATERIALS

- A. Unless otherwise indicated or directed by Owner, remove excess soil materials and legally dispose of off-site.

3.12 JOB COMPLETION

- A. Upon completion of the Work of this Section:
 1. Remove all trash and debris from earthwork operations.
 2. Remove surplus equipment and tools.
 3. Leave the site in a neat and orderly condition.
 4. Restore all adjacent areas disrupted by earthwork activities to their original condition.

END OF SECTION 31 20 00