Grant County Washington

TOM GAINES
DIRECTOR

Department of Central Services
264 W division, Ephrata WA, 98823

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x 3276

January 6 2020

REQUEST FOR BIDS
Grant County Residential Treatment Facility Improvements Project
Number CSD 2001gr

SUBMITTAL DEADLINE 3:30 P.M. Local, Thursday January 23th 2020	**SUBMIT** Original plus two (2) copies
DELIVERY BY HAND Grant County Central Services Department C/o- Office of the County Commissioners 2nd floor Courthouse (Annex building) 35 C Street NW, Ephrata, Washington	**DELIVERY BY MAIL** Grant County Central Services Department PO Box 37 / 35 C street NW Ephrata, WA 98823

Bids will be opened in the Grant County Commissioners office located on the 2nd floor of the Courthouse Annex building, 35 C Street NW Ephrata WA 98823 at 3:30 pm Thursday January 23rd, 2020. Administrative questions should be directed to Tom Gaines, Central Services Director, at (509) 754-2011 ext. 3276

Tom Gaines

Tom Gaines,
Director of Central Services

A Mandatory walkthrough is scheduled for January 13th beginning at 10am

1. GENERAL RFB INFORMATION

1.1 RFB Notices and Posting Location

Grant County is statutorily authorized to dispense with public bidding as the County utilizes a state run roster to solicit bids. After the bid opening and a selection is made, the bid opening log and bid information will be posted on Grant County's web site www.grantcountywa.gov. Technical questions and their answers will be posted on Grant County's web site under Central Services. Questions and their answers will be emailed to all as they are updated. Questions that are asked after the deadline for questions regarding the project will not be answered or emailed.

1.1a Note:

It is the responsibility of RFB respondents/vendors to contact the County for any addendums or answers to technical questions.

1.2 Objective of this RFB

The objective of this advertisement is to contract with a qualified firm for the renovation of an existing facility. The current "City view" assisted living facility located at 836 E Plum St, Moses Lake, WA 98837 is unoccupied and will become a "Residential Treatment Facility"

1.3 RFB Organization

The RFB is composed of six (6) sections with 3 appendices, organized as follows:

Section 1: *GENERAL RFP INFORMATION* 1.1 RFB Notices, Posting Location 1.2 Objective of this RFB 1.3 RFB Organization 1.4 RFB Official Contact(s) 1.5 Questions Regarding the RFB 1.6 Bidder Responsibility Criteria (RCW 39.04.350)	Section 2: *BID PREPARATION AND SUBMISSION* 2.1 General Information 2.2 Bid Submittal, Format, Misc. 2.3 Bid Evaluations
Section 3: *VENDOR INFORMATION* 3.1 Signature and Representations 3.2 Warranties	Section 4: *PROJECT REQUIREMENTS AND SCOPE OF WORK* 4.1 General Overview 4.2 Code Requirements 4.3 Completion of Work
Section 5: *PRICE AND PAYMENT PROPOSAL INSTRUCTIONS* 5.1 Fees and Insurance 5.2 Indemnification 5.3 Price Proposal	Section 6*: POST BID SUBMITTALS* 6.1 Claims of Error 6.2 Bid Protests 6.3 Determination of Non-Responsible Bidder
APPENDIX A: Grant County Bid Form APPENDIX B: Location Map	APPENDIX C: Prevailing wage tables as of the date of RFB publication

Plans may be accessed at the following locations
Hermiston Plan Center
Tri-City Construction Council
Lewiston & Clarkston Plan Center
Spokane Regional Plan Center
The Walla Walla Plan Center
Yakima Plan Center
Wenatchee Plan Center
If you are not a member of a plan center you may download them at the following link
https://www.dropbox.com/s/r2xkcoebac7xdqv/18067%20-%2020191022_60963068%20A2BC%20%28approved%20drawing%20set%29.pdf?dl=0

1.4 RFB Official Contact(s)

Upon release of this RFB, all vendor communications must be directed to the RFB Official Contacts listed below. Unauthorized contact regarding this RFB with other County employees may result in disqualification. Any oral communications are discouraged and will be considered unofficial and non-binding on the County. Vendors may only rely upon written statements issued by the appropriate RFB Official Contact:

Tom Gaines
Grant County Central Services Director
csd@grantcountywa.gov
509-754-2011 x 3276

1.5 Questions Regarding the RFB

Vendors who request a clarification of the RFB requirements may submit written questions to the appropriate RFB Official Contact by mail or e-mail. The deadline for receipt of technical questions is **January 17th, 2020, at 5:00 p.m. (PST)**. Questions received and answers to those questions will be sent via email to the original email roster minus any undeliverable addresses from the initial advertisement.

1.6 Bidder Responsibility Criteria (RCW 39.04.350)

A responsive bidder must meet the bidder responsibility criteria as set out in RCW 39.04.350, *Bidder responsibility criteria – Supplemental criteria*:

New Training Requirement for Businesses

Beginning July 1, 2019, all businesses are required to have training before bidding and/or performing work on public works projects. In 2018, the legislature passed ESSHB 1673 (app.leg.wa.gov) adding this training requirement to the responsible bidder criteria in RCW 39.04.350 and RCW 39.06.020 (app.leg.wa.gov).

To see if your company is exempt, select the following link, search for your company either by name or by your UBI. Once found, select your company and open the section labeled “Public Works Requirements” This section will tell you if your company requires training or is exempt.

https://secure.lni.wa.gov/verify/

2. BID PREPARATION AND SUBMISSION

2.1 General Information

2.1a All respondents should read the entire RFB Packet carefully. Failure to comply with instructions may result in a bid being disqualified from consideration by the County.

2.2 Bid Submittal, Format, Misc.

2.2a All bid submittals, consisting of one original and two (2) copies, must be received by the County *via* mail, recognized carrier, or hand delivery no later than 3:30 p.m. (PST) on Thursday January 9th, 2020, as displayed on Grant County's official time/date stamp located in the Office of the Board of County Commissioners. Late bid submittals and/or bid submittals submitted *via* e-mail or facsimile will not be considered.

2.2b All bids must be received by the County in a sealed envelope clearly marked with the project title "Grant County Residential Treatment Facility Improvements Project" project CSD2001gr and be directed to:

Tom Gaines, Director of Central Services
PO Box 37 / 35 C Street NW
Ephrata, WA 98823

2.2c Costs of preparation and presentation of the bid will be borne by the vendor.

2.2d Bids must be typed/computer generated or written in such a manner as to be clearly legible; any bid that contains illegible information and/or dollar amounts subject to interpretation will render the entire bid to be designated "Non-responsive" as it will not allow the County to confidently compare bid prices.

2.2e A cover letter is required, as set forth in *Section 3.1 below*.

2.2f Bids should contain straightforward and concise descriptions of the vendor's capabilities to satisfy the requirements of this RFB Packet. Emphasis should be concentrated on accuracy, completeness, and clarity of content.

2.2g Grant County requires a signed, completed Grant County bid form with each qualifying bid submittal packet. The Grant County *Bid Proposal* form is located in Appendix A.

2.2h Bids must include itemized breakdowns if required of all costs and include all fees (if required).

2.2i Bids must show numerical dollar amounts with decimal and commas (as appropriate). Any required pricing breakdown that indicates "No Bid" or similar wording or is left blank will render the entire bid to be designated "Non-responsive" as it will not allow the County to confidently compare bid prices.

2.2j Mathematical calculations/totals on all bids will be checked by Grant County, and the County has the authority to correct any mathematical errors it identifies. For this reason, bids that appear to be higher or lower than others immediately upon bid opening may not be accurate. Grant County will not post the bid results until after the mathematical verification and totals check has been completed on each bid. Should any mathematical errors in submittals be identified, the County will notify the affected responders and the bid posting will reflect any necessary changes to the bid total(s).

2.2k In the event of a low bid tie between qualifying vendors after verification of mathematical calculations/totals, a random method – such as a coin toss – to determine the low bid will be utilized.

2.2l A request for awarding a contract/agreement to be signed by the qualifying low bidder will be made by Grant County Central Services to the Board of County Commissioners as set forth in Section 2.3a. below.

2.2m This request does not constitute an offer of employment or to contract for services

2.2n The County reserves the option to reject any or all bids, wholly or in part, received by reason of this request

2.2o The County reserves the option to retain all bids, whether selected or rejected. Once submitted, the bids and any supplemental documents become the property of the County.

2.2p All bids shall remain firm for ninety (90) days following the closing date for receipt of proposals.

2.2q Bids without a BID-BOND will be deemed Non-Responsive

2.3 Bid Evaluations

2.3a The County will evaluate bids and determine responsiveness as follows:

Grant County Central Services will perform an initial screening of each bid to determine responsiveness. A bid deemed responsive is one that materially conforms to the instructions/requirements of this RFB Packet, including the bidder meeting the requirements of a responsible bidder pursuant to RCW 39.04.3560 (See Section 1.6 above).

The County reserves the right to reject or accept any bid with immaterial irregularities.

Bid pricing must be itemized and submitted on all required items set forth in Section 4, Project Requirements and Scope of Work, and be completed on The Grant County Bid Proposal form, which serves as Appendix A to this RFB.

Once Grant County has determined that a bid is responsive and mathematical calculations on the bid have been checked and/or corrected pursuant to paragraph 2.2j above, it will be compared to other responsive bid(s). All bids regardless of alternates will be awarded on the "base" bid information.

2.3b The responsible individual/company (pursuant to RCW 39.04.350) with the lowest responsive bid as set forth in this section will be named as the apparent successful bidder and recommended to the Board of County Commissioners for award of the contract.

2.3c Bid Preparation Instructions

Bids must conform to all the requirements of this RFB Packet.

3. VENDOR INFORMATION

Bid submittals shall contain the following information and conform to the following requirements:

3.1 Signature and Representations

All bids must include a cover letter signed by an official of the company authorized to bind the company to the bid and pricing.

3.1a The signed cover letter must contain the following statements, without alteration:

The bid's pricing shall be valid and binding for Ninety (90) days following the RFB response due date and will become part of any contract with the County unless revisions, additions and/or deletions are expressly negotiated.

It is acknowledged that this bid is subject to public disclosure under the Public Records Act and may be released in total as public information in accordance with Washington law. Any and all information believed to be proprietary and exempt from public disclosure has been plainly and clearly marked or otherwise identified.

3.1b Company Information

The cover letter shall include the company name, address, telephone number, federal employer tax number and Washington state business registration number (UBI). Provide the name, title, address and telephone number of the contact person authorized to represent the company and to whom correspondence should be directed.

3.1c Subcontractors

The cover letter shall indicate and specify whether or not subcontractor(s) will be used for any portion of the work, the type of work performed and the name of the sub-contractor

3.2 Warranties

Provide all warranty and exclusion of warranty language for the product(s).

Contractor assumes liability that, in accordance with Washington law, all subcontractors are required to file intents and affidavits for prevailing wage work just as the prime contractor shall do. Furthermore it is understood that five percent (5%) retainage is withheld until a Notice of Completion is accepted by the following agencies with notification given to Grant County: the Washington State Department of Labor & Industries, Employment Securities, and the Department of Revenue. Only after Grant County is notified of this acceptance by all three agencies will the retainage be released.

4. PROJECT REQUIREMENTS AND SCOPE OF WORK

4.1 General Overview

Grant County is planning to upgrade the existing City View facility on the Grant County Integrated Services campus to comply with Washington State DOH requirements for Residential Treatment Facilities. The project consists of converting an existing office into an exam room, replacing of existing finish flooring, and revisions to the emergency power circuiting. The project manual and associated drawings as provided by the Architect have been published as a separate attachments to this RFB and are available by request. Email your request to csd@grantcountywa.gov to have a copy emailed to your chosen address. The drawings are 13mb in size. If your email server does not allow attachments of that size, a Dropbox link may be provided by request.

A mandatory walkthrough is not required.

4.2 Code Requirements – Work performed will be permitted as required through the City of Moses Lake WA, and any authority having jurisdiction. A building permit has been issued and will need to be picked up by the selected Contractor at the City of Moses Lake WA. Any and all other permits as required are the responsibility of the Contractor.

4.3 Completion of Work – Prior to the County's acceptance of the work, the prime contractor must complete and/or ensure that all subcontractor work is completed to finish quality and that all surplus and/or rejected materials and unsightly objects have been removed from the site, properly disposed of, and that all cleanup has been accomplished and the site is of a neat appearance.

5. PRICE AND PAYMENT PROPOSAL INSTRUCTIONS

5.1 Fees and Insurance

5.1a Propose all fixed fees and/or hourly rates of pay, as appropriate, for implementation of services as described within the RFP.

5.1b On the forms included in the Contract Provisions, the Contractor shall furnish a **performance bond,** which guarantees the Contractor's faithful performance of the Contract, and a labor and material **payment bond**, which guarantees the Contractor's payment for all tax's, labor, material, Subcontractors and material and equipment suppliers. Each bond shall have a penal sum in the full amount of the Contract price, including sales tax. The labor and material payment bond shall remain in force until the Contract Completion Date, and for such period of time thereafter during which the law allows claims to be filed and finally resolved by litigation. In addition to securing the faithful performance of all Contractors obligations under the Contract, the performance bond shall remain in force for a period of at least one year after the Substantial Completion Date, with respect to defective workmanship, equipment, and materials, and shall otherwise secure all other obligations of the Contractor throughout all periods of limitation and repose. The Contractor shall be required to provide extended warranties for specific materials or equipment as indicated further in the Contract Provisions. The required performance bond and labor and material payment bond shall each be issued by a corporate surety company acceptable to the Owner and authorized to do business in the state in which the work is located.

5.1c Within five (5) business days after final signatures are obtained on the contract, the individual/agency shall provide the County with a **certificate of liability insurance** naming Grant County and its employees and officers as additionally named insured. Said insurance shall be maintained in full force and effect for the duration of the contract and must be in an amount and format satisfactory to the County. Proof of insurance should be directed to the County's Central Services Coordinator (contact information is located on page 4 of 16).

5.2 Indemnification

The individual/agency shall defend, indemnify and hold harmless the County, its officers and employees from all claims, demands, damages, costs, expenses, judgments, attorney fees, liabilities or other losses that may be asserted by any person or entity, and that arise out of or are made in connection with the acts or omissions relating to the performance of any duty, obligation, or work hereunder. The obligation to indemnify shall be effective and shall extend to all such claims and losses, in their entirety, even when such claims or losses arise from the comparative negligence of the County, its officers and employees. However, this indemnity will not extend to any claims or losses arising out of the sole negligence or willful misconduct of the County, its officers and employees.

It is the intent of the parties to provide the County the fullest indemnification, defense, and "hold harmless" rights allowed under the law. If any word(s) contained within the contract are deemed by a court to be in contravention of applicable law, said word(s) shall be severed from the contract and the remaining language shall be given full force and effect.

The preceding paragraph applies to any theory of recovery relating to said act or omission, by the individual/agency, or its agents, employees, or other independent contractors directly responsible to individual/agency including, but not limited to the following:

5.2a Violation of statute, ordinance, or regulation;

5.2b Willful, intentional or other wrongful acts, or failures to act;

5.2c Negligence or recklessness;

5.2d Furnishing of defective or dangerous products;

5.2e Premises liability;

5.2f Strict Liability;

5.2g Violation of civil rights; and/or

5.2h Violation of any federal or state statute, regulation, or ruling resulting in a determination by the Internal Revenue Service, Washington State Board of Tax Appeals or any other Washington public entity responsible for collecting payroll taxes, when the agency/firm is not an independent contractor.

5.3 Price Proposal

5.3a Payment will be made for all items complete and accepted on the unit or lump sum prices as stated in the proposal and measured and previously stated. The sum of each payment shall be full compensation for all materials, labor, and other costs to the Contractor.

5.3b Contractor is aware that this project is a "public work" as defined by RCW 39.04 and WAC 296-127 and is subject to the prevailing wage laws of the State of Washington. The qualifying low bid Contractor will be required to produce Certified Payroll Records to Grant County or Labor and Industries upon request. A five percent (5%) retainage will be withheld as referenced in Section 3.3.

5.3c A preconstruction meeting between the successful bidder and representatives of Grant County will be required before a Notice to Proceed is issued to discuss planning, safety, and workflow.

5.3d The proposal shall include the cost of all material, labor, engineering, surveying, milling, grading, saw cutting, clean up, maintenance of traffic, hauling, disposal of any and all material removed or installed, mobilization, and all other fees and costs if applicable required to complete this project.

5.3e The contractor shall provide a warranty and the proposal shall describe in detail the duration, terms and conditions of the proposed warranty. The proposal shall include the contractor's complete terms and payment schedule. Grant County will inspect all work.

6. POST BID SUBMITTALS

6.1 Claims of Error

6.1a Any claim of bid error by a respondent that occurs within twenty-four (24) hours of bid opening must be:

1. Submitted in writing;
2. Marked "URGENT";
3. Addressed to the County's Project Manager, Tom Gaines;
4. Delivered to and in the care of the Office of the Board of County Commissioners, located on the 2nd floor of the Grant County Courthouse at 35 C Street NW in Ephrata, Washington;
5. Identify the project bid and date of bid opening; and
6. Request authorization for withdrawal of the bid.

6.1b Grant County will automatically approve, in writing, any such timely and properly reported bid error and request for bid withdrawal it receives. The withdrawn bid will be identified as such in the

County's records and the submitted packet will remain a public record within the County's records pursuant to Washington State's Public Disclosure Act.

6.1c Grant County reserves the right to give consideration to any claim of bid error not meeting the criteria set forth in Section 6.1 paragraph 6.1a if doing so is believed by the County to be in the best interest of the County and the public it serves.

6.2 Bid Protests

The deadline for appealing a determination that a bidder is not responsible as set forth in Section 1.6 above must occur within twenty-four (24) hours of the bid opening and be:

1. Submitted in writing;
2. Marked "URGENT";
3. Addressed to the County's Project Manager, Tom Gaines;
4. Delivered to and in the care of the Office of the Board of County Commissioners, located on the 2nd floor of the Grant County Courthouse at 35 C Street NW in Ephrata, Washington;
5. Identify the project bid and date of bid opening; and
6. Identify the purported non-qualifying bidder and the applicable sections of RCW 39.04.350 which render that bidder non-qualifying.

6.2a Grant County will have three (3) working days to make a determination as to the apparent qualifying low bidder's meeting or not meeting the requirements of RCW 39.04.350 and the reason(s) for the determination.

6.3 Determination of Non-Responsible Bidder

6.3a Should Grant County determine that a bidder does not meet the requirements of a responsible bidder pursuant to RCW 39.04.3560, it will provide, in writing, the reason(s) for the determination. The bidder may appeal the determination within three (3) working days by presenting additional information to Grant County. The County will consider the additional information before issuing its final determination. If the final determination affirms that the bidder is not responsible, the Grant County may not and will not execute a contract with any other bidder until two (2) business days after the bidder determined to be not responsible has received the final determination.

APPENDIX A

Project Name: **Grant County Residential Treatment Facility Renovation** Project No.: **CSD2001gr**

Name of Firm: UBI: _____

GRANT COUNTY CENTRAL SERVICES
35 C STREET NW
EPHRATA WA, 98823
509-754-2011 EXT. 3276

B I D P R O P O S A L

In compliance with the contract documents, the following bid proposal is submitted:

1) TOTAL BID for furnishing all labor, materials, equipment, and all else whatsoever necessary to renovate the City View property as described and outlined in this Request for Bids packet and by the associated documents as described in this document (project manual and project drawings).

$_____
(Do not include Washington State Sales Tax)

Washington State Sales Tax @8.2% $_____

TOTAL

$_____

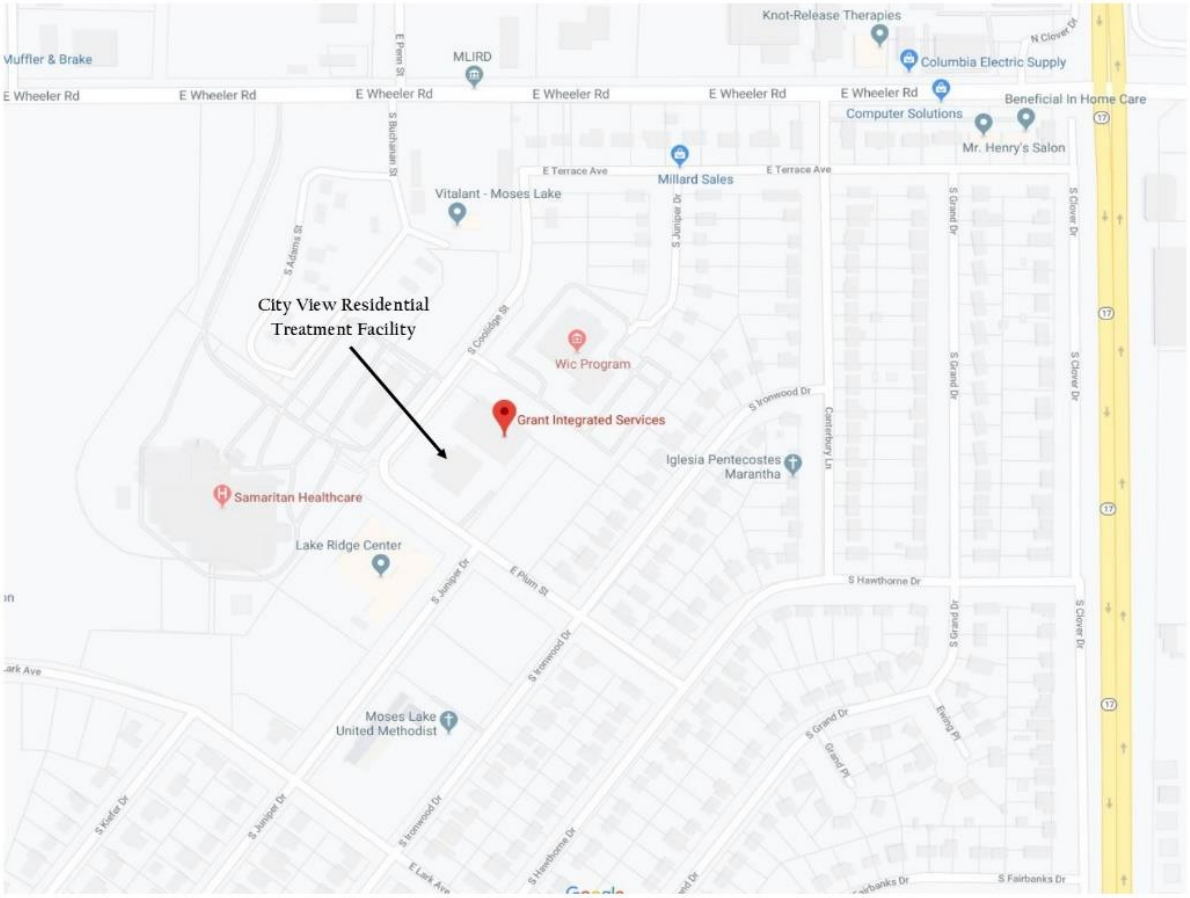
The undersigned Bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date for this Project, the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct

SIGNATURE OF AUTHORIZED REPRESENTATIVE: _____

Grant County reserves the right to accept or reject any or all bid prices within sixty (60) days of the bid date.

APPENDIX "B"
(Location and Map)



APPENDIX C
Prevailing Wage Table

Effective Date: 1/6/2020 Get Wages Download Wages Apprentice Wages **Benefit**

Code Key for 1/6/2020

Note: Select View under *Risk Class to verify workers compensation insurance on your project. Use this tool to find and understand the insurance risk classifications to pay for the trade and occupations you are utilizing on your project. Workers' compensation risk classifications are determined by the nature of your project, nature of business or phase of construction.

County	Trade	Job Classification	Wage	Holiday	Overtime	Note	*Risk Class
Grant	Asbestos Abatement Workers	Journey Level	$41.04	5D	1H		View
Grant	Boilermakers	Journey Level	$69.04	5N	1C		View
Grant	Brick Mason	Journey Level	$50.44	5A	1M		View
Grant	Building Service Employees	Janitor	$13.50		1		View
Grant	Building Service Employees	Shampooer	$13.50		1		View
Grant	Building Service Employees	Waxer	$13.50		1		View
Grant	Building Service Employees	Window Cleaner	$13.50		1		View
Grant	Cabinet Makers (In Shop)	Journey Level	$13.50		1		View
Grant	Carpenters	Acoustical Worker	$47.37	7E	4X	8N	View
Grant	Carpenters	Bridge, Dock & Wharf Carpenter	$48.57	7E	4X	8N	View
Grant	Carpenters	Floor Layer & Floor Finisher	$47.37	7E	4X	8N	View
Grant	Carpenters	Form Builder	$47.37	7E	4X	8N	View
Grant	Carpenters	General Carpenter	$47.37	7E	4X	8N	View
Grant	Carpenters	Heavy Construction Carpenter	$52.35	7E	4X	9E	View
Grant	Carpenters	Scaffold/Shoring Erecting & Dismantling	$52.35	7E	4X	8N	View
Grant	Cement Masons	Journey Level	$45.14	7B	1N		View
Grant	Divers & Tenders	Assistant Tender	$54.54	7E	4X		View
Grant	Divers & Tenders	Dive Supervisors	$100.84	7E	4X		View
Grant	Divers & Tenders	Diver	$99.34	7E	4X	8V	View
Grant	Divers & Tenders	Diver on Standby	$58.11	7E	4X		View
Grant	Divers & Tenders	Diver Tender	$57.11	7E	4X		View
Grant	Divers & Tenders	Diving Master	$67.86	7E	4X		View
Grant	Divers & Tenders	Manifold Operator	$57.11	7E	4X		View
Grant	Divers & Tenders	Manifold Operator Mixed Gas	$61.11	7E	4X		View
Grant	Divers & Tenders	Remote Operated Vehicle Operator	$57.11	7E	4X		View

Grant	Divers & Tenders	Remote Operated Vehicle Tender/Technician	$54.54	7E	4X		View
Grant	Divers & Tenders	Surface RCV & ROV Operator	$57.11	7E	4X		View
Grant	Dredge Workers	Assistant Engineer	$56.44	5D	3F		View
Grant	Dredge Workers	Assistant Mate (Deckhand)	$56.00	5D	3F		View
Grant	Dredge Workers	Boatmen	$56.44	5D	3F		View
Grant	Dredge Workers	Engineer Welder	$57.51	5D	3F		View
Grant	Dredge Workers	Leverman, Hydraulic	$58.67	5D	3F		View
Grant	Dredge Workers	Mates	$56.44	5D	3F		View
Grant	Dredge Workers	Oiler	$56.00	5D	3F		View
Grant	Drywall Applicator	Journey Level	$47.37	7E	4X	8N	View
Grant	Drywall Tapers	Journey Level	$42.54	7E	1P		View
Grant	Electrical Fixture Maintenance Workers	Journey Level	$24.88		1		View
Grant	Electricians - Inside	Cable Splicer	$72.98	7H	1E		View
Grant	Electricians - Inside	Construction Stock Person	$36.47	7H	1D		View
Grant	Electricians - Inside	Journey Level	$68.42	7H	1E		View
Grant	Electricians - Motor Shop	Craftsman	$15.37		1		View
Grant	Electricians - Motor Shop	Journey Level	$14.69		1		View
Grant	Electricians - Powerline Construction	Cable Splicer	$79.60	5A	4D		View
Grant	Electricians - Powerline Construction	Certified Line Welder	$72.98	5A	4D		View
Grant	Electricians - Powerline Construction	Groundperson	$47.94	5A	4D		View
Grant	Electricians - Powerline Construction	Heavy Line Equipment Operator	$72.98	5A	4D		View
Grant	Electricians - Powerline Construction	Journey Level Lineperson	$72.98	5A	4D		View
Grant	Electricians - Powerline Construction	Line Equipment Operator	$62.06	5A	4D		View
Grant	Electricians - Powerline Construction	Meter Installer	$47.94	5A	4D	8W	View
Grant	Electricians - Powerline Construction	Pole Sprayer	$72.98	5A	4D		View
Grant	Electricians - Powerline Construction	Powderperson	$54.55	5A	4D		View
Grant	Electronic Technicians	Electronic Technicians Journey Level	$45.23	5B	1B		View
Grant	Elevator Constructors	Mechanic	$94.22	7D	4A		View
Grant	Elevator Constructors	Mechanic In Charge	$101.73	7D	4A		View

Grant	Fabricated Precast Concrete Products	Journey Level	$13.50		1		View
Grant	Fabricated Precast Concrete Products	Journey Level - In-Factory Work Only	$13.50		1		View
Grant	Fence Erectors	Fence Erector	$41.04	7B	1M	8Z	View
Grant	Fence Erectors	Fence Erector	$41.04	7B	1M	8Z	View
Grant	Flaggers	Journey Level	$38.94	7B	1M	8Z	View
Grant	Glaziers	Journey Level	$31.59	7L	4L		View
Grant	Heat & Frost Insulators And Asbestos Workers	Journey Level	$51.04	5K	1U		View
Grant	Heating Equipment Mechanics	Journey Level	$56.61	6Z	1B		View
Grant	Hod Carriers & Mason Tenders	Journey Level	$40.85	7B	1M	8Z	View
Grant	Industrial Power Vacuum Cleaner	Journey Level	$13.50		1		View
Grant	Inland Boatmen	Journey Level	$13.50		1		View
Grant	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	$13.50		1		View
Grant	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	$13.50		1		View
Grant	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$13.50		1		View
Grant	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$13.50		1		View
Grant	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	$13.50		1		View
Grant	Insulation Applicators	Journey Level	$47.37	7E	4X	8N	View
Grant	Ironworkers	Journeyman	$63.06	7N	1O		View
Grant	Laborers	Air And Hydraulic Track Drill	$41.58	7B	1M	8Z	View
Grant	Laborers	Asphalt Raker	$41.58	7B	1M	8Z	View
Grant	Laborers	Asphalt Roller, Walking	$41.31	7B	1M	8Z	View
Grant	Laborers	Brick Pavers	$41.04	7B	1M	8Z	View
Grant	Laborers	Brush Hog Feeder	$41.04	7B	1M	8Z	View
Grant	Laborers	Brush Machine	$41.58	7B	1M	8Z	View
Grant	Laborers	Caisson Worker, Free Air	$41.58	7B	1M	8Z	View
Grant	Laborers	Carpenter Tender	$41.04	7B	1M	8Z	View
Grant	Laborers	Cement Finisher Tender	$41.31	7B	1M	8Z	View
Grant	Laborers	Cement Handler	$41.04	7B	1M	8Z	View

Grant	Laborers	Chain Saw Operator & Faller	$41.58	7B	1M	8Z	View
Grant	Laborers	Clean-up Laborer	$41.04	7B	1M	8Z	View
Grant	Laborers	Compaction Equipment	$41.31	7B	1M	8Z	View
Grant	Laborers	Concrete Crewman	$41.04	7B	1M	8Z	View
Grant	Laborers	Concrete Saw, Walking	$41.31	7B	1M	8Z	View
Grant	Laborers	Concrete Signalman	$41.04	7B	1M	8Z	View
Grant	Laborers	Concrete Stack	$41.58	7B	1M	8Z	View
Grant	Laborers	Confined Space Attendant	$41.04	7B	1M	8Z	View
Grant	Laborers	Crusher Feeder	$41.04	7B	1M	8Z	View
Grant	Laborers	Demolition	$41.04	7B	1M	8Z	View
Grant	Laborers	Demolition Torch	$41.31	7B	1M	8Z	View
Grant	Laborers	Dope Pot Fireman, Non-mechanical	$41.31	7B	1M	8Z	View
Grant	Laborers	Driller Helper (when Required To Move & Position Machine)	$41.31	7B	1M	8Z	View
Grant	Laborers	Drills With Dual Masts	$41.86	7B	1M	8Z	View
Grant	Laborers	Dry Stack Walls	$41.04	7B	1M	8Z	View
Grant	Laborers	Dumpman	$41.04	7B	1M	8Z	View
Grant	Laborers	Erosion Control Laborer	$41.04	7B	1M	8Z	View
Grant	Laborers	Final Detail Cleanup (i.e, Dusting, Vacuuming, Window Cleaning; Not Construction Debris Cleanup)	$38.94	7B	1M	8Z	View
Grant	Laborers	Firewatch	$41.04	7B	1M	8Z	View
Grant	Laborers	Form Cleaning Machine Feeder, Stacker	$41.04	7B	1M	8Z	View
Grant	Laborers	Form Setter, Paving	$41.31	7B	1M	8Z	View
Grant	Laborers	General Laborer	$41.04	7B	1M	8Z	View
Grant	Laborers	Grade Checker	$43.57	7B	1M	8Z	View
Grant	Laborers	Grout Machine Header Tender	$41.04	7B	1M	8Z	View
Grant	Laborers	Guard Rail	$41.04	7B	1M	8Z	View
Grant	Laborers	Gunite	$41.58	7B	1M	8Z	View
Grant	Laborers	Hazardous Waste Worker (level A)	$41.86	7B	1M	8Z	View
Grant	Laborers	Hazardous Waste Worker (level B)	$41.58	7B	1M	8Z	View
Grant	Laborers	Hazardous Waste Worker (level C)	$41.31	7B	1M	8Z	View
Grant	Laborers	Hazardous Waste Worker (level D)	$41.04	7B	1M	8Z	View

Grant	Laborers	Hdpe Or Similar Liner Installer	$41.04	7B	1M	8Z	View
Grant	Laborers	High Scaler	$41.58	7B	1M	8Z	View
Grant	Laborers	Jackhammer Operator Miner, Class "b"	$41.31	7B	1M	8Z	View
Grant	Laborers	Laser Beam Operator	$41.58	7B	1M	8Z	View
Grant	Laborers	Miner, Class "a"	$41.04	7B	1M	8Z	View
Grant	Laborers	Miner, Class "c"	$41.58	7B	1M	8Z	View
Grant	Laborers	Miner, Class "d"	$41.86	7B	1M	8Z	View
Grant	Laborers	Monitor Operator, Air Track Or Similar Mounting	$41.58	7B	1M	8Z	View
Grant	Laborers	Mortar Mixer	$41.58	7B	1M	8Z	View
Grant	Laborers	Nipper	$41.04	7B	1M	8Z	View
Grant	Laborers	Nozzleman	$41.58	7B	1M	8Z	View
Grant	Laborers	Nozzleman, Water (to Include Fire Hose), Air Or Steam	$41.31	7B	1M	8Z	View
Grant	Laborers	Pavement Breaker, 90 Lbs. & Over	$41.58	7B	1M	8Z	View
Grant	Laborers	Pavement Breaker, Under 90 Lbs.	$41.31	7B	1M	8Z	View
Grant	Laborers	Pipelayer	$41.58	7B	1M	8Z	View
Grant	Laborers	Pipelayer, Corrugated Metal Culvert And Multi-plate.	$41.31	7B	1M	8Z	View
Grant	Laborers	Pipewrapper	$41.58	7B	1M	8Z	View
Grant	Laborers	Plasterer Tenders	$41.58	7B	1M	8Z	View
Grant	Laborers	Pot Tender	$41.31	7B	1M	8Z	View
Grant	Laborers	Powderman	$43.23	7B	1M	8Z	View
Grant	Laborers	Powederman Helper	$41.31	7B	1M	8Z	View
Grant	Laborers	Power Buggy Operator	$41.31	7B	1M	8Z	View
Grant	Laborers	Power Tool Operator, Gas, Electric, Pneumatic	$41.31	7B	1M	8Z	View
Grant	Laborers	Railroad Equipment, Power Driven, Except Dual Mobile	$41.31	7B	1M	8Z	View
Grant	Laborers	Railroad Power Spiker Or Puller, Dual Mobile	$41.31	7B	1M	8Z	View
Grant	Laborers	Remote Equipment Operator	$41.86	7B	1M	8Z	View
Grant	Laborers	Remote Equipment Operator (i.e Compaction And Demolition)	$41.31	7B	1M	8Z	View
Grant	Laborers	Rigger/signal Person	$41.31	7B	1M	8Z	View

Grant	Laborers	Riprap Person	$41.04	7B	1M	8Z	View
Grant	Laborers	Rodder & Spreader	$41.31	7B	1M	8Z	View
Grant	Laborers	Sandblast Tailhoseman	$41.04	7B	1M	8Z	View
Grant	Laborers	Scaffold Erector, Wood Or Steel	$41.04	7B	1M	8Z	View
Grant	Laborers	Stake Jumper	$41.04	7B	1M	8Z	View
Grant	Laborers	Structural Mover	$41.04	7B	1M	8Z	View
Grant	Laborers	Tailhoseman (water Nozzle)	$41.04	7B	1M	8Z	View
Grant	Laborers	Timber Bucker & Faller (by Hand)	$41.04	7B	1M	8Z	View
Grant	Laborers	Track Laborer (rr)	$41.04	7B	1M	8Z	View
Grant	Laborers	Traffic Control Laborer	$38.94	7B	1M	9D	View
Grant	Laborers	Traffic Control Supervisor	$39.94	7B	1M	9E	View
Grant	Laborers	Trencher, Shawnee	$41.31	7B	1M	8Z	View
Grant	Laborers	Trenchless Technology Technician	$41.58	7B	1M	8Z	View
Grant	Laborers	Truck Loader	$41.04	7B	1M	8Z	View
Grant	Laborers	Tugger Operator	$41.31	7B	1M	8Z	View
Grant	Laborers	Vibrators, All	$41.58	7B	1M	8Z	View
Grant	Laborers	Wagon Drills	$41.31	7B	1M	8Z	View
Grant	Laborers	Water Pipe Liner	$41.31	7B	1M	8Z	View
Grant	Laborers	Welder, Electrical, Manual Or Automatic (hdpe Or Similar Pipe And Liner)	$41.86	7B	1M	8Z	View
Grant	Laborers	Well-point Person	$41.04	7B	1M	8Z	View
Grant	Laborers	Wheelbarrow, Power Driven	$41.31	7B	1M	8Z	View
Grant	Laborers - Underground Sewer & Water	General Laborer & Topman	$41.04	7B	1M	8Z	View
Grant	Laborers - Underground Sewer & Water	Pipe Layer	$41.58	7B	1M	8Z	View
Grant	Landscape Construction	Landscape Laborer	$38.94	7B	1M	9D	View
Grant	Landscape Construction	Landscape Operator	$46.85	7B	4W	9A	View
Grant	Landscape Maintenance	Groundskeeper	$13.50		1		View
Grant	Lathers	Journey Level	$47.37	7E	4X	8N	View
Grant	Marble Setters	Journey Level	$50.44	5A	1M		View
Grant	Metal Fabrication (In Shop)	Fitter	$13.50		1		View
Grant	Metal Fabrication (In Shop)	Painter	$13.50		1		View
Grant	Metal Fabrication (In Shop)	Welder	$13.50		1		View
Grant	Millwright	Journey Level	$66.83	7E	4X	8N	View
Grant	Modular Buildings	Journey Level	$13.50		1		View

Grant	Painters	Commercial Painter	$36.87	6Z	1W		View
Grant	Painters	Industrial Painter	$40.27	6Z	1W	9D	View
Grant	Pile Driver	General Pile Driver	$48.57	7E	4X	8N	View
Grant	Pile Driver	Heavy Construction Pile Driver	$53.54	7E	4X	9E	View
Grant	Plasterers	Journey Level	$42.88	7K	1N		View
Grant	Playground & Park Equipment Installers	Journey Level	$13.50		1		View
Grant	Plumbers & Pipefitters	Journey Level	$82.94	6Z	1Q		View
Grant	Power Equipment Operators	A-frame Truck (2 Or More Drums)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	A-frame Truck (single Drum)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Asphalt Plant Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Assistant Plant Operator, Fireman Or Pugmixer (asphalt)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Assistant Refrigeration Plant & Chiller Operator (over 1000 Ton)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Assistant Refrigeration Plant (under 1000 Ton)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Automatic Subgrader (ditches & Trimmers)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Backfillers (cleveland & Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Backhoe & Hoe Ram (under 3/4 Yd.)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Backhoe (45,000 Gw & Under)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Backhoe (45,000 Gw To 110,000 Gw)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Backhoe (over 110,000 Gw)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Backhoes & Hoe Ram (3 Yds & Over)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Backhoes & Hoe Ram (3/4 Yd. To 3 Yd.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Bagley Or Stationary Scraper	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Batch & Wet Mix Operator (multiple Units, 2 & Incl. 4)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Batch Plant & Wet Mix Operator, Single Unit (concrete)	$46.69	7B	4W	9A	View

Grant	Power Equipment Operators	Batch Plant (over 4 Units)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Belt Finishing Machine	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Belt Loader (kocal Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Belt-crete Conveyors With Power Pack Or Similar	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Bending Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Bit Grinders	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Blade (finish & Bluetop), Automatic, Cmi, Abc, Finish Athey & Huber & Similar When Used As Automatic	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Blade Operator (motor Patrol & Attachments)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Blower Operator (cement)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Boat Operator	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Bob Cat (skid Steer)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Bolt Threading Machine	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Boom Cats (side)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Boring Machine (earth)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Boring Machine (Rock Under 8 inch Bit - Quarry Master, Joy Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Boring Machine (Rock Under 8" Bit - Quarry Master, Joy Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Boring Machine (rock Under 8" Bit) (quarry Master, Joy Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Bump Cutter (wayne, Saginau Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Cableway Controller (dispatcher)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Cableway Operators	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Canal Lining Machine (concrete)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Carrydeck & Boom Truck (under 25 Tons)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Cement Hog	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Chipper (without Crane) Cleaning & Doping Machine (pipeline)	$46.69	7B	4W	9A	View

Grant	Power Equipment Operators	Clamshell, Dragline	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators	Compactor (self-propelled With Blade)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Compressor (2000 Cfm Or Over, 2 Or More, Gas Diesel Or Electric Power)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Compressors (under 2000 Cfm, Gas, Diesel Or Electric Power)	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Concrete Cleaning / Decontamination Machine Operator	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Concrete Pump Boon Truck	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Concrete Pumps (squeeze-crete, Flow-crete, Whitman & Similar)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Concrete Saw (multiple Cut)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Concrete Slip Form Paver	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Conveyor Aggregate Delivery Systems (c.a.d.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Crane Oiler- Driver (cdl Required) & Cable Tender, Mucking Machine	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Cranes (100 to 299 Tons) And All Climbing, Overhead, Rail & Tower. All Attachments Incl.	$49.16	7B	4W	9A	View
Grant	Power Equipment Operators	Cranes (25 Tons & Under), All Attachments Incl. Clamshell, Dragline	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Cranes (25 Tons To And Including 45 Tons), All Attachments Incl. Clamshell, Dragline	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Cranes (300 Tons and Over) And All Climbing, Overhead, Rail & Tower. All Attachments Incl.	$49.66	7B	4W	9A	View
Grant	Power Equipment Operators	Cranes (45 Tons To 85 Tons), All Attachments Incl. Clamshell And Dragline	$47.56	7B	4W	9A	View

Grant	Power Equipment Operators	Cranes (86 to 99 Tons) And All Climbing, Overhead, Rail & Tower. All Attachments Incl.	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators	Crusher Feeder	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Crusher, Grizzle & Screening Plant Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Curb Extruder (asphalt Or Concrete)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Deck Engineer	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Deck Hand	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Derricks & Stifflegs (65 Tons & Over)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Derricks & Stifflegs (under 65 Tons)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Distributor Leverman	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Ditch Witch Or Similar	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Dope Pots (power Agitated	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Dozer / Tractor (up To D-6 Or Equivalent) And Traxcavator	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Dozer / Tractors (d-6 & Equivalent & Over)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Dozer, 834 R/t & Similar	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Drill Doctor	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Driller Licensed	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators	Drillers Helper	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Drilling Equipment (8 inch Bit & Over - Robbins, Reverse Circulation & Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Drilling Equipment (8" Bit & Over - Robbins, Reverse Circulation & Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Drilling Equipment (8" Bit & Over) (robbins, Reverse Circulation & Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Drills (churn, Core, Calyx Or Diamond)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Elevating Belt (holland Type)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Elevating Belt-type Loader (euclid, Barber Green & Similar)	$46.69	7B	4W	9A	View

Grant	Power Equipment Operators	Elevating Grader-type Loader (dumor, Adams Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Elevator Hoisting Materials	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Equipment Serviceman, Greaser & Oiler	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Fireman & Heater Tender	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Fork Lift Or Lumber Stacker, Hydra-life & Similar	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Generator Plant Engineers (diesel Or Electric)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Gin Trucks (pipeline)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Grade Checker	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Gunite Combination Mixer & Compressor	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	H.d. Mechanic	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	H.d. Welder	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Heavy Equipment Robotics Operator	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Helicopter Pilot	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators	Helper, Mechanic Or Welder, H.D	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Hoe Ram	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Hoist (2 Or More Drums Or Tower Hoist)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Hoist, Single Drum	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Hydraulic Platform Trailers (goldhofer, Shaurerly And Similar)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Hydro-seeder, Mulcher, Nozzleman	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Lime Batch Tank Operator (recycle Train)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Lime Brain Operator (recycle Train)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Loader (360 Degrees Revolving Koehring Scooper Or Similar)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Loader Operator (front-end & Overhead, 4 Yds. Incl. 8 Yds.)	$47.29	7B	4W	9A	View

Grant	Power Equipment Operators	Loaders (bucket Elevators And Conveyors)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Loaders (overhead & Front-end, Over 8 Yds. To 10 Yds.)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Loaders (overhead & Front-end, Under 4 Yds.. R/t)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Loaders (overhead And Front-end, 10 Yds. & Over)	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators	Locomotive Engineer	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Longitudinal Float	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Master Environmental Maintenance Technician	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Mixer (portable - Concrete)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Mixermobile	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Mobile Crusher Operator (recycle Train)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Mucking Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Multiple Dozer Units With Single Blade	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Pavement Breaker, Hydra-hammer & Similar	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Paving (dual Drum)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Paving Machine (asphalt And Concrete)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Piledriving Engineers	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Plant Oiler	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Posthole Auger Or Punch	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Power Broom	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Pump (grout Or Jet)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Pumpman	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Quad-track Or Similar Equipment	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Railroad Ballast Regulation Operator (self-propelled)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Railroad Power Tamper Operator (self-propelled)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Railroad Tamper Jack Operator (self-propelled)	$46.08	7B	4W	9A	View

Grant	Power Equipment Operators	Railroad Track Liner Operator (self-propelled)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Refrigeration Plant Engineer (1000 Tons & Over)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Refrigeration Plant Engineer (under 1000 Ton)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Rollerman (finishing Asphalt Pavement)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Rollers, All Types On Subgrade, Including Seal And Chip Coating (farm Type, Case, John Deere And Similar,or Compacting Vibrator), Except When Pulled B	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Roto Mill (pavement Grinder)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Rotomill Groundsman	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Rubber-tired Scrapers (multiple Engine With Three Or More Scrapers)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Rubber-tired Skidders (r/t With Or Without Attachments)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Scrapers, All, Rubber-tired	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Screed Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Shovels (3 Yds. & Over)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Shovels (under 3 Yds.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Signalman (whirleys, Highline, Hammerheads Or Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators	Soil Stabilizer (p & H Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Spray Curing Machine (concrete)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Spreader Box (self-propelled)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Spreader Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Steam Cleaner	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Straddle Buggy (ross & Similar On Construction Job Only)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Surface Heater & Planer Machine	$46.85	7B	4W	9A	View

Grant	Power Equipment Operators	Tractor (farm Type R/t With Attachments, Except Backhoe)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Traverse Finish Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Trenching Machines (7 Ft. Depth & Over)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Trenching Machines (under 7 Ft. Depth Capacity)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Tug Boat Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Tugger Operator	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators	Turnhead (with Re-screening)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Turnhead Operator	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators	Ultra High Pressure Wateriet Cutting Tool System Operator, (30,000 Psi)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Vactor Guzzler, Super Sucker	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators	Vacuum Blasting Machine Operator	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators	Vacuum Drill (reverse Circulation Drill Under 8" Bit)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators	Welding Machine	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators	Whirleys & Hammerheads, All	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	A-frame Truck (2 Or More Drums)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	A-frame Truck (single Drum)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Assistant Plant Operator, Fireman Or Pugmixer (asphalt)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Assistant Refrigeration Plant & Chiller Operator (over 1000 Ton)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Assistant Refrigeration Plant (under 1000 Ton)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Automatic Subgrader (ditches & Trimmers)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Backfillers (cleveland & Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Backhoe & Hoe Ram (under 3/4 Yd.)	$47.01	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Backhoe (45,000 Gw & Under)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Backhoe (45,000 Gw To 110,000 Gw)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Backhoe (over 110,000 Gw)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Backhoes & Hoe Ram (3 Yds & Over)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Backhoes & Hoe Ram (3/4 Yd. To 3 Yd.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Bagley Or Stationary Scraper	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Batch & Wet Mix Operator (multiple Units, 2 & Incl. 4)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Batch Plant & Wet Mix Operator, Single Unit (concrete)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Batch Plant (over 4 Units)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Belt Finishing Machine	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Belt Loader (kocal Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Belt-crete Conveyors With Power Pack Or Similar	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Bending Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Bit Grinders	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Blade (finish & Bluetop), Automatic, Cmi, Abc, Finish Athey & Huber & Similar When Used As Automatic	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Blade Operator (motor Patrol & Attachments)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Blower Operator (cement)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Boat Operator	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Bob Cat (skid Steer)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Bolt Threading Machine	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Boom Cats (side)	$47.29	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Boring Machine (earth)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Boring Machine (Rock Under 8 inch Bit - Quarry Master, Joy Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Boring Machine (Rock Under 8" Bit - Quarry Master, Joy Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Boring Machine (rock Under 8" Bit) (quarry Master, Joy Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Bump Cutter (wayne, Saginau Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cableway Controller (dispatcher)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cableway Operators	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Canal Lining Machine (concrete)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Carrydeck & Boom Truck (under 25 Tons)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cement Hog	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Chipper (without Crane) Cleaning & Doping Machine (pipeline)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Clamshell, Dragline	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Compactor (self-propelled With Blade)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Compressor (2000 Cfm Or Over, 2 Or More, Gas Diesel Or Electric Power)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Compressors (under 2000 Cfm, Gas, Diesel Or Electric Power)	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Concrete Cleaning / Decontamination Machine Operator	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Concrete Pump Boon Truck	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Concrete Pumps (squeeze-crete, Flow-crete, Whitman & Similar)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Concrete Saw (multiple Cut)	$46.08	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Concrete Slip Form Paver	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Conveyor Aggregate Delivery Systems (c.a.d.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Crane Oiler- Driver (cdl Required) & Cable Tender, Mucking Machine	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cranes (100 to 299 Tons) And All Climbing, Overhead, Rail & Tower. All Attachments Incl.	$49.16	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cranes (25 Tons & Under), All Attachments Incl. Clamshell, Dragline	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cranes (25 Tons To And Including 45 Tons), All Attachments Incl. Clamshell, Dragline	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cranes (300 Tons and Over) And All Climbing, Overhead, Rail & Tower. All Attachments Incl.	$49.66	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cranes (45 Tons To 85 Tons), All Attachments Incl. Clamshell And Dragline	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Cranes (86 to 99 Tons) And All Climbing, Overhead, Rail & Tower. All Attachments Incl.	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Crusher Feeder	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Crusher, Grizzle & Screening Plant Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Curb Extruder (asphalt Or Concrete)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Deck Engineer	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Deck Hand	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Derricks & Stifflegs (65 Tons & Over)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Derricks & Stifflegs (under 65 Tons)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Distributor Leverman	$46.08	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Ditch Witch Or Similar	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Dope Pots (power Agitated	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Dozer / Tractor (up To D-6 Or Equivalent) And Traxcavator	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Dozer / Tractors (d-6 & Equivalent & Over)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Dozer, 834 R/t & Similar	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Drill Doctor	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Driller Licensed	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Drillers Helper	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Drilling Equipment (8 inch Bit & Over - Robbins, Reverse Circulation & Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Drilling Equipment (8" Bit & Over - Robbins, Reverse Circulation & Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Drilling Equipment (8" Bit & Over) (robbins, Reverse Circulation & Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Drills (churn, Core, Calyx Or Diamond)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Elevating Belt (holland Type)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Elevating Belt-type Loader (euclid, Barber Green & Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Elevating Grader-type Loader (dumor, Adams Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Elevator Hoisting Materials	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Equipment Serviceman, Greaser & Oiler	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Fireman & Heater Tender	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Fork Lift Or Lumber Stacker, Hydra-life & Similar	$46.08	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Generator Plant Engineers (diesel Or Electric)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Gin Trucks (pipeline)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Grade Checker	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Gunite Combination Mixer & Compressor	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	H.d. Mechanic	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	H.d. Welder	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Heavy Equipment Robotics Operator	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Helicopter Pilot	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Helper, Mechanic Or Welder, H.D	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Hoe Ram	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Hoist (2 Or More Drums Or Tower Hoist)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Hoist, Single Drum	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Hydraulic Platform Trailers (goldhofer, Shaurerly And Similar)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Hydro-seeder, Mulcher, Nozzleman	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Lime Batch Tank Operator (recycle Train)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Lime Brain Operator (recycle Train)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Loader (360 Degrees Revolving Koehring Scooper Or Similar)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Loader Operator (front-end & Overhead, 4 Yds. Incl. 8 Yds.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Loaders (bucket Elevators And Conveyors)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Loaders (overhead & Front-end, Over 8 Yds. To 10 Yds.)	$47.56	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Loaders (overhead & Front-end, Under 4 Yds.. R/t)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Loaders (overhead And Front-end, 10 Yds. & Over)	$48.66	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Locomotive Engineer	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Longitudinal Float	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Master Environmental Maintenance Technician	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Mixer (portable - Concrete)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Mixermobile	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Mobile Crusher Operator (recycle Train)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Mucking Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Multiple Dozer Units With Single Blade	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker, Hydra-hammer & Similar	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Paving (dual Drum)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Paving Machine (asphalt And Concrete)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Piledriving Engineers	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Plant Oiler	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Posthole Auger Or Punch	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Power Broom	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Pump (grout Or Jet)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Pumpman	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Quad-track Or Similar Equipment	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Railroad Ballast Regulation Operator (self-propelled)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Railroad Power Tamper Operator (self-propelled)	$46.08	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Railroad Tamper Jack Operator (self-propelled)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Railroad Track Liner Operator (self-propelled)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Refrigeration Plant Engineer (1000 Tons & Over)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Refrigeration Plant Engineer (under 1000 Ton)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Rollerman (finishing Asphalt Pavement)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Rollers, All Types On Subgrade, Including Seal And Chip Coating (farm Type, Case, John Deere And Similar,or Compacting Vibrator), Except When Pulled B	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Roto Mill (pavement Grinder)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Rotomill Groundsman	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Rubber-tired Scrapers (multiple Engine With Three Or More Scrapers)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Rubber-tired Skidders (r/t With Or Without Attachments)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Scrapers, All, Rubber-tired	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Screed Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Shovels (3 Yds. & Over)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Shovels (under 3 Yds.)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Signalman (whirleys, Highline, Hammerheads Or Similar)	$47.01	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Soil Stabilizer (p & H Or Similar)	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Spray Curing Machine (concrete)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Spreader Box (self-propelled)	$46.08	7B	4W	9A	View

Grant	Power Equipment Operators-Underground Sewer & Water	Spreader Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Steam Cleaner	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Straddle Buggy (ross & Similar On Construction Job Only)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Surface Heater & Planer Machine	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Tractor (farm Type R/t With Attachments, Except Backhoe)	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Traverse Finish Machine	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Trenching Machines (7 Ft. Depth & Over)	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Trenching Machines (under 7 Ft. Depth Capacity)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Tug Boat Operator	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Tugger Operator	$46.08	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Turnhead (with Re-screening)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Turnhead Operator	$46.69	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Ultra High Pressure Wateriet Cutting Tool System Operator, (30,000 Psi)	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Vactor Guzzler, Super Sucker	$47.29	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Vacuum Blasting Machine Operator	$47.56	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Vacuum Drill (reverse Circulation Drill Under 8" Bit)	$46.85	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Welding Machine	$45.76	7B	4W	9A	View
Grant	Power Equipment Operators-Underground Sewer & Water	Whirleys & Hammerheads, All	$47.56	7B	4W	9A	View
Grant	Power Line Clearance Tree Trimmers	Journey Level In Charge	$50.96	5A	4A		View
Grant	Power Line Clearance Tree Trimmers	Spray Person	$48.35	5A	4A		View
Grant	Power Line Clearance Tree Trimmers	Tree Equipment Operator	$50.96	5A	4A		View

Grant	Power Line Clearance Tree Trimmers	Tree Trimmer	$45.54	5A	4A		View
Grant	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	$34.51	5A	4A		View
Grant	Refrigeration & Air Conditioning Mechanics	Journey Level	$82.94	6Z	1Q		View
Grant	Residential Brick Mason	Journey Level	$50.44	5A	1M		View
Grant	Residential Carpenters	Journey Level	$15.75		1		View
Grant	Residential Cement Masons	Journey Level	$14.86		1		View
Grant	Residential Drywall Applicators	Journey Level	$22.60		1		View
Grant	Residential Drywall Tapers	Journey Level	$18.09		1		View
Grant	Residential Electricians	Journey Level	$29.65		1		View
Grant	Residential Glaziers	Journey Level	$17.83		1		View
Grant	Residential Insulation Applicators	Journey Level	$14.86		1		View
Grant	Residential Laborers	Journey Level	$13.50		1		View
Grant	Residential Marble Setters	Journey Level	$50.44	5A	1M		View
Grant	Residential Painters	Journey Level	$15.37		1		View
Grant	Residential Plumbers & Pipefitters	Journey Level	$24.06		1		View
Grant	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	$24.06		1		View
Grant	Residential Sheet Metal Workers	Journey Level	$34.27		1		View
Grant	Residential Soft Floor Layers	Journey Level	$29.42		1		View
Grant	Residential Sprinkler Fitters (Fire Protection)	Journey Level	$19.14		1		View
Grant	Residential Stone Masons	Journey Level	$50.44	5A	1M		View
Grant	Residential Terrazzo Workers	Journey Level	$14.86		1		View
Grant	Residential Terrazzo/Tile Finishers	Journey Level	$21.96		1		View
Grant	Residential Tile Setters	Journey Level	$14.86		1		View
Grant	Roofers	Journey Level	$41.09	5I	1R		View
Grant	Roofers	Using Irritable Bituminous Materials	$43.09	5I	1R		View
Grant	Sheet Metal Workers	Journey Level (Field or Shop)	$56.61	6Z	1B		View
Grant	Sign Makers & Installers (Electrical)	Journey Level	$75.25	7F	1E		View
Grant	Sign Makers & Installers (Non-Electrical)	Journey Level	$14.65		1		View
Grant	Soft Floor Layers	Journey Level	$22.77		1		View
Grant	Solar Controls For Windows	Journey Level	$13.50		1		View

Grant	Sprinkler Fitters (Fire Protection)	Journey Level	$56.82	7J	1R		View
Grant	Stage Rigging Mechanics (Non Structural)	Journey Level	$13.50		1		View
Grant	Stone Masons	Journey Level	$50.44	5A	1M		View
Grant	Street And Parking Lot Sweeper Workers	Journey Level	$14.00		1		View
Grant	Surveyors	All Classifications	$28.57	0	1		View
Grant	Telecommunication Technicians	Telecom Technician Journey Level	$45.23	5B	1B		View
Grant	Telephone Line Construction - Outside	Cable Splicer	$41.81	5A	2B		View
Grant	Telephone Line Construction - Outside	Hole Digger/Ground Person	$23.53	5A	2B		View
Grant	Telephone Line Construction - Outside	Installer (Repairer)	$40.09	5A	2B		View
Grant	Telephone Line Construction - Outside	Special Aparatus Installer I	$41.81	5A	2B		View
Grant	Telephone Line Construction - Outside	Special Apparatus Installer II	$40.99	5A	2B		View
Grant	Telephone Line Construction - Outside	Telephone Equipment Operator (Heavy)	$41.81	5A	2B		View
Grant	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	$38.92	5A	2B		View
Grant	Telephone Line Construction - Outside	Telephone Lineperson	$38.92	5A	2B		View
Grant	Telephone Line Construction - Outside	Television Groundperson	$22.32	5A	2B		View
Grant	Telephone Line Construction - Outside	Television Lineperson/Installer	$29.60	5A	2B		View
Grant	Telephone Line Construction - Outside	Television System Technician	$35.20	5A	2B		View
Grant	Telephone Line Construction - Outside	Television Technician	$31.67	5A	2B		View
Grant	Telephone Line Construction - Outside	Tree Trimmer	$38.92	5A	2B		View
Grant	Terrazzo Workers	Journey Level	$43.61	5A	1M		View
Grant	Tile Setters	Journey Level	$43.61	5A	1M		View
Grant	Tile, Marble & Terrazzo Finishers	Journey Level	$35.73	5A	1M		View
Grant	Traffic Control Stripers	Journey Level	$47.68	7A	1K		View
Grant	Truck Drivers	Asphalt Mix Over 20 Yards	$46.42	5D	1V	8M	View
Grant	Truck Drivers	Asphalt Mix To 20 Yards	$46.05	5D	1V	8M	View
Grant	Truck Drivers	Dump Truck	$46.05	5D	1V	8M	View
Grant	Truck Drivers	Dump Truck & Trailer	$46.42	5D	1V	8M	View

Grant	Truck Drivers	Other Trucks	$45.94	5D	1V	8M	View
Grant	Truck Drivers - Ready Mix	Transit Mixers 20 yards and under	$46.42	5D	1V	8M	View
Grant	Truck Drivers - Ready Mix	Transit Mixers over 20 yards	$46.75	5D	1V	8M	View
Grant	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	$13.61		1		View
Grant	Well Drillers & Irrigation Pump Installers	Oiler	$13.50		1		View
Grant	Well Drillers & Irrigation Pump Installers	Well Driller	$18.00		1		View

PROJECT MANUAL

FOR

Grant County Residential Treatment Facility Renovation

Moses Lake, Washington

November 11, 2019

DESIGN WEST
ARCHITECTS
254 East Main Street
Pullman, WA 99163
509.332.3113
designwestpa.com

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E8.01 ELECTRICAL SPECIFICATIONS
E9.01 ELECTRICAL DEMOLITION PLAN

SECTION 01 10 00 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES
- A. Contract Description.
- B. Contractual Performance Schedule
- C. Contractor Use of Site and Premises.
- D. Preconstruction Conference
- E. Coordination.
- F. Cutting and Patching
- G. Shop Drawings, Product Data and Samples
- H. Manufacturer's Instructions
- I. Quality Assurance
- J. Waste Management
- K. Construction Facilities and Temporary Controls
- L. Protection of Installed Work
- M. Progress Cleaning
- N. Repair of Damage Caused by The Work of this Contract
- O. Products
- P. Transportation and Handling
- Q. Storage and Protection
- R. Substitutions
- S. Project Closeout

1.2 CONTRACT DESCRIPTION
- A. Provide all materials and labor necessary to perform the work indicated in the Contract Documents
- B. Contractors shall provide sufficient mobilizations, manpower, tools, and equipment to complete the work as planned and scheduled in the attached documents.

1.3 CONTRACTUAL PERFORMANCE SCHEDULE
- A. The Contractor shall plan and execute the work to comply with the following schedule:
- B. Substantial Completion shall occur one-hundred and fifty (150) days from the Notice To Proceed. Contractor shall complete all corrective work contained in the punch list, and shall provide all close-out paperwork within 30 days following Substantial Completion.
- C. Liquidated Damages shall begin and accrue from the failure to meet any of the deadlines defined in the project schedule above.

1.4 CONTRACTOR USE OF SITE AND PREMISES
- A. Limit use of site and premises to allow:
  1. Owner's occupancy of portions of the existing building and adjoining land area
  2. Access to existing site improvements and road entries on the project site
  3. Work by Others and Work by Owner's own forces.
  4. Construction operations to be limited to areas and timing coordinated with the owner.
- B. Access to Site: Limited to the routes and areas designated by the Owner's representative areas buildings.
- C. Time Restrictions for Performing Work in areas impacting building functions shall be coordinated with the Owner in advance of any work being performed. The Contractor shall allow a minimum of 14 days advanced notice of any work impacting building functions.

D. The garage level parking area may be closed for one week for painting. Contractor is allowed to individually block off parking spaces with cones during cleaning and paint preparation operations. The Contractor may block off up to one half of the total vehicle stalls at any given time with the stipulation that entry, exit, and circulation is maintained at all times.

D. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor air intakes.

E. City will provide a designated staging area for Contractor use. Contractor shall be responsible for its safety and security.

1.5 PRECONSTRUCTION CONFERENCE

A. Contractor will schedule a conference after award of Contract. Contractor to preside over Conference.

B. Attendance Required: Owner, Architect, Contractor, and major subcontractors.

C. Agenda:

1. Distribution of Contract Documents.
2. Submission of list of Subcontractors, list of products, Schedule of Values, and progress schedule.
3. Designation of personnel representing the parties in Contract, Architect, Owner, Contractor, and Project Superintendent.
4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
5. Scheduling and coordination.
6. Pedestrian and Vehicle protection plan.
7. Protection of existing landscape / plant material. Coordinate with Parks Dept. personnel.

1.6 COORDINATION

A Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

B. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for utilities, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

C. In finished areas conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

D. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.7 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform installation and any necessary cutting and patching.

B. Submit written request in advance of cutting or altering elements which affects:

1. Structural integrity of element.
2. Efficiency, maintenance, or safety of element.
3. Visual qualities of sight-exposed elements.
4. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.

4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.

E. Restore Work with new products in accordance with requirements of Contract Documents.

F. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. Maintain integrity of furnishings systems, wall, ceiling, or floor construction; completely seal voids.

H. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

1.8 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop Drawings and/or Product Data:
1. Submit three copies or prints to Owner. Two copies or prints shall be retained by the Owner and/or architect/consultants, the Contractor shall be responsible for reproduction of sufficient copies of reviewed shop drawings for the requirements of this contact and his own uses.
2. Collect required data into one submittal for each unit of work or system. Mark each copy to identify applicable products, models, options, and other data applicable to the Project. Supplement manufacturers' standard data to provide information unique to this Project.
3. Include those requirements as outlined in individual specifications sections as well as any special coordination requirements.

B. Samples:
1. Submit the number of copies which Contractor requires to be returned to him, plus two copies which will be retained by Architect and professional consultants.
2. Submit samples of finishes from the full range of manufacturer's standard colors; custom colors; and / or texture and patterns as specified in individual specification sections for Architect's selection.
3. Include full project identification on each sample.

C. Distribute copies of reviewed submittals to concerned parties and maintain a complete set of reviewed and accepted submittals at the job site during the installation procedure. Instruct parties to promptly report any inability to comply with provisions.

1.9 MANUFACTURER'S INSTRUCTIONS

A. Submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

B. Contractor shall follow all manufacturer's recommendations and requirements for installation of products and systems that are a part of this project. The manufacturer's current edition of installation recommendations and requirements shall be considered contractual requirements for this project.

1.10 QUALITY ASSURANCE

A. Qualifications
1. Perform work by persons qualified to produce workmanship of specified quality.

B. General
1. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

2. Comply fully with manufacturers' instructions, including each step in sequence.
3. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
4. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
5. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.11 WASTE MANAGEMENT

A. This Section includes administrative and procedural requirements for the following:
   1. Salvaging nonhazardous demolition and construction waste.
   2. Recycling nonhazardous demolition and construction waste.
   3. Disposing of nonhazardous demolition and construction waste.
B. Salvage/Recycle Requirement: The contractor shall attempt to achieve the goal to divert a minimum of 50% of site generated waste from landfill disposal. Applicable diversion methods include recycling, compost, and/or salvage.
C. Contractor shall attempt to recycle aluminum and other metals from demolition materials.
D. General: Recycle paper and beverage containers used by on-site workers.
E. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor
F. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
   1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
      a. Inspect containers and bins for contamination and remove contaminated materials if found.
   2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
   4. Store components off the ground and protect from the weather.
   5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

1.12 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

A. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Owner that such temporary activity is not required for successful completion of the Work and compliance with requirements of Contract Documents and any and all governing agencies. Provisions of this section are, but not limited to, utility services, construction facilities, security/protection provisions, and support facilities.
B. Connect to existing electrical power service. Power consumption shall not disrupt Owner's need for continuous service.
C. Provide and maintain lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.
D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

E. Maintain lighting and provide routine repairs.
F. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
G. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations. Barriers shall be sufficient to avoid disruption to continual owner use of the building from noise, dust, fumes, and other sources.
H. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.
I. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
J. Provide methods, means and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious and/or toxic substances and pollutants caused by construction operations.

1.13 PROTECTION OF INSTALLED WORK
A. Protect installed Work and provide special protection where specified in individual specification Sections.
B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects:
1. Secure heavy sheet goods or similar protective materials in place, in areas of foot traffic.
2. Lay planking or similar rigid materials in place in areas subject to movement of heavy objects or in areas where storage of products will occur.
3. Do not permit smoking on or around the job site. Post "NO SMOKING" signs in rooms and instruct all personnel.
E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
F. Prohibit traffic from landscaped areas.

1.14 REPAIR OF DAMAGE CAUSED BY THE WORK OF THIS CONTRACT
A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion.
B. Clean and repair damage caused by installation or use of temporary work.
C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.
D. All damage to existing surfaces caused by the work of this contract shall be back-charged to the contractor.
E. Protect existing landscaping during construction. Coordinate a meeting with the City Parks department prior to any work. Replace any damaged material, to match existing.

1.15 PROGRESS CLEANING
A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. Do not allow debris to move outside the limits of construction.
B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
C. Broom and vacuum clean interior areas prior to start of installations, and continue cleaning to eliminate dust.

D. Remove waste materials, debris, and rubbish from site daily and dispose of properly off-site.
E. Control cleaning operations so that dust and other particles will not adhere to wet or newly coated surfaces.
F. Remove waste materials, debris and rubbish from site periodically and dispose of properly off-site.
G. Waste material is the responsibility of the contractor. The contractor must not use the owner’s trash receptacle for the waste material generated by this contract.

1.16 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
B. Provide interchangeable components of the same manufacturer, for similar components.
C. Install all products in accordance with manufacturer's instructions.

1.17 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.
B. Arrange deliveries of products in accordance with construction progress schedules. Allow time for inspection prior to installation and coordination of deliveries to avoid conflict with Work and conditions at site; limitations on storage space; availability of personnel and handling of equipment.
C. Clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit each accumulation of parts and to facilitate assembly.
D. Immediately on delivery, inspect shipment to assure:
    1. Product complies with requirements of Contract Documents and reviewed submittals.
    2. Quantities are correct.
    3. Accessories and installation hardware are correct.
    4. Containers and packages are intact and labels legible.
    5. Products are protected and undamaged.
E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
F. Provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces. Handle product by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

1.18 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
B. For exterior storage of fabricated products, place on sloped supports, above ground.
C. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
D. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
E. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

F. Maintain temperature, humidity control and ventilation within ranges stated in manufacturer's instruction continually. Store unpacked and loose products on shelves, in binds or in neat groups of like items.

G. Products exposed to the elements shall be stored so the exposed surfaces are not adversely affected and that any weathering of finishes is acceptable under the requirements of the Contract Documents.

1.19 SUBSTITUTIONS

A. Owner and/or Architect will consider request for substitutions of specified products, only if received prior to or with the submittal of the bid. Substitution products will be approved or rejected based solely on the discretion of the architect.

B. Submit each request with the SUBSTITUTION REQUEST form following this section.

C. Materials substituted without approval will be removed by the contractor at their expense and replaced with the specified material.

1.20 PROJECT CLOSEOUT

A. Project record drawings and documents:

1. The Contractor shall continually record factual information regarding all aspects of the Work, both concealed and visible; to enable future modification of design to proceed without lengthy and expensive site measurement, investigation and examination.
2. Maintain on site, one set of the following documents; record actual revisions to the Work (AS-BUILT REVISIONS) concurrent with construction:
3. Project Record Drawings: Record information on a set of Construction Documents using felt tip marking pens, maintaining a separate color for each major system. Do not conceal any work until required information is recorded. Legibly mark each item to record actual construction including, but not limited to:
4. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
5. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
6. Field changes of dimension and detail.
7. Details not on original Contract Drawings.

B. Submit Project Record Drawings and Documents to Owner for review 10 days prior to Substantial Completion.

C. Upon final review by the Owner, the Contractor shall generate a set of Final Project Record Drawings (As-Builts) and Documents.

D. Operation and maintenance data:

1. Contractor is to provide two (2) sets of Operation and Maintenance Manuals 10 days prior to Substantial Completion, for review by the Architect. These copies will be returned with Architect comments. Revise content of documents as required prior to Final Completion.
2. Manuals shall be bound in rigid 3-ring binders with printed title “OPERATION AND MAINTENANCE INSTRUCTIONS”, title of project printed on the cover. Internally subdivide the binder contents with permanent tabbed page dividers, logically organized as described below; with tab tilting clearly printed under reinforced laminated plastic tabs. Prepare a Table of Contents for each volume, with each Product or system description identified type on 24 pound white paper.
3. Manuals are to include:
   a. Directory - List names, addresses and telephone numbers of:
      1) Architect

2) Contractor
3) Subcontractors

b. General Information - Provide copies of each of the following:
1) Lien Releases
2) Consent of Surety
3) Certificates of Insurance
4) Contractor's and Subcontractor's One-Year Warranty
5) Basic & Extended Warranties required in Individual Specification Sections
6) Certified Completed Punch List

c. Operation and Maintenance Instructions - Arranged by specification section and for each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers. Including, but not limited to, the following:
1) List of equipment
2) Parts list for each component
3) Operating instructions
4) Maintenance instructions for equipment and systems
5) Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

E. Extended warranty:
1. Contractor shall secure guarantees and/or warranties required for each section of the work, properly addressed and signed and in favor of Owner. Execute and assemble documents from Subcontractors, suppliers, and manufacturers as identified under Final Project Record Documents above.
2. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

F. Closeout procedures for final completion:
1. Submit Record Drawings and Documents.
2. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
3. Should status of final completion of work require additional review by Owner due to failure of work to comply with Contractor's claim of Final Completion, Owner will deduct the amount of compensation for additional review services from final payment to Contractor.

END OF SECTION 01 10 00

SUBSTITUTION REQUEST FORM

(E-mail this form to Chelsea Holstad, Office Manager at: cholstad@designwestpa.com)

TO_____

PROJECT_____

SPECIFIED ITEM

_____	_____	_____	_____
Section	Page	Paragraph	Description

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION_____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identifies.

Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned states that he following paragraphs, unless modified on attachments, are correct.

1. The Proposed Substitution does not affect dimensions shown on Drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The Proposed Substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the Proposed Substitution.

The undersigned further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.

Submitted By_____

Signature_____

Firm_____

Address_____

_____

Date_____

Telephone_____

E-Mail_____

Attachments:

For use by Design Consultant:

_____Accepted _____Accepted as noted

_____Not Accepted _____Received too late

By_____

Date_____

Remarks_____

SECTION 02 41 19 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. The contractor is responsible for ascertaining the existing conditions and the work required to complete the work of this section satisfactorily.
2. This Section requires the selective removal and salvage or subsequent off site disposal of the following
   a. Portions of existing building structure and finishes indicated on drawings and as required to accommodate new work
   b. Removal of designated building equipment and fixtures
   c. Removal and salvage of designated construction and site improvements
   d. Identification of utilities
   e. Removal and protection of existing fixtures, materials, and equipment items indicated "salvage."
3. The Owner will remove some loose equipment and stored material in the project area, prior to the contractor taking possession of the site. All substrates and building conditions will be maintained in the condition as visible during the bid period; the contractor shall include all necessary costs to improve or modify the substrates to achieve the work shown in the construction documents. Contractors shall coordinate with the finish trades (Finish Flooring, Framing & Gypsum Board, and Suspended Acoustical Ceilings) to complete all substrate improvement necessary to achieve finish tolerances.
4. Existing construction documents for the original construction of the Building are available for review by contractors. Conditions that are apparent, reasonably inferable, or disclosed in the available documents shall not be considered “unforeseen conditions” as basis for contractor claims for cost or time extensions. Documents are available for review at the offices of the Owner, and the Design Team.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 SUBMITTALS

A. Qualification Data: For demolition firm, professional engineer, refrigerant recovery technician.
B. Provide structural shoring plan, stamped and signed by a professional engineer licensed in the State of Washington. Shoring plan will define required shoring and temporary support for the work of the project.
C. Schedule of Selective Demolition Activities: Indicate the following:
   1. Name and address of individual (principal of firm) who will be responsible for the demolition procedures
   2. Description of procedures and procedures that will be used to protect the personnel involved in the effort
   3. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   4. Interruption of utility services. Indicate how long utility services will be interrupted.
   5. Coordination for shutoff, capping, and continuation of utility services.

6. Locations of proposed dust- and noise-control temporary partitions and means of egress, including for adjacent building's occupants affected by selective demolition operations.
7. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
8. Means of protection for items to remain and items in path of waste removal from building.
9. Identification of hazardous sanitary landfill which will be used for the disposal of the material, appropriate to the waste stream

D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.

1.4 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project. Company specializing in performing the Work of this Section with minimum three (3) years experience

B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

C. Regulatory Requirements:
1. Comply with governing EPA notification regulations before beginning selective demolition.
2. Comply with E.P.A. and OSHA regulations throughout the work of this section
3. Comply with Clean Air Act (CAA) requirements; Section 608
4. Comply with hauling and disposal regulations of authorities having jurisdiction.
5. Conform to applicable code for demolition of structure, safety of adjacent structures, dust control and disposal
6. Obtain required permits from authorities
7. Notify affected utility companies before starting work and comply with their requirements
8. Conform to procedures applicable when discovering hazardous or contaminated materials

D. Standards: Comply with ANSI A10.6 and NFPA 241.

E. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

A. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

B. Partial Demolition and Removal:
1. Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Storage or sale of removed items on site will not be permitted.
2. Items to be removed by the Contractor to be retained by the Owner shall be designated "remove and retain". Remove to on-site location as directed.

1.5 PROJECT CONDITIONS

A. Coordinate with Owner’s operations involving move-out, salvage, reclamation and recycling activities

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work

C. Partial Demolition and Removal:
   1. Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Storage or sale of removed items on site will not be permitted
   2. Items to be removed by the Contractor to be retained by the Owner shall be designated “remove and retain”. Remove to on-site location as directed

D. Protections:
   1. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work
   2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain
   3. Protect existing finish work that is to remain in place and becomes exposed during demolition operations
   4. Protect floors and roofing with suitable coverings when necessary
   5. Provide temporary weatherproof closures for exterior openings resulting from demolition work
   6. Provide air and dust proof containment barriers at locations where work occurs, protect remainder of the building from contamination, or nuisance caused by residual effects of demolition and construction procedures
   7. Remove protections at completion of work

E. Damages: Promptly repair damages caused to adjacent facilities by demolition work

F. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
   1. Before selective demolition, Owner will remove the following items:
      a. Loose furnishings, fixtures, and minor miscellaneous equipment

G. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

H. Hazardous Materials are present:
   1. Inspection and testing for certain materials has been performed. The results are available for review at the offices of the Owner in addition, the abatement report is included within these specifications.
   2. If suspected hazardous materials are encountered, the Contractor shall immediately notify the Owner and Architect, and handle them in accordance with all applicable local, state, and federal regulations, protecting site, workers and surroundings from contamination
   3. If hazardous materials are encountered, the Contractor shall immediately notify the Owner and Architect, and handle them in accordance with all applicable local, state, and federal regulations, protecting site, workers and surroundings from contamination
   4. Identification: It is the Contractor’s responsibility to bring to the attention of the Architect suspected asbestos-containing materials which may be encountered as the work proceeds. Architect will notify Owner. Exploratory operations and laboratory tests will be made by the Owner’s consultant if materials that may contain asbestos are encountered
   5. Lead Paint and similar materials: Contractor shall provide lead containing materials identification, control, containment, abatement and disposal previously identified or encountered during the course of demolition and construction, included in the Cost of the Work. Contractor shall be responsible for a program to control lead exposure to workers, and ensure that no lead exposure occurs to the general public

6. Contractor shall provide and include the cost of containment, temporary storage, neutralizing and proper disposal of all hazardous materials such as solvents, acids, paint strippers and cleaners used in the course of performing the Work
7. Contractor shall provide and include the cost of removal and delivery to the Owner of any PCB-containing fluorescent lamp ballasts encountered during the course of demolition and construction.

I. Storage or sale of removed items or materials on-site is not permitted.

J. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection facilities in service during selective demolition operations.
2. Coordinate with the fire marshal for removal and relocation of the existing fire department connection. See the drawings for the temporary fire department connection during construction.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
1. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Arrange to shut off indicated utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass

area of selective demolition and that maintain continuity of services/systems to other parts of building.

3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
    a. Where entire wall is to be removed, existing services/systems maybe removed with removal of the wall.

3.3 PREPARATION

A. Contractors are responsible for familiarizing themselves with the condition of the project site

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
    1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

C. Locate, identify, stub off, and disconnect utility services not indicated to remain. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover

D. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
    1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
    2. Provide temporary partitions and barriers to prevent spread of dust, odors and noise. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to permit continued Owner occupancy of the building. Where selective demolition occurs, construct dust-proof partitions of minimum 4-inch studs, with gypsum wall board on non-demolition side and minimum 2 layers 3-mil plastic sheeting. Seal all seams with appropriate tape material
    3. Protect existing materials, existing landscaping materials, appurtenances, structures and utilities which are not to be demolished
    4. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
    5. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
    6. Cover and protect building improvements, furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed
    7. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."
    8. At locations where demolition or tie-in to existing reinforced concrete structure is indicated, as-built drawings and x-ray analysis shall be conducted prior to demolition activities. Demolition and tie-in shall not disturb existing concrete reinforcing steel

E. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
    1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Include all work necessary to complete the new work shown in all documents within the contract documents, including but not limited to, Architectural, Hazardous Material Abatement, Civil, Structural, Mechanical, and Electrical. Work of this

section is not limited to areas indicated in the demolition drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Provide services for effective air, soil and water pollution controls and worker protection as required by authorities having jurisdiction
3. Spread out equipment and materials loads across structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing
4. Conduct demolition to minimize interference with adjacent spaces and properties. Utilize demolition procedures that minimize disruption to the surrounding areas and activities. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times. Provide all necessary measures to ensure no contamination of the existing building systems, including the building air intakes and exhausts
5. Remove portions of the building indicated using methods as required to provide high quality substrates for work of subsequent phases. Tolerances within 1/8" of required substrate for new finishes shall be deemed acceptable for the work of this section.
6. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
7. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
8. For interior slabs, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible
9. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools
10. Keep work sprinkled with water to minimize dust. Provide hoses and water connections for this purpose
11. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
12. Maintain adequate ventilation when using cutting torches.
13. Cease operations and notify Owner, and Architect/Engineer immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations
14. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
15. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
16. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
17. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."

B. Removed and Salvaged Items:
   1. Clean salvaged items.
   2. Pack or crate items after cleaning. Identify contents of containers.
   3. Store items in a secure area until delivery to Owner.
   4. Transport items to Owner's storage area designated by Owner within five miles of the project site.
   5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI-WP and its Addendum.
1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.

E. Roofing: Remove no more existing roofing than can be covered in one day by new roofing and so that building interior remains watertight and weathertight. Refer to Division 07 Roofing Sections for new roofing requirements.
1. Remove existing roof material and/or membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate in areas indicated.

F. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

G. Signage: remove all existing room signage in project area, salvage signage material to the Owner. Coordinate extents of signage removal and replacement with Signage Schedule in Section 10 14 00.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site. Remove demolished materials from site promptly.
2. Remove and promptly dispose of contaminated, vermin infested or dangerous materials encountered, per regulatory requirements
3. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
4. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Salvaged Items to be Retained and Re-Used in the Work: Where indicated as "Remove and Retain," or “Relocate”, carefully remove indicated items, clean, and reuse as indicated on the drawings and in other sections of the specifications

C. Burning: Do not burn demolished materials.

D. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean

B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start of operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Framing with treated and untreated dimensional lumber.
   2. Wood blocking, backing, furring, nailers and grounds in equipment bases, walls and ceiling for support of all wall and/or ceiling mounted equipment, fixtures, railings, grab bars, doorstops and miscellaneous surface mounted items.
   3. Plywood backing panels.
   4. Pre-fabricated connectors

1.2 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
   1. NeLMA: Northeastern Lumber Manufacturers' Association.
   2. NLGA: National Lumber Grades Authority.
   3. RIS: Redwood Inspection Service.
   4. SPIB: The Southern Pine Inspection Bureau.
   5. WCLIB: West Coast Lumber Inspection Bureau.
   6. WWPA: Western Wood Products Association.

1.3 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
   3. For fire-retardant treatments specified to be High-Temperature (HT) type, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
   4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

C. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

1.4 QUALITY ASSURANCE
A. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL
A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.
5. Lumber products included in the finished project, shall comply with the VOC requirements stated in section 01 81 14.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER
A. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
1. For exposed lumber indicated to receive a stained or natural finish, omit marking and provide certificates of treatment compliance issued by inspection agency.
D. Application: Treat items indicated on Drawings, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with

masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: 19 percent
B. Interior framing:
1. Hem-fir (north); NLGA.
2. Douglas fir-larch; WCLIB or WWPA.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB, or WWPA.
5. Northern species; NLGA.
6. Western woods; WCLIB or WWPA.
C. Joists, Rafters, and Other Framing Not Listed Above:
1. Hem-fir (north); NLGA.
2. Douglas fir-larch; WCLIB or WWPA.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB or WWPA.
5. Douglas fir-larch (north); NLGA.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.
5. Furring.
6. Grounds.
B. For items of dimension lumber size,
1. Hem-fir (north); NLGA.
2. Spruce-pine-fir; NLGA.
3. Hem-fir; WCLIB, or WWPA.
4. Western woods; WCLIB or WWPA.
5. Northern species; NLGA.
C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
B. Nails, Brads, and Staples: ASTM F 1667.
C. Power-Driven Fasteners: NES NER-272.
D. Wood Screws: ASME B18.6.1.
E. Lag Bolts: ASME B18.2.1.
F. Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where

indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
   1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
   2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.6 METAL FRAMING ANCHORS

A. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
   1. Use for interior locations where stainless steel is not indicated.
B. Bridging: Rigid, V-section, nail-less type, 0.050 inch thick, length to suit joist size and spacing.
C. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch above base and with 2-inch- minimum side cover, socket 0.062 inch thick, and standoff and adjustment plates 0.108 inch thick.
D. Joist Ties: Flat straps, with holes for fasteners, for tying joists together over supports.
   1. Width: 3/4 inch.
   2. Thickness: [0.050 inch
   3. Length: 16 inches.
E. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches wide by 0.050 inch thick by 36 inches long.

2.7 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
B. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
   1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
C. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
C. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
D. Do not splice members between supports, unless otherwise indicated.
E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
   1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c
   2. Coordinate installation of Concealed Backing, Flooring, Grounds and Cants with other work.
F. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated

and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.

2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- thickness.

3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.

G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
   1. Use inorganic boron for items that are continuously protected from liquid water.
   2. Use copper naphthenate for items not continuously protected from liquid water.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
   1. NES NER-272 for power-driven fasteners.
   2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

J. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

K. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
   1. Comply with approved fastener patterns where applicable
   2. Use finishing nails, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Provide solid wood blocking, backing, furring, nailers and grounds in equipment bases, walls and ceiling for support of all wall and/or ceiling mounted equipment, fixtures, railings, grab bars, doorstops and miscellaneous surface mounted items.

B. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

C. Provide solid fire treated wood blocking or sheathing backing for all wall mounted equipment, chalkboards, tack boards, shelf standards, wall cabinets, mirrors, toilet accessories, partitions, panels shelving, casework, fixtures, door stops, etc.

D. At existing framed wall and ceiling construction, install solid fire treated wood blocking for all equipment, chalkboards, tack boards, shelf standards, wall cabinets, mirrors, toilet accessories, partitions, panels shelving, casework, fixtures, door stops, etc. Remove existing finishes as necessary to install solid blocking and/or backing. Patch back finishes to match existing adjacent surfaces.

E. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

F. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment.

Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 00

SECTION 06 40 23 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Plastic-laminate cabinets.
   2. Plastic-laminate countertops
   3. Casework accessories, and cabinet hardware.
   4. Preparation for installing utilities.
   5. Shop finishing of interior woodwork.

1.2 REFERENCES

A. ANSI A135.4 – Basic Hardboard
B. ANSI A208.1 – Mat Formed Wood Particle Board
C. ANSI A208.2 – Medium Density Fiberboard
D. BHMA A156.9 – Cabinet Hardware
E. AWI (Architectural Woodwork Institute) – Quality Standards
F. NEMA (National Electric Manufacturers Association) LD3 – High Pressure Decorative Laminates
G. PS 20 – American Softwood Lumber Standard
H. PS 1 – Construction and Industrial Plywood
I. ALA – American Laminators Association
J. NHLA – National Hardwood Lumber Association
K. AHA – American Hardboard Association
L. HPVA – Hardwood Plywood & Veneer Association
M. ASTM – American Society for Testing and Materials
N. LMA – Laminated Materials Association
O. ASTM G-22 – Compliance for product 390 (60 finish)

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.
B. EXPOSED PORTIONS
   1. All surfaces visible when doors and drawers are closed.
   2. Cabinet tops 80” and under above finish floor or over 80” above finish floor if visible from an upper building level.
   3. Visible edges of cabinet ends, doors and drawer fronts.
   4. Sloping tops of cabinets that are visible.
C. SEMI-EXPOSED PORTIONS
   1. All surfaces visible when doors and drawers are open including interior faces of hinged doors to include back panel of sink cabinets.
   2. The underside bottoms of wall hung cabinets.
   3. Visible surfaces in open cabinets or behind glass doors.
   4. Visible portions of bottoms, tops and ends in front of sliding doors in closed position.
D. CONCEALED PORTIONS
   1. Toe space unless otherwise specified.
   2. Sleepers.
   3. Web frames, stretchers.
   4. Security panels.
   5. Underside of bottoms of cabinets less than 30” above the finished floor.

6. Flat tops of cabinets above 80” or more from the finished floor, except if visible from an upper building level.
7. The three non-visible edges of adjustable shelves.
8. The underside of countertops, knee spaces and drawer aprons.
9. The faces of cabinet ends of adjoining units that butt together.

1.4 SUBMITTALS

A. Product Data: For Panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, solid-surfacing material, cabinet hardware and accessories and finishing materials and processes.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
1. Show details full size.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, electrical devices and other items installed in architectural woodwork.
4. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf. (Required where hardwood veneer panel products are indicated).

C. Samples for Initial Selection:
1. Shop-applied transparent finishes.
2. Shop-applied opaque finishes.
3. Plastic laminates.
4. PVC edge material.
5. Thermoset decorative panels.

D. Samples for Verification:
1. Lumber and moldings with or for transparent finish, not less than 50 sq. in., 5 inches wide by 24 inches, for each species and cut, finished on 1 side and 1 edge.
2. Veneer-faced panel products with or for transparent finish, 8” 10” for each species and cut. Include at least one face-veneer seam and finish as specified.
3. Lumber, moldings and panel products for opaque finish, 50 sq. in. for lumber and 8 by 10 inches for panels, for each finish system and color, with 1/2 of exposed surface finished.
4. Plastic laminates, 8” x 10” for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
5. Thermoset decorative-panels, 8” x 10”, for each type, color, pattern, and surface finish, with edge banding on 1 edge.
6. Solid-surfacing materials, 6” square.
7. Exposed cabinet hardware and accessories, one unit for each type and finish.

E. Qualification Data: For Installer and fabricator.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance for a minimum of 5 years.

B. Installer Qualifications: Fabricator of products.

C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork

D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
1. Perform work in accordance with **AWI Custom Grade** standards, as a minimum requirement
2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.
3. Stainless Steel Counter Top Industry Standards: All materials entering into the Work of

this Section shall conform with the “National Sanitation Foundation Standards”, established by the National Sanitation Foundation, Ann Arbor, Michigan.

4. Stainless Steel Counter Top SMACNA (Sheet Metal and Air Conditioning Contractor’s National Association) Kitchen Equipment Fabrication Guidelines.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Provide mockup of full size base cabinet and upper cabinet, provide units with specified countertop; with hardware installed
   2. Units will be examined to ascertain quality and conformity to AWI quality level standards and specification requirements
   3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Coordination and Meetings”, one month prior to installation.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

B. Due to the accelerated time constraints of the phasing of the project, the contractor shall provide adequate off site storage within 10 miles of the project site for storage and stocking of the casework. Such storage shall be available to the Owner and Architect to review stored material.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork 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. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

C. Field Measurements: Where woodwork is 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 woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
   2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)" to fabricator of Architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

C. Coordinate the work with plumbing and electrical rough-in and wall finish.

1.9 WARRANTY

A. Provide two year defect-free specialty warranty. Warranty period commences on the date of substantial completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Basis of Design: Pacific Cabinets – Institutional Laminate series
B. Beck, equivalent to basis of design
C. Westmark, equivalent to basis of design
D. Genothen, equivalent to basis of design
E. Lemons Millwork, equivalent to basis of design
F. Substitutions under the provision of Division 01.

2.2 MATERIALS:

A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork, casework and quality grade specified, unless otherwise indicated.
B. Wood Species and Cut for Transparent Finish: White Birch, plain sawn or sliced.
C. Wood Species for Opaque Finish: Poplar
D. Wood Products: Comply with the following:
   1. Hardboard: AHA A135.4.
   2. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with low urea formaldehyde formulations. 3/4" panel thickness, unless otherwise indicated.
   3. Particleboard: ANSI A208.1, Grade M-2, 45lb density, industrial grade pine-based particle board, 3/4" panel thickness unless otherwise indicated (42lb density and/or fir based particle board products are not acceptable).
   4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
   5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1**,** made with adhesive containing low urea formaldehyde resins.
E. Thermoset Decorative Panels:
   1. Particleboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1. Provide in panel thicknesses indicated.
   2. Medium density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1 for all drawer fronts, doors and shelving. Provide in panel thicknesses indicated
   3. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semi exposed edges. Match panel color unless otherwise indicated.
   4. Up to two colors of thermoset decorative overlay panels may be selected by Architect from manufacturer's standard and premium colors.
F. Standard Casework, not specified elsewhere: High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
   1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
      a. Formica Corporation.
      b. Nevamar Company, LLC; Decorative Products Div.
      c. Wilsonart International; Div. of Premark International, Inc.
      d. Pionite Corporation
   2. High –Pressure Decorative Laminate (HPDL), NEMA LD 3, Grade Standards:
      a. Horizontal Grade .050" = GP50
      b. Postforming Grade .042" = PF42
      c. Cabinet Liner Grade .020" = CL20
      d. Chemical Resistant Grade .36" = CR36
G. Tempered Float Glass for Cabinet Doors: ASTM C 1048, Kind FT, Condition A, Type I, Class 1 (clear), Quality-Q3**,** with exposed edges seamed before tempering, 6 mm thick, unless otherwise indicated.
H. PVC edge trim molding: Provide PVC edge trim molding to match selected plastic laminate colors and MDL/thermoset decorative overlay panel colors. Where wood grain laminate is selected, matching wood grain PVC edge trim is required.
   1. Edge trim thickness:
      a. Door and drawer edging – 3mm

b. Body front edging – 3mm
c. Cabinet shelf edges – 3mm
d. All other misc. shelf edges – 3mm

I. Finishes: Reference Finish Schedule, Finish Material Legend for manufacturer, product and color selections.

2.3 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."
1. Reference Standards: Hardware, BHMA A156.9 “American National Standards for Cabinet Hardware”
2. Manufacturers: Subject to compliance with requirements and specific manufacturers product and model no. references, provide products by the following manufacturers:
a. Blum, Hafele, Grass, Stanley, Knape and Vogt, Doug Mockett & Co., CompX National and equivalent products from the other manufacturers, subject to review and approval by Architect.
3. Hardware Finishes: Exposed hardware finishes: Brushed Chrome BHMA 626 finish or 630. For concealed hardware, provide manufacturers standard finish.

B. Butt Hinges: Five knuckle, epoxy powder coated, institutional grade, 2-3/4” overlay type with hospital tip. 0.095” thick. ANSI-BIFMA standard A156.9, Grade 1, 270 degree opening standard. Brushed chrome finish or BHMA 626 finish.
1. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.
2. Doors 36” high and under shall have two (2) hinges per door. Doors over 37” and under 60” high shall have three (3) hinges per door. Doors over 60” high shall have four (4) per door.

C. Wire Pulls: Back mounted, solid metal, 4” long, 5/16” in diameter for doors and drawers. ‘U’ shaped pulls, satin chrome, BHMA 630 or BHMA 626 finish.

D. Catches: Magnetic catches, BHMA A156.9, B03141 and/or push-in magnetic catches.

E. Lock hasps: Pad lock loop fabricated from 0.090-inch nominal-thickness stainless steel metal.

F. Catches: Magnetic catches, BHMA A156.9, B03141 and/or push-in magnetic catches. Magnetic door catch with maximum 5 to 7 pound, heavy duty, pull provided, attached with screws and slotted for adjustment.

G. Adjustable Shelf Support System: Standard adjustable shelf support system shall be provided by inserting polycarbonate double-pin locking shelf clips into predrilled 5mm diameter holes 32mm (1-1/4”) on centers. Color Clear. Shelves may be fixed using a retaining screw.

H. Upswing cabinet/shelf unit door: Blum 270E series Retractable casework door hardware set, sized to accommodate horizontal flipper doors indicated in the drawings, including but not limited to guide roller, carriage plate, hinges mounting plates, flipper door rollers, and related anchors.

I. Drawer Slides: BHMA A156.9, B05091: Side or bottom mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091 and rated for the following loads:
1. Box Drawer Slides: 100 lbf (440N)
2. File Drawer Slides : 200 lbf (890N)
3. Pencil Drawer Slides: 45 lbf (200N)
4. Keyboard Slide: 75 lbf (330N)
5. Trash Bin Slides: 200 lb (890N)

J. Chain Bolt: Where indicated, “Stanley” model CD1055 or equivalent.

K. Locks: BHMA A156.11, E07121 and Drawer Locks: BHMA A156.11, E07041. Where indicated, standard 5-pin or 5 disc-type tumbler cam locks; key using a single master for the entire project. One lock per panel door where indicated and all locks in each individual room shall be keyed alike. Provide 3 keys per room, properly tagged and identified upon delivery.
1. Doors – Olympus Lock, 100DR Deadbolt, N Series: National Keyway
2. Drawers – Olympus Locks, 200DW Deadbolt, N Series: National Keyway

L. Exam Rooms: Provide cabinet locks at all Exam Room drawers, casework doors, and cabinet doors.

M. Door/drawer silencers: minimum of 2 per door and drawer, with 4 on doors larger than 36" high.

N. Grommets for Cable Passage through Countertops: 3-1/8" OD, molded-plastic grommets with lid flap for wire passage. Spring clip, lever hinge style grommet.
   1. Metallic silver or charcoal grey as selected by Architect.
   2. Product: Subject to compliance with requirements, provide OG series Pass Through Grommet by Doug Mockett & Company, Inc. 3-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
   3. Provide (2) round penetrations with PVC grommet at all counter tops with open knee space shown below, work stations (computer) and desk countertops. Coordinate locations with Architect.
   4. Show proposed locations in shop drawings to be verified by Architect. Provide **(5)** grommets as minimum quantity allowance.

O. Robe Hook:
   1. Basis-of-Design Product: Bobrick B-672,
      a. Provide two on inside of existing door to Exam Room.

P. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
   1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
   2. Satin Stainless Steel: BHMA 630.

Q. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

R. Horizontal Metal Track Slide for white board and tack board assemblies
   1. Basis of Design: Claridge Product: Series 3 fixed marker boards and Series HS two-track without backing panel horizontal sliding marker boards. Reference drawings for specific sizes for this project. Note some custom sizes may occur.

2.4 MISCELLANEOUS MATERIALS – Custom grade is standard spec unless specified different in plans.

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content. Steel studs, straps and accessories as detailed.Bolts, nuts, washers, lags, pins and screws of size and type to suit application and in compliance for type permitted by **AWI Standards – Custom Grade** for concealed and semi-exposed portions of architectural woodwork and cabinets/casework. No exposed fasteners or trim cap covered fasteners permitted on exposed casework surfaces.Concealed joint fasteners: in compliance with **AWI Standards**, table 400B-T-10 "Joinery of Case Body Members" for **Custom Grade**. Provide dowels, splines, biscuits or dado joinery. European assembly screws may be used to join panels from the outside on concealed side or back panel faces only (fasteners and/or plastic trim caps not visible on exposed surfaces). Trim caps permitted on semi-exposed surfaces for attachment to walls only.Anchors for securing casework to walls and support framing: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.Adhesives, General: Do not use adhesives that contain urea formaldehyde.VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):Wood Glues: 30 g/L.
   1. Contact Adhesive: 250 g/L.

G. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement, contact cement or PVA.Adhesive for Bonding Edges: Hot-melt adhesive.

2.5 FABRICATION, GENERAL

A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-Grade interior woodwork complying with referenced quality standard (AWI).

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate finished hardwood for transparent finish to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
   1. Corners and Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
   2. Edges of Rails and Similar Members More Than 3/4" Thick: 1/8".

D. Complete fabrication, including assembly**,** finishing 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.
   1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
   2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.

E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, 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.
   1. Seal edges of openings in countertops with a clear sealer.

F. Install glass to comply with applicable requirements in Division 08 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

G. Pocket screws will only be allowed in concealed areas.

2.6 PLASTIC-LAMINATE CABINETS

A. Grade: Custom.

B. AWI Type of Cabinet Construction: Flush overlay on type 'A' frameless construction

C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
   1. Horizontal Surfaces Other Than Tops: Grade GP50
   2. Postformed Surfaces: Grade PF42
   3. Vertical Surfaces: Grade VG28
   4. Edges: PVC edge banding 3mm thick, matching laminate in color, pattern and finish.
   5. Exposed material shall be pattern(s) and color(s) as specified or selected. For exposed vertical surfaces of cabinet and both faces of drawer and door panels laminated with adhesive and pressure bonded to 3/4" minimum furniture grade MDF core stock

D. Materials for Semiexposed Surfaces:
   1. Thermoset Decorative Panels: ALA, polyester or melamine resin impregnated web, pressure bonded and thermally fused to a core of 45 lb industrial grade pine particle board or furniture grade MDF core stock panels in thicknesses indicated. All interior semiexposed surfaces included: Drawer Construction; Gables and Backs, Shelving. Unless Noted Otherwise, the interiors and the shelves in the open shelving units shall be thermoset decorative panels. Adjustable shelves shall have the same lamination on both faces.
      a. Edges of shelves and divider panels: PVC edge banding 3mm thick, matching laminate in color, pattern and finish.
      b. All shelving shall be MDF.

E. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
   1. As selected by Architect from laminate manufacturer's full range in the following categories:
      a. Solid colors, matte finish.
      b. Wood grains, matte finish

c. Patterns, matte finish.

2. Up to five (5) colors of plastic laminate for cabinets may be selected by Architect from manufacturer's standard and premium colors. Wood grains and patterned laminate may be selected.
3. Up to two (2) colors of thermoset decorative panel laminate may be selected by architect from manufacturer's available colors.

2.7 FABRICATION OF PLASTIC LAMINATE CASEWORK

A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
B. Fit shelves, doors, drawer fronts and exposed edges with edge trim. Use one piece for full length only.
C. Cap exposed plastic laminate finish edges with Edge Trim. Use one piece of full length.
D. Coordinate millwork fabrication with return air grille and metal ductwork shown in the plans—concealed by casework. Reference mechanical drawings and specification section Division 23.
E. Drawers as follows:
   1. Drawer fronts: Minimum 3/4" thick; overlay style except match door thickness.
   2. Drawer Sides and Back: Minimum 1/2" thick thermoset decorative panel with lock shoulder joint and glued.
   3. Drawer Bottom: Minimum 1/4" thick thermoset decorative panel dadoed into front and sides and glued.
   4. Keyboard trays: Keyboard trays shall be as specified and located as shown on drawings.
   5. File Drawers: The width of file drawers and depth of lateral file drawers shall be sized to accommodate legal and letter size folders with the installation of hanging rails. The height and placement of rails shall be sized to accommodate hanging files (11" I.D. Clear)
F. Doors
   1. Doors under 30" wide and/or 80" high: Minimum 3/4" thick particle board panel, identical laminate applied to both faces; overlay style
   2. Doors over 30" wide and/or 80" high: Shell be 1-3/8" or 1-3/4" hollow or solid core doors. Identical laminate applied to both faces overlay style.
   3. If hinge screws enter only the edge of a door, 3/4" lumber edges shall be glued to the core prior to laminating.
   4. Drilling of pilot holes and use of full-threaded screws is required in hanging fiber board and particle board core doors.
G. Shelves
   1. Shelves under 30" wide: Minimum 3/4" thermoset decorative panel with edge trim at exposed edges.
   2. Shelves 30" wide to 42" wide: Minimum 1" thermoset decorative panel with edge trim at exposed edges.
   3. Shelves wider than 42" shall have intermediate center back edge support with 2" x 3/4" edge trim at front edge. Shelves to be 1" thick.
   4. When necessary to cut and fit on site, provide material with ample allowance for cutting. Provide trim for scribing and site cutting.
   5. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints tight; secure with concealed fasteners. Locate counter butt joints minimum 2' from sink cut-outs.
   6. Provide cutouts for plumbing and light fixtures, inserts, appliances, outlet box, light fixtures and fittings. Verify locations of cutouts from on-site dimensions. Prime paint contact surfaces of cut edges. Field laminate as needed to conceal separations.
   7. Unless otherwise noted, all shelves are to be adjustable.
   8. Balanced construction of all laminated panels is mandatory. Unfinished core stock surfaces, even on concealed surfaces (excluding edges) are not permitted.
   9. Provide recessed toe-kick construction at the front side of all base cabinets. Recess to be 4" high and 2" deep measured in from the finish face of the cabinet. 3/4" thick toe-kick face panel to be shop applied and must recess flush or miter back on exposed finished end panel cabinet configurations.

2.8 PLASTIC-LAMINATE COUNTERTOPS

A. Grade: Custom

B. High-Pressure Decorative Laminate Grade: GP50 (General Purpose Grade) Typical. Provide chemical resistant grade CR36 where indicated.

C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. As selected by Architect from manufacturer's full range in the following categories:
   a. Solid colors, gloss finish.
   b. Patterns, gloss finish
2. Up to five (5) color/patterns of plastic laminate for countertops may be selected by Architect from manufacturer's full range of available products. Reference finish schedule.

D. Grain Direction: Parallel to cabinet fronts.

E. Edge Treatment: Same as laminate cladding on horizontal surfaces.

F. Core Material: 3/4" 45lb density industrial grade pine particle board or furniture grade medium density fiberboard (MDF) for a total of 1-1/2" countertop.

G. Core Material at Sinks: Particleboard made with exterior glue or medium density fiberboard made with exterior glue of the type and grade indicated above.

H. Backer Sheet: Provide continuous full width plastic-laminate backer sheet, Grade BKL, on underside of all countertop substrates. 3/4" thick backer sheet, glued to countertop substrate for balanced 1-1/2" laminated thickness for all countertop construction.

I. Backsplashes: 3/4" thick and 4" high unless otherwise indicated. Material and color to be same as countertop. Where countertops abut walls or cabinet provide a backsplash to face of countertop.

2.9 SHOP FINISHING

A. Grade: Provide finishes of same grades as items to be finished, unless otherwise indicated.

B. General: Shop finish transparent-finished interior architectural woodwork at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for finishing opaque-finished architectural woodwork.

C. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

D. Transparent finish for stained architectural woodwork and veneer panels:

1. Grade: Premium.
2. AWI Finish System: Catalyzed polyurethane.
3. Staining: Match Architect's sample.
4. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
5. Filled Finish for Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.
   a. Apply wash-coat sealer after staining and before filling.
6. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

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

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

C. Ensure that mechanical and electrical items affecting this Section of work are properly placed, complete, and have been inspected by the Architect/Engineer prior to commencement of installation

3.2 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. 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” in 96” sag, bow, or other variation from a straight line. Set and secure casework in place; rigid, plumb and level.
2. Maintain veneer sequence matching of cabinets with transparent finish.
3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips. Secure cabinet and counter bases to floor using appropriate angles and anchorages.
4. Use fixture attachments in concealed locations for wall mounted components. Secure to backing concealed behind finish wall surface.
5. Use concealed joint fasteners to align and secure adjoining cabinet units and countertops.
6. Carefully scribe casework abutting other components, with maximum gaps of 1/32”. Do not use additional overlay trim for this purpose.
7. Countersink anchorage devices at semi-exposed locations. Conceal with caps to match surrounding surfaces.
8. Coordinate installation of conduit, outlets and coverplates for electrical, phone and data devices installed in casework.

G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Align adjacent solid-surfacing-material and laboratory epoxy resin countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
3. Secure backsplashes to walls with adhesive.
4. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
5. Install metal knee braces for countertop support in locations indicated.
6. Install cable grommets in locations shown and as directed by Architect.
7. Seal-caulk all joints that can be considered a possible sanitation problem. Seal-caulk material Rubber Caulk 5000; applied with power-operated handgun and by qualified operator. Joint size shall not exceed 3/32 inches in width.

H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

I. Refer to Division 09 Sections for final finishing of installed architectural woodwork not indicated to be shop finished.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
B. Clean, lubricate, and adjust hardware.
C. Clean casework, counters, shelves, hardware, fittings and fixtures.
D. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

3.4 PROTECTION

A. Protect finishes until Substantial Completion.

END OF SECTION 06 40 23

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes joint sealants for the following applications, including preparing sealant substrate surfaces, sealant and expandable backing. This work includes those installations specified by reference to this Section:
    1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
        a. Control and expansion joints on exposed interior surfaces of exterior walls.
        b. Perimeter joints of exterior openings where indicated.
        c. Tile control and expansion joints.
        d. Vertical joints on exposed surfaces of partitions.
        e. Perimeter joints between interior wall surfaces and frames of interior doors, and windows.
        f. Joints between plumbing fixtures and adjoining walls, floors, and counters.
        g. Other joints as indicated.
    2. Interior joints in the following horizontal traffic surfaces:
        a. Isolation joints in cast-in-place concrete slabs.
        b. Other joints as indicated.

1.2 PERFORMANCE REQUIREMENTS

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

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.
B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
F. Qualification Data: For Installer.
G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
    1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

H. Field Test Report Log: For each elastomeric sealant application.

I. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

J. Warranties: Special warranties specified in this Section.

K. WSSP Compliance Submittals: Product Data for Credit IEQ 3.1: For sealants and sealant primers used inside the weatherproofing system, including printed statement of VOC content

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

B. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Submit not fewer than eight pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the commencement of the Work.
1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
2. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.

D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:
   a. Each type of elastomeric sealant and joint substrate indicated.
   b. Each type of nonelastomeric sealant and joint substrate indicated.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
   a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.
      1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
4. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
5. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.5 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer [or are below 40 deg F.]
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: 5 years from date of Substantial Completion.

C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
   1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
   2. Disintegration of joint substrates from natural causes exceeding design specifications.
   3. Mechanical damage caused by individuals, tools, or other outside agents.
   4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   1. Acoustical Sealant: 250 g/L
   2. Architectural Sealants: 250 g/L.
   3. Sealant Primers for Nonporous Substrates: 250 g/L.
   4. Sealant Primers for Porous Substrates: 775 g/L.

C. Colors of Exposed Joint Sealants: Integrally colored sealants, as selected by Architect to match adjacent materials.

2.3 ELASTOMERIC JOINT SEALANTS

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

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing

according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

Provide products and installations that comply with this requirement in Food Preparation and Food Serving Areas of the project.

E. **Sealant Type #1**: Single-Component Silicone Sealant:
   1. Available Products:
      a. Basis of Design: Dow Corning Corporation; 795
      b. GE Silicones; SilPruf NB SCS9000.
      c. GE Silicones; UltraPruf II SCS2900.
      d. Pecora Corporation; 865.
      e. Pecora Corporation; 895.
      f. Pecora Corporation; 898.
   2. Type and Grade: S (single component) and NS (nonsag).
   3. Class: 50.
   4. Use Related to Exposure: NT (nontraffic).
   5. Uses Related to Joint Substrates: Coated glass, anodic aluminum, aluminum coated with a high-performance coating, galvanized steel.
   6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.

F. **Sealant Type #2:** Single-Component Mildew-Resistant Acid-Curing Silicone Sealant:
   1. Available Products:
      a. Basis of Design: Dow Corning Corporation; 786 Mildew Resistant.
      b. GE Silicones; Sanitary SCS1700.
      c. Tremco; Tremsil 200 [White] [Clear].
   2. Type and Grade: S (single component) and NS (nonsag).
   3. Class: 25.
   4. Use Related to Exposure: NT (nontraffic).
   5. Uses Related to Joint Substrates: Coated glass, anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, ceramic tile.

G. **Sealant Type #3:** Multicomponent Nonsag Urethane Sealant:
   1. Available Products:
      a. Basis of Design: Sonneborn, Division of ChemRex Inc.; NP 2.
      b. Schnee-Morehead, Inc.; Permathane SM 7200.
      c. Sika Corporation, Inc.; Sikaflex - 2c NS TG.
      d. Tremco; Vulkem 227.
   2. Type and Grade: M (multicomponent) and NS (nonsag).
   3. Class: 25.
   4. Uses Related to Exposure: T (traffic) and NT (nontraffic).

H. **Sealant Type #4:** Single-Component Self Leveling Urethane Sealant:
   1. Available Products:
      a. Basis of Design: ChemRex Sonnneborn SL-1
      b. Schnee-Morehead, Inc.; equivalent product to basis of design.
      c. Sika Corporation, Inc.; equivalent product to basis of design.
      d. Tremco; equivalent product to basis of design.
   2. Type and Grade: S (single component) and SL (self leveling).
   3. Class: 25.
   4. Use Related to Exposure: T (traffic).

I. **Sealant Type #5:** Single-Component Nonsag Urethane Sealant:
   1. Available Products:
      a. Basis of Design: ChemRex Sonnneborn NP-1
      b. Bostik Findley; Chem-Calk 900.
      c. Pecora Corporation; Dynatrol I-XL.
      d. Polymeric Systems Inc.; Flexiprene 1000.
      e. Polymeric Systems Inc.; PSI-901.

f. Schnee-Morehead, Inc.; Permathane SM7100.
g. Sika Corporation, Inc.; Sikaflex - 15LM.
h. Tremco; DyMonic.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).

2.4 LATEX JOINT SEALANTS

A. **Sealant Type #6:** Latex Sealant: Comply with ASTM C 834, Type P, Grade NF, for field applied paint finish.

B. Available Products:
1. Bostik Findley; Chem-Calk 600.
2. Pecora Corporation; AC-20+.
3. Schnee-Morehead, Inc.; SM 8200.
4. Sonneborn, Division of ChemRex Inc.; Sonolac.
5. Tremco; Tremflex 834.

2.5 ACOUSTICAL JOINT SEALANTS

A. **Sealant Type #7:** Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following:
1. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
2. Available Products:
a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
1. Available Products:
a. Pecora Corporation; BA-98.
b. Tremco; Tremco Acoustical Sealant.

2.6 PREFORMED TAPE SEALANTS

A. Back-Bedding Mastic Tape Sealant: Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Tape Sealant: Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
1. Type 1, for applications in which tape acts as the primary sealant.
2. Type 2, for applications in which tape is used in combination with a full bead of liquid sealant.

2.7 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying

with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

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

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

1. Mask all locations where silicone based sealants are installed. No silicone based sealant shall be allowed to migrate onto adjacent finished surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
      a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
   4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.

H. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
   1. Extent of Testing: Test completed elastomeric sealant joints as follows:
      a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.
      b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.
   2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.
      a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
   3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
   4. Inspect tested joints and report on the following:
      a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
      b. Whether sealants filled joint cavities and are free of voids.

c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

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

B. Remove any and all sealant material outside of the joint area. Fully remove the sealant material to allow for a complete and satisfactory installation of other finishes including paint.

3.6 PROTECTION

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

3.7 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in High Moisture and Mildew Areas, between plumbing fixtures and adjoining walls, floors, and counters.
1. Joint Sealant: Sealant Type #2.
2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.

B. Joint-Sealant Application: Interior perimeter joints of exterior openings, perimeter joints between interior ceiling surfaces, interior wall surfaces, trim components, and frames of interior doors, and windows , interior and exterior sealant-pointed mortar joints in glass unit masonry assemblies.
1. Joint Sealant: Sealant Type #6.
2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.

C. Joint-Sealant Application: Acoustical perimeter joints between interior ceiling surfaces, interior wall surfaces and frames of interior doors, and windows. Install on all walls indicated to receive acoustical wall insulation (indicated by wall type reference in the drawings)
1. Joint Sealant: Sealant Type #7.
2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.

END OF SECTION 07 92 00

SECTION 08 41 13 - ALUMINUM-FRAMED STOREFRONTS, and ENTRIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes, installation of new storefront and exit door assemblies in existing openings:
   1. Exterior storefront framing.
   2. Aluminum exit doors.
   3. All anchors, bridging, brackets, and attachments
   4. Hardware, not specified elsewhere

B. System Description
   1. System to perform as required below in Performance Requirements
   2. System to accommodate, without damage to system or components, or deterioration of perimeter seal: Movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; and deflection of structural support framing
   3. All required internal steel reinforcement, anchors, bracing, and attachments back to the primary structure of the building (defined as that structure that is shown in the “S” sheets of the drawings) shall be the responsibility of this specification section. Shop drawings shall be engineered and shall clearly indicate all required bracing, bridging, kickers, clips, etc. necessary for the proper installation of the window system

1.2 DEFINITIONS

A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.3 PERFORMANCE REQUIREMENTS

A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:
   1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
   2. Dimensional tolerances of building frame and other adjacent construction.
   3. Failure includes the following:
      a. Deflection exceeding specified limits.
      b. Thermal stresses transferring to building structure.
      c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
      d. Noise or vibration created by wind and by thermal and structural movements.
      e. Loosening or weakening of fasteners, attachments, and other components.
      f. Sealant failure.
      g. Failure of operating units.

B. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Structural Loads:
   1. Wind Loads:
      a. Basic Wind Speed: 100 mph.
      b. Importance Factor: As determined by IBC.
      c. Exposure Category: B

D. Deflection of Framing Members:
   1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches or

an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.

2. Deflection Parallel to Glazing Plane: Limited to L/360 of clear span or 1/8 inch, whichever is smaller.

E. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft..

F. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft..

G. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
    a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
    b. Low Exterior Ambient-Air Temperature: 0 deg F.
3. Interior Ambient-Air Temperature: 75 deg F.

H. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than 45 when tested according to AAMA 1503.

I. Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having an average U-factor of not more than 0.57 Btu/sq. ft. x h x deg F when tested according to AAMA 1503.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum-framed systems.

B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.

1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
2. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.

C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

D. Delegated-Design Submittal: For aluminum-framed systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of aluminum-framed systems.
2. Include design calculations.

E. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.

F. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

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

B. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.

C. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
   1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

D. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

E. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures including, but not limited to, excessive deflection.
      b. Noise or vibration caused by thermal movements.
      c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
      d. Adhesive or cohesive sealant failures.
      e. Water leakage through fixed glazing and framing areas.
      f. Failure of operating components.
   2. Warranty Period: 10 years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.
   1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Aluminum Exterior Storefront, Entry, with Series 300 Entrance doors as indicated in the drawings; internally steel reinforced, thermally broken, complete with deflection heads and base tracks with weep holes, for the work of this section. Fluropon aluminum finish to match architects approved sample.
   1. Basis of Design
      a. Storefront: Kawneer Trifab VG 451T
      b. Entry Doors: Kawneer Aluminum Entrances 300 series
   2. EFCO Corporation, equal product lines to above.
   3. United States Aluminum, equal product lines to above.
   4. Vistawall Architectural Products; equal product lines to above.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
   1. Sheet and Plate: ASTM B 209.
   2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
   3. Extruded Structural Pipe and Tubes: ASTM B 429.
   4. Structural Profiles: ASTM B 308/B 308M.
   5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
   1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
   2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
   3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 STOREFRONT FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
   1. Construction: Thermally broken.
   2. Sizes: 2 " x 4½", reference drawings for locations of each installation,
   3. Glazing System: Retained mechanically with gaskets on four sides.
   4. Glazing Plane: As indicated in drawings.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
   1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
   2. Reinforce members as required to receive fastener threads.
   3. If necessary, use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.

D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123/A 123M or ASTM A 153/A 153M.

E. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.

F. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.
   1. Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 GLAZING SYSTEMS

A. Glazing: Provide complete glazed installation to provide continuity of air and weather envelope of the building. Glazing shall match existing glazing on other windows and storefront glazed openings on the building

B. Glazing basis of design:
   1. **G1S-** Insulated Glazing Units, safety rated for locations subject to impact
      a. Solar-Control Low-E Insulating-Glass Units: PPG Industries Solarban 70 XL (2) **Solargray**
      b. Overall Unit Thickness and Thickness of Each Lite: 1" overall, with two ¼" nominal layers of glass with ½" air space between.
      c. Interspace Content: Air.
      d. Outdoor Lite: Class 1 (tinted).

1) Kind FT (fully tempered) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites and to comply with system performance requirements
2) Color: **"Solargray"** by PPG

e. Indoor Lite: Class 1 (clear) float glass.
1) Kind FT (fully tempered)

f. Low-E Coating: sputtered on second surface.
g. Visible Light Transmittance: 56 percent minimum.
h. Winter Nighttime U-Factor: .28 maximum.
i. Summer Daytime U-Factor: .26 maximum.
j. Solar Heat Gain Coefficient: .32 maximum.
k. Shading Coefficient: 0.37

C. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.
D. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
E. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

2.5 ENTRANCE DOOR SYSTEMS

A. Entrance Doors: Basis of Design – Kawneer Aluminum Entrances 300 Series Door; Medium stile, 5-1/2" vertical face dimension, 1-3/4" depth, 3/16" wall thickness, light commercial application.
B. Aluminum (Entrances and Components):
1. Material Standard: ASTM B 221; 6063-T6 alloy and temper
2. The door shall be 1-3/4" thick and stile and rail face dimensions of:

Door	Vertical Stile	Top Rail	Bottom Rail
550 Heavy Wall	5-1/2"	5-17/32"	8-1/2"

3. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of entrance members are nominal and in compliance with Aluminum Standards and Data, published by The Aluminum Association
4. Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.
5. Provide adjustable glass jacks to help center the glass in the door opening.
6. Coordinate rail and stile depths with access control devices and electric strikes.
7. Accessories
a. Fasteners: Where exposed, shall be aluminum, stainless steel or plated steel.
b. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
c. Weatherstripping:
1) Meeting stiles on pairs of doors shall be equipped with an adjustable astragal utilizing wool pile with polymeric fin
2) The door weathering on a single acting butt hung door and frame (single or pairs) shall be Kawneer Sealair® weathering. This is comprised of a thermoplastic elastomer weathering on a tubular shape with a semi-rigid polymeric backing
3) Sill Sweep Strips: EPDM blade gasket sweep strip in an aluminum extrusion applied to the interior exposed surface of the bottom rail with concealed fasteners.

2.6 ENTRANCE DOOR HARDWARE

A. General: Provide complete exit/entrance door hardware set to allow completely functional door and frame assembly, in addition to hardware set called for below for each entrance door to comply with requirements in this Section.
B. HW Group 1
3 ea. Hinges Ives 5BB1
1 ea Latch set, exit only with no exterior trim Schlage L9025 ANSI function F31
1 ea Closer, LCN 4040XPS-CUSH AL, with all mounting accessories

1 ea Threshold Pemko 271AK
1 ea Sweep Pemko 18062CNB x tek
1 set Weatherstrip gasket set, see below

A. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for aluminum framing.
B. Weather Stripping: Manufacturer's standard replaceable components.
   1. Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
   2. Sliding Type: AAMA 701, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
C. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip, in addition to item specified above.

2.7 ACCESSORY MATERIALS

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 07 Section "Joint Sealants."
   1. Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil thickness per coat.

2.8 FABRICATION

A. Form or extrude aluminum shapes before finishing.
B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fitted joints with ends coped or mitered.
   3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
   4. Physical and thermal isolation of glazing from framing members.
   5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
   6. Provisions for field replacement of glazing from interior for vision glass and exterior for spandrel glazing or metal panels.
   7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
F. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
   1. At exterior doors, provide compression weather stripping at fixed stops.
G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

A. Permafluor Architectural Finish, High Performance Paint, AAMA 2605 Requirements
   1. Primer: 0.2 – 0.3 mil
   2. Topcoat: 1.0 mil minimum
   3. Clear Coat: 0.4 – 0.8 mil (required)

B. Color: To be selected by architect from manufacturers full standard color range, to match existing dark anodized bronze storefront frames.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:
   1. Comply with manufacturer's written instructions.
   2. Do not install damaged components.
   3. Fit joints to produce hairline joints free of burrs and distortion.
   4. Rigidly secure non-movement joints.
   5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
   6. Seal joints watertight unless otherwise indicated.
B. Metal Protection:
   1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
   2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
D. Set continuous sill members and flashing in full sealant bed as specified in Division 07 Section "Joint Sealants" to produce weathertight installation.
E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.
F. Install glazing as specified in Division 08 Section "Glazing."
G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
   1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
   2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.
H. Install perimeter joint sealants as specified in Division 07 Section "Joint Sealants" to produce weathertight installation.

3.3 ERECTION TOLERANCES

A. Install aluminum-framed systems to comply with the following maximum erection tolerances:
   1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet; 1/4 inch over total length.
   2. Alignment:
      a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
      b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.
B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch.

3.4 FIELD QUALITY CONTROL

A. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.
B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

C. Aluminum-framed assemblies will be considered defective if they do not pass tests and inspections.

3.5 ADJUSTING

A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
   1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch, measured to the leading door edge.

END OF SECTION 08 41 13

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Interior gypsum board.
   2. Exterior gypsum board.
   3. Tile backing panels.
   4. Taped and sanded joint treatment
   5. Texture finish
   6. Installation of acoustical sealant specified in Section 07 92 00, at sound rated walls

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Provide certification that all drywall materials to be incorporated into the project are manufactured in the USA.
B. Samples: For the following products:
   1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.
   2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.3 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
C. Mockups: Before beginning gypsum board installation, install mockups of at least 50 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Install mockups for the following:
      a. Each level of gypsum board finish indicated for use in exposed locations.
      b. Each texture finish indicated.
   2. Apply or install final decoration indicated, including painting, on exposed surfaces for review of mockups.
   3. Simulate finished lighting conditions for review of mockups.
   4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat

to prevent sagging.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install interior products until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

B. General: Complying with ASTM C 36 or ASTM C 1396, as applicable to type of gypsum board indicated and whichever is more stringent.

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

1. National Gypsum Company – basis of design
2. American Gypsum Co. – products equal to basis of design
3. BPB America Inc. – products equal to basis of design
4. Certainteed – products equal to basis of design
5. G-P Gypsum – products equal to basis of design
6. Lafarge North America Inc. – products equal to basis of design
7. PABCO Gypsum – products equal to basis of design
8. USG Corporation – products equal to basis of design

D. All drywall materials incorporated into the project shall be manufactured in the USA.

2.2 FIRE-RESISTANCE RATED GYPSUM BOARD: Use in all locations unless noted otherwise in specifications or drawings.

A. Basis of Design: Gold Bond® BRAND Fire-Shield® Gypsum Board

1. Type X, Panel Physical Characteristics
   a. Core: Fire-resistance rated gypsum core
   b. Surface paper: 100 percent recycled content paper on front, back and long edges
   c. Long Edges: Tapered
   d. Overall thickness: 5/8 inch
   e. Panel complies with Type X requirements of ASTM C 1396

2.3 TRIM ACCESSORIES

A. Drywall Aluminum Trim: Extruded accessories of profiles and dimensions indicated. At all locations calling out for Control Joints in interior elevation drawings of gypsum board walls, the products for this joint shall be:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Basis of Design: Fry Reglet Corp.
      1) Wall Reveal: Reveal Molding DRM-625-625
      2) Wall “F” Reveal: “F” Reveal FDM 625-625 at bottom, top and panel end/side joints
   b. Gordon, Inc.; equivalent to above
   c. Pittcon Industries; equivalent to above
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.

3. Finish: Clear – Class II anodic finish.
4. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
5. Finish: Clear – Class II anodic finish.

B. Interior Trim: At all joint locations not defined in interior elevation drawings, joint system complying with ASTM C 1047.
1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:
a. Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. L-Bead: L-shaped; exposed long flange receives joint compound.
d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
e. Expansion (control) joint.
f. Curved-Edge Cornerbead: With notched or flexible flanges.

2.4 JOINT TREATMENT MATERIALS
A. General: Comply with ASTM C 475/C 475M.
B. Joint Tape:
1. Interior Gypsum Wallboard: Paper.
C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.
D. Joint Compound for Exterior Applications:
1. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.
2. Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board manufacturer.
E. Joint Compound for Tile Backing Panels:
1. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.
2. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
3. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.5 AUXILIARY MATERIALS
A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
D. Sound Attenuation Blankets: Reference and coordinate with Division 07 “Building Insulation”. ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

E. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."
   1. Provide sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
F. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."
G. Vapor Retarder: As specified in Division 07 Section "Thermal Insulation."

2.6 TEXTURE FINISHES
A. Reference and coordinate with Division 09 “Painting” for products and sequence of primer and gypsum board texture finishes.
B. Primer: As recommended by textured finish manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL
A. Comply with ASTM C 840.
B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
E. Form control and expansion joints with space between edges of adjoining gypsum panels.
F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
   1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage maybe accomplished with scraps of not less than 8 sq. ft. in area.
   2. Fit gypsum panels around ducts, pipes, and conduits.
   3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.3 APPLYING INTERIOR GYPSUM BOARD
A. Install interior gypsum board in the following locations:
   1. Type X: As indicated on Drawings, typical product for use unless noted otherwise in specifications or drawings.
   2. Ceiling Type: As indicated on Drawings.

B. Single-Layer Application:
   1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
   2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
      a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
      b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
   3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
   4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
B. Interior Trim: Install in the following locations:
   1. Cornerbead: Use at outside corners, unless otherwise indicated.
   2. LC-Bead: Use at exposed panel edges.
   3. L-Bead: Use where indicated.
   4. U-Bead: Use at exposed panel edges.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
   1. Level 2: Ceiling plenum areas, mechanical mezzanine areas, concealed areas, and where indicated.
   2. Level 5: Final texture of light orange peel spray applied texture, at all panel surfaces that will be exposed to view, unless otherwise indicated.
      a. Primer and its application to surfaces are specified in other Division 09 Sections.
E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.6 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: In accordance with 09 91 00, prepare and apply base coat primer to gypsum panels and other surfaces prior to applying texture finishes. Apply primer to surfaces that are clean, dry, and smooth per Painting Specification.
B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture matching approved mockup and free of starved spots or other evidence of thin application or of application patterns.
C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.
D. Finish Primer: In accordance with 09 91 00, prepare and apply top coat primer to gypsum panels and other surfaces after applying texture finishes. Apply finish primer to surfaces that are clean, dry, and smooth per Painting specification.

3.7 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight,

construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

SECTION 09 65 00 - RESILIENT PLANK (LVT) FLOORING

PART 1 - GENERAL

1.01 SUMMARY
A. Section Includes:
   1. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

1.02 REFERENCES
A. Mannington Technical Manuals
   1. Mannington Amtico/Spacia Luxury Vinyl Flooring Installation Guidelines
B. Patcraft Technical Manuals
   1. Patcraft Commercial Resilient Installation Guidelines
C. ASTM International:
   1. ASTM E 648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
   2. ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
   3. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
   4. ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring
   5. ASTM F 1700 Standard Specification for Solid Vinyl Tile
   6. ASTM F 1861 Standard Specification for Resilient Wall Base
   7. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
   8. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
D. National Fire Protection Association (NFPA):
   1. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
   2. NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials
E. Sustainability Standards
   1. ASTM E1347 - 06(2011) Standard Test Method for Color and Color-Difference Measurement by Tristimulus Colorimetry
   2. ASTM D5116 - 10 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products and California Department of Public Health (CDPH) Standard Method V1.1-2010
   3. ASTM D6866 - 12 Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis.
   4. ISO 14001 Environmental management systems -- Requirements with guidance for use
   5. ISO 14021 Environmental labels and declarations-Self-declared environmental claims (Type II environmental labeling)
   6. ISO 14024 Environmental labels and declarations -- Type I environmental labeling -- Principles and procedures
   7. ISO 14025 Environmental labels and declarations -- Type III environmental declarations -

- Principles and procedures
8. NSF/ANSI 332: Sustainability Assessment for Resilient Floor Coverings

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.
B. Administrative Requirements
    1. Pre-installation Meeting: Conduct an on-site pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.
    2. Pre-installation Testing: Conduct pre-installation testing as follows: [Specify testing (i.e. moisture tests, bond test, pH test, etc)
C. Test Installations/ Mock-ups: Install at the project site a job mock-up using acceptable products and manufacturer approved installation methods, including concrete substrate testing. Obtain Owner's and Consultant's acceptance of finish color, texture and pattern, and workmanship standards.
    1. Mock-Up Size: [Specify mock-up size.]
    2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
    3. Incorporation: Mock-up may be incorporated into the final construction with Owner's approval.
D. Sequencing and Scheduling
    1. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring.
    2. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond, moisture tests and pH test.

1.04 SUBMITTALS

A. Tech Data: Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions (latest edition of Armstrong Guaranteed Installation Systems manual, F-5061. for flooring and accessories.
B. Samples: Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.
C. MSDS: Submit Material Safety Data Sheets (MSDS) available for flooring product, adhesives, patching/leveling compounds, floor finishes and cleaning agents.
D. Certifications: If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.
E. Closeout: Closeout Submittals: Submit the following:
    1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
    2. Warranty: Warranty documents specified herein

1.05 QUALITY ASSURANCE

A. Responsibility: Single-Source Responsibility: provide types of flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
B. Select Installer: Select an installer who is competent in the installation of Armstrong resilient solid vinyl tile flooring.
    1. Engage installers certified as Armstrong Commercial Certified Installers
    2. Confirm installer's certification by requesting their credentials
C. Fire Performance: Fire Performance Characteristics: Provide resilient tile flooring with the following fire performance characteristics as determined by testing material in accordance with ASTM test methods indicated below by a certified testing laboratory or other testing agency

acceptable to authorities having jurisdiction:

1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I
2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with Division 01 Product Requirements Sections
B. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
C. Deliverability: Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
D. Storage: Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.07 PROJECT CONDITIONS

A. Temperature: Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of [100°F (38°C)][85°F (29°C)] for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to the Armstrong Guaranteed Installations Systems manual, F-5061 for a complete guide on project conditions.

1.08 WARRANTY

A. Resilient: Resilient Flooring: Submit a written warranty executed by the manufacturer, agreeing to repair or replace resilient flooring that fails within the warranty period.
B. Warranty Period: Warranty Period: 10 years
C. Rights: The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.
D. Validation: For the Warranty to be valid, this product is required to be installed using the appropriate Armstrong Guaranteed Installation System. Product installed not using the specific instructions from the Guaranteed Installation System will void the warranty.

1.09 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.
    1. Quantity: Furnish quantity of flooring units equal to [5%] of amount installed.
    2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra material.

Part 2- PRODUCTS

2.01 MANUFACTURER

A. Company: resilient tile flooring, wall base, adhesives and accessories:
    1. Mannington Mills, Inc., 75 Mannington Mills Road, Salem, NJ 08079, http://www.mannington.com/commercial
    2. Patcraft Industries, Inc., PO Box 2128 Dalton, GA 30722-2128 http://www.patcraft.com/Collection/Index#resilient

2.02 RESILIENT TILE FLOORING MATERIALS

A. Products: provide Luxury Vinyl Tile Flooring manufactured by Mannington Mills Inc. and Patcraft Industries, Inc.

1. Description: A layered construction consisting of a tough, clear, vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a UV-cured polyurethane finish, the wear surface is embossed with different textures to enhance each of the printed visuals. Colors are insoluble in water and resistant to cleaning agents and light.
2. Luxury Vinyl Tile shall conform to the requirements of ASTM F 1700, 'Standard Specification for Solid Vinyl Tile", Class III, Type B - Embossed Surface and/or Type A-Smooth Surface.
3. Product:
    a. Mannington Amtico, Applewood AROW7740
    b. Patcraft, equal product to specified product.
    c. Confirm product selection by sample submittal to Owner prior to ordering.

2.03 ADHESIVES

A. Standard Moisture: Provide Adhesive under the flooring and at the wall base as recommended by the flooring manufacturer.
B. High Moisture: Provide Tile High-Moisture Installation Warranty, Full Spread: Provide Adhesive for field areas as recommended by the flooring manufacturer.
C. Spray Adhesive Installation Warranty: Provide Spray Adhesive for field areas Wall Base Adhesive at the wall base as recommended by the flooring manufacturer.

2.04 ACCESSORIES

A. Patching: For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), Provide Underlayment and Embossing Leveler as recommended by the flooring manufacturer.
B. Sealing: For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
C. Transition: Provide transition/reducing strips tapered to meet abutting materials.
D. Threshold: Provide threshold of thickness and width as shown on the drawings.
E. Resilient Edge Strips: Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

Part 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures as needed.

3.02 EXAMINATION

A. Site Verification: Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (i.e. moisture tests, bond test, pH test, etc.).
B. Visual Inspection: Visually inspect flooring materials, adhesives and accessories prior to installation. Flooring material with visual defects shall not be installed and shall not be considered as a legitimate claim.
C. Examine Subfloors: Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material
D. Inspect Subfloors: Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of

moisture, alkaline salts, carbonation, dusting, mold, or mildew.

E. Reporting: Report conditions contraryto contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

F. Failure Warning: Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.03 PREPARATION

A. Smooth Surfaces: Subfloor Preparation: Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Underlayment as recommended by the flooring manufacturer. Refer to Manufacturers' Installation Manual for additional information on subfloor preparation.

B. Subfloor Cleaning: Subfloor Cleaning: Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents. Refer to the Manufacturers' Installation Guidelines, and ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.

C. Standard Moisture Test: Perform subfloor moisture testing in accordance with [ASTM F 2170, 'Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situProbes'] [ASTM F 1869,'Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride'] and Bond Tests as described in publication F-5061, "Armstrong Guaranteed Installation System," to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. [Relative humidity shall not exceed 80%.][MVER shall not exceed 5 lbs./1000 sq. ft./24 hrs.] On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained

D. High Moisture Test:[For Tile High-Moisture Installation Warranty, when using S-543 Adhesive, perform subfloor moisture testing in accordance with [ASTM F 2170, 'Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes'] [ASTM F 1869,'Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride'] and Bond Tests as described in publication F-5061, "Armstrong Guaranteed Installation System," to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. [Relative humidity shall not exceed 90%.] [MVER shall not exceed 7 lbs./1000 sq. ft./24 hrs.] On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained].

E. High-Moisture Installation Warranty:For Spray Adhesive High-Moisture Installation Warranty perform subfloor moisture testing in accordance with ASTM F 2170, 'Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes' and Bond Tests as described in specific Manufacturers' Installation Guidelines to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. Internal relative humidity of the concrete shall not exceed 90%. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.

F. pH Test: Concrete pH Testing: Perform pH tests on concrete floors regardless of their age or grade level. All test results shall be documented and retained.

G. Surface Cleaning: Surface Cleaning: Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.04 INSTALLATION OF FLOORING

A. F5061: Install flooring in strict accordance with the latest edition of the specific Manufacturers' Installation Guidelines. Failure to comply may result in voiding the manufacturer's warranty listed in Section 1.08
B. Wall-to-Wall: Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
C. Scribe: Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.
D. Roll: Roll with a 100-pound (45.36 kilogram) roller in the field areas Refer to specific rolling instructions of the flooring manufacturer.
E. Tools: Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.05 INSTALLATION OF ACCESSORIES

A. Voids: Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates
B. Resilient Edge Strips – Butted. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.

3.07 PROTECTION

A. Protection: Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings. (See Maintenance section in the latest edition of the specific Manufacturers' Installation Guideline.)

END OF SECTION 09 65 00

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Resilient base.
   2. Resilient molding accessories.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.
C. Product Schedule: For resilient products. Use same designations indicated on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
   1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
B. Mockups: Provide resilient products with mockups specified in other Sections.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.5 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:
   1. 48 hours before installation.
   2. During installation.
   3. 48 hours after installation.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

1.6 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Furnish not less than 10 linear feet for every500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

A. Resilient Base:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Johnsonite.
      b. Armstrong World Industries, Inc.
      c. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
      d. Endura Rubber Flooring; Division of Burke Industries, Inc.
      e. Flexco, Inc.
      f. Mondo Rubber International, Inc.
      g. Musson, R. C. Rubber Co.
      h. Nora Rubber Flooring; Freudenberg Building Systems, Inc.
      i. Roppe Corporation, USA.

B. Resilient Base Standard: ASTM F 1861.
   1. Material Requirement: Type TS (rubber, vulcanized thermoset) or Type TP (rubber, thermoplastic).
   2. Manufacturing Method: Group I (solid, homogeneous) or Group II (layered).
   3. Style: Cove (base with toe), and Straight (base without toe).

C. Minimum Thickness: 0.125 inch.

D. Height: 4 inches with cove base or as indicated on Drawings.

E. Lengths: Coils in manufacturer's standard length.

F. Outside Corners: Job formed.

G. Inside Corners: Job formed.

H. Finish: Matte.

I. Colors and Patterns: As indicated by manufacturer's designations, reference Finish Schedule Material Finish Designations.

2.2 RESILIENT MOLDING ACCESSORY

A. Resilient Molding Accessory:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Johnsonite.
      b. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
      c. Flexco, Inc.
      d. R.C.A. Rubber Company (The).
      e. Roppe Corporation, USA.

B. Description: Carpet edge for glue-down applications, Nosing for carpet, Nosing for resilient floor covering, Reducer strip for resilient floor covering, Joiner for tile and carpet and miscellaneous Transition strips.
C. Material: Rubber.
D. Flooring Transitions: As indicated or type and size to accommodate transition between flooring materials
   1. Basis of Design Transition Strip: Johnsonite CTA-XX-A
   2. Confirm other molding, trim, transition strips to suit individual applications and conditions
E. Colors and Patterns: As indicated by manufacturer's designations, reference Finish Schedule Material Finish Designations.

2.3 INSTALLATION MATERIALS
A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
   1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
      a. Cove Base Adhesives: Not more than 50 g/L.
      b. Rubber Floor Adhesives: Not more than 60 g/L.
C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.
D. Floor Polish: Provide protective liquid floor polish products as recommended by resilient stair tread manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION
A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
B. Concrete Substrates for Resilient Stair Treads and Accessories: Prepare according to ASTM F 710.
   1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
   2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
   3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
   4. Moisture Testing: Perform tests recommended by manufacturer [and as follows]. Proceed with installation only after substrates pass testing.
      a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
      b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.
C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
D. Do not install resilient products until they are same temperature as the space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends.
2. Inside Corners: Use straight pieces of maximum lengths possible. Miter cut to provide tight fitting joint with no gaps.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Stair Accessories:

1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.
3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products until Substantial Completion.

END OF SECTION 09 65 13

SECTION 09 91 00 – PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. All surface preparation throughout the project
2. All site-applied painting and clear finish application on the project, including Mechanical, and Electrical areas of work.
3. Surface finish schedule.

B. Related Sections

1. Mechanical items: Painting of anchors/hangers, piping, mechanical equipment, ductwork, insulation, etc. shall be performed by this section except where specifically stated otherwise in Division 22, or 23. All paint materials and methods, regardless of installer, shall meet the requirements set forth in Section 09 91 00 for Products and Execution. Upon completion of the project, all materials exposed to view shall be painted.
2. Electrical items: Painting of anchors/hangers, piping, mechanical equipment, ductwork, insulation, etc. shall be performed by this section except where specifically stated otherwise in Division 26, 27, or 28. All paint materials and methods, regardless of installer, shall meet the requirements set forth in Section 09 91 00 for Products and Execution. Upon completion of the project, all materials exposed to view shall be painted.

1.2 REFERENCES

A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
B. ASTM D 2016 - Test Method for Moisture Content of Wood.
C. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Submit product data under provisions of Division 01.
B. Provide product data on all finishing products.
C. Submit three (3) 8”x 10” paint draw downs of each specified paint material in each specified color and sheen

1.4 QUALITY ASSURANCE

A. Qualifications

1. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with three years experience.
2. Applicator: Company specializing in commercial painting and finishing approved by product manufacturer.

B. Field Samples

1. Provide samples under provisions of Division 01.
2. Before proceeding with paint application, finish one complete typical wall with trim, door frames, doors, etc. of each paint type and color scheme required, clearly indicating selected colors, finish texture, materials and workmanship
2. Provide field sample panel, on at least 100-sq. ft. of surface until required sheen, color and texture are achieved.
3. Locate where directed.
4. Once each scheme has written approval of the Architect and the Owner, sample may remain as part of the Work.
5. If approved, sample area will serve as a minimum standard for workmanship throughout work

C. Regulatory Requirements

1. Conform to ASTM E 84 for flame/smoke rating requirements for finishes.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 01.
B. Store and protect products under provisions of Division 01.
C. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.
D. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
E. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturer's instructions.
F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.6 PROJECT/SITE CONDITIONS

A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 50 degrees for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
B. Do not apply exterior coatings during rain or snow, or when relative humidity is above 85 percent unless required otherwise by manufacturer's instructions.
C. Minimum Application Temperatures for Latex Paints: 50 degrees F; unless required otherwise by manufacturer's instructions.
D. Minimum Application Temperature for Varnish Finishes: 65 degrees F, unless required otherwise by manufacturer's instructions.
E. Provide lighting level of 80-ft candles measured mid-height at substrate surface.

1.7 SPECIAL WARRANTY

A. Under provisions of Division 01.
B. Provide Manufacturer's Standard Material Warranty.

1.8 MAINTENANCE

A. Extra Stock: provide (1) gallon of each type and color of paint or coating used.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. PAINT, STAIN, AND URETHANE
    1. Sherwin-Williams Company
    2. Columbia Paint Corporation
    3. Pittsburgh Paints
    4. Benjamin Moore
B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
B. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.
C. Provide a tint variation between all under coats and the final coat.
D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
E. Refer to schedule at end of Section for surface finishes.
F. VOC Content of Field-Applied Interior Primers, Paints, Coatings, Stains, and Transparent Finishes: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Sub-

part D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC content not more than 250 g/L.
4. Floor Coatings: VOC content not more than 100 g/L.
5. Shellacs, Clear: VOC content not more than 730 g/L.
6. Shellacs, Pigmented: VOC content not more than 550 g/L.
7. Clear Wood Finishes, Varnishes: VOC content not more than 350 g/L.
8. Clear Wood Finishes, Lacquers: VOC content not more than 550 g/L.
9. Stains: VOC content not more than 250 g/L.

G. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop.

1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
2. Restricted Components: Paints and coatings shall not contain any of the following:
    a. Acrolein.
    b. Acrylonitrile.
    c. Antimony.
    d. Benzene.
    e. Butyl benzyl phthalate.
    f. Cadmium.
    g. Di (2-ethylhexyl) phthalate.
    h. Di-n-butyl phthalate.
    i. Di-n-octyl phthalate.
    j. 1,2-dichlorobenzene.
    k. Diethyl phthalate.
    l. Dimethyl phthalate.
    m. Ethylbenzene.
    n. Formaldehyde.
    o. Hexavalent chromium.
    p. Isophorone.
    q. Lead.
    r. Mercury.
    s. Methyl ethyl ketone.
    t. Methyl isobutyl ketone.
    u. Methylene chloride.
    v. Naphthalene.
    w. Toluene (methylbenzene).
    x. 1,1,1-trichloroethane.
    y. Vinyl chloride.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that substrate is ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

1. Gypsum Wallboard: 12 percent.

2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
3. Interior Located Wood: 15 percent, measured in accordance with ASTM D 2016.
4. Concrete Floors: 12 percent.
5. Beginning of installation indicates acceptance of substrate.

D. Ensure surface temperatures or the surrounding air temperature is above 45 deg F before applying finishes. Minimum application temperatures for latex paints for interior work is 45 degrees F and 50 degrees F for exterior work. Minimum application temperature for varnish and stain finishes is 65 degrees F.

E. Provide adequate continuous ventilation and sufficient heating facilities to maintain temperatures above 45 degrees F for 24 hours before, during and 48 hours after application of finishes.

F. Provide minimum 80 foot candles of lighting on surfaces to be finished. No exceptions

3.2 PREPARATION

A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing for finishing.

B. Correct defects, patch and fill substrate cracks, dents, holes, and other surface inconsistencies to match adjacent surfaces. Clean surfaces which affect work of this Section.

C. Shellac and seal marks which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Concrete Floors: Schedule to receive clear wear surface, remove contamination, shot blast and prepare according to wear surface manufacturers instructions. Verify required acid-alkali balance is achieved. Allow to dry.

F. Concrete floors scheduled to receive sealer: Prepare floor according to sealer manufacturer's instructions.

G. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.

H. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

I. Concrete Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose paint, mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry. Confirm all surfaces are smooth and structurally sound. All loosely adhering paint, coatings and concrete shall be completely removed by scraping, pressure washing, blasting or other mechanical means. Chalky, oxidized or contaminated surfaces must be washed with Marathon Cleaning Concentrate (MCC) or equal biodegradable cleaner.
   1. All cracks greater than hairline shall be routed to 1/16" and caulked with NP-1 urethane sealant.

J. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

L. Steel Doors: Remove surface contamination and oils and wash with solvent. Seal top and bottom edges with primer.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Do not apply finishes to surfaces that are not dry.

C. Apply each coat to uniform finish, without streaking, telegraphing of drywall joints or brush marks.

D. Apply finish coats of paint slightly darker than preceding prime coat unless otherwise approved.

E. Sand lightly between coats to achieve required finish.

F. Allow applied coat to dry before next coat is applied.

G. Back-roll all spray applied primer and finish coats on gypsum board or plaster finishes

H. Prime back surfaces of interior and exterior woodwork with primer paint.
I. Seal concrete floors with polyurethane sealer.
J. Paint all Mechanical and Electrical Equipment exposed to public view, this shall include but not be limited to, ducts, conduits, fitting, suspension/anchors and boxes. Protect interior reflector surfaces of light fixtures from any paint application or overspray.
K. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.
L. Field finish surfaces not factory pre-finished. Extend finish all the way behind all casework, chalkboards, markerboards, and tackboards and similar items to allow relocation
M. Protection
    1. Adequately protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.
    2. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.
    3. Place cotton waste, cloths and materials which may constitute a fire hazard in closed metal containers and remove daily from site.
    4. Remove electrical plates, surface hardware, mechanical equipment, fittings and fastenings, prior to painting operations. These items are to be carefully stored, cleaned and replaced on completion of work in each area. Do not use solvent to clean hardware that may remove permanent lacquer finish.
N. Mechanical and Electrical Equipment
    1. Refer to mechanical and electrical sections with respect to painting and finishing requirements, color coding, identification banding of equipment, ducting, piping and conduit.
    2. Remove grilles, covers and access panels for mechanical and electrical systems from location, sand and paint separately.
    3. Finish paint primed and existing field painted equipment to color selected.
    4. Prime and paint insulated and bare pipes, conduits, boxes, insulated and bare ducts, hangers, brackets, collars and supports, except where items are plated or covered with a pre-finished coating.

3.4 CLEANING
A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.5 PROTECTION
A. Protect elements surrounding the work of this Section from damage or disfiguration.
B. Repair damage to other surfaces caused by work of this Section.
C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
D. Remove empty paint containers from site.

3.9 SCHEDULES
A. Shop-Primed Items for Site Finishing.
    1. Standard steel doors and frames (Division 08): All exposed surfaces, tops and bottoms of doors.
B. Interior Surfaces
    1. Steel - Primed:
        a. Touch-up with original primer.
        b. Paint Finish - One coat acrylic primer. 1.5 mil min.
        c. Paint Finish - Two coats Alkyd (Pro Mar 200) semi-gloss finish. 3 mil min
    2. Steel - Galvanized:

a. One coat zinc chromate primer, 2.0 mil, per TTP-645A specifications.
b. Paint Finish - One coat acrylic primer. 1.5 mil min.
c. Paint Finish - Two coats Alkyd (Pro Mar 200) semi-gloss finish. 3 mil min

3. Gypsum Board:
   a. Sponge raw drywall tape joints and then apply one coat acrylic latex primer sealer with a vapor transmission rating less than one per TTP-1975 specifications, apply before final gypsum board texture coat.
   b. One coat acrylic latex primer sealer with a vapor transmission rating less than one per TTP-1975 specifications, apply after final gypsum board texture coat.
   c. Two coats acrylic latex enamel, semi-gloss sheen, 3.0 mil total of two coats per TTP-1511B specifications.
4. Gypsum Board at toilet rooms and wet areas:
   a. Sponge raw drywall tape joints and then apply one coat acrylic latex primer sealer with a vapor transmission rating less than one per TTP-1975 specifications, apply before final gypsum board texture coat.
   b. One coat acrylic latex primer sealer with a vapor transmission rating less than one per TTP-1975 specifications, apply after final gypsum board texture coat.
   c. Two coats epoxy enamel, semi-gloss sheen 3.0 mil.

D. Colors – Coordinate with Owner for final color selections. The project shall include up to three (3) different colors of paint.

END OF SECTION 09 91 00