

Addendum No. 1

March 29, 2019

To the Drawings and Specifications for:

Pocatello High School – Entrance Renovation
Pocatello/Chubbuck School District No. 25
325 N. Arthur Ave.
Pocatello, ID 83204

Owner: Pocatello / Chubbuck School District No. 25
3115 Pole Line Rd.
Pocatello, ID 83201

Architect: Hummel Architects, PLLC
3785 N Bogus Basin Dr.
Boise, ID 83702

NOTICE TO BIDDERS:

You are hereby notified of the following changes, deletions, corrections, additions, revisions, and/or modifications to the Bid Set Drawings and Project Manual dated March 19, 2019 for the above-mentioned project which is made a part thereof. You must acknowledge receipt of this Addendum in the appropriate space provided on the Bid Form.

The items of this Addendum are as follows:

GENERAL INFORMATION:

1. Addendum 1 revisions are clouded and delta in Sheets as Delta 1, dated 3/29/2019.

CLARIFICATIONS:

1. Deadline for questions is extended to **Wednesday, April 3, 2019 5:00 pm**. Send all questions to Jessica Heggie at jheggie@hummelarch.com.
2. Bidder's Questions will be issued in **Addendum 2 Thursday April 4, 2019**, if necessary.
3. Issued ***Contract Between Pocatello / Chubbuck School District #25 and Contractor.***

PROJECT MANUAL:

Bid Form

1. Liquidated damages revised to \$200.
2. Bidder Certification Form clarified. Areas for bidder's information and signature added.
3. *Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace* added.

033000 Cast-In-Place Concrete

1. Revised Part 3.8.C, to include: *Medium and Apply perpendicular to the direction of travel.*

033300 Architectural Concrete

1. Part 2.4.C.1 clarified to $\frac{3}{4}$ inch.
2. Part 2.4.C.2 clarified to *uniformly graded.*

064116 Plastic Laminate Faced Architectural Cabinets

1. Revised Part 2.6.A.1.a to include: *Basis of Design – Fry Reglet, Millwork Channel Outside Corner with return keys.*
2. Revised Part 2.6.A.2.a to include: *Basis of Design – Fry Reglet, Millwork Channel Base with return keys*

087100 Door Hardware

1. Specification revised and door hardware sets clarified.

122413

1. Part 2.2.G.2 added.
2. Part 2.2.G.3 added.

DRAWINGS:**Sheet D1.01**

1. Tree location and note updated for demolishing.

Sheet A1.01

1. Tree scheduled to be demolished, removed from Sheet.

Sheet A2.11

1. Detail 1 - Rough opening dimension added at door 110B.
2. Detail 2 – Dimensions added at cans and pendant lights.

Sheet A7.01

1. Door Schedule updated.

Sheet A8.01

1. Locations of 064116.XX clarified.

Sheet A8.51

1. Detail 22 revised.
2. Detail 28 revised.

ATTACHMENTS

Pre-Bid Meeting Agenda

Pre-Bid Sign-In Sheet

Bid Form

Contract between Pocatello / Chubbuck School District #25 and Contractor

033000_AD1.pdf

033300_AD1.pdf

064116_AD1.pdf

87100_AD1.pdf

122413_AD1.pdf

Sheet D1.01_AD1.pdf

Sheet A1.01_AD1.pdf

Sheet A2.11_AD1.pdf

Sheet A7.01_AD1.pdf

Sheet A8.01_AD1.pdf

Sheet A8.51_AD1.pdf

END OF ADDENDUM #1

Pre Bid Meeting – Agenda Pocatello High School – Entrance Renovation

January 23, 2019

Project: Pocatello High School – Entrance Renovation
325 N. Arthur Ave.
Pocatello, ID 83204

Owner: Pocatello / Chubbuck School District #25
3115 Pole Line Rd
Pocatello, ID 83201

Architect: Hummel Architects, PLLC
3785 N Bogus Basin Dr.
Boise, ID 83702



SIGN IN SHEET:

- Name and emails required

PROJECT OVERVIEW:

- Interior Administration area renovation, exterior accessibility improvements.

BIDDING SCHEDULE:

- 4-01-19 – Addendum no. 1 distributed
- 3-29-19 – Questions due by 5:00 pm to Jessica Heggie (jheggie@hummelarch.com)
- 4-9-19 – Bids are due at Pocatello/Chubbuck School District front desk no later than 2:00 pm, public bid opening immediately following.
- 4-16-19 – Board of Trustees Contract Approval
- 6-03-19 – Construction Begins (anticipated)

OPEN DISCUSSION:

TOUR BUILDING:

-END OF AGENDA-

BID FORM

TO: Pocatello / Chubbuck School District Pocatello, Idaho

The Bidder, in compliance with your invitation for bids for **POCATELLO HIGH SCHOOL – ENTRANCE RENOVATION**, having examined the bidding and contract documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials and supplies, and to provide the service and insurance in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents.

Bidder hereby agrees to commence work under this contract on a date to be specified in written “Notice to Proceed” of the Owner and to adhere to the requirements of the General Conditions regarding time for the performance of the work. Bidder further agrees to pay as liquidated damages, in the sum of **\$200.00** for each consecutive calendar day after the established substantial completion date or adjusted date as established by change order.

Bidder acknowledges receipt of addenda No.(s)_____.

Bidder agrees to perform all of the Base Bid work described in the Specifications and shown on the Drawings for the sum of:

BASE BID PROPOSAL:

(\$_____) Dollars; in lawful money of the United States.

(Amounts shall be shown in both words and figures; in event of discrepancy, the amount in words shall govern.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 45 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the specified contract within 10 days and deliver a Surety Bond or Bonds as required by Article 7 of the Instructions to Bidders as modified by the Supplementary Instructions to Bidders.



POCATELLO/CHUBBUCK SCHOOL DISTRICT 25
LEARNING TODAY FOR THE POSSIBILITIES OF TOMORROW

BIDDER CERTIFICATION FORM

- Debarment and Suspension** – In submitting this bid proposal, we hereby certify that we have not been suspended or in any way excluded from Federal procurement actions by any Federal Agency. We fully understand that if information contrary to this certification subsequently becomes available, such evidence may be grounds for non-award or nullification of a bid contract.
- Anti-Collusion** – In submitting this bid proposal, we hereby certify this proposal was developed and prepared without any collusion with any competing bidder or District employee. The content of this proposal has not been disclosed to any competing or potentially competing bidder prior to the proposal due date and time. Furthermore, no action to persuade any person, partnership or corporation to submit or withhold a bid has been made.
- Anti-Lobbying** – In submitting this bid proposal, we hereby certify that to the best of our knowledge and belief, no appropriated Federal funds have been paid or will be paid by or on behalf of person associated with this proposal to any person for influencing or attempting to influence and officer or employee of any agency, a member of Congress, an office 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.
- National Sexual Offender Registry** – In submitting this bid proposal, you certify to the District that your company will prohibit any persons in your employ who are registered or required to register under the Idaho Sex Offender Registration Act from participation in company business with the District if such participation would require them to be present on school property. You certify further that you have cross checked such employees against the National Sex Offender Registry found at the following web link: <http://www.nsopr.gov/>

Signed: _____ Date: _____

Name & Title: _____ Phone: _____

Company: _____

Address: _____

City/State: _____

CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE

STATE OF _

COUNTY OF _____

Pursuant to the Idaho Code, Section 72-1717, I, the undersigned, being duly sworn, depose and certify that named contractor is in compliance with the provisions of Idaho Code section 72-1717; that named contractor provides a drug-free workplace program that complies with the provisions of Idaho Code, title 72, chapter 17 and will maintain such program throughout the life of a state construction contract and that named contractor shall subcontract work only to subcontractors meeting the requirements of Idaho Code, section 72-1717(1)(a).

Name of Contractor

Address

City and State

By: _____
(Signature)

Subscribed and sworn to before me this _____ day of _____, 2019.

Commission expires: _____

NOTARY PUBLIC, residing at

The bid security attached in the amount of 5% of the bid amount is to become the property of the Owner in the event the contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby. The names and addresses of the entities who will perform incidental work identified below, subject to approval of Owner and Architect, if Undersigned is awarded the Contract, are as follows:

Plumbing

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Plumbing Contractors License No. _____

Heating, Ventilating, & Air Conditioning

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho HVAC Contractors License No. _____

Electrical

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

FAILURE TO NAME A PROPERLY LICENSED CONTRACTOR IN EACH OF THE ABOVE CATEGORIES WILL RENDER THE BID UNRESPONSIVE AND VOID.

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

The Undersigned notifies that he is of this date duly licensed as an Idaho Public Works Contractor and further that he possesses Idaho Public Works Contractor's License No. _____, and is domiciled in the State of _____.

Dated this _____ day of _____, _____.
(date) (month) (year)

Respectfully submitted by:

(Company)

(Seal - if bid is by a corporation) _____
(Business Address)

(Authorized Signature)

(Title)

(Telephone Number)

(FAX Number)

END OF BID FORM

BID BOND is attached.

**POCATELLO/CHUBBUCK
SCHOOL DISTRICT NO. 25
Bannock County, Idaho**

CONSTRUCTION CONTRACT

This contract is made and entered into, effective as of _____, 2019, by and between School District No. 25, Bannock County, Idaho, (“Owner”), and _____ (“Contractor”), a company duly licensed as a public works contractor in the State of Idaho, as follows:

1. **DESCRIPTION OF WORK.** Contractor shall perform the following described work, in accordance with the contract plans and specifications, more particularly described below:

LIST

2. **CONTRACT DOCUMENTS.** The Contract Documents consist of this Agreement, Hummel Architects AIA Documents, Conditions of the Contract (General, Supplementary and other Conditions), Drawings Specifications, Addenda issues prior to execution of this Agreement, Bidder Certification Form, Contractor Affidavit concerning alcohol and drug-free workplace, other documents listed in this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreement either written or oral.

3. **CONTRACT PRICE.** Owner agrees to pay Contractor, for the work described, the total price of: \$ _____. Payment of this amount is subject to additions or deductions in accordance with the provisions of this contract.

4. **UNIT PRICES.** Unit prices, if any, are as follows:

“NONE”

5. **PAYMENT SCHEDULE.** Based upon applications for payment, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in these Contract Documents.

Each Application for Payment shall be based on the most recent statement of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to

substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials, or equipment, which have not been delivered and stored at the site.

Owner shall make final payment to Contractor no later than 30-days after the issuance of the final Certificate for Payment or within thirty (30) days after the work is completed, if the contract is at that time fully performed, and subject to the condition that final payment shall not be due until Contractor has delivered to Owner a complete release of all liens arising out of the contract, or receipts in full covering all labor, materials, and equipment for which a lien could be filed. Notwithstanding the above, Owner will retain five percent of the contract price from the final payment to be released to the Contractor when the Owner receives a tax release from the Idaho State Tax Commission. The five percent retainage may be used by Owner to offset any and all losses incurred by Owner in the course of the performance of the Contract by Contractor, including but not limited to tax liens, defective performance, defective products – including those of subcontractors or other damage caused by Contractor in the performance of this Contract. Owner shall provide Contractor with a written itemization of all sums retained by Owner at the time of its issuance of final payment. Under no circumstances shall Owner retain more than five percent of the contract price without written agreement of Contractor. In the event that progress payments will be made under this contract, the payment schedule will be set forth below or in an attachment hereto:

Provided that an Application for Payment is received by the Owner not later than the Twenty Fifth (25th) day of a month, the Owner shall make payment to the Contractor not later than the Fifteenth (15th) day of the following month. If an Application for Payment is received by the Owner after the application date fixed above, payment shall be made by the Owner not later than Thirty (30) days after the Owner receives the Application for Payment."

6. EFFECT OF PAYMENT. Owner by making payment waives all claims except those arising out of:

- A. Faulty work appearing after final payment is made;
- B. Work that does not comply with this contract;
- C. Outstanding claims of lien; or
- D. Failure of Contractor to comply with any special guarantees required by the contract. Contractor, by accepting final payment, waives all claims except those that he has previously made in writing, and which remain unsettled at the time of acceptance.

7. STARTING AND COMPLETION DATES. Construction under this contract shall begin on June 3, 2019, and be completed by July 31, 2019.

8. RESPONSIBILITIES OF OWNER. Owner shall furnish all necessary surveys for the work, and shall secure and pay for easements for permanent structures or permanent changes in existing structures or facilities on the work site, or which are necessary for its proper completion.

Owner reserves the right to let other contracts for construction work to be performed at the work site. Contractor shall cooperate with all other contractors to the effect that their work shall not be impeded by his construction, and shall give such other contractors access to the work site necessary to perform their contracts.

9. RESPONSIBILITIES OF CONTRACTOR. Contractor's duties and rights in connection with the above-described project are as follow:

- A. Responsibility for the Supervision of Construction. Contractor shall be solely responsible for all construction under this contract, including the techniques, sequences, procedures, and means, and for coordination for all work. Contractor shall supervise and direct the work to the best of his ability, and give it all the attention necessary for such proper supervision and direction. The project shall be completed in a proper, workmanlike manner, consistent with the highest standards of quality in the community.
- B. Furnishing of Labor, Materials, etc. Contractor shall provide and pay for all labor, materials, and equipment, including tools, equipment, and machinery, utilities, including water, transportation, and all other facilities and services necessary for the proper completion of work on the project in accordance with the contract. Ninety-five percent (95%) of Contractor's employees must be bona fide Idaho residents as required by Idaho Code § 44-1001.
- C. Procurement of Licenses and Permits. Contractor shall pay all taxes required by law in connection with work on the project in accordance with this contract including sales, use, and similar taxes, and shall secure all licenses and permits necessary for proper completion of the work, paying the fees for such licenses and permits. Contractor represents that he is authorized to do business in the State of Idaho and, pursuant to Idaho Code §63-1502, shall provide evidence that he is so qualified.
- D. Payment of Taxes.
 - i. Pursuant to Idaho Code §63-1503, Contractor agrees to pay promptly when due all taxes (other than on real property), excises and license fees due to the state, its subdivisions, and municipal and quasi-municipal corporation therein accrued or accruing during the term of this contract, whether or not the same shall be payable at the end of such term. If the said taxes, excises, and license fees are not payable at the end of said term, but liability for the payment thereof exists, even though the same constitute liens upon his property, to secure the same to the satisfaction of the respective officers charged with the collection thereof. In the event of the Contractor's default in the payment or securing of such taxes, excises, and license fees, the Contractor hereby consents that the Owner may withhold from any payment due to the Contractor under this contract, the estimated amount of such accrued and accruing taxes, excises, and license fees for the benefit of all taxing units to which said Contractor is liable.
 - ii. Pursuant to Idaho Code §63-1502, Contractor shall provide evidence that he has paid or secured to the satisfaction of the respective taxing units, as defined in Idaho Code §63-1501, all taxes for which he or his property is liable then due or delinquent.

- iii. Pursuant to Idaho Code §63-1504, before Owner shall approve any claim on account of construction work performed as required by this contract, Contractor (or any sub-contractor claimant) must furnish evidence to Owner that he (i.e. Contractor or any sub-contractor, as the case may be) has paid all taxes, excises and license fees due to the state and its taxing

units, due and payable during the term of this contract for such construction, and that he has secured all such taxes, excises, and license fees liability for the payment of which has accrued during the term of this contract, notwithstanding they may not yet be due or payable.

- E. Except as otherwise provided in Idaho Code §44-1002, Contractor must employ ninety-five percent (95%) bona fide Idaho residents as employees on the project unless fifty (50) or less persons are employed in which event Contractor may employ ten percent (10%) nonresidents, provided however, in any case Contractor must give preference to the employment of bona fide residents in the performance of said work.
- F. Compliance with Construction, State, and Federal Laws and Regulations. Contractor shall comply with all laws and ordinances, and the rules, regulations, or orders of all public authorities relating to the performance of the work under and pursuant to this contract. If any of this contract is at variance with any such laws, ordinances, rules, regulations, or orders, he shall notify Owner promptly on discovery of such variance. The Contractor must notice the District of any Registered Sex Offenders working on School Property and obtain written permission from the District prior to the commencement of any work.
- G. Responsibility for Negligence of Employees and Subcontractors. Contractor assumes full responsibility for acts, negligence, or omissions of all his employees on the project, for those of his subcontractors and their employees, and for those of all other persons doing work under a contract with him. Smoking and alcohol are prohibited on school property. Unauthorized persons are not allowed on the job site.
- H. Warranty of Fitness of Equipment and Materials. Contractor represents and warrants to Owner that all equipment and materials used in the work, and made a part of the structures on such work, or placed permanently in connection with such work, will be new, of good quality, free of defects, and in conformity with this contract. It is understood and agreed between the parties to this contract that all equipment and materials not so in conformity will be considered defective.
- I. Clean-up. Contractor agrees to keep the work premises and adjoining ways free of waste material and rubbish caused by his work or that of his subcontractors. Contractor further agrees to remove all such waste material and rubbish on termination of the project, together with all of his tools, equipment, machinery, and surplus materials. Contractor agrees, on terminating his work at the site, to conduct general clean-up operations, including the cleaning of all glass surfaces, paved streets and walks, steps, and interior floors and walls.
- J. Indemnity and Hold Harmless Agreement.
 - i. Contractor agrees to indemnify and hold harmless Owner, and its agents and employees, from and against any and all claims, damages, losses, and expenses, including reasonable attorney's fees in case it shall be necessary to file an action, arising out of performance of the work in this contract, that is (a) for bodily injury, illness, or death, or for property damage, including loss of use, and (b) caused in whole or in part by Contractor's intentional and/or negligent act or omission, the act of an employee or agent of the Contractor or that of a subcontractor.
 - ii. Contractor further agrees to indemnify, save harmless, and make whole, Owner from any and all defects appearing or developing in the workmanship or materials performed or furnished under this Contract for a period of one (1) year after the acceptance thereof by Owner.

K. **Performance and Payment Bonds.** Contemporaneously with the execution of this contract, Contractor shall provide performance and payment bonds in the form required by Idaho Code § 54-1926. The bonds shall be eighty-five percent (100%) of the contract price and shall provide Owner with security for faithful performance of the contract and also provide security for protection of persons supplying labor and/or materials for the contract.

10. **TIME OF ESSENCE; EXTENSION OF TIME.** All times stated in this contract are of the essence. The time stated in this contract may be extended by a change order from Owner for such reasonable time as it may determine, when in its opinion Contractor is delayed in work progress by changes ordered, labor disputes, fire, prolonged transportation delays, injuries, or other causes beyond Contractor's control or which justify the delay. Otherwise, in the event the project is not completed by the scheduled completion date, Contractor shall be required to pay Owner as liquidated damages the sum of \$200 for each calendar day, after the scheduled completion date, that the project is unfinished.

11. **SUBCONTRACTORS.** Contractor agrees to furnish Owner, prior to the execution of this contract, with a list of names of subcontractors to whom he proposes to award the principal portions of the work to be subcontracted by him.

A subcontractor, for the purposes of this contract, shall be a person with whom Contractor has a direct contract for work at the project site.

Contractor agrees not to employ a subcontractor to whose employment Owner reasonably objects, nor shall Contractor be required to hire a subcontractor to whose employment he reasonably objects.

All contracts between Contractor and subcontractor shall conform to the provisions of this contract, and shall incorporate in them the relevant provisions of this contract.

12. **ARBITRATION.** All claims and disputes relating to this contract shall be subject to arbitration at the option of either Owner or Contractor in accordance with the Arbitration Rules of the American Arbitration Association for the construction industry.

A. A formal written demand for Arbitration shall be filed with BOTH the other party to this contract AND with the American Arbitration Association, within a reasonable time after the dispute has arisen, but NOT LATER THAN SIXTY (60) DAYS after the claim or dispute arose.

B. A "claim" or "dispute" under this Paragraph arises when the claiming or disputing party FIRST knew or reasonably should have known of the subject matter of the "claim" or "dispute." The purpose of this Paragraph is to encourage the prompt resolution of any and all "claims" or "disputes." As a result, any doubts

regarding the determination of when such notice occurred shall be resolved by giving all due deference to the EARLIEST date of notice. The determination of when a “claim” or “dispute” occurred shall not be determined by reference to the date where an “impasse” had occurred.

C. The Arbitrator is authorized to award reasonable attorney fees to the prevailing party.

13. **INSURANCE.** Contractor agrees to keep in force at his own expense during the entire period of construction on the project such liability insurance as will protect him from claims, under workers’ compensation and other employee benefit laws, for bodily injury and death, and for property damage, that may arise out of work under this contract, whether directly or indirectly by Contractor, or directly or indirectly by a subcontractor. The minimum liability limits of such insurance shall not be less than the limits required by law for that type of damage claim. Proof of such insurance shall be filed by Contractor with Owner within a reasonable time after execution of this contract. Contractor shall be responsible for insuring all construction materials, tools and equipment stored at the job site.

14. **CORRECTING WORK.** When it appears to the Owner or the Contractor during the course of construction that any work does not conform to the provisions of this contract, Contractor shall make necessary corrections so that such work will so conform, and in addition will correct any defects caused by faulty materials, equipment, or quality of performance in work supervised by him or by a subcontractor, appearing within one (1) year from the date of final payment, or within such longer period as may be prescribed by law.

15. **WORK CHANGES.** Owner reserves the right to order work changes in the nature of additions, deletions, or modifications, without invalidating this contract, and agrees to make corresponding adjustments in the contract price and time for completion.

All changes will be authorized by a written change order signed by Owner. The change order will include conforming changes in the contract price and completion time.

Work shall be changed, and the contract price and completion time shall be modified only as set out in the written change order. No work is to be initiated without the written change order in place.

Any adjustment in the contract price resulting in a credit or a charge to Owner shall be determined by mutual contract of the parties, or by arbitration, before starting the work involved in the change.

The total allowance for combined overhead and profit for changes shall be included in the total cost to the owner and shall be based on the following schedule.

- A. For the Contractor, 10% over cost.
- B. For the Sub-Contractor, 15% over cost to be divided 10% for Sub-Contractor and 5% for Contractor.
- C. For any Sub-Subcontractor, 15% over cost to be divided 5% for Contractor, 5% for Sub-Contractor, and 5% for Sub-Subcontractor.

16. **CONTRACTOR'S TERMINATION.** Owner may, on five days' notice to Contractor, terminate this contract before the completion date specified in this contract, or extended times provided by approved change orders, and without prejudice to any other remedy they may have, if Contractor defaults in performance of any provision in this contract, or fails to carry out his work in accordance with the provisions of the contract documents. If the unpaid balance on the contract price at the time of such termination exceeds the expense of finishing the work, owners will pay such excess to Contractor. If the expense of finishing the work exceeds the unpaid balance at the time of termination, Contractor agrees to pay the difference to Owners.

17. **GOVERNING LAW.** It is agreed that this contract shall be governed by, construed, and enforced in accordance with the laws of the State of Idaho.

18. **GENDER AND NUMBER.** As used in this contract, the masculine, feminine, or neuter gender, and the singular or plural number, each shall be deemed to include the other whenever the context so indicates.

19. **ATTORNEY FEES.** In the event that any action, including Arbitration, is filed in relation to this contract, the unsuccessful party in the action shall pay to the prevailing party, in addition to all the sums that either party may be called on to pay at Arbitration, a reasonable sum for the successful party's attorney's fees.

20. **ENTIRE AGREEMENT.** This contract shall constitute the entire agreement between the parties and any prior understanding or representation of any kind preceding the date of this contract shall not be binding upon either party except to the extent incorporated in this contract.

21. **MODIFICATION OF AGREEMENT.** Any modification of this contract or additional obligation assumed by either party in connection with this agreement shall not be binding upon either party except to the extent an amendment in writing, executed by both the Owner and the Contractor.

22. **NOTICES.** Any notice provided for or concerning this contract shall be in writing and be deemed sufficiently given when sent by certified or registered mail and addressed as follows:

To: Owner
School District No. 25
3115 Poleline Rd.
Pocatello, Idaho 83201-6119

To: Contractor

23. **ASSIGNMENT OF RIGHTS.** The rights of each party under this contract are personal to that party and may not be assigned or transferred to any other person, firm, corporation, or other entity without the prior, express, and written consent of the other party.

24. **PARAGRAPH HEADINGS.** The titles to the paragraphs of this contract are solely for the convenience of the parties and shall not be used to explain, modify, simplify, or aid in the interpretation of the provisions of this contract.

IN WITNESS WHEREOF the parties have executed this contract on the date indicated below:

CONTRACTOR:

Dated: _____

By: _____

Title: _____

Attest: _____

OWNER:

School District No. 25
Bannock County, Idaho

Dated: _____

By: _____

Bart J. Reed
Director of Business Operations

Attest: _____

SECTION 033000 - CAST-IN-PLACE CONCRETE

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.
- B. References and standards listed herein are to be the latest edition available, unless specifically stated otherwise.

1.2 SUMMARY

- A. This Section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2.
 - 3. Slabs-on-grade, exterior.
 - 4. Miscellaneous cast-in-place concrete.
- B. Related Requirements:
 - 1. Section 033300 "Architectural Concrete" for concrete exposed to public view.
 - 2. Section 034500 "Precast Architectural Concrete" for concrete caps on retaining walls.
 - 3. Section 042613 "Masonry Veneer" for brick veneer in retaining walls.
 - 4. Section 057300 "Decorative Metal Railings" for metal railings attached to cast in place concrete.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 REFERENCES

- A. International Building Code (IBC), 2012 Edition.
- B. American Concrete Institute (Latest Editions Accepted by the 2012 IBC):
 - 1. ACI 301: Specification for Structural Concrete Buildings.
 - 2. ACI 347: Recommended Practice for Concrete Formwork.
 - 3. ACI 318: Building Code Requirements for Structural Concrete.
 - 4. ACI 117: Specification for Tolerances for Concrete Construction and Materials

1.5 ACTION SUBMITTALS

A. Product Data: For each type of the following:

1. Cementitious materials.
2. Admixtures.
3. Steel reinforcement and accessories.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.
8. Semirigid joint filler.
9. Joint-filler strips.
10. Repair materials.
11. Foam insulation.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Submit proposed mix designs at least 15 days in advance of placing operations for each concrete mixture. The submitted mix design shall include the following:
 - a. Supporting strength test data not more than 12 months old. At the Engineer's request, reports from the independent testing agencies may be required to document the test data. Reports from the independent testing agencies will be required if fly ash is used in the design mix.
 - b. Statistical analysis in compliance with ACI 301.
 - c. Gradation of fine and coarse aggregates not more than 90 days old (ASTM C 33). No substitution of aggregate type or size from those submitted will be permitted.
 - d. Proportions of all ingredients, including all admixtures added either at time of batching or at job site. Aggregate weights shall be based upon saturated surface dry conditions.
 - e. Water/cement ratio.
 - f. Slump (ASTM C 143): When high range water-reducing admixtures are used, slump before and after addition of admixture are required.
 - g. Air content of freshly mixed concrete (ASTM C 231).
 - h. Certification that all ingredients in each mix design are compatible.
 - i. Locations or intended use of each mix design.
 - j. Source of all materials.
 - k. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1. Corner bars for providing for continuity of horizontal reinforcing around corners of footings, foundation walls, and other concrete items are required and shall be shown on shop drawings.
2. Provide details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include special reinforcement required for openings through concrete structures.
3. Shop drawing re-submittals shall clearly identify all revisions to previous submittals.
 - a. Heavy ink clouded outlines (revision clouds) shall be drawn around revised areas of individual sheets.
 - b. Architect/Engineer will not review information outside of revision clouds on resubmitted drawings.

4. Approval of shop drawings by the Architect shall not relieve the Contractor of providing all reinforcing noted, shown, or implied by the project Contract.
- D. Embedded Item Placement Drawings: Drawings indicating the location and type of plates, anchorages, or other items to be embedded in the finished concrete surfaces. Include wall elevations, slab plans, and details required to locate and install embeds.
- E. Samples: For waterstops and vapor retarder.
- F. Saw Cut Joints: Indicate proposed locations for all saw cut joints not shown on the drawings.
 1. Location of saw cut joints is subject to approval of the Architect.
- G. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 1. Aggregates.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer.
- B. Welding certificates.
- C. Written curing procedure, including curing procedures for hot- and cold-weather placement.
- D. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- E. Field quality-control reports.
- F. Minutes of preinstallation conference.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- C. Testing Agency Qualifications: An independent agency, according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- F. Concrete Testing Service: Owner will engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- G. Special Inspections: Owner will engage an inspection agency to provide special inspections per Structural Notes on Drawings and as required by the International Building Code. Costs for such inspection shall be paid directly to the inspection agency by the Owner.
- H. Structural Concrete: Structural concrete shall have a 28-day compressive strength of at least that required by structural design, codes, and standards specified with strengths as shown on the drawings.
- I. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- J. Coordinate chemical and adhesion compatibility of curing compounds used for curing concrete with coatings, stains, paints, liquid flashings, sealers, waterproofing membranes, joint sealants and other materials that penetrate, adhere to or otherwise come into contact with concrete surfaces that are specified in other sections.
- K. Batch Tickets: Provide batch tickets for review by inspector for each truckload of concrete used in the work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of cement and water introduced.
- L. Concrete Finishing and Curing:
 - 1. Obtain each type, composition, and variety of liquid membrane-forming curing compound used for the Project from the same manufacturer.
 - 2. Products from more than one approved manufacturer may be used for different applications, however all products for like applications shall be by the same manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.
- B. Store materials in accordance with ACI 301. Admixtures which have been in storage at the project site for longer than six months or which have been subjected to freezing shall not be used, unless retested and proven to meet the specified requirements.

1.9 COORDINATION AND SEQUENCING

- A. Coordinate schedule with other trades where embedments, attachments, or interferences occur.

- B. Schedule and sequence concrete work to coordinate with fabrication and delivery schedules for items to be embedded in concrete work.

1.10 FIELD MEASUREMENTS

- A. Verify that field measurements and conditions are as shown on drawings, shop drawings, or as instructed by Product Manufacturer.

1.11 SYSTEM DESCRIPTION

- A. Redesign or Departures from Requirements of the Contract Documents Initiated by Contractor:
 - 1. Obtain written acceptance from the Architect and Architect's consultants.
 - 2. Bear costs for Contractor-initiated or construction error due to changes in type, form, system, or details of construction from those indicated by the contract documents.
 - 3. Costs of review of such changes by Architect and Architect's consultants will be deducted from the Contract Sum by Change Order.

1.12 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- B. Hot-Weather Placement: Comply with and as follows:

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Products: Subject to compliance with requirements, provide one of the products specified.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
 - 3. Products or manufacturers other than those specified are subject to approval by Architect prior to bidding.

2.2 FORM-FACING MATERIALS

- A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

- C. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: As indicated on the structural drawings.
- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed at welded locations.

2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Tie Wire: Minimum 16 gage, ASTM A 82, or acceptable patented system.
- C. Zinc Repair Material: ASTM A 780, zinc-based solder, paint containing zinc dust, or sprayed zinc.
- D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

- A. Cementitious Materials:
 - 1. Portland Cement: ASTM C 150, Type I/II, gray. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class F.
- B. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 3/4-inch nominal unless indicated otherwise on the drawings.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

- A. General:

1. Admixtures certified by manufacturer to contain not more than 0.05 percent water-soluble chloride ions by mass of cementitious material. Do not use admixtures containing calcium chloride or thiocyanate.
 2. Where more than one admixture is used in the mix, furnish manufacturer's certification to the Architect that the admixtures to be used are compatible in combination with the cement and aggregates.
 3. Accelerating admixtures shall not be used.
- B. Air-Entraining Admixture: ASTM C 260/C 260M.
- C. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.7 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
1. Products:
 - a. Axim Concrete Technologies; Cimfilm.
 - b. Burke by Edoco; BurkeFilm.
 - c. ChemMasters; Spray-Film.
 - d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Aquafilm.
 - e. Dayton Superior Corporation; Sure Film.
 - f. Euclid Chemical Company (The); Eucobar.
 - g. Kaufman Products, Inc.; Vapor Aid.
 - h. Lambert Corporation; Lambco Skin.
 - i. L&M Construction Chemicals, Inc.; E-Con.
 - j. MBT Protection and Repair, Div. of ChemRex; Confilm.
 - k. Meadows, W. R., Inc.; Sealtight Evapre.
 - l. Metalcrete Industries; Waterhold.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
1. Products:
 - a. Dayton Superior Corporation; Sure Film.
 - b. Euclid Chemical Company (The); Eucobar.

- c. Sika Corporation, Inc.; SikaFilm.

2.8 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 according to ASTM D 2240.
- C. Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- D. Dovetail Anchor Slots: Hot-dip galvanized steel sheet, not less than 0.0336-inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
- E. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types I and II, nonload bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- F. (033000.D) Embedded, Extruded Aluminum Stair Tread
 - 1. Basis of Design Manufacturer, Wooster Products, Inc, Spectra Safety Tread, WP3C.

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
 - 2. For compressive strength, W/C ratio and exposure categories see structural requirements.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 15 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.

2.10 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."
 - 1. Corner bars to provide continuity of all horizontal reinforcing around corners of footings, foundation walls, and other concrete items are required. Bending and straightening in accordance with ACI 318, Chapter 7, unless otherwise noted on the drawings. No bending or straightening of reinforcement will be permitted after partial embedment in concrete. Heating of reinforcement will be permitted only if the entire operation is approved.
- B. Welding and tacking of reinforcing bars is not permitted, unless specifically shown on the structural drawings. When welding of reinforcement is indicated and required, provide welds in accordance with AWS D1.4.
- C. Splicing:
 - 1. Reinforcing bars shall be lap spliced for tension with lap lengths as noted on the structural drawings.
 - 2. Welding or tack welding of reinforcing bars to other bars or to plates, angles, etc., is prohibited, except where specifically detailed on the approved shop drawings. Where welding is approved, it shall be done by AWS/WABO-Certified Welder using E9018 or approved electrodes. Welding procedures shall conform to the requirements of AWS D1.4.
 - 3. Locate reinforcing splices not indicated on the drawings at points of minimum stress.

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 - 1. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.

- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.
- B. All sleeves, anchor bolts, dowels, and reinforcing items, together with anchors, weld plates, bearing plates, etc. to be set in concrete, shall be positioned and securely anchored in place prior to placement of concrete. Such items shall not be pushed into freshly placed concrete. Remove all oil, grease, dirt, debris, and corrosion from such items prior to placement.
- C. Where work of other sections requires openings for passage of pipes, conduits, ducts, and other inserts in the concrete, obtain all dimensions and other information. All necessary pipe sleeves, anchors, or other required inserts shall be accurately installed as part of the work of other sections, according to following requirements:
 - 1. Conduits or Pipes:
 - a. Footings:

- 1) Locate so as not to reduce the strength of concrete. In no case place pipes, other than conduits, in a footing 4-1/2" thick or less. Conduit buried in a concrete footing shall not have an outside diameter greater than 1/3 the footing thickness nor be placed below the bottom reinforcing steel or over the top reinforcing steel.
- b. Slab on Grade:
 - 1) In no case place pipes or conduits in an elevated slab or slab on grade.
2. Conduits and pipes of aluminum shall not be embedded in structural concrete unless coated or covered to prevent aluminum-concrete reaction or electrolytic action between aluminum and reinforcing steel.
3. Sleeves: Pipe sleeves may pass through slabs or walls if not exposed to rusting or other deterioration and are of uncoated or galvanized iron or steel. Provide sleeves of diameter large enough to pass any hub or coupling on pipe, including any insulation.
4. Conduits: Conduits may be embedded in walls only if the outside diameter does not exceed 1/3 the wall thickness, are spaced no closer than 3 diameters on centers and do not impair the strength of the structure.
5. Clusters of Conduits:
 - a. Clusters of conduits embedded in a concrete slab shall not exceed 6 conduits per cluster and each conduit per cluster shall be individually spaced as per the above requirements. Conduit clusters shall be reviewed and approved by the structural engineer of record prior to the installation of the conduits.
 - b. If more than one conduit cluster is required in a specific area of the slab, routing and spacing of the clusters shall be reviewed and approved by the structural engineer of record prior to the installation of the conduits.
 - c. At no time shall the quantity and routing of clusters of conduits impair the strength of the concrete construction.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.
 1. Leave formwork for slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 4. Space vertical joints in walls as indicated.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

F. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive broom finish.

- C. Medium Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated. Apply perpendicular to the direction of travel.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.10 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.

3.11 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.12 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01-inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.13 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Inspections may include the following:
1. Steel reinforcement placement.
 2. Steel reinforcement welding.
 3. Headed bolts and studs.
 4. Verification of use of required design mixture.
 5. Concrete placement, including conveying and depositing.
 6. Curing procedures and maintenance of curing temperature.
 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
 8. Epoxy-set anchors and dowels.
- C. Concrete Tests: Testing of composite samples of fresh concrete may include the following. Samples will be obtained and tested according to ASTM C 172/C 172M and the following:
1. Slump: ASTM C 143/C 143M.
 2. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete.
 3. Concrete Temperature: ASTM C 1064/C 1064M.
 4. Compression Test Specimens: ASTM C 31/C 31M.
 5. Compressive-Strength Tests: ASTM C 39/C 39M; one set of two field-cured specimens tested at 7 days and one set of two specimens at 28 days.
 6. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength.
 7. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days,

- concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
8. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 9. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
 10. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 11. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- D. Floor and slab flatness and levelness will be measured according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing.
- E. Contractor shall notify testing and inspection agency at least 24 hours in advance of concrete construction work to receive testing and/or inspection.

END OF SECTION 033000

SECTION 033300 - ARCHITECTURAL CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place architectural concrete, including form facings, reinforcement and accessories, concrete materials, concrete mixture design, placement procedures, and finishes.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture.
- C. Formwork Shop Drawings.
- D. Placement schedule.
- E. Samples: For each of the following materials:
1. Form-facing panels.
 2. Form ties.
 3. Form liners.
 4. Exposed aggregates.
 5. Coarse- and fine-aggregate gradations.
 6. Chamfers and rustications.

1.4 INFORMATIONAL SUBMITTALS

- A. Material certificates.
- B. Material test reports.

1.5 QUALITY ASSURANCE

- A. Field Sample Panels: After approval of verification sample and before casting architectural concrete, produce field sample panels to demonstrate the approved range of selections made under Sample submittals. Produce a minimum of three sets of full-scale panels, cast vertically, approximately 48 by 48 by 6 inches minimum, to demonstrate the expected range of finish, color, and texture variations.
- B. Mockups: Before casting architectural concrete, build mockups to verify selections made under Sample submittals and to demonstrate typical joints, surface finish, texture, tolerances, and standard of workmanship. Build mockups to comply with the following requirements, using materials indicated for the completed Work:

1.6 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.7 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1.
- B. Hot-Weather Placement: Comply with ACI 301.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301.
 - 2. ACI 303.1.

2.2 FORM-FACING MATERIALS

- A. General: Comply with Section 031000 "Concrete Forms and Accessories" for formwork and other form-facing material requirements.
- B. Form-Facing Panels for As-Cast Finishes: Steel- and glass-fiber-reinforced plastic, or other approved nonabsorptive panel materials that provide continuous, true, and smooth architectural concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- C. Rustication Strips: Metal, dressed wood, or rigid plastic, or with sides beveled and back kerfed; nonstaining; in longest practicable lengths.
- D. Chamfer Strips: Metal, rigid plastic, elastomeric rubber, or dressed wood, 2-1/2 inch by 2-1/2 inch, unless indicated otherwise on drawings; nonstaining; in longest practicable lengths.
- E. Form Joint Tape: Compressible foam tape; pressure sensitive; AAMA 800; minimum 1/4 inch thick.

2.3 STEEL REINFORCEMENT AND ACCESSORIES

- A. General: Comply with Section 032000 "Concrete Reinforcing" for steel reinforcement and other requirements for reinforcement accessories.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire fabric in place; manufactured according to CRSI's "Manual of Standard Practice."
 - 1. Where legs of wire bar supports contact forms, use gray, all-plastic, CRSI Class 1, gray, plastic-protected, or CRSI Class 2, stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- B. Cementitious Materials:
1. Portland Cement: ASTM C150/C150M, Type I/II gray.
 2. Fly Ash: ASTM C618, Class F.
 3. Slag Cement: ASTM C989/C989M, Grade 100 or Grade 120.
 4. Silica Fume: ASTM C1240 amorphous silica.
 5. Blended Hydraulic Cement: ASTM C595/C595M, Type IP, Portland-pozzolan cement.
- C. Normal-Weight Aggregates: ASTM C33/C33M, [Class 5S] [Class 5M] [Class 1N] <Insert class> coarse aggregate or better, graded. Provide aggregates from single source[with documented service-record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials].
1. Maximum Coarse-Aggregate Size: 3/4 inch.
 2. Gradation: Uniformly graded.
- D. Air-Entraining Admixture: ASTM C260/C260M.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that does not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 2. Retarding Admixture: ASTM C494/C494M, Type B.
 3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
 - a.
 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
 6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
 - a.
- F. Water: Potable, complying with ASTM C94/C94M, except free of wash water from mixer washout operations.

2.5 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B.

- 1.
2. For concrete indicated to be sealed, curing compound shall be compatible with sealer.

2.6 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of cast-in-place architectural concrete proportioned on basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 1. Use a qualified independent testing agency for preparing and reporting proposed design mixtures based on laboratory trial mixtures.
- B. Cementitious Materials: For cast-in-place architectural concrete exposed to deicers, limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements. Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Concrete Mixtures:
 1. Compressive Strength (28 Days): 4000 PSI .
 2. Maximum W/C Ratio: 0.45.
 3. Slump Limit: 4 inches plus or minus 1 inch.
 4. Air Content: 5.5%, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
 5. Air Content: 5%, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.

2.7 CONCRETE MIXING

- A. Ready-Mixed Architectural Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M and furnish batch ticket information.
 1. Clean equipment used to mix and deliver cast-in-place architectural concrete to prevent contamination from other concrete.
 2. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 INSTALLATION OF FORMWORK

- A. General: Comply with Section 031000 "Concrete Forming and Accessories" for formwork, embedded items, and shoring and reshoring.
- B. Limit deflection of form-facing panels to not exceed ACI 303.1 requirements.
- C. In addition to ACI 303.1 limits on form-facing panel deflection, limit cast-in-place architectural concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 1. Class A, 1/8 inch.
- D. Construct forms to result in cast-in-place architectural concrete that complies with ACI 117 (ASI 117M).

- E. Chamfer exterior corners and edges of cast-in-place architectural concrete.
- F. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- G. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- H. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and attach securely to prevent deflection and maintain stability of liners during concreting. Prevent form liners from sagging and stretching in hot weather. Seal joints of form liners and form-liner accessories to prevent mortar leaks. Coat form liner with form-release agent.

3.2 INSTALLATION OF REINFORCEMENT AND INSERTS

- A. General: Comply with Section 032000 "Concrete Reinforcing" for fabricating and installing steel reinforcement. Securely fasten steel reinforcement and wire ties against shifting during concrete placement.
- B. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.3 REMOVING AND REUSING FORMS

- A. Formwork for sides of walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
 - 1. Cut off and grind glass-fiber-reinforced plastic form ties flush with surface of concrete.
- B. Leave formwork for slabs, and other structural elements that support weight of concrete in place until concrete has achieved 28-day design compressive strength. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for cast-in-place architectural concrete surfaces.

3.4 JOINTS

- A. Construction Joints: Install construction joints true to line, with faces perpendicular to surface plane of cast-in-place architectural concrete, so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated.
- B. Contraction Joints: Form weakened-plane contraction joints true to line, with faces perpendicular to surface plane of cast-in-place architectural concrete, so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

3.5 CONCRETE PLACEMENT

- A. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- B. Deposit concrete continuously between construction joints. Deposit concrete to avoid segregation.

3.6 FINISHES, GENERAL

- A. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces.
 - 1. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.
- B. Maintain uniformity of special finishes over construction joints unless otherwise indicated.
- C. Form-Liner Finish: Produce a textured surface free of pockets, streaks, and honeycombs, and of uniform appearance, color, and texture.

3.7 EXPOSED-AGGREGATE FINISHES

- A. Scrubbed Finish: After concrete has achieved a compressive strength of from 1000 to 1500 psi, apply scrubbed finish. Wet concrete surfaces thoroughly and scrub with stiff fiber or wire brushes, using water freely, until top mortar surface is removed and aggregate is uniformly exposed. Rinse scrubbed surfaces with clean water. Maintain continuity of finish on each surface or area of Work. Remove only enough concrete mortar from surfaces to match mockup.

3.8 CONCRETE CURING

- A. Begin curing cast-in-place architectural concrete immediately after removing forms from concrete. Cure according to ACI 308.1, by one or a combination of the following methods that will not mottle, discolor, or stain concrete:
 - 1. Moisture curing.
 - 2. Moisture-retaining-cover curing.
 - 3. Curing compound.

3.9 FIELD QUALITY CONTROL

- A. General: Comply with field quality-control requirements in Section 033000 "Cast-in-Place Concrete."

3.10 REPAIR, PROTECTION, AND CLEANING

- A. Repair and cure damaged finished surfaces of cast-in-place architectural concrete when approved by Architect. Match repairs to color, texture, and uniformity of surrounding surfaces and to repairs on approved mockups.
 - 1. Remove and replace cast-in-place architectural concrete that cannot be repaired and cured to Architect's approval.
- B. Protect corners, edges, and surfaces of cast-in-place architectural concrete from damage; use guards and barricades.

- C. Protect cast-in-place architectural concrete from staining, laitance, and contamination during remainder of construction period.

END OF SECTION 033300

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SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

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. Plastic-laminate-faced architectural cabinets, and hardware.
2. Plastic laminate and solid surface countertops.
3. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets, unless concealed within other construction before cabinet installation.

- B. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood furring and blocking for supporting cabinets that is concealed within wall construction.
2. Section 069023 "Interior Finish Carpentry" for wood panel; product shelving designated to receive opaque (painted) finish.
3. Division 22 "Plumbing" Sections for sinks and other plumbing fixtures to be installed in cabinets and countertops.
4. Division 26 and 27 Sections for electrical service, lighting fixtures, and data lines to be installed in cabinets and countertops.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, cabinet hardware and accessories, and reveals and channels.

- B. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, specific modifications, component connections, anchorage methods, hardware, and installation procedures, plus the following specific requirements.

1. Include section drawings of typical and special casework, work surfaces and accessories.
2. Indicate locations of plumbing and electrical service field connection by others

- C. Samples:

1. Plastic laminates, edge banding materials, and thermoset decorative panels, for each color, pattern, and surface finish.
2. Exposed cabinet hardware.

- D. Each countertop material.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification data for firms and persons specified in “Quality Assurance” article to demonstrate their capabilities and experience. Include list of completed projects of similar scope and size with project names, addresses, names of Architects and Owners, and other information specified.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For cabinet finishes to include in maintenance manuals. Include cleaning instructions.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Products: Provide products certified as meeting or exceeding ANSI-A 161.1-1998 testing standards. Owner reserves the right to remove one randomly selected cabinet from the site in order to examine it for compliance to these specifications.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Do not install casework until interior concrete work, masonry, plastering and other wet operations are complete.
- C. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1.8 WARRANTY

- A. All materials and workmanship covered by this section will carry a 5-year warranty from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
- B. Grade: Custom.
- C. Type of Construction: Face frame.
- D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- E. Core Materials:
 - 1. Particleboard up to 7/8-inch-thick: Industrial Grade average 47-pound density particleboard, ANSI A 208.1-1999, M-3.
 - 2. Particleboard 1 inch thick and thicker: Industrial Grade average 45-pound density particleboard, ANSI A 208.1-1999, M-2.
 - 3. MR Moisture Resistant Particleboard: Average 47-pound density particleboard, ANSI
 - 4. A 208.1 1-1999, M-3.
 - 5. Medium Density Fiberboard 1/4-inch-thick: Average 54-pound density grade, ANSI A 208.2.
 - 6. Medium Density Fiberboard 3/4-inch-thick: Average 48-pound density grade, ANSI A 208.2.
- F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Pionite; a Panolam Industries International, Inc. brand.
 - c. Wilsonart LLC.
 - 2. Laminate Cladding for Exposed Surfaces:
 - a. Horizontal Surfaces: Grade HGS.
 - b. Vertical Surfaces: Grade VGS.
 - c. Liner: Grade CLS, .020-inch thick.
 - d. Backer: Grade BKH, thickness to match face layer.
 - e. Pattern Direction: As indicated on Drawings.
 - 3. Materials for Semiexposed Surfaces:
 - a. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade VGS.
 - b. Drawer Sides and Backs: Thermoset decorative panels with PVC or polyester edge banding.
 - c. Drawer Bottoms: Thermoset decorative panels.
 - 4. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

- a. **PL-1** (Vertical surfaces): Match Wilsonart color #7925 "Monticello Maple, fine velvet 38 finish.

Door and drawer edges: 15/16" x 3mm edge banding, color: Monticello Maple, to match vertical surface.

- b. **PL-2** (Countertops): Match Wilsonart color #4946 "Natural Cotton," fine velvet 38 finish.

Countertop edges: 15/16" x 3mm edge banding, color: Natural Cotton.

2.2 SOLID SURFACE COUNTERS **SS – (064116.YY)**

- A. Basis of Design Manufacturer: Corian 9mm, color: Witch Hazel, edge profile: eased edge, or equal, approved in writing by Architect in an addendum published prior to bidding.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087111 "Door Hardware (Descriptive Specification)."
- B. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch-thick metal, and as follows:
 1. Semi-concealed Hinges for Overlay Doors: BHMA A156.9, B01521.
- C. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter. Pull design shall be compatible with the ANSI A117.1 "Accessible and Usable Buildings and Facilities."
- D. Catches: Push-in magnetic catches, BHMA A156.9, B03131.
- E. Door Bumpers: 3/8" diameter - 1/8" thick – clear.
- F. Cable Grommets (**064116.N**): Plastic, 60 mm diameter, with flush plug type cover, black, as manufactured by "Hafele America, Co." or "Lamp".
- G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04102; with shelf brackets, B04112.
- H. Shelf Rests: BHMA A156.9, B04013; plastic, two-pin type with shelf hold-down clip.
- I. Drawer Slides: BHMA A156.9.
 1. Regular, knee-space, and pencil drawers: Grade 1HD-100; Side mounted; full-extension type; zinc-plated-steel ball-bearing slides. Positive stop both directions with self-closing feature.
 2. Paper storage and file drawers: Grade 1HD-200; Side mounted; full-extension type; zinc-plated-steel ball-bearing slides. Positive stop both directions with self-closing feature.
- J. Cabinet Locks:
 1. Basis-of- Design: Manufacturer: Olympus Lock. Inc.; Product: N-Series, removable-core, disc-tumbler, cam- style lock, master-keyed to 5-pin National Keyway, 2 keys per lock, or equal, approved in writing by Architect in an Addendum published prior to Bidding.
 - a. Drawer and Swinging Door Lock: DCN Series.

- K. File Suspension System: Extruded molding integral with top of drawer box sides to accept standard hanging file folders.
- L. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Bronze Base: BHMA 613 for bronze base.

2.4 FABRICATION

- A. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- B. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
- C. Fabricate casework, countertops and related products to dimensions, profiles, and details shown.
- D. Cabinet Body Construction:
 - 1. Tops and bottoms are glued and doweled to cabinet sides and internal cabinet components such as fixed horizontals, rails and verticals. Minimum 6 dowels each joint for 24-inch deep cabinets and a minimum of 4 dowels each joint for 12-inch deep cabinets. Mechanical fasteners will not be accepted for cabinet body construction.
 - a. Tops, bottoms and sides of all cabinets except sink base units shall be particleboard core.
 - b. Tops, bottoms and sides of sink base units shall be moisture-resistant particleboard core.
 - 2. Cabinet backs: 1/4-inch thick prefinished medium density fiberboard. Wall and tall cabinets shall be provided with a 1-inch x 1-3/4 -inch PVC mounting strip used to secure the cabinet to the wall.
 - a. Exposed back on fixed cabinets, except sink base units: 3/4-inch thick particleboard with the exterior surface finished in VGS laminate as selected.
 - b. Exposed back on fixed or movable sink base cabinets: 3/4-inch thick moisture-resistant particleboard with the exterior surface finished in VGS laminate as selected.
 - 3. Fixed base units shall have an individual factory-applied base, constructed of 3/4- inch thick exterior grade plywood. Base is nominal 4 inches high unless otherwise indicated on the drawings.
 - 4. Base units, except sink base units: Full sub-top.
 - 5. Side panels and vertical dividers shall receive adjustable shelf hardware at 32mm line boring centers. Mount door hinges, drawer slides and pullout shelves in the line boring for consistent alignment.
 - 6. Adjustable shelf core: 3/4-inch thick particleboard up to 24-inches wide, 1-inch thick particleboard over 24-inches wide.
 - 7. Interior finish, units with open Interiors:
 - a. Top, bottom, sides, horizontal and vertical members, and adjustable shelving faces with thermally fused melamine laminate with matching prefinished back.

8. Interior finish, units with closed Interiors:
 - a. Top, bottom, sides, horizontal and vertical members, and adjustable shelving faces with thermally fused melamine laminate with matching prefinished back.
9. Exposed cabinet ends:
 - a. Faced with VGS high-pressure decorative laminate.
10. Balanced construction of all laminated panels is mandatory. Unfinished core stock surfaces shall not be permitted, even on concealed surfaces (excluding edges).

E. Drawers:

1. Sides, back and sub front: Minimum 1/2-inch thick particleboard, laminated with thermally fused melamine doweled and glued into sides. Top edge banded with 1mm PVC.
2. Drawer bottom: Minimum 1/2-inch thick particleboard laminated with thermally fused melamine, screwed directly to the bottom edges of drawer box.
3. Paper storage drawers: Minimum 3/4-inch thick particleboard sides, back, and sub front laminated with thermally fused melamine. Minimum 1/2-inch thick particleboard drawer bottoms screwed directly to the bottom edges of the drawer box. Provide PVC angle retaining bar at the rear of the drawer.
4. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.

F. Door/Drawer Fronts:

1. Core: 3/4-inch thick particleboard, except at sink units, which shall have a 3/4-inch thick moisture-resistant particleboard core.
2. Provide double doors for all openings in excess of 24 inches wide.
3. Faces:
 - a. Exterior: VGS High-pressure decorative laminate.
 - b. Interior: High-pressure cabinet liner CLS.

2.5 PLASTIC-LAMINATE-FACED COUNTERTOPS

A. Core Material:

1. All countertops except at sink elevations: 1-inch thick ANSI A 208.1-1993 M-2 particleboard.
2. Countertops at sink elevations: 1-inch thick ANSI A 208.1-1993 M-3 MR moisture resistant particleboard.
3. Surface: HGS high-pressure decorative laminate with balanced backer sheeting.
4. Edges, including applied backsplash: 3mm PVC, exposed edges and corners machine profiled to 1/8-inch radius. Edges are machine applied with moisture curing polyurethane (PUR) hot melt for fast setting, high strength adhesion

2.6 REVEALS/CHANNELS

- A. Basis-of-Design: Subject to compliance with requirements, provide Millwork Corner Keys (MWCK) and 4" Millwork Channel Base with Return Key (MWCB) by Fry Reglet Corporation or a comparable product, with written approval by the Architect prior to bidding.

1. Millwork Corner Keys: **(064116.XX)**
 - a. Description: 90 degrees outside corners, are abuse resistant, and provides a straight and uniform 1/4" exposed post at edges of millwork panels. Basis of Design – Fry Reglet, Millwork Channel Outside Corner with return keys.
 - b. Material: Extruded aluminum
 - c. Dimensions: As indicated on drawings.
 - d. Finish: Buffed Satin in Dark Bronze
2. 4" Millwork Channel Base with Return Key **(064116.WW)**
 - a. Description: Features an exposed 3/16" return keys to cover cut edges of millwork panels, and a 4" base flange that provides a straight, uniform base horizontally at the bottom of millwork panels. Basis of Design – Fry Reglet, Millwork Channel Base with return key.
 - b. Material: Extruded aluminum.
 - c. Dimensions: As indicated on drawings.
 - d. Finish: Buffed Satin in Dark Bronze

2.7 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

PART 3 - EXECUTION

3.1 INSPECTION

- A. The cabinet contractor shall examine the job site and the conditions under which the work under this section is to be performed and notify the building owner in writing of unsatisfactory conditions. Do not proceed with work under this Section until satisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.

3.3 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- C. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- D. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.
- E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.
- F. Countertops: Anchor securely to base units and other support systems as indicated.
- G. Install Millwork trims and accessories in accord with manufacturer's product data.
- H. Complete the finishing work specified in this section to extent not completed at shop before installation of woodwork.
- I. Repair minor damage per plastic laminate manufacturer's recommendations. Replace other damaged cabinets or materials.

3.4 CLEANING

- A. Leave cabinets broom-clean inside and out. Wipe off fingerprints, pencil marks, and surface soil etc., in preparation for final cleaning by the building Owner.
- B. Remove and dispose of all packing materials and related construction debris.

3.5 PROTECTION

- A. Protect accessories from damage until date of Substantial Completion. Replace accessories which become damaged.

END OF SECTION 064116

SECTION 087100 – DOOR HARDWARE

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 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Sliding doors.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Flush Wood Doors".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.
 - 5. Review the required inspecting, testing, commissioning, and demonstration procedures

- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. 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. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Seven years for heavy duty cylindrical (bored) locks and latches.
 - 2. Five years for exit hardware.
 - 3. Five years for motorized electric latch retraction exit devices.
 - 4. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches
 - b. Three Hinges: For doors with heights 61 to 90 inches
 - c. Four Hinges: For doors with heights 91 to 120 inches
 - d. For doors with heights more than 120 inches provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 5. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
- B. Sliding and Folding Door Hardware: Hardware is to be of type and design as specified and should comply with ANSI/BHMA A156.14.
1. Sliding Bi-Passing Pocket Door Hardware: Provide complete sets consisting of track, hangers, stops, bumpers, floor channel, guides, and accessories indicated.
 2. Bi-folding Door Hardware: Rated for door panels weighing up to 125 lb
 3. Pocket Sliding Door Hardware: Rated for doors weighing up to 200 lb
 4. Manufacturers:
 - a. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

- A. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
 2. Manufacturers:

- a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – QC-C Series.

2.4 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
5. Manufacturers:

- a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

1. Manufacturers:

- a. Corbin Russwin Hardware (RU).

- C. Cylinders: Original manufacturer cylinders complying with the following:

1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
5. Keyway: Manufacturer's Standard. Verify and match existing.

- D. Keying System: Each type of lock and cylinders to be factory keyed.

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Key locks to Owner's existing system.

E. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Three (3).

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.

1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
2. Locks are to be non-handed and fully field reversible.
3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.
4. Manufacturers:

- a. Corbin Russwin Hardware (RU) – CL3300 Series.

2.7 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.8 ELECTRIC STRIKES

A. Surface Mounted Rim Electric Strikes: Surface mounted rim exit device electric strikes conforming to ANSI/BHMA A156.31, Grade 1, and UL Listed for both Burglary Resistance and for use on fire rated door assemblies. Construction includes internally mounted solenoid with two heavy-duty, stainless steel locking mechanisms operating independently to provide tamper resistance. Strikes tested for a minimum of 500,000 operating cycles. Provide strikes with 12 or 24 VDC capability supplied standard as fail-secure unless otherwise specified. Option available for latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike. Strike requires no cutting to the jamb prior to installation.

1. Manufacturers:

- a. HES (HS) - 9400 Series
- b. HES (HS) - 9500/9600 Series.

- B. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.9 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

- 1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 - 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 - 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 - 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 - 5. Electromechanical Options: Subject to same compliance standards and requirements as mechanical exit devices, electrified devices to be of type and design as specified in hardware sets. Include any specific controllers when conventional power supplies are not sufficient to provide the proper inrush current.
 - 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 - 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 - 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 - 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 - 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 - 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
 1. Provide keyed removable feature where specified in the Hardware Sets.
 2. Provide stabilizers and mounting brackets as required.
 3. Provide electrical quick connection wiring options as specified in the hardware sets.
 4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - 700/900 Series.

2.10 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
 1. Manufacturers:
 - a. Norton Door Controls (NO) - 7500 Series.

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, .050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.12 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:
 - a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.13 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are 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.
 - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.14 ELECTRONIC ACCESSORIES

- A. Push-Button Switches: Industrial grade momentary or alternate contact, back-lighted push buttons with stainless-steel switch enclosures. 12/24 VDC bi-color illumination suitable for either flush or surface mounting.
 - 1. Manufacturers:
 - a. Alarm Controls (AK).
- B. Switching Power Supplies: Provide switching power supplies that are dual voltage, UL listed, supervised units. Units shall be field selectable with a dedicated battery charging circuit that provide 4 Amp at 12VDC or 24VDC continuous, with up to 16 independently controlled power limited outputs. Units shall tolerate brownout or overvoltage input $\pm 15\%$ of nominal voltage and have thermal shutdown protection with auto restart. Circuit breaker shall protect against overcurrent and reverse battery faults and units shall be available with a single relay fire trigger or individually triggered relayed outputs. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
 - 1. Manufacturers:
 - a. Securitron (SU) - AQ Series.

2.15 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.16 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 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.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should 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 and functionality.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Manufacturer's Abbreviations:
 1. MK - McKinney
 2. PE - Pemko
 3. RU - Corbin Russwin
 4. HS - HES
 5. RO - Rockwood
 6. NO - Norton
 7. YA - Yale
 8. OT - OTHER
 9. AK - Alarm Controls
 10. SU - Securitron

Hardware Sets

Set: 1.0

Doors: 100A

6 Hinge (heavy weight)	T4A3386 (NRP)	US32D	MK
1 Removable Mullion	CR910KM M96 M95 M57		RU ⚡
1 Exit Device (exit only)	ED5200 EO	630	RU
1 Exit Device (nightlatch)	ED5200 K157ET	630	RU
2 Cylinder	Verify and match existing	630	RU
2 Offset Door Pull	BF158	US32D	RO
2 Surface Closer	CPS7500	689	NO
2 Closer Drop Plate	7788 as required	689	NO
2 Kick Plate	K1050 10" CSK BEV	US32D	RO
1 Threshold	276x4AFG		PE
2 Door Bottom	216SNFG		PE
1 Gasketing	2893AV		PE
2 Gasketing	2903AV		PE
2 Meeting Stile Seal	303AV		PE
1 Mullion Seal	5110BL		PE

Set: 2.0

DOOR HARDWARE
 HA - 18017

Doors: 100B

3 Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1 Exit Device (nightlatch)	MARKS M9900	630	RU
1 Cylinder	Verify and match existing	630	RU
1 Electric Strike	9600-LBSM	630	HS ⚡
1 SMART Pac Bridge Rectifier	2005M3		HS ⚡
1 Buzzer	2006M		HS ⚡
1 Surface Closer	CPS7500	689	NO
1 Kick Plate	K1050 10" CSK BEV	US32D	RO
1 Door Stop	400/403/441CU as required	US26D	RO
1 Gasketing	S88D		PE
1 Sweep	315CN		PE
1 Wiring Harness	QC-C1500P		MK ⚡
1 Door Release	TS-18		AK
1 Power Supply	AQD w/relays & boards as required		SU ⚡

Notes: Door is normally closed and locked. Exterior access by authorized key or remote unlock from Secretary. Free egress at all times.

Set: 3.0

Doors: 102, 103, 110A

1 Entrance Lock	CL3351 NZD	626	RU
1 Cylinder	Verify and match existing	630	RU
1 Door Stop	400/403/441CU as required	US26D	RO

Notes: Verify existing conditions to receive new material.

Set: 4.0

Doors: 109

1 Entrance Lock	CL3351 NZD	626	RU
1 Cylinder	Verify and match existing	630	RU
1 Kick Plate	K1050 10" CSK BEV	US32D	RO
1 Door Stop	400/403/441CU as required	US26D	RO
1 Gasketing	S88D		PE

Set: 5.0

Doors: 104, 105

1 Classroom Lock	CL3355 NZD	626	RU
1 Cylinder	Verify and match existing	630	RU
3 Silencer	608-RKW		RO

Set: 6.0

Doors: 110B

DOOR HARDWARE
 HA - 18017

1 Kit	280C-SWTKIT x soft close		PE
2 Straight Pull	RM3101-12 Mtg-Type 5HD	US32D	RO

END OF SECTION 087100

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SECTION 122413 - ROLLER WINDOW SHADES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Manually operated roller shades with single rollers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication and installation details for roller shades, including shadeband materials, their orientation to rollers, and their seam and batten locations.
- C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Product test reports.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.

1.6 WARRANTY

- A. Roller Shade Hardware and Chain Warranty: Manufacturer's standards non-depreciating twenty-five year limited warranty.
- B. Shadecloth: Manufacturer's standard twenty-five year warranty.
- C. Roller Shade Installation: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain roller shades from single source from single manufacturer.

2.2 MANUALLY OPERATED SHADES WITH SINGLE ROLLERS (122413.A)

- A. **Manufacturers:** Basis of Design Manufacturer, MechoShade Systems, Inc., Bottom-Up Roller Shade. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. [Draper Inc.](#)
 2. [Hunter Douglas Contract.](#)
 3. [Insolroll Window Shading Systems.](#)
 4. [Levolor.](#)
 5. [OEM Shades Inc.](#)
 6. [Qmotion Shades.](#)
 7. [Rollease Acmeda, Inc.](#)
 8. [TimberBlindMetroShade.](#)
- B. Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
1. Chain-Retainer Type: Firmly attached to sill or jamb.
 2. Spring Lift-Assist Mechanisms: Provide for shadebands that weigh more than 10 lb or for shades as recommended by manufacturer, whichever criterion is more stringent.
- C. Crank-and-Gear Operating Mechanisms: Sealed gearbox drive system controlled by permanently mounted crank handle.
- D. Rollers: Corrosion-resistant steel or extruded-aluminum tubes of diameters and wall thicknesses required to accommodate operating mechanisms and weights and widths of shadebands indicated without deflection. Provide with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shadebands for service.
1. Roller Drive-End Location: Left or right side of interior face of shade.
 2. Direction of Shadeband Roll: Regular, from back (exterior face) of roller.
- E. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
- F. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to join up to three inline rollers into a multiband shade that is operated by one roller drive-end assembly.
- G. Shadebands:
1. Shadeband Material: Light-filtering fabric.
 2. Shadeband Openness: 3%
 3. Shadeband Color: 1516 Eggshell, or approved equal.
 4. Shadeband Top (Hem) Bar: Steel or extruded aluminum.
 - a. Type: Exposed with endcaps.
 - b. Color and Finish: As selected by Architect from manufacturer's full range.

H. Installation Accessories:

1. Front Fascia: Aluminum extrusion that conceals front and underside of roller and operating mechanism, both at the head and sill, and attaches to roller endcaps without exposed fasteners.
2. Endcap Covers: To cover exposed endcaps.
3. Top (Head) Channel or Angle: With light seals and designed to eliminate light gaps at bottoms of shades when shades are closed.
4. Installation Accessories Color and Finish: As selected from manufacturer's full range.

2.3 SHADEBAND MATERIALS

- A. Shadeband Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- B. Light-Filtering Fabric: Woven fabric, stain and fade resistant.
 1. Source: Roller shade manufacturer.
 2. Orientation on Shadeband: Up the bolt.
 3. Color: As selected by Architect from manufacturer's full range.

2.4 ROLLER SHADE FABRICATION

- A. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows, measured at 74 deg F:
 1. Between (Inside) Jamb Installation: Width equal to jamb-to-jamb dimension of opening in which shade is installed less 1/4 inch per side or 1/2-inch total, plus or minus 1/8 inch. Length equal to head-to-sill or -floor dimension of opening in which shade is installed less 1/4 inch, plus or minus 1/8 inch.
 2. Outside of Jamb Installation: Width and length as indicated, with terminations between shades of end-to-end installations at centerlines of mullion or other defined vertical separations between openings.
- C. Shadeband Fabrication: Fabricate shadebands without battens or seams to extent possible, except as follows:
 1. Vertical Shades: Where width-to-length ratio of shadeband is equal to or greater than 1:4, provide battens and seams at uniform spacings along shadeband length to ensure shadeband tracking and alignment through its full range of movement without distortion of the material.
 2. Skylight Shades: Provide battens and seams at uniform spacings along shadeband as required to ensure shadeband tracking and alignment through its full range of movement without distortion or sag of material.
 3. Railroaded Materials: Railroad material where material roll width is less than the required width of shadeband and where indicated. Provide battens and seams as required by railroaded material to produce shadebands with full roll-width panel(s) plus, if required, one partial roll-width panel located at top of shadeband.

PART 3 - EXECUTION

3.1 ROLLER SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.
- B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
- C. Clean roller shade surfaces, after installation, according to manufacturer's written instructions.
- D. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 122413

KEYNOTES

REFERENCE NOTES

- 2.09 EXISTING LANDSCAPE. PROTECT IN PLACE.
- 2.40 EXISTING SIDEWALK
- 3.04 NEW RAMP
- 3.05 NEW STAIR

GENERAL NOTES

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR TO VERIFY POSITION AND CONDITION OF ALL EXISTING BENCHMARKS.
2. EXISTING BENCHMARKS ARE NOT TO BE DISTURBED.
3. COORDINATE WITH CIVIL FOR GRADING AND DRAINAGE ELEVATIONS.
4. ANY DISCREPANCIES IN ACTUAL FIELD CONDITIONS, IF AT ODDS WITH INDICATIONS IN THESE DOCUMENTS, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT OR CONSTRUCTION MANAGER.

LEGEND

-  NEW CONCRETE WALKWAY
-  EXISTING TURF
-  SITE LIGHTING (COORDINATE WITH ELECTRICAL DRAWINGS)

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Project:
**POCATELLO HIGH SCHOOL -
 ENTRANCE RENOVATION**

325 N ARTHUR AVE
 POCATELLO, ID 83204

Sheet:
COMPOSITE SITE PLAN

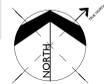
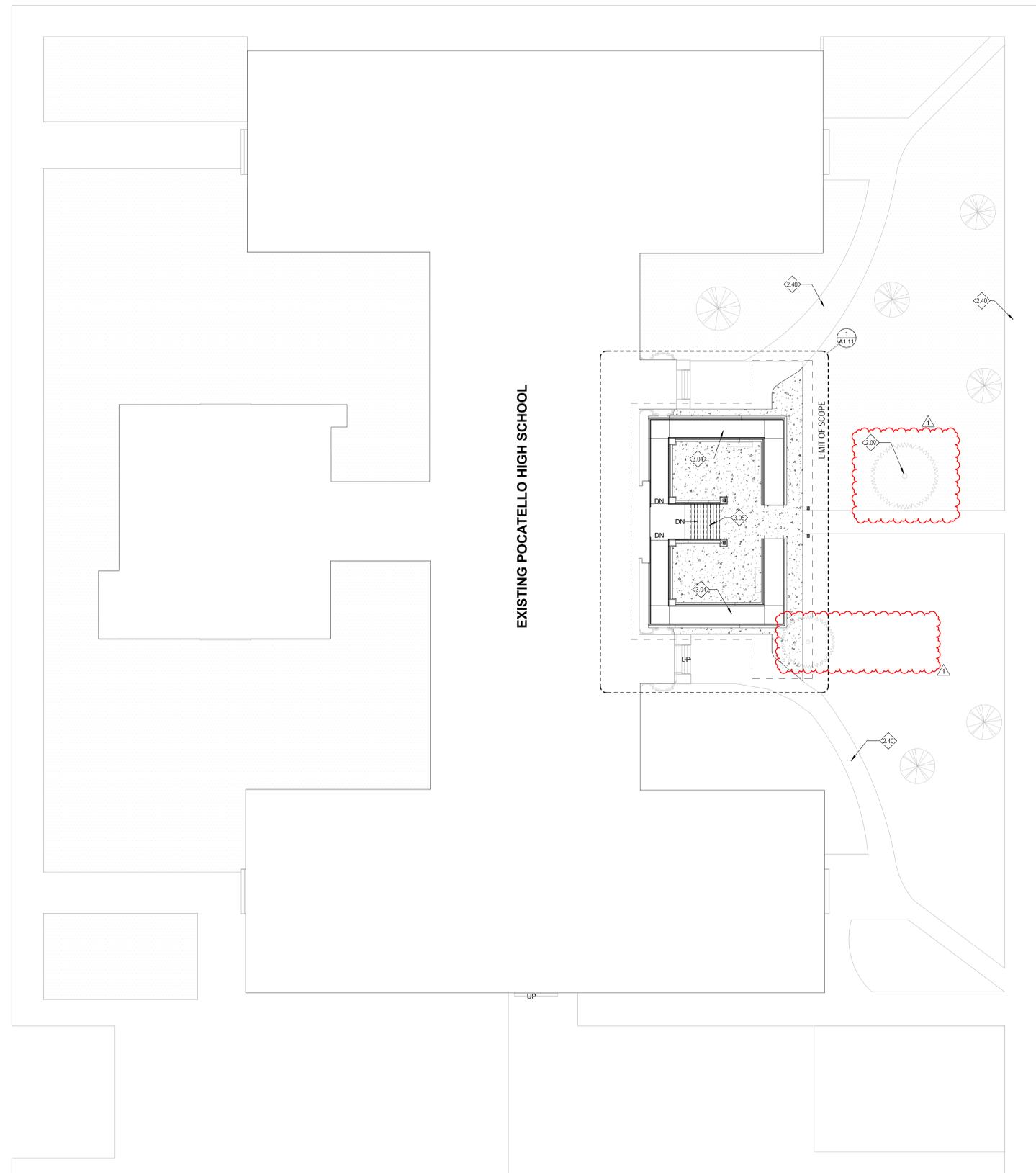
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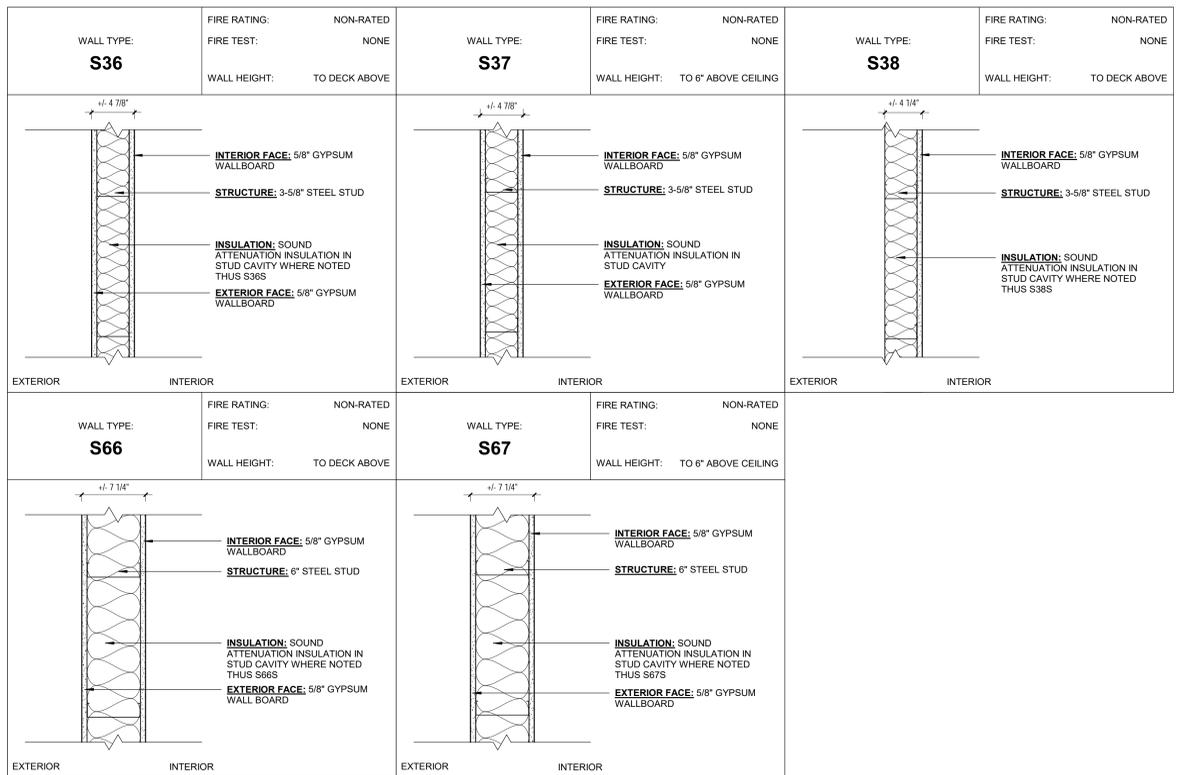
Revision #1 3/29/19

Project No: 18027
 Drawn By: LE/JH
 Checked By: GA/JH
 Date: 3-19-19

Sheet No:
A1.01



1 COMPOSITE SITE PLAN
 A1.01 1/16" = 1'-0"



GENERAL NOTES

1. WALL TYPES DESCRIBED ON THIS SHEET DO NOT ACCOUNT FOR REQUIRED BACKING AND/OR SUPPORT FOR WALL MOUNTED FIXTURES, EQUIPMENT, CASEWORK AND/OR SYSTEMS FURNITURE. COORDINATE WITH ENLARGED FLOOR PLANS, INTERIOR ELEVATIONS AND EQUIPMENT PLANS PRIOR TO THE COVERING OF STUD FRAMING. REFER TO MANUFACTURER'S RECOMMENDATIONS.
2. WALL THICKNESS DESCRIBED ON THIS SHEET ARE SHOWN NOMINALLY IN PLAN REPRESENTATIONS
3. HORIZONTAL BRACING 2'-0" A.F.F. AT FIRST OCCURRENCE AND EVERY 4'-0" THEREAFTER AT ALL WALLS W/ GYPSUM BOARD ON ONLY ONE SIDE.
4. AT ALL WALLS WITH SOUND ATTENUATION, SEAL TOP OF WALL AT STRUCTURE AND BOTTOM OF WALL WITH SOUND SEALANT
5. AT ALL WALLS THAT EXTEND TO STRUCTURE PROVIDE DEFLECTION TRACK
6. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY IF CLEARANCES AND ADA REQUIREMENTS ARE NOT ACHIEVED.
7. PROVIDE (I22413.A) MANUALLY OPERATED ROLLER SHADE WINDOWS AT ALL EXTERIOR WINDOWS AT ROOMS 102, 103, 110, AND 111.

PLAN NOTES

1. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE TO THE FACE OF STUDS FOR GWB WALLS / PARTITIONS
2. FOR FLOOR FINISHES RE: ROOM FINISH SCHEDULE AND FINISH PLANS, SHEETS A8.01.
3. UNLESS NOTED OTHERWISE ALL GWB WALLS SHALL HAVE A 6" STUD FRAME RETURN AT ALL DOOR AND WINDOW JAMBS.
4. RE: SHEETS G0.01 FOR BUILDING OCCUPANCY PLANS.
5. SEE ENLARGED PLANS FOR ADDITIONAL WALL TYPES.

KEYNOTES

- REFERENCE NOTES**
- 2.19 EXISTING COLUMN. PROTECT IN PLACE. FIELD VERIFY EXACT LOCATION.
 - 9.02 ALIGN WALL PLANES.
 - 9.06 VERIFY THICKNESS OF EXISTING WALL AND MATCH WIDTH. FINISH WALL FLUSH AT BOTH SIDES OF WALL. FINISH TO MATCH ADJACENT WALL.

FLOOR PLAN LEGEND

- NOT IN SCOPE
- DOOR SYMBOL, RE: DOOR SCHEDULE, SHEET A7.01
- WALL TYPE, RE: SHEET G0.04
- WINDOW TYPE, RE: WINDOW FRAME TYPE SHEETS, SHEET A7.01
- STEEL STUD WALL AND GYPSUM BOARD WALL, RE: WALL TYPES.
- CONCRETE MASONRY UNIT (CMU) WALL, RE: WALL SECTIONS, WALL TYPES, EXTERIOR & INTERIOR ELEVATIONS, COORDINATE WITH STRUCTURAL DRAWINGS.
- CONCRETE WALL, RE: WALL SECTIONS, WALL TYPES, EXTERIOR & INTERIOR ELEVATIONS, COORDINATE WITH STRUCTURAL DRAWINGS.
- MASONRY VENEER, RE: WALL SECTIONS, WALL TYPES, EXTERIOR & INTERIOR ELEVATIONS, COORDINATE WITH STRUCTURAL DRAWINGS.

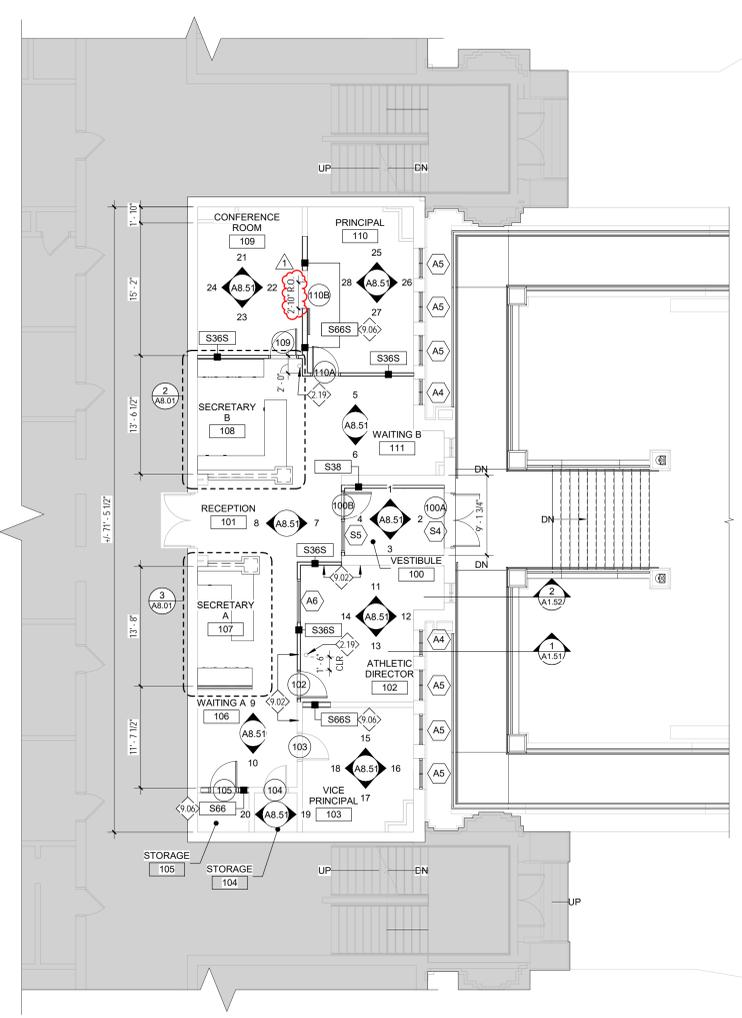
RCP LEGEND

- 2' x 4' ACOUSTICAL CEILING METAL SUSPENSION SYSTEM WITH ACOUSTICAL PANEL CEILING UNITS, APC-1, U.O.N. RE: DIVISION 09 - FINISHES IN THE SPECIFICATIONS
- GYPSUM BOARD CEILING ON STEEL FRAMING AND SUPPORT SYSTEM, PAINT - P, U.O.N. RE: DIVISION 09 - FINISHES IN THE SPECIFICATION.
- OPEN TO STRUCTURE
- VERTICAL SERVICE DROP/CHASE, COORDINATE WITH MECHANICAL DRAWINGS.
- LIGHTING FIXTURES, COORDINATE WITH ELECTRICAL DRAWINGS.
- MECHANICAL FIXTURES, COORDINATE WITH MECHANICAL DRAWINGS.
- PENDANT LIGHT, COORDINATE WITH ELECTRICAL DRAWINGS.
- CEILING HEIGHT ABOVE FINISH FLOOR
- EXIT SIGN

4 WALL TYPES - INTERIOR 01
A2.11 1/8" = 1'-0"



2 LEVEL 1 PARTIAL CEILING PLAN
A2.11 1/8" = 1'-0"



1 LEVEL 1 PARTIAL FLOOR PLAN
A2.11 1/8" = 1'-0"

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Sheet:
PARTIAL FIRST FLOOR PLAN, CEILING PLAN & WALL TYPES

Revisions: 1 Addendum #1 3/29/19



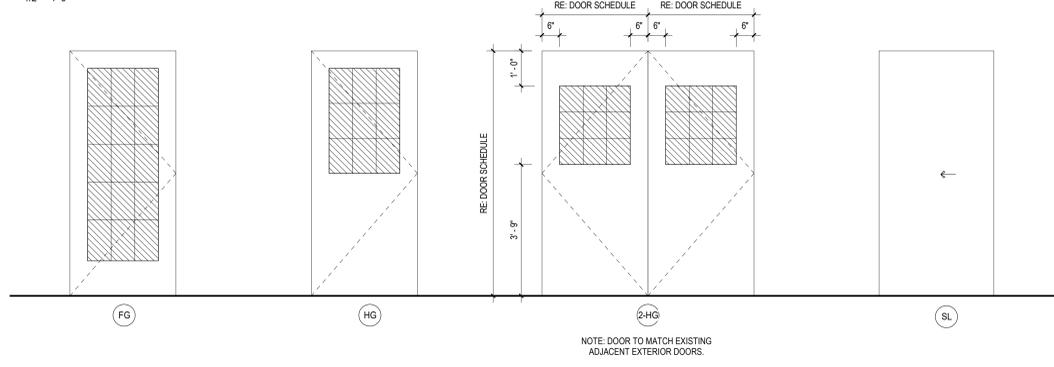
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Project No: 1002
Drawn By: LEJH
Checked By: GAJH
Date: 3/19/19

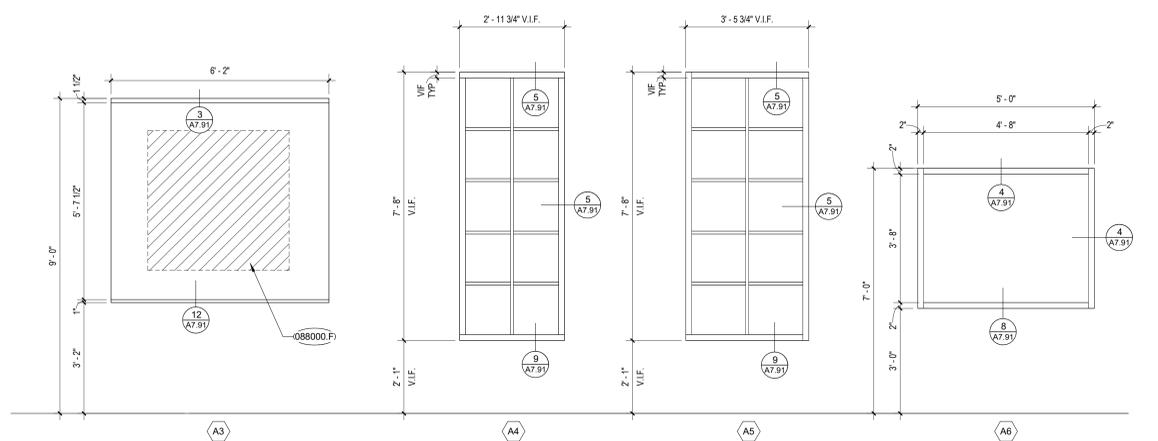
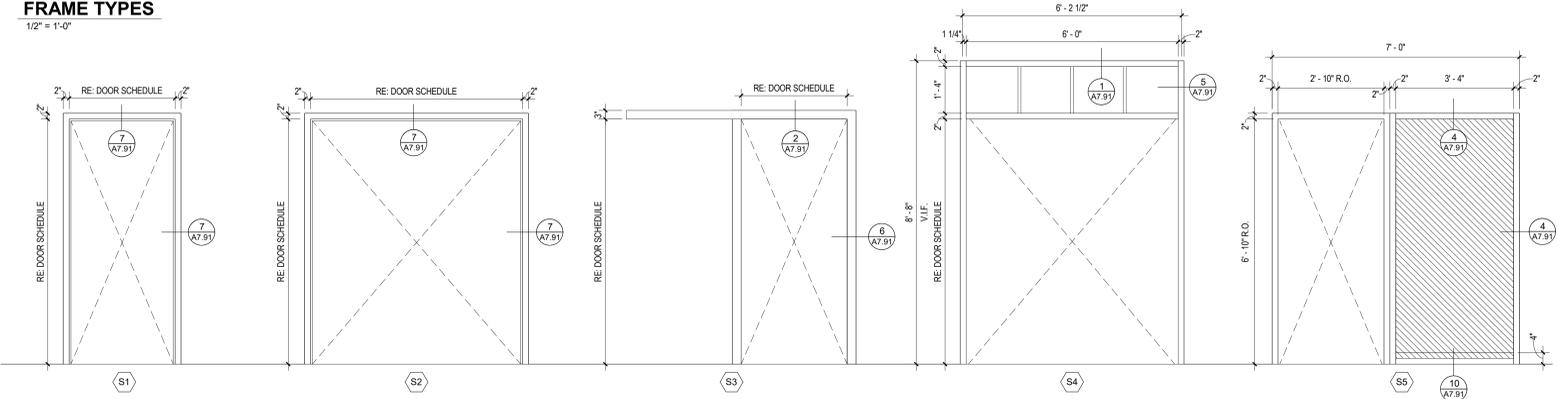
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DOOR #	DOOR					FRAME			DOOR HARDWARE	REMARKS
	TYPE	WIDTH	HEIGHT	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		
100A	2-HG	6'-0"	7'-0"	HM	P	S4	HM	P	1.0	PAINT TO MATCH ADJACENT EXTERIOR DOORS AND FRAMES
100B	FG	3'-0"	7'-0"	HM	P	S5	HM	P	2.0	PAINT TO MATCH ADJACENT EXTERIOR DOORS AND FRAMES
102	HG	3'-0"	7'-0"	EXISTING	EXISTING	EXISTING	EXISTING	P	3.0	REINSTALL DOOR #03. PATCH AND REPAIR AS NECESSARY. REPAINT TO EXISTING COLOR.
103	HG	3'-0"	7'-0"	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	3.0	REINSTALL. PATCH AND PAINT AS NECESSARY. REPAINT TO EXISTING COLOR.
104	FG	2'-6"	7'-0"	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	5.0	REINSTALL. PATCH AND PAINT AS NECESSARY. REPAINT TO EXISTING COLOR.
105	HG	3'-0"	7'-0"	EXISTING	EXISTING	S1	EXISTING	P	5.0	REINSTALL DOOR #01. PATCH AND REPAIR AS NECESSARY. REPAINT TO EXISTING COLOR.
109	HG	3'-0"	7'-0"	EXISTING	EXISTING	EXISTING	EXISTING	P	4.0	REINSTALL DOOR #02. PATCH AND REPAIR AS NECESSARY. REPAINT TO EXISTING COLOR.
110A	HG	3'-0"	7'-0"	EXISTING	EXISTING	EXISTING	EXISTING	P	3.0	REINSTALL DOOR #04. PATCH AND REPAIR AS NECESSARY. REPAINT TO EXISTING COLOR.
110B	SL	3'-0"	7'-0"	WD	FF	S3	HM	P	6.0	

DOOR TYPES
1/2" = 1'-0"



FRAME TYPES
1/2" = 1'-0"



KEYNOTES

08800.F INTERIOR WINDOW FILM

REFERENCE NOTES

GENERAL NOTES

1. PAINT ALL METAL FRAMES & ACCESSORIES TO MATCH EXISTING.
2. ALL HOLLOW METAL FRAME GLAZING STOPS TO BE PLACED ON ROOM SIDE OPPOSITE FROM HALLWAY / CORRIDOR.
3. PROVIDE FULLY TEMPERED GLASS UNITS WHERE REQUIRED BY IBC SECTION 2406 AND SPECIFICATION SECTION 08800 - GLAZING.
4. PROVIDE FLOAT GLASS (08800.A) AT CONDITIONS OTHER THAN DESCRIBED IN GENERAL NOTE 3 OF THIS SHEET.

ABBREVIATIONS

- ALUM - ALUMINUM
- FF - FACTORY FINISH AS SPECIFIED
- HM - HOLLOW METAL
- HPC - HIGH PERFORMANCE COATING
- M - MINUTES
- PH - PAINT COLOR "NUMBER" (RE: DIVISION 9 SECTION "INTERIOR PAINTING")
- WD - WOOD
- S - SMOKE
- AN - ANODIZED

LEGEND

- HATCH IN FRAME UNITS INDICATES AREAS OF FULLY-TEMPERED FLOAT GLASS. RE: DIVISION 08800 IN THE SPECIFICATIONS.
- NO HATCH AREA IN FRAME UNITS INDICATES AREAS OF FLOAT GLASS. RE: DIVISION 08800 IN THE SPECIFICATIONS.

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Project:
POCATELLO HIGH SCHOOL - ENTRANCE RENOVATION

325 N ARTHUR AVE
POCATELLO, ID 83204

Sheet:
DOOR SCHEDULE & TYPES

BID SET



Revisions:	△	
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Project No: 16227
Drawn By: LEJH
Checked By: GAJH
Date: 3-19-19

Sheet No:
A7.01

SCHEDULE - ROOM FINISH											
ROOM NO.	ROOM TITLE	FLOOR		WALLS				CASEWORK			REMARKS
		MAT.	BASE	NORTH	EAST	SOUTH	WEST	CABINETRY	COUNTER TOP	TRANS TOP	
100	VESTIBULE	LVP-1	RB	P-1	P-1	P-1	P-1	NA	NA	NA	
101	RECEPTION	LVP-1	RB, MB	NA	P-1	P-1	P-1	PL-1	PL-2	SS	2
102	ATHLETIC DIRECTOR	CPT-1, CPT-2	RB	P-1	P-1	P-2	P-1	NA	NA	NA	1
103	VICE PRINCIPAL	CPT-1, CPT-2	RB	P-1	P-1	P-2	P-1	NA	NA	NA	1
104	STORAGE	RB	P-1	P-1	P-1	P-1	P-1	NA	NA	NA	
105	STORAGE	CPT-1	RB	P-1	P-1	P-1	P-1	NA	NA	NA	
106	WAITING A	CPT-1	RB	P-1	P-1	P-2	P-1	NA	NA	NA	1
107	SECRETARY A	CPT-1	RB	NA	P-1	P-1	P-1	PL-1	PL-2	SS	2
108	SECRETARY B	CPT-1	RB	P-2	P-1	NA	P-1	PL-1	PL-2	SS	1, 2
109	CONFERENCE ROOM	CPT-1, CPT-2	RB	P-1	P-1	P-1	P-2	NA	NA	NA	1
110	PRINCIPAL	CPT-1, CPT-2	RB	P-2	P-1	P-1	P-1	NA	NA	NA	1
111	WAITING B	CPT-1	RB	P-1	P-1	P-1	P-1	NA	NA	NA	

REMARKS

- SEE INTERIOR ELEVATIONS FOR LOCATION OF EXTENTS OF PAINT COLORS.
- SEE INTERIOR ELEVATIONS FOR LOCATION OF BASES.

KEYNOTES

- 064116.KK PLASTIC-LAMINATE SURFACE
- 064116.N CABLE GROMMET
- 064116.UU PLASTIC-LAMINATE-FACED COUNTERTOP
- 064116.W MILLWORK REVEAL L ANGLE W/ RETURN KEY
- 064116.XX MILLWORK CORNER KEY
- 064116.YY SOLID SURFACE
- 092216.A STEEL STUD FRAMING (NON-LOAD-BEARING)
- 092900.A GYPSUM BOARD, TYPE X

REFERENCE NOTES

- 2.01 EXISTING CONSTRUCTION, PRESERVE AND PROTECT. REPAIR DAMAGED AREAS TO ORIGINAL STATE.
- 6.01 INCLUDE BACKSPLASH
- 6.02 1/4" CLEAR
- 8.03 WINDOW FRAME - TYPE AS INDICATED PER FLOOR PLANS AND FRAME TYPES.
- 9.10 FLUSH
- 9.13 REMOVE AND REINSTALL EXISTING THRESHOLD OVER NEW FLOORING
- 9.14 LINE OF FRAMING BELOW.

GENERAL NOTES

- PAINT ALL WALL AND GYPSUM BOARD CEILINGS P-1, UNO.
- RE. DIVISION 8, SECTION "RESILIENT WALL BASE AND ACCESSORIES" FOR TRANSITIONS AND OTHER FLOORING ACCESSORIES.

ABBREVIATIONS - FINISHES

- FLOOR FINISHES**
- CPT CARPET TILE
 - CT CERAMIC TILE
 - QT QUARRY TILE
 - RF RUBBER FLOOR TILE
 - RMA RESILIENT MOLDING ACCESSORY
 - SC SEALED CONCRETE
 - SD STATIC DISSIPATIVE FLOOR TILE
 - SV VINYL SHEET FLOOR COVERING
 - TZ TERRAZZO
 - WM WALK OFF MAT
- WALL BASE**
- RB RESILIENT BASE
 - MB METAL TRIM BASE
- WALL FINISHES**
- CT CERAMIC TILE
 - GT GLASS TILE
 - FRP PLASTIC SHEET PANELING
 - P PAINT
 - RP RESIN PANEL
 - RMA RESILIENT MOLDING ACCESSORY
 - WC VINYL WALL COVERING
 - WDP WOOD PANELING
 - WP WRAPPED FABRIC PANEL
- CEILING**
- APC ACOUSTICAL PANEL CEILING
 - WD WOOD CEILING
 - GBD GYPSUM BOARD
- CASEWORK**
- PL PLASTIC LAMINATE
 - SS SOLID SURFACE
 - TF TRANSPARENT FINISH
 - WDP WOOD PANELING

LEGEND

- LVT-1
- CPT-1
- CPT-2

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Sheet:
CASH SCHEDULE, PLAN AND CASEWORK DETAILS

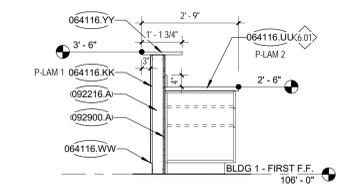
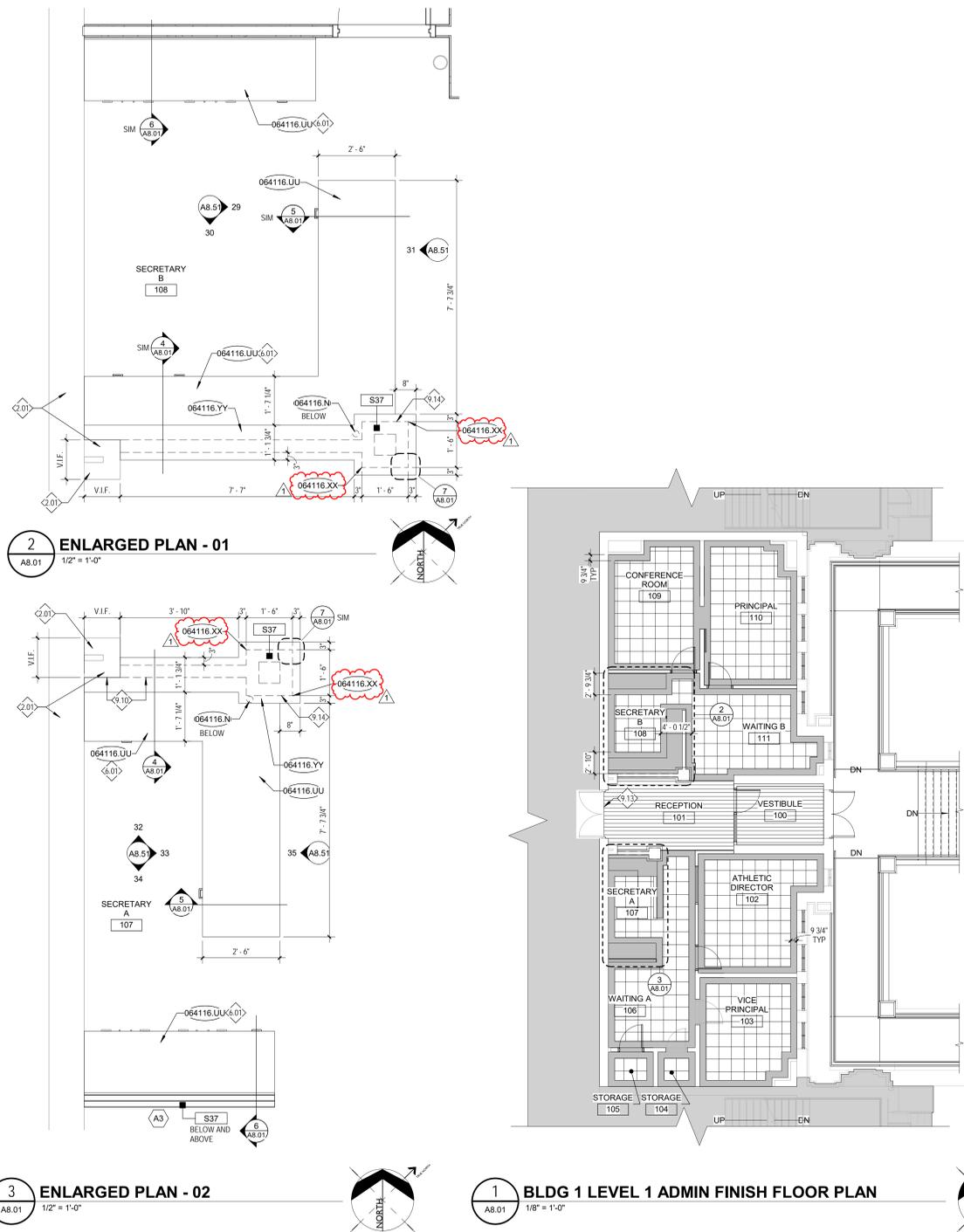
Revisions:

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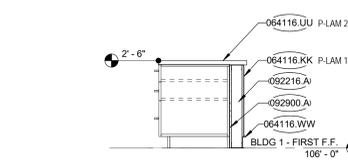
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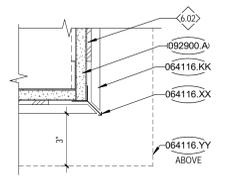
Sheet No:
A8.01



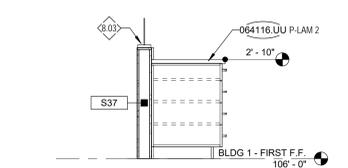
4 TRANSACTION WALL SECTION
A8.01 1/2" = 1'-0"



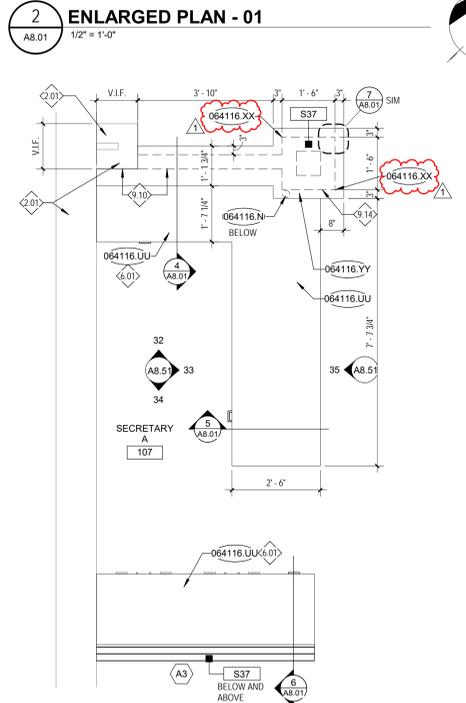
5 DESK SECTION
A8.01 1/2" = 1'-0"



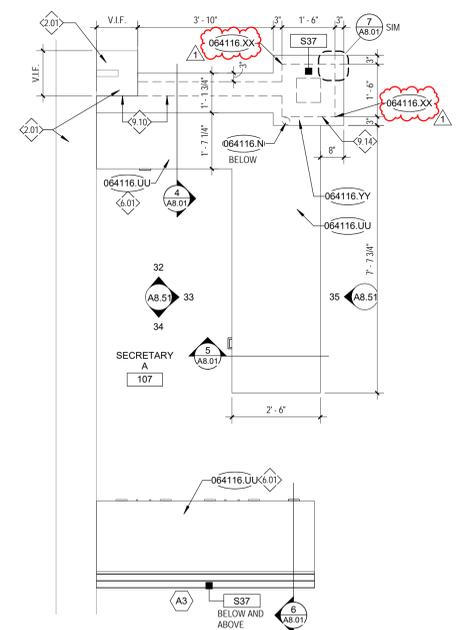
7 TYP. CORNER KEY DETAIL
A8.01 3" = 1'-0"



6 CASEWORK DETAIL
A8.01 1/2" = 1'-0"



2 ENLARGED PLAN - 01
A8.01 1/2" = 1'-0"



3 ENLARGED PLAN - 02
A8.01 1/2" = 1'-0"

KEYNOTES

- 064023.A INTERIOR ARCHITECTURAL WOODWORK
- 064116.KK PLASTIC-LAMINATE SURFACE
- 064116.UU PLASTIC-LAMINATE FACED COUNTERTOP
- 064116.XX MILLWORK CORNER KEY
- 064116.YY SOLID SURFACE
- 064116.ZZ METAL TRIM BASE
- 087100.F BARN DOOR TRACK HANGER HARDWARE
- 088000.F INTERIOR WINDOW FILM
- 096513.A RESILIENT BASE
- 101423.A PANEL SIGNAGE

REFERENCE NOTES

- 2.19 EXISTING COLUMN. PROTECT IN PLACE. FIELD VERIFY EXACT LOCATION.
- 2.20 EXISTING DOOR TO REMAIN. PROTECT IN PLACE.
- 2.34 EXISTING WINDOW. PROTECT IN PLACE.
- 2.35 EXISTING SHELVING TO REMAIN. PAINT P-1.
- 6.01 INCLUDE BACKSPASH
- 8.01 DOOR AS SCHEDULED.
- 8.03 WINDOW FRAME - TYPE AS INDICATED PER FLOOR PLANS AND FRAME TYPES.
- 8.04 NEW STOREFRONT AS INDICATED PER FLOOR PLANS AND FRAME TYPES.
- 9.15 PAINT P-1
- 26.04 LIGHT FIXTURE. SEE ELECTRICAL.

GENERAL NOTES

- 1. RE: ROOM FINISH SCHEDULE AND FINISH FLOOR PLANS FOR MATERIAL AND FINISH INFORMATION.
- 2. FOR CODE AND FIRE INFORMATION, RE: BUILDING INFORMATION SHEET 60.01.
- 3. PROVIDE RIBS AT ALL JOE SPACE OF ALL CABINETS, SIDES OF CABINETS AND ALL KNEE SPACES BELOW CABINETS U.N.O. RE: SPECIFICATION SECTION 9.
- 4. RE: FLOOR PLANS AND DOOR SCHEDULE FOR DOOR AND FRAME TYPES.
- 5. PAINT ALL WALL AND GYPSUM BOARD CEILINGS P-1, U.N.O.

CASEWORK TAG LEGEND

MODIFICATION		INDICATES MODIFIED CABINET
MODEL NUMBER		INDICATES MODEL NUMBER OF AWS CABINET
WIDTH		INDICATES WIDTH OF CABINET, DIMENSIONED FROM OUTSIDE FACE TO OUTSIDE FACE.
DEPTH		INDICATES DEPTH OF CABINET, DIMENSIONED FROM FACE OF WALL TO FACE OF CABINET EXCLUDING CABINET DOOR WHEN DOOR APPLIES
HEIGHT		INDICATES HEIGHT OF CABINET, DIMENSIONED FROM FACE OF FINISHED FLOOR TO TOP OF COUNTERTOP FOR BASE CABINETS AND FROM BOTTOM OF CABINET TO TOP OF CABINET FOR UPPER CABINETS.

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INTERIOR ELEVATIONS

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Revisions:

1	Addendum #1	3/29/19
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Project No: 18027
 Drawn By: LEJH
 Checked By: GAJH
 Date: 3/19/19

Sheet No:
A8.51

