

**NEW BUILDING FOR**  
**BOONE COUNTY**  
**ANIMAL SERVICES**  
**&**  
**ADOPTION CENTER**

**1546 SQUAW PRAIRIE ROAD**  
**BELVIDERE, IL**

**PROJECT MANUAL**

**K13036**

**October 26, 2015**



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**Wautoma, WI 54982**

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**Issue Date:** October 26, 2015

**KSA Project Number:** K13036

**PROJECT MANUAL, INCLUDING BUILDING MATERIAL SPECIFICATIONS**

**For:** Boone County Animal Services & Adoption Center

**Project Location:** 1546 Squaw Prairie Road, Belvidere, IL

**Owners' Office and Representative:** Kenneth A. Terrinoni, County Administrator  
1212 Logan Ave. Suite 102  
Belvidere, IL 61008  
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Email: ktboone@boonecountyil.org

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**SECTION 00010  
INVITATION TO BID**

Sealed bids from qualified general contractors will be received for:

For:

**NEW BUILDING  
BOONE COUNTY ANIMAL SERVICES & ADOPTION CENTER  
1546 SQUAW PRAIRIE ROAD  
BELVIDERE, ILLINOIS**

Project includes:

The construction of a new 2,800 SF Animal Control building to be located at 1546 Squaw Prairie Road, Belvidere, IL. Project includes building construction of concrete, wood framing, wood trusses, casework, doors, windows, finishes, plumbing, lighting, electrical, and site development, including grading, paving and landscaping.

Pre-bid meeting is scheduled Tuesday, November 10, 2015 at 1:30 p.m.

Sealed bids will be received Tuesday, December 1, 2015 at 3:00 p.m.

Boone County Clerk's Office  
1212 Logan Ave., Suite 103  
Belvidere, IL 61008

Bids will be opened publicly following the bid closing.

1. Plans may also be viewed at the Boone County Offices, address above.
2. Plans are available from the Boone County website: [www.boonecountyil.org](http://www.boonecountyil.org)
3. Printed copies are available, at bidder's expense, from Youngs Consulting Services, YCS Printing,  
305 E. Riverside Blvd., Loves Park, IL 61111 PH 815-636-2058 FAX 815-636-2059  
<http://ycsprinting.com/>

Bidders are required to provide a Bid security in the form of a Bid Bond, Certified Check or Cashier's Check in the amount equal to 5% of their Base Bid. A Performance and Payment Bond will be required from the successful bidders.

Boone County reserves the right to reject any and all bids, or any bid which, in their opinion, will be inappropriate to carry out the work under the terms of the contract, and to waive any irregularities in bidding.

**END OF SECTION 00010**

**SECTION 00100  
INSTRUCTIONS TO BIDDERS**

Examination of Project: Bidders shall visit the Project Site to familiarize themselves with existing conditions affecting the execution of the work. Bidders shall review the entire set of contract documents.

Bidder's Responsibility: Submittal of a proposal on this work will be considered as an indication that the bidder has checked all drawings and specifications and other items listed in the "Table of Contents" of the Project Manual, including all addenda, and is familiar with all work involved for this project. No extras or addition to the contract will be allowed by reason of any contractor's failure to check all the contract documents issued for bidding.

Before submitting a bid contractor shall acquaint himself with the site. Bids shall be included for scope of work represented on drawings and specifications and everything reasonably implied for a complete job. Failure to visit site or examine documents will in no way relieve the successful bidder from furnishing materials and performing work required for a complete job.

Document Clarification: Bidders shall bring inadequacies, omissions, and conflicts to the attention of the Project Administrator. Prompt clarification will be supplied to all bidders in the form of an addendum.

Failure to request clarification does not relieve the contractor of responsibility to perform the work as described in the contract documents. Signing of the contract will denote a thorough understanding of the intent and scope of the project.

All questions and requests for interpretation of the contract documents shall be directed to the Project Administrator.

Reservations: The Owner reserves the right to reject any or all bids, waive or not waive any informalities in the bids received, or to accept any part or all of any bid which is deemed most favorable to the Owner.

Bid Proposal: Separate sealed bids from Contractors will be received for:

1. Site development work for animal services project
2. Building Construction/Architectural trades work – base bid
3. Alternates, including site development work for sheriff's department

Contractor shall utilize the enclosed "Bid Form." The contractor shall fill this form in its entirety. Failure to complete any portion of the form may result in disqualification of bid.

If an item or alternate is listed on the bid form that is not specific to the trade the contractor is bidding, acknowledge that you have reviewed the alternate and if no work is required by your trade enter (\$0.00) "Zero Dollars."

No bid shall be withdrawn for a period of 45 days from the time of the bid opening.

Bid Security: The contractor shall furnish bid security in the form of a certified check, bank draft or bid bond for 5% of the base bid. This security will be forfeited if the successful bidder does not execute a contract with the Owner, or fails to provide satisfactory Performance and Labor Bond within ten days after notice of acceptance of his/her bid by the Owner if Owner requires a Bond.

Substitutions of Material & Equipment: All bidders must submit their proposals in strict conformity to the drawings and specifications.

Proposed substitutions must be equal to that specified and submitted in writing to the Owner's Representative at least seven (7) days before Bid Proposal due date.

A substitution shall be subject to approval of Owner's Representative and Owner, and their decision shall be final.

All approved substitutions will be listed in an addendum issued to all registered plan holders. After award of contract, substitutions will not be permitted, unless authorized by the Owner's Representative and processed by duly issued Change Order or Field Order signed by Owner.

Bid Opening: The bids will be opened publicly at 3:00 p.m., Tuesday, December 1, 2015.

Form of Contract: The Owner intends to award the contract within fourteen (14) calendar days after the receipt of bids.

The Owner-Contractor Agreement shall be AIA Document A101.

Contractor's Insurance Requirements: The contractor or his subcontractors shall not commence work under contract until he has obtained all insurance required by contract documents and has filed certificates thereof with the Owner.

Refer to Supplementary and General Conditions for the type of insurance and bonds required.

Performance and Payment Bond: The successful bidder shall furnish bonds for the faithful performance of the contract and the payment of all obligations arising thereunder, for the full amount of the contract price as required by Owner.

The bidder shall deliver the required bonds to the Owner no later than the date of execution of the contract, or if the work is commenced prior thereto in response to a letter of intent, the bidder shall, prior to commencement of work, submit evidence satisfactory to the Owner that such bonds will be issued.

Commencement and Completion: The successful bidder must agree to commence work on or before dates to be specified in the *Standard Form of Agreement Between Owner and Contractor* and verified in a written "Notice to Proceed" and complete work within \_\_\_\_\_ working days thereafter.

Should it be found impossible to complete the work on or before the time specified for completion, a written request may be submitted for extension of time setting forth the reasons believed to justify the granting of such request.

Permits: See Supplementary Conditions change in Subparagraph 3.7.1 of the General Conditions.

Laws and Regulations: The bidder's attention is directed to the fact that all applicable State laws and the rules and regulations of all authorities having jurisdiction over construction of this project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

Prevailing Wage: Contractor is obligated to ensure State of Illinois prevailing wage standards.

Work by Owner: The following work will be accomplished by the Owner or will be let under separate contracts not included in this specification: all items marked "N.I.C." or "By Owner" on contract drawings.

However, the contractor shall be responsible for coordinating installation of any equipment marked "Not in Contract" or "By Owner" which directly affects scheduling of his/her work.

Also see Bidding Alternate #4 regarding potential additional services of Contractor supplied labor for installation of Owner supplied equipment.

#### Work By Owner

##### Site Development

- Improvements to access road from Squaw Prairie Road
- Water service to building
- On-Site Sanitary Waste System including new septic tanks, and reactivation of existing septic system drain-field
- Other work yet to be identified

##### Building

- Equipment for staff use; See Equipment Schedule
- Equipment for animal care; See Equipment Schedule
- Low voltage electrical systems including security system, telephones, computer networks, audio-visual systems.
- Furniture
- Other work yet to be identified

Safety and Health Regulations: Contractor shall comply with the safety requirements in accordance with OSHA Standards and with any other applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The contractor shall erect and maintain, as required by the conditions and progress

END OF SECTION 00100

**SECTION 00120  
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

**PART 1 - GENERAL**

A. INSTRUCTIONS TO BIDDERS

1. All requirements of this Section relate exclusively to A.I.A. document A701, "Instructions to Bidders," and modify that Document only to extent and degree as herein stipulated.

B. SUBSTITUTIONS

1. Affected paragraph: 3.3.4.
2. Change: Substitutions will be considered after Contract has been awarded. See Section 01600 Product Options and Substitutions.

C. BID SECURITY

1. Affected paragraph: 4.2.1.

**PART 2 - PRODUCTS - Not Applicable To This Section**

**PART 3 - EXECUTION - Not Applicable To This Section**

END OF SECTION 00120

**SECTION 00300  
BID FORM**

We \_\_\_\_\_  
(A Corporation) (A Partnership) (An Individual) Use One

OF \_\_\_\_\_  
Street

\_\_\_\_\_  
City State Zip Phone

hereby agree to execute proposed contract and to furnish all labor and materials required for the construction of the Boone County Animal Services & Adoption Center, 1546 Squaw Prairie Road, Belvidere, Illinois, in strict accordance with Contract Documents prepared by Mark J. Schmidt Architect, Knapp Schmidt Architects, PO Box 672, Wautoma, WI 54982 and dated: October 9, 2015; Kevin Bunge, PE, Civil Engineering Services, 700 W. Locust, Belvidere, IL 61008; Frank Gallagher, Principal, Legacy Designs, Inc., 6116 Mulford Village Dr., Rockford, IL 61107; John Vann, PLA, Land Tech Design, Ld., 2930 Cherry Road, Oswego, IL, 60543

**Bidder to provide prices in the spaces indicated, for the sum of the work;**

Base Bid:

- 1. All Animal Services SITE WORK, including grading, paving, landscaping, utility service installation except well and on-site sanitary system. \$ \_\_\_\_\_
  
- 3. All of Building Construction (BUILDING ONLY). \$ \_\_\_\_\_

**Total BASE BID for the sum of:** \$ \_\_\_\_\_

**ALTERNATES** as specified or requested by addendum.

**ALTERNATE #1: Add activity room. Bid sections 1.A – 1.C separately.**

**1.A – Concrete foundation and concrete slab.**

Add to Base Bid, the Sum of:

\_\_\_\_\_ (\$ \_\_\_\_\_)

**1.B – Un-insulated exterior walls with siding and all roofing and gutters.**

Add to Base Bid, the Sum of:

\_\_\_\_\_ (\$ \_\_\_\_\_)

**1.C – Interior finishes, including insulation, flooring, painted drywall, ceilings, HVAC, and lighting.**

Add to Base Bid, the Sum of:

\_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE #2: Add vestibule.**

Add to Base Bid, the Sum of:

\_\_\_\_\_ (\$ \_\_\_\_\_)

**ALTERNATE #3: Add flagpole.**

Add to Base Bid, the Sum of:

----- (\$-----)

**ALTERNATE #4: Provide additional Owner equipment installation services.**

**See Equipment Schedule.**

Add to Base Bid, the Sum of:

----- (\$-----)

**ALTERNATE #5: All Sheriff's Department Building SITE WORK,**

**including grading and landscaping.**

Add to Base Bid, the Sum of:

----- (\$-----)

**ALTERNATE #6: Add chainlink fence around dog yard west of new building.**

Add to Base Bid, the Sum of:

----- (\$-----)

**ALTERNATE #7: Add monument sign foundation at driveway entrance.**

**No electrical service. Sign by owner**

Add to Base Bid, the Sum of:

----- (\$-----)

**ALTERNATE #8: \_\_\_\_\_**

(Add/Deduct) (to/from) Base Bid, the Sum of:

----- (\$-----)

**ADDENDUM RECEIPT:** We acknowledge the receipt of Addenda \_\_\_\_\_ to \_\_\_\_\_, inclusive.

**COMMENCEMENT AND COMPLETION OF CONTRACT WORK**

The undersigned agrees, if awarded the contract, to commence the contract work within 10 days of the issue date of the written notice to proceed and will complete the work within the time stated in the Contract Documents.

**NUMBER OF CALENDAR DAYS FOR PROJECT COMPLETION:** \_\_\_\_\_

-----  
**Firm Name**

**By**

-----  
**Title**

**Date**

END OF SECTION 00300

**SECTION 00700  
GENERAL CONDITIONS**

GENERAL CONDITIONS: The American Institute of Architects Document A201 titled "General Conditions of the Contract for Construction", 2007 Edition, hereinafter referred to as the "General Conditions" is hereby made a part of these contract documents.

END OF SECTION 00700

**SECTION 00800**  
**SUPPLEMENTARY GENERAL CONDITIONS**

**Article 1 Provisions**

THE SUPPLEMENTARY GENERAL CONDITIONS: Where any article of A.I.A. General Conditions is changed or supplemented herein, all unaltered provisions of such article shall remain in effect. All amendments or modifications herein shall take precedence over the original provisions.

Definitions. Paragraph 1.1 of the AIA General Conditions shall be supplemented as follows:

Examples of miscellaneous definitions:

1. The term "product" includes materials, systems and equipment.
2. The term "provide" includes furnishing and installing a product, complete in place, tested, and approved.
3. The term "building code" and the term "code" refer to regulations of governmental agencies having jurisdiction.
4. The terms "approved," "required," and "as directed" refer to and indicate the work or materials that may be approved, required, or directed by the Architect/Engineer acting as the agent of the Owner.
5. The term "similar" means in its general sense and not necessarily identical.
6. The terms "shown," "indicated," "detailed," "noted," "scheduled," and terms of similar import refer to requirements in the contract documents.

Taxes. Subparagraph 3.6.1 of the AIA General Conditions shall be supplemented as follows:

1. Contractor shall pay unemployment and Social Security Taxes and/or other taxes imposed by Local, City, State or Federal Government and certify to Owner that this has been done before final payment is made to Contractor.

Permits, Fees and Notices. Delete Subparagraph 3.7.1 of the AIA General Conditions and Substitute with the Following:

Contractor shall obtain and pay for all construction permits, licenses, bonds, certificates, inspection and other fees, both permanent and temporary. The General Contractor shall accrue and pay the cost of local building permit. The Owner will pay the contract documents examination fees.

**Article 4 - Administration of the Contract**

Arbitration, Subparagraph 4.6.1 shall be supplemented as follows:

1. No Contractor shall have the right to prosecute or maintain either an arbitration proceeding or a suit at law to recover for an extra, unless his claim is based upon written order signed by the Owner and Architect

**Article 7 - Change in the Work**

Construction Change Directives. Subparagraph 7.3.3 of the AIA General Conditions, add to Subparagraph 3 the following:

1. To the cost under subparagraph .3, there shall be added a added a percentage fee not to exceed fifteen percent of the actual cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

**Article 8 - Time:**

Progress and Completion. Subparagraph 8.2.3 of the AIA General Conditions shall be supplemented as follows:

1. Time of completion shall be strictly adhered to. In case of failure on part of Contractor to prosecute his work satisfactorily, Owner reserves the right to employ other means to complete work as described in Contract Documents.

**Article 9 - Payments and Completion:**

Certificates of Payment. Subparagraph 9.4.1 of the AIA General Conditions shall be supplemented as follows:

1. Amounts to be retained will be as follows:
  - a. Ten percent will be retained until 50% completion. No additional retainage from 50% completion to substantial completion. Or, five percent will be retained throughout the course of the project to substantial completion.

Substantial Completion. Subparagraph 9.8.2 of the AIA General Conditions shall be supplemented as follows:

1. Moving of equipment into building under other contracts will not constitute partial occupancy.

Final Completion and Final Payment: Subparagraph 9.10.1 of the AIA General Conditions shall be supplemented as follows:

1. Final Payment shall be made within 10 days of completion of punch list items.
2. Upon receipt of second notice and Application for Payment, Architect shall make an inspection to determine if the work is acceptable under the contract documents and the contract fully performed. Subsequent inspection trips to check unfinished work on the punch list will be paid for by the Contractor at the Architect's regular rate. If work is complete, Architect shall authorize final payment in accordance with subparagraph 9.2 of the AIA Document A201.

**Article 10 - Protection of Persons and Property**

Add the following to paragraph 10.1 "Safety Precautions & Programs", Article 10 of General Conditions:

1. Contractor shall comply with State Stats., which provides that any person intending to excavate, erect a building, or make changes thereon, or wreck a building, before commencing the work shall give at least three (3) days notice in writing to all public utilities whose facilities shall be affected thereby. The Contractor shall safeguard and protect all utilities and be held liable for any damage thereto during construction. Relocating utilities to expedite construction will be permitted if it is done at no cost to the Owner.

**Article 11 - Insurance and Bonds**

Contractor's Liability Insurance

1. The insurance required shall be comprehensive basis including: Premises - Operations (including X-C/U), Independent Contractor's Protective, Products and Completed Operations, Personal Injury Liability with Employment Exclusion deleted, Blanket Contractual - All written contracts, Owned, non-owned, and hired motor vehicles, Broad Form Property Damage including Completed Operations, and shall be purchased from and maintained in a company or companies properly licensed to do business in the state or who are otherwise permitted to write insurance in this jurisdiction provided they agree to pay the appropriate surplus lines premium tax, and shall be written for not less than the

following limits, or as required by law, whichever is greater:

Type of Insurance Minimum Limits of Liability

A. Worker's Compensation

Coverage A	Statutory
Coverage B	\$500,000 Each Accident
	\$500,000 Each Employee
	\$500,000 Policy Limit

B. Comprehensive General Liability Insurance

General Aggregate	\$2,000,000
Products and Completed Operations	\$1,000,000
Per Occurrence	
Personal and Advertising Injury	\$1,000,000
Per Occurrence	
Each Occurrence	\$1,000,000
Fire Damage (Any One Fire)	\$ 100,000
Medical expenses	\$ 10,000

Coverage will include:

- o Blanket Contractual
- o Employees as Insured
- o Broad Form Property Damage

C. Comprehensive Automobile Liability Insurance

Combined Single Limit	\$1,000,000
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1. All owned, hired, or non-owned vehicles including the loading or unloading thereof.

D. Umbrella/Excess Liability Insurance

Limits of Liability:

Each Occurrence	\$3,000,000
Aggregate	\$3,000,000

1. In addition to the insurance coverage set forth in the contract documents, the Contractors shall maintain an Umbrella/Excess Liability policy with coverage for the same perils as covered under the primary policies, including any special requirements.

E. Bidders shall hold Boone County, its officers, agents, and employees, harmless from liability of any nature or kind on account of use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance furnished or used under this bid call. The vendor, upon award of a contract, may be required to furnish a Certificate of Insurance, naming Boone County as an additional insured, prior to the signing of any purchase agreement.

F. The vendor shall agree to save and hold harmless and defend Boone County from and against any or all claims, demands, suits, and liability for death or injury to any person or damage to or loss of property, which injury, loss, or damage is caused by or arises out of the execution of this contract or agreement.

G. The successful bidder is specifically denied the right of using in any form or medium the name of Boone County for public advertising, unless express permission is granted by Boone County.

H. The County reserves the right to accept or reject all bids.

The insurance required shall be written for the limits specified or limits required by law, whichever is greater. The coverages, whether written on an occurrence or claims made basis, shall be maintained without interruption from date of commencement of the work until date of final payment and termination of any coverage required to be maintained after final payment.

The Policy Aggregate required shall apply to this Project only.

The Umbrella Liability shall provide excess limits over and above the commercial general liability, employers' liability and comprehensive automobile liability limits as stated in this Section.

Liability insurance may be arranged by Comprehensive General Liability and Comprehensive Automobile Liability policies for the full limits required, or by a combination of underlying Comprehensive Liability policies for lesser limits with the remaining limits provided by Umbrella Liability Coverage.

The types of insurance and the limits of liability indicated above are the minimum required and neither the Owner nor the Architect warrant the adequacy of the types of insurance or the limits of liability.

Products and Completed Operations to be maintained for a minimum period of one year after receipt of final payment.

Contractor shall require Subcontractor not protected under Contractor's insurance to take out and maintain Worker's Compensation insurance and insurance of the same kind and in the amount that the Contractor considers appropriate as specified above. Contractor shall submit evidence of such insurance coverage to Owner.

Contractor shall carry sufficient comprehensive insurance on his equipment at site of work and on route to and from site to fully protect him. Contractor shall require same coverage of his Subcontractors. It is expressly understood and agreed that Owner and/or Architect shall have no responsibility therefore.

Furnish one copy of certificates herein required for each copy of Agreement (usually 3); specifically set forth evidence of all coverage required by the Contract Documents. The form of the Certificate shall be similar to ACORD Certificate of Insurance 25-S (7/90) with AIA Document G715 (1991 Edition) attached. Furnish copies of any endorsement that the subsequently issued amending coverage or limits.

The General Liability and Umbrella Excess Liability Insurance required shall include Owner and Architect as additional insureds.

All liability coverages shall remain in effect and in full force for not less than one year after Final Completion.

Thirty (30) day notice of cancellation of any liability policy must be in writing to the Owner.

All liability policies must have a concurrent date.

#### Owner's Liability Insurance

AIA Document A201-1997 General Conditions of the Contract apply.

Property Insurance

1. AIA Document A201-1997 General Conditions of the Contract apply. As per that document, the Owner shall purchase and maintain the property insurance, or shall inform the Contractor in writing he does not intend to purchase additional property insurance.
2. Amend the following property insurance clause to include the following sentence:
3. Any deductible applicable to the All Risk Builder's risk policy shall be assumed by the property insurance holder.

END OF SECTION 00800



# Boone County Government

1212 LOGAN AVENUE, SUITE 102  
BELVIDERE, ILLINOIS 61008  
PHONE: (815)-547-4770 FAX: (815)-547-3579

## ORDINANCE NO. 15-15

**WHEREAS**, the State of Illinois had enacted "An Act regulating wages of laborers, mechanics, and other workers employed in any public works by the State, county, city or any public body or any political subdivision or by anyone under contract for public works", approved June 26, 1941, codified as amended, 820 ILCS 130/1 et seq. (1993), formerly Ill. Rev. Stat., Ch. 48, par. 39s-1 et seq. and

**WHEREAS**, the aforesaid Act requires that the Boone County Government of the County of Boone investigate and ascertain the prevailing rate of wages as defined in said Act for laborers, mechanics and other workers in the locality of Boone County employed in performing construction of public works, for said Boone County Government.

**NOW THEREFORE, BE IT ORDAINED BY THE COUNTY BOARD OF THE BOONE COUNTY GOVERNMENT:**

SECTION 1: To the extent and as required by "An Act regulating wages of laborers, mechanics and other workers employed in any public works by State, county, city or any public body or any political subdivision or by anyone under contract for public works", approved June 26, 1941, as amended, the general prevailing rate of wages in this locality for laborers, mechanics and other workers engaged in construction of public works coming under the jurisdiction of the Boone County Government is hereby ascertained to be the same as the prevailing rate of wages for construction work in Boone County area as determined by the Department of Labor of the State of Illinois as of June of the current year, a copy of that determination being attached hereto and incorporated herein by reference. As required by said Act, any and all revisions of the prevailing rate of wages by the Department of Labor of the State of Illinois shall supersede the Department's June determination and apply to any and all public works construction undertaken by the Boone County Government. The definition of any terms appearing in this Ordinance which are also used in aforesaid Act shall be the same as in said Act.

SECTION 2: Nothing herein contained shall be construed to apply said general prevailing rate of wages as herein ascertained to any work or employment except public works construction of the Boone County Government to the extent required by the aforesaid Act.

SECTION 3: The Boone County Clerk shall publicly post or keep available for inspection by any interested party in the main office of the Boone County Government this determination or any revisions of such prevailing rate of wage. A copy of this determination or of the current revised determination of prevailing rate of wages then in effect shall be attached to all contract specifications.

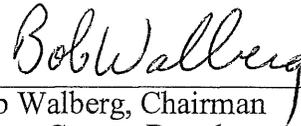
SECTION 4: The Boone County Clerk shall mail a copy of this determination to any employer, and to any association of employers and to any person or association of employees who have filed their names and addresses, requesting copies of any determination stating the particular rates and the particular class of workers whose wages will be affected by such rates.

SECTION 5: The Boone County Clerk shall promptly file a certified copy of this Ordinance with the Department of Labor of the State of Illinois.

SECTION 6: The Boone County Clerk shall cause to be published in a newspaper of general circulation within the area a copy of this Ordinance, and such publication shall constitute notice that the determination is effective and that this is the determination of this public body.

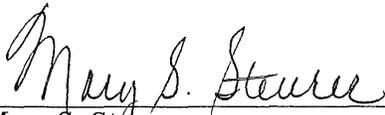
PASSED, APPROVED, AND ADOPTED by the County Board of Boone County, State of Illinois,

this 17th, day of June, 2015.



Bob Walberg, Chairman  
Boone County Board

ATTEST:



Mary S. Steurer  
Boone County Clerk

Ayes: \_\_\_\_\_ Nays: \_\_\_\_\_ Absent: \_\_\_\_\_ Abstain: \_\_\_\_\_ Voice Vote: ✓

# Boone County Prevailing Wage for July 2015

(See explanation of column headings at bottom of wages)

Trade Name	RG	TYP	C	Base	FRMAN	M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
=====	==	===	=	=====	=====	=====	===	===	=====	=====	=====	=====
ASBESTOS ABT-GEN		ALL		39.400	39.950	1.5	1.5	2.0	13.42	11.28	0.000	0.500
ASBESTOS ABT-MEC		BLD		22.750	24.250	1.5	1.5	2.0	3.390	5.170	0.000	0.000
BOILERMAKER		BLD		47.070	51.300	2.0	2.0	2.0	6.970	18.13	0.000	0.400
BRICK MASON		BLD		38.550	41.300	1.5	1.5	2.0	9.230	12.57	0.000	0.640
CARPENTER		BLD		37.890	42.060	1.5	1.5	2.0	9.300	12.70	0.000	0.600
CARPENTER		HWY		42.630	44.380	1.5	1.5	2.0	8.600	11.00	0.000	0.490
CEMENT MASON		ALL		35.740	38.490	1.5	1.5	2.0	9.750	14.04	0.000	0.500
CERAMIC TILE FNSHER		BLD		32.850	0.000	1.5	1.5	2.0	8.600	5.210	0.000	0.560
COMMUNICATION TECH		BLD		36.440	40.080	1.5	1.5	2.0	10.39	12.09	0.000	0.760
ELECTRIC PWR EQMT OP		ALL		37.890	51.480	1.5	1.5	2.0	5.000	11.75	0.000	0.380
ELECTRIC PWR EQMT OP		HWY		39.220	53.290	1.5	1.5	2.0	5.000	12.17	0.000	0.390
ELECTRIC PWR GRNDMAN		ALL		29.300	51.480	1.5	1.5	2.0	5.000	9.090	0.000	0.290
ELECTRIC PWR GRNDMAN		HWY		30.330	53.290	1.5	1.5	2.0	5.000	9.400	0.000	0.300
ELECTRIC PWR LINEMAN		ALL		45.360	51.480	1.5	1.5	2.0	5.000	14.06	0.000	0.450
ELECTRIC PWR LINEMAN		HWY		46.950	53.290	1.5	1.5	2.0	5.000	14.56	0.000	0.470
ELECTRIC PWR TRK DRV		ALL		30.340	51.480	1.5	1.5	2.0	5.000	9.400	0.000	0.300
ELECTRIC PWR TRK DRV		HWY		31.400	53.290	1.5	1.5	2.0	5.000	9.730	0.000	0.310
ELECTRICIAN		BLD		42.960	47.260	1.5	1.5	2.0	10.39	17.47	0.000	0.860
ELEVATOR CONSTRUCTOR		BLD		46.830	52.680	2.0	2.0	2.0	13.57	14.21	3.750	0.600
GLAZIER		BLD		35.980	37.980	1.5	1.5	1.5	10.30	8.200	0.000	1.250
HT/FROST INSULATOR		BLD		33.930	38.550	0.0	0.0	0.0	7.950	14.77	0.000	0.480
IRON WORKER		ALL		36.290	38.100	2.0	2.0	2.0	10.24	23.19	0.000	0.500
LABORER		ALL		39.200	39.950	1.5	1.5	2.0	13.42	11.28	0.000	0.500
LATHER		BLD		37.890	42.060	1.5	1.5	2.0	9.300	12.70	0.000	0.600
MACHINIST		BLD		45.350	47.850	1.5	1.5	2.0	7.260	8.950	1.850	0.000
MARBLE FINISHERS		BLD		32.850	0.000	1.5	1.5	2.0	8.600	5.210	0.000	0.560
MARBLE MASON		BLD		35.530	35.780	1.5	1.5	2.0	8.600	7.520	0.000	0.590
MATERIAL TESTER I		ALL		29.200	0.000	1.5	1.5	2.0	13.42	11.28	0.000	0.500
MATERIALS TESTER II		ALL		34.200	0.000	1.5	1.5	2.0	13.42	11.28	0.000	0.500
MILLWRIGHT		BLD		37.220	40.940	1.5	1.5	2.0	9.050	15.00	0.000	0.500
OPERATING ENGINEER		BLD	1	43.800	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		BLD	2	43.100	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		BLD	3	40.650	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		BLD	4	38.650	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		BLD	5	47.550	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		BLD	6	46.800	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		BLD	7	43.800	47.800	2.0	2.0	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		FLT		36.000	36.000	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER		HWY	1	43.650	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		HWY	2	43.100	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		HWY	3	41.800	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		HWY	4	40.350	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		HWY	5	38.900	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		HWY	6	46.650	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
OPERATING ENGINEER		HWY	7	44.650	47.650	1.5	1.5	2.0	17.55	11.80	2.350	1.300
PAINTER		ALL		36.500	38.500	1.5	1.5	1.5	10.30	8.460	0.000	1.350
PAINTER SIGNS		BLD		33.920	38.090	1.5	1.5	1.5	2.600	2.710	0.000	0.000
PILEDRIVER		BLD		38.890	43.170	1.5	1.5	2.0	9.300	12.70	0.000	0.600
PILEDRIVER		HWY		42.630	44.380	1.5	1.5	2.0	8.600	11.00	0.000	0.490
PIPEFITTER		ALL		43.100	46.120	1.5	2.0	2.0	8.220	11.29	0.000	1.000
PIPEFITTER		BLD		43.100	46.120	1.5	2.0	2.0	8.220	11.29	0.000	1.000
PLASTERER		BLD		34.250	37.680	1.5	1.5	2.0	9.300	12.30	0.000	0.500
PLUMBER		ALL		43.100	46.120	1.5	2.0	2.0	8.220	11.29	0.000	1.000
PLUMBER		BLD		43.100	46.120	1.5	1.5	2.0	8.220	11.29	0.000	1.000
ROOFER		BLD		41.000	44.000	1.5	1.5	2.0	8.280	10.54	0.000	0.530

SHEETMETAL WORKER	BLD	37.930	40.210	1.5	1.5	2.0	6.000	16.92	0.520	0.290
SPRINKLER FITTER	BLD	37.120	39.870	1.5	1.5	2.0	8.420	8.500	0.000	0.350
STONE MASON	BLD	38.550	41.300	1.5	1.5	2.0	9.230	12.57	0.000	0.640
<del>SURVEY WORKER</del>	NOT IN EFFECT	ALL	37.000	37.750	1.5	1.5	2.0	12.97	9.930	0.000 0.500
TERRAZZO FINISHER	BLD	32.850	0.000	1.5	1.5	2.0	8.600	5.210	0.000	0.560
TERRAZZO MASON	BLD	35.530	35.780	1.5	1.5	2.0	8.600	7.520	0.000	0.590
TILE LAYER	BLD	37.890	42.060	1.5	1.5	2.0	9.300	12.70	0.000	0.600
TILE MASON	BLD	35.530	35.780	1.5	1.5	2.0	8.600	7.520	0.000	0.590
TRUCK DRIVER	ALL 1	35.020	0.000	1.5	1.5	2.0	8.600	8.600	0.000	0.200
TRUCK DRIVER	ALL 2	35.170	0.000	1.5	1.5	2.0	8.600	8.600	0.000	0.200
TRUCK DRIVER	ALL 3	35.370	0.000	1.5	1.5	2.0	8.600	8.600	0.000	0.200
TRUCK DRIVER	ALL 4	35.480	0.000	1.5	1.5	2.0	8.600	8.600	0.000	0.200
TUCKPOINTER	BLD	38.550	41.300	1.5	1.5	2.0	9.230	12.57	0.000	0.640

**Legend:** RG (Region)  
 TYP (Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers)  
 C (Class)  
 Base (Base Wage Rate)  
 FRMAN (Foreman Rate)  
 M-F>8 (OT required for any hour greater than 8 worked each day, Mon through Fri.  
 OSA (Overtime (OT) is required for every hour worked on Saturday)  
 OSH (Overtime is required for every hour worked on Sunday and Holidays)  
 H/W (Health & Welfare Insurance)  
 Pensn (Pension)  
 Vac (Vacation)  
 Trng (Training)

Explanations

BOONE COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER, MARBLE FINISHER, TERRAZZO FINISHER

Assisting, helping or supporting the tile, marble and terrazzo mechanic by performing their historic and traditional work assignments required to complete the proper installation of the work covered by said crafts. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

COMMUNICATION TECHNICIAN

Installing, manufacturing, assembling and maintaining sound and intercom, protection alarm (security), fire alarm, master antenna television, closed circuit television, low voltage control for computers and/or door monitoring, school communications systems, telephones and servicing of nurse and emergency calls, and the installation and maintenance of transmit and receive antennas, transmitters, receivers, and associated apparatus which operates in conjunction with above systems. All work associated with these system installations will be included EXCEPT the installation of protective metallic conduit in new construction projects (excluding less than ten-foot runs strictly for protection of cable) and 120 volt AC (or higher) power wiring and associated hardware.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

#### OPERATING ENGINEERS - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver (over 27E cu. ft.): Concrete Paver (27 cu. ft. and under); Concrete Placer; Concrete Pump (Truck Mounted); Concrete Conveyor (Truck Mounted); Concrete Tower; Cranes, All; GCI and similar types (required two operators only); Cranes, Hammerhead; Creter Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, one, two and three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment - excluding hose work and any sewer work); Locomotives, All; Lubrication Technician; Manipulators; Motor Patrol; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Raised and Blind Hole Drill; Rock Drill (self-propelled); Rock Drill - Truck Mounted; Roto Mill Grinder; Scoops - Tractor Drawn; Slipform Paver; Scrapers Prime Movers; Straddle Buggies; Tie Back Machine; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Bobcat (over 3/4 cu. yd.); Boilers; Brick Forklift; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Asphalt Spreader; Combination - Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators - (Rheostat Manual Controlled); Hydraulic Power Units (Pile Driving, Extracting, or Drilling - with a seat); Lowboys; Pumps, Over 3" (1 to 3 not to exceed total of 300 ft.); Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches; Bobcat (up to and including 3/4 cu. yd.).

Class 4. Elevator push button with automatic doors; Hoists, Inside;

Oilers; Brick Forklift.

Class 5. Assistant Craft Foreman

Class 6. Mechanics; Welders.

Class 7. Gradall

#### OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Silo Tender; Asphalt Spreader; Autograder; ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Backhoe w/shear attachments; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower of all types; Creter Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Directional Boring Machine over 12"; Dredges; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Hydro Vac, Self Propelled, Truck Mounted (excluding hose work and any sewer work); Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; GCI Crane; Hydraulic Telescoping Form (Tunnel); Tie Back Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader with attached pusher; Tractor with Boom; Tractaire with Attachments; Traffic Barrier Conveyor Machine; Raised or Blind Hole Drills; Trenching Machine (over 12"); Truck Mounted Concrete Pump with Boom; Truck Mounted Concrete Conveyor; Work Boat (no license required - 90 h.p. or above); Underground Boring and/or Mining Machines; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw (large self-propelled - excluding walk-behinds and hand-held); Conveyor Muck Cars (Haglund or Similar Type); Drills, all; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro Blaster; All Locomotives, Dinky; Off-Road Hauling Units; Non-Self Loading Dump; Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Scoops - Tractor Drawn; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper; Scraper - Prime Mover in Tandem (Regardless of Size); Tank Car Heater; Tractors, Push, Pulling Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Fireman on Boilers; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep

Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper - Form - Motor Driven.

Class 4. Air Compressor - Small and Large; Asphalt Spreader, Backend Man; Bobcat (Skid Steer) all; Brick Forklift; Combination - Small Equipment Operator; Directional Boring Machine up to 12"; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Hydro-Blaster; Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Tractaire; Trencher 12" and under; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. Oilers and Directional Boring Machine Locator.

Class 6. Field Mechanics and Field Welders

Class 7. Gradall and machines of like nature.

#### OPERATING ENGINEERS - FLOATING

Diver. Diver Wet Tender, Diver Tender, ROV Pilot, ROV Tender

SURVEY WORKER - Operated survey equipment including data collectors, G.P.S. and robotic instruments, as well as conventional levels and transits.

#### TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamters; Unskilled dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

#### Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

#### LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

#### MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

**SECTION 00850  
DRAWINGS**

LIST OF DRAWINGS

- 1.1 Title Sheet
  - 1.2 Construction Standards
  - 2.0 Site Area Plan
  - 2.1 Architectural Site Plan
  - 2.4 Site Plan Details
- 

- C.1 Site Plan
  - C.2 Grading and Storm Water Pollution Prevention Plan
  - C.3 Storm water Pollution Prevention Plan Document
  - C.4. Details
- 

- L-1 Landscape Plan
  - L-3 Landscape Specifications
- 

- 3.1.1 Foundation Plan
  - 3.2 Foundation Details
  - 6.1.1 First Floor Plan
  - 6.1A Accessible Path Plan
  - 6.1D First Floor Dimension Plan
  - 6.1E Exit and Occupancy Plan
  - 6.7.1 Roof Framing Plan
  - 7.1.1 Roof Plan
  - 7.2 Building Sections
  - 7.3 Building Sections
  - 7.4 Building Sections
  - 7.5 Building Sections
  - 7.7 Animal Care Wall Sections
  - 7.8 Interior Wall Sections
  - 7.11 Exterior Wall Details
  - 8.1.1 Exterior Elevations
  - 8.2.1 Exterior Elevations
  - 9.1.1 Ceiling Plan
  - 10.1 Finish & Equipment Plan
  - 10.2 Public Area Elevations
  - 10.3 Staff Area Elevations
  - 10.4 Animal Care Elevations
  - 10.8.1 Door Schedules
  - 10.8.2 Room Finish Schedules
  - 10.8.3 Equipment Schedules
  - 10.9.1 Public Area Details
  - 10.9.3 Animal Care Details
- 

- E.1 Power & Systems First Floor Plan
- E.2 Lighting First Floor Plan
- E.3 Lighting Upper Floor Plan
- E.4 Electrical Specifications

- M-1 HVAC First Floor Plan
  - M-2 HVAC Upper Floor Plan
  - M-3 HVAC Schedules and Details
  - M-4 HVAC Specifications and Notes
  
  - P-1 Plumbing First Floor Plan
  - P-2 Plumbing Isometric Diagrams
  - P-3 Plumbing Notes and Schedules
  - P-4 Plumbing Specifications
- 

ALTERNATES

- C.1.2 Sheriffs Site Grading Plan
- 3.1.2 Foundation Plan
- 6.1.2 Floor Plan
- 6.7.2 Roof Framing Plan
- 7.1.2 Roof Plan
- 7.9 Alternate Wall Sections
- 8.1.2 Alternate Exterior Elevation
- 8.2.2 Alternate Exterior Elevation
- 8.3.2 Alternate Exterior Elevation
- 9.2.1 Ceiling Plan

**SECTION 01010  
SUMMARY OF WORK**

PART 1 - GENERAL

A. PROJECT DESCRIPTION:

1. Scope of Project: The project consists of construction of a new animal control facility including site development and installation of building utility services.
2. Site Work for Animal Services Building consists of grading and landscaping, paved driveway and parking lot, concrete sidewalks, and site lighting. Utility services include gas, electricity, and cable services to building. Additional site improvements include trash enclosure, monument sign, flag pole, and dog security yard fencing.
3. Site work for adjacent Sheriff's Department Building site, including grading and landscaping. No utilities and no paving.
4. Water service and sanitary septic drainage system to be provided by Boone County.
5. General Building Construction consists of:

Exterior structure is wood frame on concrete foundation system. Roof structure to be manufactured wood trusses. Windows are insulated glass aluminum storefront. Glass block panels in kennel rooms. Building is approximately 2,800 sf first floor. Exterior doors include aluminum storefront at public entry, insulated steel doors at staff areas, specialty dog doors in kennel rooms, and overhead garage door.

Exterior finishes include steel siding. Roofing is asphalt shingles.

Interior construction includes wood frame walls with gypsum board. Interior concrete block veneer to be provided in kennel rooms. Doors are to be insulated metal and solid core wood set in hollow metal frames. Cabinets are wood with plastic laminate counter tops. Sprayed-on acoustic fiber to be applied directly to gypsum board ceilings in kennel rooms, above suspended ceilings.

Floor finish is epoxy resin throughout.

Wall finishes include epoxy paint on concrete block, semi-gloss paint in other areas, ceramic tile in wet-condition areas.

Ceilings are suspended acoustic tile except for painted steel panels in vestibule (Alternate #3).

Other construction consists of owner supplied appliances, kennel equipment, and shelving systems. See Equipment Schedule and Alternate #4.

6. Plumbing: Plumbing consists of water service and drainage system, stainless steel sinks, toilets, hose reels and hose bibs, water heater, and circulating pump. Animal receiving and kennel rooms drained to trench drains. ( Note water supply and On-Site Sanitary Waste system provided by Owner.)
7. Heating, Ventilating, and Air Conditioning: HVAC includes gas furnaces and energy recovery units located in mezzanine level mechanical room. Work includes forced air duct system installed below insulated ceiling and above suspended acoustic ceiling. Condensing units on concrete pads.
8. Electrical: Electrical system consists of new electrical service, electrical power system throughout building, lay-in and surface mounted light fixtures and specialty light fixtures as shown. Low voltage electrical systems provided by Owner. See Equipment Schedule and Instructions to Bidders, Work-By-Owner.

- B. SUMMARY BY REFERENCES: Work on this Contract can be summarized by references to the Contract Documents, including the General Conditions, Supplementary Conditions, Specifications, Drawings, addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including, but not necessarily limited to, printed material referenced by any of these. It is recognized that work of the contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the contract documents.
- C. OWNER FURNISHED, OWNER INSTALLED WORK: Separate contracts will be awarded to perform work at the site concurrent with the work for this contract. Owner furnished, Owner installed items can be summarized as follows:
1. See Equipment Schedule
- D. OWNER FURNISHED, CONTRACTOR INSTALLED WORK: The Owner will furnish certain material and equipment for installation under the work of this Contract, as shown on the Drawings and described in the Specifications. Owner furnished, contractor installed items can be summarized as follows:
1. See Equipment Schedule
- E. CONTRACTOR'S RESPONSIBILITIES FOR OWNER FURNISHED MATERIALS:
1. Designate submittals and delivery date for each product in the Owner's supplied list.
  2. Review shop drawings, product data, samples and other submittals. Submit to Architect with notification of any discrepancies or problems anticipated in the use of the product.
  3. Receive and unload products at the site.
  4. Inspect deliveries, record shortages, damaged or defective items.
  5. Handle products at the site, including uncrating and storage.
  6. Protect products from damage and from exposure to elements.
  7. Assemble, install, connect, adjust and finish products.
  8. Provide installation inspections required by public authorities.
  9. Repair or replace items damaged by Contractor.
- F. CONTRACTOR USE OF PREMISES: During construction the Contractor shall have limited use of the premises for construction operations, including limited use of the site.
1. Confine operations to areas within Contract limits indicated on the drawings. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
  2. Keep driveways and entrances clear at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize requirements for storage of materials.
- G. PARTIAL OWNER OCCUPANCY: The Owner reserves the right to occupy and place and install equipment in completed areas prior to Substantial Completion provided such occupancy does not interfere with completion of the Work. Placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

END OF SECTION 01010

**SECTION 01020  
ALLOWANCES**

**PART 1 - GENERAL**

A. SUMMARY

1. Allowance amounts below are for materials only. Include all other costs including installation in base bid price.
2. Coordinate allowances with requirements for related and adjacent work.
3. Notify Owner of date when final decision on allowance items is required to avoid delays in the work.

Furnish certification that quantities of products purchased are the actual quantities needed with reasonable allowance for cutting or installation losses, tolerances, mixing waste and similar margins.

Submit invoices or delivery slips to indicate actual quantities of materials delivered and costs. Indicate amounts of applicable trade discounts.

**PART 2 - PRODUCTS - Not Applicable To This Section**

**PART 3 - EXECUTION**

A. SCHEDULE

1. Unit cost allowances: Amounts to be determined
  - a. 3 1/2" x 7 5/8" x 7 5/8" clear smooth glass block in panel units  
\$.60/block

END OF SECTION 01020

**SECTION 01025  
CONSTRUCTION & CHANGE DOCUMENTS**

**PART 1 - GENERAL**

- A. Owner will provide construction documents to the selected general contractor if revised documents are necessary following the bidding process and plan review by local municipality for code compliance.
- B. Contractors will be limited to the number of construction sets and change documents that are provided at no cost. Each contractor will be allowed up to three sets of construction documents and subsequent change documents for each bid division awarded. Any additional sets required will either be paid by or back charged to the contractor.
- C. All contractors should identify the number of sets needed for their contract work and notify the Project Administrator accordingly.

END OF SECTION 01025

**SECTION 01027**  
**APPLICATIONS FOR PAYMENT**

- A. SCHEDULE OF VALUES: Coordinate preparation of the Schedule of Values with the contractor's Construction Schedule.
1. Correlate line items in the Schedule of Values with other schedules and forms, including:
    - a. Contractor's Construction Schedule.
    - b. Application for Payment Form.
    - c. List of Subcontractors.
    - d. List of Products.
    - e. Schedule of Submittals.
  2. Submit the Schedule of Values to the Architect at the earliest date, but no later than 7 days before the date scheduled for submittal of the initial Application for Payment.
- B. FORMAT AND CONTENT: Use the Project Manual Table of Contents as a guide to establish the format.
1. Identification: Include the following identification:
    - a. Project name and location.
    - b. Name of Architect and Project Administrator.
    - c. Project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  2. Arrange the Schedule in tabular form with columns to indicate the following for each item:
    - a. Generic name.
    - b. Related Specification Section.
    - c. Name of Subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that have effected value.
    - g. Dollar value.
    - h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
  3. Break Contract Sum down in enough detail to facilitate evaluation of Applications for Payment. Break sub- contract amounts down into several line items. Round amounts off to the nearest dollar; the total shall equal the Contract Sum.
  4. For each item where an Application for Payment includes products purchased or fabricated and stored, but not installed, provide separate line items for initial cost, each subsequent stage of completion, and installed value.
  5. Show line items for indirect costs, and margins on costs, to extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including total cost and share of overhead and profit.
    - a. Temporary facilities and items that are not direct cost of Work-in-place may be shown as separate line items or distributed as general overhead expense.
    - b. Update and resubmit the schedule when Change Orders or Construction Change Directives change the Contract Sum.
- C. APPLICATION FOR PAYMENT: Each Application for Payment shall be consistent with previous applications and payments as certified by the Project Administrator and paid for by the Owner.
1. Payment Application Times: Payment dates are indicated in the Agreement. The period covered by each application is the period indicated.
  2. Payment Application Forms: Submit 3 original AIA Document G702 and Continuation Sheets G703 as the form for the application.

3. Application Preparation: Complete every entry, including notarization and execution by person authorized to sign on behalf of the Owner. Incomplete applications will be returned without action.
    - a. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
    - b. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the period covered by the application.
  4. Waiver of Lien: With each application, submit waivers of lien from every entity who may file a lien arising out of the Contract, and related to the Work covered by the payment.
    - a. Submit partial waivers on each item for amount requested, prior to deduction for retainage, on each item.
    - b. When an application shows completion of an item, submit final or full waivers.
    - c. Waiver Delays: Submit each application with Contractor's waiver of lien for the period covered by the application.
    - d. Submit final Application for Payment with final waivers from every entity involved with performance of Work covered by the application who could be entitled to a lien.
    - e. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.
  5. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include:
    - a. List of subcontractors.
    - b. Schedule of Values.
    - c. Contractor's Construction Schedule (preliminary if not final).
    - d. Certificates of insurance and insurance policies.
    - e. Performance and payment bonds (if required).
- D. APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions. Administrative actions and submittals that precede or coincide with this application include:
1. Occupancy permits.
  2. Warranties and maintenance agreements.
  3. Test/adjust/balance records.
  4. Change-over information related to Owner's occupancy.
  5. Final cleaning.
- E. FINAL PAYMENT APPLICATION: Administrative actions and submittals, which must precede or coincide with submittal of the final payment application, include:
1. Completion of Project closeout requirements.
  2. Completion of items specified for completion after Substantial Completion.
  3. Change of door locks to Owner's access.

END OF SECTION 01027

**SECTION 01030  
ALTERNATES**

PART 1 - GENERAL

1. List price for each alternate in Bid Form. Include cost of modifications to other work to accommodate alternate. Include related costs such as overhead and profit.
2. Owner will determine which alternates are selected for inclusion in the Contract.
3. Alternates are described briefly in this section. The Contract Documents define the requirements for alternates.
4. Coordinate alternates with related work to ensure that work affected by each selected alternate is properly accomplished.

PART 2 - PRODUCTS - Not Applicable To This Section

PART 3 - EXECUTION

GENERAL CONSTRUCTION

1. Alternate #1: Add activity room.
  - 1.A. Concrete foundation and concrete slab;
  1. B. Un-insulated exterior walls with siding and all roofing and gutters.
  1. C. Interior finishes, including insulation, flooring, painted drywall, ceilings, HVAC extension, lighting and all work as needed for completing construction and occupancy.
2. Alternate #2: Add vestibule.
3. Alternate #3: Add flagpole.
4. Alternate #4: Provide additional Owner equipment installation services.
5. Alternate #5: All Sheriff's Department Building SITE WORK, including grading and landscaping.
6. Alternate #6: Add chainlink fence around dog yard on west side of new building.
7. Alternated #7: Add monument sign foundation at entrance to Animal Services site. Sign by owner. No electrical circuit to sign foundation.

END OF SECTION 01030

**SECTION 01035  
MODIFICATION PROCEDURES**

A. GENERAL:

1. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
2. Summary: This section specifies administrative and procedural requirements for handling and processing Contract modifications.
3. Multiple Prime Contracts: Provision of this Section apply to the work of each prime contractor.
4. Related Sections: The following Sections contain requirements that relate to this Section:
  - a. Division 1 Section "Application for Payment" for administrative procedure governing Application for Payment.
  - b. Division 1 Section "Product Substitutions" for administrative procedures for handling requests for substitutions made after award of the Contract.

B. MINOR CHANGES IN THE WORK: The Project Administrator will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on AIA Form G710, Architect's Supplemental Instruction.

C. CHANGE ORDER PROPOSAL REQUESTS:

1. Owner-Initiated Proposal Requests: The Architect will issue a detailed description "Construction Clarification Memos" (CCM'S) of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specification.
  - a. Proposal requests issued by the Project Administrator are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
  - b. Within 5 days of receipt of a proposal request, submit and estimate of cost necessary to execute the change to the Project Administrator for the Owner's review.
    - 1) Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
    - 2) Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - 3) Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
2. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Project Administrator.
  - a. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
  - b. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
  - c. Indicate applicable taxes, delivery charge, equipment rental, and amounts of trade discounts.
  - d. Comply with requirements in Section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.

D. CHANGE ORDER REQUEST FORM: Use Contractor generated form.

E. ALLOWANCES:

1. Allowance Adjustments: For allowance-cost adjustment, base each Change Order Proposal on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place. Where applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  - a. Include installation costs in the purchase amount only where indicated as part of the allowance.
  - b. When requested, prepare explanations and documentation to substantiate the margins claimed.
  - c. Do not include the Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in Contract Documents.
  - d. No change to the Contractor's indirect expense is permitted for selection of higher or lower-priced materials or systems of the same scope and nature as originally indicated.

F. CONSTRUCTION CHANGE DIRECTIVE

1. Construction Change Directive: When the Owner and the Contractor disagree on the terms of a Proposal Request, the Project Administrator may issue a Construction Change Directive on AIA Form G714. The Construction Change Directive instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - a. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.
2. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - a. After completion of the change, submit and itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

E. CHANGE ORDER PROCEDURES

1. Upon the Owner's approval of a Proposal Request, the Project Administrator will issue a Change Order for signatures of the Owner and the Contractor on AIA form G701.

END OF SECTION 01035

**SECTION 01040**  
**PROJECT COORDINATION**

- A. THIS SECTION specifies requirements for project coordination including:
1. Coordination.
  2. Administrative and supervisory personnel.
  3. General installation provisions.
  4. Cleaning and protection.
- B. COORDINATION: Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation.
1. Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results.
  2. Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service, and repair.
  3. Make provisions to accommodate items scheduled for later installation.
  4. Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.
  5. Prepare similar memoranda for the Owner and separate Contractors where coordination of their work is required.
- C. ADMINISTRATIVE PROCEDURES: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:
1. Preparation of schedules.
  2. Installation and removal of temporary facilities.
  3. Delivery and processing of submittals.
  4. Progress meetings.
  5. Project closeout activities.
- D. COORDINATION DRAWINGS: Prepare Coordination Drawings where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.
1. Show relationship of components shown on separate Shop Drawings.
  2. Indicate required installation sequence.
  3. Refer to Division-15 Section "Basic Mechanical Requirements," and Division-16 Section "Basic Electrical Requirements" for requirements for mechanical and electrical installation.
- E. INSPECTION OF CONDITIONS: The Installer of each component shall inspect the substrate and conditions under which Work is performed. Do not proceed until unsatisfactory conditions have been corrected.
- F. MANUFACTURER'S INSTRUCTIONS: Comply with manufacturer's installation instructions and recommendations, to the extent that they are more stringent than requirements in Contract Documents.
- G. INSPECT material immediately upon delivery and again prior to installation. Reject damaged and defective items.
- H. PROVIDE ATTACHMENT and connection devices and methods necessary for securing each construction element. Secure each construction element true to line and level. Allow for expansion and building movement.
- I. VISUAL EFFECTS: Provide uniform joint widths in exposed Work. Arrange joints to obtain the best effect. Refer questionable choices to the Architect for decision.

- J. RECHECK MEASUREMENTS and dimensions, before starting installation.
- K. INSTALL EACH COMPONENT during weather conditions and project status that will ensure the best results. Isolate each part from incompatible materials as necessary to prevent deterioration.
- L. COORDINATE TEMPORARY ENCLOSURES with inspections and tests, to minimize uncovering completed construction for that purpose.
- M. MOUNTING HEIGHTS: Where mounting heights are not indicated, install components at standard heights for the application indicated. Refer questionable decisions to the Project Administrator.
- N. CLEANING AND PROTECTION: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
  - 1. Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability with-out damaging effects.
  - 2. Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure. Such exposures include:
    - a. Excessive static or dynamic loading.
    - b. Excessive internal or external pressure.
    - c. Excessive weathering.
    - d. Excessively high or low temperatures or humidity.
    - e. Air contamination or pollution.
    - f. Water or ice.
    - g. Chemicals or solvents.
    - h. Heavy traffic, soiling, staining, and corrosion.
    - i. Rodent and insect infestation.
    - j. Unusual wear or other misuse.
    - k. Contact between incompatible materials.
    - l. Theft or vandalism.

END OF SECTION 01040

**SECTION 01045  
CUTTING AND PATCHING**

- A. REFER TO OTHER SECTIONS of these Specifications, including Division-15 and -16, for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
- B. CUTTING AND PATCHING PROPOSAL: Where approval of procedures is required before proceeding, submit a proposal describing procedures in advance of the time cutting and patching will be performed. Include the following information, as applicable:
1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
  2. Describe anticipated results; include changes to structural elements and operating components and changes in the building's appearance and other visual elements.
  3. List products to be used and entities that will perform Work.
  4. Indicate dates when cutting and patching is to be performed.
  5. List utilities that will be disturbed, including those that will be relocated and those that will be temporarily out-of service. Indicate how long service will be disrupted.
  6. Approval by the Architect to proceed does not waive the Project Administrator's right to later require complete removal and replacement of Work found to be unsatisfactory.
- C. STRUCTURAL WORK: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Obtain approval of the cutting and patching proposal before cutting and patching structural elements.
- D. OPERATIONAL AND SAFETY LIMITATIONS: Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as intended, or would increase maintenance, or decrease operational life or safety. Obtain approval of the cutting and patching proposal before cutting and patching operating elements or safety related systems.
- E. VISUAL REQUIREMENTS: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
1. Retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible engage a recognized experienced and specialized firm:
    - a. Masonry.
    - b. Vapor barrier.
    - c. E.I.F.S
    - d. Structural components
- F. MATERIALS: Use materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible. Use materials whose performance will equal or surpass of existing materials.
- G. INSPECTION: Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
- H. TEMPORARY SUPPORT: Provide temporary support of Work to be cut.
- I. PROTECTION: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions that might be exposed during cutting and patching operations.
1. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

- J. PERFORMANCE: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
1. Cut existing construction to provide for the installation of other components or the performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- K. CUTTING: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review procedures with the original installer; comply with the original installer's recommendations.
1. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  2. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
  3. Comply with requirements of applicable sections of Division-2 where cutting and patching requires excavating and backfilling.
- L. PATCHING: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  2. Restore exposed finishes
  3. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.
  4. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.
- M. CLEANING: Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove paint, mortar, oils, putty and similar items. Thoroughly clean piping, conduit, and similar features before painting or finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

SECTION 01050  
FIELD ENGINEERING

- A. SUMMARY: This Section specifies requirements for field engineering.
- B. EXAMINATION: The Owner will identify existing control points and property line corner stakes.
- C. VERIFY LAYOUT INFORMATION shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Protect existing benchmarks and control points. Preserve permanent reference points during construction.
  - 1. Do not change or relocate benchmarks or control points without prior written approval. Report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
  - 2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.
  - 3. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- D. PERFORMANCE: Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and where needed to properly locate each element. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
  - 1. Advise entities engaged in construction activities, of marked lines and levels provided for their use.
  - 2. As construction proceeds, check every major element for line, level, and plumb.
- E. SURVEYOR'S LOG: Maintain a surveyor's log of control and other surveys. Make this log available for reference.
  - 1. Record deviations from required lines and levels. Advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On record Drawings, record deviations that are accepted and not corrected.
- F. SITE IMPROVEMENTS: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes, and invert elevations by instrumentation and similar appropriate means.
- G. BUILDING LINES AND LEVELS: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical Work.

END OF SECTION 01050

**SECTION 01090**  
**DEFINITIONS AND STANDARDS**

**A. DEFINITIONS:**

Basic Contract definitions are included in the General Conditions.

1. Indicated refers to graphic representations, notes or schedules on Drawings, or Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference.
2. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Project Administrator," "requested by the Project Administrator," and similar phrases. No implied meaning shall be interpreted to extend the Project Administrator's responsibility into the Contractor's supervision of construction.
3. Approve, used in conjunction with action on submittals, applications, and requests, is limited to the Architect's duties and responsibilities stated in General and Supplementary Conditions. Approval shall not release the Contractor from responsibility to fulfill Contract requirements.
4. Regulation includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.
5. Furnish means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations."
6. Install describes operations at the site including "unloading, unpacking, assembly, installation, and similar operations."
7. Provide means "Furnish and install, complete and ready for use."
8. Installer: "Installer" is the Contractor or an entity engaged by the Contractor, as an employee, subcontractor or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform. The term "experienced" when used with "Installer" means having a minimum of 3 previous Projects similar in size to this Project, and familiar with the precautions required, and with requirements of the authority having jurisdiction.
9. Project Site is the space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.
10. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

**B. SPECIFICATION FORMAT:**

These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTER FORMAT numbering system.

1. Language used in the contract documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the context so indicates.
  - a. Imperative language is used generally. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.
  - b. The words "shall be" shall be included in inference wherever a colon (: ) is used within a sentence or phrase.

- C. ASSIGNMENT OF SPECIALISTS:** Certain construction activities shall be performed by specialists, recognized experts in the operations to be performed. Specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remain with the Contractor.

- D. DRAWING SYMBOLS: Where not otherwise noted, symbols are defined by "Architectural Graphic Standards," published by John Wiley & Sons, Inc., eighth edition.
- E. MECHANICAL/ELECTRICAL DRAWINGS: Graphic symbols on mechanical and electrical Drawings are aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by symbols recommended by technical associations. Refer instances of uncertainty to the Project Administrator for clarification before proceeding.
- F. APPLICABILITY OF STANDARDS: Except where the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied into Contract Documents. Such standards the contractor must keep available at the Project Site.
- G. PUBLICATION DATES: Where the date of issue of referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
1. Updated Standards: Submit a Change Order proposal where an applicable standard has been revised and reissued after the date of the Contract Documents and before performance of Work. The Architect will decide whether to issue a Change Order to proceed with the updated standard.
- H. CONFLICTING REQUIREMENTS: Where compliance with two or more standards that establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced. Refer uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.
1. Minimum Quantities or Quality Levels: The quantity or quality shown or specified is the minimum to be provided or performed. Indicated values are minimum or maximum values, as appropriate for the requirements. Refer instances of uncertainty to the Project Administrator for decision before proceeding.
- I. COPIES OF STANDARDS: Each entity engaged on the Project shall be familiar with standards applicable to that activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
  2. Although copies of standards needed for enforcement of requirements may be part of submittals, the Architect reserves the right to require submittal of additional copies for enforcement of requirements.
- J. ABBREVIATIONS AND NAMES: Where acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.
- K. PERMITS, LICENSES, AND CERTIFICATES: For the Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

END OF SECTION 01090

**SECTION 01200  
PROJECT MEETINGS**

- A. SUMMARY: This Section specifies requirements for Project meetings including:
1. Pre-Construction Conference.
  2. Pre-Installation Conference.
  3. Progress Meetings.
- B. PRE-CONSTRUCTION CONFERENCE: Conduct a pre-construction conference after execution of the Agreement and prior to commencement of construction activities. Review responsibilities and personnel assignments
1. Attendees: The Owner, Architect and/or Project Administrator, and their consultants, the Contractor and its superintendent, subcontractors, suppliers, manufacturers, and other concerned parties shall be represented by persons authorized to conclude matters relating to the Work.
  2. Agenda: Discuss significant items that could affect progress, including the tentative construction schedule, critical sequencing, use of the premises, procedures for processing Change Orders and equipment deliveries.
- C. PRE-INSTALLATION CONFERENCE: Conduct a pre-installation conference before each activity that requires coordination with other construction. The installer and representative of manufacturers and fabricators involved in the installation, and coordination or integration with other material and installations that have preceded or will follow, shall attend. Advise the Project Administrator of scheduled meeting dates.
1. Review progress of other activities and preparations for the activity under consideration at each conference, including time schedules, manufacturer's recommendations, weather limitations, substrate acceptability, compatibility problems and inspection and testing requirements.
  2. Record significant discussions, agreements, and disagreements of each conference, along with the approved schedule. Distribute the meeting record to everyone concerned, promptly, including the Owner and Project Administrator.
  3. Do not proceed if the conference cannot be successfully concluded. Initiate necessary actions to resolve impediments and reconvene the conference at the earliest feasible date.
- D. PROGRESS MEETINGS: Progress meeting will be scheduled per General Contractors requirements. Coordinate meeting dates with preparation of the payment request.
1. Attendees: The Owner and Project Administrator, each subcontractor, supplier or other entity concerned with progress or involved in planning, coordination, or performance of future activities shall be presented by persons familiar with the Project and authorized to conclude matters relating to progress.
  2. Agenda: Review minutes of the previous progress meeting. Review significant items that could affect progress. Include topics appropriate to the current status of the project.
  3. Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

4. Review the present and future needs of each entity present, including such items as:
  - a. Time.
  - b. Sequence.
  - c. Deliveries.
  - d. Off-site fabrication problems.
  - e. Site utilization.
  - f. Temporary facilities and services.
  - g. Hazards and risks.
  - h. Quality and work standards.
  - i. Change Orders.
  - j. Documentation of information for payment requests.
5. Reporting: No later than 3 days after each meeting, distribute copies of minutes of the meeting to each party present and to parties who should have been present. Include a summary, in narrative form, of progress since the previous meetings.

END OF SECTION 01200

**SECTION 01300  
SUBMITTALS**

- A. GENERAL PROCEDURES: Coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities. Transmit in advance of performance of related activities to avoid delay.
1. Coordinate transmittal of different submittals for related elements so processing will not be delayed by the need to review concurrently for coordination. The Project Administrator reserves the right to withhold action on a submittal requiring coordination until related submittals are received.
  2. Processing: Allow seven days for initial review. Allow more time if processing must be delayed for coordination with other submittals. The Project Administrator will advise the Contractor when a submittal must be delayed for coordination. Allow two weeks for reprocessing each submittal.
    - a. No extension of time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.
  1. Submittal Preparation: Place a label or title block on each submittal for identification. Provide a 4" x 5" space on the label or beside the title block on Shop Drawings to record Contractor's review and approval markings and action taken. Include the following information on the label for processing and recording action taken.
    - a. Project name.
    - b. Date.
    - c. Name and address of Project Administrator.
    - d. Name and address of Contractor.
    - e. Name and address of Subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
  2. Submittal Transmittal: Package submittals appropriately for transmittal and handling. Transmit with a transmittal form. Submittals received from other than the Contractor will be returned without action.
  3. Submittal Format – Electronic or Paper:
    - a. "Electronic Paper" submittals may be sent in electronic format (.pdf) to \_\_\_\_\_, Inc. email: \_\_\_\_\_ Electronic documents will be returned electronically.
    - b. Hard paper copies: submit \_\_\_\_\_ duplicate copies to the office of \_\_\_\_\_  
-----  
----- Six (6) hard copies will be returned as indicated.
- B. SHOP DRAWINGS: Submit new information, drawn to accurate scale. Indicate deviations from Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Include the following information:
1. Dimensions.
  2. Identification of products and materials included.
  3. Notation of coordination requirements.
  4. Notation of dimensions established by field measurement.
  5. Sheet Size:
    - a. Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".
  6. Submittal: Submit one rolled reproducible and one blueline print. One of the prints returned shall be maintained as a "Record Document."
    - a. Do not use Shop Drawings without a final stamp indicating action taken in connection with construction.
- C. PRODUCT DATA: Collect Product Data into a single submittal for each element or system. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

1. Manufacturer's printed recommendations.
  2. Compliance with recognized trade association standards.
  3. Application of testing agency labels and seals.
  4. Notation of dimensions verified by field measurements.
  5. Notation of coordination requirements.
  6. Submittals: Submit 8 copies of each required submittal. The Project Administrator will retain one, and will return seven marked with action taken and corrections or modifications required.
    - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
  7. Distribution: Furnish copies of final submittal to installer and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession.
    - a. Do not permit use of unmarked copies of Product Data in connection with construction.
- D. SAMPLES: Submit full-size Samples cured and finished as specified and identical to the product proposed. Mount, display, or package Samples to facilitate review. Prepare Samples to match the Project Administrator's Sample. Include the following:
1. Generic description.
  2. Source.
  3. Product name or name of manufacturer.
  4. Compliance of recognized standards.
  5. Availability and delivery time.
  6. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics, and a comparison of these characteristics between the final submittal and the component as delivered and installed. Where variations are inherent in the product, submit multiple units that show limits of the variations.
  7. Preliminary submittals: Where Samples are for selection of characteristics from a range of choices, submit a full set of choices for the product. Preliminary submittals will be reviewed and returned indicating selection and other action.
  8. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken. Maintain Sample sets at the Project site, for quality comparisons.
    - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
    - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
  9. Distribution: Prepare additional sets for sub-contractors, manufacturers, fabricators, installers, and others as required for performance. Show distribution on transmittal forms.
  10. Project Administrator's Action: Except for submittals for record, information or similar purposes, where action and return is required, the Project Administrator will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.
    - a. Action stamp or note: The Project Administrator will stamp or mark each submittal with a self-explanatory note to indicate action taken.

E. REQUIRED SUBMITTALS:

See Submittal Log in the schedule section.

END OF SECTION 01300

SUBMITTAL LOG								
JOB#	K13036				BOONE COUNTY ANIMAL SERVICES & ADOPTION CENTER			
DATE DUE	DATE RECEIVED	DATE RETURNED	DIVISION	SECTION	ITEM	APPROVAL	CONDITIONAL APPROVAL	RESUBMIT
<b>DIVISION 1 - GENERAL REQUIREMENTS</b>								
			1	01631	Requests for Product Substitutions			
			1	01700	Certificate of Insurance			
			1	01700	Maintenance Manual: Emergency Instructions			
			1	01700	Maintenance Manual: Heating System			
			1	01700	Maintenance Manual: Turn-around Cycles			
			1	01700	Maintenance Manual: Warranties			
			1	01700	Maintenance Manual: Wiring Diagrams			
			1	01700	Punch List			
			1	01700	Report: HVAC Test and Balance			
<b>DIVISION 2 - SITEWORK</b>								
			2	02200	Report: Soils Compaction Test Results and Inspection Log			
<b>DIVISION 3 - CONCRETE</b>								
			3	03310	Product Data: Rebar			
			3	03310	Report: Compressive Strength Test (or Certificate)			
			3	03310	Report: Concrete Air Content (or Certificate)			
			3	03310	Report: Concrete Mix Design			
			3	03310	Report: Concrete Slump Test (or Certificate)			
<b>DIVISION 4 - MASONRY</b>								
			4	04200	Certificate: Cement Products for Mortar and Grout			
			4	04200	Certificate: Joint Reinforcement			
			4	04200	Certificate: Rebar			
			4	04200	Product Data: Masonry Accessories			
			4	04200	Product Data: Masonry Units			
			4	04200	Qualification Data: Masons and Inspectors			
			4	04200	Report: Masonry Unit Tests (or Certificates)			
			4	04200	Report: Mortar and Grout Mix Designs			
			4	04200	Samples: Masonry Accessories			
			4	04200	Samples: Masonry Mortar Colors			
			4	04200	Samples: Masonry Types			

SUBMITTAL LOG								
JOB#	K13036				BOONE COUNTY ANIMAL SERVICES & ADOPTION CENTER			
DATE DUE	DATE RECEIVED	DATE RETURNED	DIVISION	SECTION	ITEM	APPROVAL	CONDITIONAL APPROVAL	RESUBMIT
<b>DIVISION 5 - METALS</b>								
			5	05120	Certificates: Anchor Bolts			
			5	05120	Report: Installed Bolt Connection Inspections			
<b>DIVISION 6 - WOODS AND PLASTICS</b>								
			6	06100	Product Data: Construction Adhesives			
			6	06100	Product Data: Engineered Wood Products			
			6	06100	Product Data: Metal Framing Anchors			
			6	06192	Product Data: Truss Components			
			6	06192	Shop Drawings: Truss Engineering, Fabrication & Erection			
			6	06200	Certificate: Finish Carpenter Qualifications			
			6	06400	Product Data: Accessories			
			6	06400	Product Data: Adhesives			
			6	06400	Product Data: Plastic Laminates			
			6	06400	Samples: Plastic Laminate Color and Finish Selection			
<b>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</b>								
			7	07200	Product Data: Insulation Products			
			7	07200	Reports: Insulation General Performance Characteristics			
			7	07311	Product Data: Shingles and Accessories			
			7	07311	Samples: Color, Texture and Profile Selection			

SUBMITTAL LOG								
JOB#	K13036				BOONE COUNTY ANIMAL SERVICES & ADOPTION CENTER			
DATE DUE	DATE RECEIVED	DATE RETURNED	DIVISION	SECTION	ITEM	APPROVAL	CONDITIONAL APPROVAL	RESUBMIT
			7	07600	Product Data: Sheet Material			
			7	07600	Product Data: Sheet Metal Fabrications			
			7	07900	Product Data: Joint Sealants			
<b>DIVISION 8 - DOORS AND WINDOWS</b>								
			8	08110	Product Data: Specs for Fabrication and Installation			
			8	08110	Shop Drawings: Custom Item Fabrication & Installation			
			8	08200	Product Data: Wood Door Technical Specs			
			8	08200	Shop Drawings: Wood Door Fabrication and Installation			
			8	08410	Certificates: Installer Qualifications			
			8	08410	Certificates: Performance Test Reports			
			8	08410	Product Data: Fabrication, Accessories and Installation			
			8	08410	Shop Drawings: Aluminum Storefront Installation			
			8	08520	Certificates: Installer Qualifications			
			8	08520	Certificates: Window Performance Test Report			
			8	08520	Product Data: Window Fabrication & Installation			
			8	08520	Shop Drawings: Window Fabrication and Installation			
			8	08700	Final Hardware Schedule			
			8	08700	Product Data: Products, Installation & Maintenance			
<b>DIVISION 9 - FINISHES</b>								
			9	09250	Product Data: Adhesive			
			9	09250	Product Data: Fasteners			
			9	09250	Product Data: Finish Materials			
			9	09250	Product Data: Gypsum Board			
			9	09250	Product Data: Joint Compounds			
			9	09250	Product Data: Trim			

<b>SUBMITTAL LOG</b>								
<b>JOB#</b>	K13036				<b>BOONE COUNTY ANIMAL SERVICES &amp; ADOPTION CENTER</b>			
<b>DATE DUE</b>	<b>DATE RECEIVED</b>	<b>DATE RETURNED</b>	<b>DIVISION</b>	<b>SECTION</b>	<b>ITEM</b>	<b>APPROVAL</b>	<b>CONDITIONAL APPROVAL</b>	<b>RESUBMIT</b>
			9	09300	Product Data: Installation Instructions			
			9	09300	Samples: Tile and Grout Color and Texture Selection			
			9	09510	Product Data: Ceiling Units			
			9	09510	Product Data: Suspension System			
			9	09650	Maintenance Instructions: Flooring and Accessories			
			9	09650	Product Data: Sheet Flooring Technical Specs			
			9	09650	Samples: Sheet Flooring Color and Pattern Selection			
			9	09650	Samples: Wallbase Color Selection			
			9	09705	Maintenance Instructions: Resinous Flooring			
			9	09705	Product Data: Resinous Flooring Technical Specs			
			9	09705	Samples: Resinous Flooring Color Selection			
			9	09900	Paint Schedule of Products			
			9	09900	Product Data: Paint Products Technical Specs			
			9	09900	Samples: Paint Color Selection			
<b>DIVISION 10 - SPECIALTIES</b>								
			10	10800	Product Data: Toilet Accessories Technical Specs			
<b>DIVISION 11 - EQUIPMENT</b>								
			11	11012	Product Data: Cleaning System Components			

<b>SUBMITTAL LOG</b>								
<b>JOB#</b>	K13036				<b>BOONE COUNTY ANIMAL SERVICES &amp; ADOPTION CENTER</b>			
<b>DATE DUE</b>	<b>DATE RECEIVED</b>	<b>DATE RETURNED</b>	<b>DIVISION</b>	<b>SECTION</b>	<b>ITEM</b>	<b>APPROVAL</b>	<b>CONDITIONAL APPROVAL</b>	<b>RESUBMIT</b>
<b>DIVISION 12 - FURNISHINGS</b>								
			12	12300	Product Data: Cabinets			
			12	12300	Shop Drawings: Cabinets			
			12	12300	Samples: Cabinet Door style and Color			
<b>DIVISION 13 - SPECIAL CONSTRUCTION</b>								
<b>DIVISION 15 - PLUMBING</b>								
			15	15400	Certificate: Plumbing Certificate of Performance			
			15	15400	Manual: Plumbing Operations and Maintenance Manual			
			15	15400	Materials List of Components Proposed for Use			
			15	15400	Record Drawings: Plumbing Systems and Components			
			15	15400	Shop Drawings & Product Data: Plumbing Components			
<b>DIVISION 15B - HVAC</b>								
			15	15600	Manuals: Component Description/Operation Instructions			
			15	15600	Manuals: Control Wiring Diagrams			
			15	15600	Record Drawings: HVAC Systems			
			15	15600	Shop Drawings & Product Data: HVAC Systems			
<b>DIVISION 16 - ELECTRICAL</b>								
			16	16000	Record Drawings: Electrical Systems			
			16	16000	Shop Drawings: Electrical System Components			
			16	16000	Warranty: Electrical Systems Components and Installation			

**SECTION 01400**  
**QUALITY CONTROL SERVICES**

- A. THIS SECTION SPECIFIES requirements for quality control services which include inspections and tests performed by independent agencies, governing authorities, as well as the Contractor.
- B. CONTRACTOR RESPONSIBILITIES: Provide inspections and tests specified below and/or required by governing authorities. Costs are included in the Contract.
1. Employ and pay an independent agency, to perform quality control services for testing concrete. Refer to Section 03300 - Concrete, for other requirements.
  2. Re-testing: The Contractor is responsible for re-testing where results prove unsatisfactory.
  3. Associated Services: The Contractor shall cooperate with agencies performing inspections or tests and provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel.

The testing agency shall cooperate with the Project Administrator and Contractor in performance of its duties.

- C. COORDINATION: The Contractor is responsible for scheduling inspections, tests, taking samples and similar activities.
1. Submittals: The testing agency shall submit a certified written report of each inspection and test to the Architect.
  2. Submit additional copies of each report to the governing authority, when the authority so directs.
- D. QUALIFICATION FOR SERVICE AGENCIES: Engage inspection and testing agencies which comply with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and specialize in the types of inspections and tests to be performed. Each inspection and testing agency engaged shall be authorized to operate in the State in which the project is located.
- E. REPAIR AND PROTECTION: Upon completion of inspection and testing repair damaged construction as required. Refer to Section 01045 - Cutting and Patching.
1. The Contractor is responsible for repair and protection regardless of the assignment of responsibility for inspection and testing.

END OF SECTION 01400

**SECTION 01500  
TEMPORARY FACILITIES**

Arranged by General Contractor except as otherwise noted.

- A. SUMMARY: This Section specifies temporary services and facilities, including utilities, construction and support facilities, security, and protection. Provide facilities ready for use. Maintain, expand and modify as needed. Remove when no longer needed, or replaced by permanent facilities.
- B. USE CHARGES: Cost or use charges for temporary facilities are not chargeable to the Owner or Project Administrator, and will not be acceptable as a basis of claims for a Change Order.
- C. REGULATIONS: Comply with applicable laws and regulations.
- D. STANDARDS: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
  - 1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services," prepared by AGC and ASC.
  - 2. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- E. INSPECTIONS: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- F. CONDITIONS OF USE: Keep facilities clean and neat. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload, or permit facilities to interfere with measures. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
- G. MATERIALS AND EQUIPMENT: Provide new materials and equipment; if acceptable to the Project Administrator, undamaged previously used materials and equipment in serviceable condition may be used. Provide materials and Equipment suitable for the use intended.
- H. TEMPORARY UTILITY INSTALLATION: Engage the local utility company to install temporary service or connect to existing service. Arrange for a time when service can be interrupted to make connections. Provide adequate capacity to each stage of construction. Prior to temporary utility availability, provide tucked-in services.
  - 1. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction. Sterilize water piping prior to use. Provide 3/4" heavy-duty, rubber hoses 100 ft. long with shut-off nozzle at each outlet.
  - 2. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics. Include meters, transformers, overload protection disconnects, automatic ground-fault interrupters, and main distribution switchgear.
    - a. Power Distribution System: Install wiring over-head and rise vertically where least exposed to damage.
    - b. Electric Outlets: Provide properly configured NEMA polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
    - c. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to traffic. (Extension cords to be provided by contractor requiring same).
    - d. Lighting: Provide temporary lighting with local switching to fulfill security requirements and provide illumination for construction operations and traffic conditions.

3. Telephones: Provide temporary telephone service for personnel engaged in construction. At each telephone, post a list of important telephone numbers.
  4. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds or similar facilities.
    - a. Filter out construction debris and other contaminants that might clog sewers or pollute waterways before discharge.
- I. TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION: Locate for easy access. Maintain facilities until Substantial Completion. Remove prior to substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- J. TEMPORARY HEAT: Provide temporary heat for curing and drying of completed installation or protection of installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installation; heating units shall have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel used. Coordinate ventilation requirements to produce the ambient condition required.
- K. FIELD OFFICES: General Contractor shall provide a construction trailer for duration of project for the construction field superintendents use.
- L. TOILETS: Install self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. Use of pit-type privies will not be permitted.
- M. DRINKING WATER FACILITIES: (By contractor) provide containerized tap-dispenser bottled-water type drinking water units.
- N. TEMPORARY ENCLOSURES: (By contractor) provide temporary enclosure for protection of construction from exposure, foul weather, other construction operations and similar activities. Where heat is needed and the building enclosure is incomplete, provide enclosure where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions.
- O. COLLECTION AND DISPOSAL OF WASTE: (By each contractor) collect waste daily. Comply with NFPA 241 for removal of combustible waste. Enforce requirements strictly. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose in a lawful manner.
- P. FIRE EXTINGUISHERS: (By Contractor) provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers. Locate fire extinguishers where effective for the intended purpose.
  1. Store combustible materials in containers in fire-safe locations.
  2. Provide supervision of welding operations, combustion type temporary heating units, and sources of fire ignition.
- Q. BARRICADES, WARNING SIGNS AND LIGHTS: (By Contractor) comply with standards and code requirements for erection of barricades. Paint appropriate warning signs to inform personnel and the public of the hazard being protected against. Where needed provide lighting, including flashing lights.
- R. ENCLOSURE FENCE: When excavation begins, install an enclosure fence with entrance gates where indicated.

- S. SECURITY ENCLOSURE AND LOCK-UP: Install temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism and theft. Where materials and equipment must be stored, provide a secure lock-up.
- T. ENVIRONMENTAL PROTECTION: Operate temporary facilities and conduct construction by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints.
- U. PREVENT piping from freezing. Maintain markers for under-ground lines. Protect from damage during excavation operations.
- V. TERMINATION AND REMOVAL: (By Contractor or Vendor providing service). Remove each facility when the need has ended, or replaced by a permanent facility, or no later than Substantial Completion. Complete or restore construction delayed because of interference with the facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactory repaired.

END OF SECTION 01500

**SECTION 01600**  
**MATERIALS AND EQUIPMENT**

- A. PRODUCTS are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock.
1. "Named Products" are items identified by manufacturer's product name, including make or model designation indicated in the manufacturer's product literature.
- B. "MATERIALS" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
- C. "EQUIPMENT" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.
- D. SOURCE LIMITATIONS: To the fullest extent possible, provide products of the same kind, from a single source.
1. When the Contractor has the option of selecting between two or more products, the product selected shall be compatible with products previously selected.
- E. NAMEPLATES: Except for required labels and operating data, do not attach manufacturer's nameplates or trademarks on surface exposed to view in occupied spaces or on the exterior.
1. Equipment Nameplates: Provide a permanent nameplate on each item of service-connect or power-operated equipment. Locate on an inconspicuous accessible surface. The name-plate shall contain the following information and essential operating data:
    - a. Name of product and manufacturer.
    - b. Model and serial number.
    - c. Capacity.
    - d. Speed.
    - e. Ratings.
- F. PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver, store, and handle products in accordance with manufacturer's recommendations, using methods that will prevent damage, deterioration and loss.
1. Deliver products in manufacturer's original sealed container or packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  2. Inspect products on delivery to ensure compliance with Contract Documents, and to ensure that products are undamaged and properly protected.
  3. Store products to facilitate inspection and measurement of quantity or counting of units. Store heavy materials away from the structure in a manner that will not endanger supporting construction.
  4. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.
- G. PRODUCT SELECTION: Provide products that comply with the Contract Documents, are undamaged and unused at installation.
1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
- H. STANDARD PRODUCTS: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- I. PROPRIETARY SPECIFICATION REQUIREMENTS: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.

- J. SEMI-PROPRIETARY SPECIFICATION REQUIREMENTS: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
1. Where products are specified by name, accompanied by the term "or equal" comply with provisions for "substitutions" to obtain approval for use of an unnamed product.
- K. NON-PROPRIETARY SPECIFICATIONS: When Specifications list products or manufacturers that are available and may be used, but do not restrict the Contractor to use of these products only, the Contractor may propose any product that complies with Contract requirements. Comply with provisions for "substitutions" to obtain approval for use of an unnamed product.
- L. DESCRIPTIVE SPECIFICATION REQUIREMENTS: Where Specifications describe a product, listing characteristics required, with or without use of a brand name, provide a product that provides the characteristics and otherwise complies with requirements.
1. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply and are recommended for the application. Manufacturer's recommendations may be contained in product literature, or by certification of performance.
  2. Compliance with Standards: Where Specifications require compliance with a standard, select a product that complies with the standard specified.
  3. Visual Matching: Where Specifications require matching a Sample, the Project Administrator's decision on whether a proposed product matches is final. Where no product matches and complies with other requirements, comply with provisions for "substitutions" for selection of a matching product in another category.
  4. Visual Selection: Where requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product that complies with other requirements. The Architect will select color, pattern and texture from the product line selected.
- M. INSTALLATION OF PRODUCTS: Comply with manufacturer's instructions and recommendations for installation of products. Anchor each product securely in place, accurately located and aligned with other Work. Clean exposed surfaces and protect to ensure freedom from damage deterioration at time of Substantial Completion.

END OF SECTION 01600

**SECTION 01631  
PRODUCT SUBSTITUTIONS**

- A. SUBSTITUTIONS: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
1. Substitutions requested during the bidding period, and accepted prior to award of Contract.
  2. Revisions to Contract Documents requested by the Owner or Project Administrator.
  3. Specified options of products and construction methods included in Contract Documents.
  4. Compliance with governing regulations and orders issued by governing authorities.
- B. SUBMITTAL: Request for substitution will be considered if received within 30 days after commencement of the Work. Requests received more than 30 days after commencement of the Work may be considered or rejected at the discretion of the Project Administrator.
1. Submit 3 copies of each request for substitution in the form and in accordance with procedures for Change Order proposals.
  2. Identify the product, or installation method to be replaced in each request. Include related Specification Section and Drawing Numbers. Document compliance with requirements for substitutions, and the following information, as appropriate:
    - a. Product Data, including Drawings and descriptions of products, fabrication, and installation procedures.
    - b. Samples, where applicable or requested.
    - c. A comparison of significant qualities of the proposed substitution with those specified.
    - d. A list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will be necessary to accommodate the proposed substitution.
    - e. A statement indicating the substitutions effect on the Construction Schedule compared to the Schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
    - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
    - g. Certification that the substitution is equal-to or better in every respect to that required by Contract Documents, and that it will perform adequately in application indicated. Include Contractor's waiver of rights to additional payment or time, that may be necessary because of the substitution's failure to perform adequately.
- C. PROJECT ADMINISTRATOR'S ACTION: Within two weeks of receipt of the request, the Project Administrator will notify the Contractor of acceptance or rejection. If a decision on use of a Substitute cannot be made within the time allocated, use the product specified. Acceptance will be in the form of a Change Order.

- D. SUBSTITUTIONS: The Contractor's substitution request will be received and considered by the Project Administrator when one or more of the following conditions are satisfied, as determined by the Project Administrator, otherwise requests will be returned without action except to record noncompliance with these requests.
1. Extensive revisions to Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
  5. The specified product or method of construction cannot be provided with the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly
  6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities for the Owner may include additional compensation to the Architect for redesign and to the Project Administrator for evaluation services, increased cost of other construction by the Owner or separate contractors, and similar considerations.
  8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
  9. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty
  10. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data, or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptance or valid request for substitution, nor does it constitute approval.

END OF SECTION 01631

**SECTION 01700  
PROJECT CLOSEOUT**

**A. SUBSTANTIAL COMPLETION**

Before requesting inspection for certification of Substantial Completion, complete the following:

1. In the Application for Payment that coincides with the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed substantially complete.
2. Submit warranties, final certifications, maintenance manuals and similar record information.
3. Submit the HVAC Test & Balance Report minimum one week before the scheduled inspection.
4. Change over permanent locks and give keys to the Owner.
5. Complete testing of HVAC systems and instruct the Owner's personnel to the Owner's satisfaction. Remove temporary facilities from the site, complete final clean up.

**B. INSPECTION PROCEDURES**

1. On receipt of a request for inspection just prior to Owner's occupancy, the Project Administrator will check for unfilled requirements. The Project Administrator will prepare the Certificate of Substantial Completion following inspection, or advise the contractor of construction that must be complete or corrected before the certificate will be issued. Results of completed inspection will form the Punch List.
2. The Project Administrator will repeat inspection when requested to assure that the work has been substantially completed.

**C. FINAL ACCEPTANCE**

Before requesting final payment complete the following:

1. Submit final payment request with releases acceptable to the Owner and the Owner's financial institution administering the loan.
2. Submit a copy of the Punch List stating that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of continuing insurance coverage complying with insurance requirements, making sure the Owner's policy overlaps coverages during final acceptance.

**D. REINSPECTION PROCEDURE**

1. The Project Administrator will reinspect the work upon notice that the work has been completed, except items whose completion delay is acceptable to the Project Administrator. Note: The Project Administrator reserves the right to charge the contractor his normal hourly fee for repeated requested inspections due to unaccepted or incomplete items (after the first reinspection request).

**E. MAINTENANCE MANUALS**

1. Organize maintenance data into sets of manageable size. Bind in one heavy-duty two inch, three ring vinyl covered binder. Include the following information:
  - a. Step by step heating system operating instruction;
  - b. Emergency instructions;
  - c. Copies of warranties;
  - d. Wiring diagrams;
  - e. Recommended "turn around" cycles.

## F. OPERATING AND MAINTENANCE INSTRUCTIONS

1. Arrange for the installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Include a detailed review of the following:
  - a. Maintenance manuals;
  - b. Lubricants;
  - c. Control sequences;
  - d. Hazards;
  - e. Warranties and bonds;
  - f. Maintenance agreements and similar continuing commitments;
  - g. Cleaning procedures, especially for sheet vinyl floor maintenance.
2. As part of instruction for operating equipment, demonstrate the following procedures:
  - a. Start-up and shutdown;
  - b. Emergency operations;
  - c. Noise and vibration adjustments;
  - d. Safety procedures.
3. Final Cleaning: Employ experienced worker for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following just before Owner Occupancy.
4. Remove labels that are not permanent labels.
5. Clean glass. Remove glazing compound. Replace chipped or broken glass.
6. Clean exposed hard surfaced finishes to a dust free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Vacuum tops of upper cabinets. Leave concrete floors broom clean. Vacuum carpeted surfaces. Clean and mop vinyl and tile floors to a "ready to move in" condition. Floors to be cleaned by a professional cleaner.
7. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures to a sanitary condition. clean light fixtures and lamps, replace burned-out bulbs; replace/clean all furnace filters.
8. Clean the site of rubbish, litter, and other foreign substances. Sweep paved areas; remove stains, spills and other foreign deposits. Rake grounds that are neither paved not planted, to a smooth even textured surface.

## G. COMPLIANCE

Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION 01700

**SECTION 01740  
WARRANTIES**

- A. STANDARD PRODUCT WARRANTIES are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. SPECIAL WARRANTIES are written warranties required by or incorporated in Contract Documents, to extend time limits provided by standard warranties or to provide greater rights for the Owner.
1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
  2. Requirements for warranties for products and installations that are specified to be warranted, are included in the individual Sections of Division -2 through -16.
- C. DISCLAIMERS AND LIMITATIONS: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.
- D. RELATED DAMAGES AND LOSSES: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- E. REINSTATEMENT OF WARRANTY: When Work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- F. REPLACEMENT COST: On determination that Work covered by a warranty has failed, replace or rebuild the Work to an accept-able condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through part of its useful service life.
- G. OWNER'S RECOURSE: Written warranties made to the Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
1. Rejection of Warranties: The Owner reserves the right to reject warranties and limit selections to products with warranties not in conflict with requirements of the Contract Documents.
  2. The Owner reserves the right to refuse to accept Work where a special warranty, or similar commitment is required, until evidence is presented that entities required to countersign commitments are willing to do so.
- H. SUBMIT WRITTEN WARRANTIES to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties on the Architect's request.
1. When a special warranty is to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
  2. Refer to individual Sections of Division -2 through -16 for specific content, and particular requirements for submittal of special warranties.

END OF SECTION 01740

**SECTION 02830  
FENCES AND GATES**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. SUBMITTALS**

1. Submit shop drawings, including details showing fence height, sizes of posts, rails, braces, footings and accessories for review prior to installation.

**PART 2 - PRODUCTS**

**A. CONCRETE**

1. Concrete for chain link fence items shall be in accordance with Section 03300-Cast-In-Place Concrete.

**B. FENCING**

1. Chain-Link Fabric: Galvanized 2 inch mesh, woven of 9-gauge wire with selvage edges knuckled at bottom and top. Minimum galvanized finish of 1.2 oz. zinc per sq. ft.
2. Posts and Other Appurtenances: Posts and other appurtenances used in the construction of fence shall be galvanized.
3. Intermediate Posts: 2 inches O.D., nominal weight pipe, 3.65 lbs. per lineal foot or SS-40 weighing 3.117 lbs. per foot.
4. End, Corner and Pull Posts: 3 inches O.D., standard weight pipe, 5.79 lbs. per lineal foot or SS-40 weighing 4.64 lbs. per foot.
5. Post Setting: Posts shall be of sufficient length to provide 36 inch setting in concrete footings and spaces as noted. Maximum spacing 10 feet o.c.
6. Rails: 1-5/8 inches O.D., standard weight pipe, 2.27 lbs. per lineal foot or SS-40 weighing 1.836 lbs. per foot, provided with couplings approximately every 20 feet. Coupling shall be outside sleeve type.
7. Braces: Brace material to be the same as top rail.
8. Post Tops: Equip posts with malleable, cast iron or pressed steel ornamental tops. Design post tops to exclude moisture from post. Design intermediate post tops to hold top rail.
9. Gates: Gate frames shall be 2 inches O.D., standard weight pipe with heavy malleable iron or pressed steel fittings. Fabric to match fence shall be securely installed in frame. Provide gates complete with hardware, latch, and provisions for padlock.
10. Gate Posts: Minimum standard weight pipe, 2-7/8 inches O.D, 5.79 lbs. per lineal foot.
11. Finish: Provide all fencing components and accessories with galvanized finish.

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. Chain link fence installation shall be completed by experienced mechanics.
2. Locate and install all chain link fence items in accordance with approved drawings and printed instructions.
3. Bottom of posts shall be set 36 inches deep in 48-inch deep concrete foundations. Diameter of foundation shall be a minimum of 3 times the diameter of the post or 12 inches, whichever is greater. Form top of concrete base with slope away from post. Top rail to form a continuous brace from end to end of each stretch of fence. Securely fasten top rail to terminal posts.
4. Install braces midway between top rail and ground and extend from each terminal post to first adjacent line post. Securely fasten braces to posts, then truss from line post back to terminal post.

5. Stretch fabrics to proper tension between terminal posts. Securely fasten chain link fabric to all terminal posts using heavy gauge bands at 14 inches o.c. Fasten fabric to all line posts and to the top rail with 9-gauge tie wires on approximately 24-inch centers. Hold bottom of fabric as uniformly as is practical to 2 inches above finished grade.
6. Install brace assemblies so posts are plumb when under proper tension.

END SECTION 02830

**SECTION 03100  
CONCRETE FORMWORK**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. RELATED WORK**

1. Refer to Section 03200-Concrete Reinforcement.
2. Refer to Section 03250-Concrete Accessories.
3. Refer to Section 03300-Cast-In-Place Concrete.

**C. DESCRIPTION OF WORK**

1. Provide formwork and shoring for Cast-In-Place Concrete and installation into formwork of items furnished by others.

**D. QUALITY ASSURANCE**

1. Comply with provisions of ACI 347 except where requirements are specified otherwise.

**E. DEFINITIONS**

1. Exposed concrete surfaces are defined as interior and exterior surfaces exposed to view.

**PART 2 - PRODUCTS**

**A. EXPOSED FINISH CONCRETE FORMS**

1. Furnish forms with facing material for as-cast Smooth Form Finish using plywood conforming to U.S. Product Standard PS-1 "B-B Plywood", Class 1, Exterior for continuous, straight smooth surfaces with minimum number of joints except where noted or specified otherwise.
2. Furnish forms conforming to U.S. Products Standard PS-1 "B-B High Density Overlaid Concrete Form", Class 1 for smooth rubbed finish noted on drawings.

**B. UNEXPOSED FINISH CONCRETE FORMS**

1. Plywood lumber, metal or other acceptable material to provide a tight joint fit.

**C. CYLINDRICAL COLUMN FORMS**

1. Round laminated paper or fiber tubes, water-resistant and wax impregnated.
2. Similar to Sonoco Products Company Seamless Sonotube Fibre Forms.

**D. FORM TIES**

1. Snap ties of high tensile carbon steel wire with 1-1/2 inches breakback leaving maximum 1-inch diameter surface hole.

**E. FORM COATING**

1. Provide commercial formulation compound that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

**F. CHAMFER STRIPS**

1. Polyvinyl Chloride triangular type similar to Gateway Chamfer Strips with 3/4-inch face unless otherwise noted on drawings.

## **PART 3 – EXECUTION**

### **A. DESIGN CRITERIA**

1. Design and engineer formwork in accordance with ACI 347 to conform to the shape, lines and dimensions of the concrete members shown on the drawings.
2. Design camber in formwork to compensate for deflections due to weight and pressure of the concrete and construction loads without reducing the design thickness of the concrete.
3. Design means of adjustment of shores and struts to take up settlement during concrete placing operations.
4. Design shores with braces for lateral deflection.
5. Design formwork to prevent leakage of concrete, stayed, braced and shored of sufficient strength to safely hold the concrete until it is properly set.
6. Design temporary openings where necessary to facilitate cleaning and inspection. Locate at inconspicuous locations.
7. Design construction joints perpendicular to main reinforcing with vertical bulkhead keyed 30% of the section using nominal 2 inches lumber. Continue reinforcements across joints.
8. Design formwork to be readily removable without impact, shock or damage to concrete surfaces and adjacent materials.

### **B. CONCRETE FORM ERECTION**

1. Comply with ACI 301 except as modified below.
2. Erect forms full height of footings if earth cuts do not remain vertical and stable.
3. Place chamfer strips in forms to produce beveled edges only at locations shown on drawings.
4. Form openings to accommodate work of other trades.
5. Coat the contact surfaces of forms with a nonstaining form coating compound before reinforcement is placed.
6. Secure special finish form liners in forms for even, uniform, matched pattern and joints.

### **C. REMOVAL OF FORMS**

1. Remove weight supporting formwork and shoring not less than 14 days after placing and when design strength has been attained unless reshored.
2. Remove nonweight-supporting formwork not less than 48 hours after placement.

### **D. REUSE OF FORMS**

1. Clean and repair the surfaces of forms that are to be reused in the work.
2. Apply new form coating compound material to all concrete contact form surfaces as specified for new formwork.

END SECTION 3100

**SECTION 03200  
CONCRETE REINFORCEMENT**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. RELATED WORK**

1. Refer to Section 03250-Concrete Accessories.
2. Refer to Section 03300-Cast-In-Place Concrete.

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**C. DESCRIPTION OF WORK**

1. Fabricate and place reinforcements for Cast-In-Place Concrete.

**D. QUALITY ASSURANCE**

1. Comply with requirements of the following codes and standards except as shown or specified.
  - a. American Concrete Institute, ACI 315 "Details and Detailing of Concrete Reinforcement."
  - b. American Concrete Institute, ACI 318 "Building Code Requirement for reinforced Concrete".
  - c. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice" and "Placing Reinforcing Bars."

**E. SUBMITTALS**

1. Submit shop drawings for fabrication, bending and placement of concrete reinforcement showing bar schedules, stirrup spacing, diagrams of bent bars, splicing arrangements and assemblies as required for the fabrication and placement of concrete reinforcement. Dimension length of all lapped splices.

**F. STORAGE OF MATERIALS**

1. Store bars at project site clear of ground and protect from weather.

**PART 2 - PRODUCT**

**A. REINFORCING MATERIALS**

1. Reinforcement Bars: ASTM A 615 steel, Grade 60.
2. Epoxy Coated Reinforcement Bars: ASTM A 775 using A 615 steel, Grade 60.
3. Welded Wire Fabric: ASTM A 185 steel in rolls or flat sheets.
4. Steel Tie Wire: Black annealed, 16-gauge soft wire.
5. Reinforcing Supports: Metal chairs, runners, bolsters, spacers and hangers as required for proper spacing, supporting and fastening reinforcing in place. Use wire bar type complying with CRSI specifications.
6. For slabs-on-grade, where base material will not support chair legs, provide supports with sand plates or horizontal runners.
7. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with plastic or stainless steel protected legs.
8. End Bearing Splice Devices: Erico Speed-Sleeve made by Erico Products, Cleveland, OH or G-LOC Splices made by Gateway Erectors Inc., Chicago, IL.
9. Splice Couplers: Cadweld reinforcement couplers made by Erico Products.
10. Threaded Couplers: DB-SAE made by Richmond Screw Anchor Company, Standard Couplers made by Lenton or C2D Rebar Flange Coupler made by Williams Form Engineering.

## B. FABRICATION

1. Shop fabricate reinforcing bars to conform to the required shapes and dimensions, with fabrication tolerances complying with ACI 315. Do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
2. Provide ACI standard hook unless otherwise noted.
3. Bundle, tag and mark all reinforcement. Use metal tags to indicate bar size, length and other information corresponding to markings shown on shop drawings.
4. Fabricate column and wall dowels of same size and number as column and wall reinforcing.

## PART 3 - EXECUTION

### A. PREPARATION

1. Clean reinforcement of loose rust, mill scale and other foreign materials immediately prior to placement.

### B. INSTALLATION

1. Comply with CRSI recommended practice for "Placing Reinforcing Bars" for details and methods of reinforcement placement and supports and as herein specified.
2. Accurately position, support and secure reinforcement against displacement by formwork, construction or concrete placement operations.
3. Place reinforcement of the following minimum concrete cover:
  - a. See Structural Drawings for placement schedule.
4. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers as required.
5. Space reinforcing bars to comply with ACI 318.
6. Relocate bars to avoid interference of other embedded items but not more than one bar diameter without approval.
7. Provide sufficient number of supports with strength to carry the reinforcement.
8. Arrange space and tie bars, and bar supports together with steel wire. Set wire tie ends into the concrete.
9. Splice reinforcement with contact lapped splices in accordance with ACI 318.02 Class B Requirements.
10. Tack welding will not be permitted on reinforcing bars.
11. Protect installed reinforcing from construction loads.
12. Install welded wire fabric with one full mesh side and end laps. Offset end laps. Lace splices with steel wire.
13. Place upper layer reinforcement directly over bottom layer for parallel reinforcement with a minimum 1-inch between.
14. Provide clear distance of not less than one bar diameter or 1-inch between parallel bars in a layer including contact lap splice and adjacent splices or reinforcement.
15. Run bottom reinforcement continuously over supports where similarly spaced or extend minimum 6 inches onto support.
16. Place reinforcement in beams and joists with a tolerance of plus or minus 1/4-inch.
17. Saw cut vertical end bearing compression bars 90 degrees to the axis of the bar with a maximum deviation of 1-1/2 degrees. Rotate bars until angle between bearing surfaces is at a minimum, but not greater than 3 degrees.
18. Splice reinforcing to structural steel with Cadweld B Series couplers.

END OF SECTION 03200

**SECTION 03250  
CONCRETE ACCESSORIES**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**A. RELATED WORK**

1. Refer to Section 03100-Concrete Formwork.
1. Refer to Section 03200-Concrete Reinforcements.
1. Refer to Section 03300-Cast-In-Place Concrete.

**A. SUBMITTALS**

1. Submit manufacturer's product data with application and installation instructions for each item specified.

**PART 2 - PRODUCTS**

**A. MATERIALS**

1. Related concrete accessories for Cast-In-Place Concrete work include the following:
  - a. Vapor Barrier: Polyethylene sheet not less than 10 mils thick or water resistant barrier paper consisting of heavy Kraft papers laminated together with glass fiber reinforcement and overcoated with black polyethylene on each side.
  - a. Waterstops: PVC Corps of Engineers CRD-C572, flat dumbbell or center bulb type sized to suit joints.
  - a. Felt strip No. 30 plain asphalt saturated felt conforming to ASTM D 226.
  - a. Slab on Grade Forms: Galvanized 24-gauge steel shaped to form a tongue and groove joint near center of slab with knock-outs 6 inches o.c., steel stakes, steel splice plates and steel spring clips similar to Burke Keyed Kold Joint.
  - a. Exposed Expansion Joint Filler: Asphalt impregnated premolded fiber expansion joint conforming to ASTM D 1751, 1/2- inch thick unless noted otherwise.
  - a. Sealed Expansion Joint Filler: Polyethylene foam similar to Dow Chemical Ethafoam.
  - a. Compressible Filler: Molded or extruded polystyrene.
  - a. Dovetail Anchor Slots: 22-gauge-galvanized steel similar to Gateway Bee-Hive dovetail anchor slot.
  - a. Reglets: 26-gauge galvanized steel with 1-inch deep-sloped slot and 3/4-inch opening similar to Gateway Standard Reglet.
  - a. Control Joint Strip: T-shaped 1/16-inch thick plastic strip 1 inch deep with 3/4-inch wide pull-top stiffener and anchor for vertical movement similar to Quickjoint as distributed by C.W. Hamm & Associates, Roselle, IL.
  - a. Wedge Inserts: Malleable wedge type with 3/4-inch bolts and cardboard fillers similar to Gateway Type "T" wedge insert.
  - a. Threaded Inserts: Malleable type for 3/4-inch bolts similar to Gateway Type "J" threaded.
  - a. Dowel Caps: 5 inches long, snub round or flattened end sized for expansion dowels similar to Gateway Dowel Caps.
  - a. Anchor Bolts: See Structure Drawings for size and locations.

### **PART 3 - EXECUTION**

#### **A. INSTALLATION**

1. Install items in accordance with manufacturer's instructions as specified herein, and according to the usual accepted standards of the trade.
2. Vapor Barrier Installation: Place vapor barrier beneath compacted 3 inches sand base at all interior concrete slabs on grade. Lap joints 6 inches minimum and attach together with an approved tape. Lapped in direction of spreading of concrete.
3. Waterstop Installation: Place and secure waterstop to form so that center bulb centers on joint. Splice joints by heat welding. Provide at construction joints with earth on one side.
4. Felt Strip Installation: Locate felt strip at all points of contact with vertical surfaces using butt joints. Cut felt flush with top of slab.
5. Slab on Grade Form Installation:
  - a. Place forms for construction and control joints of interior concrete slabs on grade to divide slab into areas of not more than 200 sq. ft. and maximum dimension of 15 feet in either direction, keeping dimensions as square as possible.
  - b. Secure forms with metal stakes spaced maximum of 2 feet on center to proper screed level. Crimp form to stakes. Install splice plate at each form joint and spring clips at stakes.
  - c. Review layout of joints prior to pouring concrete.
6. Exposed Expansion Joint Filler Installation: Place and secure filler to form with top edge in line with concrete.
7. Sealed Expansion Joint Filler Installation: Place and secure filler to form with top edge set below concrete sufficiently to accept sealant.
8. Dovetail Slot Installation: Place and secure slots vertically to form spaced 32 inches o.c. where masonry partitions butt concrete and where concrete surfaces are faced with masonry.
9. Control Joint Strip Installation: Part concrete 1/4-inch depth of slab with manufacturers recommended cutter bar after initial trowelling, insert strip flush with top of concrete, remove pull-top and float concrete to fill voids adjacent to strip.

END OF SECTION 03250

**SECTION 03300  
CAST-IN-PLACE CONCRETE**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. DESCRIPTION OF WORK**

1. Provide all Cast-In-Place Concrete work to extent shown on the drawings.

**C. RELATED WORK**

1. Refer to Section 03100-Concrete Formwork.
2. Refer to Section 03200-Concrete Reinforcement.
3. Refer to Section 03250-Concrete Accessories.
4. Refer to Section 02250-Concrete Paving.

**D. SUBMITTALS**

1. Submit manufacturer's product data with application and installation instructions for each item specified.

**E. QUALITY ASSURANCE**

1. Comply with provisions of the following unless specified otherwise.
  - a. ACI 211.1-"Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete".
  - b. ACI 301-"Specifications for Structural Concrete for Buildings".
  - c. ACI 304-"Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
  - d. ACI 305R-"Recommended Practice for Hot Weather Concrete".
  - e. ACI 306R-"Recommended Practice for Cold Weather Concrete".
  - f. ACI 318-"Building Code Requirements for Reinforced Concrete".

**PART 2 - PRODUCTS**

**A. MATERIALS**

1. Components for mixing, placing, curing and protecting Cast-In-Place Concrete to be as follows:
  - a. Portland Cement: ASTM C 150, Type I specifications for normal or Type III for high early strength concrete.
  - b. Fly Ash: ASTM C618, Type C or F, not to exceed 25% of cement content by weight. Do not use when ambient air temperatures are expected to be below 35 degrees F during the first 48 hours after placement.
  - c. Fine Aggregate: Natural sand or manmade sands or combinations thereof conforming to ASTM C 33.
  - d. Coarse Aggregate: Crushed stone or gravel conforming to ASTM C 33.
  - e. Water: Fresh, clean, free from sediment and suitable for drinking.
  - f. Water-Reducing Admixture: Conform to ASTM C-494, Type A. Pozzolith 200N by Master Builders, Maracon by Marathon Products, WRDA with Hycol or WRDA 82 by W.R. Grace Co., PDA by Protex, Lubricon 200 by American Admixtures, Eucon by EUCO.
  - g. Air-Entraining Admixture: ASTM C 260.
  - h. Curing-Sealing Compound: Plasticized chlorinated resin which complies with ASTM C-309, Type I compound, Kure-N-Seal by Sonneborn, Clear Seal by W.R. Grace, Sealkure by Toch/Carboline, Floor Treet by Spray-o-Bond, CS-309 Cure and Seal by W.R. Meadows, Eucocure by EUCO, Dress and Seal 18 by L & M.
  - i. Sealer for Exposed Concrete Finish: Water based acrylic polymer complying with ASTM C 309. Dayton J-18 Safe Cure & Seal, W.R. Meadows Intex, Euclid Aqua-Cure, or Nox-crete Cure & Seal 100E.
  - j. Formwork: Comply with ACI 347 for as-cast Smooth Form Finish.

- k. Reinforcement Bars: ASTM A 615, Grade 60.
- l. Welded Wire Fabric: ASTM A 185 steel in rolls or flat sheets.
- m. Expansion Joint: 1/2-inch pre-molded asphalt impregnated conforming to ASTM D 1751.

#### B. PROPORTIONING AND DESIGN OF MIXES

- 1. Design concrete as normal weight in accordance with ACI 301, Section 3.9 with the following properties unless otherwise noted on structural drawings.
  - a. Footings and foundations, 3500 PSI.
  - b. Exterior concrete 4000 PSI.
  - c. Interior slabs 3500 PSI.
- 2. Design exterior exposed concrete with entrained air content of 6% plus or minus 1-1/2%.
- 3. Furnish concrete mixes designed by the concrete supplier.
- 4. Compose concrete of Portland cement, fine aggregate, coarse aggregate, and water.
- 5. Maximum coarse aggregate size to be 3/4-inch.
- 6. Design slump for not less than 1 inch or more than 4 inches.
- 7. Provide 5 1/4 bag cement minimum per cubic yard of concrete.

#### C. CONCRETE MIXING

- 1. Provide concrete as ready-mix in compliance with ASTM C 94. Do not add additional water to concrete unless authorized. When temperature is over 85 degrees reduce mixing and delivery time to 75 minutes.

### **PART 3 - EXECUTION**

#### A. PREPARATION

- 1. Obtain approval of all sub grades, location of control and construction joints, forms and reinforcement prior to placing concrete.

#### B. PLACING CONCRETE

- 1. Place concrete in compliance with ACI 304.
- 2. Maintain reinforcing in proper position while placing concrete.
- 3. Deposit concrete as near as possible to its final position with free fall not to exceed 3 feet.
- 4. Place panel or section in one continuous operation.
- 5. Protect freshly placed concrete from inclement weather.
- 6. Compact concrete with high frequency vibrators at least 6 inches into proceeding layer with embedded items and into corners.
- 7. Do not vibrate forms or disturb concrete that has begun to set.
- 8. Vibrate concrete to eliminate honeycomb surfaces.

#### C. CONSTRUCTION & CONTROL JOINTS

- 1. Locate joints where indicated or as approved.

#### D. FINISH OF FORMED SURFACES

- 1. As-cast Smooth Form Finish. Provide formed surfaces with surface defects repaired for all exterior and interior exposed formed surfaces unless noted otherwise on drawings.

#### E. SLAB FINISHES

- 1. Broom Finish: Float finish and light broom texture perpendicular to traffic all exterior slab surfaces.
- 2. Trowel Finish: Float finish and power or hand trowel interior slabs to a smooth properly sloped floor ready for floor finishes.

#### F. CURING

- 1. Start curing as soon as free water has disappeared from the surface after finishing. Keep continuously moist for not less than 72 hours.

G. EXTERIOR WALKS

1. Form control joints 1/4-inch of slab depth with a double edger.
2. Provide expansion joints where new concrete meets existing surfaces.
3. Provide 6x6 - 10/10 welded wire fabric in concrete walks. Insure that welded wire fabric is placed in center of slab depth.
4. Provide sealer for exposed concrete surfaces.

END SECTION 03300

**SECTION 04100  
MORTAR**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Refer to Section 04150-Masonry Accessories.
2. Refer to Section 04200-Unit Masonry.

**C. QUALITY ASSURANCE**

1. Conform to requirements of referenced ASTM Standards for materials.
2. Use same manufacturer's brand name products throughout project.

**PART 2 - PRODUCTS**

**A. MORTAR MATERIALS**

1. Portland Cement: ASTM C 150, Type 1.
2. Lime: ASTM C 207, Type S.
3. Mortar Cement: ASTM C 1329.
4. Aggregate: ASTM C 144.
5. Water: Clean and free of deleterious amounts of acids, alkalies or organic material.
6. Admixture: Hydratite by W. R. Grace, Omicron by Master Builders, Hydrocide Powder by Sonneborn, Integral Waterpeller by Euclid Chemical.
7. Mortar Color: Pre-mixed and Pre-packaged of custom color to be selected by the Architect.

**B. MORTAR MIXES**

1. Mix mortar to comply with ASTM C 270 - Proportion Specification Requirements with aggregate ratio not less than 2-1/4 inches and not more than 3 times the sum of separate volumes of cementitious materials.
2. Limit cement/lime ratio (by volume) as follows:
  - 1) Type S: Over 1/4 up to 1/2 part lime per 1 part cement.
  - 2) Type N: Over 1/2 up to 1-1/4 parts lime per 1 part cement.
3. Add water to mortar types as necessary for proper workability.
4. Add admixture to mortar in exterior exposed locations.
5. Do not use calcium chloride in mortar mixes.

**PART 3 - EXECUTION**

**A. MIXING**

1. Mix mortar thoroughly for at least 5 minutes after all materials have been placed in mixer.
2. Discard mortar not used within 2-1/2 hours.
3. Add mortar color to mortar mix for face brick mortar.

**B. APPLICATION**

1. Refer to Section 04200-Unit Masonry.

END OF SECTION 04100

**SECTION 04150  
MASONRY ACCESSORIES**

**PART 1-GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Refer to Section 07200-Insulation.

**C. SUBMITTALS**

1. Submit product data sheets of each item specified for approval.

**PART 2-PRODUCTS**

**A. JOINT REINFORCEMENT**

1. Truss type design of ASTM A 82 steel with deformed 9-gauge side rods spaced 2 inch less than nominal width of wall and 9 gauge diagonal cross rods spaced not more than 16 inches o.c.
2. Finish of Wire Rods: Exterior walls-ASTM A 153, Class B2 Interior walls-ASTM A-641, Class 3.
3. Prefabricate corner and tee sections at corners and wall intersections.
4. Fabricate with 3 side rods for composite walls with nominal thickness of 12 inches or more.
5. Fabricate as truss type with 3/16 inch hooked type box ties where joints of backup do not align with facing joints.

**B. CONTROL JOINTS**

1. Preformed gasket conforming to ASTM D-2287 Type PVC 654-4 with Durometer hardness of 90 similar to AA Wire Products Blok-Tite.

**C. COMPRESSIBLE FILLER**

1. Closed cell polyethylene similar to Sonneborn Sonoflex F.

**D. WALL ANCHOR/TIE**

1. Cavity Wall (Brick/CMU): Stainless steel 14-gauge double eye unit with 3/16 inches stainless steel double-legged pintle unit similar to Dur-O-Wal D/A 213 Adjustable Veneer Anchor.
2. Cavity Wall (Brick/Wood Stud): Corrugated buck anchor, Hohmann & Barnard #345, 3 1/2" long and 1 1/2" wide.

**E. MORTAR NET**

1. Thickness as recommended by manufacturer for air space provided.

**F. WEEP HOLE INSERTS**

1. Hohmann & Barnard QV — Quadro-Vent
2. Color: Grey

**G. BOND BREAKER**

1. Reinforced kraft building paper similar to Sisalkraft SK-30.

**H. BRICK WATERPROOFING**

1. Similar to Hydrocide S-X Hycon, Thoroclear 777, Euclid Silicone Waterpeller, Chemstop Regular Masonry Waterproofing.

I. MASONRY INSULATION

1. Expanded natural Perlite (ASTM C 549) silicone treated or granular Vermiculite (ASTM C 516).
2. Expanded Polystyrene Block Inserts similar to Korfil inserts as manufactured by Concrete Block Insulating Systems, West Brookfield, Ma. (508) 867-4241

J. FABRIC FLASHING

1. Through Wall Flashing: 40-mil membrane consisting of highly adhesive rubberized asphalt, integrally bonded to high density, cross-laminated polyethylene film. Manufacturer: Grace "Perm-A-Barrier" or approved equal.

K. BACKER ROD

1. Closed-cell extruded low density polyethylene foam.

L. GLASS BLOCK PANEL ANCHORS & POLYETHYLENE BACKER STRIP

1. Hohman & Barnard GPA hot dip galvanized, FS-foam

**PART 3-EXECUTION**

A. INSTALLATION

1. Refer Section 04200-Unit Masonry.

END OF SECTION 04150

**SECTION 04200  
UNIT MASONRY**

**PART 1 - GENERAL**

A. REFERENCE

1. Applicable provisions of Division 1 shall govern work of this Section.

A. RELATED WORK

1. Refer to Section 03450-Architectural Precast.
1. Refer to Section 04100-Mortar.
1. Refer to Section 04150-Masonry Accessories
1. Refer to Section 07200-Cavity Wall Insulation.

A. JOB CONDITIONS

1. Protect masonry against freezing when temperature of surrounding air is 40 degrees and falling.
1. Use equipment for mixing and transporting mortar and masonry units, which is clean and free from hardened mortar, dirt, ice or other foreign matter.
1. Protect finished work against freezing for period of not less than 48 hours.

A. SUBMITTALS

1. Submit sample panel of 5 CMU for verification purposes that CMU to be provided meets specification requirements including certification of compliance with ASTM C 90.
1. Submit colored mortar samples showing colors available for Architects selection.

A. CONSTRUCTION TOLERANCES

1. Variation from Plumb: Maximum 1/4 inch in 10 feet 3/8 inches per story height not to exceed 20 feet 1/2 inch in 40 feet or more.
2. Variation from Level: Maximum 1/4 inch in 20-foot bay-3/4 inches in 40feet or more.
2. Variation of Linear Building Line: Maximum 1/2 inch in 20 foot bay - 3/4 inches in 40 feet' or more.
2. Variation in Cross-Sectional Dimensions: Minus 1/4 inch - plus 1/2 inch for columns and thickness of walls.

**PART 2 - PRODUCTS**

A. MANUFACTURERS

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to the following:
  - a. Portland Cement, Mortar Cement, Masonry Cement, and Lime:
    - (1) Essroc Materials, Inc.
    - (2) Glen-Gery Corporation.
    - (3) Lafarge Corporation.
    - (4) Lehigh Portland Cement Co.
    - (5) Riverton Corporation (The).
  - b. Mortar Pigments:
    - (1) Davis Colors.
    - (1) Lafarge Corporation.
    - (1) Solomon Grind-Chem Services, Inc.
  - c. Joint Reinforcement, Ties, and Anchors:
    - (1) AA Wire Products Co.
    - (1) Dur-O-Wal, Inc.
    - (1) Heckman Building Products, Inc.
    - (1) Hohmann & Barnard, Inc.

A. CONCRETE MASONRY UNITS (CMU)

1. General: Provide shapes indicated and as follows for each form of concrete masonry unit required.
1. Provide square-edged units for outside corners, except where indicated as bullnose.
1. Concrete Masonry Units: ASTM C 90 and as follows:
  - a. Weight Classification: Normal weight.
1. Aggregates: Do not use aggregates made from pumice, scoria, or tuff.
1. Provide Type I, moisture-controlled units.
1. Size: Manufacturer's standard units with nominal face dimensions of 16 inches long x 8 inches (15-5/8" x 7-5/8" actual) unless otherwise indicated.
1. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
1. Hollow, non-load-bearing CMU: ASTM C 129.
1. Integral Water Repellent: Provide units produced with liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of the test specimen. Subject to compliance with requirements, provide units made with "Dry-Block" by W.R. Grace & Co.

C. DECORATIVE CONCRETE MASONRY UNITS: ASTM C 90 and as follows:

1. Weight Classification: Normal weight.
2. Provide Type I, moisture-controlled units.
3. Size: Manufactured to dimensions indicated for non-decorative units.
2. Finish: Exposed faces of the following general description matching color, pattern, and texture from Manufacturer's standard products. Split-face with integral color.

D. STONE TRIM UNITS

1. Indiana oolitic limestone as quarried in Lawrence, Monroe, and Owen counties, Indiana: complying with ASTM C 568, Category II (medium density); and matching standards of the Indiana Limestone Institute of America (ILI) for the following:
  - a. Grade and Color: Standard, buff.
  - a. Finish: Smooth.
2. Cut stone accurately to shape and dimensions indicated, with exposed faces dressed true, beds and joints at right angles to face; comply with ILI fabricating tolerances.

E. MORTAR AND GROUT MATERIALS

1. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
2. Hydrated Lime: ASTM C 207, Type S.
3. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
  - a. For pigmented mortars, use colored portland cement-lime mix of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 10 percent of portland cement by weight for mineral oxides nor 2 percent for carbon black.
4. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch (6.5 mm), use aggregate graded with 100 percent passing the No. 16 (1.18 mm) sieve.
  - a. Colored-Mortar Aggregates: Natural-colored sand or ground marble, granite, or other sound stone, as required to match Architect's sample.
2. Aggregate for Grout: ASTM C 404.
2. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
2. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMU, containing integral water repellent by same manufacturer.
2. Water: Potable.

2. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
  - a. Colored Portland Cement-Lime Mix:
    - (1) Color Mortar Blend; Glen-Gery Corporation.
    - (2) Centurion Colorbond PL; Lafarge Corporation.
    - (3) Lehigh Custom Color Portland/Lime; Lehigh Portland Cement Co.
    - (1) Riverton Portland Cement Lime Custom Color; Riverton Corporation (The).
  2. Cold-Weather Admixture:
    - a. Accelguard 80; Euclid Chemical Co.
    - b. Morset: Grace: W.R. Grace & Co.
  2. Water-Repellent Admixture:
    - a. Omicron by Master Builder's.
    - b. Hydrocide Powder by Sonneborn.
    - b. Integral Waterpeller; Euclid Chemical.
    - b. Dry-Block Mortar Admixture; Grace: W.R. Grace & Co.

### **PART 3 - EXECUTION**

#### **A. GENERAL**

1. Lay out openings and chases required by other trades and make proper provisions to conceal mechanical and electrical work.
1. Install items in masonry, which are furnished under other Sections.
1. Use type "S" or "N" mortar for non-load bearing and interior walls.
1. Use type "S" mortar for all load bearing and exterior walls.
1. Tool joints when mortar is thumbprint hard.
1. Cut units with power saw where cuts will be exposed in finished work.
1. Fill collar joints in bearing walls solidly with mortar by parging either the back of the facing or the face of the backing and shoving units into the parging.
1. Cut cavity joints flush with units at cavity walls.
1. Install weepholes as specified in Section 04150, spaced 24 inches o.c. at bottom of all cavity spaces.
1. Secure flexible ties to framing with corrosion resistant fasteners.
1. Anchor unit masonry to concrete back-up with anchors specified in Section 04150 spaced 16 inches vertically.
1. Space ties to provide one tie unit for every 2.66 sq. ft. maximum and not further apart than 24 inches o.c. horizontally and 16 inches o.c. vertically unless noted otherwise.
1. Provide vertical control joints spaced not to exceed 35 feet unless otherwise shown on drawings.

#### **A. JOINT REINFORCEMENT INSTALLATION**

1. Install joint reinforcement specified in Section 04150 in all masonry walls without a masonry bond.
1. Locate reinforcement in horizontal joints 16 inches o.c.
1. Locate in first and second bed joints immediately above lintels and below sills at openings. Extend 2 feet beyond opening.
1. Tie corners and intersections with prefabricated sections.
1. Lap reinforcement minimum of 6 inches.
1. Cut reinforcement at control or expansion joints.

#### **C. FACE BRICK INSTALLATION**

1. Lay plumb and level to a line in a full mortar bed with a shoved joint to fill ends solid with mortar for maximum vertical joint of 1/2 inch.
1. Lay brick in exposed locations without chips or otherwise defaced surfaces.
1. Lay brick 3 courses to 8 inches vertically.
1. Tool joints slightly concave with an oversize round rod.
1. Lay brick in running bond with half lapped joints.

2. Provide concealed flashings at head of all openings. Extend flashing minimum 4 inches beyond opening, turned up 4 inches at interior wythe and ends formed to a box shape. Provide pre-finished metal or stainless steel drip at outer edge to project 45 degrees down a minimum of 1/4-inch. Lap through-wall flashing 2" on to metal drip flashing. Lap and seal all joints in accordance with flashing manufacturer's instructions.

#### D. CONCRETE MASONRY UNIT INSTALLATION

1. Provide normal weight CMU in locations with earth on one or both sides.
2. Lay CMU plumb, level, true to a line on exposed face with full mortar bed on shell surface and at ends with all joints 3/8-inches.
3. Lay first course in full mortar bed.
4. Avoid use of less than half size units at corners, jambs and wherever possible at other locations.
5. Rack back 1/2 masonry unit length in each course when stopping and resuming work is required.
6. Select CMU for uniformity of size to obtain plumb vertical and level horizontal joints.
7. Fill space around built-in items solidly with mortar.
8. Fill all CMU cells within 16 inches of opening frames under lintels and structural members down to floor with mortar.
9. Fill space between hollow metal frame jambs and head in masonry walls solid with mortar as wall is being constructed.
10. Extend CMU interior walls up to underside of floor structure or roof deck above unless shown otherwise.
11. Cover tops of walls left incomplete at conclusion of day's work.
12. Tool joints slightly concave with an oversized round rod.
13. Flush cut joints on walls where covered by another material except paint.
14. Lay CMU in running bond with half lapped joint.
15. Fill cores of CMU in exterior walls with Masonry Insulation specified in Section 04150. Place in maximum 48 inches high lifts.
16. Place cavity wall insulation to fit around obstructions and reinforcing with tight butt joints.
17. Form CMU lintels or bond beams in place with lintel or bond beam block with nominal 8 x 16 face. Reinforce with two #5 bars and fill with 3000 psi concrete. Support lintels minimum of 8 inches at ends.

#### E. REINFORCED MASONRY INSTALLATION

1. Lay units around vertical reinforcing rods with solid head and bed joints in running bond with cores aligned. Fill collar joint with mortar as units are laid.
2. Grout cores with reinforced masonry coarse grout specified in Section 03600 in lifts of 4 feet or less. Stop grout 1 inch below top when grouting is terminated for one hour or longer. Consolidate grout by vibrating and reconsolidate before plasticity is lost.

#### F. CLEANING FACE BRICK

1. Clean brick of all dirt, mortar and foreign materials by using a stiff brush, water and detergent or by high-pressure water.

#### G. CLEANING CONCRETE MASONRY UNITS

1. Clean units of all dirt, mortar and foreign materials with a stiff fiber brush to provide a surface acceptable for painting.

#### H. WATERPROOFING APPLICATION

1. Apply one uniform coat of brick waterproofing specified in Section 04150 to face brick on exterior of building.

END OF SECTION 04200

**SECTION 04270  
GLASS UNIT MASONRY  
(REFERRED TO ON DRAWINGS AS "GLASS BLOCK")**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**A. SECTION INCLUDES**

1. Glass Unit Masonry.
1. Exterior Panels.

**A. RELATED WORK**

1. Refer to Section 04200-Unit Masonry.
1. Refer to Section 07900-Joint Sealers.

**A. SUBMITTALS**

1. General: Submit the following in accordance with Conditions of Contract and Division 1.
1. Product data for each type of product specified including glass block, cementitious materials, waterproofing admixture for mortar, and glass unit masonry accessories.
1. Shop Drawings showing complete information for fabrication and installation of aluminum channel framing and accessories. Indicate member size and cross-section; fabrication tolerances; location; and method of anchorage, including bolt size and location.

**A. QUALITY ASSURANCE**

1. Fire Performance Characteristics: Where fire-resistance-rated glass unit masonry is indicated, provide materials and construction that are identical to those of window assemblies tested for fire endurance per ASTM E 163 and that are listed for rating indicated by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
1. Single-Source Responsibility for Glass Block: Obtain each type and patterns of glass block from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
1. Single-Source Responsibility for Accessory Materials: Obtain mortar ingredients of a uniform quality from one manufacturer for each cementitious, admixture, and accessory component, and from one source or producer for each aggregate.

**A. DELIVERY, STORAGE AND HANDLING**

1. Protect glass block during storage and construction from damage, soiling, and moisture. Store unopened cartons in a clean, dry area in which temperatures are controlled to comply with manufacturer's recommendations.
1. Protect aggregate during storage and construction from wetting by rain, snow, and ground water, and from intermixture with earth or other materials.
1. Protect cementitious materials and metal accessories from deterioration and corrosion by moisture and other causes. Store in a dry location and in original packages.

**A. PROJECT CONDITIONS**

1. Weather Conditions: Proceed with installation of glass unit masonry only when ambient and material temperatures are 40 degrees F (4.4 degrees C.) and rising.

**A. SEQUENCING AND SCHEDULING**

1. Sequence and coordinate completion of glass unit masonry so that sealants and joint fillers can be installed immediately after mortar has attained final set.

## PART 2 – PRODUCTS

### A. MANUFACTURERS

1. Hollow Glass Block:
  - a. Pittsburgh Corning Corp.
  - a. Acme Brick Co.
  - a. Weck Glass Blocks
1. Hollow Glass Block: Non-load bearing blocks made by fusing together two halves of clear, colorless pressed glass to produce partially evacuated hollow units with manufacturer's standard coating factory applied on edge surfaces complying with the following requirements for pattern, size, and other characteristics: (Meet fire rating standards as required).
  - a. Pattern: Selected by Architect from manufacturer's full range of standard decorative patterns.
1. Edge Coating Color: Comply with requirements indicated below:
  - a. Provide manufacturer's standard edge coating.
  - a. Block Color: Selected by Architect from manufacturer's standard color palate.
  - a. Square Unit Size: Typical unless otherwise indicated.
  - a. 7-3/4 inches square by 3-7/8 inches thick.
  - a. Corner and End Unit Size: Manufacturer's standard corner and end units (if required).

### A. MORTAR MATERIALS

1. Portland Cement: ASTM C 150, Type I or Type II, Standard Gray.
1. Hydrated Lime: ASTM C 207, Type S.
1. Aggregate for Mortar: ASTM C 144 and as follows:
  1. For joints 1/4-inch or less in thickness, provide aggregate graded for thin joints.
  1. Water: Clean and potable.
  1. Water-Repellent Admixtures: Manufacturer's standard dry mixture of stearic water repellent compounds, water reducing agents, and fine aggregates intended to reduce capillary in mortar.

### A. GLASS UNIT MASONRY ACCESSORIES

1. Panel (Joint) Reinforcement: Ladder-type welded wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet, and complying with the following requirements.
1. Zinc-Coated (galvanized) Steel Wire: ASTM A 82 for uncoated wire and ASTM A 641 for Class 3 zinc coating (0.80 oz. per sq. ft. of uncoated wire surface).
  - a. Application: Use for reinforcement of interior panels.
1. Hot-Dip Galvanized Steel Wire: ASTM A 82 for uncoated wire and ASTM A 153, Class B2 for zinc coating applied by hot-dip process to products after fabrication and assembly.
1. Austenitic Stainless Steel Wire: ASTM A 580, AISI Type 304 (UNS S30400) alloy.
  - a. Application: Use for reinforcement of exterior panels.
  - a. Wire Size: 0.1483-inch diameter.
  - a. Spacing of Side Rods: 2 inches center to center, unless otherwise indicated.
1. Panel Anchors: Glass unit masonry manufacturer's standard perforated steel strips, 0.0359-inch uncoated thickness by 1-3/4 inches wide by 24 inches long, and hot-dip galvanized after perforating to comply with ASTM A 153, Class B2.
1. Asphalt Emulsions: Water-based asphalt emulsion of type recommended by glass unit masonry manufacturer.
1. Backer Rod and Sealant are specified in Division 7 Section, "Joint Sealers".
1. Glass Fiber Expansion Strips: Glass fiber strips, yellow in color, complying with requirements of glass block manufacturer, 3-lb. density, and 3/8 inches thick by 4 inches wide by 24 inches long.
1. Plastic Foam Expansion Strips: Polyethylene foam, white in color, complying with requirements of glass block manufacturer, and 3/8 inch thick by 4 inches wide by 24 inches long.

1. Expansions Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times load imposed when installed in unit masonry and equal to 4 times load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing laboratory.
  - a. Material: Group 1 alloy 304 or 316 stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594.

#### D. MORTAR MIXES

1. Do not lower freezing point of mortar by using admixtures or antifreeze agents. Do not use calcium chloride.
1. Mortar for Glass Unit Masonry: Comply with ASTM C 270, proportional specification for Type S Portland cement-lime mortar. Do not use masonry cement.
1. For mortar in exterior panels, include waterproofing admixture in mortar mix according to directions of admixture manufacturer.
1. Mix mortar to produce a stiff but workable consistency that is drier than mortar for ordinary unit masonry; do not retemper mortar after it has taken its initial set.

### **PART 3 - EXECUTION**

#### A. EXAMINATION

1. Examine sills, jambs, and heads surrounding glass unit masonry panels to verify that they are complete and of correct size and in correct location to receive glass unit masonry.
1. Do not proceed with installation of glass unit masonry until conditions are satisfactory.

#### B. PREPARATION

1. Advise Installer of other construction about specific requirements relating to placement of expansions anchors and other inserts required to anchor and support glass unit masonry. Furnish Installers of other construction with drawings or templates showing locations of these items.

#### B. INSTALLATION-GENERAL

1. Construction Tolerances: Set glass unit masonry to comply with the following tolerances:
2. Variation from Plumb: For lines and surfaces of vertical elements and arises, do not exceed plus or minus 1/4-inch in 10 feet, plus or minus 3/8-inch in 20 feet or plus or minus 1/2-inch maximum.
1. Variation from Level: For grades indicated for bed joints, and other conspicuous lines, do not exceed plus or minus 1/4-inch in 10 feet or plus or minus 1/2-inch maximum.
1. Variation of Linear Building Line: For positions shown in plan and related portions of walls and partitions, do not exceed plus or minus 1/4-inch in 10 feet, plus or minus 3/8-inch in 20 feet, or plus or minus 1/2-inch maximum.
1. Variation in Alignment: For alignment between tops of walls and the bottoms of walls and partitions, do not exceed plus or minus 1/2-inch.
1. Variation in Mortar Joint Thickness: For bed joints do not exceed plus or minus 1/8-inch, and for head joints do not exceed minus 1/4-inch or plus 3/8-inch.
1. Sill, Head, and Jamb Preparation: Apply a heavy coat of asphalt emulsion to sill; allow to dry before placing mortar. Place expansion strips at jambs and heads taking care to extend them to sill. Trim 4-inch-wide expansion strips to produce width required to fit thickness of glass block and construction indicated.
1. Adhere glass fiber expansion strips to heads and jambs with gobs of asphalt emulsion.

#### E. SETTING GLASS UNIT MASONRY

1. General: Set first and succeeding courses of glass unit masonry with completely filled bed and head mortar joints, with no furrowing.
2. Install glass unit masonry to comply with dimensional tolerances specified with courses accurately spaced and coordinated with other construction; maintain the following joint widths:
  - b. Joint Widths: 1/4-inch unless otherwise indicated.
3. Install panel reinforcing in horizontal joints at spacing indicated and to run continuously from end to end of panels; comply with the following requirements:
  - a. Vertical Spacing of Panel Reinforcing: As follows:
    - (1) For exterior panels, every other course starting with first course above sill.
    - (2) Do not bridge expansion joints with panel reinforcing.
    - (3) Place panel reinforcing in joints immediately above and below all openings with glass unit masonry panels.
    - (4) Lap panel reinforcing not less than 6 inches where more than one length is necessary.
    - (5) Embed panel reinforcing in mortar bed by placing lower half of mortar bed first, then pressing panel reinforcing into place and covering with upper half of mortar bed, and then trawling it smooth.
    - (6) Install panel anchors at locations indicated and in same horizontal joints where panel reinforcing occurs. Extend panel anchors at least 12 inches into joints and bend within expansion joints at edges of panels and across the head. Attach panels as follows:
    - (7) For new unit masonry, embed other ends of panel anchors, after bending portions crossing expansion joint, in horizontal mortar joints closest in elevation to joints in glass unit masonry containing panel anchors.
    - (8) Use rubber mallet to tap units into position. Do not use steel tools, and do not allow units to come into contact with metal accessories and frames.
    - (9) Rake out mortar from joints in exterior panels to a uniform depth equal to joint width to accommodate pointing material.
    - (10) Pointing of joints in exterior walls with sealant, including installation of joint fillers after final mortar set, is specified in Division 7 Section "Joint Sealers".
    - (11) Tool exposed joints slightly concave using a jointer larger than width; perform tooling while mortar is still plastic and before it takes final set.
    - (12) Remove wedges, if used, and fill voids with mortar.
    - (13) Remove surplus mortar from face of glass block at time joints are tooled. Remove mortar while it is still plastic using a clean wet sponge or an ordinary household scrub brush with stiff bristles. Do not use harsh cleaners, acids, abrasives, steel wool, or wire brushes when removing mortar or cleaning glass unit masonry.

#### F. CLEANING

1. Perform final mortar removal by cleaning completed glass unit masonry surfaces with clean wet sponge or cloth. Rinse sponge or cloth frequently in clean water to remove abrasive particles. Allow any remaining film on block to dry to powder.
2. On surfaces adjacent to glass unit masonry remove mortar and other residue resulting from installation of glass block in a manner that is approved by the manufacturers of the materials involved.
3. Remove excess sealants with commercial solvents of type recommended by sealant manufacturer. Exercise care not to damage sealant in joints.
4. Perform final cleaning of glass unit masonry when surface is not exposed to direct sunlight. Start at top of panel using generous amounts of clean water. Remove water with clean, dry, soft cloths; change cloths frequently to eliminate dried mortar particles and aggregates.

END OF SECTION 04270

**SECTION 06100  
ROUGH CARPENTRY**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Refer to Section 04100-Mortar.
2. Refer to Section 04150-Masonry Accessories.
3. Refer to Section 07100-Cavity Wall Insulation.
4. Refer to Section 09250-Interior Metal Studs – Contractor’s Option.

**C. QUALITY ASSURANCE**

1. Lumber shall be kiln-dried, grade marked and trademarked, according to National Forest Products Association (NFPA) Regulations and? Western Wood Products Association (WWPA).
2. Plywood shall conform to Product Standard PS-1 for Softwood Plywood and bear the American Plywood Association (APA) grade trademark.
3. All plywood which has any edge or surface exposed to the weather shall be exterior type.
4. Workmanship shall be performed by skilled mechanics in accordance with the best modern practice.

**D. DELIVERY, STORAGE AND HANDLING**

1. Stack lumber and plywood to insure proper ventilation and protect from elements. Store under cover in a well ventilated space and where not exposed to extreme changes of temperature or humidity.

**E. JOB CONDITIONS**

1. Do not fit and install materials until building areas are sufficiently dry so that woodwork will not be damaged by excessive changes in moisture content.

**PART 2 - PRODUCTS**

**A. MATERIALS**

1. Lumber for wood framing up to and including 2 x 4 size, blocking, furring, grounds and nailing strips: Construction Grade.
2. Lumber for blocking, furring and nailing strips: Construction Grade.
3. Plywood for Interior Uses: A-D Group 1 interior where one side is exposed or A-A Group 3 Interior where both sides are exposed unless otherwise specified or noted.
4. Plywood Sheathing: CDX plywood.
5. Plywood Subflooring: Standard with exterior glue.
6. Plywood for Combined Subflooring-Underlayment: C-C Plugged Exterior.
7. Laminated ply beams: Microlam by TrusJoist/MacMillain or equal.
8. Plywood Exposed to Exterior: MDO Group 2 Exterior.
9. Mastic for Concealed Sealing: Tremco 525 polybutene sealant.
10. Wood Edging: Select Heart or Construction Heart.
11. Sill Sealer: Fiberglass 1 inch thick and 6 inches wide.
12. Hardboard: Plain tempered Pressed wood as manufactured by Masonite Corp., or tempered Weytex as manufactured by Weyerhaeuser.
13. Through Wall Flashing: 40-mil membrane consisting of highly adhesive rubberized asphalt, integrally bonded to high density, cross-laminated polyethylene film. Manufacturer: Grace “Perm-A-Barrier” or approved equal.
14. Vapor Barrier: 6-mil polyethylene sheeting.

15. Acceptable Material Suppliers:
  - a. 41 Lumber, 6669 N. Lincoln Rd.; Escanaba, MI 49829
  - b. Iverson's Home Center, 404 N. 8<sup>th</sup> St.; Gladstone, MI 49837
  - c. Anderson Lumber Co.; 10293 S. Main St.; Rapid River, MI 49878

**B. PRESERVATIVE TREATMENT FOR WOOD**

1. Pressure preservative treat to fully air seasoned or kiln dried wood using CCA to a net retention of 0.25 lbs per cubic foot per AWPA Standard C-2, which meets AWPA Standard P-5 and Federal Specification TT-W-550 similar to Osmose K-33, Hoover Universal Dixie CCA or Koppers Wolmanized treatment, dried to moisture content of 19% or less and has the AWPA Quality Mark LP-2.
2. Treat all soft wood in contact with concrete or masonry.

**C. ROUGH HARDWARE**

1. Provide all rough hardware and metal fastenings required for proper installation of carpentry and millwork. Nails, spikes, screws, bolts, and similar items shall be of sizes and types to rigidly secure members in place. Fastener for exterior work shall be non-corrosive type.

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. Install all items accurately, rigidly framed, closely fitted, plumb and true, and securely anchored.
2. Shim and brace work properly to insure solid bearings and true alignment.
3. Install all miscellaneous items required to complete installation.
4. Install plywood items in accordance with APA recommendations contained in their Plywood Commercial/Industrial Construction Guide publication dated November 1994.
5. Lap and tape all joints of vapor barrier and seal all penetrations airtight.
6. Install telephone and electrical panel back boards with 3/4-inch thick, square edge structural particleboard. Secure particle board to framing members with ends over firm bearing and staggered.

**B. WOOD NAILERS AND BLOCKING**

1. Provide markers and blocking wherever shown and required for attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Set true to line and level, plumb, with intersections true to required angle. Coordinate location with other work involved.
2. Provide blocking between studs for all doors scheduled for wall stops, toilet and bath accessories, miscellaneous equipment, wall cabinets, and wood trim.
3. Attach to substrates securely with anchor bolts and other attachment devices as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry and anchor to formwork before concrete placement.

**C. WOOD FURRING**

1. Furring strips shall be minimum 1 x 2 spaced 16 inches o.c. unless noted otherwise; applied horizontally with closure strips at all edges and openings. Shim with wood as required.

**D. FRAMING**

1. All wood framing shall be done in an approved manner to fit closely, set accurately and secured rigidly in place. Set all joists with crown side up. Provide bridging on all floor and ceiling joists with no span greater than 8 feet.
2. Space framing members 16 inches o.c. unless noted otherwise.

END OF SECTION 06100

## SECTION 06190

### PREFABRICATED METAL-CONNECTED WOOD TRUSSES

#### PART 1 - GENERAL

##### A. REFERENCE

1. Applicable provisions of Division 1 shall govern work of this Section.

##### B. QUALITY ASSURANCE

1. The design and fabrication criteria of all wood trusses shall comply with National Design Specifications for Stress-Grade Lumber and Its Fastenings and Design Specifications for Light Metal Plate Connected Wood Trusses, Truss Plate Institute.
2. Trusses shall be designed and fabricated to carry all loads resulting from gravity, wind, and snow in accordance with IPC 2000 or as indicated on the structural drawings.

##### C. SUBMITTALS

1. Provide shop drawings and design calculations each type and size truss assembly required, species, sizes, and stress grades of lumber to be used as members; pitch, span, camber configuration and spacing of trusses and required truss member bracing, connector type, thickness, size, location, and design values.
2. Provide seal, registration number and signature of a licensed Professional Engineer on shop drawings and design calculations.
3. Fabricator shall provide Certificate of Conformance stating that trusses are fabricated in accordance with approved shop drawings and that trusses will sustain design loads at specified moisture content.

##### D. DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle fabricated trusses with care, and in accordance with truss manufacturer's instructions.
2. Stockpile or store trusses in approved position. Provide bearing supports and bracings to avoid bending or overturning of trusses.
3. Protect trusses from construction operations.

#### PART 2 - PRODUCTS

##### A. MATERIALS

1. Lumber used for truss members and bracing shall conform to published stress ratings, and moisture content, of National Design Specification for Stress-Grade Lumber and Its Fastenings, NFPA. Dimension of members shall be as indicated on approved truss engineering design shop drawings.
2. Metal connector plates shall be galvanized sheet steel conforming to ASTM A 446, Grade A, Coating Class G60, manufactured with holes, plugs, teeth or prongs uniformly spaced and formed.
3. Shear plates shall be manufactured from ASTM A 47, Grade 35018 malleable iron.
4. Gussets shall be ASTM A 36 carbon steel plate or standard grade plywood.
5. Acceptable Material Suppliers:
  - a. 41 Lumber, 6669 N. Lincoln Rd.; Escanaba, MI 49829
  - b. Iverson's Home Center, 404 N. 8<sup>th</sup> St.; Gladstone, MI 49837
  - c. Anderson Lumber Co.; 10293 S. Main St.; Rapid River, MI 49878

##### B. FABRICATION

1. Fabricate trusses in accordance with approved shop drawings.
2. All truss members shall be accurately cut to length, angle and size to assure tight joints for finished trusses and assembled true to line and design configuration.
3. Fabricator shall furnish connection steel and hardware for securing trusses to their supports exclusive of anchorage embedded in masonry.
4. Fabricator shall design and provide all connections between trusses, with sufficient capacity for all gravity, wind, snow, and uplift loading.

**PART 3 - EXECUTION**

**A. ERECTION**

Erect accurately, plumb, and true, securely and rigidly anchored and in accordance with approved shop drawings.

END OF SECTION 06190

**SECTION 06200  
FINISH CARPENTRY**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Refer to Section 06400-Architectural Casework.
2. Refer to Section 07900-Joint Sealers.
3. Refer to Section 09900-Painting.
4. Refer to Section 12300-Manufactured Casework.

**C. QUALITY ASSURANCE**

1. Material and workmanship shall conform to the requirements of the AWI Quality Standards, Custom Grade.

**D. SUBMITTALS**

1. Submit shop drawings of all millwork for approval. Drawings to show details of construction, materials, anchoring and schedule listing location in building for each item.

**PART 2 - PRODUCTS**

**A. MATERIALS**

1. Wood Trim Window, 1/2 inch x 3-1/2 inches clear red oak trim and all windows (miter corners); 3/4 inch thick cleared oak jamb returns at selected aluminum windows.
2. Acceptable Material Suppliers:
  - a. 41 Lumber, 6669 N. Lincoln Rd.; Escanaba, MI 49829
  - b. Iverson's Home Center, 404 N. 8<sup>th</sup> St.; Gladstone, MI 49837
  - c. Anderson Lumber Co.; 10293 S. Main St.; Rapid River, MI 49878

**B. FABRICATION**

1. Fabricate to conform to requirements of the AWI Quality Standards, Custom Grade.
2. All millwork, insofar as practical, will be shop assembled.
3. Fabricate wood items to profile shown.

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. All nailing to be neat and the work carefully fitted, scribed and adjusted into position and carefully hand smoothed. All joints to be flush and smooth after fastening. Set all nail heads.
2. Set items accurately in place, level, plumb, true, scribe and secure to floor or walls.
3. Provide connecting and attaching devices, closures and trim members required. Install items complete and adjust hardware and moving parts to operate properly.

END OF SECTION 06200

**SECTION 06400  
ARCHITECTURAL CASEWORK**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**A. RELATED WORK**

1. Refer to Section 06200-Finish Carpentry.
1. Refer to Section 07900-Joint Sealers.
1. Refer to Section 09900-Painting.
1. Refer to Section 12300-Manufactured Casework.

**A. WORK OF THIS SECTION INCLUDES**

1. Countertops.
1. Custom Cabinet Units.

**A. QUALITY CRITERIA**

1. Fabrications: AWI "Architectural Woodwork Quality Standards".
1. ANSI A 208.1-Mat Formed Wood Particleboard.
1. ASTM E 84-Test Method for Surface Burning Characteristics of Building Materials.
1. FS-MMM-A-130-Adhesive, Contact.
1. NEMA LD3-High Pressure Decorative Laminates.
1. Perform work in accordance with NHLA.

**A. SUBMITTALS**

1. Refer to Section 01300-Submittals: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and all other components in accordance with.

**PART 2 - PRODUCTS**

**A. MATERIALS**

1. Plastic Laminate: NEMA LD3, PF 42 Post Forming and GP-50 General Purpose types; pattern and surface texture as selected by Owner. Use 0.050 inch thick material for general purpose and 0.042 inch wherever post-forming is required. High-pressure plastic laminate as manufactured by: WILSONART, FORMICA, NEVAMAR, or an approved equal.
  - a. Color:
    - (1) P-LAM #1 selected from standard colors by Owner
    - (1) P-LAM #2 selected from standard colors by Owner.
1. Substrate: Particleboard, 45-pound density, conforming to CS-236, or Softwood plywood, B-B or better, conforming to PS-1. ANSI A 208.1 Type 1; 1 inch thick, of grade to suit application sanded faces.
1. Adhesive: Waterproof, as recommended by laminate manufacturer.
1. Wood Exposed Surfaces: Rotary cut, premium grade Red Oak plywood oak veneered one or two sides as required by location of use, with solid oak edge band on all exposed edges.
1. Sealant: Silicone construction sealant in color selected by Architect.

## B. FABRICATION

1. Field Measurements: Verify sizes and shapes of countertops and cabinet spaces prior to countertop fabrication/ordering.
2. Fabricate countertops of high-pressure plastic laminate on 1-inch thick particleboard with integral cove back splash and self-edged front edge. Provide cove molding and 4-inches style square edge with scribe.
3. Fabricate to NHLA standards. Shop assemble work for delivery to site, permitting passage through building openings. Cap exposed plastic laminate finish edges with material of same finish and pattern. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting. Apply plastic laminate finish in full-uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Locate counter butt joints minimum 2 feet from sink cutouts.
4. Custom cabinetry shall be reveal overlay construction conforming to AWI Custom Grade construction, with plastic laminate on all exposed surfaces, and manufacturer's standard cured wet film on all semi-exposed surfaces. Edges finished with plastic convex tee edging to match shelving color.
5. Countertops shall conform to AWI " Custom Grade construction, with plastic laminate on all exposed surfaces.
6. Utility shelving shall be prefinished particleboard with polyester film both sides, equal to Kortron/EB by Williamette Industries, with edges finished with plastic convex tee edging to match shelving color.

## **PART 3 - EXECUTION**

### A. INSTALLATION

1. Handle, store and deliver all work in conformance with AWI standards.
2. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.
3. Countertops: Attach counter tops securely to base units. Spline and glue joints in countertops. Provide concealed mechanical clamping of joint. Provide cutouts for fixtures as required; return backsplashes at all inside corners.
4. Set and secure materials and components in place, plumb and level. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
5. Erection Tolerances: Maximum variation from True Position: 1/16 inch. Maximum offset from True Alignment with Abutting Materials: 1/32 inch.
6. Condition casework to average prevailing humidity conditions in installation areas prior to installing.
7. Install casework plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install plumb and level to a tolerance of 1/8 inch in 8 feet-0 inches, and with no variations in flushness of adjoining surfaces.
8. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
9. Anchor countertops securely to base units and other support systems.
10. Seal around edges of casework where pieces butt adjacent surfaces, using silicone sealant.
11. Clean exposed and semi-exposed surfaces. Touch up shop-applied finishes.

END OF SECTION 06400

**SECTION 06410  
PLASTIC LAMINATE COUNTERTOPS**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

**B. SUMMARY**

1. This Section includes:
  - a. Plastic Laminates.
  - b. Countertops.
  - c. Decorative Panels (if occurs).

**C. RELATED SECTIONS**

- a. Refer to Section 12300-Manufactured Casework.

**D. SUBMITTALS**

1. Product data for each type of product specified including plastic laminates, adhesives and accessories.
2. Shop Drawings showing complete information for fabrication and installation of plastic laminate countertops and panels, including the type and location of edge and splash details, and method of anchorage.

**E. ASSURANCE**

1. Single-Source Responsibility for Plastic Laminate.
2. Quality: Obtain each type and pattern of plastic laminate from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
3. Countertop Standard: Comply with ANSI A 161.2.

**F. DELIVERY, STORAGE AND HANDLING**

1. Protect plastic laminate countertops and panels during storage and construction from damage, soiling and moisture. Store in a clean, dry area in which temperatures are controlled to comply with manufacturer's recommendations.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS**

1. Available Manufacturers: High-pressure plastic laminate as manufactured by one of the following or an approved equal, typical unless otherwise noted or as indicated on the Drawings:
  - a. FORMICA
  - b. NEVAMAR
  - c. PIONITE
  - d. WILSONART

**B. MATERIALS**

1. General: Materials shall equal or exceed performance standards set by the (ANSI/NEMA), LD3-1995 for high-pressure decorative laminates.
2. Plastic Laminate: Use 0.050-inch thick material for general purpose, except 0.042 inch wherever post-forming is required. Color selection is by Owner or Architect as indicated below.

### C. FABRICATION

1. General: Fabrication shall comply with "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program" guidelines of the Architectural Woodwork Institute.
2. Countertop Construction: High-pressure plastic laminate on 1-inch minimum particleboard or other recommended substrate. Provide cove molding and 4 inch style square edge with scribe.
3. Backsplash: Integral covered back splash, typical.
4. Front Edge: Self-edged.
5. Plastic Laminate Colors: Selected by Architect from manufacturer's standard color palate. (Note: More than one color will be used. Contractor shall provide all colors selected.)
6. Patterns: Selected by Architect, or as indicated on the Drawings.
7. Finish: Selected by Architect, or as indicated on the Drawings.

## **PART 3 - EXECUTION**

### A. INSPECTION

1. **Field Measurements:** Verify sizes and shapes of countertops and cabinet spaces prior to countertop fabrication/ordering.

### B. INSTALLATION

1. General: Comply with plastic laminate manufacturer's recommendations for attachment to substrate.
2. Countertops: Attach countertops securely to base units. Provide concealed mechanical clamping of joints, also spline and glue joints in countertops. Provide cutouts for fixtures as required. Return backsplashes at all inside corners.

### C. CLEANING

1. Clean surfaces promptly after installation. Take care to avoid damage to protective coatings and finishes. Remove excess glazing and sealants, dirt, and other substances.
2. Remove and replace laminate that has been broken, chipped, cracked, abraded or damaged during the construction period.

### D. PROTECTION

1. Protect plastic laminate from damage or deterioration until time of substantial completion.

END OF SECTION 06410

**SECTION 06650  
SOLID POLYMER FABRICATION**

**PART 1 - GENERAL**

**A. REFERENCES**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Refer to Section 06100-Rough Carpentry.
2. Refer to Section 06200-Finish Carpentry.
3. Refer to Section 06400-Architectural Casework.
4. Refer to Section 07900-Joint Sealers.

**C. WORK OF THIS SECTION INCLUDES**

1. Window Stools.

**D. SUBMITTALS**

1. Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and all other components in accordance with Section 01300.
2. Color Selection Solid Polymer Material: Samples, minimum 2 inch by 2 inch, shall indicate full range of color and pattern variation from manufacturer's standard colors to be selected by the Owner/ Architect.
3. Operation and Maintenance Manuals: Shall be submitted indicating manufacturer's care and maintenance data, including repair and cleaning instructions. Provide maintenance kit for semi-gloss finishes.

**E. DELIVERY, STORAGE AND HANDLING**

1. Materials shall not be delivered to project site until areas are ready for installation. Materials shall be stored indoors and handled to prevent damage. Protective coverings shall be provided to prevent physical damage or staining following installation, for duration of project.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS**

1. All components shall be obtained from Corian a Division of DuPont, Fountainhead By Nevamar, Avonite, or Architect approved equal.

**B. SOLID POLYMER FABRICATIONS**

1. Solid Polymer Components: Cast, filled polymer, not coated, laminated or of composite construction, meeting ANSI Z124 and FS WW-P-541E/GEN, having minimum physical and performance properties specified. Superficial damage to a depth of 1/32 inch repairable by sanding or polishing. Thickness and color as specified herein.

**C. ACCESSORY PRODUCTS**

1. Joint Adhesive shall be two-part adhesive kit to create inconspicuous, nonporous joints by chemical bond.
2. Sealant shall be mildew-resistant; FDA and UL listed silicone sealant in colors matching components. Refer to Section 07900 for additional information.

#### D. FABRICATION

1. Components shall be factory fabricated to the greatest extent practical to sizes and shapes indicated on approved Shop Drawings. Joints shall be formed between components using manufacturer's standard joint adhesive. Joints shall be reinforced with 2-inch wide strips of solid polymer material. Factory cutouts shall be provided for plumbing fittings and bath accessories as indicated on the Drawings. Component edges shall be cut and finished with clean, sharp returns. Contours and radii shall be routed to template, with edges smooth. Defective and inaccurate work shall be rejected.
2. Finish: Finished surfaces shall receive a uniform matte finish with a gloss range of 5-20 Semi-gloss finish with a gloss range of 20-50.
3. Window Stools shall be 3/4-inch thick polymer material, adhesively joined with inconspicuous seams, having edge details as indicated on the Drawings.

### **PART 3 - EXECUTION**

#### A. INSTALLATION

1. Install components plumb, level and rigid in accordance with approved Shop Drawings and product data. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Adhere to tops using manufacturer's adhesive. Clean all assembled components before requesting acceptance. After acceptance, protect against damage during completion of the remaining project items. Components damaged by other trades after acceptance will be repaired or replaced at the General Contractor's cost. Component supplier will provide a repair/replace cost estimate to the General Contractor who shall approve estimate before repairs are made.

END OF SECTION 06650

**SECTION 07190  
VAPOR AND AIR RETARDANTS**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**B. RELATED SECTIONS**

1. Refer to Section 03300-Cast-in-Place Concrete.
2. Refer to Section 06100-Rough Carpentry.
3. Refer to Section 09250-Gypsum Drywall.

**C. SUBMITTALS**

1. Approvals: For use on metal roof decks, provide barrier rated "Fire-Acceptable" by UL, and complying with FM requirements for "Class I" metal deck construction. Provide approved adhesive for installation.

**PART 2 - PRODUCTS**

**A. WALL AND CEILING VAPOR BARRIERS**

1. Polyethylene Vapor Barrier: ASTM D 4397, 4-mils thick, with a maximum permeance rating of 0.5 perms or less.

**B. VAPOR BARRIERS UNDER CONCRETE SLABS**

1. Polyethylene Vapor Barrier: ASTM D 4397, 6-mils thick minimum, with a maximum permeance rating of 0.5 perms or less.
2. Tape for Vapor Barrier: Pressure sensitive tape of type recommended by vapor barrier manufacturer for sealing joints and penetrations in vapor barrier.

**C. EXTERIOR WALL AIR BARRIER**

1. Tyvek brand.

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. General: Extend vapor barrier to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor barrier to cover miscellaneous voids in insulated substrates, including those filled with loose fiber insulation.
2. Seal vertical joints in vapor barriers over framing by lapping not less than 2 wall studs. Fasten vapor barriers to framing at top, end, and bottom edges, at perimeter of wall openings, and at lap joints; space fasteners 16 inches o.c.
3. Adhesive Anchorage: Except where specifically indicated to be penetrated with fasteners or other anchorage devices, install vapor barriers with adhesives or self-adhesive tape of type recommended by vapor barrier manufacturer.
4. Firmly attach vapor barriers to substrates with adhesives or mechanical fasteners as appropriate for supporting substrate, and of type recommended by vapor barrier manufacturer.
5. Provide lapped seams and lap vapor barriers onto other work at edges of coverages and at penetrations of barriers by other work.
6. Seal overlapping joints in vapor barrier with adhesives or tape per vapor barrier manufacturer's printed directions. Seal butt joints and fastener penetrations with tape of type recommended by vapor barrier manufacturer. Locate all joints over framing members or other solid substrate.

7. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor barriers with tape of type recommended by vapor barrier manufacturer to create an airtight seal between penetrating objects and vapor barrier.
8. Repair any punctures or tears immediately before concealment of work. Cover with tape or another layer of vapor barrier.

END OF SECTION 07190

**SECTION 07200  
INSULATION**

**PART 1 - GENERAL**

A. REFERENCE

1. Applicable provisions of Division 1 shall govern work of this section.

A. RELATED WORK

1. Refer to Section 04150 - Masonry Accessories: Masonry Fill Insulation.
1. Refer to Section 07190 – Vapor and Air Retardants.
1. Refer to Section 07240 - Exterior Insulation Finish System.

A. SUBMITTALS

1. Refer to Section 01300-Submittals.

A. PRODUCT HANDLING

1. Handle, store and protect insulation in accordance with manufacturer's recommendations.

**PART 2 - PRODUCTS**

A. GENERAL

1. Provide insulation of thickness noted on drawings with minimum R-values per inch where specified based on 75 degree F mean temperature.
1. Drawings should indicate insulation by thickness and R value.

B. BLANKET INSULATION

1. Insulation may be batt or blanket type at Contractor's option or job conditions.
1. Provide insulation of proper width to fit type of framing.
1. Glass fiber or mineral wool with kraft paper vapor barrier and minimum thermal resistance of R-3 per inch.
1. Glass fiber or mineral wool without vapor barrier with a minimum thermal resistance of R-3 per inch.
1. Provide nailing flange on vapor barrier for securing to framing.

B. SOUND INSULATION

1. Glass fiber or mineral wool similar to USG Thermafiber Sound Attenuation Blankets, Owens Corning Noise Barrier Batts or Carney Sound Attenuation Blankets.

B. RIGID INSULATION

1. Extruded polystyrene (ASTM C 578, Type IV) rigid board of 1.5 lb./cu. ft. density with a minimum thermal resistance of R-5 per inch (Dow Styrofoam or UC Industries Foamular 250 or Minnesota Diversified Products Certifoam or Amoco Foam Products Amofam-CM).
1. Glass fiber, pre-formed semi-rigid board of 3 lb. per cu. ft. density with a minimum thermal resistance of R-4.3 per inch.
1. Contractor's Option: In lieu of extruded polystyrene:
  - a. Expanded polystyrene ASTM C578-92 Type II, K at 75° F, .24 R at 75° F 4.17
  - b. Approved manufacturer: Plymouth Foam Phone 800-669-1176

A. FOAM-IN-PLACE INSULATION

1. Two component, ASTM E 84, Class 1, Polyurethane, minimum 1.65 lb/cu. ft. in place, rigid, closed-cell with a minimum aged thermal resistance of R-7.5 per inch.

#### A. BLOWING INSULATION

1. Fiberglass or rock wool blowing type for pneumatic installation.

#### G. SPRAY-ON THERMAL INSULATION

1. Application: Ceiling of garage area.
1. Manufacturer: Monoglass Incorporated.
1. 25 % recycled glass, inorganic, non-toxic, odorless, non-combustible and contains no asbestos.
1. Fire and thermal characteristics: ASTM E84 – 79 flame spread = 0, smoke developed = 0, thermal conductivity ASTM C518,  $r = 4.0/\text{inch}$ ,  $k = 0.25$ .
1. Dry density: ASTM D1622 – 83: 2.8 lbs./cubic foot.
1. Finish: white.

#### H. MISCELLANEOUS

1. Type Insulation: Mineral fiber semi-rigid board of 4 lbs./cu. ft. density similar to USG Thermafiber Safing Insulation or Carney Safing Insulation.
1. Sill Sealer: Glass fiber insulation 1 inch thick and 6 inches wide similar to Owens-Corning SillSealer.
1. Adhesive: Type as recommended by manufacturer of insulation.
1. Vapor Barrier: Clear polyethylene film minimum 4 mils thick.
1. Z-Furring: 25-gauge galvanized steel Z shape similar to USG Z-Furring Channels or ASI Z-Furring Section.
1. Clips: Non-corrosive metal similar to Stic-Klip Fasteners made by Stic-Klip Mfg. Co. or Gemco Hangers made by Goodloe Moore, Inc. complete with plates or washers. Provide prong type for medium or low density insulation and nail type for cellular type insulation.

### **PART 3 - EXECUTION**

#### A. GENERAL

1. Install all materials complete, attached securely and permanently in place.
2. Extend insulation full thickness over entire area to be insulated. Fill all voids with glass fiber insulation material.
3. Do not allow insulation to become wet before, during or after installation.

#### A. INSTALLING BLANKET TYPE INSULATION

1. Apply insulation with tight butt joints in one single layer of thickness required.
1. Cut and fit tightly to framing members, around obstructions and fill voids with insulation.
1. Place insulation back of all penetrations such as electrical boxes and between pipes and exterior wall.
1. Apply vapor barrier over exterior wall blanket insulation with 3" lap joints. Secure to hold in place and tape all joints, tears, perforations, and at perimeter to adjacent surfaces with tape of type recommended by manufacturer.
1. Install sound insulation to obtain a continuous sound seal.

#### A. INSTALLING RIGID INSULATION

1. Install insulation with continuous tight butt joints.
1. Apply insulation on foundation walls with spot adhesive sufficiently to hold in place while backfilling.
1. Apply insulation using Z-Furring secured with power driven stud pins. Install additional channels at all outside and inside wall intersections, around openings, top and bottom of walls and where required for fastening other materials. Contractor's option at interior furred walls:
  - a. EPS foam with embedded steel furring strips 26 gauge, galvanized ASTM C645-99
  - b. Approved manufacturer: Plymouth Foam "Gold Wall" Phone 800-669-1176
1. Fit cavity wall insulation between masonry wall ties, reinforcing or other confining obstructions with edges butted tightly both ways and insulation secured 12 inches o.c. each direction to inside wythe of masonry.

B. INSTALLING BLOWING TYPE INSULATION

1. Place blowing type insulation with automatic or hand fed fiber blowing machine to obtain the manufacturer's recommended density for the required thermal resistance.

C. INSTALLING FOAM-IN-PLACE INSULATION

1. Install insulation in a continuous bead around all door openings, window openings, pipe penetration, duct openings, and electrical outlets in exterior walls.
2. Install insulation in a continuous bead around all penetrations through floor structure.
3. Install per manufacturer's recommendations taking care not to bow or deflect doorframes and window frames due to excess foam.

D. INSTALLING SPRAY-ON THERMAL INSULATION

1. Inspect surfaces to ensure dry, clean, free of oil, grease, dirt or other deleterious materials that would impair bond.
2. Coordinate work to sequence with mechanical and electrical contractors. Spray insulation prior to completion of M/E work but after rough in. Mask all penetrations ie. pipes, electrical boxes, etc. Fire proofing around penetrations of mechanical, electrical through precast is the responsibility of M/E trades.
3. Spray to a uniform thickness as indicated on drawings.

END OF SECTION 07200

**SECTION 07210**  
**SPRAY-ON SOUND INSULATION**  
**(Referred to on Drawings and Schedules as "SPRAY-ON ACOUSTICAL FIBER" (SAC))**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. GENERAL**

1. System in this section refers to the furnishing of all labor, materials and equipment necessary for and incidental to the complete and proper installation of all sprayed insulation as shown on the drawings or specified herein, and in accordance with the Contract Documents.
2. The material and installation shall conform to all applicable Building Code requirements, and the requirements of authorities having jurisdiction.

**C. SUBMITTALS**

1. Refer to Section 01300 Submittals: Submit product data for each type insulation.
2. Samples of each finish color and texture available.
3. Test reports for system from independent testing laboratory.

**D. PRODUCT HANDLING**

1. Handle, store and protect insulation in accordance with manufacturer's recommendations.

**E. INSTALLER QUALIFICATIONS:**

1. A firm having experience in the installation of materials similar to those specified herein on projects comparable to this project shall perform system work.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS**

1. Subject to compliance with requirements, provide a system similar to K-13 as produced by International Cellulose Corp., Houston, TX 77245-0006, 800.444.1252 or an approved equal.
2. Provide colors and texture of protective coating selected by Architect from manufacturer's full range of standard colors and textures.
3. Insulation: Insulation materials shall be free of vermiculite and certified asbestos-free.
4. Finish Coat Materials: System manufacturer's recommended sealer.
5. Water: Clean and potable.
6. Mechanical Fasteners: System manufacturer's standard corrosion-resistant fastener assemblies, as required for proper installation with differing substrates.

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. Comply with system manufacturer's current published instructions for installation of system as applicable to each type of substrate indicated.
2. Surface Preparation: All surfaces to receive sprayed insulation shall be thoroughly cleaned so that they are free of mill scale, dirt, grime, oil, grease, paints/primers, loose rust or other materials, which would impair proper bonding.
3. The installation of ducts, piping, conduit or other suspended equipment shall not take place until the application of sprayed insulation is complete in an area.
4. Area Preparation: Provide all necessary measures for protection of the general public and for the prevention of air pollution. Enclose exterior openings at areas where spray application is in progress.
5. Provide masking, drop cloths or other satisfactory coverings for all materials, which are not to receive insulation to prevent damage from over spray.

B. APPLICATION

1. Equipment, mixing and application shall be in accordance with the written application instructions.
2. Unless noted otherwise in these documents, the insulation shall be applied to a thickness of approximately 1 inch.
3. Texture: To be selected by the Architect.

C. CLEANING

1. After completion of insulation work in an area, equipment shall be removed and walls, floors, ceilings, and other surfaces not to be sprayed shall be cleaned of all deposits of insulation materials.

END OF SECTION 07210

**SECTION 07310  
ASPHALT SHINGLES**

**PART 1 - GENERAL**

A. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

A. RELATED SECTIONS

1. Refer to Section 07620-Flashing and Sheet Metal: Flashing, gutters and other sheet metal work.
1. Refer to Section 07700-Roof Specialties and Accessories: Alternative roof penetrations.

A. SUBMITTALS

1. Product Data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.
1. Samples for initial selection purposes in form of manufacturer's sample finishes showing full range of colors and profiles available.

A. DELIVERY, STORAGE, AND HANDLING

1. Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.
1. Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations for job-site storage, handling and protection.

A. PROJECT CONDITIONS

1. Weather Conditions: Proceed with work only when existing and forecasted weather conditions will permit work to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.

A. EXTRA MATERIALS

1. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

G. WARRANTY

1. Warranty period shall be a minimum of 20 years after the Date of Substantial Completion.

**PART 2 - PRODUCTS**

A. MANUFACTURERS

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering asphalt shingles that may be incorporated in the work include, but are not limited to, the following:  
Dimension III-Celotex Corporation  
Prestique-Elk Roofing Products/Elk Corporation  
Timberline Fiber Glass-GAF Corporation  
Summit-Georgia Pacific  
The Woodlands Roof-Manville Building Materials Corporation  
Horizon Shangle-CertainTeed

B. ASPHALT SHINGLE ROOFING

1. 3-Dimensional Laminated Strip Shingle, UL Class A: Mineral-surfaced, self-sealing, laminated multi-ply overlay construction fiberglass based strip shingle complying with ASTM D 3018, bearing UL Class A external fire exposure label and UL "Wind Resistant" label, weighing not less than 290 lbs./square. Color as selected by Architect.
2. Hip and Ridge Shingles: Job-fabricated units cut from actual shingles used.

**PART 3 - EXECUTION**

A. EXAMINATION

1. Examine substrate for compliance with requirements for substrates, installation tolerances and other conditions affecting performance of work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.

B. PREPARATION

1. Clean substrates of projections and substrates detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with non-corrosive roofing nails.
2. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.

C. INSTALLATION

1. Comply with recommendations of shingle manufacturer details and recommendations of Steep Roofing section of NRCA Roofing and Waterproofing Manual for installation of underlayment and shingles, using number of nails and coursing of shingles in accordance with manufacturer's standards.
2. Felt Underlayment: Apply one layer of felt underlayment horizontally over entire surface to receive asphalt shingles, lapping succeeding courses a minimum of 4 inches, and hips and valleys a minimum of 6 inches. Fasten felt with sufficient number of roofing nails or corrosive staples to hold underlayment in place until asphalt shingle application.
3. Install ice and water shield at eaves extending 2'-0" past interior side of exterior wall. Provide 36" wide strip at all valleys.
4. Flashing: Install metal flashing as indicated and in accordance with details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual".

D. ADJUSTMENT

1. Replace any damaged shingles installed under this Section with new materials meeting specified requirements.
2. Remove shingle installation debris from site.

END OF SECTION 07310

**SECTION 07410  
MANUFACTURED EXTERIOR METAL PANELS**

**PART 1 – GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**B. SUMMARY**

1. Field-assembled wall panels with exposed fasteners. (OPTION)
1. Field-assembled panels with concealed fasteners.
2. Related Sections: The following sections contain requirements that relate to this Section:
  - a. Section 07620 – Sheet Metal Flashing and Trim
  - b. Section 07900 – Joint Sealers
3. Wood framing is specified in a Division 6 section.

**C. SUBMITTALS**

1. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
2. Product data including manufacturer's product specifications, standard details, certified product test results, installation instructions, and general recommendations, as applicable to materials and finishes for each component and for total panel system.
3. Samples for initial selection purposes in form of manufacturer's color charts or chips showing full range of colors, textures, and patterns available for roof and wall panels with factory-applied finishes.
4. Shop Drawings showing layouts of panels, details of edge conditions, joints, corners, panel profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and field assembly work.
5. Field Measurements: Where possible, prior to fabrications of panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units where final dimensions cannot be established prior to fabrication.

**D. DELIVERY, STORAGE, AND HANDLING**

1. Deliver panels and other components so they will not be damaged or deformed. Package wall and roof panels for protection against transportation damage.
2. Handling: Exercise care in unloading, storing, and erecting wall and roof covering panels to prevent bending, warping, twisting, and surface damage.
3. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Store metal wall and roof panels so that they will not accumulate water. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

**E. WARRANTY**

1. Finish Warranty: Furnish panel manufacturer's written warranty covering failure of the factory-applied exterior finish on metal panels within the warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

## **PART 2 – PRODUCTS**

### **A. MANUFACTURERS**

1. Manufacturer: Subject to compliance with requirements, provide panels by one of the following:
  - a. Steel Roof and Wall Panels:
    - (1) AEP-Span.
    - (2) Berridge Manufacturing Co.
    - (3) Metal Building Components, Inc. (MBCI).
    - (4) Morin Building Products Co., Inc.
    - (5) MM Systems Corp.
    - (6) Petersen Aluminum Corp.
    - (7) Vincent Metals.

### **B. SHEET MATERIALS**

1. Structural Quality Aluminum-Zinc Alloy-Coated Steel Sheet: Hot-dip aluminum-zinc-coated steel sheet complying with ASTM A 792 with class AZ-50 coating; Grade 40 or to suit manufacturer's standards.

### **C. METAL FINISHES**

1. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating either by application of strippable film or by packing plastic film or other suitable material between panels in a manner to properly protect the finish. Furnish air-drying spray finish in matching color for touch-up.
  - a. Color: As selected by the Architect from the manufacturer's standard colors.
2. OPTION: Fluoropolymer Coating: Manufacturer's standard two-coat, thermo-cured, full-strength 70 percent "Kynar 500" coating consisting of a primer and a minimum 0.75-mil dry film thickness with a total minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D 523.
  - a. Durability: Provide coating that has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of No. 8 in accordance with ASTM D 659; and without fading in excess of 5 NBS units.
2. Siliconized Polyester Coating: Factory-applied baked-on coating consisting of epoxy primer and silicone-modified polyester enamel topcoat, with dry film thickness of not less than 0.2 mil for primer and 0.8 mil for topcoat.
3. Acrylic Enamel Coating: Factory-applied baked-on enamel coating consisting of epoxy primer and acrylic enamel topcoat with dry film thickness of not less than 0.2 mil for primer and 0.8 mil for topcoat.

### **D. MISCELLANEOUS MATERIALS**

1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets, self-locking bolts, end-welded studs, and other suitable fasteners designed to withstand design loads.
  - a. Use aluminum, corrosion-resistant steel, or stainless steel fasteners for exterior application and galvanized or cadmium-plated fasteners for interior applications.
  - b. Provide exposed fasteners with heads matching color of roof or wall panel by means of plastic caps or factory-applied coating.
  - c. Provide metal-backed neoprene washers under heads of exposed fasteners bearing on weather side of panels.
  - d. Locate and space exposed fasteners in true vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of neoprene washer.

2. Accessories: Except as indicated as work of another specification section, provide components required for a complete roof or wall panel system, including trim, copings, fascias, gravel stops, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, fillers, closure strips, and similar items. Match materials and finishes of panels.
    - a. Sealing Tape: Pressure-sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape.
    - b. Joint Sealant: One-part elastomeric polyurethane, polysulfide, or silicone rubber sealant as recommended by the building manufacturer.
  3. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.
- E. PANEL FABRICATION
1. General: Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as required to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and dimensional requirements and with structural requirements.
  2. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials that are noncompatible or could result in corrosion or deterioration of either material or finishes.
- F. CEILING LINER PANELS
1. Face Sheets: Fabricate liner panel face sheets to the profile or configuration indicated from 24-gauge (0.0239-inch) zinc-coated or aluminum-zinc-coated steel sheets.
    - a. Approved profile: Berridge Vee-Panel.

### **PART 3 – EXECUTION**

#### **A. PANEL INSTALLATION**

1. General: Comply with manufacturers' instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal and structural movement.
  - a. Install panels with concealed fasteners.
2. Accessories: Install components required for a complete roof or wall panel system, including trim, corner units, ridge closures, clips, seam covers, sealants, fillers, closure strips, and similar items.
3. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of panel systems. Provide types of gaskets, sealants, and fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.
  - a. Refer to other sections of these specifications for product and installation requirements applicable to indicated joint sealers.
4. Joint Sealers: Refer to other sections of these specifications for post-installation requirements on joint sealers; not work of this section.
5. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4 inch in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

#### **B. CLEANING AND PROTECTION**

1. Damaged Units: Replace panels and other components of the work that have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.
2. Cleaning: Remove temporary protective coverings and strippable films (if any) as soon as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

END OF SECTION 07410

**SECTION 07465**  
**SOFFIT**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of Contract, including General And Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

**B. SUMMARY**

1. This Section includes the following:
  - a. Vented aluminum soffit

**C. RELATED SECTIONS**

- a. Refer to Section 06100-Rough Carpentry: Underpayment and wood framing.
- b. Refer to Section 07620-Flashing and Sheet Metal: Flashing, gutters and other sheet metal work.
- c. Refer to Section 07900-Joint Sealers: Field-applied sealants.

**D. SUBMITTALS**

1. Product Data: Submit manufacturer's technical data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures and colors.
2. Samples: Submit samples for verification purposes in form of two full-size units of each type of siding and accessory required.

**E. QUALITY ASSURANCE**

1. Single-Source Responsibility for Siding and Accessories: Obtain each color, source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

**F. DELIVERY, STORAGE, AND HANDLING**

1. Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.
2. Handle and store materials at Project site to prevent water damage, staining or other physical damage. Comply with manufacturer's recommendations and when substrate is completely dry.

**G. PROJECT CONDITIONS**

1. Weather Conditions: Proceed with siding installation only when existing and forecasted weather conditions will permit siding to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.

**H. EXTRA MATERIALS**

1. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

**I. WARRANTY**

1. Submit Manufacturer's standard warranty for materials installed and workmanship. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.

## **PART 2 - PRODUCTS**

### **A. MANUFACTURERS**

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering siding which may be incorporated in the Work include, but are not limited to, the following:
  - a. Vented Soffit
    - (1) TruLine – extra Strength Soffit, Quality Edge, 2712 Walkent Drive NW, Walker, MI 49544, PH888-784-0878
    - (2) Rollex Corp., 800 Chase Avenue, Elk Grove Village, IL 60007 PH847-437-3000

### **B. ALUMINUM VENTED SOFFIT**

1. Formed Aluminum Soffit: Aluminum soffit and accessories complying with AAMA 1402 fabricated from aluminum sheet in alloy recommended by siding manufacturer, and as follows:
  - a. Exposure: 16 inch
  - b. Thickness: 0.019 inch nominal.
  - c. Finish: Manufacturer's standard primer and baked-on acrylic topcoat
  - d. Color and Patterns: Provide manufacturer's standard colors as approved by Owner.
  - e. Provide selections made by Owner from manufacturer's full range of standard colors, textures and patterns for aluminum soffit indicated.

### **C. ACCESSORIES**

1. Siding Accessories: Starter strips, trim and other items as recommended by manufacturer for building configuration, matching type of soffit selected.
2. Fasteners: Non-corrosive aluminum siding nails, in sufficient length to penetrate minimum of 1-inch into substrate. Provide prefinished fasteners in color to match soffit where face nailing is unavoidable.

## **PART 3 - EXECUTION**

### **A. EXAMINATION**

1. Examine substrate for compliance with requirements for substrates, installation tolerances and other conditions affecting performance of siding. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **B. PREPARATION**

1. Clean substrate of projections and substances detrimental to application.
2. Coordinate installation with flashing and other adjoining construction to ensure proper sequencing.

### **C. INSTALLATION**

1. Comply with soffit manufacturer's installation instructions and recommendations. Install trim and accessories in accordance with manufacturer's recommendations. Overlap butt joints to shed water away from direction of prevailing wind. Isolate dissimilar metals.

### **D. ADJUSTING**

1. Replace damaged soffit materials with new materials complying with specified requirements.

### **E. CLEANING AND PROTECTION**

1. Clean finished surfaces as recommended by soffit manufacturer, and maintain in a clean condition during construction.

END OF SECTION 07465

**SECTION 07530  
SINGLE-PLY MEMBRANE ROOFING**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**B. SUMMARY**

1. This Section includes single-ply membrane roofing systems.
2. Types of roofing systems specified in this Section using single-ply roofing membranes include Fully Adhered.
3. Single-ply roofing membranes include Ethylene Propylene Diene Monomer (EPDM).
4. Roof insulation related to flexible sheet roofing is specified in this section.
5. Vapor retarder below insulation is specified in this section.

**C. RELATED SECTIONS**

1. Wood nailers, blocking and other related items are specified in Section 06100-Rough Carpentry.
2. Refer to Section 07620-Sheet Metal Flashing and Trim: Copings and gravel stops.

**D. SUBMITTALS**

1. Product Data: Submit specifications, installation instructions and general of roofing required. Include data substantiating that materials comply with requirements.
2. Samples of finished roofing sheets, including :
  - a. T-shaped side/end-lap seam;
  - b. Insulation board;
  - c. Protection board.

**E. QUALITY ASSURANCE**

1. Manufacturer: Obtain primary single-ply membrane roofing from a single manufacturer. Provide secondary materials as recommended by manufacturer of primary materials.
2. Installer: A firm with not less than 5 years of successful experience in installation of roofing systems similar to those required for this project and which is acceptable to or licensed by manufacturer of primary roofing materials.
3. UL Listing: Provide labeled materials which have been tested and listed by UL in "Building Materials Directory" for application indicated, with "Class A" rated materials/system for roof slopes shown.
4. Fire Performance Characteristics: Provide insulation materials that are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction:
  - a. Surface Burning Characteristics: ASTM E 84.
  - b. Fire Resistance Ratings: ASTM E 119.
  - c. Combustibility Characteristics: ASTM E 136.

## F. WARRANTY

1. Total System Project Warranty: Provide written warranty, signed by Manufacturer of primary roofing materials and his authorized Installer, agreeing to replace/repair defective materials and workmanship as required to maintain roofing system in watertight condition. Warranty shall cover performance of roofing products to include membranes, flashings, insulation, and accessories to ensure a Total System Warranty is provided. Said warranty shall state this requirement in writing on the face of the original copy of the manufacturer's warranty. Warranty coverage shall not be limited to the original installed cost and have a no dollar limit.
2. Warranty Period: 10 years after Date of Substantial Completion.
3. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

## **PART 2 - PRODUCTS**

### A. GENERAL

1. Performance: Provide roofing materials identified to be of specific type indicated and tested to show compliance with required performances.
2. Compatibility: Provide products recommended by manufacturers to be fully compatible with indicated substrates. Provide separation materials as required to eliminate contact between incompatible materials.

### B. EPDM MEMBRANE

1. General: Ethylene propylene diene monomers formed into uniform, flexible sheets, complying with ASTM D 4637, Type 1.
  - a. Class SR: Scrim or fabric internal reinforced.
  - b. Thickness: 60 mils, nominal.
  - c. Exposed Face Color: Manufacturer's standard-black.
  - d. System: Fully adhered.

### C. APPROVED MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
  - a. Sure-Seal Extra-Reinforced EPDM by Carlisle Syntec Systems.
  - b. RubberGard Max EPDM by Firestone Building Products Company.

### D. AUXILIARY MATERIALS

1. Sheet Seaming System: Manufacturer's seam tape materials for sealing lapped joints. The use of splice adhesive should be limited to those seams which can not implement seam tape.
2. Cant Strips, Tapered Edge Strips and Flashing Accessories: Types recommended by manufacturer of single-ply membrane material, provided at locations indicated and at locations recommended by manufacturer, including adhesive tapes, flashing cements, and sealants.
3. Flashing Material: Manufacturer's standard system compatible with flexible sheet membrane.
4. Walkway Protection: A black, molded rubber walkway pad with slip resistant surface and factory rounded corners available in 30-inch x 30-inch pads, approximately 3/16-inch thickness (not including raised "nibs"). Provide an adequate number of pads to access all roof-mounted equipment or as indicated on the Drawings.
5. Mechanical Fasteners: Metal plates, caps, battens, accessory components, fastening devices, and adhesives to suit substrate and as recommended by single-ply membrane manufacturer.
6. Membrane Adhesive: As recommended by membrane manufacturer for particular substrate and project conditions, formulated to withstand min. 60-psf uplift force.
7. Vents and Breathers: "Alumi-Breather" by Portals Plus, Inc. — 050 spun aluminum with base flange diameter of 12 inches, height 7-3/4 inches. Provide insulating insert and rain cap.

#### E. AUXILIARY INSULATION MATERIALS

1. Rigid Foam Insulating Materials: Thermal composite with polyisocyanurate closed cell core and manufacturer's standard facing, laminated to both sides as indicated on the drawings.
2. Description: Roof insulation consisting of closed cell polyisocyanurate foam core and a perforated black glass reinforced mat laminated to the face.
3. Base Layer:
  - a. Nominal 20 psi compressive strength
  - b. Nominal Size: 48" x 96"
  - c. Minimum 2.0 lbs./cu. ft. density
  - d. Must be provided by manufacturer for total system warranty.
4. Reference Standards:
  - a. FS HH-I-1972/Gen.
  - b. FS HH-I-1973/3.
  - c. ASTM C 209 – Water Absorption.
  - d. ASTM E 96 – Water Vapor Transmission of Materials.
  - e. ASTM D 1621 – Compressive Strength.
  - f. ASTM D 1622 – Density.
  - g. ASTM D 2126 – Dimensional Stability.
  - h. ASTM E 84 – Flame Spread.
5. Product/Producer: ISO 95+ Polyisocyanurate Insulation by Firestone or Polyisocyanurate HP by Carlisle Syntec Corp.  
No substitutions acceptable.
6. Insulation Accessories
  - a. Adhesive for Bonding Insulation: Type recommended by insulation manufacturer and complying with fire resistance requirements.
  - b. Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints and filling voids. Must be compatible with roofing system and acceptable to roofing manufacturer.
  - c. Mechanical Anchors: Corrosion-resistant type as recommended by insulation manufacturer for deck type, and complying with fire and insurance uplift rating requirements.
  - d. Provide system tested and approved for I-60 wind uplift rating.
  - e. More stringent rating may be required by local governing authorities, due to locale, verify rating requirements with authorities having jurisdiction.

### **PART 3 - EXECUTION**

#### A. PREPARING SUBSTRATE

1. General: Comply with manufacturer's instructions for preparation of substrate to receive single-ply membrane system.
2. Verify that penetrations, expansion joints and blocking are in place and secured and that roof drains are properly clamped into position.
3. Clean substrate of dust, debris, and other substances detrimental to single-ply membrane system work. Remove sharp projections.
4. Install cant strips, flashings and accessories items as shown and recommended by manufacturer, even though not shown.
5. Prevent compounds from entering and clogging drains and conductors and from spilling or migrating onto surfaces of other work.

#### B. VAPOR RETARDER INSTALLATION

1. On steel decks, comply with UL requirements for Roof Deck Constructions, which are rated Fire Acceptable or comply with FM requirements for Class I metal deck construction.

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2. Seal Joints in vapor retarder and seal to other surfaces at extremities and penetrations of retarder. Seal over nails, staples, tears and punctures with tape or adhesively applied strips of vapor barrier material.

#### C. INSULATION INSTALLATION

1. General: Extend insulation full thickness, in 2 layers, or in multiple layers over entire surface to be insulated as indicated on drawings, cutting and fitting tightly around obstructions. Form cant strips, crickets, saddles, and tapered areas with additional material as shown and as required for proper drainage of membrane.
2. Stagger joints in one direction for each course. For multiple layers, stagger joints in both directions between courses with no gaps, forming a complete thermal envelope.
3. Do not install more insulation each day than can be covered with membrane before end of day and before start of inclement weather.
4. Provide protection sheet between insulation and membrane when recommended by membrane manufacturer.
5. Secure roof insulation to substrate with mechanical anchors of type and spacing indicated; but in no case provide less than one anchor per 4 square feet of surface area, or less anchorage than required by FM Loss Prevention Data Sheet 1-28.

#### D. INSTALLING MEMBRANE

1. General: Start installation only in presence of manufacturer's technical representative.
2. Mechanically Attached Membrane: Install membrane by unrolling over prepared substrate, lapping adjoining sheets as recommended by manufacturer, and bonding and sealing seams. Install mechanical fasteners at spacing recommended by manufacturer, covering with adhesive-applied membrane so that no fasteners are exposed. Install flashings and counter-flashings as shown or recommended by manufacturer.
3. Adhesive Adhered Membrane: Install membrane by unrolling over prepared substrate, lapping adjoining sheets as recommended by manufacturer. Apply adhesive to surfaces to be bonded and roll single-ply membrane into place when adhesive has properly cured. Treat seams with special cement and apply sealant to exposed sheet edges, tapering application as recommended by manufacturer. Install mechanical fasteners, flashings and counterflashings, and accessories at locations and as recommended by manufacturer.
4. Walkway Protection: Install pad units at locations shown or where required for access to roof-mounted equipment. Place protection boards carefully to avoid damage to membrane, laying over an additional layer of roof membrane material, loosely applied, for additional protection. Locations of walkways determined by Architect.

#### E. PROTECTING ROOFING

1. After completing roofing (including associated work), institute appropriate procedures for surveillance and protection of roofing during remainder of construction period. At the end of the construction period, or at a time when nature and extent of deterioration or damage is found.
2. Repair or replace (as required) deterioration or defective work found at time of final inspection to a condition free of damage and deterioration at the time of Substantial Completion and according to the requirements of the specified warranty.

END OF SECTION 07530

**SECTION 07620  
SHEET METAL FLASHING AND TRIM**

**PART - 1 GENERAL**

**A. SECTION INCLUDES**

1. Windowsill, lintel drip flashing and base flashings.
2. Fascias.
3. Counterflashings over base flashings.
4. Counterflashings at roof mounted equipment and vent stacks.

**B. RELATED SECTIONS**

1. Refer to Section 07900-Joint Sealers.
2. Refer to Section 09900-Painting: Prime and finish painting.

**C. REFERENCES**

1. ASTM A 167-Stainless and Heat-Resisting Chromium-Nickel Steel Plate.
2. ASTM A 525-Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.
3. ASTM B 209-Aluminum and Alloy Sheet and Plate.
4. ASTM D 226-Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
5. ASTM D 4586-Asphalt Roof Cement, Asbestos-Free.
6. National Roofing Contractors Association (NRCA) Manual.
7. SMACNA-Architectural Sheet Metal Manual.

**D. SUBMITTALS**

1. Refer to Section 01300-Submittals.
2. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

**E. QUALITY ASSURANCE**

1. Perform work in accordance with AISI, SMACNA, and NRCA standard details and requirements.

**F. DELIVERY, STORAGE, AND HANDLING**

1. Refer to Section 01600-Materials and Equipment: Deliver, store, protect and handle products to site.
2. Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
3. Prevent contact with materials that may cause discoloration or staining.

**PART 2-PRODUCTS**

**A. SHEET MATERIALS**

1. Pre-coated Galvanized Steel: ASTM A 446, Grade A, G90 zinc coating; 18-gauge core steel, shop pre-coated with Kynar 500 fluoropolymer coating of color to be selected by Owner.
2. Aluminum Sheet: ASTM B 209, alloy, plain, finish shop pre-coated with Kynar 500 fluoropolymer coating of color to be selected by Owner. For window sills and flashing with installation adjacent to standard anodized window product, finish shall be PAC 500 bronze anodized coatings to match window finish.
3. Minimum thickness:
  - a. Drip flashings .032
  - b. Window flashings .040
  - c. Cap flashings and coping .050, unless noted otherwise

## B. ACCESSORIES

1. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.
2. Underlayment: ASTM D 226, No. 15 asphalt saturated roofing felt.
3. Primer: Zinc chromate or Galvanized iron type.
4. Protective Backing Paint: Bituminous.
5. Sealant: Refer to Section 07900-Joint Sealers.
6. Bedding Compound: Rubber-asphalt type.
7. Plastic Cement: ASTM D 4586, Type II.
8. Gutter and Downspout Anchorage Devices: SMACNA requirements and type recommended by fabricator.
9. Gutter Supports: Spikes and ferrules.
10. Downspout Supports: Brackets or Straps.

## C. COMPONENTS

1. Gutters: Rectangular SMACNA style profile.
2. Downspouts: Rectangular profile with open front.
3. Accessories: Profiled to suit gutters and downspouts.
4. Splash Pads: Precast concrete type.

## D. FABRICATION

1. Form sections true to shape, accurate in size, square, and free from distortion or defects.
2. Form pieces in longest possible lengths.
3. Hem exposed edges on underside 1/2 inch, miter and seam corners.
4. Form material with flat lock seams.
5. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
6. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

## PART 3-EXECUTION

### A. EXAMINATION

1. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets in place and nailing strips located.
2. Verify roofing termination and base flashings are in place, sealed, and secure.
3. Verify window openings are square and true and that substrate material is secured adequately.

### B. PREPARATION

1. Install starter and edge strips, and cleats before starting installation.
2. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.
3. Separate dissimilar materials with bituminous paint. (Flashing material must be protected from treated wood and mortar.)

### C. INSTALLATION

1. Conform to drawing details per the AISI, SMACNA, and NRCA manual.
2. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
3. Apply plastic cement compound between metal flashings and felt flashings.
4. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles. Form end-dams to prevent migration of water around end of flashing.
5. Seal metal joints watertight.
6. Secure gutters and downspouts in place using fasteners.
7. Slope gutters Minimum of 1/4 inch per foot minimum.
8. Set splash pads under downspouts.
9. Seal metal joints watertight.

### D. FIELD QUALITY CONTROL

1. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION 07620

**SECTION 07700  
ROOF ACCESSORIES**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**B. SUMMARY**

1. This Section includes the following:
  - a. Ridge Vents.

**C. RELATED SECTIONS:**

1. Refer to Section 07310-Asphalt Shingles: Roofing types and roofing accessories included as part of roofing Work.
2. Refer to Section 07620- Sheet Metal Flashing: Metal flashing, valleys, gutters, soffit, fascia and downspouts.

**C. SUBMITTALS**

1. General: Submit the following according to conditions of Contract and Division 1 Specification Sections.
  - a. Technical Data on ridge vents.
  - b. Shop Drawings on prefabricated curbs and equipment supports.

**D. QUALITY ASSURANCE**

1. Construction/Operation: UL-listed.
2. Fire Resistance of Lids: UL Class A rating.
3. Standards: Comply with the following:
  - a. SMACNA Architectural Sheet Metal Manual details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.
  - b. NRCA Roofing and Waterproofing Manual: Details for installation of units.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS**

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
  - a. Ridge Vents:
    - (1) Air Vent, Inc.
  - b. Option – Roof Hatch
    1. Bilco
    2. Bristolite
    3. Milcor, Inc.
    4. Dur-Red Products
    5. Wasco Products

## B. MATERIALS-GENERAL

1. Aluminum Sheets: ASTM B 209 for Alclad alloy 3005H25 or alloy and temper required to suit forming operations with mill finish, unless indicated otherwise.
2. Extruded Aluminum: ASTM B 221 alloy 6063-T52 or alloy and temper required to suit structural and finish requirements. Mill Finish, unless indicated otherwise.
3. Structural-Quality Galvanized Steel Sheet: ASTM A 446 with G90 coating complying with ASTM A 525, Grade C, or to suit manufacturer's standards.
4. Commercial-Quality Galvanized Steel Sheet: ASTM A 526 with G90 coating complying with ASTM A 525.
5. Insulation: Manufacturer's standard rigid or semi rigid glass-fiber board of thickness indicated.
6. Wood Nailers: Softwood lumber, pressure treated with water-borne preservatives for above-ground use, complying with AWPA C2; not less than 1-1/2 inch thick.
7. Fasteners: Match metal and finish of metal work, or provide nonmagnetic stainless steel, unless manufacturer of accessory unit recommends another type fastener.
8. Gaskets: Manufacturer's standard tubular or fingered design of neoprene or polyvinyl chloride, or block design of sponge neoprene.
9. Roofing Cement: FS SS-C-153, type that is compatible with roofing, and nominally free of sulfur.
10. Bituminous Coating: 15-mil bituminous mastic coating, FS TT-C-494 or SSPC-Paint 12, nominally free of sulfur.
11. Mastic Sealant: Polyisobutylene, nonhardening, nonskinning, nondrying, nonmigrating sealant.
12. Elastomeric Sealant: Generic type recommended by unit manufacturer that is compatible with joint surfaces, ASTM C 920, Type S, Grade NS, Class 25, and Uses NT, G and A.

## C. FINISHES

1. General: Comply with NAAMM Metal Finishes Manual for recommendations on applying and designating finishes.
2. Finish designations prefixed by AA conform to the system for designating aluminum finishes established by the Aluminum Association.
3. Class I, Clear-Anodized Finish: AA-C22A41 (Chemical Finish: etched, medium matte; Anodic Coating: Class I Architectural, clear film thicker than 0.7 mil) complying with AAMA 607.1, or, as selected by Architect from within
4. Color: As selected by Architect from standard industry colors and color density range.
5. Fluoropolymer Two-Coat Coating System: Manufacturer's standard two-coat thermocured system, complying with AAMA 605.2, composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70% polyvinyl resin by weight; complying with AAMA 605.2.
6. Color and Gloss: As selected by Architect from manufacturer's standard choices for color and gloss.

## D. PREFABRICATED CURBS AND EQUIPMENT SUPPORTS

1. General: Comply with loading and strength requirements as indicated where units support other work. Coordinate dimensions with rough-in information or shop drawings of equipment to be supported.
2. Fabricate of structural-quality, hot-dip galvanized sheet steel, factory-primed and prepared for painting with welded or sealed mechanical corner joints.
3. Provide complete with cant strips and base profile coordinated with roof insulation thickness. Provide preservative-treated wood nailers at tops of curbs, coordinate with thickness of insulation and roof flashing as indicated.
4. Unless otherwise indicated or required for strength, fabricate units of minimum 14-gauge (0.0747-inch-thick) metal, and to minimum height of 12 inches.
5. Sloping Roofs: Where slope of roof deck exceeds 1/4 inch per foot, fabricate curb/support units with height tapered to match slope to level tops of units.

## E. RIDGE VENTS

1. Aluminum: Fabricate of sheet aluminum with baffles to prevent snow and rain entering and weep holes to allow water to drain to roof. Provide splice plates and end caps required.

F. ROOF HATCH

1. Curb: .090 Aluminum w/12" high curb and intergral curb. Counter flashing, 3 \_ inch wide mounting flanges and one inclh exterior fiberboard insulation.
2. Cover: Single leaf, .063 aluminum exterior and interior face bonded to 2" rigid foam type insulation.
3. Hardware:
  - a. Torsion bar spring mounted within the confines of the cover.
  - b. Steel pintle hinges.
  - c. Closed cell rubber weather seal.
  - d. Automatically locking holddown arms.
  - e. Latching device having inside and outside handles and inside padlock hasp.

**PART 3 - INSTALLATION**

A. INSTALLATION

1. General: Comply with manufacturer's instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, vapor barriers, roof insulation, roofing and flashing, as required, to ensure that each element of the Work performs properly and that combined elements are waterproof and weather tight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses, as well as inward and outward loading pressures.
2. Seal waterproof expansion joints between roof accessory units with concealed pockets of mastic sealant.
3. Where flanges and bases of units set directly on roof or deck construction, set in a bead of roofing cement or mastic sealant.
4. Anchor units securely to supporting structure, except for small accessory items that are bedded and stripped into roofing for support.
5. Coordinate installation with deck construction, vapor retarder (if any), insulation, roofing and flashing work, to provide waterproof and weatherproof installations, in accordance with Construction Details of NRCA Roofing and Waterproofing Manual.
6. Separate dissimilar metal by coating surfaces with bituminous coating or other permanent separation.
7. When installing units in existing construction, cut in and repair the existing roofing as required to accommodate the new skylight unit. If cutting in a single-ply membrane roof, comply with original manufacturer and installer's requirements. Coordinate with the manufacturer's representative to assure that any warranties are not affected. The Roofing Contractor shall be responsible for the installation and performance of the installed unit and roof patching.

END OF SECTION 07700

**SECTION 07900  
JOINT SEALERS**

**PART 1 - GENERAL**

A. REFERENCE

1. Applicable provisions of Division 1 shall govern work of this Section.

A. RELATED SECTIONS

1. Refer to Section 09250-Gypsum Drywall: Acoustic Sealant.

A. SUBMITTALS

1. Refer to Section 01300-Submittals.
1. Submit manufacturers product data sheets including installation requirements for all materials.

A. JOB CONDITIONS

1. Complete all caulking and sealant work before final coat of paint is applied.
1. Place joint sealers only when temperature is above 40 degrees F. Maintain temperature for at least 24 hours after application.

**PART 2 - PRODUCTS**

Use term SEALANT on drawings for high performance sealant and caulk for intermediate performance sealant.

A. GENERAL

1. Color: To be selected from manufacturer's standard colors.

A. HIGH PERFORMANCE SEALANTS

1. Sealant: One Part Polyurethane (TT-S-00230C, Class A, Type 2); MAMECO Vulkem 116, Sika Sikaflex-la, Sonneborn Sonolastic NP1, Tremco DyMonic, Bostik Chem-Calk 900, Pecora Dynatrol-1.
1. Sealant: One-part silicone rubber (TT-S-001543, Class A, Type 2); Dow Corning 790 Silicone Building Sealant, General Electric Silpruf, Rhodia Inc. Rhodorsil 3B, W.R. Meadows Silcon, Tremco Spectrem 1, Bostik Chem-Calk 1000, Pecora 864.
1. Primer: Clear, non-staining made by same manufacturer.
1. Use following for surfaces to be walked on:
  - a. Sealant for Horizontal Surfaces: Polyurethane, flow type, self-leveling (TT-S-00227E, Class A, Type 1); MAMECO Vulkem 245, PRC Rubber Calk 270 Sealant, Sonneborn Sonolastic Paving Joint Sealant, Tremco THC-900, W.R. Meadows Pourthane, Bostik Chem-Calk 550.
  - a. Primer: Clear, non-staining made by same manufacturer as sealant compound.

A. INTERMEDIATE PERFORMANCE SEALANTS

1. Caulk: One-part acrylic polymer (TT-S-00230), Tremco Mono, W.R. Meadows Solaply, PTI 767 Acrylic Plus.
1. Use following if acoustic sealant not included in Section 09250:
  - a. Acoustic Sealant: Tremco Acoustical Sealant, USG Acoustical Sealant.

A. PRECOMPRESSED SEALANTS

1. Sealant Tape: Precompressed open cell impregnated polyurethane foam tape with non-migratory characteristics with minimum depth joint twice joint width and minimum of 3/4" depth; Emseal Greyflex, Illbruck Will-Seal.

**B. MISCELLANEOUS MATERIALS**

1. Backer Rod: Premolded or preformed resilient, nonabsorbent, closed cell polyethylene foam circular in cross section and diameter of 25% greater than joint width.
2. Use following for self-leveling horizontal joint sealant.
  - a. Bond Breaker: Adhesive backed polyethylene tape of same size as joint width.

**PART 3 – EXECUTION**

**A. PREPARATION**

1. Clean all surfaces of joints to be caulked or sealed by removing all foreign matter and contaminants. Solvent wipe surfaces where required.
2. Mask horizontal sealant joints to exact shape and size required.
3. Apply 2 coats of primer to horizontal sealant joints.
4. Apply 1 coat of primer with brush to all caulk or sealant joints.

**B. APPLICATION**

1. Comply with manufacturer's printed instructions.
2. Install backer rod in all sealant and caulk joints to maximum uniform depth of 3/8 inch from face of joint with plain-faced roller without puncturing, folding or creasing backer rod.
3. Apply bond breaker tape continuously without wrinkles, tears or gaps where depth of joint will not allow backer rod.
4. Caulk or seal primed joint within recommended time period after priming.
5. Apply caulk or sealant continuously with tube having proper sized nozzle. Fill all voids and joints solid.
6. Fillet type beads and superficial pointing of joints with skin bead are not acceptable.
7. Neatly point joint with beading tool and remove excess material.
8. Caulk joints in ceramic tile where located over control joints in substrate.
9. Apply silicone sealant in ceramic tile floor joint where located over control joint in substrate.
10. Apply a 1/8-inch bead of acoustical sealant around all sound wall penetrations.
11. Place sealant on horizontal surfaces to level of adjacent surfaces. Fill joints to 75% of joint width but not more than 5/8" deep nor less than 3/8 inches deep.
12. Compress sealant tape for watertight seal.

**C. CLEANING**

1. Remove masking materials and clean off excess material from adjoining surfaces.
2. Leave installation in watertight condition.

END OF SECTION 07900

**SECTION 08100  
METAL DOORS AND FRAMES**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**A. SUMMARY**

1. This Section includes custom-fabricated, commercial-quality steel doors and frames for doors and borrowed light openings, hollow metal panels, and louvers in these doors and frames.
2. Building in of anchors and grouting of frames in masonry construction are specified in a Division 4 Section.
3. Refer to Section 08700-Hardware: Hardware Installation.

**B. RELATED SECTIONS**

1. Refer to Section 08200-Wood Doors.
2. Refer to Section 08700-Hardware.
3. Refer to Section 09900-Painting.

**C. SUBMITTALS**

1. Product Data: Manufacturer's specifications for fabrication and installation, including data substantiating that products comply with requirements.
2. Shop Drawings: For fabrication and installation of custom steel doors and frames work: Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections.

**D. QUALITY ASSURANCE**

1. Provide custom steel doors and frames manufactured by a single firm specializing in the production of this type of work, unless otherwise acceptable to the Architect.
2. Standards: In addition to other specified requirements comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100) for the following classifications:
  - a. Interior Doors: SDI-100, Grade III, heavy-duty, Model 1.
  - b. Exterior Doors: SDI-100, Grade III, extra heavy-duty, Model-2, insulated core.
  - c. Frames: SDI-100, heavy-duty.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS**

1. Available Manufacturer: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:
  - a. Allied Steel Products, Inc.
  - b. Amweld/Division American Welding & Mfg. Company
  - c. Ceco Corporation
  - d. Fenestra Corporation
  - e. Steelcraft/Division American Standard Company
  - f. Republic Builders Products Corporation/Subs. Republic Steel

## B. MATERIALS

1. Construct hollow metal work of commercial quality cold-rolled, stretcher-leveled steel conforming to ASTM A 366 free from scale, pitting and surface defects using 16-gauge for frames and 18-gauge for doors.
2. Cold-Rolled Steel Sheets: Commercial quality, level, carbon steel, complying with ASTM A 366.
3. Hot-Rolled Steel Sheets and Strips: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569, free of scale, pitting, or surface defects.
4. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526 and ASTM A 525 with A60 or G60 coating designation, mill phosphatized.
5. Supports and Anchors: Fabricate of not less than 16-gauge sheet metal. Galvanize after fabrication units to be built into exterior walls, complying with ASTM A 153, Class B.
6. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.
7. Shop-Applied Paint: Rust-inhibitive enamel or paint, either air drying or baking, suitable as base for specified finish paints on steel surfaces.

## C. HOLLOW METAL FRAMES

1. Fabricated frames of full welded unit construction, with corners mitered, reinforced, continuously welded full depth and width of frame at exterior doors. Knockdown type frames are acceptable for all interior doors.
2. Form frames of minimum 14-gauge galvanized steel sheets for exterior, and either cold or hot-rolled sheet steel of the following minimum-gauges for interior:
  - a. Openings up to and including 4 feet-0 inches wide: 16-gauge.
  - b. Openings over 4 feet-0 inches wide: 14-gauge.
3. Finish Hardware Reinforcement: Minimum-gauges of steel reinforcing plates for the following hardware:
  - a. Hinge and Pivots: 7-gauge thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than six spot welds.
  - b. Strikes, Flush Bolts, Closers: 12-gauge.
  - c. Surface-Mounted Hold-Open Arms and Panic Devices: 12-gauge.
4. Mullions and Transom Bars: Provide closed or tubular mullions and transoms where indicated. Fasten mullions and transom bars at crossings and to jambs by butt-welding. Reinforce joints between frame members with concealed clip angles or sleeves of same metal and thickness as frame. Provide false head member to receive lower ceiling where frames extend to finish ceilings of different heights.
5. Head Reinforcing: Where installed in masonry, leave vertical mullions in frames open at top for grouting.
6. Jamb Anchors: Furnish jamb anchors as required to secure frames to adjacent construction, formed of not less than 18-gauge-galvanized steel.
7. Masonry Construction: Adjustable, flat, corrugated, or perforated, T-shaped to suit frame size, with leg not less than two inches wide by 10 inches long. Furnish at least three anchors per jamb up to 7 feet-6 inches height; 4 anchors up to 8 feet-0 inches jamb height; one additional anchor for each 24 inches or fraction thereof over 8 feet-0 inches height.
8. Metal Stud Partitions: Insert type with notched clip to engage metal stud, welded to back of frames. Provide at least four anchors for each jamb for frames up to 7 feet-6 inches in height; five anchors up to 8'-0" jamb height; and additional anchor each 24 inches or fraction thereof over 8 feet-0 inches height.
9. In-Place Concrete or Masonry: Anchor frame jambs with minimum 3/8-inch concealed bolts into expansion shields or inserts at six inches from top and bottom and 26 inches o.c., unless otherwise shown. Reinforce frames at anchor locations. Except for fire-rated openings, apply removable stop to cover anchor bolts unless otherwise indicated.

10. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, formed of not less than 14-gauge galvanized steel sheet, as follows.
  - a. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners, welded to bottom of jambs and mullions.
  - b. Head Anchors: Provide two anchors at head of frames exceeding 42 inches wide for frames mounted in steel stud walls.
11. Head Strut Supports: Provide 3/8-inch by 2-inch vertical steel struts extending from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members in compliance with UL 63.
12. Structural Reinforcing Members: Provide as part of frame assembly, where indicated at mullions, transoms, or other locations that are to be built into frame.
13. Head Reinforcing: For frames over 4 feet-0 inches wide in masonry wall openings, provide continuous steel channel or angle stiffener, not less than 12-gauge for full width of opening, welded to back of frame at head.
14. Spreader Bars: Provide removable spreader bar across bottom of frames, tack welded to jambs and mullions.
15. Rubber Door Silencers: Except on weather stripped doors, drill stop in strike jamb receive three silencers on single-door frames and drill head jamb stop to receive four silencers on double-door frames. Install plastic plugs to keep holes clear during construction.
16. Plaster Guards: Provide 26-gauge steel plaster guard or dust cover boxes, welded to frame at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.

#### D. STOPS AND MOLDINGS

1. Provide stops and moldings around solid, glazed and louvered panels where indicated. Form fixed stops and moldings integral with frame, unless otherwise indicated.
2. Provide removable stops and moldings where indicated or required, formed of not less than 20-gauge steel sheets matching steel of frames. Secure with countersunk flat or oval head machine screws spaced uniformly not more than 12 inches o.c. Form corners with butted hairline joints.
3. Coordinate width of rabbet between fixed and removable stops with type of glass or panel and type of installation indicated.

#### E. FABRICATION-GENERAL

1. Fabricate hollow metal units to be rigid, neat in appearance, and free from defects, warp, or buckle. Accurately form metal to required sizes and profiles. Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at the project site. Weld exposed joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
  - a. Interior Doors: Minimum 18-gauge face sheets.
  - b. Exterior Doors: Minimum 16-gauge face sheets.
2. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
3. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors and frames that have been fabricated as thermal insulating assemblies and tested in accordance with ASTM C 236 or ASTM C 976.
4. Sound-Rated (Acoustical) Assemblies: Wherever shown or scheduled, provide door and frame assemblies that have been fabricated as sound reducing type, tested in accordance with ASTM E 90, and classified in accordance with ASTM E 413.

5. Finish Hardware Preparation: As follows:
  - a. Prepare steel doors and frames to receive finish hardware, including cutouts, reinforcing, mortising, drilling, and tapping in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.
  - b. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.
  - c. Locate finish hardware as shown on final shop drawings, or if not shown, in accordance with Door and Hardware Institute.
  - d. Shop Painting: Clean, treat, and paint-exposed surfaces of steel doors and frames, including galvanized surfaces.
  - e. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
  - f. Apply pretreatment to cleaned metal surfaces, using cold phosphate solution (SSPC-PT2), hot phosphate solution (SSPC-PT4), or basic zinc chromate-vinyl butyl solution (SSPC-PT3).
  - g. Apply shop coat of prime paint within time limits recommended by pretreatment manufacturer. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.

#### F. HOLLOW METAL DOORS

1. General: Provide flush design doors, 1-3/4 inches thick, seamless hollow construction, unless otherwise indicated.
2. Provide single-acting swing doors; bevel both vertical edges 1/8 inch in two inches. For double-acting swing doors, round vertical edges with 2-1/8-inch radius.
3. Unless otherwise required for acoustical or thermal doors, provide filler of fiberboard, mineral wool board, or other insulating material solidly packed full door height to fill voids between inner core reinforcing members. Provide doors with STC rating of 41 where doors are scheduled for sound control.
4. Reinforce doors with rigid tubular frame where stiles and rails are less than eight inches wide. Form tubular frame with 16-gauge steel, welded to outer sheets.
5. Reinforce inside of doors with vertical galvanized sheet steel sections not less than 22-gauge. Space vertical reinforcing six inches o.c. and extend full door height. Spot-weld at not more than five inches o.c. to both face sheets.
6. Reinforce tops and bottoms of doors with 16-gauge horizontal steel channels welded continuously to outer sheets. Close top and bottom edges to provide flush, waterproof weather seal, as integral part of door construction or by addition of inverted steel channels.
7. Reinforce inside of doors with vertical galvanized sheet steel sections not less than 22-gauge. Space vertical reinforcing six inches o.c. and extend full door height. Spot-weld at not more than five inches o.c. to both face sheets.
8. Reinforce tops and bottoms of doors with 18-gauge horizontal steel channels welded continuously to outer sheets.
9. Finish Hardware Reinforcement: Minimum-gauge steel reinforcing plates for the following hardware:
10. Hinges and Pivots: 7-gauge thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
11. Lock Face, Flush Bolts, Closers, and Concealed Holders-12-gauge; all other Surface Mounted Hardware-16-gauge.
12. Painted Exterior Doors: Fabricate exterior doors of two outer, galvanized, stretcher-leveled steel sheets not less than 16-gauge. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges, except around glazed or louvered panel inserts. Provide weep holes openings in the bottom of doors to permit escape of entrapped moisture.
13. Painted Interior Doors: Fabricate interior doors of two outer, cold-rolled, stretcher-leveled steel sheets not less than 18-gauge. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges, except around glazed or louvered panel inserts.

G. HOLLOW METAL FINISHES

1. Clean frame and door surfaces and apply one spray coat of red oxide or zinc chromate rust inhibitive primer baked on.
2. Finish painting will be done at the job site under Section 09900-Painting.

H. WORKMANSHIP

1. All work shall be done in accordance with details and drawings.
2. Hardware mortises and reinforcements shall be made from template or physical hardware furnished and shipped prepaid to hollow metal manufacturer.

**PART 3 - EXECUTION**

A. INSTALLATION

1. Install doors and frames plumb, rigid, in true alignment and properly anchored to structure.
  - a. Frames: Provide standard hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of size and profiles indicated.
  - b. Install frames and accessories in accordance with shop drawings, manufacturer's data, and as herein specified.
  - c. Provide integral weather-stripping at all exterior frames.
  - d. Placing Frames: Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
  - e. At in-place concrete or masonry construction, set frames and secure in place with machine screws and masonry anchorage devices.
  - f. Place frames at fire-rated openings in accordance with NFPA Standard No. 80.
  - g. Make field splices in frames as detailed on final shop drawings, welded and finished to match factory work.
  - h. Remove spreader bars only after frames or bucks have been properly set and secured.
  - i. Door: Fit nonfire-rated doors accurately in their respective frames.
  - j. Place fire-rated doors with clearances as specified in accordance with NFPA Standard No. 80.

B. ADJUST AND CLEAN

1. Final Adjustments: Check and readjust operating hardware items just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames that are warped, bowed, or otherwise unacceptable.
2. Prime Coat Touch-Up: Immediately after erection, sand smooth any rusted or damaged areas or prime coat and apply touch-up of compatible air drying primer.

END OF SECTION 08100

**SECTION 08110  
PREFINISHED STEEL DOOR FRAMES**

**PART 1 – GENERAL**

**A. DESCRIPTION**

1. Furnish factory prefinished or primed steel door frames for interior and exterior doors. Refer to architectural drawings, schedules, and details for required types and sizes of frames.
2. See Division 8 for information on doors, hardware, glazing, etc.

**B. QUALITY ASSURANCE**

1. Prefinished or primed steel door frames shall be as manufactured by Rediframe Products Division.
2. Approved equal complying with product standards, features, and construction specified herein.
3. Assembly and installation, including field modifications, shall be performed by qualified workmen who have been approved by the architect or owners' representative.

**C. SUBMITTALS**

1. Submit manufacturer's specifications for fabrication showing details of design, construction, and installation substantiating that products comply with requirements specified.
2. Submit shop drawings for architects approval including all necessary information for fabrication and installation of the work to be done in this section.
3. Provide as prototypes, detail drawings, and color chips as needed for selection or approval by the architect.

**D. DELIVERY, STORAGE, AND HANDLING**

1. Deliver prefinished or primed steel frames cartoned, stretch wrapped, and palletized to provide protection during transit and job storage.
2. Inspect frames upon delivery for damage. Remove and replace damaged or defective frame prior to final inspection.
3. Store frames at building site under cover. Place cartons on wood sills at least 4" high or otherwise store on floors in a manner that will prevent rust and damage.

**PART 2 – PRODUCTS**

**A. FRAMES**

1. Roll form or break frames to sizes and shapes shown on approved drawings.
2. Hinge jambs shall be embossed for template hinges and reinforced with a zinc plated 14-gauge gusset.
3. Strike jambs shall be embossed for 2" T-strike, 4 7/8" ASA strike or 2 3/4" deadbolt strike as specified.
4. Each frame shall be punched around the perimeter of the face to anchor the frame to the wall.
5. Frames shall be lanced on the face of the frame when snap-on casing is to be applied.
6. Frames shall be punched for vision slot with nail holes only when wood molding is to be applied.
7. Snap-on casing shall be manufactured in 22-gauge, commercial quality, cold-rolled or galvanized steel, .050" aluminum extrusion 6063T5 alloy, or C56 cellular.
8. Wood molding to be supplied by others.

**B. TYPES**

1. 18-gage or 20-gage cold-rolled or galvanized steel to be used in commercial steel or wood door applications.

2. 22-gage cold-rolled or galvanized steel to be used in light commercial or wood door applications.
  3. 18-gage non-kerf adjustable throat frame, cold-rolled or galvanized steel.
  4. 22-gage non-kerf adjustable throat frame, cold-rolled or galvanized steel.
  5. 18-gage kerfed adjustable throat frame, cold-rolled or galvanized steel.
  6. 22-gage kerfed adjustable throat frame, cold-rolled or galvanized steel.
- C. FINISHES
1. Rediframe finish shall be electrostatically baked on enamel on a cleaned and phosphate-treated surface with paint film thickness approximately 1.0 mil.
  2. Provide touch-up paint for all factory prefinished frames.

**PART 3 – EXECUTION**

- A. Verify opening dimensions with the architectural plans and shop drawings.
- B. Install frames plumb and square using the door as a template to assure alignment of the door and frame.
- C. Secure the frame to the wall per manufacturer's specifications.
- D. Repair all damaged or defective frames prior to job closeout of final inspection.

End of Section 8110

**SECTION 08200  
WOOD DOORS**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Refer to Section 08700-Hardware: Location and installation of Hardware.
2. Refer to Section 10265-Wall Protection: Where door protection is required.

**C. SUBMITTALS**

1. Submit shop drawings and schedules showing door manufacturer, types, construction, dimensions, openings and swing.

**D. GUARANTEE**

1. Manufacturer's standard guarantee shall be supplemented to include refinishing of any defective door as specified for original installation.
2. Warranty: Life of original installation.

**PART 2 - PRODUCTS**

**A. MANUFACTURER**

1. Items Specified: Weyerhaeuser Company
2. Other Acceptable Manufacturers:
  - a. Eggers Hardwood Products Corporation
  - b. Algoma Hardwoods Inc.
  - c. Fenestra Corporation
  - d. Mohawk Flush Doors, Cal-Wood Door Division
  - e. Timberland Industries, Inc.
  - f. Glen-Mar Door Manufacturing Corporation
  - g. Ipik Door Company, Inc.

**B. FINISHING**

1. Factory finish wood veneer doors with one sealer coat, one coat stain and two coats scratch resistant lacquer to match finish of other millwork and individually wrap for shipping.

**C. MACHINING**

1. Factory fit and machine all doors for all hardware with 3/32-inch clearance at sides and top and 5/8 inch clearance at door bottoms. Bevel lock or latch edge of door 1/8 inch in 2 inches.
2. Meeting stiles to be V type with 1/16-inch clearance on pull side.
3. For doors with door protection and/or jamb protection, fabricate doors with adequate clearances required for applied surface protection.

**D. VENEERS**

1. All wood doors shall have face veneers of plain sliced red oak grade A AWI Grade Custom.

**E. DOORS**

1. Interior Doors: Weyerhaeuser DPC-1, red dowel with standard thickness hardwood veneers and standard edge strips. Custom Grade with matching vertical edging
2. Sound Doors: Weyerhaeuser DSR-41, blue dowel with standard thickness hardwood veneers, and standard edge strips, threshold sealing device, gaskets and astragals, STC-41.
3. Fire Doors: Weyerhaeuser DFM-45 (C-Label), DFM-90 (B-Label), core: asbestos-free incombustible mineral.
4. X-ray doors: Weyerhaeuser DXR-1 Blue-gold dowel with 1/16 inch lead, lead glass vision panel

- (where indicated), standard thickness hardwood veneers and standard edge strips.
5. Provide cut outs for louver and light openings.
  6. Moldings for openings cut in interior doors shall be type W-7 of wood same as face veneers.
  7. Provide wood veneer wrapped moldings to match face veneers at fire doors.
  8. Vision Lights: Minimum 5" from light to any edge and adjacent openings (5-1/2" on fire doors).

### **PART 3 - EXECUTION**

#### **A. INSTALLATION**

1. Install wood doors in accordance with manufacturer's instructions.
2. Fit doors to frames with 3/32-inch clearance at jambs and top and 5/8 inch at door bottom. Bevel lock or latch edge of door 1/8 inch in 2 inches. Ease cut edges of doors by light sanding.
3. Fit meeting stiles at pair of doors with 1/16-inch clearance.
4. Fit doors to frames and machine for hardware to whatever extent not previously done at the factory.

END OF SECTION 08200

**SECTION 08360**  
**SECTIONAL OVERHEAD DOORS**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. SUMMARY**

1. Steel frame and steel panels.
2. Electric motor-operated doors.

**C. RELATED SECTIONS**

1. Refer to Section 06100-Rough Carpentry.
2. Refer to Division 16-Electrical.

**D. SUBMITTALS**

1. Product data, roughing-in diagrams and installation instructions for each type and size of overhead door. Include manufacturer's operating instructions and maintenance data.
2. Shop drawings for special components and installations, which are not fully dimensioned or detailed in manufacturer's data.

**E. QUALITY ASSURANCE**

1. Manufacturer Qualifications: Provide each sectional overhead door as a complete unit produced by a single manufacturer, including frames, sections, brackets, guides, tracks, counterbalance mechanisms, hardware, operators, and installation accessories.
2. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry for unit installation. Provide setting drawings, templates, and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay. See concrete and masonry Sections for instruction on installing inserts and anchorage devices.
3. Wind Loading: Design and reinforce sectional overhead doors to withstand a 20-psf wind-loading pressure.

**PART 2 - PRODUCTS**

**A. ACCEPTABLE MANUFACTURERS**

1. Subject to compliance with requirements, provide products equal to Series 594, "Thermacore" manufactured by Overhead Door Corporation
2. Other approved manufacturers:
  - a. Raynor Garage Door Company
  - b. Wayne/Dalton Corporation

**B. STEEL SECTIONS**

1. Construct door sections from galvanized, structural-quality carbon steel sheets complying with ASTM A 446, Grade A, or ASTM A 526, with a minimum yield strength of 33,000 psi, and a minimum G60 zinc coating complying with ASTM A 525.
  - a. Steel Sheet Thickness: (25-gauge).
  - b. Exterior Section Face: Panel.
2. Fabricate sections from a single sheet to provide units not more than 24 inches high, and nominally 2 inches deep. Roll horizontal meeting edges to a continuous shiplap, rabbeted, or keyed weather seal, with a reinforcing flange return.
3. Enclose open sections with 16-gauge galvanized steel channel, end stiles welded in place. Provide intermediate stiles, cut to door section profile, spaced at not more than 48 inches o.c. and welded in place.
4. Reinforce bottom section with a continuous channel or angle conforming to bottom section profile.

5. Reinforce sections with continuous horizontal and diagonal reinforcing, as required by door width and design wind loading. Provide galvanized steel bars, struts, trusses or strip steel, formed to depth, and bolted or welded in place.
6. Insulate inner core of steel sections with manufacturer's standard polyurethane-foam type insulation.
7. Enclose insulation with manufacturer's standard steel sheet secured to door panel.
8. Finish door sections as follows: Apply manufacturer's standard prime and finish coats, applied to interior and exterior door faces.

#### C. TRACKS, SUPPORTS, AND ACCESSORIES

1. Tracks: Provide manufacturer's standard, galvanized-steel track system, sized for door size and weight, and designed for clearances shown. Provide complete track assembly including brackets, bracing and reinforcing for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track at 2 inches o.c. for door-drop safety device. Slope tracks at proper angle from vertical, or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.
2. Track Reinforcement and Supports: Provide galvanized-steel track reinforcement and support members. Secure, reinforce and support tracks as required for size and weight of door to provide strength and rigidity without sag, sway, and vibration during opening and closing of doors.
3. Support and attach tracks to opening jambs with continuous angle welded to tracks and attached to wall. Support horizontal (ceiling tracks) with continuous angle welded to track and supported by laterally braced attachments to overhead structural members at curve and end of tracks.
4. Weather Seals: Provide continuous rubber, neoprene, or flexible vinyl adjustable weather strip gasket at tops and compressible astragal on bottoms of each overhead door. In addition, provide continuous flexible seals at doorjamb edges for a fully weather tight installation.
5. Vision Panels: Provide clear float-glass vision panels in arrangement shown. Set glass in rubber or neoprene channel glazing strips for metal-framed doors and elastic glazing compound for wood doors, as required. Provide removable stops of same material at door section frames.

#### D. HARDWARE

1. General: Provide heavy-duty, rust-resistant hardware, with galvanized or cadmium-plated or stainless steel fasteners, to suit type of door.
2. Hinges: Provide heavy steel hinges at each end stile and at each intermediate stile, per manufacturer's recommendations for size of door. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is not possible. Provide double-end hinges, where required, for doors exceeding 16 feet in width, unless otherwise recommended by door manufacturer.
3. Rollers: Provide heavy-duty rollers, with steel ball bearings in casehardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide roller tires to suit size of track (3-inch diameter for 3-inch track; 2-inch diameter for 2-inch track) and as follows:
  - a. Casehardened steel tires for normal installations.
  - b. Locking Bars: Single side, operable from inside only.
4. Fabricate locking device assembly with mortise lock, spring-loaded dead bolt, chromium-plated operating handle, cam plate, and adjustable locking bar to engage through slots in tracks.

#### E. COUNTERBALANCING MECHANISM

1. Torsion Spring: Operation by torsion-spring counterbalance mechanism, consisting of adjustable-tension, tempered-steel torsion springs mounted on a cross header tube or steel shaft. Connect to door with galvanized aircraft-type lift cables. Provide springs calibrated for 10,000 cycles minimum.
2. Provide cast-aluminum or grey-iron casting cable drums, grooved to receive cable. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of shaft. Provide one additional midpoint bracket for shafts up to 16 feet long and two additional brackets at one-third points to support shafts over 16 feet long, unless closer spacing recommended by door manufacturer.
3. Include a spring-loaded, steel or bronze cam mounted to bottom door roller assembly on each side, designed to automatically stop door if either cable breaks.
4. Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

#### F. ELECTRIC DOOR OPERATORS

1. General: Furnish electric door-operator assembly of size and capacity recommended and provided by door manufacturer; complete with electric motor and factory-prewired motor controls, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations and control devices.
2. Provide hand-operated disconnect or mechanism for automatically engaging sprocket-chain operator and releasing brake for emergency manual operation. Include interlock device to automatically prevent motor from operating when emergency sprocket is engaged.
3. Design operator so that motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.
4. Door Operator Type: Provide the following:
  - a. Sidemount, with V-belt and roller chain drive connected to counterbalance shaft.
5. Electric Motors: Provide high-starting torque, reversible, constant-duty, Class A-insulated electric motors with overload protection, sized to move door in either direction, from any position, at not less than 2/3 foot or more than 1 foot per second.
  - a. Coordinate wiring requirements and current characteristics of motors with building electrical system.
  - b. Provide open-drip-proof type motor, and controller with NEMA Type 1 enclosure.
6. Remote Control Station: Provide momentary-contact, three-button control station with push button controls labeled "Open," "Close," and "Stop."
7. Provide through beam photo eye automatic safety switch. Object breaking signal will immediately reverse downward door travel.

### **PART 3 - EXECUTION**

#### A. INSTALLATION

1. General: Install door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hangers, and equipment supports according to shop drawings, manufacturer's instructions, and as specified.
2. Fasten vertical track assembly to framing at not less than 24 inches o.c. This Contractor to provide blocking plates for securing motor and torsion shaft assembly to meet manufacturer's recommendations. Hang horizontal track from structural overhead framing with angle or channel hangers, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing, and reinforcing as required for rigid installation of track and door-operated equipment.
3. After completing installation, including work by other trades, lubricate, test, and adjust doors to operate easily, free from warp, twist, or distortion and fitting weather tight for entire perimeter.

END OF SECTION 08360

## SECTION 08410

### ALUMINUM DOORS AND STOREFRONT FRAMES

#### PART 1 – GENERAL

##### A. REFERENCE

1. Applicable provisions of Division 1 shall govern work of this section.

##### B. RELATED WORK

1. Refer to Section 08800-Glazing: Doors & Frames.

##### C. SUBMITTALS

1. Product Data: Submit manufacturers standard specifications, details and installation requirements including performance data.
2. Shop Drawings: Submit drawings showing details and method of anchorage, details of construction, expansion provisions, joints and connections to adjoining work, hardware and finish.
3. Samples: Submit duplicate samples of material showing finish to be provided. One sample will be retained and one set returned.

##### D. SYSTEM DESCRIPTION

1. Thermal Movement: Fabricate system to provide for expansion and contraction from ambient temperature range of 120 degrees F.
2. Wind Loading: Fabricate system for uniform pressure of 20 psf inward and outward in accordance with ASTM E 330.
3. Air Infiltration: Not more than 0.06 cfm per square foot in accordance with ASTM E 283.
4. Water Infiltration: No uncontrolled water penetration in accordance with ASTM E 331.

#### PART 2 – PRODUCTS

##### A. MANUFACTURER

1. Item Specified: Kawneer Company.
2. Other Acceptable Manufacturers: Amarlite, Howmet, Marmet, PPG Industries, Cronstroms, United States Aluminum Corporation, EFCO Corporation.

##### B. MATERIALS

1. Extrusions: Fabricate of 6063-T5 aluminum alloy with minimum thickness of .125 inch for doors and frames and .050 inch thickness for trim and glazing stops.
2. Fasteners: Aluminum, stainless steel or plated steel.
3. Anchors: Aluminum or properly isolated steel.
4. Glazing Gaskets: Resilient Elastomeric EPDM extrusions.

##### C. GLAZED DOOR FABRICATION

1. Join extrusions by mechanical fastening and welding with tight hairline joints.
2. Provide glazing gaskets and extruded aluminum snap-in glass stops of square profile.
3. Weather strip active leaf at center of pair of doors.
4. Fabricate doors as Medium Stile Model 350.

##### D. FLUSH DOOR FABRICATION

1. Fabricate of tubular frame members with welded or reinforced mechanical joints and minimum 0.064-inch thick embossed aluminum face sheet each side.
2. Core to be 3-lb./cu. ft. density foamed-in-place polyurethane.
3. Fabricate glazed openings with aluminum moldings removable on interior side.

E. FRAME FABRICATION

1. Join frame members mechanically with tight hairline joints.
2. Provide glazing gaskets and extruded aluminum snap-in stops of square profile.
3. Profile and sizes to be as shown on drawings.
4. Conceal fasteners wherever possible. Exposed fasteners, where approved on shop drawings, to be flat head Phillips head of color to match adjacent surfaces.
5. Weather strip exterior doorframes.
6. Fabricate frames at exterior doors as thermally broken for insulating glass glazing equal to Kawneer 451 frames.

F. FINISH

1. Finish to be Kynar 500 fluoropolymer resin coating of custom color to be selected by Architect.
  - a. Color shall be selected from manufactured standard colors.

G. HARDWARE

1. Finish of hardware to match door finish.
2. Provide top, intermediate and bottom offset pivots for each door leaf.
3. Provide 1-inch diameter 15 inches long offset pull on each door leaf.
4. Provide Classic Style CP-2 push bar on each door leaf without an exit device.
5. Provide offset pivot threshold and EPDM blade gasket sweep strip at bottom rail of each exterior door leaf.
6. Provide LCN 4110-CUSH surface closer on each exterior door leaf.
7. Provide Adams Rite 4510 deadlatch with 4565 levers at each single exterior door.

**PART 3 – EXECUTION**

A. INSPECTION

1. Inspect openings before installation. Verify that the opening is correct and the sill plate level. Do not proceed with installation until unsatisfactory conditions have been corrected.
2. Masonry surfaces shall be dry, free of excess mortar, sand and other construction debris.
3. Frame walls shall be dry, clean, sound and well nailed, free of voids, and without offsets at joints. Ensure nails heads are flush with surfaces in opening and within 3 inches of the corner.
4. Coordinate installation with flashings and other built-in components.

B. INSTALLATION

1. Comply with manufacturer's instructions and recommendations for installation of window and door units.
2. Set units plumb, level, true to line, without warp or rack of frames or sash. Provide support and anchor securely in place.
3. Set sill members in a bed of compound with joint fillers, flashings and/or gaskets, to provide weather tight construction. Use manufacturer's standard flashings, and install and weatherproof as per manufacturers instructions.

C. ADJUSTING

1. Adjust operating sash and hardware to provide a tight fit at contact points and weather-stripping, smooth operation and a weather tight closure. Lubricate hardware and moving parts.

D. CLEANING

1. Clean surfaces after installation. Avoid damage to coatings and finishes. Remove excess glazing and sealants, dirt, and other substances.
2. Clean glass after installation. Wash and polish both faces before substantial completion. Remove nonpermanent labels from glass surfaces.
3. Remove and replace glass that has been broken, chipped, cracked, abraded or damaged during the construction period.

E. PROTECTION

1. Protect window units from damage or deterioration until time of substantial completion.

END OF SECTION 08410

**SECTION 08520  
ALUMINUM WINDOWS**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**B. SUMMARY**

1. This Section includes Aluminum Windows types required include some or all of the listed below:
  - a. Sliding Multi-Slide Doors.
  - b. Sliding Windows.

**C. RELATED SECTIONS**

1. Refer to Section 07900--Joint Sealers.
2. Refer to Section 08800- Glazing.

**D. QUALITY ASSURANCE**

1. Performance Requirements: Provide certified a recognized testing laboratory has tested test results showing systems and comply with characteristics specified.
  - a. Thermal Movement: Provide for expansion and contraction resulting from an ambient temperature range of 120 degrees F, (67 degrees C).
  - b. Wind Loading: Withstand uniform test pressure of 20 psf inward and outward when tested in accordance with ASTM E 330.
2. Window Standards: Performance requirements for aluminum windows are those specified in AAMA 101.
3. Window Grade: Comply with requirements of Performance Class HC40.
4. Thermal Resistance: Overall U-Value of not more than 0.93 BTU/(hr. x sq. ft. x degrees F at 15 mph wind velocity when tested in accordance with AAMA 1503.
5. Testing: Stock units of each grade of required window shall have been tested in accordance with ASTM E 283 for air infiltration, ASTM E 331 and E 547 for water penetration, and ASTM E 330 for structural performance. Test samples shall comply with NWWDA I.S. 2 for test sample sizes and methods.
6. Forced Entry Resistance: Comply with Performance Level 10 when tested in accordance with ASTM F 588.

**E. SUBMITTALS**

1. Product Data: Include fabrication methods, finishing, hardware, accessories and installation recommendations.
2. Shop Drawings: Include elevations, details, hardware mounting heights, anchorages, expansion provisions and glazing details.
3. Installer's Qualifications: 5-years experience in installation.
4. Design Criteria: Drawings are based on one manufacturer's system. Another manufacturer's system will be acceptable when differences do not detract from the design concept, as judged only by the Architect.

## **PART 2 - PRODUCTS**

### **A. MANUFACTURERS**

1. Acceptable Manufacturers: Subject to compliance with requirements, provide HORIZONTAL SLIDING units from one of the following:
  - a. Acorn Building Components, Inc., Detroit, MI
  - b. Disco Windows, DeSmet, SD
  - c. EFCO Corporation, Monett, MO
  - d. Graham Architectural Products Corporation, York, PA
  - e. Kawneer Company, Inc., Norcross, GA
  - f. Winco Manufacturing Company, St Louis, MO

### **B. MATERIALS**

1. General: All principal extruded members shall be 6063-T5 aluminum alloy. All operating ventilator members shall be thermally improved.
2. Aluminum Extrusions: Provide alloy and temper recommended by the window manufacturer for the strength, corrosion resistance, and application of required finish, but not less than 22,000 PSI ultimate strength and not less than 0.062 inch thick at any location for main frame and sash members.
3. Finishes:
  - a. Anodized Finish: NAAMM AA-M12C22A42/ A44, Class I; Color:
  - b. Dark Bronze, or as otherwise indicated on drawings.

### **C. ACCESSORIES**

1. Anchors, clips and accessories: Fabricate anchors, clips, and window accessories of aluminum, non magnetic stainless steel, or hot-dip zinc-coated steel complying with the requirements of ASTM B 633 or SC 3 (severe) service condition; provide strength sufficient to withstand design pressure indicated.
2. Fasteners: Provide aluminum, non magnetic stainless steel, epoxy adhesive, or other materials warranted by the manufacturer to be non corrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.
3. Hardware: Manufacturer's standard, necessary to operate, tightly close and securely lock windows. Provide hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum and of sufficient strength to perform the function for which it is intended.
4. Compression Weather-stripping: Provide compressible stripping for glazing and weather stripping such as molded EPDM or neoprene gaskets complying with AAMA SG-1 or with ASTM D 2000 designation 2BC415 to 3BC620, or molded PVC gaskets complying with ASTM D 2287, or molded expanded EPDM or neoprene gaskets complying with ASTM C 509, Grade 4.

### **D. GLASS AND GLAZING**

1. Refer to Section 08800- Glazing: Clear, sealed, insulating safety glazing that complies with ANSI Z97.1. Glazing Seal: Provide extruded vinyl or butyl glazing gasket providing weather tight seal.

#### E. FABRICATION

1. General: Comply with indicated standards. Include a complete system for assembly of components and anchorage of window units.
2. Fabricate windows to produce units that are reglazable without dismantling sash framing. Provide openings and mortises precut to receive hardware and other items.
3. Each window unit includes sash, frame, stops, sill (including undersill or nosing), exterior casing and moldings, integral mullions and muntins, hardware, and accessories.
4. Provide weather-stripping at perimeter of each operating sash.
5. Provide removable insect screen for each operating sash, with location determined by manufacturer.
6. Provide glazing stops, nailed or snap-on type, coordinated with glass selection and glazing system indicated.
7. Refer to Section 08800-Glazing: Requirements of field installed glazing.
8. Pre-Glazed Window Units: Preglaze windows at the factory where possible and practical for applications indicated. Comply with glass and glazing requirements (1 inch insulated glass units, U value less than 0.50, with low "E" coating) of the "Glass and Glazing" sections of these specifications and AAMA 101.
9. Preglaze with manufacturer's standard sealant and application method.
10. Complete fabrication, assembly, finishing and hardware application before shipment to the project site. Disassemble only for shipment and installation. Where necessary for fitting, provide allowance for scribing, trimming, and fitting.

### **PART 3 - EXECUTION**

#### A. INSPECTION

1. Inspect openings before installation. Verify that the opening is correct and the sill plate level. Do not proceed with installation until unsatisfactory conditions have been corrected.
2. Masonry surfaces shall be dry, free of excess mortar, sand, and other construction debris.
3. Coordinate installation with flashings and other built-in components.

#### B. INSTALLATION

1. General: Comply with manufacturer's instructions and recommendations for installation of window units.
2. Set units plumb, level, true to line, without warp or rack of frames or sash. Provide support and anchor securely in place.
3. Set sill members in a bed of compound with joint fillers, flashings and/or gaskets, to provide weather tight construction. Use manufacturer's standard flashings, and install and weatherproof as per manufacturers instructions.
4. Adjusting: Adjust operating sash and hardware to provide a tight fit at contact points and weather-stripping, smooth operation and a weather tight closure. Lubricate hardware and moving parts.
5. Cleaning: Clean surfaces after installation. Avoid damage to coatings and finishes. Remove excess glazing and sealants, dirt, and other substances.
6. Clean glass after installation. Wash and polish both faces before substantial completion. Remove nonpermanent labels from glass surfaces.
7. Remove and replace glass that has been broken, chipped, cracked, abraded or damaged during the construction period.
8. Protection: Protect window units from damage or deterioration until time of substantial completion.

END OF SECTION 08520

**SECTION 08800  
GLAZING**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall apply to work of this section.

**B. RELATED WORK**

1. Refer to Section 08410 - Aluminum Storefront: Glazing Aluminum Storefronts.
2. Refer to Section 10800- Toilet Accessories: Framed Mirrors.

**C. QUALITY ASSURANCE**

1. Grade glass in accordance with latest Federal Specifications DD-G-451 (Prime glass standard) and DD-G-1403 (Heat treated glass standard).
1. Label each piece of glass indicating type, thickness, quality and manufacture.
1. Label safety glass in accordance with Standard 16 CFR 1201 requirements.
1. Provide glazing materials compatible with surfaces contacted.
1. Deliver glazing tapes and sealants to job site in manufacturers labeled and unopened containers.
1. Insulating units shall have a two-sealant system, identified for IGCC-CBA certification and 10 year warranty.

**D. SUBMITTALS**

1. Samples: Submit two 12 inches square samples of each type of glass for approval.
2. Color : CLEAR

**E. JOB CONDITIONS**

1. Apply materials when ambient, surface and material temperature is 40 degrees F. or above.

**PART 2 - PRODUCTS**

**A. GLASS PRODUCTS**

1. Glass is noted on drawings by glass types as follows: Note glass on drawings as TYPE G-1, G-2 etc.
1. G-1: 1/4-inch clear float.
1. G-2: 1/4 inch clear tempered or laminated
1. G-3: 1/4-inch clear lead glass with X-ray protection equivalent to 1/16-inch thick lead.
1. G-4: 1/4-inch clear wire UL listed polished Misco by Hordis or Georgian by Pilkington.
1. IGU-1: 1 inch insulating units with 1/4 inch exterior and 1/4 inch interior panes of clear float glass separated by 1/2 inch air space. Low E coating #3 surface.
1. IGU-2: 1 inch insulating units with 1/4-inch exterior and 1/4 inch interior panes of clear laminated or tempered float glass separated by 1/2-inch air space. . Low E coating #3 surface.

**B. GLAZING SEALANTS**

1. Glazing Tape: Preformed polyisobutylene butyl; Tremco SST-800 Tape or Protective Treatments PTI 606 tape.
1. Glazing Sealant: One part Silicone; Tremco Proglaze, GE Silglaze or Dow Corning Silicone Rubber Sealant.
1. Non-acid Cure Sealant: One part Silicone; Tremco Proglaze, GE Silglaze or Dow Chemical Silicone Rubber Sealant.
1. Colors of glazing sealant and tape will be selected from manufacturer's standard colors.

C. GLAZING GASKETS

1. Structural Gaskets: Neoprene gaskets with injection molded corners and conforming to ASTM C 542 by Maloney Co. or Standard Products Co.

D. MISCELLANEOUS MATERIALS

1. Cleaners, Primers & Sealers: Type recommended by sealant or gasket manufacturer.
2. Setting Blocks: Neoprene or EPDM of 80-90 Shore "A" durometer hardness.
3. Spacers: Neoprene or EPDM, 40-45 Shore "A" durometer hardness.
4. Mirrors (Unframed): Second surface type meeting requirements of Federal Specification DD-M-411 for grade one mirrors, float, mirror glazing quality, with copper back on silvering and final varnish coat.
5. Mirror Clips: Knap & Vogt 277 lower clip and 278 upper clip.
6. Mirror Adhesive: Mirro-Mastic made by Palmer Products Corp.

**PART 3 - EXECUTION**

A. PREPARATION

1. Remove protective coatings from surfaces to be glazed.
2. Clean glass and glazing surfaces to properly accept glazing materials.

B. INSTALLATION

1. Glaze all glass in accordance with Flat Glass Marketing Association Glazing Manual latest edition.
2. Maintain centered position of glass in rabbet to obtain bed clearance of 1/8-inch minimum on both sides of glass.
3. Provide setting blocks located 1/4 inch way in from end of glass when glass dimensions are larger than 50 united inches.
4. Dry glaze glass in aluminum units with glazing gaskets furnished with units.
5. Install gaskets in accordance with gasket manufacturer's instruction.
6. Borrowed Light Frames: Position glass on setting blocks with positive contact to tape, place removable stop.
7. Apply a heel bead of Air Sealant to bridge space between interior face of glass units and the sash.
8. Install glass in interior wood doors with glazing sealant.
9. Install glass in interior hollow metal units with glazing tape.
10. Set mirrors with clamps such that mirrors will be held securely and not rattle. Large mirrors in sections shall have meeting edges ground and set so that reflected image is as near normal as possible. Install with Mirror Clamps using four clamps per each individual piece four foot or under in length and 6 clamps per each piece over four feet in length.

C. CLEANING

1. Remove excess glazing sealant from installed glass and frames.
2. Wash and polish exposed surfaces of glass just prior to substantial completion inspection.

END OF SECTION 08800

**SECTION 09250  
GYPSUM DRYWALL**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. RELATED WORK**

1. Refer to Section 05400-Cold Formed Metal: Steel Studs.
2. Refer to Section 06100-Rough Carpentry: Gypsum Sheathing.
3. Refer to Section 07200-Insulation: Sound Insulation.
4. Refer to Section 07900-Joint Sealants: Acoustical Sealant.

**C. JOB CONDITIONS**

1. Maintain temperature at 50 degrees F or more for at least 48 hours prior to installation, during installation and until heating system is in operation or until building is occupied.

**PART 2 - PRODUCTS**

**A. GYPSUM WALLBOARD (GWB)**

1. Types as noted on drawings, details and schedules as follows:
  - a. Regular Gypsum Board, tapered edge, ASTM C 36.
  - b. Type "X" Gypsum Board, tapered edge, ASTM C 36.
  - c. Lead lined gypsum board, tapered edge with lead factory laminated to back (1/16") one side, ASTM C-36.
  - d. Gypsum Sheathing, square edge, ASTM C 79.
  - e. Water-Resistant Gypsum Backing Board, tapered edge, ASTM C 630.
  - f. Type "X" Water-Resistant Gypsum Backing Board, tapered edge, ASTM C 630.
  - g. Exterior Gypsum Soffit Board, tapered edge, C 931.
  - h. Shaft Wall Liner Panels, square edge, ASTM C 36.
  - i. USG Durock Backerboard or Wonder-Board by Modulars, Inc.
2. Provide Type "X" gypsum board where located in sound or fire rated partitions.

**B. METAL FRAMING COMPONENTS**

1. Provide 25-gauge metal studs except where noted or specified as 20 gauge. All studs not to exceed deflection limit of L/240.
2. Metal Studs: Channel type, nonloadbearing, formed from electro-galvanized steel, designed for screw attachment of wall materials. Provide knockouts in web of each stud and 20 gauge runner tracks with minimum 1-inch high flange for headers and securing studs at top and bottom.
3. Hanger Wire: Galvanized annealed 8 gauge.
4. Tie Wire: Galvanized annealed 18 gauge.
5. Suspension System: Robin 10,000 series Rigid "x" system, Chicago Metallic Corp. 640 Furring System, National Rolling Mills Drywall Furring System.
6. Runner Channels: Cold-rolled 16 gauge steel with painted finish.
7. Furring Channels: Hat-shaped rolled formed 20 gauge galvanized steel.
8. Furring Channel Clips: Galvanized wire shaped to attach furring channel to runner channel.
9. Resilient Channel: 1/2-inch deep Resilient Channel, 25 gauge-galvanized steel.

### C. ACCESSORIES

1. Screws: Type S, ASTM C1002, steel drill screws at metal framing and/or Type W at wood framing. Type S-12 at 20 gauge or heavier metal framing.
2. Screws thru sheathing to be corrosion resistant.
3. Joint Treatment: ASTM C475 vinyl-based ready-mixed joint compound.
4. Texture Finish: None – Prepare wall for smooth painted finish.
5. Corner Bead: Galvanized steel; USG Dur-Bead No. 103, 1-1/4 inch flanges.
6. Metal Trim (Casing Bead): USG No. 200-A galvanized steel for face finishing with joint compound.
7. Expansion Joints: USG Control Joint No. 093, zinc with tape protected slot.
8. Adhesive: Type to bond upon impact.
9. Sealant: Water-Resistant type sealant.
10. Acoustical Sealant: USG Acoustical Sealant; Tremco Acoustical Sealant; Presstite Acoustical Sealant.
11. Sound Insulation: Glass fiber or mineral wool similar to USG Thermafiber Sound Attenuation Blankets, Owens Corning Noise Barrier Batts or Carney Sound Attenuation Blankets.

## **PART 3 - EXECUTION**

### A. INSTALLATION OF METAL FRAMING

1. Space metal studs 16 inches o.c. unless otherwise noted.
2. Install metal framing in accordance with ASTM C754 unless otherwise specified.
3. Secure floor and ceiling runner tracks with appropriate fasteners 2 inches from each end and spaced not to exceed 24 inches o.c.
4. Extend one runner to end of partition corner and butt other runner to it. Do not miter corners.
5. Position full-length studs vertically engaging both floor and ceiling runner.
6. Provide two 20 gauge metal studs at each doorjamb set in box configuration.
7. Anchor all studs located adjacent to door and window frames, partition intersections and corners to ceiling and floor runner flanges by screws.
8. Secure all other studs by stud clinching tool on both flanges of studs or by screws.
9. Provide a slip or cushion-type joint of type as recommended by stud manufacturer where ceiling track is anchored to prevent transfer of structural loads or deflection to stud system.

### B. CEILING SUSPENSION SYSTEM INSTALLATION

1. Hang furring runners with wire spaced maximum 48 inches o.c. vertically from structural system. Wrap hanger wires tightly with at least 3 full turns.
2. Interconnect runners with furring tees spaced 16 inches o.c. and 8 inches from end of each gypsum board panel. Provide tee adjacent to each side of fixtures not supported by a furring runner and at other ceiling penetrations requiring support.

### C. SUSPENDED CEILING FRAMING INSTALLATION

1. Hang 1-1/2 inch runner channels spaced 48 inches o.c. and within 6 inches of walls, stopped 1 inch from wall ends, with wire spaced 36 inches o.c. vertically from structural system and wrapped at least 3 full turns.
2. Saddle tie furring channels 16 inches o.c. and within 6 inches of walls at right angles to runner channels with 2 strands tie wire or with furring channel clips. Stop channel ends 1 inch from wall.
3. Provide additional cross framing at ceiling openings, which interrupt the framing system.

### D. CONTACT CEILING FRAMING INSTALLATION

1. Saddle tie furring channels 16 inches o.c. to structural system. Splice channels by nesting 8 inches and wire-tie each end with double strand tie wire.
2. Provide additional cross reinforcing at ceiling openings, which interrupt the channel system.

### E. WALL FURRING INSTALLATION

1. Secure furring channel to substrate with anchors 24 inches o.c. staggered on opposite flanges.

#### F. ACOUSTICAL SEALING

1. Seal entire perimeter of sound insulated walls with a 3/8-inch minimum bead of acoustical sealant placed at junction of framing system and abutting surface. Seal electrical boxes and any other openings or penetrations for an airtight seal.

#### G. SOUND INSULATION INSTALLATION

1. Apply insulation with tight butt joints to fill all void spaces and obtain a continuous sound seal. Attach to back of GWB in cavity with staples driven to straddle a drywall nail with minimum of one staple in about 3 inches from each corner and one in center of each blanket.

#### H. GYPSUM WALLBOARD INSTALLATION

1. Apply gypsum wallboard and finish in accordance with ASTM C840 unless otherwise specified.
2. Apply GWB of maximum practical length with light contact butt joints so that tapered edge joints abut and mill-cut or field-cut joints abut.
3. Apply GWB first to ceiling and then to walls or partitions. Stagger end joints.
4. Parallel application to be with all edge joints centered over framing members.
5. Perpendicular application to be with wallboard of maximum practical lengths and end joints occurring over framing members.
6. Stagger joints on opposite side of partition such that joints on both sides do not occur over the same framing member.
7. Fasten GWB to framing with screws located 3/8-inch minimum to 1/2 inch maximum from edges and ends.
8. Space screws 12 inches o.c. in the field and edges for perpendicular application. Space screws 12 inches o.c. in the field and 8 inches o.c. along long edges for parallel application.
9. Space screws 12 inches o.c. in the field and 8 inches o.c. at edges of fire-rated construction.
10. Apply lead lined GWB with lead washers and drive screws. Provide sheet lead 1-3/4 inches wide on studs at GWB joints and 3 inches wide bent to a 90-degree angle at all interior and exterior corners. Provide sheet lead at all perforations of lead lined GWB to maintain continuity of lead.
11. Fasten each layer of double layer application for fire rated partitions with screws as specified for single layer.
12. Fasten first layer parallel to framing for non-rated double layer application same as specified for single layer. Apply second layer with adhesive. Provide temporary fasteners or bracing until adhesive sets.
13. Offset joints in face layer equal to one framing member space from and parallel to joints in base layer.
14. Provide GWB on one side of partition studs above ceiling to structure above.
15. Provide GWB on both sides of partition studs above ceiling for sound or fire rated partitions or as noted on plans.

I. ACCESSORY INSTALLATION

1. Apply all accessories in accordance with manufacturer's instructions.
2. Install corner bead at all exterior corners.
3. Install metal trim (casing bead) where GWB butts other materials and at exposed edges or ends.
4. Provide control joints consisting of back-to-back metal trim (casing bead) at all doorframes from top of frame to ceiling at each corner of frame.
5. Provide partition control joints consisting of back to back metal trim (casing beads) spaced not more than 30 feet apart.
6. Provide ceiling control joints consisting of back to back metal trim (casing beads) spaced not more than 50 feet apart and maximum area of 2500 sq. ft.
7. Apply sealant to all cut edges and nailheads of water-resistant gypsum backing panel used as base for ceramic tile.
8. Apply regular gypsum board where scheduled GWB on ceilings of rooms with water-resistant gypsum backing panel walls.
9. Provide expansion joints where noted.

J. FINISHING INSTALLATION

1. Finish all exposed joints, fastener heads, flanges of metal trim (casing beads), corner beads and other accessories with Joint Treatment in accordance with manufacturer's instructions.
2. Fill space between GWB and floor with joint compound if bottom edge of GWB is placed more than 1/4 inch above the floor.
3. Fill in space between outlet boxes and GWB with joint treatment at firewalls.
4. Provide Joint Treatment above suspended ceilings on sound and fire-rated partitions.
5. Prepare and prime GWB in accordance with manufacturer's instructions.

OPTION: Single coat 1/16-inch ASTM C-587 veneer plaster on ASTM C588 gypsum base may be used in lieu of GWB and Joint Treatment specified at contractor's option.

END OF SECTION 09250

**SECTION 09300**  
**TILE**

**PART 1 – GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. SUBMITTALS**

1. Samples: Submit samples of each size, color, texture and pattern of tile.
2. Product Information on setting material and grout.

**C. PRODUCT DELIVERY**

1. Deliver materials to job in original unopened containers.

**D. JOB CONDITIONS**

1. Temperature shall be maintained at 50 degrees F or more for at least 24 hours prior to, during and 3 days after installation.

**PART 2 – PRODUCTS**

**A. MANUFACTURER/PRODUCT (See Finish & Equipment Plan for actual tile used.)**

1. CT-1 - Glazed Ceramic Wall Tile: DAL-TILE CORPORATION; Matte; Crystalex or Semi-Gloss.
2. CT-2 - Ceramic Mosaic Floor Tile: DAL-TILE CORPORATION; Keystones w/abrasive content. Other Acceptable Ceramic Tile Manufacturers:
  - a. United States Ceramic Tile Co.
  - b. Crossville
  - c. Floor Gres
3. CT-3 - Porcelain Tile: Tile Manufacturers: Crossville 'Cross Colors', Static Coefficient of friction: Wet 0.70 to 0.80.
  - a. Other acceptable Porcelain Tile Manufacturers: Dal-Tile, Floor Gres

**B. MATERIALS**

1. All tile shall comply with requirements of ANSI A137.1 Standard Specification.
2. Tile shall be furnished with all necessary trim and shapes.
3. Colors and patterns of all tile shall be manufacturer's standard colors as selected.
4. All floor tile in shall be slip resistant with a Coefficient of Friction (ASTM C 1028)
5. Dry of 0.7 min.
6. CT-1 - Wall Field Tile: Standard grade, matte glazed, 4-1/4 inches x 4 1/4 inches x 5/16 inches with cushion edge.
7. CT-2 - Ceramic Mosaic Floor Tile: Standard grade, unglazed, dust-pressed, porcelain, cushion edge, 1/4 inch thick, 2 inch x 2 inch.
8. CT-2 - Ceramic Mosaic Base Tile: Provide C-833 cove, 2 rows 2 inch x 2 inch floor tile and S-886 at top where wall tile is not scheduled. Provide SU-813 round out corners and CK-813 square in corners.
9. CT-3 - Porcelain: Standard grade, smooth surface 12 inches x 12 inches x 1/2 inch with square edge.
10. CT-3 - Porcelain Tile Base: Standard grade, smooth surface 4 inches x 12 inches sanitary cove
11. Wall Adhesive: L & M Ceramic Tile Adhesive, TEC Mastics, or UPCO Upcomastic, conforming to ANSI Standard Specification A136.1.
12. Primer, Sealers: Type and consistency as recommended by manufacturer of setting materials.
13. Floor Grout: All ceramic and quarry floor tile shall be grouted with epoxy grout, similar to Mapei Kerapoxy. polymer-modified cementitious grout similar to Ultra/Color Sanded Grout as manufactured by Mapei Corp, UPCO Hydroment 1900 Joint Filler Approved Equal. Meeting or exceeds ANSI A-118.3
14. Color: As approved by Owner.
15. Wall Grout: Portland cement unsanded grout with acrylic latex grout additive similar

to Keracolor wall grout unsanded as manufactured by Mapei Corp., with an Acrylic Latex Admixture similar to Plastijoint manufactured by Mapei Corp. Meeting or exceeds ANSI A-118-3 Color: Selected from manufacturers standard color as approved by Owner.

16. Metal Edge Strip: Stainless steel or zinc alloy, 1/8 inch wide at top edge.

#### C. MORTAR MIXES

1. Latex-Portland Cement Mortar: ANSI A118.1.
  - a. Prepackaged dry mortar mix . Mapei Kerabond Dry-Set Mortar.
  - b. Latex additive or type described below added at job site to prepackaged dry-mortar mix supplied or specified by latex manufacturer. Mapei Keralastic Polymer Additive.
  - c. Grout type: Commercial Portland cement grout complying with ANSI A108.10 and of color required to match Architect's sample. Mapei Keracolor Floor.
2. Chemical Resistant Epoxy Mortar: ANSI A118.3
  - a. Water-cleanable, two component 100% solids epoxy mortar and grout system: Mapei Kerapoxy, or equal. Use Epoxy grout with thinset tile adhesive for all ceramic tile flooring.

### **PART 3 - EXECUTION**

#### A. SETTING METHODS

1. Ceramic and quarry tile on floors shall be placed over a cured mortar fill using thin-set mortar.
2. Ceramic tile on walls shall be placed using adhesive.

#### B. INSTALLATION

1. Tile shall be installed, grouted, cleaned, cured and protected in accordance with Standard Specification, Series A108 as applicable, of American National Standards Institute, except as herein specified.
2. Align joints in wall tile vertically and horizontally except where other patterns are shown or specified. Align joints in floor tile at right angles to each other and straight with walls to conform to patterns selected.
3. Splitting of tile shall not be done except where no alternative is possible.
4. No tile shall be installed with edges exposed to view. All visible edges shall have surface return radius edge.
5. Grout tile according to grout manufacturer's instructions.
6. Mortar fill shall be cured before application of materials. Curing with compounds or other coatings that may reduce bonding of materials will not be permitted.
7. Gypsum plaster and/or gypsum wallboard to receive ceramic tile installed with thin-set mortar shall be primed or sealed according to specific directions of thin-set mortar manufacturer.
8. Surfaces to receive ceramic tile installed with adhesive shall be primed or sealed according to specific instructions of adhesive manufacturer.
9. Provide metal edge strip at transition to other floor finishes.

END OF SECTION 09300

**SECTION 09510  
ACOUSTICAL CEILINGS**

**PART 1 – GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. QUALITY ASSURANCE**

1. All acoustic materials shall have Flame Spread Rating of 0-25 when tested in accordance with ASTM E 84.

**C. SUBMITTALS**

1. Submit 2 samples of each acoustic material for approval.

**D. JOB CONDITIONS**

1. Maintain temperature and humidity conditions before, during and after installation closely approximating interior conditions, which will exist when building is occupied.

**E. QUALITY ASSURANCE**

1. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, an extent to those indicated for Project.
1. Fire-Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
  - a. Flame Spread: 25 or less.
  - b. Smoke Developed: 50 or less.
1. Fire-Resistance Ratings: As determined per ASTM E 119 and as indicated by reference to design designations in UL "Fire Resistance Directory".
1. Acoustical Panel and Tile Standard: FS SS-S-118.

**F. DELIVERY, STORAGE, AND HANDLING**

1. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination and other causes.
1. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
1. Handle acoustical ceiling units carefully to avoid chipping edges or damaging in any way.

## PART 2 – PRODUCTS

### A. MINERAL-BASE ACOUSTICAL CEILING PANELS - MODULAR, CAST OR MOLDED

1. Type, Form, and Finish: Provide Type III, Form 1 per ASTM E 1264 with painted finish that comply with pattern and other requirements indicated.

Note: Acoustic materials as ACP-1, ACP-2 etc. for panels.

#### 2. MINERAL FIBER ACOUSTIC CEILING PANELS (ACP)

- a. Public Areas (lobby, reception) ACP-1: 24" x 24" x 3/4" mineral fiber lay-in panel, reveal edge, nondirectional fissured design, NRC 0.60 to 0.70, STC 35 to 39 with washable white factory finish.  
Products: Subject to compliance with requirements, provide one of the following:  
(1) "Fine Fissured"; Armstrong World Industries, Inc.  
(2) "Texture-Tone, Medium"; Celotex Corp.
- b. Treatment rooms, toilets ACP-2: 24" x 48" x 3/4" mineral fiber lay-in panel, reveal edge, nondirectional fissured design, NRC 0.60 to 0.70, STC 35 to 39 with washable white factory finish.  
Products: Subject to compliance with requirements, provide one of the following:  
(1) "Open Plan Cortega"; Armstrong World Industries, Inc.  
(2) "Fissure-Tone"; Celotex Corp.  
(3) "High NRC Omini",USG

### OPTION:

### B. FIBERGLASS-BASE ACOUSTICAL, HUMIDITY RESISTANT PANELS

1. Type: Provide washable, damage-resistive tile (scrubbable):
  - a. Animal boarding ACP-3: 24" x 48" x 5/8" medium density, moisture resistant, perforated fiberglass lay-in panel, NRC 0.70 with white factory textured vinyl finish.
2. Products: Subject to compliance with requirements, provide one of the following:
  - a. "Shasta"; Armstrong World Industries, Inc.
  - b. "Commercial"; Capaul
  - c. "Premier Hi Lite Kapok"; USG

### C. SUSPENSION SYSTEMS

1. Conform to all requirements of ASTM C-635 intermediate structural classification.
2. Provide all hanger inserts and anchors for supporting systems.
3. Color match exposed trim and accessories to suspension system.

### D. EXPOSED GRID SUSPENSION SYSTEM

1. Provide following system for acoustic panels type ACP-1 & 2:  
15/16" face, snap type of formed electro-galvanized steel main runners and cross tees. Finish of runners, cross tees and wall moldings to be factory applied of color to match the acoustic panel.
2. Provide following system for acoustic panels type ACP- 3:  
Aluminum snap-grid system, 15/16" face, .024" formed aluminum main runners and cross tees. Finish of runners, cross tees and wall moldings to be factory-applied color to match the acoustic panel.
3. Approved Manufacturers:
  - a. Chicago Metallic Corporation.
  - b. Donn Corporation.
  - c. Eastern Products Div., Armstrong World Industries, Inc.
  - d. National Rolling Mills, Inc.

### E. MISCELLANEOUS MATERIALS

1. Hanging Wire: 12 gauge ASTM A-641 galvanized steel soft temper.
2. Hanging Wire for Humidity Resistant Acoustic Materials: 9-gauge aluminum or 12 gauge stainless steel.
3. Tile Adhesive: Non-water soluble type as recommended by tile manufacturer.
4. Hold-Down Clips: Manufacturers standard concealed spring steel.
5. Acoustic Sealant: Heavy bodied, non-shrinking, nondrying, non-sag acoustical sealant.

### **PART 3 - EXECUTION**

#### **A. PREPARATION**

1. Verify that conditions are proper for installation of acoustic materials.

#### **B. GENERAL INSTALLATION**

1. Conform to installation requirements of ASTM C-636 and reflected ceiling plans.
2. Suspend hang wires from building structural members. Locate hanger near each end and spaced 4'-0" along runner or carrying channel. Level to 1/8" in 12'-0".
3. Install acoustical units in a true and even plane, in straight line and courses laid out symmetrically about center lines of ceiling or panel with border units of half width or greater.
4. Install in accordance with the specifications and instructions of the manufacturer of the suspension system.
5. Space hangers, runners and tees to prevent deflection in excess of 1/360 of the span of any member.
6. Install wire hangers vertically.
7. Cut and fit all materials with straight, true, even lines.

#### **C. EXPOSED GRID SYSTEM INSTALLATION**

1. Provide metal edge moldings where acoustical materials abut vertical surfaces or other materials. Secure 16" o.c. and 3" from each end. Miter all corners.
2. Provide hold down clips at time-rated ceilings if manufacturers system requires clips.
3. Field cut reveal edge on panels at wall edge moldings.
4. Apply continuous acoustic sealant bead on back of vertical leg of wall edge molding before installing molding.

#### **D. REPLACEMENT PANELS**

1. Furnish 20 additional pieces of each type and size of lay-in panels. Store in cartons in area where directed.

#### **E. CLEANING**

1. Clean exposed surfaces of acoustical material and grid systems and touch up minor finish damage. Replace materials, which cannot be repaired to new condition.

END OF SECTION 09510

**SECTION 09650  
RESILIENT FLOORING**

**PART 1 – GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. SUBMITTALS**

1. Submit samples of each product specified for color selection and approval.
2. Submit certificate verifying moisture test on substrate was made as specified and that moisture content did not exceed specified percent when sheet material was installed.
3. Submit certificate verifying material meets ASTM E 648 Class 1 finish (Critical Radiant Flux minimum .45 watts per cm squared).

**C. PRODUCT DELIVERY**

1. Deliver materials to job site in packages bearing manufacturers name and product description.
2. Store materials at 70 degrees F minimum temperature for at least 48 hours before installation.

**D. JOB CONDITIONS**

1. Maintain temperature of 65 degrees F for 72 hours before, during and after installation.

**PART 2 – PRODUCTS**

**A. VINYL COMPOSITION TILE (VCT)**

1. Manufacturers of Vinyl Composition Tile: (VCT) FS SST-312B, Type IV, Composition 1, 12 inches x 12 inches tile, 1/8 inch thickness, Premium Grade, recommended static load limit 75 psi.
2. Item Specified: Armstrong World Industries, Inc., Imperial Texture Excelon, 12 inches x 12 inches x 1/8 inch thick.
3. Other Acceptable Manufacturers: Azrock, GAF, Kentile.

**B. SHEET VINYL (SV-1)**

1. Manufacturers of Unfilled Vinyl Sheet with Vinyl Backing: (SV-1) FS L-F-001641, Type II, Class I, except for average total thickness, average backing thickness and dimensional stability; suitability for tension application only; 0.060 inch thick with opaque wear layer thickness of 0.020 inch; manufacturer's recommended static load limit of 125 psi.
2. Item Specified: MEDINTEC, Armstrong World Industries, Inc.
3. Other Acceptable Manufacturers: Mannington Commercial, Tarkett.

**C. SHEET VINYL (SV-2)**

1. Manufacturer's of Residential grade Vinyl Sheet Flooring: (SV-2) FS L-F-001641, Type III, Class 2, Overall thickness: 0.080 inch nominal, with a minimum wear layer thickness of 14 mils. Sheet width: 6.0 feet minimum.
2. Item Specified: Armstrong World Industries, Inc.: Fundamental.
3. Other Acceptable Manufacturers: Congoleum, GAF, Mannington.

**D. VINYL BASE (VB)**

1. Item Specified: Johnsonite 1/8-inch gauge, standard toe, set-on type, 4 inches high.
2. Other Acceptable Manufacturers: GAF, Kentile, Azrock, Flexco, Mercer, VPI.

**E. TOELESS VINYL BASE (VB)**

1. Item Specified: Johnsonite .080-inch gauge toeless base 4 inches high.
2. Other Acceptable Manufacturers: GAF, Kentile, Azrock, Flexco, Mercer, VPI.

F. RUBBER STAIR TREADS

1. Item Specified: RCA Rubber #65, Heavy Duty, abrasive strip tread, 5/16 inch thick tapering to 3/16 inch.
2. Other Acceptable Manufacturers: Afco, Burke, Flexco, Johnson, Musson, Roppe.

G. RUBBER STAIR RISERS

1. Item Specified: Johnson Rubber, 1/8-inch thick, coved bottom.
2. Other Acceptable Manufacturers: Afco, Burke, Flexco, Musson, Roppe.

H. RUBBER STRINGER

1. Similar to Johnson Rubber .080-inch rubber stringer material 10 inches wide.

I. RUBBER LANDING MATS

1. Similar to Johnson Rubber 1/8 inch thick, 24 inches x 24 inches smooth pattern rubber landing mats.

J. BASE CAP STRIP

1. Similar to Mercer No. 040 vinyl round cap strip.

K. BASE CAP REDUCER STRIP

1. Similar to Mercer No. 221 vinyl zero reducing strip.

L. REDUCER STRIP

1. Similar to Mercer vinyl tile reducer 630 Series of butting gauge to match flooring.

M. COVE STICK

1. Similar to Mercer No. 070 cove stick with zero edges.

N. UNDERLAYMENT

1. Leveling compound similar to Armstrong S-180 Latex Underlayment, Azrock Latex Underlayment, Tamms Floorstone/Las-Tex, Thoro System Products Thoro Underlayment.
2. 1/4-inch min. APA-trademarked plywood rated as suitable for thin resilient floor coverings for fully adhered commercial installations.

O. ADHESIVES

1. Type as recommended by manufacturer.

P. COLORS

1. Selection will be made from manufacturer's standard colors.

**PART 3 - EXECUTION**

A. GENERAL

1. Provide base at all base cabinets where room is scheduled for base.
2. Maintain nonpermanent reference markers for future cutting.

B. PREPARATION

1. Clean substrate of all foreign materials.
2. Remove coatings from subfloor surfaces that would prevent adhesive bond, including curing compounds incompatible with resilient flooring adhesives, paint, oils, waxes and sealers.
3. Apply leveling underlayment on substrate to fill cracks, depressions, eliminate irregularities and provide proper base for flooring, and apply underlayment on substrate to where flooring materials meet other flooring of higher elevation so that surface of both materials are at the same top elevation.
4. Apply BD-type underlayment over sub-floor per manufacturer's recommendations.

### C. INSTALLATION GENERAL

1. Install resilient flooring using method indicated in strict compliance with manufacturer's printed instructions. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.
2. Scribe, cut and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets and permanent columns, walls and partitions.
3. Maintain reference markers, holes or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other non-permanent marking device.
4. Install resilient flooring on covers for telephone and electrical ducts, and similar items occurring within finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers. Tightly cement edges to perimeter of floor around covers and to covers.
5. Tightly cement resilient flooring to subbase without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll resilient flooring at perimeter of each covered area to assure adhesion.

### D. TILE FLOOR INSTALLATION

1. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.
2. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped or deformed tiles are not acceptable.
3. Lay tile in "checkerboard" fashion with grain reversed in adjacent tiles.
4. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's direction.
5. Install reducer strip where flooring terminates at openings, meets other materials of lower elevation or where edges of tile would otherwise be exposed.
6. Install materials on stair treads/nosing with RCA Rubber #56 Latex Adhesive and #10 Epoxy Stair Caulk to fill void spaces at nosing.

### E. SHEET FLOOR INSTALLATION

1. Test substrate to receive sheet materials for moisture content using method approved by sheet material manufacturer.
2. Install sheet material only on substrate, which has moisture content of 2% or less.
3. Lay sheet flooring to make as few seams as possible with economical use of materials. Follow manufacturer's recommendations for matching color shading and patterns at seams. Heat weld all seams.
4. Adhere sheet flooring to substrates using method approved by flooring manufacturer for type of sheet flooring and substrate condition indicated.
  - a. Use special perimeter bonding adhesive method unless otherwise indicated.
5. Prepare seams in vinyl sheet flooring in accordance with manufacturer's instructions for most inconspicuous appearance, sealing continuously with fluid-applied sealant or adhesive as standard with manufacturer.
6. Provide integral flash cove base, where shown on the Drawings, including cove supporting binding strip and metal top edge strip. Construct coved base in accordance with manufacturer's instructions, and enclosed details.
7. On masonry or other irregular vertical surfaces, fill voids behind base and along top edge with manufacturer's recommended adhesive filler.

#### F. BASE INSTALLATION

1. Remove mold release film on back of base.
2. Set base straight and level in full bed of adhesive with hairline flush butt joints.
3. Back cut and heat base to job form outside corners. Miter or cope inside corners.
4. Provide toeless type base at carpet floors.
5. Install base at carpet floors after carpet has been installed.

#### G. INSTALLATION OF ACCESSORIES:

1. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
2. On masonry surfaces, or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
3. At stairways, apply resilient accessories in strict compliance with manufacturer's installation instructions. Fill voids at nosing with epoxy caulk.
4. Install resilient edge strips at edges of resilient flooring, which would otherwise be exposed.
5. Install metal edge strips where indicated, using countersunk stainless steel anchors.

#### H. CLEANING & FINISHING

1. Clean materials of adhesive smears and foreign substances.
2. Perform following operations immediately upon completion of resilient floor installation:
  - a. Sweep or vacuum floor thoroughly.
  - b. Do not wash resilient floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well sealed in adhesive.
  - c. Damp-mop floor being careful to remove black marks and excessive soil.
  - d. Remove any excess adhesive or other surface blemishes, using appropriate cleaner recommended by resilient flooring manufacturer.
3. Apply protective floor polish in accordance with flooring manufacturer's instructions. Cover resilient flooring with undyed, untreated building paper until inspection for substantial completion.

#### I. EXTRA STOCK

1. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.
2. Tile Flooring: Furnish not less than one box for each 50 boxes or fraction thereof, for each type, color, pattern and size installed.
3. Sheet Flooring: Furnish not less than 5 linear yards for each type, color and pattern installed.

END OF SECTION 09650

**SECTION 09705**  
**RESINOUS FLOORING**  
(REFERRED TO ON DRAWINGS AS "EPOXY FLOOR" OR "EPR")

**PART 1 – GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. SUMMARY**

1. Definitions: Resinous flooring includes penetrating two-component epoxy primer, free flowing epoxy formulation including resin, hardener and reactive flow enhancers, brightly colored, quartz silica aggregate broadcast and a two-component, high performance, clear epoxy sealer.
2. Definitions: Resinous flooring includes penetrating, moisture tolerant, two-component epoxy primer, a high performance, three-component mortar consisting of epoxy resin, curing agent and selected, graded aggregates blended with inorganic pigments and a two-component, general service epoxy coating.
3. Definitions: Resinous flooring includes penetrating two-component epoxy primer, three-component mortar consisting of epoxy resin, curing agent and finely graded quartz silica aggregate, three-component, epoxy undercoat, brightly colored, quartz silica aggregate broadcast and a high performance, two-component, clear epoxy sealer.

**C. RELATED WORK**

1. Refer to Division 3 Section Cast-in-place Concrete
2. Refer to Division 7 Section Fluid Applied Waterproofing
3. Refer to Division 7 Section Joint Sealers

**D. SUBMITTALS**

1. Submit manufacturer's technical data, installation instructions, and general recommendations for each resinous flooring required.
2. Submit 4 inches square sample of each type of resinous flooring required, applied to a rigid backing, in finish, color and texture indicated.
  - a. For initial selection of colors and finishes, submit manufacturer's color charts, showing full range of colors and finishes available.

**E. QUALITY ASSURANCE**

1. Single Source Responsibility-Obtain primary resinous flooring materials including, primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor shall have completed at least five projects of similar size and complexity. Provide secondary materials only of type and from source recommended by manufacturer of primary material.
2. Pre-Installation Conference
  - a. General Contractor shall arrange a meeting not less than thirty days prior to starting work.
  - b. Attendance
    1. General Contractor.
    2. Architect/Owner's Representative.
    3. Manufacturer's/Installer's Representative.

**F. DELIVERY, STORAGE AND HANDLING**

1. Materials shall be delivered to job site and checked by flooring contractor for completeness and shipping damage prior to job start.
2. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate site mixing errors. No on site weighing or volumetric measurements allowed.
3. Materials shall be stored in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 60 and 85 degrees F/16 and 32 degrees C.

G. PROJECT CONDITIONS

1. Concrete substrate shall be properly cured for a minimum of 30 days and have a medium steel trowel finish. Please refer and adhere to ASTM Designation: C 150-86 Standard Specification for Portland Cement. The top of drains shall be finished flush with the concrete. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring.

**PART 2 - PRODUCTS:**

A. EPOXY FLOORING MANUFACTURER:

1. Stonshield SLT as manufactured by Stonhard, Inc., 800-257-7953 or Architect Approved Equal
2. Cheminart CFS as manufactured by Dex-O-Tex, 800-347-3706
3. TPM 115 U1 as manufactured by General Polymers, 800-543-7694
4. Eco-DQS Decorative Quartz System as manufactured by Tennant Co., 800-553-8033

B. EPOXY FLOORING

1. OPTION 1 - Nominal 1/8" / 3mm thick system comprised of a penetrating, two-component epoxy primer, three-component, free flowing epoxy formulation including resin, hardener and reactive flow enhancers, brightly colored, quartz silica aggregate broadcast and a two-component, high performance, clear epoxy sealer.

- a. Physical Properties: Provide flooring system in which physical properties of topping including aggregate, when tested in accordance with standards of procedures referenced below, are as follows:

Compressive Strength.....	9,000 psi
(ASTM C-579)	
Tensile Strength.....	1,600 psi
(ASTM D-638)	
Flexural Strength.....	4,000 psi
(ASTM C-580)	
Hardness.....	85-90
(ASTM D-2240 / Shore D Durometer)	
Bond Strength .....	>400 psi
(ASTM D-4541)	(100% concrete failure)
Impact Resistance.....	>160 in. lbs.
(ASTM D-4226)	
Abrasion Resistance.....	0.06 gm max. weight loss
(ASTM D-4060, Taber Abrader CS-17 wheel)	
Flexural Modulus of Elasticity .....	1.0 x 10 <sup>6</sup> psi
(ASTM C-580)	
Flammability .....	Self Extinguishing.
(ASTM D-635)	Extent of burning 0.25 inches max.
Thermal Coefficient of Linear Expansion.....	1.8 x 10 <sup>-5</sup> in/in°C
(ASTM C-531)	
Coefficient of Friction.....	0.7 - 0.8
(ASTM D-2047)	
Water Absorption.....	0.1%
(ASTM C-413)	
Heat Resistance Limitation.....	140°F / 60°C
	(for continuous exposure)
	200°F / 93°C
	(for intermittent spills)
Cure Rate allow: .....	8 hours for foot traffic
(at 77°F / 25°C)	18 hours for light traffic
	24 hours for normal operations

### C. JOINT SEALER

1. Type produced by manufacturer of resinous flooring system for type of service and joint condition indicated.

## **PART 3 - EXECUTION**

### A. PREPARATION

1. Concrete substrate preparation shall be by mechanical means and include use of a scabber, scarifier or shot blast machine for removal of bond inhibiting materials such as curing compounds of laitance.

### 2. APPLICATION

- a. General: Apply each component of resinous flooring system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawn joints or other types of joints (if any), indicated or required.
  - i. Primer: Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates. Coordinate timing of primer application with application of troweled mortar to ensure optimum adhesion between resinous flooring materials and substrate.
  - ii. Troweled Mortar: Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate using manufacturer's specially designed screed box adjusted to manufacturer's recommended height. Hand trowel apply mixed material over freshly primed substrate using steel finishing trowels or power trowel material.
  - iii. Undercoat: Remove any surface irregularities by lightly abrading and vacuuming the floor surface. Mix and apply undercoat with strict adherence to manufacturer's installation procedures and coverage rates.
  - iv. Broadcast: Immediately broadcast quartz silica aggregate into the undercoat using manufacturer's specially design spray caster. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
  - v. Sealer: Remove excess unbonded granules by lightly brushing and vacuuming the floor surface. Mix and apply sealer with strict adherence to manufacturer's installation procedures.

### C. CURING, PROTECTION AND CLEANING

1. Curing resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 24 hours.
2. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
3. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacture.

END OF SECTION 09705

**SECTION 09900  
PAINTING**

**PART 1 – GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. RELATED WORK**

1. Factory finished items will not require painting or finishing unless otherwise specified. Refer to technical sections for items to be furnished with a factory finish.
2. Prime coat will be factory applied on certain items. Refer to various technical sections for items to be furnished with a factory prime coat.
3. Non-ferrous metal items will not require painting or finishing unless otherwise specified.
4. Respective contractors will do identification of mechanical piping and electrical conduit.
5. Refer to Section 02510-Paving & Surfacing: Parking Lot Striping.
6. Refer to Section 08700-Hardware: Removing Hardware for Painting.

**C. QUALITY ASSURANCE**

1. Materials shall be of manufacture, brand and quality as specified. Products of other manufacturers will not be accepted.
2. Quality workmanship is required. Employ skilled craftsmen experienced in the use of the product involved.

**D. MOCK-UP**

1. Prepare and finish a sample room, complete or in part, as directed for approval.
2. Accepted room will be used as a standard for workmanship for similar areas or items throughout the project.

**E. SUBMITTALS**

1. Submit two sample panels of each type finish system for color and texture approval.
2. Submit manufacturer's Safety Data Sheet for all materials, which are not water based.

**F. DELIVERY, STORAGE & HANDLING**

1. Deliver paint ready-mixed to job site in original sealed containers with labels intact.
2. Store paint materials in an approved location with adequate floor protection.
3. Remove oily or soiled rags and waste daily or store in sealed metal containers.

**G. JOB CONDITIONS**

1. Paint only in areas, which are clean and free of dust.
2. Do not apply materials until moisture content of surface is less than 12% as determined by moisture testing meter.
3. Do not apply materials on exterior surfaces during rainy or frosty weather or when temperature is below 50 degrees F.
4. Do not apply materials on surfaces while they are exposed to the sun.

**PART 2 – PRODUCTS**

**A. COLORS AND FINISHES**

1. A schedule of selected colors will be supplied to the Contractor.
2. For estimating and bidding purposes, assume that each room will have one wall color and the ceiling painted a different color.

B. MATERIALS

1. Select manufacturer and product from following list using materials of same manufacture for each finish.
2. Provide special tinted primer in lieu of scheduled primer for accent or deep tone colors.

TYPE "A" MATERIAL

+Benjamin Moore	Vinyl Latex Primer Sealer
+Glidden	#3416 Spred Primer Sealer
+Lindsay	Vinyl Kote Primer
+Pratt & Lambert	Vapex Wall Primer
+PPG	6-2 Quick Dry Primer Sealer
+Sherwin Williams	Pro-Mar Latex Wall Primer B28
+Devoe	Wonder-Tones Primer Sealer #50801

TYPE "B" MATERIAL

+Benjamin Moore	Super-Hide Latex Block Filler
+Glidden	#5317 Ultra-Hide Block Filler
+Lindsay	Masonry Fill Kote
+Pratt & Lambert	Primafil 200
+PPG	Masonry Block Filler 6-7
+Sherwin Williams	Pro-Mar Block Filler B25
+Devoe	Bloxfil Block Filler #52901

TYPE "C" MATERIAL

+Benjamin Moore	IronClad Galvanized Metal Primer
+Glidden	Y-5229 Glid-Guard Metal Primer
+Lindsay	Galva Kote Primer White
+Pratt & Lambert	Galvanized Metal Latex Primer
+PPG	Speedhide Galvanized Primer 6Ä209
+Sherwin Williams	Metalatex B42
+Devoe	Prufclad Metal Primer #233XX

TYPE "D" MATERIAL

+Benjamin Moore	IronClad Retardo Rust Inhibitive Paint
+Glidden	#5214 Glid-Guard DTM-Alkyd
+Lindsay	636 Metal Primer
+Pratt & Lambert	Effecto Enamel
+PPG	6-205 Speedhide Quick Dry Enamel
+Sherwin Williams	S-W Kromik E41N1

TYPE "E" MATERIAL

+Benjamin Moore	Super-Hide Latex Primer-Undercoater 284
+Glidden	#300 Latex Enamel Undercoater
+Lindsay	Enamel Undercoater
+Pratt & Lambert	Vitrolite Enamel Undercoating
+PPG	6-755 Speedhide Enamel Undercoater
+Sherwin Williams	Pro-Mar Latex Wall Primer B28
+Devoe	Wonder-Tones Enamel Undercoat #51701

+Benjamin Moore  
+Glidden  
+Lindsay  
+Pratt & Lambert  
+PPG  
+Sherwin Williams  
+Devoe

TYPE "F" MATERIAL

Latex House & Trim Paint 170  
#3900 Spred House & Trim Paint  
Kril Kote  
Aqua-Royal Latex House & Trim  
78 Sun-Proof Latex House & Trim  
A-100 Gloss Latex House & Trim A8  
Regency House & Trim Paint #18XX

+Benjamin Moore  
+Glidden  
+Lindsay  
+Pratt & Lambert  
+PPG  
+Sherwin Williams  
+Devoe

TYPE "G" MATERIAL

Super-Hide Latex Eggshell Enamel 286  
4000 Spred Ultra  
Lustre Kote Lo-Sheen  
Accolade  
89-Manor Hall Latex Flat Enamel  
Pro-Mar Latex Egg-Shell Enamel  
Regency House Wallpaint #25XX

+Benjamin Moore  
+Glidden  
+Lindsay  
+Pratt & Lambert  
+PPG  
+Sherwin Williams  
+Devoe

TYPE "H" MATERIAL

Super-Hide Latex Semi-Gloss Enamel 283  
Y-3700 Ultra Hide Wall & Trim Paint  
Lustre Kote Enamel  
Aqua Satin  
88-Satinhide Latex Enamel  
Superpaint Semi-Gloss A88  
Wonder-Tones Satin Enamel #35XX

+Benjamin Moore  
+Glidden  
+Lindsay  
+Pratt & Lambert  
+PPG  
+Sherwin Williams  
+Devoe

TYPE "I" MATERIAL

Tile-Like Enamel  
5550 Epoxcide Enamel  
Epoxy Kote Polyamid Enamel  
Palgard Epoxy Coating  
16-700 Pitt-Glaze Polyester Epoxy  
Tile-Clad II Enamel B62  
Tru-Glaze Epoxy Coating #124XX

+Benjamin Moore  
+Glidden  
+Lindsay  
+Pratt & Lambert  
+PPG  
+Sherwin Williams  
+Devoe

TYPE "J" MATERIAL

Tile-Like Clear Glaze Semi-Gloss  
Y-5554 Glid-Guard Glid-Tile  
Epoxy Kote Glaze Enamel  
Palgard Epoxy Clear  
16-700 Pitt-Glaze Polyester Epoxy  
Tile-Clad II Enamel B62  
Tru-Glaze Epoxy Coating #124XX

+Benjamin Moore  
+Glidden  
+Lindsay  
+Pratt & Lambert  
+PPG  
+Sherwin Williams  
+Devoe

TYPE "K" MATERIAL

Sanding Sealer 267  
Y-5035 Ultra-Hide Sanding Sealer  
Vinyl Seal  
Sanding Sealer  
77-30 Rez Quick Dry Sanding Sealer  
Pro-Mar Varnish Sanding Sealer B26.  
Wonder Woodsealer Clear Sealer #4900

	TYPE "L" MATERIAL
+Benjamin Moore	Benwood Lo Lustre Clear
+Glidden	Y-10 Spred Urethane Finish
+Lindsay	CWF Lo Lustre
+Pratt & Lambert	38 Clear Finish
+PPG	77-7 Rez Satin Varnish
+Sherwin Williams	Mar-Not Varnish A66 F2
+Devoe	Wonder Wood Stain Varnish #4600

	TYPE "M" MATERIAL
+Benjamin Moore	Waterproofing Masonry Paint
+Lindsay	Proof Kote 1411
+Devoe	Wonder-Pruf Waterproofing #11502

	TYPE "N" MATERIAL
+Benjamin Moore	Benwood Architectural Penetrating Stain
+Glidden	231 Spred Oil Stain
+Lindsay	Colortone Stain
+Pratt & Lambert	Tonetic Wood Stain
+PPG	77-70 Rez Wood Tone Stain
+Sherwin Williams	Oil Stain A48

	TYPE "O" MATERIAL
+Prosoco, Inc.	+Stand Off Limestone & Marble Protector ( 800) 255-4255

**PART 3 - EXECUTION**

**A. INSPECTION**

1. Examine surfaces to receive paint finishes for defects, which cannot be corrected by the procedures specified under Surface Preparation.
2. Notify Contractor of surfaces requiring corrective work prior to painting.

**B. SURFACE PREPARATION**

1. Protect all surfaces in close proximity of the area being painted with suitable protective material.
2. Apply surface protection to finished materials, which have not been removed prior to painting work.
3. Clean surfaces and rinse thoroughly by appropriate methods to proper condition to receive paint as recommended by the manufacturer. Do not use raw acid to clean Cast Stone material.
4. Let surfaces dry thoroughly (at least 24 hours) and protect form pedestrian traffic before application.
5. Fill all holes, scratches, cracks or other irregularities with patching material.
6. Touch up abraded factory applied shop prime coat before applying finish coats.
7. Fill nail holes, open joints, cracks and other defects after prime coat has dried with putty or filler tinted to match finish. Sand lightly to smooth surface.
8. Prime metal corner and casing beads with an alkyd enamel underbody where water thinned finish coats are specified.
9. Remove grease or oil from metal surfaces with a suitable solvent.
10. Clean galvanized metal surfaces with a solvent and remove "white rust" by wire brushing.
11. Clean aluminum surfaces with mineral spirits.
12. Sand wood surfaces smooth and remove all sanding dust.
13. Seal knots, pitch and resinous sapwood with shellac.
14. Back prime wood trim before installation.
15. Back prime paneling on interior partitions only where wet wall construction occurs on backside.
16. Remove form-oil deposits from concrete with suitable liquid removing agent.
17. Etch dense, smooth and surface hardened concrete.
18. Fill concrete to a smooth surface with a vinyl based material similar to USG Joint Compound.

19. Dull existing glossy surfaces by light sanding or washing with Trisodium Phosphate.

#### C. APPLICATION

1. Apply materials by brush or roller. Spray application will not be accepted.
2. Reduce coating's viscosity in accordance with the manufacturer's directions.
3. Tint prime coat and undercoat for a visible difference from preceding coat.
4. Tint each coat in shades between prime and finish coat where more than one finish coat is specified.
5. Apply materials free from runs, sags, wrinkles, streaks, shiners, holidays, brush marks, roller stipple and air bubbles.
6. Apply materials uniformly so as to dry to the color and sheen specified.
7. Allow all coats to thoroughly dry before applying succeeding coats. Sand between coats of enamel and varnish finish on wood or metal.
8. Apply paste wood filler on open grained wood. Wipe across grain and then in circular motion to fill open grain.
9. Apply stain in a uniform coat and wipe off.
10. Prime or seal top and bottom of wood doors same as face and edges of doors.
11. Touch up suction spots in plaster before applying final coat.

#### D. EXTERIOR PAINTING

1. Paint all surfaces listed under the exterior finish system schedule including, but not limited to, the following:
  - a. Items furnished with a factory applied prime coat.
  - b. Mechanical equipment & supports, vents and stacks, and gas piping.
  - c. Sheet metal flashings.
  - d. Metal louvers.
  - e. Sealer on Cast Stone Columns and Pier caps.

#### E. EXTERIOR FINISH SYSTEM SCHEDULE

1. Finish coats of paint required on various surfaces are indicated as 1A + 2B which will require .1 coat of type A material and 2 coats of type B material.
2. Primed Ferrous Metals: 2F.
3. Unprimed ferrous metals: 1D + 2F
4. Aluminum: 2D.
5. Galvanized Sheet Metal: 1C + 2F.
6. Concrete Masonry Units (Satin): 1M + 2F.
7. Cast-In-Place Concrete (Satin): 2F.
8. Cast stone 1O

#### F. INTERIOR PAINTING

1. Paint all surfaces listed under the interior finish system schedule including the following:
  - a. Paint all rooms listed on Room Schedule except as otherwise specified.
  - b. Paint only wood and ferrous metals in the following rooms.
  - c. Paint all new surfaces and remodeled or patched areas in existing rooms to nearest vertical line break from floor to ceiling each direction with materials to match in color and sheen.
  - d. Paint galvanized metal ducts, electrical panels, conduit & boxes, pipe hangers and covered pipes in all rooms scheduled to be painted.
  - e. Paint concrete floors only if listed on finish system schedule.
  - f. Paint interior surfaces of ducts where visible through registers or grilles with a flat non-specular black paint.
  - g. Paint all prime coated metal, exposed surfaces not factory finished, prime coated mechanical and electrical equipment, uncovered pipe and pipe hangers.
  - h. Apply paint by spray to exposed steel joist and metal deck.
  - i. Paint all surfaces listed under the interior finish system schedule.
  - j. Refer to Room Schedule for location of finishes noted by types on the finish system schedule.
  - k. Concealed surfaces shall not be painted.

2. Surfaces not to be painted include the following:
  - a. Equipment identification, performance rating, name or nomenclature plates.
  - b. UL, WHI or FM code labels.
  - c. Concealed spaces including pipe spaces, duct shafts, elevator shafts, utility tunnels, furred areas, concealed areas and generally inaccessible spaces.

#### G. INTERIOR FINISH SYSTEM SCHEDULE

1. Finish coats of paint required on various surfaces are indicated as 1A + 2B which will require 1 coat of type A material and 2 coats of type B material.
2. ALL GYPSUM WALL BOARD
  - a. Gypsum Board (Latex Eggshell): 1A + 2G.
  - b. Gypsum Board (Latex Semi-Gloss): 1A + 2H.
  - c. Gypsum Board (Epoxy Semi-Gloss): 1A + 1I + 1J.
3. All CONCRETE MASONRY UNITS
  - a. Concrete Masonry Units (Latex Eggshell): 1B + 2G.
  - b. Concrete Masonry Units (Latex Semi-Gloss): 1B + 2H.
  - c. Concrete Masonry Units (Epoxy Semi-Gloss): 1B + 1I + 1J.
4. All CAST-IN-PLACE CONCRETE - If smooth surface is desired preface finish with 1B, which is a block filler.
  - a. Cast-In-Place Concrete (Latex Eggshell): 1B + 1G.
  - b. Cast-In-Place Concrete (Latex Semi-Gloss): 1B + 1H.
  - c. Cast-In-Place Concrete (Epoxy Semi-Gloss): 1B + 1I + 1R.
5. All PRECAST CONCRETE
  - a. Precast Concrete (Latex Eggshell) L 1A + 1G.
6. ALL METALS
  - a. Galvanized Sheet Metal (Latex Eggshell): 1C + 2G.
  - b. Primed Ferrous Metals (Latex Eggshell): 2G.
  - c. Primed Ferrous Metals (Epoxy Semi-Gloss): 1I + 2J.
  - d. Unprimed Ferrous Metal Primer: 1D.
  - e. Pipe Covering: 1A + 1G.
7. ALL WOOD
  - a. Interior Surfaces of Millwork: 1K + 1L.
  - b. Wood Doors (Stained - Clear): 1N+ 1K + 1L.
  - c. Wood Doors (Painted Semi-Gloss): 1E + 2G.

#### H. CLEANING

1. Remove from the premises all rubbish and accumulated material and leave work in clean condition.
2. Remove paint that has been misplaced on other surfaces.
3. Clean, repair and restore all damaged surfaces to their original finish.

END OF SECTION 09900

**SECTION 10100  
TACK BOARDS**

**PART 1 - GENERAL**

**A. SECTION INCLUDES**

1. Tack surfaces above countertops where indicated on the Drawings.

**B. RELATED SECTIONS**

1. Refer to Section 06100 - Rough Carpentry.
2. Refer to Section 06200 - Finish Carpentry.
3. Refer to Section 06400 - Architectural Casework.
4. Refer to Section 06410 - Plastic Laminate Countertops.
5. Refer to Section 09250 - Gypsum Drywall.

**C. REFERENCES**

1. Applicable provisions of Division 1 of this Project Manual.

**D. SUBMITTALS FOR REVIEW**

1. Refer to Section 01300-Submittals: Procedures for Submittals.
2. Samples: Submit 3 samples of fabric covering for tack surfaces proposed for use. Sample shall essentially match that on the Color Board.
3. Product Data: Submit 3 copies of manufacturer's standard literature describing construction and fabrication of each item proposed for use. Submit 3 copies of manufacturer's standard maintenance data for each item proposed for use.

**E. QUALITY CONTROL**

1. Store items at temperatures between 60 and 80 degrees F for at least 48 hours before, during and after installation.
2. Store items in dry, clean location, away from direct sunlight.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS:** The following materials specification pertains to products by Claridge Products and Equipment, Inc., P.O. Box 910-601, Hwy., 62-65 South, Harrison, Arkansas 72602-0910, (870) 743-2200. Other acceptable manufacturers are:

1. Best-Rite Manufacturing, (800) 749-2258.
2. Marsh Industries, (330) 343-8825.
3. ADP Lemco, Inc., 5970 West Dannon Way, West Jordan, UT 84088-6203, (800) 575-3626.

**B. MATERIALS**

1. Tack surfaces shall be shop-fabricated, composed of minimum 1/4 inch cork surface laminated to 1/4 inch hardboard backing, with square edges and fully edge wrapped with woven fabric.
  - a. Fabric shall be 100% polyester, soil and stain resistant, with an ASTM-E 84 flame spread Class A rating.
  - b. Edges of fabric shall wrap to the back of the panel in one piece, without seams on the face of the panel. Panels shall be of maximum length practicable, butt-jointed where necessary to cover required areas.
  - c. Adhesives and Fasteners: As recommended by markerboard and tackboard manufacturers

**PART 3 - EXECUTION**

**A.** Install tack surfaces in locations as indicated on the Drawings, with a combination of adhesive and mechanical fasteners per manufacturer's recommendations. Neatly butt panels together without gaps and with faces flush and even.

**B.** Protect tack surfaces from scratches, dents, dings, stains or other damage until time of final acceptance.

END OF SECTION 10100

**SECTION 10200  
LOUVERS AND VENTS**

**PART 1 - GENERAL**

A. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. SUMMARY

1. This Section includes Adjustable Metal Wall Louvers.

C. RELATED SECTIONS: The following Sections contain requirements that relate to this section:

1. Refer to Section 07900-Joint Sealers.
2. Division 16-Electrical.

**PART 2 - PRODUCTS**

A. MANUFACTURERS

1. Available Manufacturers: Subject to compliance with requirements, provide system as manufactured by the following, or an approved equal:
  - a. Airolite Company
  - b. American Warming and Ventilation, Inc.
  - c. Construction Specialties, Inc.

B. ADJUSTABLE METAL WALL LOUVER

1. General: Provide adjustable blade louvers with manufacturer's recommended bearings and operating mechanisms to suit louver sizes and actuator indicated below:
2. Motor Operation: 2 directional, 110V, AC, 60 cycle motor, and limit switches wired for grounding, equipped as follows:
  - a. Loose toggle switch and indicator light, ready for installation.

**PART 3 - EXECUTION**

A. INSTALLATION

1. Locate and place louver units plumb, level and in proper alignment with adjacent work.
2. Install concealed gaskets, flashings, joint fillers and insulation as louver installation progresses where required to make louver joints weather tight. Comply with Section 07900-Joint Sealers for sealants applied during installation of louver.

B. CLEANING

1. Before final inspection clean exposed surfaces with water and with mild soap or detergent not harmful to finishes. Rinse thoroughly and dry surface.

END OF SECTION 10200

**SECTION 10425  
IDENTIFICATION DEVICES**

**PART 1 - GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

**B. SUMMARY**

1. This section includes the following:
  - a. Room identification - toilet rooms, mechanical rooms.
  - b. HP symbols - building entry, toilets.
  - c. Exterior signs - supplied, installed by Owner.

**C. RELATED WORK AND REQUIREMENTS**

1. Refer to Section 09250-Gypsum Wallboard.
2. Refer to Section 09900-Painting.

**D. SUBMITTALS**

1. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.
2. Product Data: Include manufacturer's construction details relative to materials, dimensions of individual components, profiles, and finishes for each type of sign required.
3. Shop Drawings: Provide shop drawings for fabrication and erection of signs. Include plans, elevations and large-scale sections of typical members and other components. Show anchors, grounds, reinforcement, accessories, layout and installation details. Provide message list for each sign required, including large-scale details of wording and layout of lettering. For signs supported by or anchored to permanent construction, provide setting drawings, templates and directions for installation of anchor bolts and other anchors to be installed as a unit of work in other sections. Furnish full-size spacing templates for individually mounted dimensional letters and numbers. Wiring diagrams from the manufacturer for illuminated sign units.
4. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.
  - a. Cast Acrylic Sheet and Plastic Laminate: Manufacturer's color charts consisting of actual sections of material including the full range of colors available for each material required. Provide a sample panel not less than 8-1/2 inches by 11 inches for each material indicated. Include a panel for each color, texture and pattern required. On each panel include a representative sample of the graphic image process required, showing graphic style, and colors and finishes of letters, numbers, and other graphic devices.
  - b. Dimensional Letters: Provide full-size representative samples of each dimensional letter type required, showing letter style, color, and material finish and method of attachment.

**E. QUALITY ASSURANCE**

1. UL and NEMA Compliance: Provide lighting fixtures and electrical components for illuminated signs that are labeled and listed by UL and comply with applicable NEMA standards.
2. Single-Source Responsibility: For each separate type of sign required, obtain signs from one source from a single manufacturer.
3. Design Criteria: The drawings indicate sizes, profiles and dimensional requirements of signs. Other signs with deviations from indicated dimensions and profiles may be considered, provided deviations do not change the design concept. The burden of proof of quality is on the proposer.

## **PART 2 - PRODUCTS**

### **A. MANUFACTURERS**

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following.
  - a. ABC Architectural Signing System, Division of Nelson-Harkins Industries
  - b. Architectural Graphics, Inc.
  - c. ASI Sign Systems, Inc.
  - d. Best Manufacturing Sign Systems

### **B. MATERIALS**

1. **Cast Acrylic Sheet:** Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thicknesses indicated, with a minimum flexural strength of 16,000 psi when tested in accordance with ASTM D 790, a minimum allowable continuous service temperature of 176 degrees F (80 degrees C) and of the following general types:
2. **Fasteners:** Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.
3. **Anchors and Inserts:** Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. furnish inserts, as required, to be set into concrete or masonry work.
4. **Colored Coatings for Acrylic Plastic Sheet:** Use colored coatings, including inks and paints for copy and background colors, which are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are confiding for the application intended.
5. **Signs:** Comply with requirements for materials, thicknesses, finishes, colors, designs, shapes, sizes and details of construction. Produce smooth, even, level surfaces, constructed to remain flat under installed conditions. Fabricate signs with edges mechanically and smoothly finished to conform to the following requirements:
  - a. **Corner Condition:** Corners rounded to radius 1/4".
  - b. The manufacturer has the option of using any material listed above.
  - c. **Graphic Content and Style:** 6" x 6" pictograph with verbal description placed directly below the pictogram Equal to Nelson-Harkins TS 150.
  - d. **Subsurface Copy:** Apply copy to the back face of clear acrylic sheet forming the panel face by process indicated to produce precisely formed opaque images, free from rough edges.
  - e. **Use reverse silk-screen process** to print copy; overspray the copy with an opaque background color coating.
  - f. **Use Dupont "Chromalin"** heat and pressure-laminated photopolymer film system to form copy and background color.
  - g. The manufacturer has the option of selecting either process indicated above with prior approval.
  - h. **Panel Material:** Matte-finished clear acrylic sheet with opaque color coating subsurface applied.
  - i. **ADA Compliant :** Provide 1/32" raised copy ( 5/8" min. height) with Grade 2, upper case, sans serif, Braille.

## **PART 3 - EXECUTION**

### **A. EXAMINATION**

1. Examine all surfaces to receive signs to verify that they are complete and suitable to receive signs as specified.
2. Do not proceed with installation of signs until conditions are satisfactory.

### **B. PREPARATION**

1. Prepare surfaces and provide suitable conditions to meet requirements directly related to the installation and placement of fasteners and anchoring devices required to support signs. Provide templates where necessary to aid the placement of signs at specified locations.

C. GENERAL

1. Locate sign units and accessories where indicated, using mounting methods of the type described and
2. in compliance with the manufacturer's instructions.
3. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance. Locate room identification signs to comply with ADA as follows: Locate on wall adjacent to the latch side of the door. Mounting height shall be 60 inches above finish floor to centerline of sign.
4. Wall Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below:
5. Vinyl-Tape Mounting: Use double-sided foam tape, of thickness indicated, to mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
6. Silicone-Adhesive Mounting: Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.
7. Shim Plate Mounting: Provide concealed aluminum shim plates 1/8 inch thick, with predrilled and countersunk holes, at locations indicated and where other mounting methods are not practicable. Attach the plate with fasteners and anchors suitable for secure attachment to the substrate. Attach panel sign units to the plate using the method specified above.
8. Flush Mounting: Mount letters with backs in contact with all surface.

D. CLEANING AND PROTECTION

1. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 10425

**SECTION 10500  
METAL LOCKERS**

**PART 1 – GENERAL**

A. RELATED DOCUMENTS

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Section, apply to this Section.

A. SUMMARY

1. This Section includes the following:
  - a. Wardrobe lockers, including the following:
    1. Double-tier.

C. RELATED SECTIONS:

1. Cast-in-Place Concrete for concrete base: See Section 03300
2. Rough Carpentry for wood furring and grounds: See Section 06100

D. SUBMITTALS

1. **General:** Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
2. **Product Data:** Manufacturer's printed data including materials, accessories, construction, finishes, assembly, and installation instructions for lockers and benches.
3. **Shop Drawings:** Layout and dimensions of metal lockers and benches. Indicate relationship to adjoining surfaces. Show locker elevations and details, fillers, trim, base, sloping tops, and accessories. Include locker numbering sequence. Indicate installation and anchorage requirements.
4. **Samples for Initial Color Selection:** Manufacturer's color charts showing a full range of available colors.
5. **Maintenance Instructions:** Instructions for cleaning lockers and for adjusting, repairing, and replacing locker doors and latching mechanisms.

D. QUALITY ASSURANCE

1. **Single-Source Responsibility:** Obtain locker units and accessories from one manufacturer.

D. DELIVERY, STORAGE, AND HANDLING

1. **Do not deliver** lockers until spaces to receive them are clean, dry, and ready for locker installation.
1. **Protect lockers** from damage during delivery, handling, storage, and installation.
1. **Deliver master keys,** control keys, and combination control charts to Owner.

**PART 2 - PRODUCTS**

A. MANUFACTURERS

1. **Manufacturer:** Subject to compliance with requirements, provide products by one of the following:
  - a. American Locker Security Systems, Inc.
  - a. Art Metal Products, Div. Of Fort Knox Storage Co.
  - a. De Bourgh Manufacturing Co.
  - a. Hadrian Inc.
  - a. List Industries, Inc.
  - a. Lyon Metal Products, Inc.
  - a. Medart, Inc.
  - a. Penco Products
  - a. Republic Storage Systems Co., Inc.

#### A. MATERIALS

1. Steel Sheet: ASTM A 366 (A 366M), commercial-quality, stretcher-leveled, cold-rolled carbon steel sheet, stretcher leveled, free of buckling, scale, and surface imperfections.
1. Hot-Dip Zinc-Coated Steel Sheet: ASTM A 526/A 526M, commercial-quality, zinc-coated, carbon-steel sheet, hot-dip galvanized according to ASTM A 525 (A 525M) with a 60 (ZF 180) or G 60 (Z 180) coating designation.
1. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, with Class C zinc coating, mill phosphatized.
1. Fasteners: Zinc- or nickel-plated steel; slotless-type exposed bolt heads; self-locking nuts or lock washers for nuts on moving parts.
1. Equipment: Manufacturer's standard plated steel hooks or coat rods.

#### A. WARDROBE LOCKERS

1. Body: Form backs, tops, bottoms, sides, and intermediate partitions of flanged 0.0239-inch (0.61-mm) minimum steel sheet.
  - a. Form exposed ends of non-recessed lockers of 0.0598-inch (1.5-mm) minimum steel sheet.
1. Frames: Form channel frames of 0.0598-inch (1.5 mm) minimum steel sheet. Form continuous integral strike on vertical frame members or weld 0.0897-inch (2.3-mm) minimum latch hooks to latch strike frame.
  - a. Cross Frames: Form intermediate channel cross frames to double- or triple-tier lockers of 0.0598-inch (1.5-mm) minimum steel sheet.
  - a. Frame Vents: Fabricate vertical face frames with vents.
1. Door: One-piece steel sheet, flanged at all edges, constructed to prevent springing when opening or closing. Fabricate to swing 180 degrees.
  - a. Thickness: 0.0747 inch (1.9 mm) minimum.
1. Reinforcing: Brace or reinforce inner face of doors over 15 inches (381 mm) wide.
1. Reinforcing and Sound-Dampening Panels: Brace or reinforce inner face of doors with manufacturer's standard reinforcing angles, channels, or stiffener panels.
1. Acoustical Treatment: Fabricate lockers for quiet operation with manufacturer's standard rattle-free latching mechanism and moving components isolated to prevent metal-to-metal contact.
  - a. Reinforce inner face of door with a steel sheet panel filled with sound-deadening insulation.
1. Concealed Vents: Provide slotted perforations in top and bottom horizontal return flanges of doors.
1. Hinges: Steel, full-loop, 5- or 7-knuckle tight pin, 2 inches (51 mm) high minimum. Weld to inside of frame and secure to door with not fewer than 2 factory-installed fasteners that are completely concealed and tamperproof when door is closed.
  - a. Provide at least 3 hinges for each door over 42 inches (1067 mm) high; at least 2 hinges for each door 42 inches (1067 mm) high or less.
1. Recessed Handle and Latch: Manufacturer's standard housing to form recess for latch lifter and locking devices; non-protruding latch lifter containing strike and eye for padlock; and automatic, pre-locking, pry-resistant latch mechanism with latching action as follows:
  - a. Double- and Triple-Tier Lockers: Not less than 2-point latching.

#### A. LOCKS

1. Fabricate lockers to receive the following locking devices:
  - a. Key Lock: 5-pin tumbler keyway, grooved-key flush lock, keyed separately and master-keyed. Furnish 2 cut keys for each lock and 5 cut master keys. Provide bolt operation as follows:
    1. Bolt Operation: Automatically locking springbolt.

#### A. LOCKER ACCESSORIES

1. Equipment: Furnish each locker with the following items, unless otherwise shown:
  - a. Single-, Double-, and Triple-Tier Units: 1 double-prong ceiling hook, and not fewer than 2 single-prong wall hooks.
  - a. Lockers 18 inches (457 mm) Deep or Greater: Provide coat rod in lieu of ceiling hook.

1. Number Plates: Manufacturer's standard etched, embossed, or stamped, nonferrous-metal number plates with numerals not less than 3/8 inch (9 mm) high. Number lockers in sequence indicated. Attach plates to each locker door, near top, centered, with at least 2 fasteners of same finish as number plate.
  - a. Closed Base: 0.0598-inch (1.5-mm) minimum steel.
1. Continuous Metal Base: Steel sheet, channel or zee profiled for stiffness, fabricated in lengths as long as practicable to enclose base and base ends of lockers without additional fastening devices.
  - a. Minimum Thickness: 0.0598 inch (1.5 mm).
1. Filler Panels: 0.0478-inch (1.2-mm) minimum steel sheet, factory fabricated.
1. Boxed End Panels: Manufacturer's standard 0.0598-inch (1.5-mm) minimum steel sheet end-finishing panels to conceal exposed ends of non-recessed lockers.

#### A. FABRICATION

1. Fabricate lockers square, rigid, and without warp, with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch. Weld frame members together to form a rigid, 1-piece structure.
  - a. Form locker body panels, doors, shelves and accessories from 1-piece steel sheet unless otherwise indicated.
  - a. Preassemble lockers by welding all joints, seams, and connections. Grind exposed welds flush.

#### A. FINISHES, GENERAL

1. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
1. Finish all steel surfaces and accessories, except prefinished stainless-steel and chrome-plated surfaces.
1. Protect mechanical finishes on exposed surfaces from damage by applying strippable, temporary protective covering prior to shipment.
1. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within 1/2 of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and they are assembled or installed to minimize contract.

#### A. STEEL SHEET FINISHES

1. Surface Preparation: Solvent-clean surfaces complying with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel complying with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling), and phosphatize surfaces.
1. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard baked-enamel finish consisting of a thermosetting topcoat. Comply with paint manufacturer's instructions for application and baking to achieve a minimum dry film thickness of 1.1 mils (0.028 mm) on doors, frames, and legs, and 0.7 mil (0.018 mm) elsewhere.
  - a. Color and Gloss: As selected by Architect from manufacturer's full range of choices for color and gloss.

### PART 3 – EXECUTION

#### A. INSTALLATION

1. Install metal lockers complete with accessories according to manufacturer's recommendations. Install plumb, level, rigid, and flush.
1. Connect together welded locker groups with standard fasteners according to manufacturer's recommendations, with no exposed fasteners on face frames.
1. Anchor lockers to floors and walls at intervals recommended by manufacturer but no greater than 36 inches (910 mm). Install anchors through back-up reinforcing plates where necessary to avoid metal distortion, using concealed fasteners.
1. Install boxed end panels to conceal exposed ends of nonrecessed lockers.

B. ADJUSTING, CLEANING, AND PROTECTION

1. Adjust doors and latches to operate easily without binding. Verify that integral locking devices are operating properly.
2. Clean interior and exposed exterior surfaces and polish stainless-steel and nonferrous metal surfaces.
3. Protect lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit locker use during construction.
4. Touch up marred finishes, or replace locker units that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

METAL LOCKER PRODUCT DATA SHEET

1. Locker Designation: – SEE DRAWINGS
2. Locker Classification: Wardrobe
- 3.
- ~~4.~~ Locker Material: Steel sheet
5. Locker Fabrication: Knock-down
6. Locker Arrangement: Single-tier
7. Door Style: Louvered vents
8. Hinges: Standard hinge
9. Sides/Backs: Solid
10. Shelf: Solid
11. Base: No base
12. Handle/Latch: Recessed
13. Locking: For padlock

END OF SECTION 10500

**SECTION 10522  
FIRE EXTINGUISHERS AND CABINETS**

**PART 1 - GENERAL**

**A. SUMMARY**

1. Provide portable fire extinguishers and cabinets. Provide mounting brackets where no cabinet is indicated.

**B. SUBMITTALS**

1. Submit for approval shop drawings, product data.

**C. QUALITY ASSURANCE**

1. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

**PART 2 - PRODUCTS**

**A. MATERIALS**

1. Fire extinguishers: UL listed and labeled units; Larson's Manufacturing Co. or approved equal:
  - a. Multi-purpose dry chemical type 2A -40B-C.
2. Cabinets: Enameled steel box with trim, frame, door, and accessories; J. L. Industries or approved equal:
  - a. Model: Architectural Series 2409-6R
  - b. Semi-Recessed mounting.
  - c. Rolled Edge.
  - d. Enameled steel door, baked enamel finish (stainless steel at indoor pool area).
  - e. Vertical Duo door style.
  - f. Finish Clear Satin Anodized

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. Install with wall-hung brackets at locations and heights indicated and acceptable to authorities having jurisdiction.
2. Install cabinets plumb and level at heights acceptable to authorities having jurisdiction.
3. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
4. Restore damaged finishes and test for proper operation. Clean and protect work from damage.

END OF SECTION 10522

**SECTION 10800  
TOILET ACCESSORIES**

**PART 1 – GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this section.

**B. RELATED WORK**

1. Refer to Section 08800-Glazing: Unframed Mirrors.

**C. SUBMITTALS**

1. Submit shop drawings of each item for approval.

**PART 2 – PRODUCTS**

**A. MANUFACTURER**

1. All accessories shall be as made by Accessory Specialties, American Dispenser, Hall Mack, Bobrick, Bradley, Miami-Carey, Parker, Lawson or McKinney.
2. Manufacture and model or series specified for each item are for purposes of type, size, features and design to be provided.

**B. MATERIALS**

1. Manufacturer's standard construction is acceptable, except as herein specified.
2. Stainless steel where specified shall be type 302 or 304 with #4 satin finish.

**C. MIRRORS (MIR)**

1. Frames: Stainless steel channel frame, 20 gauge minimum with square corners mitered to a hairline joint.
2. Backing Plate: 20 gauge minimum galvanized steel one piece construction full height and width secured to frame and equipped with hanging brackets for mounting to manufacturer's standard wall bracket. Secure frame to wall brackets with two theft-proof locking screws for concealed installation.
3. Glass: No. 1 (mirror glazing) quality, polished plate glass with electrolytic copper plating over silver coating followed by a protective coating.
4. Size and Location: Unless noted otherwise on drawings, size shall be 16 inches x 22 inches, top of mirror 72 inches above floor.
5. Integral Shelf: Stainless steel, 22 gauge minimum, attached to frame with concealed stainless steel brackets. Shelf shall be 5 inches depth full width with return edges at all sides. Shelf over 36 inches width shall be constructed of 18 gauge stainless steel.
6. Acceptable Manufacturers (Framed Mirrors): Accessory Specialties 620, American Dispenser 500 Series, Bobrick B-165, Bradley 710, Lawson 1622, Miami-Carey 1622, Parker 2010, McKinney 190.
7. Acceptable Manufacturers (Mirror-Shelf Combination): Accessory Specialties 625, Bobrick B-166, Bradley 715, Lawson 1622 MS, Miami-Carey 9000 Series, Parker 52010, McKinney 195.

**D. ROBE HOOKS (RH)**

1. Construction: Double robe hook, brass or zinc alloy with polished chrome plate finish.
2. Location: Provide one at each private toilet room.
3. Acceptable Manufacturers: Accessory Specialties 745Z, American Dispenser 528, Bobrick B-819, Bradley 932, Hall Mack 682, Lawson 315, Miami-Carey 8032, Parker 527, McKinney 1443.

- E. TOILET PAPER HOLDER (TPH)
1. Construction: Recessed, brass or zinc alloy, polished chrome plated finish, complete with telescoping chrome plated metal roller and standard mounting plates to suit wall conditions.
  2. Location: Provide one at each water closet not located in a toilet partition.
  3. Acceptable Manufacturers: Accessory Specialties 402Z, American Dispenser 589, Bobrick B-667, Bradley 5102, Hall Mack 675, Lawson 359, Miami-Carey 8002, Parker 528, McKinney 1482.
- F. GRAB BARS (GB)
1. Construction: 1 1/2 inches O.D., stainless steel, minimum wall thickness of .049 inches with manufacturer's standard flanges, 1 1/2 inches space between bar and wall and smooth surface.
  2. Anchoring Devices: All grab bars shall be complete with anchoring devices and fasteners in accordance with wall conditions.
  3. Mounting: Concealed flanges with back plates and a minimum of three socket head set screws. Mount between 33 inches -36 inches to centerline 12 inches from adjacent wall.
  4. Mounting: Exposed flanges with a minimum of two countersunk fastening holes. Mount 33 inches above floor unless shown otherwise.
  5. Length: 24 inches, unless noted otherwise on drawings.
  6. Acceptable Manufacturers: Accessory Specialties 3200 Series, Bobrick B-6206 Bradley 812-S Series, Lawson 2600-SS modified, Miami-Carey 6200 Series, Parker 825S Series, AMI 955, McKinney 9604.
- G. MOP HOLDERS (MH)
1. Construction: Stainless steel strip, 20 gauge minimum with 3 serrated rubber cam holders.
  2. Location: Provide one unit at each service receptacle.
  3. Acceptable Manufacturers: Accessory Specialties 796A, American Dispenser 518, Bobrick B-223, Bradley 995, Miami-Carey WR-506, Parker 608, McKinney 233.
- H. TOWEL DISPENSER
1. Construction: Gray ABS plastic, equipped for dispensing single fold, multi-fold or c-fold towels. Doors shall be equipped with tumbler locks.
  2. Acceptable Manufacturers: Accessory Specialties, Bradley, equal to Bobrick B-5262.
- I. SANITARY NAPKIN DISPOSAL
1. Gray ABS Plastic.
  2. Manufacturer equal to Bobrick B-5270.
- J. SOAP DISPENSER
1. Construction: ABS Plastic
  2. Antibacterial soap valve
  3. Manufacturer equal to Bobrick B-5090

### **PART 3 - EXECUTION**

- A. INSTALLATION
1. Provide fasteners such as anchors, bolts and other necessary devices as required for installation of all items.
  2. Exposed fasteners shall be theft-resistant and finished to match the accessories.

END OF SECTION 10800

**SECTION 12300  
MANUFACTURED CASEWORK**

**PART 1 - GENERAL**

A. SECTION INCLUDES

1. Laminate Clad Cabinets.
1. Countertops.
1. Utility Shelving.

A. RELATED SECTIONS:

1. Refer to Section 06100-Rough Carpentry.
1. Refer to Section 06400-Architectural Casework.
1. Refer to Section 07900-Joint Sealers.
1. Refer to Section 09650-Resilient Flooring (Vinyl Wallbase).

A. QUALITY CRITERIA

1. Fabrications: AWI "Architectural Woodwork Quality Standards."
1. Cabinet Standard: Comply with ANSI/KCMA A 161.1-1995.

A. SUBMITTALS

1. Supplier will furnish shop drawings, which are taken from the Architect's drawings, specifically calling out the cabinet nomenclature and sizes. Supplier shall also submit floor plans and elevations for the cabinets showing layout, dimensions and details of installation.
1. Submit cabinet door samples with manufacturer's range of colors for selection by the Architect.
1. Submit manufacturer's literature on cabinets.

**PART 2 - PRODUCTS**

A. MANUFACTURERS

1. Provide all casework from the following manufacturer:
  - a. Merillat Industries, P.O. Box 1946, Adrian, MI 49221, in "AVIA" style.
  - a. Architect/Owner approved equal.

A. MATERIALS

1. Case Construction shall be 5/8 inches thick-48 lb. density industrial grade particleboard laminated on both sides with a water and household chemical/abrasion resistant melamine.
1. End panels shall be 5/8 inches thick-48 lb. density industrial grade particleboard laminated on both sides with water and household chemical/abrasion resistant melamine. The front exposed edge is covered with .4mm thick melamine edgebanding.
1. Cabinet tops and bottoms shall be 5/8 inches thick-48 lb. density industrial grade particleboard. These components shall be laminated on both sides for stability and uniform appearance. 8mm dowels and adhesive shall be used in precision holes to join the tops and bottoms to the end panels. The front exposed edge shall be covered with .4mm thick melamine edgebanding. 36 inches wide bottoms for wall double-face cabinets shall be 3/4 inches thick to provide maximum strength without the use of center dividers.
1. All backs shall be 1/4 inch thick-50 lb. density particleboard with a water and household chemical resistant 4 mil thick vinyl laminated to the interior side. Wall cabinet backs shall be reinforced with 1/2 inch thick particleboard screw rails at the top and bottom. Wall cabinet backs shall be glued, stapled and retained by a groove in the end panels, top and bottom. Base cabinet backs shall be attached in the same manner. A 5/8 inches thick back rail shall extend to floor for added strength.

1. Toespace shall be 5/8 inches thick-48 lb. density industrial particleboard laminated with water and household chemical/abrasion resistant melamine to match cabinet finish. Toe boards shall be removable and held in place by metal clips mounted to cabinet sides. This can facilitate leveling of cabinet during installation and ensure complete clean up of kitchen spills. Toe board ends shall be edgebanded with .4mm thick melamine for a finished appearance.
1. Shelving: All 24 inches or higher wall cabinets shall have adjustable shelves made of 5/8 inch thick-48-lb. density industrial grade particleboard. The shelf top and bottom shall be laminated with the same melamine as the cabinet interior. The front exposed edge shall be covered with a .4mm thick color matched melamine edgebanding. Wall cabinets shall be precision drilled to provide (three) small (5/32 inches) diameter adjustable holes per shelf centered on 2-1/2 inches increments. Each shelf shall be fitted with durable steel reinforced nylon shelf supports. This combination provides a clean, uninterrupted interior that accommodates easy storage of tall and short items. 3/4 inch shelves shall be used on the following special cabinets: W332427, W362427, W392427, WDFMGD3630, WDF3624, WDF3630, OC3396. The extra shelf thickness on these deeper and wider cabinets omits the need for center dividers thus increasing storage flexibility while preventing sag.
1. Drawer and Door Construction: Drawer core fronts, sides and backs shall be 5/8 inch thick-48 lb. density industrial particleboard. Standard drawer height inside is 3-5/8 inches. Side shall be rabbeted to accept the front and back. All drawer components shall be laminated on the exterior side with a water and household chemical resistant 2.5 mil rigid vinyl. The interior faces of the drawer sides shall be laminated with a water and chemical resistant 2.5 mil semi-rigid vinyl and wrapped around the top square edges of the drawer components.
1. The drawer bottom shall be 1/4 inch thick-50 lb. density particleboard with 2.5 mil vinyl on the interior side. The bottom shall be attached to the sides, back and front with adhesive and staples. The drawer slide "L" shaped lip wraps the drawer bottom and reinforces drawer construction. Drawer bottoms 30 inches wide and over shall be 3/8 inches thick-48 lb. density industrial particleboard with 2.5 mil thick vinyl on the interior side.
1. All base cabinets except B9 shall have one full-width roll-out tray consisting of 1/2 inch thick 48 lb. density particleboard sides. Roll-out trays shall be adjustable and mounted on prebored holes in base and tall cabinets sides. All tray components shall be laminated on the exterior side with a water and chemical resistant 2.5 mil vinyl. The tray sides shall be butted to the tray front with 8mm hardwood dowels and PVA adhesive. The tray front shall be 1/2 inch thick-48 lb. density industrial grade particleboard wrapped with 4 mil thick vinyl. The interior faces of the drawer sides and backs shall be laminated with a 4 mil vinyl and wrapped around the top radiused edges of the drawer components.
1. Avia Door and Drawer fronts shall be 5/8 inches thick-48 lb. density industrial particleboard laminated on both sides with water and household chemical/abrasion resistant white melamine. The vertical and horizontal edges shall be edgebanded with solid color PVC edgebanding.

#### A. HARDWARE

1. Merillat's exclusive WhisperGlide side-mounted, wrap around roller drawer and tray system shall be mounted on all drawer and tray cores. The system shall consist of a pair of corrosion resistant white (for Avia) epoxy coated 1.25mm steel slides that roll on close-tolerance nylon wheels. The wheels shall be isolated from the metal slides with a pliable "O" ring tire which dampens the noise normally associated with most roller slide systems. Drawer and tray guides are rated to a capacity of 75 lbs.
1. Doors shall be mounted on concealed, self-closing, nickel-finished hinges. Standard opening angle is 120 degrees. Doors will self-close within 10 degrees of the cabinet face. Hinges shall have six-way adjustments.

### **PART 3 - EXECUTION**

#### **A. INSTALLATION**

1. Verify sizes and shapes of countertops and cabinet spaces prior to countertop fabrication/ordering.
2. Contractor shall verify all on-site dimensions and notify supplier of any variances or changes.
3. Install cabinets as indicated on the drawings. Install plumb and level with all joints tight, in accordance with instructions shipped with cabinets.
4. Shim cabinets as required and trim with molding to match cabinets.
5. Provide scribe strips matching face where cabinets meet partitions. Scribe tightly to walls, and apply silicone sealant to finish joint.
6. Complete hardware installation and adjust doors and drawers for proper operation. Refer to Section 01300-Submittals for Owner Verification of cabinet arrangements.
7. Clean cabinets and leave in perfect operating order with all doors, shelves and drawers aligned and plumb.

END OF SECTION 12300

**SECTION 13170  
KENNEL EQUIPMENT-GALVANIZED STEEL**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. DESCRIPTION**

1. Section Includes: Enclosed kennel system for interior installation, complete with fencing, gates, isolation panels, rest benches and integral drainage system. Plumbing for the system is specified in Section 15400-Plumbing.

**C. SUBMITTALS**

1. Shop Drawings: Submit system layout and details, including fastener types and locations, isolation between units, and special requirements for blocking and attachment.
2. Manufacturer's Data: Submit data of performance characteristics of the entire system, including materials, products, fasteners and sealants.
3. Maintenance Data: Submit manufacturer's recommended maintenance schedule and methods.

**D. DELIVERY, STORAGE AND HANDLING**

1. Delivery and storage: Protect materials from moisture and damage. Store off ground in a dry, ventilated space.

**PART 2 - PRODUCTS**

**A. MANUFACTURER**

1. All equipment listed is as manufactured by the Mason Company Leesburg, Ohio (800) 543-5567.
2. Submit other manufacture's literature to Architect for consideration as an approved equal.

**B. KENNEL PARTITIONS**

1. Framework:
  - a. All framework shall be made from Schedule 40 ASTM A-53-8, 1-1/8" O.D., 1.13 lbs. per foot or equivalent full weight pipe.
2. Lightweight tubing not permitted. Pipe shall be fully immersed in a bath of molten zinc (zinc conforming to ASTM B-6) commonly called hot-dip galvanizing, so that both the interior and exterior pipe surfaces will be coated with equal amounts of zinc. The zinc coating will be 1.8 ounces per square foot of surface as measured by the methods ASTM A-90.
3. Center brace pipes shall be factory-installed on all panels 6' to 10-1/2' in length. On panels longer than 10-1/2', two braces shall be installed. Panels installed on graded (sloped) floors shall be manufactured to follow the slope. The Sani-Kennel Isolation Channel shall be used on the base of all kennel partitions.
4. Sani-Kennel Isolation Channel: Shall be made of 6063-T5 aluminum extrusion. Two panel hangers shall be provided for channels up to 10 feet long. Three panel hangers are used for channels in excess of 10 feet long.
5. Fabric: Fabric shall be woven from Smooth-Seal electrogalvanized zinc armored wire. The zinc coating shall be a minimum of 1.2 ounces of pure zinc per square foot of wire surface in accordance with ASTM A-392-84 Class I in its entirety.
6. Mesh: There shall be a uniform diamond square mesh of 1-1/2", between the parallel sides after weaving #11 gauge wire into chain link fabric. All fabric shall be knuckled for safety.
7. Isolation panels: ABS (Acrylonitrile Butadiene Styrene) or Fiberglass Reinforced (FRP) plastic panels. Color: Blue
8. Welds: All corners shall be electrically precision welded under pressure. All welds shall be ground, cleaned and given two zinc rich coatings. Coatings shall be at least 95% pure zinc when dry to provide optimal protection against rust.

9. Never-Fail Latch: The latch bar and catch shall be made from malleable iron in accordance with ASTM A-47-77 Class 32510. The swing pendant shall be made from solid cast aluminum alloy (#43) in accordance with ASTM S-5A. Automatically latches when gate is closed. Swinging pendant prevents latch bar from opening accidentally. Never-Fail latches shall be factory-installed on all swing gates.
10. Gate Unit Hinges: Shall be made from malleable cast iron in accordance with ASTM A-47-77 Class 32510. Each clamp shall have two halves joined by 5/16" x 1-1/2" hot-dipped, galvanized carriage bolt.
11. Panel and Triple Clamps: Shall be made from solid cast aluminum alloy (#43) in accordance with ASTM S-5A. Each clamp shall have two halves joined by 5/16" x 1-1/2" hot-dipped, galvanized carriage bolts.

C. REST BENCH

1. The frame and legs shall be made from full weight 1-1/8" O.D. galvanized pipe. Resting area shall be made from ABS plastic 0.250 thickness and fastened by aluminum keyhole clamps with zinc-plated screws.
2. All corners shall be precision welded, ground, cleaned and covered with a rich coating of zinc paint. A polypropylene plug shall be inserted in each leg.

D. RECORD HOLDERS

1. Provide one clipboard type stainless steel record holder for each kennel along with attachment clips to secure them to the doors of the kennels.

E. FEED BOWLS

1. Provide one water bowl and one feed bowl for each kennel along with mounting brackets to secure them to the doors of the kennels. Bowls shall be stainless steel, autoclavable, and easily removable for cleaning.

**PART 3 - EXECUTION**

A. INSTALLATION

1. Install system complete per manufacturer's instructions.
2. Anchor frame members rigidly to masonry walls.
3. Fabric Attachment: All fabric shall be manufactured undersized by 1/4" to be fitted in the pipe frame. Fabric shall be stretched taut to the inside of the centerline of the pipe frame under tension. Fabric shall be laced with #13 gauge wire at each intersection to the pipe frame so that the fabric remains tight. There shall be tie wires secured to all vertical braces and at every intersection.
4. Coordinate installation of chain link fabric with installation of Sanitary Wall Panels Channels shall be secured and sealed to the floor with elastomeric, silicone sealant, to prevent leakage under isolation channel.
5. Clean entire installation. Remove sealant smears and other contaminants. Replace portions of system that cannot be adequately cleaned.

END OF SECTION 13170

**SECTION 13171  
KENNEL EQUIPMENT-STAINLESS STEEL**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. DESCRIPTION**

1. Section Includes: Enclosed kennel system for interior installation, complete with fencing, 32", 16" guillotine doors, gates, isolation panels, rest benches and integral drainage system. Plumbing for the system is specified in Section 15400 - Plumbing.

**C. SUBMITTALS**

1. Shop Drawings: Submit system layout and details, including fastener types and locations, isolation between units, and special requirements for blocking and attachment.
2. Manufacturer's Data: Submit data of performance characteristics of the entire system, including materials, products, fasteners and sealants.
3. Maintenance Data: Submit manufacturer's recommended maintenance schedule and methods.

**D. DELIVERY, STORAGE AND HANDLING**

1. Delivery and storage: Protect materials from moisture and damage. Store off ground in a dry, ventilated space.

**PART 2 - PRODUCTS**

**A. MANUFACTURERS**

1. All equipment listed is as manufactured by Shor-Line, Schroer Manufacturing Co., Kansas City, MO 64108, (800)444-1579.
2. LGL Animal Care Products, Inc., 1520 Cavitt St., Bryan, TX 77801, (409)775-1776.
3. Snyder Manufacturing Co., 6228 S. Troy Cir., Englewood, CO 80111-6422, (800)422-1932.
4. Suburban Surgical Company, Inc., Wheeling, IL 60090, (800)323-7366.
5. Submit other manufacture's literature to Architect for consideration as an approved equal.

**B. KENNEL SPECIFICATIONS**

1. Shell: Kennel is made of 22 gauge Type 304 stainless steel with a satin finish (60" & 72" kennels made of 20 gauge stainless steel). Three piece seam welded construction. All cages (except 60" & 72" ) have a urine-retaining lip to prevent spillage out the front of kennel.
2. Frame: All frames made of 19 gauge Type 409 stainless steel. Insert nuts used in frame for hardware attachment. No ordinary spotweld nuts with plating that is burned off when welded. A stainless steel floor brace channel is present on all kennels. At least two are present on 36" wide and larger kennels. These braces offer additional floor support for large breeds.
3. Door: Doors are constructed entirely of Type 304 stainless steel. Electropolished to a satin finish, with no sharp areas on door welds or rod ends. Doors are easily removed. Hinge system allows doors to be removed without the use of tools. Doors can be reversed to accommodate right hand or left hand opening without additional hardware. Latch and frame are 3/8" diameter, additional horizontal bars are 1/4" diameter, vertical rods are 3/16" diameter spaced 1" apart. Double door kennel has "quick removal center post" (no tools needed) for easy placement of recumbent patient. Door has bottom loops to prevent paper from falling out. Door fits securely inside kennel with no gaps between kennel shell and door frame greater than 1/4" on sides.
4. Latch: Latch is stainless steel, self-locking, with dual latch points. Latch secures door automatically when door is pushed against latch from outside the kennel. Nylon bushings on latch for quiet secure operation requiring no lubrication. Latch bar is made of 11 gauge stainless steel. A hole is present at bottom of latch bar to allow for additional locking device, such as a padlock.
5. Trim: All trim hardware and screws are stainless steel.

**C. RUN GATE AND PANEL SPECIFICATIONS**

1. Gate: Frame is constructed of 1-1/4" square tube, 18 gauge wall, Type 304 stainless steel, with 180 grit finish for good appearance and ease of cleaning. 1-1/4" square tube horizontal center support for added strength. Frame is drilled to accept grill rods which are inserted into frame for added strength. Grill is constructed of 1/4" diameter stainless steel rods. Spotwelded at all intersections and tack welded to frame. Grill vertical rods are on 1-1/2" centers and horizontal rods are on 6" centers.
2. Panel: Frame and grill specifications same as for gate. Isolation panels (48" high or full isolation) are constructed with two sheets of 20 gauge Type 304 stainless steel with satin finish. For reduced dirt collection and ease of cleaning. Sound deadened panels reduce noise levels to a minimum and offer added panel strength. Floor support rings made from 3/8" diameter stainless steel rod provide rigid support for floor sections. Unique design practically eliminates undesirable pockets, ledges, or holes which could harbor debris. Floor support rings are designed to allow floors to be tilted up for easy access to floor or drain system below.
3. Floor Sections: Supplied in two sections for 60" deep runs and three sections for 72" deep runs for ease of removal and cleaning. Constructed of 9 gauge expanded steel with 1"x1"x1/4" angle frame and center support covered with soft PVC coating.
4. Latch: Latch is same as kennel latch. Latch is stainless steel, self-locking, with dual latch points. Latch secures door automatically when door is pushed against latch from outside the kennel. Nylon bushings on latch for quiet secure operation requiring no lubrication. Latch bar is made of 11 gauge stainless steel. A hole is present at bottom of latch bar to allow for additional locking device, such as a padlock.
5. Trim: Supplied with stainless steel hardware including screws and nuts for hardware attachment to gates or panels to finish standard installations. All wall fastening screws are supplied by customer/installer.

#### D. REST BENCH

1. The frame and legs shall be made from full weight 1-1/8" O.D. galvanized pipe. Resting area shall be made from ABS plastic 0.250 thickness and fastened by aluminum keyhole clamps with zinc-plated screws.
2. All corners shall be precision welded, ground, cleaned and covered with a rich coating of zinc paint. A polypropylene plug shall be inserted in each leg.

#### E. RECORD HOLDERS

1. Provide one clipboard type stainless steel record holder for each kennel along with attachment clips to secure them to the doors of the kennels.

#### F. FEED BOWLS:

1. Provide one water bowl and one feed bowl for each kennel along with mounting brackets to secure them to the doors of the kennels. Bowls shall be stainless steel, autoclavable, and easily removable for cleaning.

### **PART 3 - EXECUTION**

#### A. INSTALLATION

1. Install system complete per manufacturer's instructions.
2. Anchor frame members rigidly to building supports; provide wood blocking in partitions as required.
3. Coordinate installation of system with installation of Sanitary Wall Panels; seal all penetrations through panels per Section 09986 - Sanitary Wall Panels.
4. Connect drainage system to building plumbing and test operation per Section 15400 - Plumbing.
5. Connect power to the light fixtures and exhaust fans of the Isolation Units per manufacturer's instructions. Test lights and ventilation for proper function, and modify system as required for fully functional units.
5. Clean the system after installation is complete. Remove sealant spatters, accumulated dirt and other contaminants. Replace portions of the system which cannot be adequately cleaned.

END OF SECTION 13171

**SECTION 13172**  
**KENNEL EQUIPMENT-GUILLOTINE DOORS**

**PART 1 - GENERAL**

A. REFERENCE

1. Applicable provisions of Division 1 shall govern work of this Section.

B. DESCRIPTION

1. Section Includes: Dog Kennel doors to be installed in building walls.

C. SUBMITTALS

1. Shop Drawings: Submit system layout and details, including fastener types and locations, isolation between units, and special requirements for blocking and attachment.
2. Manufacturer's Data: Submit data of performance characteristics of the entire system, including materials, products, fasteners and sealants.
3. Maintenance Data: Submit manufacturer's recommended maintenance schedule and methods.

D. DELIVERY, STORAGE AND HANDLING

1. Delivery and storage: Protect materials from moisture and damage. Store off ground in a dry, ventilated space.

**PART 2 - PRODUCTS**

A. MANUFACTURERS

1. Security Boss Manufacturing LLC, Moore Pet Supplies, -800-829-7876.
2. Mason Company, 60 Depot Street, Leesburg, OH 45135, 800-543-5567.
3. Shor-Line, Schroer Manufacturing Co., Kansas City, MO 64108, (800)444-1579.
4. LGL Animal Care Products, Inc., 1520 Cavitt St., Bryan, TX 77801, (409)775-1776.
5. Snyder Manufacturing Co., 6228 S. Troy Cir., Englewood, CO 80111-6422, (800)422-1932.
6. Suburban Surgical Company, Inc., Wheeling, IL 60090, (800)323-7366.
7. Stone Mountain Pet Products, Larson System Inc. , 10073 Baltimore Street, NE, Minneapolis, MN 55449, 763-450-3611
8. Options Plus, Inc, PO Box 238 143 Tuttle Ave, Fredericktown, OH 43019, 740-694-9811

Submit other manufacture's literature to Architect for consideration as an approved equal.

**TYPE 1 DOOR SPECIFICATIONS**

1. Door to slide vertically in track mounted to interior wall. (Wall opening by others.)
2. Door to be insulated and fit tight in channel when closed.
3. Door to operate with pulley and chain from interior kennel room walk aisle.

**TYPE 2 DOOR SPECIFICATIONS**

1. Door to be free swinging to allow free doorway access to pet
2. Door to fit tight to wall to minimize insect and small animal access.

**DOOR SIZES**

1. All doors to be nominal size of **16" x 30"**. Contractor to coordinate wall opening with door installation.

**PART 3 - EXECUTION**

A. INSTALLATION

1. Install system complete per manufacturer's instructions.
2. Anchor frame members rigidly to building supports.
3. Coordinate installation of system with installation of interior wall finish; seal all penetrations through wall finish.

END OF SECTION 13172

**SECTION 13180  
STAINLESS STEEL CAGES**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. DESCRIPTION**

1. Section Includes: Stainless Steel cages in the configuration and dimensions shown on drawings.

**C. SUBMITTALS**

1. Shop Drawings: Submit system layout and details, including fastener types and locations, isolation between units, and special requirements for blocking and attachment.
2. Manufacturer's Data: Submit data of performance characteristics of the entire system, including materials, products, fasteners and sealants.
3. Maintenance Data: Submit manufacturer's recommended maintenance schedule and methods.

**D. DELIVERY, STORAGE AND HANDLING**

1. Delivery and storage: Protect materials from moisture and damage. Store off ground in a dry, ventilated space.

**PART 2 - PRODUCTS**

**A. MANUFACTURER**

1. All equipment listed is as manufactured by
  - i. Shor-Line, Schroer Manufacturing Co. 511 Osage, Kansas City, KS 66105, 913-281-1500
  - ii. Suburban Surgical co., Inc., 275 Twlfth St., Wheeling, IL 60090 847-537-9320
  - iii. VSSI, Carthage, MO 64836, 800-29909525
  - iv. LGL
2. Submit other manufacture's literature to Architect for consideration as an approved equal

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. Install system complete per manufacturer's instructions.
2. Clean entire installation. Remove sealant smears and other contaminants. Replace portions of system that cannot be adequately cleaned.

END OF SECTION 13180

**SECTION 13185  
LAMINATED CAT CONDOS**

**PART 1 - GENERAL**

**A. REFERENCE**

1. Applicable provisions of Division 1 shall govern work of this Section.

**B. DESCRIPTION**

1. Section Includes: Laminated face wood fiber cages in the configuration and dimensions shown on drawings. Nominal individual unit dimension is 30" x30" x 30". *Note custom dimension units.*
2. Units in Cat Adoption room to have stainless steel front doors with a clear acrylic back for viewing from Lobby.
3. Units in Cat Shelter to have stainless steel front doors with solid backs.
4. All units with rounded corners in the interior.

**C. SUBMITTALS**

1. Shop Drawings: Submit system layout and details, including fastener types and locations, isolation between units, and special requirements for blocking and attachment.
2. Manufacturer's Data: Submit data of performance characteristics of the entire system, including materials, products, fasteners and sealants.
3. Maintenance Data: Submit manufacturer's recommended maintenance schedule and methods.

**D. DELIVERY, STORAGE AND HANDLING**

1. Delivery and storage: Protect materials from moisture and damage. Store off ground in a dry, ventilated space.

**PART 2 - PRODUCTS**

**A. MANUFACTURER**

1. All equipment listed is as manufactured by
  - i. Shor-Line, Schroer Manufacturing Co. 511 Osage, Kansas City, KS 66105, 913-281-1500
  - ii. Suburban Surgical co., Inc., 275 Twlfth St., Wheeling, IL 60090 847-537-9320
  - iii. Snyder Mfg. Co., East Plant, New Sharon, IA 50207, 800-631-4101
  - iv. Clark Cages, P..O Box 555, North Bay, ON P1B 1HO, 800-461-9972
2. Submit other manufacture's literature to Architect for consideration as an approved equal

**PART 3 - EXECUTION**

**A. INSTALLATION**

1. Install system complete per manufacturer's instructions.
2. Clean entire installation. Remove sealant smears and other contaminants. Replace portions of system that cannot be adequately cleaned.

END OF SECTION 13185

**SECTION 13200  
FLAG POLE**

PART 1 – GENERAL

A. REFERENCE;

- 1- Applicable provisions of Division 1 shall govern work of this section.
- 2- Coordinate with Division 2 related site work.

B. General

- 1 - The flagpole work is to include pole, hardware, ground sleeve, excavation, backfill, and all other labor, equipment, and materials necessary to complete the work.

PART 2- PRODUCT

The aluminum flagpole shall be 30 feet high, .188" wall thickness minimum, bronze anodized with 5 1/2" butt min. diameter and in-ground sleeve. Wind load shall be rated for Chicago, Illinois. Poles shall include a 360 degree truck external halyard system with crank and locking cover for the cleat. Poles shall be supplied by All American Flag Company, St, Charles Il. (630) 377-1985, Fox Valley Flags source (630) 365-5909, or approved equal. Pole top ornament shall be a gold finish Eagle.

PART 3- EXECUTION

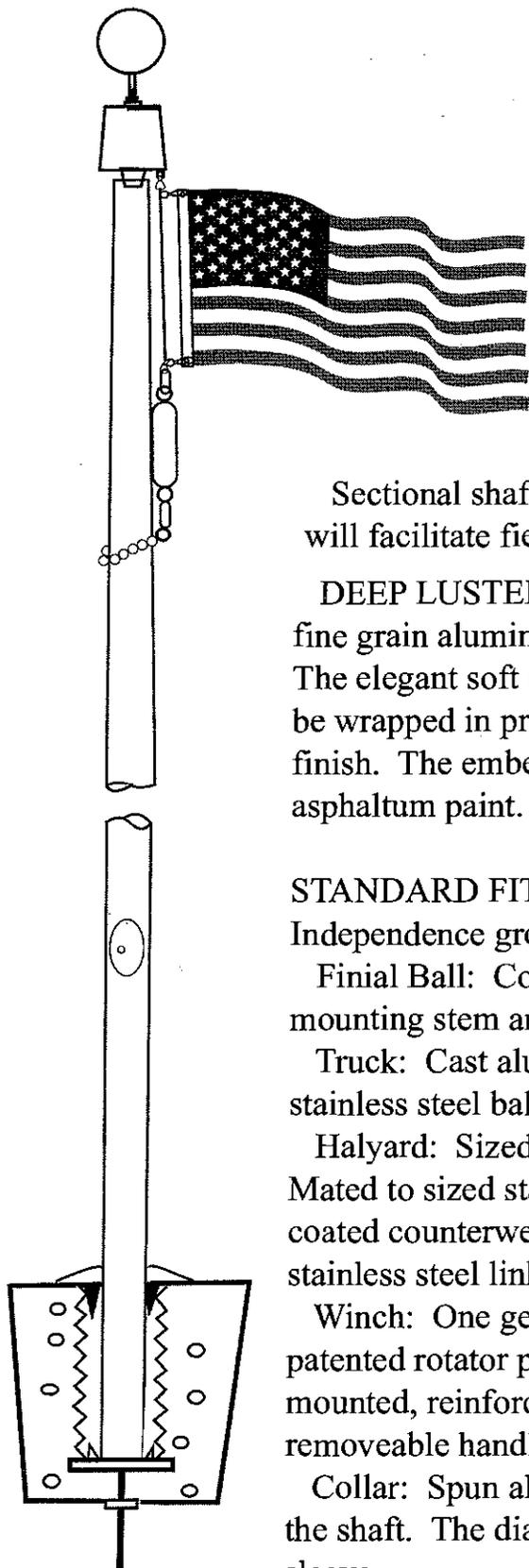
A. Installation

1. Contractors shall install the Flagpoles in the locations shown using ground sleeves and centering wedges per the manufacturer's instructions. Contractor shall replace or repair poles if damaged during installation.
2. Backfill planter with topsoil as shown.

END OF SECTION 13200

# Concord Industries, Inc. Independence Ground Set Cone

## Tapered Aluminum Flagpoles



**GENERAL:** CONCORD Independence winch-type concealed halyard flagpoles are made from all new seamless 6063-T6 aluminum tubing, having a uniform conical taper of approximately 1" in every 5'6". Overall lengths to 38'6" can be fabricated in one piece. Overall assembled lengths of 28'0" to 38'6" can be fabricated in two sections for easier shipping. Assembled lengths of 44' & 49'6" are produced in 2 sections. Assembled lengths of 55' to 88' are produced in 3 sections.

Sectional shafts are factory fitted with a self-aligning internal sleeve which will facilitate field assembly without welding.

**DEEP LUSTER FINISH:** All Concord Flagpoles shall be highly polished with fine grain aluminum oxide cloths resulting in a high quality deep luster finish. The elegant soft sheen finish remains maintenance free. Each shaft section shall be wrapped in protective paper and shipped in a hard fiber tube to protect the finish. The embedded portion of the shaft shall be given a heavy coat of asphaltum paint.

**STANDARD FITTINGS:** The fittings listed are standard for all Concord Independence ground mounted flagpoles:

**Finial Ball:** Constructed of #14 ga. aluminum with a flush seam, threaded mounting stem and gold anodized finish. Ball is sized to match shaft diameter.

**Truck:** Cast aluminum revolving, concealed halyard truck complete with 26 stainless steel ball bearings and a stainless steel sheave.

**Halyard:** Sized stainless steel concealed halyard assembly with internal swivel. Mated to sized stainless steel cable flag arrangement, two chrome swivel snaps, a coated counterweight, beaded nylon ball over steel cable retainer ring and stainless steel links.

**Winch:** One gearless stainless steel direct drive winch internally mounted on a patented rotator plate system. Accessed behind a locking door fitted to a flush mounted, reinforced, cast aluminum frame. The winch is operated with a removeable handle inserted through the access door.

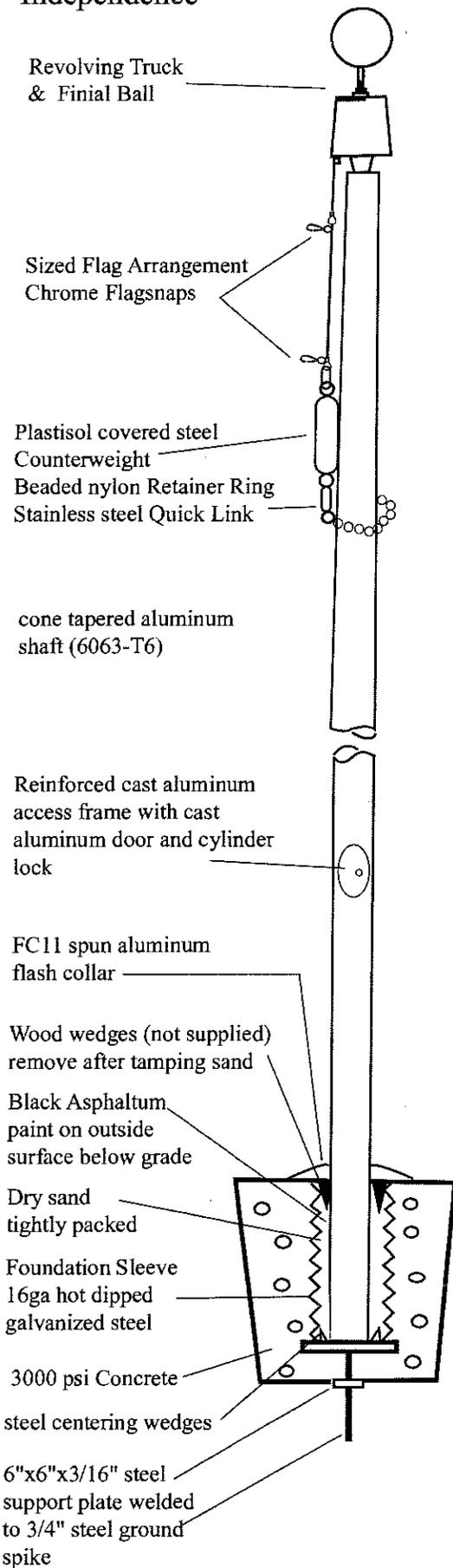
**Collar:** Spun aluminum type FC11 ornamental flash collar finished to match the shaft. The diameter of the collar to be at least 1" greater than the foundation sleeve.

**Foundation Sleeve:** Fabricated from #16 ga. galvanized steel, with a base plate whose square dimension is at least the i.d. of the sleeve plus 3". A 6" square set plate is attached to the 3/4" steel ground spike at least 6" below the base plate. The ground spike is not less than 18" long.

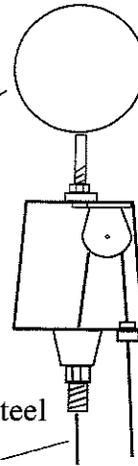
# Independence

**Concord Industries, Inc**

4150-A Kellway Circle, Addison, Texas 75001



aluminum finial  
ball, gold  
anodized finish

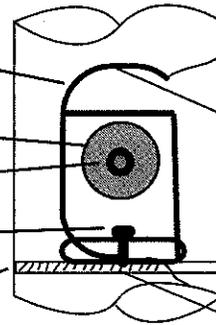


Cast aluminum truck  
body and threaded  
spindle. Stainless  
steel ball bearing  
assemblies.

1/8" stainless steel  
aircraft cable  
halyard

Cast Aluminum  
reinforced access  
frame

Winch  
Crank Hole  
Locking Bolt  
Mounting Plate



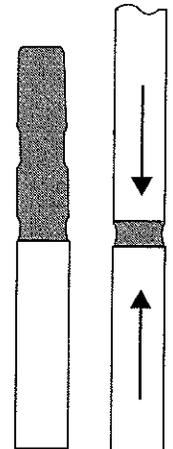
Crank Access Port  
or Cover Button

Cast  
Door  
and  
Lock

Shafts with an overall length of 44'  
or 49'6" are shipped in 2 sections.  
Shafts with an overall length of 55'  
or greater are shipped in 3 sections.

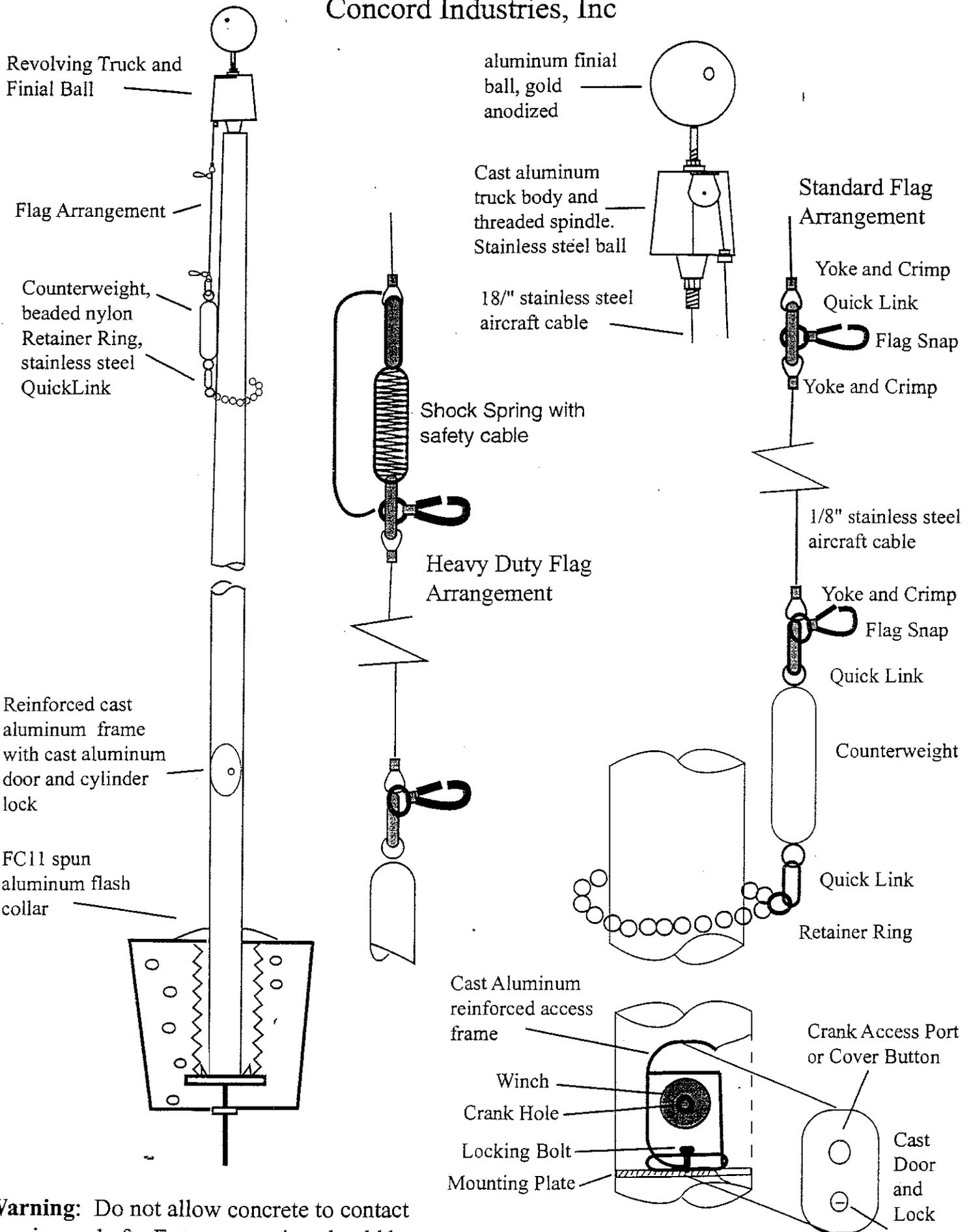
friction fit jam  
sleeve

Self Aligning Field  
Sleeve - all two &  
three piece shafts



**Warning:** Extreme caution should be exercised when installing flagpoles near overhead powerlines, or in the vicinity of buried cables.

# Concord Industries, Inc



**Warning:** Do not allow concrete to contact aluminum shaft. Extreme caution should be exercised when installing flagpoles near overhead powerlines, or in the vicinity of buried cables.