SECTION 00 0101
HRA PROJECT TITLE PAGE

591 LAFOND

INVEST SAINT PAUL INITITIVE
NEIGHBORHOOD STABILIZATION PROGRAMS
AND REBUILDING PLAN 2009-2013

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The Housing and Redevelopment Authority of Saint Paul, Minnesota
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SECTION 00 4002

HRA BID INVITATION

PART 1 GENERAL

1.01 CONTACT TRANSLATION

A. In Hmong - Ceeb toom. Yog koj xav tau kev pab txhais cov xov no rau koj dawb, Amy Filice 651-266-6568;

B. In Spanish - Atención. Si desea recibir asistencia gratuita para traducer esta información, llame a Amy Filice 651-266-6568;

C. In Somali - Ogow. Haddii aad dooneyso in lagaa kaalmeeyo tarjamadda macluumaadkani oo lacag la' aan wac, Amy Filice 651-266-6568.

1.02 PROJECT SUMMARY

A. Project description: This is a Residential Renovation project located at 591 Lafond. This project is funded by Neighborhood Stabilization Program through the The Housing and Redevelopment Authority of Saint Paul, Minnesota. This project is not required to conform to Federal and/or Little Davis Bacon requirements.

1.03 NOTICE TO PROSPECTIVE BIDDERS

A. These documents constitute an invitation to bid to General Contractors for the construction of the project described within this bid manual.

1.04 OWNERSHIP INFORMATION

A. The Owner, The Housing and Redevelopment Authority of Saint Paul, Minnesota, hereinafter, referred to as Owner.

B. Owner's Project Manager: Tchu Yajh
   Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100
   Phone Number: (651) 266-6592
   Email: tchu.yajh@ci.stpaul.mn.us

1.05 OWNER'S CONSULTANT(S)

Owner's Project Specification Consultant: Cermak Rhoades Architects

1. Specification Writer's Name: Matthew Finn
2. Address: 275 East Fourth Street, Suite 800, St. Paul, MN 55101
3. Phone Number: (651) 556-8624
   Email: mfinn@cermakrhoades.com

A. Owner's Construction Manager Consultant: CPMI

1. Construction Manager's Name: Steve Terman
2. Address: 3265 Northwood Circle, Suite 170, Eagan MN 55121
3. Phone: (952) 854-3663
4. Email: sterman@cpmi.com

1.06 IMPORTANT BID DATES

A. Bids Issued: July 27, 2012

B. Mandatory Pre-Bid Site Tour: August 3, 2012 from 2:00 pm to 3:30 pm

C. **BID DUE DATE ON OR BEFORE:** August 17, 2012 no later than 2:00 PM local time.

D. **PUBLIC BID OPENING:** August 17, 2012 at 2:15 PM local time.

E. Bid Delivery Location: The offices of The Housing and Redevelopment Authority of Saint Paul, Minnesota
   Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100
   Suite: 1100

F. Public Bid Opening and Location: The Housing and Redevelopment Authority of Saint Paul, Minnesota

Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100
Suite: 1100

G. Executed Contract: Within 30 days of the bid award.

H. Construction Start Date (Approximate): ASAP after contract execution

I. Construction Completion Date: 120 days from the time of issued Notice to Proceed.

END OF BID INVITATION

SECTION 00 4003

HRA INSTRUCTIONS FOR BIDDERS

PART 1 GENERAL BID DIRECTIONS

1.01 EACH BIDDER SHALL FULLY INFORM HIM / HERSELF AND ANY SUBCONTRACTORS PRIOR TO BIDDING AS TO ALL EXISTING CONDITIONS AND LIMITATIONS INCLUDING COMPLIANCE REQUIREMENTS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL INCLUDE IN THE BID A SUM TO COVER THE COST OF ALL ITEMS NECESSARY TO PERFORM THE WORK AS SET FORTH IN THE BID PROJECT MANUAL. THE SUBMISSION OF A BID SHALL BE CONSTRUED AS CONCLUSIVE EVIDENCE THAT THE BIDDER HAS MADE SUCH EXAMINATION.

1.02 BID FORMS

A. The Bid Submission forms are available online at http://www.stpaul.gov/nsp.

B. Each bid must be submitted on the Bid Submission forms identified in the provided checklist. It is expected that the Contractor retain a copy of their entire submittal for their records. The copy of the bid submitted must be signed at every place that a signature is requested.

1.03 CORRECTIONS

A. Erasures or other changes in the bid must be dated and initialed over the signature of the bidder.

1.04 BID ENVELOPE

A. Place bid in envelope with the contractor name and address in the upper left-hand corner as the return address, and list the property address in the middle of the envelope as the addressee. Seal envelope.

1.05 INTERPRETATIONS OF SCOPE OF WORK

A. Every request for an interpretation shall be in writing, unless otherwise documented by the Specification Writer. Questions will be taken until 3 days before bids are due.

B. Interpretations will be in the form of an addenda which will be on file at the website, and in the offices of the Specification Writer at least three calendar days before bids are opened.

C. It shall be the bidder's responsibility to make inquiry as to addenda issued.
   1. All such addenda shall become a part of the contract and all bidders shall be bound by such addenda.

1.06 CONFLICT WITH DOCUMENTS

A. When a conflict arises between the Drawings or the Scope of Work, the Drawings shall govern.

1.07 MATERIALS APPROVED:

A. Where items of equipment and material are specifically identified herein by a trade name, model or catalog number, only such specified items may be used in the base bid.

B. Contractors desiring approval of substitute products may submit data cut sheets and product information for approval during the bidding cycle.

C. Contractors will be notified only by addendum of additional approved products.

D. Material identifications made in work specifications are considered as minimal quality for acceptance in bidding and installation.

1.08 ALLOWANCES:

A. The Contractor shall include in the bid proposal the cash allowances listed.

B. Unless otherwise indicated, the lump sum amount shall be for the material / product.

C. Labor to install the material / product must be submitted separately.

1.09 ALTERNATES:

A. The Contractor must submit bids for each alternate listed in the Alternates List.

B. If pricing is not listed for Alternates the bid may be disqualified.

1.10 TIME FOR RECEIVING BIDS:

A. Bids are to be delivered to the HRA's office.

B. Bids received prior to the time of opening will be securely kept.

C. Bids received by phone or fax will not be considered.

D. Modification of bids already submitted will be considered if received prior to the hour set for receiving the bids and written confirmation of such modification - with the signature of the bidder - is placed in the mail and postmarked and / or delivered to the HRA prior to the time set for bid opening.

1.11 OPENING OF BIDS:

A. At the time and place fixed for the opening of bids, every bid received within the time fixed for receiving bids will be opened irrespective of any irregularities.

B. The opening of the bids will be an "open process" (open to the public).

1.12 WITHDRAWAL OF BIDS:

A. Bids may be withdrawn in writing, by phone, or by fax prior to the time fixed for opening; provided that written confirmation of any phoned or faxed withdrawal is placed in the mail and postmarked and / or delivered prior to the time set for bid opening.

B. Negligence on the part of the bidder in preparing their bid confers no right of withdrawal or modification of his bid after such bid has been opened.

PART 2 BID ANALYSIS PROCESS

2.01 CONTRACTOR SELECTION DATE: <u>EARLIEST PRACTICAL DATE</u>

A. This project is funded by the Neighborhood Stabilization Program (NSP), a federal stimulus program created to rehabilitate vacant housing or construct new housing on vacant lots within targeted areas of the City of Saint Paul.

B. The Housing and Redevelopment Authority of Saint Paul, Minnesota reserves the right to check the qualifications of contractors for each project; previous experience working on projects with the The Housing and Redevelopment Authority of Saint Paul, Minnesota, will not automatically deem a contractor qualified.

2.02 MINIMUM CONTRACTOR QUALIFICATIONS

A. Please note the following minimum qualifications that apply to all bidders:

1. **Quality Workmanship and Qualifications**
   a. Three references from jobs with similar work (include on Contractor Qualification form)
   b. Two financial references (included on Contractor Qualification Form)
   c. At least 2 years of experience as a General Contractor (HRA will verify)
   d. Review of standing with Secretary of State, Federal Excluded Parties list, City of Saint Paul Debarment list, Department of Labor and Industry, Better Business Bureau (HRA will verify)
   e. Houses with historic features or located within a historic district may require demonstration of quality workmanship for historic renovation at the discretion of HRA staff.
2. **Financial Capacity**
   a. Demonstrated ability to pay two months of construction costs for each project awarded (these amounts are added together if more than one project is under construction). Financial capacity documentation must be in the name of the General Contractors organization or the principal of that organization.
      1) For a 120 day project, the contractor shall demonstrate the ability to pay 50% of bid amount.

2) For a 90 day project, the contractor shall demonstrate the ability to pay 65% of the bid amount.
3) Demonstration of capacity can be in the form of:
(a) Line of credit from banking or lending institution
(b) Cash balances from banking or lending institution

3. **Ability to Perform**
a. Up-to-date submittals to Affirmative Action, Section 3, and Vendor Outreach programs.
b. Adherence to timelines confirmed from professional references.
c. Use of certified subcontractors for environmental remediation including:
1) Insulation: contractor must be on Xcel Energy approved contractor list
2) Asbestos: contractor must be certified for asbestos removal by the State of Minnesota
3) Lead: either general contractor or subcontractor must be certified for lead abatement by the State of Minnesota
4) Radon: contractor must be on Minnesota Department of Health approved radon mitigation list.

4. **Bid Award Policy**
a. Contractors that meet the criteria for qualification above, yet have not worked with The Housing and Redevelopment Authority of Saint Paul, Minnesota on a Neighborhood Stabilization Program project previously will initially be awarded one house, even if the contractor is low bidder for more than one house.
b. Once the contractor demonstrates quality workmanship, financial capacity, and ability to perform timely completion, they may be awarded more than one house at the same time for subsequent bids on a case-by-case basis.

5. **Other Qualifications**
a. Each property has its own unique characteristics and challenges. Variables include items relating to environmental conditions, historic nature of structures, etc.
b. Depending on the specific property , there may be other qualifications needed by the bidder which will be specified by the HRA in its request for bids.

PART 3 POST AWARD REQUIRMENTS

3.01 CONSTRUCTION CONTRACT REQUIRMENTS

A. The bidder agrees that, if selected by the HRA, the bidder will enter into a contract with the HRA no later than 30 calendar days from bid award and will submit the following information to the HRA as a condition to entering into that contract; refer to Bid Rehab Manual for attachments:
1. Certificates of Insurance as required by the Construction Contract and proof of Insurance and Bonding.
2. Final Sworn Construction Statement Affidavit and Sworn Construction Statement that list contractors, material suppliers, and subcontractors, who will work under the contract and the cost of their work.
3. Proof of a valid license as a Residential builder in the State of Minnesota and proof of valid licenses as required by the City of Saint Paul for work to be done.
4. Bidders may be required to submit payment and performance bonds as a condition of the construction contract. Verify with Scope Writer prior to submitting bid.
5. Proof of compliance with requirements attached for Affirmative Action, Vendor Outreach Program, and Section 3, including an Acknowledgement and Final Section 3 Action Plan.
6. Construction Schedule must be submitted to the CPMI to enter into the Contract.

B. Attendance of a Pre-Construction Conference
1. The selected Contractor and all Subcontractors will be required to attend a Pre-Construction Conference.
2. Time, date, and place of the Pre-Construction Conference will be announced by CPMI and/or HRA.

C. Computerized System for Compliance Tracking and Reporting:

1. The Contractor is required to use the B2Gnow/LCPtracker reporting system. Refer to attachment.

PART 3 WAGE REQUIREMENTS

4.01 THE FOLLOWING ARE WAGE REQUIREMENTS ASSOCIATED WITH THIS PROJECTS

A. Federal Davis-Bacon and/or Little Davis-Bacon Wages are not required for this project.

END OF SECTION

SECTION 00 4101

HRA BID SUBMISSION DOCUMENTS

SECTION 1 GENERAL

1.01 BID SUBMISSION DOCUMENTS, LOCATED AT HTTP://WWW.STPAUL.GOV/NSP

A. Bid Submittal Checklist

B. Bid Cover Sheet

C. Bid Proposal and Non-Collusive Affidavit

D. Preliminary Section-3 Action Plan

E. Contractor Application / Statement of Qualifications

F. Itemized Cost Breakdown and Scope of Work Bid (Section 004102)

END OF SECTION

SECTION 00 4102

HRA LINE ITEM BID SHEET

PART 1 MANUAL BID SHEET - LINE ITEM BREAKDOWN OF WORK

DIVISION 02 - EXISTING CONDITIONS

024100 - Demolition	$_____
028200 - Asbestos Remediation	$_____
028313 - Lead Hazard Control Activities	$_____
028500 - Radon Mitigation	$_____

DIVISION 03 - CONCRETE

030100 - Maintenance of Concrete	$_____
033000 - Cast in Place Concrete	$_____

DIVISION 04 - MASONRY

040100 - Maintenance of Masonry	$_____
042000 - Unit Masonry	$_____
042300 - Glass Unit Masonry	$_____

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES

061000 - Rough Carpentry	$_____
062000 - Finish Carpentry	$_____

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

072100 - Thermal Insulation	$_____
072119 - Foamed-In-Place Insulation	$_____
072126 - Blown Insulation	$_____
072500 - Weather Barriers	$_____
072700 - Air Barrier System	$_____
073113 - Asphalt Shingles	$_____
074646 - Fiber Cement Siding	$_____
076200 - Sheet Metal Flashing and Trim	$_____
077123 - Manufactured Gutters and Downspouts	$_____

DIVISION 08 - OPENINGS

081100 - Exterior Insulated Metal Doors and Frames	$_____
081429 - Wood Doors	$_____
083323 - Overhead Garage Door	$_____
085213 - Metal-Clad Wood Windows	$_____

DIVISION 09 - FINISHES

090120 - Repair of Plaster and Gypsum Board	$_____
090160 - Hardwood Flooring Restoration	$_____
092116 - Gypsum Board Assemblies	$_____
093000 - Tiling	$_____
096429 - Wood Strip and Plank Flooring	$_____
096800 - Carpeting	$_____
099000 - Painting and Coating	$_____

DIVISION 10 - SPECIALTIES	
105623 - Closet Storage Shelving	$_____
DIVISION 11 - EQUIPMENT	
113100 - HRA Residential Appliances	$_____
DIVISION 12 - FURNISHINGS	
121110 - HRA Mail Box and House Numbers	$_____
121111 - Bathroom Furnishings	$_____
123530 - Residential Casework	$_____
DIVISION 22 - PLUMBING	
223000 - Plumbing Equipment	$_____
224000 - Plumbing Fixtures	$_____
DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING	
230000 - Residential Ventilation	$_____
235400 - Forced Air Furnace and Ducts	$_____
236213 - Forced Air A/C	$_____
DIVISION 26 - ELECTRICAL	
261001 - Power, Wiring and Devices	$_____
265101 - HRA Lighting	$_____
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY	
281600 - Intrusion Detection	$_____
DIVISION 31 - EARTHWORK	
312200 - Grading	$_____
DIVISION 32 - EXTERIOR IMPROVEMENTS	
321313 - Concrete Paving	$_____
323129 - Wood Fences and Gates	$_____
323223 - Segmental Retaining Walls	$_____
329223 - Sodding	$_____
329300 - Planting	$_____
TOTAL	**$_____**

END OF SECTION

SECTION 01 0010

HRA GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 CONTRACTOR'S RESPONSIBLITY

A. All labor, material, supplies, tools, or other costs or items needed for complete construction of the project, including permits, temporary facilities, safety, security and utilities during construction, are the responsibility of the Contractor.

B. The General Contractor and each Subcontractor shall inspect the existing conditions that affect its work before starting. Commencing work signifies acceptance of the previous work. All measurements and dimensions indicated in the Drawings and Specifications are to be verified prior to bid submittal and construction.

C. The General Contractor shall be responsible for the coordination of all subcontractors working on, or furnishing material for use on this project. In addition, the General Contractor shall be responsible for the coordination of all work performed under separate contracts.

1.02 CONTRACTOR'S USE OF PREMISES

A. During the construction period the General Contractor and its Subcontractors shall have full use of the premises for construction operations, including use of the site. All use of the site shall be under control and supervision of the General Contractor.

B. General Contractor and its Subcontractors will be limited to construction work between the hours of 7:00 am and 6:00 pm on weekdays and 8:00 am to 4:00 pm on Saturday. Work at any other times will be allowed only with the Owner's and Project Manager's consent.

1.03 MATERIALS & MATERIAL STORAGE

A. The General Contractor shall provide all materials, hardware, and fixtures required to accomplish the Scope of Work, unless otherwise indicated.

B. The General Contractor shall use materials specified throughout unless approved in writing by Owner and Project Manager before ordering and installing.

C. The General Contractor is responsible for verification of all measurements. Materials transported to the job site and stored are the General Contractor's responsibility until installed and accepted by the Owner and Project Manager.

D. The General Contractor shall deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

E. Damaged or stolen materials and equipment must be replaced as part of the work at no additional cost to the Owner. Damaged property that is removed shall belong to the General Contractor, unless otherwise stated in writing.

PART 2 PERFORMANCE REQUIRMENTS

2.01 ENERGY CONSERVATION

A. General

1. This property must go through Xcel Energy's Home Performance with Energy Star program.
2. This means that all insulation and HVAC work must be performed by Xcel Energy's approved contractor list.
3. General Contractors that are on the Home Performance list may choose Subcontractors that are not on the list, but those General Contractors will be held responsible for all work completed.
4. The "Specifications for Energy Improvement Upgrades" provided by the Neighborhood Energy Connection (See appendix) are a part of the Scope of Work for this property.
5. Any discrepancies between the Scope of Work and NEC's specifications are to be clarified during the bid process.

B. Provide an Energy Efficient Lighting
   1. All fixtures should have energy efficient CFLs or LED lamps that are within the maximum wattage allowable.
   2. The Owner and Project Manager shall select specific locations of fixtures and switches in each area.
   3. All lighting fixtures will be purchased new, unless otherwise indicated in the scope of work.
   4. No plastic lighting fixtures are acceptable.
   5. No fluorescent tube light fixtures are acceptable in living spaces.
   6. Provide light bulbs for all fixtures. All light fixtures are to have color corrected bulbs. Light bulbs that are viewable within fixtures will be a globe or candelabra style CFL.
   7. Provide and install lighting fixtures and switches.
   8. Review fixtures with Owner and Project Manager prior to installation.
   9. All electrical outlets and cover plates are to be replaced throughout the building, unless otherwise indicated in the scope of work.

2.02 ENERGY EFFICIENT APPLIANCES

A. All appliances must be purchased new and be Energy STAR certified or high efficiency models when Energy STAR certification is not possible.

B. High-efficiency appliances meet the following standards:

C. Clothes washers must have a CEE Tier 2 or higher, a minimum Energy Factor of 2.0 or greater, and a water factor 6.0 or less.

D. Clothes Dryers must be a minimum 7.0 cubic feet capacity, have a sensor dry system, and have 5 Temperature Levels - High, Medium High, Medium, Low & Ultra Low

E. Dishwashers must be CEE Tier 2 or higher, with a minimum Energy Factor of 0.68 or greater, and a maximum annual energy use of 325 kilowatt-hours or less.

2.03 LOW FLOW PLUMBING FIXTURES

A. New plumbing fixtures should be water conserving fixtures with a faucet flow rate of 1.3 GPM or less and a commode flush rate of 1.2 GPF or less.

PART 3 PRICE AND PAYMENT PROCEDURES

3.01 SCHEDULE OF VALUES

A. Form to be used: Sworn Construction Statement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Construction Manager for approval.

C. Forms filled out by hand will not be accepted.

3.02 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Construction Manager for approval.

C. Forms filled out by hand will not be accepted.

D. Execute certification/pay application by signature of authorized officer.

E. Submit two copies of each Application for Payment to Construction Manager.

PART 4 CONTRACT MODIFICATION PROCEDURES

4.01 HRA WINTER WORK POLICY

A. The Housing and Redevelopment Authority of the City of St. Paul (HRA) recognizes that there are weather related exterior items that cannot be completed in winter conditions ("Weather Conditional Work"), including but not limited to:
   1. Exterior painting
   2. Sod

3. Foundation plantings
4. Rain garden installation
5. Concrete sidewalks, steps, landings, curbs, garage slabs, and asphalt driveways

B. The HRA defines winter conditions as “temperatures consistently below a high of 50 degrees Fahrenheit”. Winter conditions are typically in effect from November 15th through April 15th each year, although there is potential for an earlier or later start and end date depending on weather.

C. In the case of NSP homes where a notice to proceed is issued between October and February, the time parameter of winter conditions could mean that the entire timeline for construction completion (typically 90-120 days) is within winter conditions.

D. It is the responsibility of the contractor to communicate, to the Owner, the exterior line items in the scope of work that are Weather Conditional Work as a component of the timeline submission required prior to issuance of a notice to proceed.

E. Contractors are also responsible for ensuring that all Weather Conditional Work is completed within the manufacturer’s or industry standards recommended temperature range.

F. The Contractor is responsible for prioritizing Weather Related Work when winter conditions are not present, in order to complete the house within the construction timeline whenever possible.

G. The HRA’s objective is to ensure that remodeling work on NSP projects is substantially complete within the timeline for construction completion (90-120 days) so that the project can be issued a certificate of occupancy and sold to a new homeowner; the contractor is responsible for ensuring that temporary, structurally sound solutions are implemented when Weather Related Work will effect the ability to secure a Certificate of Occupancy.

H. In the event that winter conditions are present throughout the 120 day construction contract period, the HRA will escrow 1 and 1/2 times the cost for Weather Conditional Work (150%), to be completed within 30 days of the end of winter conditions.

4.02 SUBSTITUTIONS

A. Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the General Contractor after award of the Contract are considered to be requests for substitutions.

B. Submit requests according to procedures required for change-order proposals.

C. Substitution requests shall include a complete list of changes or modifications needed in the Scope of Work in order to accommodate the proposed substitution.

D. Provide samples and product data, including drawings and descriptions of products as well as fabrication and installation procedures, where applicable or where requested by the Owner or Project Manager.

E. Indicate the substitution’s effect on the Contractor’s Construction Schedule, if any. Indicate cost information, including a proposal of the net change, if any, in the Contract Sum. Acceptance will be in the form of a written Change Order signed by the Owner and Project Manager.

PART 5 COMPLIANCE INFORMATION AND REQUIRMENTS

5.01 SEE HRA NSP WEBSITE FOR COMPLIANCE REQUIREMENTS.

A. http://www.stpaul.gov/nsp

B. Review the document labeled: *Section II - Compliance Information and Requirments.*
   1. It contains additional information on:
      a. Insurance
      b. B2Gnow/LCP Tracker, Contract Compliance Monitoring System
      c. Vendor Outreach Program
      d. Affirmative Action
      e. Sustainable Green Policy
      f. Section 3
      g. Two Bid Policy

h. Limited English Policy
i. Xcel Energy Participating Contractors' List
j. Radon Mitigation Contractors' List

5.02 SECURITY PROCEDURES

A. General Contractor is responsible for maintaining security of the site, including:
1. locking buildings at the end of each work day;
2. boarding window or door openings;
3. installing security fencing;
4. providing temporary barricades, bracing or railings;
5. and any other work or facilities necessary to maintain a safe and secure site, including compliance with all health, safety, building, and other codes and laws.

B. Any tools or materials or other property stored on the site prior to installation are the responsibility of the General Contractor and its Subcontractors are responsible for insuring their own such property against loss by theft or other cause.

5.03 JOB CONDITIONS

A. The General Contractor shall notify the Owner and Project Manager of repair not covered in the Scope of Work that is necessary for satisfactory completion of the Project.

B. Defects that become evident as work progresses shall be reported not concealed.

C. Ensure safe passage of all employees during the course of demolition or other persons as necessary by erecting barriers, bracing, or other temporary supports as required.

5.04 SAFETY AND CLEAN UP

A. The General Contractor must keep the site clean at all times during construction.

B. In no event can debris be stored outside overnight unless it is inside a dumpster.

C. All floors are to be picked up and kept broom clean at the end of the work day.

D. No combustible debris shall be thrown, stored, or burned on the property, adjacent parcels, sidewalks, streets, or alleys.

E. Debris created from work at the property must be disposed of immediately.

F. Any debris caused by the General Contractor or its Subcontractor shall be removed from the work area in the General Contractor’s containers and disposed of off site by the General Contractor.

PART 6 SPECIAL PROCEDURES

6.01 ASBESTOS ABATEMENT,

A. If asbestos is found on this project follow the necessary requirements for proper abatement. A contractor must be licensed by the Minnesota Department of Health to perform asbestos-related work. Asbestos-related work includes the work area preparation, enclosure, removal, or encapsulation of asbestos-containing material.

6.02 LOW VOC, SEE SECTION 01 6116

6.03 LEAD BASED PAINT

A. General Information
1. Projects funded in whole or in part with federal funds must comply with the “Regulation on Lead-Based Paint Hazards in Federally Owned Housing and Housing Receiving Federal Assistance”.
2. Properties built after 1/1/78 and properties needing emergency rehab assistance are exempt from Lead-Based Paint Regulation requirements.
3. All projects recieving over $25,000 of HUD funds per unit for rehabilitation, must abate all Lead-based paint hazards.

B. **Removal Procedures**
1. Risk Assessments:

a. A Risk Assessment must be completed by a licensed Lead-Based Paint Risk Assessor on all properties built before 1/1/78 (excluding emergency rehab cases).
b. The Owner or Project Manager arranges and pays for the Risk Assessment.
c. The Risk Assessment report will summarize the nature and scope of known lead-based paint hazards.

C. Licensed Lead Abatement Supervisor: Only General or Subcontractors who are State licensed Lead Abatement Supervisors are allowed to bid on projects involving lead hazard reduction work.

D. Project Plan: The General Contractor must prepare a written project plan and communicate it to the Owner and Project Manager. It shall include:
1. Start-up date and how long the project is expected to last.
2. Areas to be abated and precautions to take.
3. A warning to pay attention to the caution signs that are posted by the General Contractor around the project site.
4. Location of areas that may be restricted.

E. The selected General Contractor performs the work, using lead hazard control measures where indicated in the Scope of Work.

F. The General contractor will notify the Project Manager when work is complete.

G. A Clearance Test for lead-based paint dust is required upon completion of the Lead Based Paint Hazard Reduction Project Plan.
1. The Clearance Test must be performed by a State licensed Clearance Examiner.
2. It is the responsibility of the General Contractor to arrange and pay for any and all of the Clearance Tests that may be required. If the Clearance Test indicates lead levels lower than acceptable amounts, the General Contractor's lead reduction and control work is complete and the final construction payment application may be processed.
3. If the Clearance Test is found to contain lead levels above an acceptable amount, the General Contractor must clean the work area again and request another Clearance Test at no additional cost to the Owner, until the Clearance Test is passed.
4. The Final payment application will not be processed until all areas are determined to be free of hazardous lead levels.

H. Additional Information:
1. General Contractor must obtain and review the following documents, which provide more detailed information on lead paint hazards and reduction and control measures:
a. Minnesota Department of Lead program, "Safely Working with Lead While Remodeling the Older Home" pamphlet series. 1-651-215-0890.
1) U.S. Environmental Protection Agency, "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers, and Schools" 21 page booklet. <http://www.epa.gov/lead/pubs/rrpamph.pdf>
2) U.S. Department of Housing and Urban Development, "Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work:". English and Spanish versions available. <http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/healthyhomes/lead>
3) U.S. Department of Housing and Urban Development, "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing". October 1996. <http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/lbp/hudguidelines>
4) U.S. Environmental Protection Agency, "Model Lead-Based Paint Abatement Worker Training Course." English and Spanish versions available. <http://www.epa.gov/lead/pubs/abateworker.htm>
5) U.S. Environmental Protection Agency, "Lead Safety for Renovation, Repair, and Remodeling: Student Manual". <http://www.epa.gov/lead/pubs/rrp_8hr_studentmanual_feb09.pdf>

I. Abatement:
   1. Component Replacement: The removal of building components that contain lead-based paint. It is most appropriate for items such as doors, windows, trim, and cabinets.
   2. Paint Removal: The separation of paint from the substrate using safe heat, chemical, or abrasive methods. It may be done on- or off-site. Abrasive methods can create a great deal of dust, are the most hazardous, and require the greatest care and most thorough clean-up.
   3. Enclosure: The installation of a barrier (such as gypsum board or paneling) that is mechanically attached to the building component, with all edges and seams sealed to prevent escape of lead-based paint dust. It is most appropriate for large surfaces, such as walls, ceilings, floors, and exteriors.
   4. Encapsulation: The application of a liquid or adhesive material that covers the component and forms a barrier that makes the lead-based paint surface inaccessible by relying upon adhesion. It may be appropriate for many kinds of smooth surfaces but it cannot be used effectively on friction surfaces, surfaces in poor condition, or surfaces that may become wet. It also must be compatible with existing paint.
   5. Soil Removal: The removal of at least the top six inches of topsoil is adequate for most projects. In areas with heavy contamination, up to two feet may have to be removed, and must be disposed of using proper waste management techniques that comply with local requirements. The maximum lead concentration in replacement soil shall not exceed 200 ug/g. Sod or seeding of new soil should occur.
   6. Soil Cultivation: The mixing of low lead soil with high lead soil is an appropriate method if the average lead concentration of the soil to be abated is below 1,500 ug/g. Thorough mixing is required, and pilot testing of various techniques may be needed to ensure that thorough mixing does occur.
   7. Paving: The covering of highly contaminated soil with high quality concrete or asphalt. Paving is common in high traffic areas but not appropriate in play areas. The need for uncontaminated replacement soil is eliminated as is waste disposal costs. Paving often turns out to be the most economical recourse, despite its aesthetic disadvantages.

6.04 WASTE MANAGEMENT, SEE SECTION 01 7419

PART 6 SUBMITTALS

7.01 GENERAL

A. Coordinate preparation and processing of submittals with performance of construction activities.

B. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

C. Provide the following submittals required for performance of the Work, including the following:
   1. Administrative Submittals.
   2. Construction Schedule
   3. Samples/Product Data.

7.02 ADMINISTRATIVE SUBMITTALS

A. Provide as required in the Contract Documents. Such submittals include, but are not limited to, the following:
   1. Sworn Construction Statement
   2. Required permits.
   3. Applications for Payment.
   4. Insurance certificates.
   5. List of subcontractors.

7.03 CONSTRUCTION SCHEDULE

A. A construction schedule must be submitted to the Owner and Project Manager with the bid, unless requested otherwise in writing. Construction shall be completed within 120 days of notice to proceed.

7.04 SAMPLES/PRODUCT DATA:

A. Submit Samples as specified to be physically identical with the material or product proposed.

B. Samples include partial sections of manufactures or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

C. Provide product samples and/or product data for the following where included in the scope of work and for any other requirements mentioned in the specifications or drawings:
   1. Paint colors.
   2. Masonry and mortar color samples.
   3. Windows.
   4. Doors and hardware.
   5. Bathroom accessories.
   6. Kitchen cabinets.
   7. Plumbing fixtures.
   8. Lighting fixtures.
   9. Foundation waterproofing.
   10. Stair railings.
   11. Tile.
   12. Carpet.
   13. Interior trim samples.
   14. Exterior trim and siding samples.

END OF SECTION

SECTION 01 2000
PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

1.02 PAYMENT DOCUMENTS

A. All documents required to create a complete Payment Application can be downloaded from https://sites.google.com/site/nspconstructiondocs/

B. Payment Application form to be used: Application and Certificate for Payment provided by the HRA.
   1. Columns A, B, C should not change during the course of construction and should directly relate to the Sworn Construction Statement provided at the start of construction. As draws progress, columns D, E and F change to reflect work completed.

C. Additional Documents to be submitted with each pay application:
   1. Monthly Employment Utilization (MEU) Form
   2. Identification of Prime and Subcontractor Form
      a. An updated Sub ID sheet must be attached to help HR/EEO staff track subcontractor utilization.
   3. B2Gnow
      a. Ensure each subcontractor is logging into the B2Gnow system and logging payments received.

1.03 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement. The Owner will process the payment within 30 days.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Construction Manager for approval.

C. Forms filled out by hand will not be accepted.

D. Applications for payment must be signed by an authorized officer of the general construction firm

E. Use data from approved Sworn Construction Statement. Provide dollar value in each column for each line item for portion of work performed.

F. Submit one signed copy of the Application for Payment, complete with all required attachments, to the Construction Manager.

1.04 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Price or Contract Time, Construction Manager will issue instructions directly to Contractor.

B. For changes for which advance pricing is desired, Construction Manager will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within ____ days.

C. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

D. Execution of Change Orders: Construction Manager will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

E. After execution of Change Order, promptly revise Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.

1. Change orders shall be listed as lump sumps on the bottom of the pay application and refered to on the cover sheet.
2. Include each line item of the change order as a separate line item in the pay application and the amount of the contractor adjustments.

1.05 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Price, previous payments, and sum remaining due.

B. Additional documents:
1. Final lien waivers from all subcontractors/material providers
2. Monthly Employment Utilization (MEU) Form
3. Project Employment Utilization (PEU) for City Funded Projects
4. Lead Clearance
5. NEC Certificate of Completion
6. Waste Management Plan Report
7. Permit Sign-offs/Certificate of Code Compliance
8. Winter Work/Weather Related Work Escrow
9. Certificate of Substantial/Final Completion

C. See Section 01 7700 - Closeout Procedures and Submittals, for additional information.

END OF SECTION

SECTION 01 2300
ALTERNATES

PART 1 GENERAL

1.01 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

1.02 SCHEDULE OF ALTERNATES

A. Alternate No. 1 - Basement Slab:

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

B. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:

C. Regionally-Sourced Products:
   1. Overall Project Requirement: Provide materials amounting to a minimum of 10 percent of the total value of all materials (excluding plumbing, HVAC, electrical, elevators, and other equipment) that have been extracted, harvested, or recovered, as well as manufactured, within a radius of 500 miles (805 km) from the project site.
      a. This provision is applicable to LEED Credit MR 5.1; show quantity on LEED report.
   2. Specific Product Categories: Provide regionally-sourced products as specified elsewhere.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

C. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

D. Substitution Submittal Procedure:
   1. Submit two copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Construction Manager will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Prevent contact with material that may cause corrosion, discoloration, or staining.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 6116

VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 GENERAL

1.01 SUMMARY

A. Implement the following procedures in an effort to improve indoor air quality during Owner's occupancy.

B. Construction Indoor Air Quality (IAQ) Management
   1. Provide low-emitting products

1.02 SECTION INCLUDES

A. VOC restrictions for product categories listed below under "DEFINITIONS."

B. All products of each category that are installed in the project must comply; Owner's project goals do not allow for partial compliance.

1.03 DEFINITIONS

A. VOC-Restricted Products: All products of each of the following categories when installed or applied on-site in the building interior:
   1. Adhesives, sealants, and sealer coatings.
   2. Carpet.
   3. Carpet cushion.
   4. Resilient floor coverings.
   5. Wood flooring.
   6. Paints and coatings.
   7. Insulation.
   8. Gypsum board.
   9. Acoustical ceilings and panels.
   10. Cabinet work.
   11. Wall coverings.
   12. Composite wood and agrifiber products used either alone or as part of another product.
   13. Other products when specifically stated in the specifications.

B. Interior of Building: Anywhere inside the exterior weather barrier.

C. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.

D. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

1.04 REFERENCE STANDARDS

A. CAL (CHPS LEM) - Low-Emitting Materials Product List; California Collaborative for High Performance Schools (CHPS); current edition at www.chps.net/.

B. CAL (VOC) - Standard Practice for the Testing of Volatile Organic Emissions From Various Sources Using Small-Scale Environmental Chambers (including Addendum 2004-01); State of California Department of Health Services; 2004

C. CRI (GLCC) - Green Label Testing Program - Approved Product Categories for Carpet Cushion; Carpet and Rug Institute; Current Edition.

D. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; Carpet and Rug Institute; Current Edition.

E. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at www.greenguard.org.

F. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2000.

G. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

H. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at www.scscertified.com.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 PRODUCTS

2.01 MATERIALS

A. All VOC-Restricted Products: Provide products having VOC content of types and volume not greater than those specified in State of California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions From Various Sources Using Small-Scale Environmental Chambers.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current GREENGUARD Children & Schools certification; www.greenguard.org.
      b. Current Carpet and Rug Institute Green Label Plus certification; www.carpet-rug.org.
      c. Current SCS Floorscore certification; www.scscertified.com.
      d. Current SCS Indoor Advantage Gold certification; www.scscertified.com.
      e. Product listing in the CHPS Low-Emitting Materials Product List at www.chps.net/manual/lem_table.htm.
      f. Current certification by any other agencies acceptable to CHPS.
      g. Report of laboratory testing performed in accordance with CHPS requirements for getting a product listed in the Low-Emitting Materials Product List; report must include laboratory's statement that the product meets the specified criteria.

B. Adhesives and Joint Sealants: Provide only products having volatile organic compound (VOC) content not greater than required by South Coast Air Quality Management District Rule No.1168.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Report of laboratory testing performed in accordance with requirements.
      b. Published product data showing compliance with requirements.
      c. Certification by manufacturer that product complies with requirements.

C. Aerosol Adhesives: Provide only products having volatile organic compound (VOC) content not greater than required by GreenSeal GS-36.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current GreenSeal Certification.

D. Paints and Coatings applied within building waterproof envelope:
   1. Comply with VOC Content limits (as noted in Criterion 6.1) of Green Seal Standard GS-11 "Paints," First Edition; Standard GC-03 "Anti Corrosive Paints," and MPI GPS-2-8, as follows (in grams/Liter):
      a. Flat: 50
      b. Non-flat: 50
      c. Anti-Corrosive and Anti Rust: 250
      d. Floor Coatings: 100

E. Carpet and Adhesive: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current Green Label Plus Certification.
      b. Report of laboratory testing performed in accordance with requirements.

F. Carpet, Carpet Cushion, and Adhesive: Provide products having VOC content as specified in Section 09 6800.

G. Carpet Cushion: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.
   1. Evidence of Compliance: Acceptable types of evidence are:

a. Current Green Label Plus Certification.
b. Report of laboratory testing performed in accordance with requirements.

H. Composite Wood and Agrifiber Products and Adhesives Used for Laminating Them: Provide products having no added urea-formaldehyde resins.
1. Evidence of Compliance: Acceptable types of evidence are:
a. Current SCS "No Added Urea Formaldehyde" certification; www.scscertified.com.
b. Published product data showing compliance with requirements.
c. Certification by manufacturer that product complies with requirements.

I. Other Product Categories: Comply with limitations specified elsewhere.

PART 3 EXECUTION

3.01 GENERAL

A. Incorporate procedures and processes during construction and prior to occupancy as described herein

3.02 FIELD QUALITY CONTROL

A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.

B. All additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

END OF SECTION

SECTION 01 7000
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in Minnesota and acceptable to Construction Manager. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.02 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

C. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

D. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

F. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Construction Manager of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Construction Manager the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Construction Manager.

F. Utilize recognized engineering survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations; and _____.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations, and _____.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

I. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.06 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.07 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.08 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.09 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.10 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Review Section 01 7700 CLOSEOUT PROCEDURES AND SUBMITTALS.

C. Notify Construction Manager when work is considered ready for Substantial Completion.

D. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Construction Manager's review.

E. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

F. Notify Construction Manager when work is considered finally complete.

G. Complete items of work determined by Construction Manager's final inspection.

END OF SECTION

SECTION 01 7419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. HRA Policy for this project is dependent on diversion of 50 percent, by weight, of potential landfill trash/waste by recycling and/or salvage.

E. The following recycling incentive programs are mandatory for this project; Contractor is responsible for implementation:

F. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

G. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3. Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.

H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. ACTION SUBMITALS

1. **CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT(CWM) PLAN**
   a. Analysis of estimated job-site waste to be generated, including types and quantities of compostable, recyclable, and salvageable materials.
   b. Description of means and methods to achieve 50 percent diversion requirement for compostable, recyclable, and salvageable materials, including those that may be donated to charitable organizations.
   c. Identification of the carpet product's composition as polymer, nylon or polypropylene
   d. Identification of recycling contractors and haulers proposed for use in the project and locations accepting construction waste materials or entities providing related services.

C. FINAL WASTE MANAGMENT REPORT: General Contractor is responsible to submit at completion of construction and prior to contract close-out, in electronic format.

1. All information required in Waste Management Progress Reports
2. Legible copies of on-site logs, manifests, weight tickets, and receipts.
3. Final calculations, including total amount (by weight or volume) of diverted construction and demolition waste, and the total amount (by weight or volume) of landfilled waste.

D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.

1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
2. Submit Report on a form acceptable to Owner.
3. Landfill Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards (cubic meters), of trash/waste material from the project disposed of in landfills.
   c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Incinerator Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards (cubic meters), of trash/waste material from the project delivered to incinerators.
   c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
5. Recycled and Salvaged Materials: Include the following information for each:
   a. Identification of material, including those retrieved by installer for use on other projects.
   b. Amount, in tons or cubic yards (cubic meters), date removed from the project site, and receiving party.

c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.

6. Material Reused on Project: Include the following information for each:
   a. Identification of material and how it was used in the project.
   b. Amount, in tons or cubic yards (cubic meters).
   c. Include weight tickets as evidence of quantity.
7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

E. Recycling Incentive Programs:
   1. Where revenue accrues to Contractor, submit copies of documentation required to qualify for incentive.
   2. Where revenue accrues to Owner, submit any additional documentation required by Owner in addition to information provided in periodic Waste Disposal Report.

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 01 5000 for additional requirements related to trash/waste collection and removal facilities and services.

C. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.

D. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor and Construction Manager.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified

materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

2.03 UNACCEPTABLE METHODS OF WASTE DISPOSAL

A. Burning or incinerating on or off project site

B. Burying on project site, other than fill.

C. Dumping or burying on other property, public or private, other than official landfill.

D. Illegal dumping or burying.

END OF SECTION

SECTION 01 7700

CLOSEOUT PROCEDURES AND SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

1.02 SUBMITTALS

A. All documents required to create a complete Final Payment Application can be downloaded from https://sites.google.com/site/nspconstructiondocs/

B. Notify Construction Manager when work is considered ready for Substantial Completion.
   1. Make sure the work is mostly complete and cleaned for inspection.

C. Substantial Completion Submittals:
   1. Project Record Documents: Submit documents listed below to Construction Manager:
      a. Final Pay Application
      b. Monthly Employment Utilization (MEU) Form
      c. Project Employment Utilization (PEU) for City Funded Projects
      d. Lead-based Paint Hazard Clearance Testing
      e. Energy Modeling/NEC Compliance Report
      f. Final Waste Management Report, see Section 01 7419 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
      g. Permit Closeout/Code Compliance
      h. Winter Work/Weather Related Work Escrow
      i. Final Lien Waivers
      j. Material Allowance Reconciliation Change Order (if necessary).

D. Notify Construction Manager when work is considered finally completed. All Punch List items shall be completed and approved by Construction Manager and HRA Project Manager.

E. Final Completion Submittals:
   1. Project Record Documents: Submit documents listed below to Construction Manager:
      a. Building Maintenance Manual and Warranty documents for following:
         1) Appliance and building systems
            (a) HVAC equipment
            (b) Lighting equipment
            (c) Kitchen and Laundry Appliance Manuals
         2) Water-using equipment and controls installed:
            (a) Hot water delivery system(s)
            (b) Toilets
            (c) Faucets
            (d) Shower head(s)
            (e) Dishwasher
            (f) Clothes washer
      b. Signed Certificate of Substantial Completion
      c. Punch List Items Completed

PART 3 EXECUTION

2.01 LEAD-BASED PAINT HAZARD CLEARANCE TESTING

A. Where lead-based paint hazard control or reduction work has been performed by the General Contractor, the General Contractor will contact a certified third party Clearance Technician from Ramsey County Department of Public Health or other certified testing agency for clearance testing.

2.02 ENERGY MODELING (NEC)

A. Contractor must work with the Neighborhood Energy Connection (NEC) who will:
   1. Create an energy model with the building plans and specifications to show the building's projected energy performance in the design stages

2. Conduct a mid-construction pre drywall thermal enclosure inspection
3. Verify the final performance of the building with performance testing

2.03 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

END OF SECTION

SECTION 01 8113

SUSTAINABLE DESIGN REQUIREMENTS

PART 1 GENERAL

1.01 ENERGY CONSERVATION

A. This property must go through Xcel Energy's Home Performance with Energy Star program.
   1. All insulation and HVAC work must be performed by Xcel Energy's approved contractor list.
   2. General Contractors that are on the Home Performance list may choose Subcontractors that are not on the list, but those General Contractors will be held responsible for all work completed.
   3. General Contractors will be responsible for submitting documentation required of the Home Performance with Energy Star program and will be responsible for achieving Energy Improvements outlined by Neighborhood Energy Connection.
   4. The "Specifications for Energy Improvement Upgrades" provided by the Neighborhood Energy Connection (See appendix) are a part of the Scope of Work for this property.
   5. Any discrepancies between the Scope of Work and NEC's specifications are to be clarified during the bid process.

B. Energy Efficient Lighting
   1. The Owner/Project Manager shall select specific locations of fixtures and switches in each area.
   2. All lighting fixtures will be purchased new, unless otherwise indicated.
   3. No plastic lighting fixtures are acceptable.
   4. No fluorescent tub light fixtures are acceptable in living spaces.
   5. Provide Energy Star certified CFL or LED light bulbs for all fixtures.
   6. All light fixtures are to have color corrected bulbs.
   7. Light bulbs that are viewable within fixtures will be a globe or candelabra style CFL.
   8. Provide and install lighting fixtures and switches.
   9. Review fixtures with Owner prior to installation.
   10. All electrical outlets and cover plates are to be replaced throughout the building.

C. Energy Efficient Appliances
   1. All appliances must be purchased new and be Energy Star certified or high efficiency models when Energy Star certification is not possible.
   2. High-efficiency appliances meet the following standards

1.02 QUALITY ASSURANCE

A. The Neighborhood Energy Connection (NEC), through its Peak Performace Homes custom consulting program, certifies independent consultants who provide developers with specific information about how to increase the energy efficiency of thier buildings.

PART 2 PRODUCTS

2.01 LOW-EMITTING MATERIALS

A. Cabinet Materials: Low VOC
   1. Provide wood cabinets with self closing hinges and adjustable shelves from the Schrock Select (available at Menards), Mid-Continent Cabinetry (available at All Inc), or MINNCOR (available at MINNCOR) design lines or approved equal.
   2. Cabinets are to have plywood sides and bases.
   3. Drawer boxes shall be plywood with dovetail joinery.
   4. Cabinets to be constructed with maple; full overlay doors and flat or 5 piece. Alternative styles may be approval by the HRA.

PART 3 EXECUTION

3.01 CONSTRUCTION WASTE MANAGEMENT

A. Comply with Construction Waste Management and Disposal Plan. Section 01 7419

3.02 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT

A. Change all air filters regularly durring construction with filters specified for the specific furnace.
   1. Replace all air filters immediately prior to Substantial Completion with the specified permanent filters.

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL **$_____**

1.01 SECTION INCLUDES

A. Building demolition excluding removal of hazardous materials and toxic substances.

B. Selective demolition of building elements for alteration purposes.

1.02 LOCATIONS

A. SITE
1. Remove all concrete walks, retaining walls, yard poles.
2. Remove front and side concrete stoops.
3. Remove all fencing indicated on site demolition plan.
4. Remove garage, garage foundation, and chicken coop.
5. Remove all concrete and stone debris from back yard.
6. Remove rear entry shed, including foundation and stairs to basement.
7. Remove all vegetation and trees indicated on site demolition plan.

B. EXTERIOR
1. Remove all shingles.
2. Demolish chimney down to basement slab.
3. Remove all TV antennae, cable, satelite dishes, and accessories.
4. Remove all exterior wood trim, soffit, and (2) layers of siding. (Lead and asbestos hazards are present.)
5. Remove all exterior windows and doors.
6. Remove all lead-covered wood trim and storm windows at front porch. Be prepared to provide temporary posts if removal of corner trim compromises structural integrity of porch.
7. Remove failing parge-coat at foundation wall.

C. INTERIOR
1. Remove all basement partitions, fixtures, casework, finishes, wood framing down to stone foundation, wood posts and wood floor joists and beam.
2. Remove wood stairs to basement.
3. Remove boilers, water heater and all associated piping throughout entire house.
4. Remove all domestic supply, waste, and vent piping throughout entire house.
5. Remove all electrical wiring and fixtures, including breaker panels. (Retain service for a single dwelling and single meter. Coordinate with utility provider.)
6. Remove all wood base trim, window casing, and door trim throughout.
7. Remove all wood doors throughout.
8. Remove wood paneling between existing kitchen and living area.
9. Remove all flooring, except wood floor at Den.
10. Remove all kitchen cabinets, plumbing including fixtures and piping, and appliances.
11. Remove all bathroom cabinets, plumbing including fixtures and piping, and any remaining wall finishes. Remove all plaster and drywall at bathrooms down to studs.
12. Remove all hot-water heat distribution piping, radiators, and baseboard fin-tube.
13. Remove treads, risers, balusters, rail and trim at stairs from first floor to second floor.
14. Refer to demolition plan for wall demolition at first and second floors.
15. Remove all partial infill at wide second floor door openings.

D. ALTERNATE #1 Basement slab: Remove basement slab in its entirety, including base material to allow room for sub-slab insulation.

1.03 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Protect hardwood floors for possible refinishing later.
   4. Provide, erect, and maintain temporary barriers and security devices.
   5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   6. Do not close or obstruct roadways or sidewalks without permit.
   7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

D. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

E. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Inform Project Manager of potential strategies to reuse construction material.
      a. Only move forward with reusing of construction materials with Project Manager's consent.
   2. Dismantle existing construction and separate materials.
   3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

3.02 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Construction Manager before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

C. Services (Including but not limited to Site, Building Interior, Building Exterior, HVAC, Plumbing, and Electrical): Remove existing systems and equipment as indicated.

D. Protect existing work to remain.

3.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 02 8200

ASBESTOS REMEDIATION

PART 1 GENERAL **$_____**

1.01 DESCRIPTION OF WORK AND CONTRACTOR RESPONSIBILITIES

A. Provide all labor, equipment, material supervision and subcontracting for the removal and disposal of all Asbestos-Containing Material (ACM) as specified in the attached Asbestos Test.

B. When work areas include both friable and nonfriable types of ACM, Contractor's shall prepare work area using procedures for friable asbestos removal.

1.02 SUBMITTALS

A. Proof that the Contractor is qualified to perform Asbestos Remediation in the State of Minnesota.

B. Test Reports: Indicate Complete Remediation of Project.

PART 2 EXECUTION

2.01 LOCATIONS

A. Review the Asbestos report, included as an appendix to this Manual, for locations.

END OF SECTION

SECTION 02 8313

LEAD HAZARD CONTROL ACTIVITIES

PART 1 GENERAL $_____

1.01 GENERAL INFORMATION

A. Projects funded in whole or in part with federal funds must comply with the "Regulation on Lead-Based Paint Hazards in Federally Owned Housing and Housing Receiving Federal Assistance." As a component of Title X, Sections 1012 and 1013, rehabilitation projects receiving more than $25,000 of federal funds must abate all lead.

B. Properties built after 1/1/78 and properties needing emergency rehab assistance are exempt from Lead-Based Paint Regulations.

1.02 LOCATIONS

A. Review the Lead Report, attached in this Manual. Locations where lead has been identified in the lead report are summarized below, with references to the appropriate specification sections that define the expected level of finish. Refer to the full report included as an appendix to this Manual for an itemized list of locations and conditions.

1. All interior doors: Remove (see Demolition 02 4100) and replace (see Doors 08 1429).
2. All interior trim and casing: Remove (see Demolition 02 4100)
3. All painted shelving and miscellaneous wood components: Remove (see Demolition 02 4100) and replace (see Finish Carpentry 06 2000 and Specialties sections 10 5623).
4. All Interior wall and ceiling surfaces: Repaint (see Painting and Coating 09 9000).
5. All painted floors throughout: Remove (see Demolition 02 4100) and replace (see flooring sections 09 6429).
6. All stair components - front and rear: Remove (see Demolition 02 4100) and replace (see Rough and Finish Carpentry 06 1000 and 06 200 and flooring sections 09 6800).
7. All bathtubs throughout: Remove (see Demolition 02 4100) and replace (see Plumbing fixtures and pipng 22 4000).
8. Windows throughout: Remove (see Demolition 02 4100) and replace (see Metal - Clad Wood Windows 08 5213)
9. Painted basement columns: Repaint (see Painting and Coating 09 9000).
10. All exterior trim and concealed wood siding: Remove (see Demolition 02 4100) and replace (see Fiber-cement Siding 07 4646).
11. Front porch vinyl floor: Remove (see Demolition 02 4100).
12. Soil: Regrade site (see Grading 31 2200).

B. A Licensed Lead Abatement Supervisor shall provide a project plan that addresses the subject surfaces in order to achieve the desired finished product defined in the noted specification sections.

C. The General Contractor is responsible for ensuring that the project plan is implemented so that it meets the abatement requirements as defined in federal and state statutes.

1.03 PRICE AND PAYMENT PROCEDURES

A. Provide a price for the appropriate methods of abatement required by this scope of work.

1.04 SUBMITTALS

A. Project Plan: The General Contractor must prepare a written project plan and communicate it to the Construction Manager and Project Manger. It shall include:

1. Start-up date and how long the project is expected to last.
2. Areas to be abated and precautions to take.
3. A warning to pay attention to the caution signs that are posted by the General Contractor around the project site.
4. Location of areas that may be restricted.

B. Test Reports: Indicate Lead Based Paint Clearance.

1. Submitted at final draw

1.05 QUALITY ASSURANCE

A. Licensed Lead Abatement Supervisor: Only General or Subcontractors who are State licensed to conduct lead hazard reduction work are allowed to bid on projects involving lead hazard reduction work. See Minnesota Statutes 144.9501-144.9512 and Minnesota Rules 4761.2000-4761.2700 for applicable safety precautions, disposal regulations, and other compliance regulations that apply to abatement activities.

B. Per MN Statute, Contractors must provide a 5 day notification to the Minnesota Department of Health prior to beginning lead abatement activities. During lead abatement, a MN Licensed Lead Abatement Supervisor must be on site and workers conducting lead abatement must be MN Licensed Lead Abatement Workers. See the MDH website for additional information: http://www.health.state.mn.us/divs/eh/lead/prof/notification.html

PART 3 EXECUTION

2.01 ABATEMENT

A. When the Risk Assessment process determines that a Project contains a lead-based paint hazard, the General Contractor shall comply with the abatement measures defined by the following:
   1. HUD 24 CFR Part 35 Subpart A through R 35.1325:
      a. http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/enforcement/lshr
   2. EPA 40 CFR 745.227(e).
      a. http://www.gpo.cov/fdsys/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec745-227.pdf.
   3. Minnesota Statutes 144.9501-144.9512 and Minnesota Rules 4761.2000-4761.2700
      a. http://www.health.state.mn.us/divs/eh/lead/rule.html

B. Definitions:
   1. Component Replacement: The removal of building components that contain lead-based paint. It is most appropriate for items such as doors, windows, trim, and cabinets.
   2. Paint Removal: The separation of paint from the substrate using safe heat, chemical, or abrasive methods. It may be done on- or off-site. Abrasive methods can create a great deal of dust, are the most hazardous, and require the greatest care and most thorough clean-up.
   3. Enclosure: The installation of a barrier (such as gypsum board or paneling) that is mechanically attached to the building component, with all edges and seams sealed to prevent escape of lead-based paint dust. It is most appropriate for large surfaces, such as walls, ceilings, floors, and exteriors.
   4. Encapsulation: The application of a liquid or adhesive material that covers the component and forms a barrier that makes the lead-based paint surface inaccessible by relying upon adhesion. It may be appropriate for many kinds of smooth surfaces but it cannot be used effectively on friction surfaces, surfaces in poor condition, or surfaces that may become wet. It also must be compatible with existing paint.
   5. Soil Removal: The removal of at least the top six inches of topsoil is adequate for most projects. In areas with heavy contamination, up to two feet may have to be removed, and must be disposed of using proper waste management techniques that comply with local requirements. The maximum lead concentration in replacement soil shall not exceed 200 ug/g. Sod or seeding of new soil should occur.
   6. Soil Cultivation: The mixing of low lead soil with high lead soil is an appropriate method if the average lead concentration of the soil to be abated is below 1,500 ug/g. Thorough mixing is required, and pilot testing of various techniques may be needed to ensure that thorough mixing does occur.
   7. Paving: The covering of highly contaminated soil with high quality concrete or asphalt. Paving is common in high traffic areas but not appropriate in play areas. The need for

uncontaminated replacement soil is eliminated as is waste disposal costs. Paving often turns out to be the most economical recourse, despite its aesthetic disadvantages.

2.02 LEAD-BASED PAINT HAZARD CLEARANCE TESTING

A. Where lead-based paint hazard control or reduction work has been performed by the General Contractor, the General Contractor will contact a certified third party risk assessor from Ramsey County Department of Public Health or other certified testing agency for clearance testing.

B. The Clearance Technician will conduct a visual assessment of completed work, take dust samples, have dust samples analyzed, and prepare a Clearance Report.

C. If sample results fail, Minnesota rules 4761.2670 subpart 2 and subpart 3 must be repeated. If test results of samples fail to meet clearance standards, surfaces must be retreated or recleaned at no additional cost to the Owner until clearance standard is met.

D. When the Clearance Report indicates that clearance standards have been met, and all other requirements of this section have been met, the Construction Manager and Owner will approve the final pay application.

END OF SECTION

SECTION 02 8500

RADON MITIGATION

PART 1 GENERAL **$_____**

1.01 QUALITY ASSURANCE

A. Contractors: Must be Certified to perform this work and listed by the Minnesota Department of Health.
   1. http://www.health.state.mn.us/divs/eh/indoorair/radon/mitigation.html

1.02 WARRANTY

A. Product should be warranted to reduce indoor radon concentrations to below 4 pCi/L for 5 years.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Active Mitigation System:
   1. Provide a sub-slab or sub membrane depressurization system with an in-line fan.
   2. Fan powered soil depressurization systems shall meet all of the following requirements:
      a. above the eave of the roof
      b. ten feet or more above ground level
      c. ten feet or more from any window, door, or other opening into conditioned spaces of the structure that is less than two feet below the exhaust point
      d. ten or more from any opening into an adjacent building.

2.02 MATERIALS

A. All mitigation system electrical components shall be U.L. listed or of equivalent specifications.

B. All plastic vent pipes in mitigation systems shall be made of Schedule 40 PVC, ABS or equivalent piping material.

C. Vent pipe fittings shall be of the same material as the vent pipes.

D. Sump pit covers shall be made of durable plastic or other rigid material and designed to permit air tight sealing to permit easy removal for sump pump servicing. The cover shall be sealed using silicone or other non-permanent type caulking materials or air tight gasket.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with suggested best practices created by the Minnesota Department of Health, Indoor Air Quality Unit..

B. When installing radon mitigation systems that use sump pits as the suction point for active soil depressurization it is required that submersible sump pumps be installed.

C. All pipe routing shall be located within the structure. If this is absolutely not possible, contact HRA Project manager. In cases where the contractor is unable to determine a run for piping, system shall be installed on the rear elevation, with approval from Project Manager.

D. All joints and connections in radon mitigation systems using plastic vent pipes shall be permanently sealed with adhesives as specified by the manufacturer of the pipe material used.

E. Attic and external piping runs in areas subject to sub-freezing conditions should be protected to avoid the risk of vent pipe freeze-up.

F. Vent pipes shall be fastened to the structure of the building with hangers strapping or other supports that will adequately secure the vent material. Existing plumbing pipes, ducts, or mechanical equipment shall not be used to support or secure a radon vent pipe.
   1. Horizontal Supports: shall be installed at least every 6 feet.
   2. Vertical Supports: shall be installed at least every 8 feet.

G. Radon mitigation fans shall be wired to its own electrical circuit and conform with all codes.

H. All active soil depressurization radon mitigation systems shall include a mechanism to monitor system performance and warn of system failure.

END OF SECTION

SECTION 03 0100

MAINTENANCE OF CONCRETE

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Clean basement slab of all flooring adhesives, oils, and other contaminants.

B. Repair all cracks at basement slab.

C. Sandblast all painted exposed exterior foundation wall. Repair all cracked pargecoat.

1.02 SECTION INCLUDES

A. Cleaning of existing concrete surfaces.

B. Repair of exposed structural, shrinkage, and settlement cracks.

C. Resurfacing of concrete surfaces having spalled areas and other damage.

D. Repair of deteriorated concrete.

1.03 REFERENCE STANDARDS

A. ASTM C928/C928M - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Material for Concrete Repairs; 2009.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

A. Detergent: Non-ionic detergent.

2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

A. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar; in-place material capable of withstanding freeze/thaw conditions.

B. Cementitious Hydraulic Waterstop: Very fast setting, low slump, hand formable, and capable of stopping active water leaks; in-place material capable of withstanding freeze/thaw conditions.

PART 3 EXECUTION

3.01 CLEANING EXISTING CONCRETE

A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.
   1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
   2. Clean out cracks and voids using same methods.

B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
   1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.
   2. Increasing the water washing pressure to maximum of 400 psi.
   3. Adding detergent to washing water; with final water rinse to remove residual detergent.
   4. Steam-generated low-pressure hot-water washing.

3.02 CONCRETE SURFACE REPAIR USING CEMENTITIOUS MATERIALS

A. Clean concrete surfaces, cracks, and joints of dirt, laitance, corrosion, and other contamination using method(s) specified above and allow to dry.

B. Apply coating of bonding agent to entire concrete surface to be repaired.

C. Fill voids with cementitious mortar flush with surface.

D. Apply repair mortar by steel trowel to a minimum thickness of 1/4 inch (6 mm) over entire surface, terminating at a vertical change in plane on all sides.

E. Trowel finish to match adjacent concrete surfaces.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide concrete walks and steps as shown on landscape plan.

B. Provide continuous strip footings at new garage foundation.

C. Provide concrete driveway at new garage. See landscape plan for more information.

D. Provide (3) footings at front porch.

E. Infill basement slab at former water meter location and all other plumbing penetrations.

F. Repair existing basement slab as required to achieve a continuous and level surface.

G. ALTERNATE #1 Basement slab: Provide 4" thick reinforced slab on 2" rigid insulation and vapor barrier.

1.02 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete reinforcement.

D. Joint devices associated with concrete work.

E. Concrete curing.

1.03 RELATED REQUIREMENTS

A. Section 32 1313 - Concrete Paving: Sidewalks, curbs and gutters.

1.04 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).

C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.

F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.

G. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.

H. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.

J. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute International; 2004.

K. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

L. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.

M. ASTM C33 - Standard Specification for Concrete Aggregates; 2011.

N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2011.

O. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2008.

P. ASTM C150 - Standard Specification for Portland Cement; 2011.

Q. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2010b.

R. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2010a.

T. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2008a.

U. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2010.

V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1999 (Reapproved 2008).

W. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2011.

X. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).

Y. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2009.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Formwork Design and Construction: Comply with guidelines of ACI 347 to provide formwork that will produce concrete complying with tolerances of ACI 117.

B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.

C. Footings
   1. 10" thick x 20" wide, continuous.
      a. Detatched garage frost footing.
      b. Step frost footings at top and bottom of steps.
   2. 12" dia. x 5'-0" deep piers.
      a. Porch footings.
   3. 8" dia. x 5'-0" deep piers at fence and handrails.
   4. 10" thick x 36" wide, continuous.
      a. At earth retaining walls.

D. Walls
   1. Earth retaining walls
      a. 8" thick x 5'-0" deep to frost depth.
         1) Offset on footing 8" from the step side.
         2) Above grade height to match existing CMU wall height.
         3) Provide 3/4" champfered top edges.
      b. Frost walls at top and bottom tread of steps.
         1) 8" thick x 5'-0" deep to frost depth.

E. Steps

1. 6" risers and 12" treads. Provide number of treads and risers required to comform to existng grades.
2. Provide 6" minimum slab thickness, perpenducular to the slope, from bottom of riser to underside of slab.
3. Provide 8" thick stringer from transition of earth retaining wall to top of steps, both sides.
   a. Structurally integrate with earth retaining wall and steps.
   b. Provide 3/4" champfered top edges, flush with each nosing edge.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
   1. Footings
      a. Two #5 bar, continuous at garage footings.
      b. Three #5 bar, continous at earth retaining wall footings.
   2. Steps
      a. One #3 bar at concrete stair nosings.
      b. #4 bar @ 12" each way at concrete stair slab.
      c. Stringers: Provide continuous #4 bar from slab reinforcing, 12" on center. Tie into 2 #4 bar at top corners of stringer.
   3. Walls
      a. Earth retaining walls
         1) Provide #5 bar @ 18" each way centered in width of wall.
         2) Tie into footing reinforcment with #5 hooked dowels, 18" x 24".
   4. Type: Deformed billet-steel bars.

B. Steel Welded Wire Reinforcement: ASTM A185/A185M, plain type.
   1. Slab-on-grade
      a. Form: Coiled Rolls.
      b. Mesh Size: 6 x 6 (150 x 150).
      c. Wire Gage: W 4 x W 4 (MW 25 x MW 25).
      d. Contractor option to use fiber reinforcement in lieu of welded wire at garage slabs.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage (1.5 mm).
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type.
   1. Acquire all cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33.
   1. Acquire all aggregates for entire project from same source.

C. Fly Ash: ASTM C618, Class C.

D. Water: Clean and not detrimental to concrete.

E. Fiber Reinforcement: Alkali-resistant polypropylene complying with ASTM C1116/C1116M.
   1. Fiber Length: 0.75 inch (19 mm), nominal.

2.04 CHEMICAL ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260.

C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.

D. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
   1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
   2. Products:
      a. Stego Industries, LLC; Stego Wrap Vapor Barrier 15-mil (Class A): www.stegoindustries.com.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. ASTM C1107/C1107M; Grade A, B, or C.
   2. Minimum Compressive Strength at 48 Hours: 2,400 psi (17 MPa).
   3. Minimum Compressive Strength at 28 Days: 7,000 psi (48 MPa).

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059 Type II.

B. Slab Isolation Joint Filler: 1/2 inch (13 mm) thick, height equal to slab thickness, with removable top section that will form 1/2 inch (13 mm) deep sealant pocket after removal.
   1. Material: ASTM D1751, cellulose fiber.

2.07 CURING MATERIALS

A. Moisture-Retaining Sheet: ASTM C171.
   1. Curing paper, regular.
   2. Polyethylene film, clear, minimum nominal thickness of 0.0040 in. (0.10 mm).
   3. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd, 40 inches wide (305 grams per sq. meter).

2.08 CONCRETE MIX DESIGN

A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

B. Fiber Reinforcement: Add to mix at rate of 3.0 pounds per cubic yard (____ kg per cubic meter), or as recommended by manufacturer for specific project conditions.

C. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi (27.6 MPa).
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight, typical.
      a. 20 percent at slabs on grade.
      b. 25 percent at footings.
   3. Water-Cement Ratio: Maximum 50 percent by weight.
   4. Total Air Content: 1.5 percent, determined in accordance with ASTM C173/C173M.
   5. Maximum Slump: 4 inches (100 mm).
   6. Maximum Aggregate Size: 3/4 inch (19 mm), typical.
      a. 1.5 inch at footings.

2.09 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
   1. Fiber Reinforcement: Batch and mix as recommended by manufacturer for specific project conditions.

B. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
   1. Use latex bonding agent only for non-load-bearing applications.

C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

D. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
   1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Notify Construction Manager not less than 24 hours prior to commencement of placement operations.

D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Anchor joint fillers and devices to prevent movement during concrete placement.

B. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

C. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch (5 mm) thick blade and cut at least 1 inch (25 mm) deep but not less than one quarter (1/4) the depth of the slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:
   1. Exposed Concrete Floors: 1/4 inch (6 mm) in 10 ft (3 m).

B. Correct the slab surface if tolerances are less than specified.

C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. "Wood float" as described in ACI 302.1R; Garage Foor/Apron.
   2. "Steel trowel" as described in ACI 301.1R; Basement Floor.
   3. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.

3.09 DEFECTIVE CONCRETE

A. Repair or replacement of defective concrete will be determined by the Construction Manager. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

B. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Construction Manager for each individual area.

END OF SECTION

SECTION 04 0100

MAINTENANCE OF MASONRY

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Brush down and clean interior of basement foundation wall.

B. Repoint and repair all foundation walls at exterior.

C. Provide unit price per square foot to rebuild deteriorated areas uncovered by the work.

1.02 SECTION INCLUDES

A. Water cleaning of all interior surfaces.

B. Repointing mortar joints.

C. Repair of damaged masonry.

1.03 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

A. Cleaning Agent: Detergent type.

PART 3 EXECUTION

3.01 REBUILDING

A. Cut out damaged and deteriorated masonry with care in a manner to prevent damage to any adjacent remaining materials.

3.02 REPOINTING

A. Cut out loose or disintegrated mortar in joints to minimum 1/2 inch (6 mm) depth or until sound mortar is reached.

B. Premoisten joint and apply mortar. Pack tightly in maximum 1/4 inch (6 mm) layers. Form a smooth, compact concave joint .

3.03 CLEANING NEW MASONRY

A. Verify mortar is fully set and cured.

B. Clean surfaces and remove large particles with wood scrapers, brass or nylon wire brushes.

END OF SECTION

SECTION 04 2000

UNIT MASONRY

PART 1 GENERAL

1.01 LOCATIONS

A. Infill former bulkhead stair opening with CMU. Secure to adjacent stone foundation wall using steel anchors in set in 2-part epoxy.

B. Infill window opening obscured by new basement stair location. Provide parge-coat to match adjacent walls.

C. Provide precast plinth block base at (1) wood column in basement.

D. Provide CMU foundation at new garage.Top of Footing 5'-0" grade.

1.02 SECTION INCLUDES

A. Concrete Block.

B. Concrete Brick.

C. Mortar and Grout.

D. Reinforcement and Anchorage.

E. Accessories.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures; American Concrete Institute International; 2009.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.

D. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.

G. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2009a.

H. ASTM C55 - Standard Specification for Concrete Brick; 2009.

I. ASTM C91 - Standard Specification for Masonry Cement; 2005.

J. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2006.

K. ASTM C140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2011.

L. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2004.

M. ASTM C150 - Standard Specification for Portland Cement; 2011.

N. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.

O. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2010.

P. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2007.

Q. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

R. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2010.

S. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008) .

T. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2010.

U. ASTM C1357 - Standard Test Methods for Evaluating Masonry Bond Strength; 2009.

V. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

PART 2 PRODUCTS

2.01 MASONRY UNITS GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.02 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 x 8 inches (400 x 200 mm) and nominal depths as indicated on the drawings for specific locations.
   2. Load-Bearing & Non-Loadbearing Units: ASTM C 90, normal weight.
      a. Standard block units Both hollow and solid .
         1) Exposed faces: Manufacturer's standard color and texture.
      b. Minimum Average Net Area Compressive Strength: 2000 psi.

B. Concrete Brick:
   1. For all uses, ASTM C55, normal weight.
   2. Size: Match existing retaining wall cap..

2.03 MORTAR AND GROUT MATERIALS

A. Masonry Cement: ASTM C91, Type as noted.
   1. Colored mortar: Premixed cement as required to match Construction Manager's color sample.

B. Portland Cement: ASTM C150, Type I; color as required to produce approved color sample.
   1. Not more than 0.60 percent alkali.

C. Hydrated Lime: ASTM C207, Type S.

D. Mortar Aggregate: ASTM C144.
   1. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
   2. White-Mortar Aggregates: Natural white sand or crushed white stone.
   3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

E. Grout Aggregate: ASTM C404.

F. Water: Clean and potable.

2.04 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420) deformed billet bars; uncoated.
   1. Earth Retaining Walls:
      a. Provide one #5 bar at 32" on center tied into footing dowels to match. Grout solid.

B. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.

C. Single Wythe Joint Reinforcement: Truss or ladder type; ASTM A82/A82M steel wire, hot dip galvanized after fabrication to ASTM A153/A153M, Class B; 0.1483 inch (3.8 mm) side rods with 0.1483 inch (3.8 mm) cross rods; width as required to provide not more than 1 inch (25 mm) and not less than 1/2 inch (13 mm) of mortar coverage on each exposure.

D. Anchor Bolts: Headed steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.05 ACCESSORIES

A. Bond Breaker Strips: ASTM D 226, Type I ("No.15") asphalt felt.

2.06 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.
   2. Exterior, loadbearing masonry: Type M or Type S.
   3. Exterior, non-loadbearing masonry: Type M or Type S.
   4. Interior, loadbearing masonry: Type N.
   5. Interior, non-loadbearing masonry: Type N.

B. Colored Mortar: Proportion selected pigments and other ingredients to match Construction Manager's sample, without exceeding manufacturer's recommended pigment-to-cement ratio or as follows:
   1. Pigments shall not exceed 10 percent of portland cement by weight.
   2. Pigments shall not exceed 5 percent of masonry cement by weight.

C. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches (50 mm) or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches (50 mm).

D. Mixing: Use mechanical batch mixer and comply with referenced standards.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

3.04 INSTALLATION - GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.05 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running.
   2. Coursing: One unit and one mortar joint to equal 8 inches (200 mm).

3. Mortar Joints: Concave.

3.06 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units as follows.
   1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
   2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
   3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
   4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.

F. Interlock intersections and external corners, except for units laid in stack bond.

G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

I. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

J. Isolate masonry partitions from vertical structural framing members with a control joint .

K. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.07 REINFORCEMENT AND ANCHORAGE - GENERAL

A. Fasten anchors through sheathing to wall framing or to masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.

B. Embed tie sections in masonry joints. Provide not less than 2 inches (50 mm) of air space between back of masonry veneer and face of sheathing.

C. Locate anchor sections to allow maximum vertical differential movement of ties up and down.

D. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches (400 mm) on center.

E. Place masonry joint reinforcement in first horizontal joints above and below openings. Extend minimum 16 inches (400 mm) each side of opening.

F. Place continuous joint reinforcement in first joint below top of walls.

G. Lap joint reinforcement ends minimum 6 inches (150 mm).

3.08 GROUTED COMPONENTS

A. Reinforce members per the structural drawings.

B. Lap splices minimum 24 bar diameters, minimum.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.

D. Place and consolidate grout fill without displacing reinforcing.

E. At bearing locations, fill masonry cores with grout for a minimum 8 inches (____ mm) either side of opening.

F. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.09 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
   1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
   2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
   1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
   2. Limit height of vertical grout pours to not more than 60 inches (1520 mm).

3.10 BUILT-IN WORK

A. As work progresses, install built-in metal door frames, glazed frames, anchor bolts, and plates and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
   1. Fill adjacent masonry cores with grout minimum 8 inches (____ mm) from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.11 TOLERANCES

A. Dimensions and Locations of Elements:
   1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
   2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
   3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:
   1. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
   2. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.

C. Joints:
   1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
   2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
   3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.12 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

3.13 MASONRY WASTE DISPOSAL

A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
   1. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.

B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION

SECTION 04 2300

GLASS UNIT MASONRY

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide glass block panels in basement window openings, with vents.

1.02 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures; American Concrete Institute International; 2009.

1.03 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 GLASS UNITS

A. Hollow Glass Units: Permanently seal hollow unit by heat fusing joint; with joint key to assist mortar bond.

2.02 ACCESSORIES

A. Vent unit: Heavy duty, vinyl frame with operable insulated glass sash and full insect screen. Nominal 8"h. x 16"w. x same depth as glass block units.

B. Perimeter Channel: Extruded aluminum channel profile, 4-3/4 inch (120 mm) by 1-1/4 inch (32 mm) by 1/8 inch (3 mm) size, one piece per length installed, uncoated finish.

2.03 MORTAR AND POINTING MATERIAL

A. Mortar: Type S with waterproofing admixture.

2.04 MORTAR MIXING

A. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.

PART 3 EXECUTION

3.01 INSTALLATION

A. Shop fabricate glass block panels, using all full block units to fit existing opening sizes. Set vent unit in center of each panel. Mortar joints to be uniform width and tooled concave.

B. Install panel in existing opening with a full bed of mortar at sill and jambs and silicone sealant at head. Tool exposed joints slightly concave when mortar is thumbprint hard.

C. Erect glass units and accessories in accordance with manufacturer's instructions.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Construct new 2-car garage with pre-purchased materials. Entry door and window to face rear yard.

B. Completely rebuild former porch at rear of house. Work includes corner post on existing foundation, beams to support existing roof framing, treated wood floor joists, framing and sheathing for low walls at (2) sides. Construct new stair framing of treated wood stringers hung off of face of existing foudnation wall. See plans for more information. See Finish Carpentry 06 2000 for flooring material, stair treads and risers and fiber-cement trim. See Fiber-cement siding 07 4646 for siding at low walls.

C. Completely rebuild walls between house and rear porch, including support for floors above, bearing on foundation below, (2) window openings and (1) door opening on the west and (1) window opening on the south. Wall construction to include exterior sheathing and treated lumber where in contact with masonry materials. See Finish Carpentry 06 2000 for interior wood and exterior fiber-cement trim. See also Fiber-cement siding 07 4646.

D. Completely rebuild structure at front porch, including (3) posts on footings, beams and floor joists. Provide shoring to hold existing roof framing in place. Provide framing and sheathing for low walls at front and sides of porch. Construct new stair framing of treated wood stringers hung off of face of existing foudnation wall. See plans for more information. See Finish Carpentry 06 2000 for flooring material, stair treads and risers and fiber-cement trim. See Fiber-cement siding 07 4646 for siding at low walls.

E. Modify window openings as show on the plans. Provide headers, king and trim studs to support new openings. Ensure new stud locations have adequate bearing on floor structure below and do not overload window heads or other openings below.

F. Provide unit price, in square feet, for replacement of damaged exterior wall sheathing discovered after existing layers of siding and building paper are demolished.

G. At sloped ceiling areas on second floor, provide 2x4 furring at exposed roof framing. See plans and detail for more information.

H. Provide interior partitions at second floor as shown on the plans.

I. Provide furring at Bathroom 2 wall to accommodate waste and vent stack.

J. Rebuild floor structure at Bedroom 4. Floor framing to be continuous from wall to wall and infill opening at former rear stair. Provide new floor sheathing at infilled area.

K. Provide interior partitions on first floor as shown on the plans.

L. Frame openings in first floor framing for basement stair and hvac riser. Provide double-2x joists from rim to center beam and another double-2x between to complete the openings.

M. Construct stair to basement, side, and center walls according to plans. All lumber in contact with masonry or cementitious materials to be treated. See Finish Carpentry 06 2000 for treads, risers and railing components.

N. Provide framing for wall cap at basement stair.

O. Modify framing and header at front entry door and window. Provide sheathing at adjacent infilled areas.

P. Modify framing and headers at first floor openings in bearing walls. Provide new headers where original or existing headers are inadequate or have been compromised by previous remodeling work.

Q. Provide plywood panel for mounting electrical panel on basement wall.

1.02 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Non-structural dimension lumber framing.

C. Rough opening framing for doors, windows, and roof openings.

D. Sheathing.

E. Subflooring.

F. Preservative treated wood materials.

G. Communications and electrical room mounting boards.

H. Concealed wood blocking, nailers, and supports.

1.03 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.04 REFERENCE STANDARDS

A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2001.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

C. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.

D. PS 1 - Structural Plywood; 2007.

E. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Douglas Fir-Larch, unless otherwise indicated.
   2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

B. Lumber fabricated from old growth timber is not permitted.

C. Provide wood harvested within a 500 mile (805 km) radius of the project site; see Section 01 6000 for requirements for locally-sourced products.

D. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted in lieu of sustainably harvested lumber provided it is clean, denailed, and free of paint and finish materials, and other contamination; identify source; see Section 01 6000 for requirements for reused products.

E. Lumber fabricated from recovered timber (abandoned in transit) is permitted in lieu of sustainably harvested lumber, unless otherwise noted, provided it meets the specified requirements for new lumber and is free of contamination; identify source.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, Rough (unsurfaced).

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm)):
   1. Grade: No. 2.

D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 (50 by 150 mm through 100 by 400 mm)):
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 1 & Btr.

E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Subfloor/Underlayment Combination: Plywood, APA PRP-108, Rated Sturd-I-Floor.
   1. Exposure Class: Exterior.
   2. Span Rating: 24 inches (610 mm).
   3. Thickness: 3/4 inches (19 mm), nominal.
   4. Edges: Tongue and groove.

B. Wall Sheathing, For exterior wall reconstruction and infill: Plywood, PS 1, Grade C-C, Exterior Exposure.

C. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch (19 mm) thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Stainless steel for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.

B. Joist Hangers and post bases: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood in exposed locations, provide minimum G185 (Z550) galvanizing per ASTM A653/A653M.

C. Sill Gasket on Top of Foundation Wall: 1/4 inch (6 mm) thick, plate width, closed cell plastic foam from continuous rolls.

D. Subfloor Glue: Waterproof, water base, air cure type, cartridge dispensed.

E. Building Paper: Water-resistant Kraft paper.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:

1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft (4.0 kg/cu m) retention.
    a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    b. Treat lumber exposed to weather.
    c. Treat lumber in contact with roofing, flashing, or waterproofing.
    d. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches (38 mm) of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet (2.3 m) span as detailed. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.

B. Underlayment: Secure to subflooring with nails and glue.
    1. Place building paper between floor underlayment and subflooring.

C. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

3.06 TOLERANCES

A. Framing Members: 1/4 inch (6 mm) from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet (1 mm/m) maximum, and 1/4 inch in 30 feet (7 mm in 10 m) maximum.

C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet (2 mm/m) maximum, and 1/4 inch in 30 feet (7 mm in 10 m) maximum.

3.07 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 7419.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 2000

FINISH CARPENTRY

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide the following exterior trim:
   1. At windows provide 4" fiber cement trim at jambs, 6" fiber-cement trim at heads, PVC sill trim at sills, and PVC cap trim at top of 6" fiber-cement head trim.
   2. At building corners, provide 4" fiber-cement corner boards. Provide 6" rake trim at all gable ends. Provide 8" fiber-cement skirt trim at base of house.
   3. At porches, provide 4" fiber-cement trim at low walls, including corners below posts, at base above floor, and immediately below low wall cap. Provide 2x12 nominal wall cap in cedar, ripped to fit. Provide 12" fiber-cement trim at beams and 10" fiber-cement trim at columns. Miter all corners at columns. Provide PVC moulding at top of beam. See drawings for more information.

B. Provide vented fiber-cement soffit panels at porch eaves.

C. Provide beaded wood ceiling panels at front and rear porches.

D. Provide the following interior trim throughout.
   1. At window jambs and heads, provide 4" flat trim and back band. At window sill provide 1x wood sill and 2 1/2" flat stool trim below. Extend sill 1" beyond back band and align stool trim with edge of back band.
   2. At door jambs and heads, provide 4" flat trim and back band.
   3. At base, provide 6" flat trim, cap trim, and quarter round.

E. Provide hardwood stair treads and risers at front stair. Provide hardwood skirtboard at stair in size and profile to match base listed above. Provide stair cove at top of riser.

F. Provide handrails and brackets at front and rear stairs.

G. Provide wood-composite decking at front and rear porches.

H. Provide handrails at exterior stairs. See drawings for more information.

1.02 SECTION INCLUDES

A. Finish carpentry items.

B. Wood casings and moldings.

C. Wood sheathing.

D. Beadboard soffit panels.

E. Wood decking.

F. Fiber-cement exterior trim.

G. PVC exterior trim.

H. Hardware and attachment accessories.

1.03 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.04 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

B. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; Hardwood Plywood & Veneer Association; 2004.

1.05 RELATED SECTIONS

A. See Section 09 9000 Painting and Coating, for trim finish and color.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Premium Grade.

B. Exterior Woodwork Items:
   1. Porch decking: 1" x 5 1/2" Douglas fir, tongue & groove, Select grade for stain finish..

C. Interior Woodwork Items:
   1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear White Oak; prepare for stain finish.
      a. Back band: FERCHE 194.
      b. Base cap: FERCHE 240B.
   2. Window Sills: Clear White Oak; prepare for stain finish.
   3. Stairs, Balustrades, and Handrails: Clear White Oak; prepare for stain finish.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

B. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000.

C. Provide wood harvested within a 500 mile (805 km) radius of the project site.

2.03 LUMBER MATERIALS

A. Softwood Lumber: Pine species, plain sawn, maximum moisture content of 6 percent; with vertical grain, .

B. Hardwood Lumber: White Oak species, plain sawn, maximum moisture content of 6 percent ; with vertical grain , of quality suitable for transparent finish.

2.04 FIBER-CEMENT TRIM & SOFFIT

A. Manufactured by James Hardie.
   1. Trim material
      a. 5/4 nominal; 1" actual size in widths described throughout drawings and specifications.
   2. Vented Soffit
      a. 1/4" thick by depth required at each soffit.

2.05 PVC TRIM

A. Manufactured by: AZEK trim materials.
   1. Exterior window sill: AZM-6930.
   2. Exteiror window head cap: AZM-210.
   3. Exterior beam cap: AZM-6934.

2.06 SHEET MATERIALS

A. Hardwood Plywood: Face species as indicated, plain sawn, book matched, medium density fiberboard core; HPVA HP-1, Grade AA, Type ____; glue type as recommended for application.

B. Prefinished Paneling: White Oak face species, flat cut, vertical grain, ; 3/16 inch (4 mm) thick, finished as satin .

2.07 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.08 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:

PART 3 EXECUTION

3.01 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Use finish nails of sufficient length to penetrate framing 1".

D. Mitre all lap joints, and break all lap joints over framing.

E. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (1 mm). Do not use additional overlay trim to conceal larger gaps.

3.02 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch (1.5 mm).

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.7 mm).

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. ALTERNATE #1: Provide 2" rigid insulation below 4" concrete slab. Tape joints.

1.02 SECTION INCLUDES

A. Board insulation and integral vapor retarder at basement slab.

1.03 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2010a.

B. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2006.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

PART 2 PRODUCTS

2.01 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene Board Insulation: ASTM C578, Type X; Extruded polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:
   1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Board Size: 48 x 96 inch (1220 x 2440 mm).
   4. Board Thickness: 2" inches (50 mm).
   5. Board Edges: Square.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Cut and fit insulation lightly around piping, electrical wiring, and other penetrations.

C. Do not obstruct ventilation spaces.

D. Tape all joints to create monolithic vapor barrier.

E. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

END OF SECTION

SECTION 07 2119

FOAMED-IN-PLACE INSULATION

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide spray foam insulation at all rim joists in basement.

B. Provide 5" spray foam insulation at furring on interior ceiling slopes in locations identified in plan. Spray foam must not displace insulation baffles and ensure that 2' minimum air space is maintained between top of insulation and bottom of roof sheathing. Spray foam must extend at least 10" into attic space to ensure continuity with blown-cellulose insulation.

1.02 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.03 REFERENCE STANDARDS

A. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2006.

PART 2 PRODUCTS

2.01 MATERIALS

A. Foamed-In-Place Insulation: Medium-density, rigid or semi-rigid, closed cell polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.

1. Water Absorption: Less than 2 percent by volume, maximum, when tested in accordance with ASTM D2842.
2. Closed Cell Content: At least 90 percent.

2.02 ACCESSORIES

PART 3 EXECUTION

3.01 APPLICATION

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

B. Insulate and air seal to rim joist cavities to an r-value of R-19.

END OF SECTION

SECTION 07 2126

BLOWN INSULATION

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide dense-pack insulation at all exterior walls, including infill at former door locations and reconstructed wall between kitchen and rear porch.

B. Provide blown cellulose at attic to R-50. Provide baffles at eaves to ensure air movement from soffit to ridge.

C. Weatherstrip attic access hatch and insulate to R-44. Provide dam around attic hatch to contain blown cellulose.

D. Coordinate all work, including sealing of attic bypasses, with Air Barrier System 07 2700.

1.02 SECTION INCLUDES

A. Exterior Walls: Loose insulation pneumatically placed and poured into wall spaces through access holes.

B. Attic: Loose insulation pneumatically placed through access holes.

1.03 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.04 REFERENCE STANDARDS

A. ASTM C739 - Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation; 2011.

B. ASTM C1015 - Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation; 2006.

PART 2 PRODUCTS

2.01 MATERIALS

A. Loose Fill Insulation: ASTM C739, cellulose fiber type, nodulated for pour and bulk for pneumatic placement.
   1. R-Value: Attic R-50

B. Dense Pack Insulation: Fill Insulation: ASTM C739, cellulose fiber type, nodulated for pour and bulk for pneumatic placement.
   1. R-Value: 19 if possible
   2. Density: 3.5 Lbs. per Cubic Foot for the entire cavity

C. Ventilation Baffles: Formed plastic.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install insulation and ventilation baffle in accordance with ASTM C1015 and manufacturer's instructions.

B. Drill 3 inch (75 mm) diameter insulation access ports in exterior sheathing to permit equipment access.

C. Place insulation pneumatically to completely fill stud, joist, and rafter spaces .

D. Pour insulation to completely fill stud, joist, and rafter spaces to a density of 3.5 lbs per cubic foot per cavity.

E. Place insulation against baffles. Do not impede natural attic ventilation to soffit.

F. Completely fill intended spaces. Leave no gaps or voids.

G. Carefully seal all drilled holes with wood or foam plugs and patch all holes to match surrounding materials if the surface is exposed.

H. In balloon framed houses insures that blown cellulose is blocked from entering floor cavities such as second floor flooring.

I. ATTIC: Total r-value: R-50 according to NEC requirements.
   1. Dense pack below attic floor and blow above floor to meet R-50 requirement.
   2. Insulate and weatherstrip attic hatch: Access hatch door shall be insulated to R-50 and insulation dam constructed around opening. Opening shall be weather-stripped to provide an air tight seal.

J. WALLS: Where walls are unopened, externally dense pack insulation to R-19 if possible or 3.5 lbs.per cubic foot per cavity.

END OF SECTION

SECTION 07 2500

WEATHER BARRIERS

PART 1 GENERAL $_____

1.01 LOCATIONS

A. Provide complete weather barrier system at house exterior. System to include approved fasteners, tape, and full coordination with openings and flashing as required by weather barrier manufacturer.

B. Provide complete weather barrier system at garage exterior. System to include approved fasteners, tape, and full coordination with openings and flashing as required by weather barrier manufacturer.

1.02 SECTION INCLUDES

A. Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

B. Vapor Retarders: Materials to make exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and ____ water vapor-resistant and air tight.

1.03 REFERENCE STANDARDS

A. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2009.

1.04 UNIT PRICES

A. Tyvek material has been pre-purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: Lampert Siding
   2. Pre-purchased materials:
      a. Tyvek Housewrap

1.05 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Weather Barrier Membrane: Spunbonded polyolefin, non-woven, non-perforated, wether barrier
   1. Manufacturer: DuPont Tyvek HomeWrap or like product to be approved by owner.

B. Seam Tape: DuPont Tyvek or like product

C. Flashing: DuPont Tyvek or like product

D. Fasteners: DuPont Tyvek or like product

E. Interior Vapor Retarder: 6 Mil heavy plastic (polyethylene) sheeting
   1. On inside face of masonry and concrete walls use vapor retarder sheet, self-adhesive type,.
      a. Install to cover ground in crawl space and 6" up foundation walls
      b. Overlap seams by 2' and secure with Tyvek tape.

2.02 ACCESSORIES

A. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970, except slip resistance requirement is waived if not installed on a roof.
   1. Composition: Modified bituminous sheet laminated to polyethylene sheet.
   2. Thickness: 40 mil (0.040 inch) (1.02 mm) , nominal.
   3. Products:

a. Dupont Tyvek Flex Wrap at sills.
b. Dupon Tyvek Straight Flash at jambs and to secure metal flashing at heads..

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturers recommendations.

D. Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturers recommended fasteners, spaced 12-18 inches vertically on center along stud line, and 24 inches on center, maximum horizontally.

E. Flash openings using Dupont Tyvek installation instructions and accessories listed above.

3.04 FIELD QUALITY CONTROL

A. Do not cover installed weather barriers until required inspections have been completed.

3.05 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 2700

AIR BARRIER SYSTEM (SEALING OF BYPASSES)

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Seal all attic bypasses, including plumbing, electrical, and duct penetrations. Refer to NEC specification notes for more information.

1.02 QUALITY ASSURANCE

A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in Minnesota.

PART 2 PRODUCTS

2.01 ADHESIVES AND SEALANTS

A. VOC content not to exceed the following [g/L; less water and less exempt compounds]
   1. Multipurpose construction adhesives: 70 g/L

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide continuous air barriers.
   1. Install continuous interior air barrier around the building
   2. Install continuous external air barrier between all conditioned space and unconditioned space, including attic.

B. Compartmentalization of dwelling units:
   1. Walls
      a. Seal exterior wall corners with joint sealant [and/or foam]
      b. Seal vertical walls at all penetrations with joint sealant [and/or foam]
      c. Seal window frame with low expanding foam
      d. Seal bottom plates on exterior walls with a foam gasket [and/or caulk, foam]
   2. Floors
      a. Provide complete seal at joists supporting conditioned space with joint sealant [and/or foam]
   3. Ceilings
      a. Install continuous top and bottom plates, and sheathing to create a six-sided air barrier on all attic knee walls and seal with foam [and/or caulk].
      b. Install blocking at exposed edges of insulation at joists and rafters
      c. Truss framing: Install blocking at the top and bottom of each framing bay.
      d. Seal attic hatches with joint sealant [and/or foam].
      e. Provide sealing around skylight shaft with joint sealant [and/or foam]
      f. Install baffles between all rafters or trusses to direct the flow of air over and above the attic insulation.
      g. Recessed lighting when below unconditioned attic: Install insulation contact, airtight rated (ICAT) and seal to drywall with gasket [and/or caulk, foam]
   4. Garage Isolation Air Barrier (when attached to dwelling unit)
      a. Install continuous air barrier between the conditioned living space and any garage space and seal with foam [and/or caulk].
      b. Seal between all walls separating conditioned and garages spaces with foam [and/or caulk].
      c. All pipe and conduit penetrations shall be sealed with material compatible with the adjacent materials and resilient to temperature fluctuations and providing fire-resistive characteristics of required by authorise having jurisdictions.
      d. Floor trusses: Seal and block floor trusses and joists between conditioned space and garage with foam [and/or caulk].
   5. Bathtub and Shower Enclosures

a. Use mold-resistant material [plywood, oriented strand board (OSB), sheathing boards, moisture resistant gypsum] behind bathtub or shower enclosures, and extend the mold-resistant material the full length and with of the wall(s) on which the bathtub or shower enclosure abuts. Seal at all joints.
b. Install spray foam at framing behind bathtub or shower enclosure prior to setting tub or shower.

C. Continuity of External Air Barrier
1. Roof
   a. Install 4-inch to 6 inch "peal and seal" self-adhering waterproofing strips over joints in roof decking before installing the roof underlayment and cover.
2. Mechanical work
   a. Seal holes from penetrations from unconditioned spaces with joint sealant and provide flashing.
   b. Seal flue openings with flashing and fire-rated joint sealant
3. Building Envelope
   a. Air barrier must be continuous around building, including all components that act together as the exterior air barrier (sheet or liquid membrane with compatible tapes, caulks, flashing). Foam or caulk all exterior sheathing joints and intersections.
   b. Install weatherstripping hard-fastened to the door or frame at entranceways.
   c. Seal the roof curb at ductwork penetrations.
   d. Install continuous air barrier at the intersection of the porch roof and conditioned space.
   e. Air seal and insulate exterior sheathing on bottom of cantilevered floor.
   f. Lap and Foam or caulk exterior rigid insulation over the seams of the exterior wall sheathing.
4. Fireplace Enclosures
   a. Seal fireplace flue and wall penetrations with fire-rated caulking along with flashing or UL-rated collars.
5. Use air sealing with polyurethane caulk for following areas:
   a. Slab openings
   b. Slab penetrations
   c. Control or expansion joints
   d. Sump cover
6. Pest Management Measures
   a. For openings in the building envelope less than 1/4 inch, including pipe and electrical penetrations:
      1) completely seal to avoid pest entry.
   b. Install rodent-and corrosion proof screens for openings greater than 1/4 inch.

SECTION 07 3113
ASPHALT SHINGLES

PART 1 GENERAL $_____

1.01 LOCATIONS

A. Provide asphalt shingle roofing on house.Installation to include ice and water shield, roofing felts, pre-finished metal flashings, and ridge vents.

B. Provide ice & water shield at entirety of front and rear porch roofs. Coordinate roof-wall flashing with window installation to ensure compatible materials and continuous flashing.

C. Provide unit price for roof sheathing replacement.

D. Provide asphalt shingle roofing on garage.

1.02 SECTION INCLUDES

A. Asphalt shingle roofing.

B. Flexible sheet membranes for eave protection, underlayment, and valley protection.

C. Associated metal flashings and accessories.

1.03 RELATED REQUIREMENTS

A. Section 07 7123 - Manufactured Gutters and Downspouts.

1.04 REFERENCE STANDARDS

A. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.

B. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2009.

C. ASTM D3462 - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules; 2010a.

D. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.

E. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.

1.05 UNIT PRICES

A. Roofing material has been purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: Lampert Roofing
   2. Pre-purchased materials:
      a. GAF Elk Timberline 30 year HD Shingles
      b. Timetex Ice and Water Shield 15 lb. felt.

B. Roof sheathing replacement. Match existing material, thickness, and installation.
   1. Unit of measurement: Square foot.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.

PART 2 PRODUCTS

2.01 SHINGLES

A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462; Class A fire resistance.
   1. Self-sealing type.
   2. Manufacturer: GAF ELK, Timberline 30 Year HD shingles
   3. Style: Architectural Shingle.

4. Color: Weathered wood.

2.02 SHEET MATERIALS

A. Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970; 40 mil (1 mm) total thickness; with strippable treated release paper and polyethylene sheet top surface.
   1. Manufacturers:
      a. Grace Construction Products ; Product Ice & water shield.

B. Underlayment: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D226 , Type I ("No.15").

2.03 ACCESSORIES

A. Nails: Standard round wire shingle type, of hot dipped zinc coated steel, minimum 3/8 inch (9.5 mm) head diameter and 0.105 inch (2.67 mm) shank diameter, 1-1/4 inch (31 mm) long.

B. Plastic Cement: ASTM D4586, asphalt roof cement.

C. Ridge Vents: Plastic, formed with vent openings that do not permit direct water or weather entry; flanged to receive shingles ; Cobra Rigidvent 2 manufactured by GAF Materials Corporation.

2.04 METAL FLASHINGS

A. Metal Flashings: Provide sheet metal kickout flashing, gable edge, open valley flashing, and _____.
   1. Hem exposed edges of flashings minimum 1/4 inch (6 mm) on underside.

B. Sheet Metal: Prefinished aluminum, 0.016 inch (0.4 mm) thick; PVC coating, _____ color.

PART 3 EXECUTION

3.01 INSTALLATION - EAVE PROTECTION MEMBRANE

A. Install eave protection membrane from eave edge to minimum 8 ft (____ mm) up-slope beyond interior face of exterior wall.

3.02 INSTALLATION - VALLEY PROTECTION

A. Install eave protection membrane 18" each side of valleys. Lap ends a minimum of 6 inches in the direction to shed water.

3.03 INSTALLATION - METAL FLASHING AND ACCESSORIES

A. Install flashings in accordance with NRCA requirements.

B. Weather lap joints minimum 2 inches (50 mm) and seal weather tight with plastic cement.

C. Secure in place with nails at 12 inches (____ mm) on center. Conceal fastenings.

D. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.

3.04 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions.
   1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.
   2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.

B. Project first course of shingles 3/4 inch (19 mm) beyond fascia boards.

C. Extend shingles 1/2 inch (13 mm) beyond face of gable edge fascia boards.

D. Complete installation to provide weather tight service.

END OF SECTION

SECTION 07 4646

FIBER CEMENT SIDING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide complete fiber-cement siding and trim system at hosue & garage. Siding to be 6" exposure. Trim to be 5/4 material, 1" actual. 6" trim at heads, 4" at jambs, PVC sill at sills. PVC cap at heads. See 06 2000 for more information on all trim materials.

1.02 SECTION INCLUDES

A. Fiber cement siding.

1.03 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Siding substrate.

B. Section 06 2000 - Finish Carpentry: Exterior fiber-cement trim, PVC trim.

C. Section 07 2500 - Weather Barriers: Weather barrier under siding.

D. Section 09 9000 - Painting and Coating: Field painting.

1.04 REFERENCE STANDARDS

A. ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets; 2008.

1.05 UNIT PRICE

A. Siding material has been purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: Lampert Siding
   2. Pre-purchased materials:
      a. Pre-primed Hardie Plank Siding and corner trim. **(House Only)**
      b. Cost of Hardie Siding for Garage not included in pre-purchase and should be included in the contractors bid.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section with minimum 3 years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store products under waterproof cover and elevated above grade, on a flat surface.

PART 2 PRODUCTS

2.01 SIDING

A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
   1. Style: Standard lap style.
   2. Texture: Smooth.
   3. Length: 12 ft (3.7 m), nominal.
   4. Width (Height): 7-1/4 inches (184 mm).
   5. Thickness: 5/16 inch (8 mm), nominal.
   6. Finish: Factory applied primer. Finish painting to be applied by contractor.
   7. Color: As selected by Construction Manager from manufacturers full range of available colors.
   8. Warranty: 50 year limited; transferable.
   9. Lap Siding Manufacturers:

2.02 ACCESSORIES

A. Fasteners: Galvanized or corrosion resistant; length as required to penetrate minimum 1-1/4 inch (32 mm).

B. Joint Sealer: Siliconized acrylic sealant between siding and all other components. ASTM C834, Type OP, Grade 18C; single component, paintable.
   1. Product: RCS20 manufactured by Momentive Performance Materials (formerly GE Silicones).

PART 3 EXECUTION

3.01 PREPARATION

A. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.

B. Verify that weather barrier has been installed over substrate completely and correctly.

C. Do not begin until unacceptable conditions have been corrected.

D. If substrate preparation is the responsibility of another installer, notify Construction Manager of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Install sheet metal flashing:
   1. Above door and window trim and casings.
   2. Above horizontal trim in field of siding.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.
   1. Read warranty and comply with all terms necessary to maintain warranty coverage.
   2. Use trim details indicated on drawings.
   3. Touch up all field cut edges before installing.
   4. Pre-drill nail holes if necessary to prevent breakage.

B. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.

C. Diagonal Siding: Follow manufacturer's instructions.

D. Allow space between both ends of siding panels that butt against trim for thermal movement; seal joint between panel and trim with exterior grade sealant.

E. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.

F. Do not install siding less than 6 inches (150 mm) from surface of ground nor closer than 2 inch (50 mm) to roofs, patios, porches, and other surfaces where water may collect.

G. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide pre-finished drip caps at window and doors heads and all horizontal interruptions of siding system.

B. Provide pre-finished aluminum roof-wall flashing at low roofs. Extend flashing 8" minimum up walls. Coordinate installation with roofing work and kick-out flashing where required.

C. Provide pre-finished aluminum vented soffit and fascia at main house and garage roofs. (See 06 2000 Finish Carpentry for soffit at porch roofs.)

1.02 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.

B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.

C. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Aluminum: ASTM B209 (ASTM B209M); 0.032 inch (0.8 mm) thick; anodized finish of color as selected.
   1. Clear Anodized Finish: AAMA 611 AA-M12C22A41 Class I clear anodic coating not less than 0.7 mils (0.018 mm) thick.

B. Pre-Finished Aluminum Soffit and Facia: ASTM B209 (ASTM B209M); ____ inch (____ mm) thick; plain finish shop pre-coated with modified silicone coating.
   1. Manufacturer: Alsco Perfect Trim Plus

PART 3 EXECUTION

3.01 INSTALLATION

A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Seal metal joints watertight.

END OF SECTION

SECTION 07 7123

MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide complete gutter and downspout system at house and garage with leaf protection.

B. Provide piped downspout extension and pop-up emitter under sidewalk where shown on landscape plan.

C. Provide concrete splashblocks at all downspouts.

1.02 REFERENCE STANDARDS

A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.

B. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.

1.03 DESIGN REQUIREMENTS

A. Conform to applicable code for size and method of rain water discharge.

PART 2 PRODUCTS

2.01 MATERIALS

A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.032 inch (0.8 mm) thick.
   1. Finish: Plain, shop pre-coated with modified silicone coating.
   2. Color: To match the exterior trim.

2.02 COMPONENTS

A. Gutters: K style profile, seamless, one-piece aluminum gutter and guard

B. Gutter Guard: seamless, one-piece aluminum gutter and guard

C. Downspouts: SMACNA Rectangular profile.
   1. Size: 3X5

D. Anchors and Supports: Profiled to suit gutters and downspouts.
   1. Gutter Supports: Brackets.
   2. Downspout Supports: Straps.

E. Fasteners: Galvanized steel , with soft neoprene washers.

2.03 ACCESSORIES

A. Splash Pads: Precast concrete type, size and profiles indicated; minimum 3000 psi (21 MPa) at 28 days, with minimum 5 percent air entrainment.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.

B. Where feasible, a minimum of 6' offset extension shall be installed at the ends of all downspouts to divert water away from foundation.

C. Downspouts shall divert the entire water load in the direction of the rain garden according to the Landscape Plan.

D. Downspouts shall divert the entire water load in the direction of the rain garden according to the Landscape Plan.

E. Slope gutters ____ inch per foot (____ mm/m) , ___ percent minimum.

END OF SECTION

SECTION 08 1100

EXTERIOR INSULATED METAL DOORS AND FRAMES

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide insulated metal-clad doors and hardware at front and rear entries and garage.

B. Provide metal storm doors at front and rear entries.

PART 2 PRODUCTS

2.01 EXTERIOR PREHUNG METAL DOOR

A. Front Doors:
   1. Product: Rochester, Patina

B. Rear/Side Doors:
   1. Product: Mastercraft, Half Lite w/ Blinds - LT-10

C. Garage Service Door:
   1. Product: Mastercraft, 6-Panel - E-1

2.02 ALUMINUM STORM DOORS

A. Front Door
   1. Product: Larson, Oakley, or approved equivalent

B. Rear/Side Doors
   1. Product: Larson, Oakley, or approved equivalent

2.03 ACCESSORIES

A. DOOR HARDWARE: Door hardware finish to be Satin Nickel
   1. Front Door Hardware: Schlange Merano
   2. Interior Door Hardware: Schlange Merano

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine doors and installed door frames before hanging doors.
   1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
   2. Reject doors with defects

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

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use a expanding foam to insulate between the door frame and the rough opening.

C. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.

D. Align and fit doors in frames with uniform clearances set by manufacturer.

E. Seal edges of doors, edges of cutouts, and mortises after fitting and machining

3.03 SYSTEMS INTEGRATION

A. Coordinate with low-voltage security contractor to install contacts in door.

3.04 ADJUSTING

A. Adjust Doors for smooth operation.

B. Operation: Rehang or replace doors that do not swing or operate freely.

END OF SECTION

SECTION 08 1429

WOOD DOORS

PART 1 GENERAL

1.01 LOCATIONS

A. Provide pre-hung solid-core, 5-equal-panel, stile and rail doors at all interior openings. See plan for swing and location and door schedule for size.

1.02 SECTION INCLUDES

A. Wood doors, stile and rail design.

1.03 QUALITY ASSURANCE

1.04 DELIVERY, STORAGE, AND HANDLING

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Stile and Rail Wood Doors:
   1. Eggers Industries: www.eggersindustries.com.
   2. Marshfield DoorSystems, Inc; _____: www.marshfielddoors.com.
   3. MasterCraft doors .

2.02 INTERIOR WOOD DOORS

A. Quality Level: Premium Grade , in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.

B. Wood products that Emit Low or No Formaldehyde

C. Wood products that Emit Low or No VOC

D. Interior Doors: 1-3/8 inches (35 mm) thick unless otherwise indicated; solid lumber construction; mortised and tenoned joints.
   1. Wood: White Oak
   2. Door Type: 5-panel, prehung

2.03 DOOR FACINGS

A. Interior Doors: Wood veneer, White Oak species, plain sliced, with book matched grain, for transparent finish.

B. Adhesive: Type I - waterproof.

2.04 ACCESSORIES

A. Adhesives and Sealants: VOC content not to exceed the following [g/L; less water and less exempt compounds]:
   1. Multipurpose Construction Adhesives: 70g/L

B. Hinges to match the lockset

C. Door stop.
   1. Provide wall stops where possible.
   2. Hinge stops are to be used ONLY where wall stops are not possible.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and AWI/AWMAC Quality Standards requirements.

B. Trim door width by cutting equally on both jamb edges.

C. Trim door height by cutting bottom edges to a maximum of 3/4 inch (19 mm).

D. Machine cut for hardware.

E. Coordinate installation of doors with installation of frames and hardware.

3.02 TOLERANCES

A. Conform to specified quality standard for fit, clearance, and joinery tolerances.

END OF SECTION

SECTION 08 3323
OVERHEAD GARAGE DOORS

PART 1 GENERAL

1.01 LOCATIONS

A. Provide overhead door at garage.

B. Provide electric garage door opener.

1.02 REFERENCE STANDARDS

A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); National Electrical Manufacturers Association; 2008.

B. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC; National Electrical Manufacturers Association; 2000 (R2005).

PART 2 PRODUCTS

2.01 COILING DOORS

A. Exterior Coiling Doors: Insulated Aluminum slat curtain.
   1. Guides: Formed track; galvanized steel.
   2. Electric operation.
   3. Mounting: Within framed opening.
   4. Exterior lock and latch handle.

2.02 ELECTRIC OPERATION

A. Electric Operators: Chain Drive Garage Door Opener
   1. Motor Rating: 1/3 hp (250 W); continuous duty.
   2. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
   3. Controller Enclosure: NEMA 250 Type 1.
   4. Opening Speed: 12 inches per second (300 mm/s).
   5. Brake: Adjustable friction clutch type, activated by motor controller.
   6. Manual override in case of power failure.

B. Control Station: Standard three button (OPEN-STOP-CLOSE) momentary control for each operator.
   1. 24 volt circuit.

C. Safety Edge: Located at bottom of curtain, full width, electro-mechanical sensitized type, wired to stop operator upon striking object, hollow neoprene covered.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

E. Complete wiring from disconnect to unit components.

3.02 ADJUSTING

A. Adjust operating assemblies for smooth and noiseless operation.

3.03 CLEANING

A. Clean installed components.

B. Remove labels and visible markings.

END OF SECTION

SECTION 08 5213

METAL-CLAD WOOD WINDOWS

PART 1 - GENERAL

1.01 LOCATIONS

A. Provide clad wood windows at all existing openings. Every bedroom must have one (1) window that meets egress requirements. Interior to be factory finished.

1.02 SECTION INCLUDES

A. This Section includes:
   1. Clad wood windows.
   2. Refer to Drawings for window types and rough opening sizes. Field measure rough openings prior to ordering windows.

1.03 RELATED REQUIREMENTS

A. Section 061000- Rough Carpentry for rubberized sheet flashing, flexible rubberized flashing and beveled wood shims for window opening preparation and flashing.

1.04 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors; American Architectural Manufacturers Association; 2008.

1.05 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Energy Star Rated to meet Minnesota climate conditions. Climate Zone 6 for 2006 IECC, ASHRAE 90.1-2007 and ENERGY STAR.

B. Performance Ratings: Meet AAMA/WDMA performance ratings as follows: minimum ODP 80 for air infiltration, DP40 for water infiltration, and DP40 for structural performance. Unit U-value of 0.34.

1.06 SUBMITTALS

A. Product data for windows and flashing.

B. Shop drawings and details.

C. Color samples.

PART 2 - PRODUCTS

2.01 CLAD WOOD WINDOWS

A. Manufacturer: Marvin Windows. Product: Clad Ultimate.

B. Windows: Kiln dried wood, pre-primed and suitable for transparent finish; water repellent and preservative treated; clad on the exterior with 0.055-inch thick extruded aluminum; sash corners slot and tenoned. Extrusion for frame may be different color than sash. Double hung type with top sash factory fixed in place for single-hung function, except fixed windows where indicated on Drawings. Operable sash may be tilted inward 90 degrees from bottom.

C. Furnished with snap-on nailing fins at all openings.

D. Glass: Clear insulating Low E Maximizer Plus glass, 3/4” thick with a low-conductance spacer, argon filled. Fixed in place with interior, removable wood stops. Provide tempered glass in windows in hazardous locations as defined in International Residential Code. Solar heat gain coefficient of 0.33 maximum.

E. Finish: Exterior aluminum cladding, available in 50 standard colors, conforming to AAMA 2604. Interior pre-finished White Oak. Interior stain color to be selected from manufacturer’s current full range of colors without limitation. See color and material list for exterior color selection.

F. Window Hardware:
   1. Surface Mounted Sash Lift: Zinc die-cast with plated bronze finish.
   2. Locks: Zinc die-cast cam lock and keeper with plated bronze finish.

3. Track: Vinyl extrusion, with Talon wood jamb liner on interior and aluminum exterior cover inserts.
4. Balancing System: Coil spring block and tackle system with nylon cord and fiber filled nylon clutch.

G. Screens: Provide screens on all operable windows. Half screen only on all single-hung windows (lower sash only). In lieu of standard fiberglass mesh cloth on screens, equip units with charcoal gray coated aluminum mesh insect screens on operable sashes.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mock-up: Install job mock-up of window installation with flashing and procedures as outlined in Dupont Tyvek installation instructions. Obtain construction manager's approval of system for appearance and workmanship standard before proceeding with installing additional windows.

B. Preparation: Prepare exterior sheathing and opening with air barrier and flashing as described in Dupont Tyvek installation instructions. Verify that size of rough opening vertically and horizontally is sufficient to allow for window unit, air barrier, flashings, shims, window anchorage accessories, chinking and sealant, etc. as described in Dupont Tyvek installation instructions.

C. Installation: Comply with manufacturer's instructions. Set sash units plumb, level, and true to line, without warp or rack of frames and panels. Provide support and anchor tracks securely in place. Provide flashings, chinking and sealant as described in Dupont Tyvek installation instructions.

D. Adjust operating sashes, screens, and hardware for a tight fit at contact points and weatherstripping for smooth operation and weathertight closure.

END OF SECTION

SECTION 09 0120

REPAIR OF PLASTER AND GYPSUM BOARD SURFACES

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Repair all damage caused by demolition of existing kitchen casework and fixtures. Former kitchen locations will be new Dining room and Bedroom 4.

B. Repair all holes and penetrations as a result of all Mechanical, Plumbing, and Electrical work.

C. Repair all holes and penetrations as a result of security system installation.

D. Repair throughout as needed following improvements.

PART 2 PRODUCTS

2.01 ACCESSORIES

A. Galvanized metal lath

B. Joint Compound

C. Plaster

D. Plastic Tarps

PART 3 EXECUTION

3.01 REPAIR

A. Walls and Ceilings: Repair interior surface(s) so that finish surface is smooth, even and properly prepared for finish application.

1. Protect adjacent finished surfaces by covering with plastic or tarps.
2. Install galvanized metal lath (weight per city code) over area of back up as required. May also secure with screws and inserted piece of gypsum board in areas to be patched.
3. Before applying scratch coats, dampen areas to reduce absorption from joint compound/plaster.
4. Apply finish coat and bring to thickness flush with surrounding surface.
5. The interior temperature must be no less than a minimum 60 degrees during this work.

END OF SECTION

SECTION 09 0160

HARDWOOD FLOORING RESTORATION

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Sand and refinish floor at Den and finish new hardwood flooring to match.

1.02 RELATED SECTIONS

A. See Section 099000 Painting and Coating.

B. See Section 01 6116 Volatile Organic Compound Content Restrictions

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 RESTORATION

A. Restore hardwood floors: Counter sink all nails and fill holes. Remove the quarter round molding and protect the wall molding with painters tape. Drum sand and edge floor finishing with 120 grit sandpaper to completely remove the existing finish. Vacuum and wipe floor with slightly water dampened rag, until no dust is present.

B. Apply a coat of Minwax Low-VOC Water Based Polyurethane base coat followed by 3 coats of Minwax Low-VOC Water Based polyurethane for floors.

1. Product may not exceed 250 grams of VOC per Liter

END OF SECTION

SECTION 09 2116

GYPSUM BOARD INSTALLATION

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide exterior gypsum sheathing at entire west wall of building to ensure 1-hour fire rating.

B. Provide gypsum board at all interior partitions shown as new on plans.

C. Provide gypsum board at ceiling of kitchen, including construction of new soffits as shown on plans and interior elevations.

D. Provide gypsum board at soffit between new HVAC chase, kitchen, and front entry.

E. Provide gypsum board at sloped ceilings on second floor, including but not limited to, front stair, Bedroom 1, 3, 4, and Bathroom 3.

F. Provide water resistant gypsum board at walls and ceilings in all bathrooms. Note that bathroom side of plumbing wall at Bathroom 2 must be furred out and closet side of plumbing wall at Bathroom 3 must be furred out. In both cases furring is required for additonal pipe clearances.

G. Provide cementitions backer board at shower surrounds.

H. Provide gypsum board at several infill locations, including former door and window openings.

1.02 SECTION INCLUDES

A. Metal stud wall framing.

B. Acoustic insulation.

C. Gypsum sheathing.

D. Gypsum wallboard.

E. Joint treatment and accessories.

1.03 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

1.04 REFERENCE STANDARDS

A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).

B. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2009a.

C. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.

D. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2009a.

E. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2008.

F. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2010.

G. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.

H. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2008.

I. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing; 2009.

J. ASTM C1288 - Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets; 1999 (Reapproved 2010).

K. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.

L. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.

2.02 METAL FRAMING MATERIALS

A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf (240 Pa).
   1. Furring channels: Z shaped, 2" depth

2.03 BOARD MATERIALS

A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Thickness:
      a. Vertical Surfaces: 1/2 inch (13 mm).
      b. Ceilings: 1/2 inch (13 mm).

B. Backing Board For Wet Areas: One of the following products:
   1. Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.
   2. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288.
      a. Thickness: 1/2 inch (12.7 mm).
      b. Products:
         1) James Hardie Building Products, Inc; Hardibacker Cement Board.

C. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
   1. Application: Exterior sheathing, unless otherwise indicated.
   2. Glass-Mat-Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
   3. Core Type: Type X.
   4. Type X Thickness: 5/8 inch (16 mm).
   5. Edges: Square, for vertical application.
   6. Glass-Mat-Faced Products:
      a. CertainTeed Corporation; GlasRoc Brand.
      b. Georgia-Pacific Gypsum LLC; DensGlass Gold Sheathing.
      c. National Gypsum Company; Gold Bond Brand e2XP Extended Exposure Sheathing.
      d. Temple-Inland Inc; GreenGlass Exterior Sheathing.

2.04 ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: __ inch.

B. Water-Resistive Barrier: As specified in Section 07 2500.

C. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
   1. Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
   2. Ready-mixed vinyl-based joint compound.
   3. Powder-type vinyl-based joint compound.
   4. Chemical hardening type compound.

D. Screws for Attachment to Steel Members Less Than 0.03 inch (0.7 mm) In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.

E. Screws for Attachment to Steel Members From 0.033 to 0.112 inch (0.8 to 2.8 mm) in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Studs: Space studs as permitted by standard.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
   1. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.

3.05 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

SECTION 09 3000
TILING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide ceramic tile at Kitchen.

B. Provide ceramic tile and 6" base at Bathroom 1.

C. Provide ceramic tile floor, 6" base, and shower surround at Bathrooms 2 & 3.

D. Provide transitions to other flooring materials.

1.02 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Cementitious backer board as tile substrate.

D. Ceramic accessories.

E. Ceramic trim.

1.03 REFERENCE STANDARDS

A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2009.

B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2010.

C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar; 1999 (R2010).

D. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex Portland Cement

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2009.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999 (R2010).

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999 (R2010).

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (R2010).

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (R2010).

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (R2010).

K. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (R2005).

L. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.

M. TCNA (HB) - Handbook for Ceramic Tile Installation; 2011.

1.04 ALLOWANCES

A. Allowances for Tile of $3.00 per square foot.

1.05 QUALITY ASSURANCE

A. Maintain one copy of The Tile Council of North America Handbook and ANSI A108 Series/A118 Series on site.

1.06 FIELD CONDITIONS

A. Do not install adhesives in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

PART 2 PRODUCTS

2.01 TILE

A. Ceramic Mosaic Tile : ANSI A137.1 , and as follows:
   1. Size and Shape: 1 inch square (25 mm square).
   2. Edges: Square.
   3. Surface Finish: Unglazed.
   4. Colors: As scheduled.

B. Glazed Wall Tile Type Ceramic: ANSI A137.1 , and as follows:
   1. Size and Shape: 6 inch (150 mm) square.
   2. Edges: Cushioned.
   3. Surface Finish: High gloss.
   4. Colors: As scheduled.

2.02 TRIM AND ACCESSORIES

A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.

B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
   1. Applications: Use in the following locations:
      a. Open Edges: Bullnose.
      b. Inside Corners: Jointed.
      c. Floor to Wall Joints: Cove base.
   2. Manufacturer: Same as for tile.

C. Thresholds: Marble, white or gray, honed finish; 2 inches (50 mm) wide by full width of wall or frame opening; 1/2 inch (12 mm) thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.
   1. Applications: Provide at the following locations:
      a. At doorways where tile terminates.
      b. At open edges of floor tile where adjacent finish is a different height.

2.03 SETTING MATERIALS

A. Mortar Bond Coat Materials for Thin-Set Installations:

2.04 GROUTS

A. Standard Grout: Any type specified in ANSI A118.6 or A118.7.

2.05 THICK-BED MATERIALS

2.06 THIN-SET ACCESSORY MATERIALS

A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12.
   1. Thickness: 20 mils (0.5 mm), maximum.
   2. Crack Resistance: No failure at 1/16 inch (1.6 mm) gap, minimum.

B. Waterproofing Membrane at Showers and Tiled Tubs: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
   1. Type: Fluid-applied.
   2. Products:

a. Mapei ; Mapleastic.

C. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glass fiber reinforced, 1/2 inch (13 mm) thick; 2 inch (50 mm) wide coated glass fiber tape for joints and corners.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

E. Form internal angles square and external angles bullnosed.

F. Install ceramic accessories rigidly in prepared openings.

G. Install thresholds where indicated.

H. Sound tile after setting. Replace hollow sounding units.

I. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

J. Allow tile to set for a minimum of 48 hours prior to grouting.

K. Grout tile joints. Use standard grout unless otherwise indicated.

L. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.02 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over wood substrates, install in accordance with The Tile Council of North America Handbook Method F142, with standard grout, unless otherwise indicated.

1. Where epoxy bond coat and grout are indicated, install in accordance with The Tile Council of North America Handbook Method F143.

B. Over wood substrate with backer board underlayment, install in accordance with The Tile Council of North America Handbook Method F144, for cementitious backer boards, with standard grout.

3.03 INSTALLATION - FLOORS - MORTAR BED METHODS

A. Over wood substrates, install in accordance with The Tile Council of North America Handbook method F141, with standard grout, unless otherwise indicated.

B. Mortar Bed Thickness: 5/8 inch (15 mm) , unless otherwise indicated.

3.04 INSTALLATION - SHOWERS AND BATHTUB WALLS

A. At tiled shower receptors install in accordance with The Tile Council of North America Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.

B. At bathtub walls install in accordance with The Tile Council of North America Handbook Method B412, over cementitious backer units with waterproofing membrane.

C. Grout with standard grout as specified above.

D. Seal joints between tile work and other work with sealant Type ____ specified in Section 07 9005.

3.05 INSTALLATION - WALL TILE

A. On exterior walls install in accordance with The Tile Council of North America Handbook Method W244, thin-set over cementitious backer units, with waterproofing membrane.

B. Over cementitious backer units on studs, install in accordance with The Tile Council of North America Handbook Method W244, using membrane at toilet rooms.

SECTION 09 6429

WOOD STRIP AND PLANK FLOORING

PART 1 GENERAL

1.01 LOCATIONS

A. Provide hardwood strip flooring in Living, Dining,Front Entry, and top landing at Basement Stair to match existing width, depth, and species of existing flooring in Den.

1.02 SECTION INCLUDES

A. Wood strip flooring, nailed.

B. Secondary subflooring as necessary to match existing conditions.

1.03 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 09 0160 - Hardwood Flooring Restoration.

1.04 REFERENCE STANDARDS

A. MFMA (SPEC) - Guide Specifications for Maple Flooring Systems; Maple Flooring Manufacturers Association; current edition.

B. NOFMA (IN) - Installing Hardwood Flooring; National Oak Flooring Manufacturers Association; current edition located at www.nofma.org.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of this section with minimum five years experience.

1.06 FIELD CONDITIONS

A. Do not install wood flooring until wet construction work is complete and ambient air at installation space has moisture content stabilized at maximum moisture content of 40 percent.

B. Provide heat, light, and ventilation prior to installation.

C. Store materials in area of installation for minimum period of 24 hours prior to installation.

D. Maintain minimum room temperature of 65 degrees F (18 degrees C) for a period of two days prior to delivery of materials to installation space, during installation, and after installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Wood Strip Flooring :
   1. Species: Match existing.
   2. Grade: First.
   3. Cut: Match existing grain.
   4. Actual Thickness: Match existing inch (____ mm).
   5. Actual Width: Match existing inches (____ mm).

B. Flooring Nails: Type recommended by flooring manufacturer.

C. Secondary Subflooring: Match existing inch (____ mm) thick plywood, with tongue and groove edges; Exposure 1 , sanded .

2.02 ACCESSORIES

A. Floor Finish: Specified in 09 0160.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Prepare substrate to receive wood flooring in accordance with manufacturer's, MFMA, and NOFMA instructions.

B. Broom clean substrate.

3.03 INSTALLATION

A. Sheathing Paper: Place over wood subfloor; lap edges and ends 2 inches (50 mm), staple in place.

B. Wood Flooring:
   1. Lay flooring parallel to length of room areas. Verify alignment as work progresses.
   2. Arrange flooring with end matched grain set flush and tight.
   3. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar; provide divider strips and transition strips in accordance with flooring manufacturer's recommendations and as indicated..
   4. Install edge strips at unprotected or exposed edges, and where flooring terminates.
   5. Secure edge strips before installation of flooring with stainless steel screws.
   6. Install flooring tight to floor access covers.
   7. Provide 1/4 inch (____ mm) expansion space at fixed walls and other interruptions.

C. Finishing: Specified in Section 09 0160.

3.04 PROTECTION

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Place protective coverings over finished floors; do not remove coverings until Substantial Completion.

END OF SECTION

SECTION 09 6800

CARPETING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide carpet runner with hemmed edges at Front Stair.

B. Provide carpet at Hall and Bedrooms 1-4, including closets.

1.02 REFERENCE STANDARDS

A. CRI (CIS) - Carpet Installation Standard; Carpet and Rug Institute; 2009.

B. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; Current Edition.

C. CRI (GLCC) - Green Label Testing Program - Approved Product Categories for Carpet Cushion; Carpet and Rug Institute; Current Edition.

D. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; Carpet and Rug Institute; Current Edition.

1.03 ALLOWANCES

A. Allowance for carpeting $18.00 per square yard.

1.04 FIELD CONDITIONS

A. Maintain minimum 70 degrees F (21 degrees C) ambient temperature 24 hours prior to, during and 24 hours after installation.

B. Ventilate installation area during installation and for 72 hours after installation.

PART 2 PRODUCTS

2.01 CARPET

A. Carpet Type Shaw Anso Yarn Texture Serenity Garden: Tufted, nylon, conforming to the following criteria:
   1. FHA Approved
   2. VOC Content: Provide CRI Green Label Plus certified product; in lieu of labeling, independent test report showing compliance is acceptable.

2.02 CUSHION

A. Cushion: Cellular rubber:
   1. VOC Content: Provide CRI Green Label Plus certified product; in lieu of labeling, independent test report showing compliance is acceptable.

2.03 ACCESSORIES

A. Tackless Strip: Carpet gripper, of type recommended by carpet manufacturer to suit application, with attachment devices.

B. Adhesives - General: Compatible with materials being adhered; maximum VOC content of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

C. Seam Adhesive: Recommended by manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet and cushion in accordance with manufacturer's instructions and CRI Carpet Installation Standard.

C. Verify carpet match before cutting to ensure minimal variation between dye lots.

D. Lay out carpet and locate seams in accordance with shop drawings:

1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
2. Do not locate seams perpendicular through door openings.
3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
4. Locate change of color or pattern between rooms under door centerline.
5. Provide monolithic color, pattern, and texture match within any one area.

E. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

3.02 STRETCHED-IN CARPET

A. Install tackless strips with pins facing the wall around entire perimeter, except across door openings. Use edge strip where carpet terminates at other floor coverings.

B. Space tackless strips slightly less than carpet thickness away from vertical surfaces, but not more than 3/8 inch (9 mm).

C. Install cushion in maximum size pieces using spot adhesive to adhere to sub-floor.

D. Lay out cushion so that seams will be perpendicular to, or offset from, minimum 6 inches (150 mm) from carpet seams.

E. Butt cushion edges together and tape seams.

F. Trim cushion tight to edge of tackless strip and around projections and contours.

G. Double cut carpet seams , with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to all cut edges immediately.

H. Join seams by hand sewing. Form seams straight, not overlapped or peaked, and free of gaps.

I. Following seaming, hook carpet onto tackless strip at one edge, power stretch, and hook firmly at other edges. Follow manufacturer's recommendations for method and amount of stretch.

J. The carpet should be stretched to eliminate puckers, scallops and ripples.

K. Trim carpet neatly at walls and around interruptions. Tuck edges into space between tackless strip and wall.

END OF SECTION

SECTION 09 9000
PAINTING AND COATING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Paint all exterior siding, trim, doors, and door frames at house and garage. Refer to color and material selections for more information.

B. Paint all walls and ceilings. Refer to color and material selections for more information.Coordinate with 02 8313 Lead Hazard control activities for precise scope.

C. Paint all basement stair components below first floor flooring, including wall cap at foundation wall, but excluding handrail.

D. Stain and finish all base trim and all interior door and window trim and casing. Refer to color and material selections for more information.

E. Stain and finish handrail at Front Stair and Basement stair.

F. Stain and finish all pre-hung doors and frames.

G. Stain and finish interior of all window frames and sashes.

H. Provide paint finish at basement columns. Coordinate with 02 8313 Lead Hazard control activities for precise scope.

1.02 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints, stains, varnishes, and other coatings.

C. Surfaces to be finished are indicated in this section and on the Drawings.

D. Joint sealants.

1.03 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Master Painters and Decorators Association; 2004.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Paints and Coatings: Sherwin Williams Low VOC or an any manufacturer listed in MPI Approved Products List (at www.paintinfo.com) approved by Project Manger.
   1. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
   2. Provide all paint and coating products from the same manufacturer to the greatest extent possible.

B. Stains: Minwax Low VOC or any other manufacturer approved by Project Manager

2.02 MATERIALS - GENERAL

A. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. Flat: 50 grams/Liter
      b. Non-Flat: 50 grams/Liter
      c. Floor Coating: 100 grams/Liter
      d. Anti-Corrosive: 250 grams/Liter
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS

A. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.

B. Where a specified paint system does not have a Premium Grade, provide Custom Grade system.

C. Where sheen is not specified or more than one sheen is specified, sheen will be selected later by Construction Manager from the manufacturer's full line.

D. Provide smooth texture throughout.

2.04 EXTERIOR PAINT SYSTEMS

A. Wood Traffic Surfaces:
   1. Applications include but are not limited to Decks.
   2. EXT 6.5D Deck Stain: Wood Preservative MPI #37, Deck Stain MPI #33.

2.05 INTERIOR PAINT SYSTEMS

A. Dressed Lumber:
   1. Applications include but are not limited to doors, door frames, window frames, window casings, trim, baseboards, and moldings.

B. Plaster and Gypsum Board:

2.06 JOINT SEALANTS

A. Exterior sealants:
   1. Silicone, ASTM C920, Grade NS, Class 100/50, Uses M, G, O, and A; single component.
      a. Product:
      b. Color: Match adjacent finished surfaces.
      c. Use for:
         1) Joints between concrete and other materials.
         2) Joints between metal frames and other materials.
         3) Joints between doors and windows and other materials.
         4) Other exterior joints for which no other sealant is indicated.

B. Interior sealants:
   1. Paintable silicone, ASTM C920, Type S, Grade NS, Class 25, Uses G, A, & O.

a. Product: GE Silicone II manufactured by Momentive Performance Materials, Inc.
b. Use for vertical surfaces and horizontal non-traffic surfaces:
    1) Perimeter joints of exterior openings.
    2) Horizontal joints between kitchen countertops/backsplash and gypsum board walls.
    3) Horizontal joints between window sills and jamb / head extensions.
    4) Other interior joints for which no other type of sealant is indicated.

PART 3 EXECUTION

3.01 SCOPE -- SURFACES TO BE FINISHED

A. Paint all exposed surfaces except where indicated not to be painted or to remain natural; the term "exposed" includes areas visible through permanent and built-in fixtures when they are in place.

B. Paint the surfaces described in PART 2 and as follows:
    1. If a surface, material, or item is not specifically mentioned, paint in the same manner as similar surfaces, materials, or items, regardless of whether colors are indicated or not.
    2. Paint surfaces behind movable equipment and furnishings the same as similar exposed surfaces.
    3. Paint surfaces to be concealed behind permanently installed fixtures, equipment, and furnishings, using primer only, prior to installation of the permanent item.
    4. Paint back sides of access panels and removable and hinged covers to match exposed surfaces.
    5. Paint interior surfaces of air ducts and convector and baseboard heating cabinets with flat, nonspecular black paint where visible through registers, grilles, or louvers.
    6. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

C. Do Not Paint or Finish the Following Items:
    1. Items fully factory-finished unless specifically noted; factory-primed items are not considered factory-finished.
    2. Items indicated to receive other finish.
    3. Items indicated to remain naturally finished.
    4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.

3.02 EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.

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

C. Test shop-applied primer for compatibility with subsequent cover materials; report incompatible primer conditions and submit recommended changes for Construction Manager's approval.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
    1. Plaster and Gypsum Board: 12 percent.
    2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
    3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.03 PREPARATION

A. Prepare surfaces as specified in MPI Architectural Painting Specification Manual and as follows for the applicable surface and coating; if multiple preparation treatments are specified, use as many as necessary for best results; where the Manual references external standards for preparation (e.g. SSPC standards), prepare as specified in those standards; comply with coating manufacturer's specific preparation methods or treatments, if any.

B. Coordinate painting work with cleaning and preparation work so that dust and other contaminants do not fall on newly painted, wet surfaces.

C. Surface Appurtenances: Prior to preparing surfaces or finishing, remove electrical plates, hardware, light fixtures, light fixture trim, escutcheons, machined surfaces, fittings, and similar items already installed that are not to be painted.
   1. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before preparation and finishing.
   2. After completing painting in each space or area, reinstall items removed using workers skilled in the trades involved.

D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.

E. Marks: Seal with shellac those which may bleed through surface finishes.

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

G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

H. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

I. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces.

3.04 APPLICATION

A. Apply products in accordance with manufacturer's instructions and as specified or recommended by MPI Manual, using the preparation, products, sheens, textures, and colors as indicated.
   1. Remove, refinish, or repaint work not complying with requirements.

B. Do not apply finishes over dirt, rust, scale, grease, moisture, scuffed surfaces, or other conditions detrimental to formation of a durable coating film; do not apply finishes to surfaces that are not dry.

C. Use applicators and methods best suited for substrate and type of material being applied and according to manufacturer's instructions.
   1. Brush Application: Use brushes best suited for the type of material applied; use brush of appropriate size for the surface or item being painted; produce results free of visible brush marks.
   2. Roller Application: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
   3. Spray Application: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
   4. Where application method is listed in the MPI Manual for the paint system that application method is required; otherwise any application method recommended by manufacturer for material used and objects to be painted is acceptable.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate; provide total dry film thickness of entire system as recommended by manufacturer.
   1. Number of coats and film thickness required are the same regardless of application method.
   2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.
   3. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive dry film thickness equivalent to that of flat surfaces.

E. Apply finish to completely cover surfaces with uniform appearance without brush marks, runs, sags, laps, ropiness, holidays, spotting, cloudiness, or other surface imperfections.

F. Before applying finish coats, apply a prime coat of material recommended by manufacturer, unless the surface has been prime coated by others; where evidence of suction spots or unsealed areas in first coat appear, recoat primed and sealed surfaces to ensure finish coat with no burn through or other defects due to insufficient sealing.

G. Apply first coat to surface that has been cleaned, pretreated, or otherwise prepared as soon as practical after preparation and before subsequent surface deterioration.

H. Do not apply succeeding coats until the previous coat has cured as recommended by manufacturer.

I. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat will not cause the undercoat to lift or lose adhesion.

J. If manufacturer's instructions recommend sanding to produce a smooth, even surface, sand between coats.

K. Before applying next coat vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

3.05 CLEANING AND PROTECTION

A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from site.

C. Protect other work, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting as approved by Construction Manager.

D. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in MPI Manual.

3.06 SCHEDULE - COLORS

END OF SECTION

SECTION 10 5623

CLOSET STORAGE SHELVING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide wire shelving at all bedroom closets as shown on plans. Where rod and shelf are shown in plan, provide wall-wall shelving at 68" and wall-wall shoe shelf at 12".

B. Provide wire shelving at linen closet in Bathroom 3.

C. Provide wire rod and shelf and shoe shelf at front entry closet.

1.02 SECTION INCLUDES

A. Wall mounted wire closet shelving.

B. Accessories.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, with installation instructions.

PART 2 PRODUCTS

2.01 SHELVING APPLICATIONS

A. Shelf Depth: 12 inches (305 mm), unless otherwise indicated.

B. Other Bedroom Closets:
   1. Wall-to-wall shelf with free sliding hanger rod.
   2. Not less than 4 feet (1.25 m) of shoe shelf.

C. Coat Closets:
   1. Wall-to-wall shelf with integral hanger rod.

D. Linen Closets:
   1. Wall-to-wall shelves spaced at 13 inch (330 mm) vertically, not less than 16 inch (408 mm) deep.

E. Storage Closets:
   1. Wall-to-wall storage shelves, stacked at 13 inch (330 mm) vertically, not less than 12 inch (305 mm) deep.

2.02 MATERIALS

A. Wire Shelving: Factory-assembled coated wire mesh shelf assemblies for wall-mounting, with all components and connections required to produce a rigid structure that is free of buckling and warping.
   1. Construction: Cold-drawn steel wire with average tensile strength of 100,000 psi (690 MPa) resistance welded into uniform mesh units, square, rigid, flat, and free of dents or other distortions, with wires trimmed smooth.
   2. Coating: PVC or epoxy, applied after fabrication, covering all surfaces.
   3. PVC Coating: 9 to 11 mils (0.23 to 0.028 mm) thick.
   4. Epoxy Coating: Non-toxic epoxy-polyester powder coating baked-on finish, 3 to 5 mils (0.76 to 1.27 mm) thick.
   5. Standard Mesh Shelves: Cross deck wires spaced at 1 inch (25.4 mm).
   6. Close-Mesh Shelves: Cross deck wires spaced at 1/2 inch (12.7 mm).
   7. Shelf and Rod Units: Integral hanging rod at front edge of shelf.
   8. Free-Sliding Hanging Rod: Integral hanging rod that permits uninterrupted sliding of hangers the full width of the shelf.
   9. Shoe Shelves: Same wire spacing as standard mesh shelves; angled wall brackets; upturned front lip.

B. Mounting Hardware: Provide manufacturer's standard mounting hardware; include support braces, wall brackets, back clips, end clips, poles, and other accessories as required for complete and secure installation; factory finished to match shelving.

C. Fasteners: As recommended by manufacturer for mounting substrates.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions, with shelf surfaces level.

B. Cap exposed ends of cut wires.

C. Install back clips, end clips at side walls, and support braces at open ends. Install intermediate support braces as recommended by manufacturer.

D. Mounting Heights:
   1. Single Hanging Rod Units: Install shelf at 68 inches (1727 mm) above floor.
   2. Double Hanging Rod Units: Install shelves at 42 inches (1067 mm) and 84 inches (2134 mm) above floor.
   3. Shoe Shelves: Front edge at 12 inches (____ mm) above floor.

END OF SECTION

SECTION 11 3100

HRA RESIDENTIAL APPLIANCES

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Install the following pre-purchased kitchen appliances: Refrigerator, Range, vented Microwave/hood, and Dishwasher.

B. Install the following pre-purchased laundry appliances: Washer and Dryer.

1.02 REFERENCE STANDARDS

A. UL (EAUED) - Electrical Appliance and Utilization Equipment Directory; Underwriters Laboratories Inc.; current edition.

1.03 SUMMARY

A. All appliances must be purchased new and Energy Star certified or high efficiency models when Energy Star certification is not possible.

B. All appliances must meet the Sustainable Design Requirements covered in Section 018113

1.04 PRICE AND PAYMENT PROCEDURES

A. Appliances have been pre-purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: All, Inc. Appliances
   2. Product:
      a. Refrigerator: Frigidaire FFHT2126LS/K Energy Star Rated 21 cu ft top mounted refrigerator, stainless steel, with icemaker.
      b. Range: Frigidaire FFGF3053LS 30" Free-standing Gas Range, Self Clean, Clock
      c. Microwave/Hood: Frigidaire FFMV162LS Over the Range Micro/Hood, vented to exterior, stainless steel.
      d. Dishwasher: Frigidaire FGHD2433KF Energy Star 24" Built-in Dishwasher, including dishwasher cord, stainless steel.
      e. Washer: Frigidaire FAFW3801LW Energy Star Residential Front Load Washer
      f. Dryer: Frigidaire FAQG7001LW Residential Gas Dryer

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.

1.06 QUALITY ASSURANCE

A. Electric Appliances: Listed and labeled by UL and complying with NEMA standards.

B. Gas Appliances: Bearing design certification seal of AGA.

PART 3 EXECUTION

2.01 INSTALLATION

A. All appliances shall be uncrated, cleaned and readied for use.

B. Installation shall include all cord attachments, wiring, pluming as gas hook ups necessary for appliance operation.

C. Install in accordance with manufacturer's instructions.

D. Anchor built-in equipment in place including the installation of anti-tip devices.

END OF SECTION

SECTION 12 1110

HRA MAIL BOX AND HOUSE NUMBERS

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide surface mounted mailbox and house numbers at front entry.

B.

1.02 PRICE AND PAYMENT PROCEDURES

A. Allowances: See Section 01 2100 - $50 Allowance, for Mailbox and House Number

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Mailbox: Black enamel finish, letter-sized mail box with magazine racka nd lock-eye for padlock.

B. House Numbers: 3" high metal house numbers on 1x4 cedar backer board painted with 2 coats of exterior house paint to match trim color.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

SECTION 12 1111

BATHROOM FURNISHINGS

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. At Bathroom 1, provide 18" towel bar and toilet paper holder.

B. At Bathroom 2, provide (1) 24" towel bar above toilet for bath towels, medicine cabinet,toilet paper holder and robe hook on back of door.

C. At Bathroom 3, provide (2) 24" towel bars one above the other next to tub, medicine cabinet, toilet paper holder and (2) robe hooks on back of door.

PART 2 PRODUCTS

2.01 TOWEL SETS

A. Install a metal bath set comprised of a hand towel ring, 24" towel bar and toilet paper holder

B. Manufacturer: Saga Series Toilet Accessories
   1. Hand Towel Ring: Model # DN6886xx
   2. Towel Bar: Model # DN6818xx
   3. Toilet Paper Holder: Model # DN6808xx

C. Brushed nickel or bronze finish to match faucet

2.02 MEDICINE CABINET

A. Install recessed medicine cabinet with hinged plate glass mirror and two shelves adjacent to the sink.

B. Brushed nickel or bronze finish to match faucet

2.03 SHOWER CURTAIN ROD

A. Install a show curtain rod using wall anchors.

B. Manufacturer: Moen, Adjustable Shower Rod. Model # DN2160xx

C. Brushed nickel or bronze finish to match faucet

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION

SECTION 12 3530

RESIDENTIAL CASEWORK

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide base and wall cabinets at Kitchen.

B. Provide plastic laminate countertops at Kitchen.

C. Provide vanity base cabinets at Bathrooms 1, 2 & 3.

1.02 REFERENCE STANDARDS

A. ANSI/KCMA A161.1 - Performance and Construction Standard for Kitchen and Vanity Cabinets; Kitchen Cabinet Manufacturers Association; 2000 (R2006).

B. KCMA (DIR) - Directory of Certified Cabinet Manufacturers; Kitchen Cabinet Manufacturers Association; current edition, online.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances: See Section 01 2100 - Allowances, for cash allowance affecting this section

B. Kitchen and Bathroom Cabinet and Counter Top Allowance = $7000

C. Allowance covers material and not labor

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate casework locations, large scale plans, elevations, clearances required, rough-in and anchor placement dimensions and tolerances, and _____.

1.05 QUALITY ASSURANCE

A. Products: Complying with KCMA A161.1 and KCMA Certified.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Mid-Continent Cabinetry.

2.02 COMPONENTS

A. Kitchen Cabinets: Full-overlaly 5-panel door, flat drawer.

B. Bathroom Vanity Cabinets at Bathrooms 1 & 2: Single 30 inch Vanity Cabinet shall match Kitchen Cabinet finish.

C. Bathroom Vanity Cabinets at Bathroom 3: Single 60 inch Vanity Cabinet shall match Kitchen Cabinet finish.

D. Cabinet Construction: Plywood sides and bases.

E. Kitchen Countertop: Post formed plastic laminate over particle board, coved to back splash.
   1. Side Splash: Plastic laminate over particle board, square internal intersections to back splash and top surface, contoured to suit counter top profile.
   2. Manufacturer: WilsonArt, Desert Springs: 4904

F. Vanity Countertops: See Plumbing Fixtures 22 4000 for Cultured marble top with integral bowl sink.

G. Door and Drawer Fronts: Solid wood.

H. Drawer Box Construction: Plywood with dovetail joinery

2.03 HARDWARE

A. Hardware: See color and material selection schedule.

2.04 FABRICATION

A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.

B. Fabricate corners and joints without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.

2.05 FINISHES

A. Exposed to View Surfaces: Stain, seal, and varnish as listed in Color & Material selections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of support framing.

3.02 INSTALLATION

A. Install casework, components and accessories in accordance with manufacturer's instructions.

B. Set casework items plumb and square, securely anchored to building structure.

3.03 ADJUSTING

A. Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

3.04 CLEANING

A. Clean casework, countertops, shelves, and hardware.

3.05 PROTECTION

A. Do not permit finished casework to be exposed to continued construction activity.

END OF SECTION

SECTION 22 3000

PLUMBING EQUIPMENT

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide high-efficiency water heater. Vent through joist space to exterior. Coordinate with HVAC work to provide adequate fresh air.

B. Coordinate with Plumbing Fixtures and Piping

1.02 SUBMITTALS

A. Product Data:
   1. Provide Owner's Manuals for all equipment.

PART 2 PRODUCTS

2.01 RESIDENTIAL INDIRECT-FIRED WATER HEATER

A. GENERAL REQUUIREMNTS
   1. Hot water tanks shall be designed for production of domestic hot water using hot water as heating source. The principle consist of two concentric tanks. The inner tank contains domestic hot water and the outer tank contains heating systems water.
   2. The inner tank material shall be 304L corrugated stainless steel or higher corrosion resistance stainless steel and have a maximum working pressure of 150 psi. The cold water connection into this tank shall extend to near the bottom of the tank. The hot water connection shall be at the top of the tank. Thanks shall be designed to be self-descaling.
   3. The outer tank shall be surrounded with a minimum of 2 inches of CFC/HCFC-free rigid polyurethane foam insulation with an equivalent "R" value of R-16.

B. MANUFACTURER: Amtrol Inc., Boilermate or like product approved by Project Manager
   1. Hot water tank shall have ETL certification.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.

B. Coordinate with plumbing piping and related fuel piping work to achieve operating system.

C. Hot water tank shall be installed by a heating contractor whose principal occupation is the sale and installation of plumbing, heating, and or air conditioning equipment and shall be installed in compliance with all applicable codes.

D. Provide water & gas supply & flue piping

END OF SECTION

SECTION 22 4000

PLUMBING FIXTURES AND PIPING

PART 1 GENERAL **$_____**

1.01 SUMMARY

A. Provide (2) frost-proof hose-bibbs at exterior.

B. Provide all new domestic water supply, waste, and vent piping throughout house. See plans for more information and fixture locations. Provide stops and eschutcheons at all connections.

C. Provide new gas meter and coordinate connection to gas utility.

D. Provide new gas supply piping and valves to dryer and range in kitchen.

E. Provide new water meter and coordinate connetion to water utility.

F. At Basement, provide utility sink and faucet.

G. At Kitchen, provide double-bowl sink and faucet.

H. At Bathroom 1, provide toilet and cultured marble top with integral sink.

I. At bathrooms 2 & 3, provide toilet, culutred marble top with integral sink and bathtub.

1.02 REFERENCE STANDARDS

A. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2005.

B. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R2004).

C. ASME A112.19.14 - Six Liter Water Closets Equipped with Dual Flushing Device; 2006.

1.03 PRICE AND PAYMENT PROCEDURES

PART 2 PRODUCTS

2.01 SINKS

A. Kitchen Sink:
   1. Sink: Install a 22 gauge 33"x22"x8" double bowl, stainless steel, self rimming kitchen sink. Manufacturer: Moen, Model number 2212, or like product to be approved by Project Manger
   2. Faucet: Manufactured by Moen, Model 7825 or like product to be approved by Project Manager
      a. Flow Rate: 1.5 GPM maximum

B. Laundry Tub:
   1. Sink: Install single bowl, 24" fiberglass laundry tray to fit under faucet.
   2. Faucet: 1.5 GPM

C. Bathroom Vanity:
   1. Sink: 31 and 61 inch solid recessed oval bowl vanity top Manufactured by Imperial Marble. Model number RCxx22SPW
   2. Faucet: Single lever faucet with 1.5 GPM maximum flow rate
      a. High Arch Faucet: Manufactured by Moen, Model number (Nickel) CA84003CBN

2.02 DUAL FLUSH TOILET

A. Dual Flush Water Closets: ASME A112.19.14; high efficiency and low consumption (1.2 GPF), vitreous china, dual flush, tank type.
   1. Bowl: Round front.
   2. Flush Actuator: Manufacturer's standard.
   3. Rough in: 12 inch (305 mm).
   4. Seat: Manufacturer’s standard or recommended closed front seat with lid.
   5. Color: White.

2.03 BATHTUBS

A. Bathtub: ASME A112.19.4M porcelain on steel bathtub with slip resistant surface, contoured front apron, 60 inches (1500 mm) long, white color.

B. Bath and Shower Trim: ASME A112.18.1; concealed shower and over rim supply with diverter spout, pressure balanced mixing valve, bent shower arm with adjustable spray ball joint showerhead with maximum 1.5 gallons per minute (5.6 liters per minute) flow and escutcheon, lever operated pop-up waste and overflow.

2.04 SEALANTS

A. Silicone sealant between fixtures and all dissimilar materials. White silicone; ASTM C920, Grade NS, Class 100/50, Uses I, M, NT and A; single component, mildew resistant.

2.05 PIPING

A. Waste and Vent

B. Supply

C. Valves and Stops

PART 3 EXECUTION

3.01 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Install new PVC or ABS waste and vent piping from basement to kitchen sink, all bathroom fixtures, and laundry sink.

C. Install flexible PEX piping with a minimum number of coupling to all fixtures. Install mechanical connectors and shut off valves if approppriate for each fixture.
   1. Sixe pipe to 1990 CABO minimums per table 2406.5
   2. Include clothes washer hook up.

D. Furnish and install all water piping and shut-off valves necessacary to complete work.

E. Install components level and plumb.

F. Seal fixtures to wall and floor surfaces with sealant specified above. Color to match fixture.

G. Seal around plumbing penetrations in all exterior suraces, surfaces that border on unconditioned spces, between floors, and throught the exterior of the building.

H. Clean out basement floor drain at end of construction period and veryify operation and function.
   1. Install new drain cover.

END OF SECTION

SECTION 23 0000

RESIDENTIAL VENTILATION

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 LOCATIONS

A. Provide galvanized rigid ductwork for connection of new range hood at Kitchen. Route the ductwork horizontally through new soffit and provide dampered wall cap termination at exterior wall. See NEC specification #1000.

B. Provide dryer vent duct with code compliant installation. Provide pvc type wall cap with backflow damper and bird screen.

C. Provide bath fan and galvanized rigid ductwork at bathroom. Route through new soffit to side wall and provide dampered wall vent cap termination. See NEC Specification #1010.

2.02 BATHROOM VENT FAN/LIGHT FIXTURE:

A. All vent fans shall be energy star rated ceiling mounted fan/light fixtures rated for a minimum 100 watt exterior ducted vent fan capable of a minimum of 80 CFM

B. Product: NuTone QTREN080FLT or like product to be approved by the Project Manger

C. Switch: Light and fan shall use same switch with a time delay for fan such as the EFI/Light Time Delay Switch Part # 5100.505 or equipped with a humidistat sensor.

D. Ducting: Install 4" metal duct and vent to the exterior ideally through a gable end using a 4" hooded vent with damper.

1. All duct seams shall be sealed with duct mastic. Insulate duct work with vinyl or foil faced R-6 minimum duct insulation.
2. Repair any damage to the ceiling installation or air seal fan/light assembly to the ceiling with low VOC caulk.

2.03 DUCT ASSEMBLIES

A. General Exhaust: 1/2 inch w.g. (125 Pa) pressure class, galvanized steel.

B. Kitchen Cooking Hood Exhaust: 1/2 inch w.g. (125 Pa) pressure class, galvanized steel.

2.04 DUCTWORK FABRICATION

A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.

B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

D. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

2.05 KITCHEN HOOD EXHAUST DUCTWORK

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, SMACNA Kitchen Ventilation Systems and Food Service Equipment Fabrication & Installation Guidelines and NFPA 96.

END OF SECTION

SECTION 23 5400

FORCED AIR FURNACE AND DUCTS

PART 1 GENERAL

1.01 LOCATIONS

A. Provide high-efficiency forced air furnace and ducts in completely new installation throughout house. See HVAC plans for more information.

B. Provide supply and return registers as shown on HVAC plan as a minimum. Contractor responsible for code-compliant installation.

C. Provide adequate fresh air in new duct and penetration for water heater and furnace located in basement.

D. Provide ducting for (3) bath exhaust fans and (1) kitchen range hood. Exhaust at first floor to be ducted through joist space to exterior. Exhaust at second floor to be ducted through attic. Coordinate with insulation and air barrier work for sealing of all attic bypasses.

1.02 SUBMITTALS

A. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

B. Product data indicating Heating, Cooling equipment and Ducts are in compliance with Air Conditioning Contractors of America (ACCA) Manuals, Parts J, S, and D. Alternate Compliance paths are as Follows:
   1. ASHRAE Handbooks

PART 2 PRODUCTS

2.01 GAS FIRED FURNACES

A. Annual Fuel Utilization Efficiency (AFUE): 0.95 ("condensing").

B. Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating element, controls, air filter, humidifier, and accessories; wired for single power connection with control transformer.
   1. Safety certified by CSA in accordance with ANSI Z 21.47.
   2. Venting System: Direct.
   3. Combustion: Sealed
   4. Air Flow Configuration: Upflow.
   5. Heating: Natural gas fired.

C. Performance:
   1. HVAC contractor will be responsible to determine heat load using Manual J.

D. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.

E. Primary Heat Exchanger:
   1. Material: Hot-rolled steel
   2. Shape: Tubular type.

F. Secondary Heat Exchanger:
   1. Material: Aluminized steel.
   2. Coating: Polypropylene.

G. Gas Burner:
   1. Atmospheric type with adjustable combustion air supply,
   2. Gas valve, two stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
   3. Electronic pilot ignition, with electric spark igniter.

H. Supply Fan: Centrifugal type rubber mounted with direct drive with adjustable variable pitch motor pulley.

I. Motor: Refer to Section 22 0513; 1750 rpm two-speed, permanently lubricated, hinge mounted.

J. Air Filters: 1 inch (25 mm) thick glass fiber, disposable type arranged for easy replacement.

K. Ducts: Install all new supply and return air ducting to code.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with NFPA 90A.

B. Install gas fired furnaces in accordance with NFPA 54.

C. Provide vent connections in accordance with NFPA 211.

D. The Contractor shall have all HVAC ducting cleaned by a professional duct cleaning company after all interior repairs are completed inside the house.

END OF SECTION

SECTION 23 6213
FORCED AIR A/C

PART 1 GENERAL

1.01 LOCATIONS

A. Provide and install A/C condenser for use with forced air distribution.

1.02 SUBMITTALS

A. Product Data: Provide rated capacities, weights specialties and accessories, electrical nameplate data, and wiring diagrams. Include equipment served by condensing units in submittal, or submit at same time, to ensure capacities are complementary.

B. Design Data: Indicate pipe and equipment sizing.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

A. Units: Self-contained, packaged, factory assembled and pre-wired units suitable for outdoor use consisting of cabinet, compressors, condensing coil and fans, integral sub-cooling coil, controls, liquid receiver, wind deflector, and screens.

B. Performace Ratings: Seasonal Energy Efficiency Ration of 16

2.02 CASING

A. House components in welded steel frame with galvanized steel panels with weather resistant, baked enamel finish.

2.03 CONDENSER COILS

A. Coils: Aluminum fins mechanically bonded to seamless copper tubing. Provide sub-cooling circuits. Air test under water to 425 psig (2900 kPa), and vacuum dehydrate. Seal with holding charge of nitrogen.

2.04 FANS AND MOTORS

A. Weatherproof motors suitable for outdoor use, single phase permanent split capacitor or 3 phase, with permanent lubricated ball bearings and built in current and thermal overload protection. Refer to Section 23 0513.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide piping for refrigeration system as required.

B. Provide connection to refrigeration piping system and evaporators. Refer to Section 23 2300. Comply with ASHRAE Std 15.

END OF SECTION

SECTION 26 0001

POWER, WIRING AND DEVICES

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide single service to house, including exterior meter and interior circuit breaker panel.

B. Provide service to all HVAC equipment and residential appliances.

C. Provide complete wiring system throughout house to current code, including GFCI and arc-fault circuits. All wiring to be concealed in wall cavities. Locate switches and light fixtures according to electrical plan.

D. Provide wired doorbell system with transformer, buttons at front and rear doors, and chime located in dining room.

E. Provide (1) weatherproof GFCI at front porch and (1) at rear porch.

F. Provide smoke and CO detectors as required by code.

G. Provide service in conduit to garage. Provide receptacle at ceiling for overhead door, GFCI at 48” AFF inside garage and weatherproof GFCI at 42” AFF on the exterior.

H. Provide CATV and CAT5 connections from a house panel in basement to each of the following rooms: Kitchen, Den, Dining, Living, and Bedrooms 1-4.

1.02 SUMMARY OF BULLETIN 80-1 (PROPERTY MAINTENANCE CODE)

A. All hazardous, improper and/or illegal wiring shall be removed or required to the present Electrical Code. This will include other buildings on the property such as garages, sheds, etc.

B. Minimum size for all new services for single residential occupancies shall be 100 ampere, 240 Volt.

C. No additions or extensions will be allowed on an existing ampere services.

D. The Following are minimum requirements for new service installation:

1. **Electrical outlets required:** Every habitable room 120 square feet or less in area, of a dwelling or dwelling unit of a multiple dwelling shall contain at least two separate and remote duplex outlet shall be required for each additional 80 square feet or fraction thereof. Most new outlets must be Arc-Fault Circuit Interrupters (AFCI) protected according to Section 210.12 of the 2008 National Electrical Code.
2. **In Kitchens:** Three separate and remote duplex outlets shall be required. At least one of the required duplex outlets shall be supplied by a separate twenty ampere circuit. Any new receptacle installed for the counter top shall be of the Ground Fault Circuit Interrupter (GFCI) type.
3. **Every public hall, water closet compartment, bathroom, laundry room and furnace room must contain at least one electric light fixture.** In addition to the light fixture, every bathroom and laundry room must have at least one duplex outlet. The required duplex outlet in each laundry room must be on a separate twenty ampere circuit. The required duplex outlet in each bathroom must be of the (GFCI) type. Any existing outlets in any bathroom must be converted to a GFCI-protected outlet or removed. The required GFCI outlet in the bathroom must be immediately adjacent to the sink. If a bathroom is added or gutted as part of the update, a 20 ampere circuit will be required per NEC 210.11(C)(3).
4. **Every common hall and inside stairway** in every residential structure or dwelling unit shall be adequately lit with an illumination of at least five lumens per square foot in the darkest portion of the normally traveled stairs and passageways.
5. **All exterior exits and entryways** are required to be illuminated a minimum of one footcandle at grade level for security.
6. **Exterior lighting** at garages is required to be adequate so as to not endanger health or safety. An average of one footcandle at the pavement is required. Exterior lighting must be in conformance with other city codes.

7. **Basement:** One lighting outlet is required for each 200 square feet of floor space. At least one of the required basement lighting outlets shall be switched form the head of the stairs.
8. **Smoke Detectors:**
   a. All single-family dwelling shall have a hard-wired (120 volt electrical, not battery) battery-backup smoke detector installed near (not in) the bedrooms. If there are legal bedrooms on more than one level, the detector shall be installed on the level that has the greater number of bedrooms. If there are an equal number of bedrooms on more than one level, the detector shall be installed on the upper level near the bedrooms.
   b. If the project includes building construction that requires a Building Permit, additional hard wired interconnected and/or battery-type smoke detectors are required per the Building Code.
9. **Metallic Light Fixtures (Luminaries):** If within five feet horizontally or eight feet vertically of grounded surfaces (metallic piping, concrete floor, etc.) must be grounded.
10. **Residential Closet Lights:** All closet lights must either be a florescent fixture(luminaire) or an enclosed incandescent fixture of the types required by the present Electrical Code. Fixtures must not be directly over the storage area in a closet; they must either be moved or eliminated and blanked off.
11. **Service conduits run in outside walls:** If a 100-ampere service is changed from fuses to circuit breakers, the meter is already outside, and the existing conduit is run in the outside wall, the conduit may be re-used. If the service is an upgrade (increase in amperage), conduit in the wall may not be re-used.

1.03 SECTION INCLUDES:

A. Rewire entire house to code.

B. Overhead Garage Door Opener: see Section 08 3323

C. Certify Electrical Distribution: Electrician shall inspect all exposed wiring, motors, fixtures and devices for malfunction, shorts and hosing code compliance. Non-functioning and dangerous equipment and wiring shall be replaced

D. Replace existing electrical service with a residential, 150 amp, single phase, 3 wire electric service to the basement.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Conduit and Cable: Provide materials that meet code requirements.

B. New Service: Include a main disconnect, 30 circuit panel board, meter socket, weather head, service cable, and ground rod and cable. Seal exterior service penetrations.
   1. New service panel shall conform to the BOCA Existing Structures code.

C. Devices and Coverplates: Provide all White devices per Project Managers Selection. Provide heavy duty residential grade devices.

D. Smoke/CO Detectors: Hard wired w/ battery-back up type units

E. Doorbell system: System containing a low voltage transformer, power connection, buzzer and front door button.

F. Equipment Wiring: Provide the correct power supply on separate circuit, with over current protection including all connecters for the Water Heater, Furnace, Microwave, Refrigerator, A/C , and Dishwasher.
   1. Kitchen Receptacles to be 20 amp Circuits:
      a. Install small appliance circuits along counter tops to code.
         1) Evenly dividing the number of countertop appliance receptacles between 2 circuits.
         2) GFCI receptacles when they fall within 6 feet of sink.
      b. Individual circuits for permanently installed appliances; range, dishwasher, exteriorly vented Microwave with Rangehood and refrigerator to code.

G. Bathroom Vent Fan/Light Fixture: Shall be Energy Star rated ceiling mounted fan/light fixture rated for a min 100 watt exterior ducted vent fan capable of a minimum of 80 CFM
   1. Product: NuTone QTREN080FLT or like product to be approved by the Project Manger
   2. Switch: Light and fan shall use same switch with a time delay for fan such as the EFI/Light Time Delay Switch Part # 5100.505 or equipped with a humidistat sensor.
   3. Ducting: Install 4" metal duct and vent to the exterior ideally through a gable end using a 4" hooded vent with damper.
      a. All duct seams shall be sealed with duct mastic. Insulate duct work with vinyl or foil faced R-6 minimum duct insulation.
      b. Repair any damage to the ceiling installation or air seal fan/light assembly to the ceiling with low VOC caulk.

H. GFCI Receptacles: Install flush mounted, ground fault circuit interrupted ivory duplex receptacle adjacent to lavatory using copper Romex.

2.02 MATERIALS

A. All materials shall be UL approved and/or National Electrical Code rated.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Building Codes: The extent of electrical work indicated in the Scope of work is stated generally to indicate end result of work. The Contractor is responsible for making a thororugh inspection of the site to determine the full extent of work required to achieve the end results. All electrical work must meet current building code requirments and must pass City of Saint Paul field inspection. Any work that does not meet codes or pass inspection must be corrected to the satisfaction of the city inspector at no additional cost to the Owner.

C. Remove and dispose of all abandoned wiring and devices. Modify existing wiring and devices as indicated.

D. All new wiring, when passing through living areas, shall be concealed.

E. All new recepticals and switches

F. All new outlet covers: Ivory

G. All drilling, cutting and fastening shall be neat and true, and shall not critically damage framing members.

H. All patching shall match the surrounding surface.

END OF SECTION

SECTION 26 5101

HRA LIGHTING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide light fixtures throughout as indicated on electrical plan.

1.02 SECTION INCLUDES

A. Light fixtures.

PART 2 PRODUCTS

2.01 INTERIOR LIGHTING

A. Refer to color and material selections for fixture selections.

B. Other Acceptable Manufacturers: To be approved by Project Manager

2.02 EXTERIOR LIGHTING

A. Garages: DualBrite 300 watt motion security light with shields: Model SL-5318-WH-D

B. Recessed can fixtures. Rated for wet locations.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. All new wiring when passing through living areas shall be concealed.

C. Install luminaires plumb and square and aligned with building lines and with adjacent luminaries.

END OF SECTION

SECTION 28 1600

INTRUSION DETECTION

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide and install a security system, to include a minimum of hardwired control panel with cellular transmitter (no phone line required), 2 hardwired keypads, two (2) Door sensors, motion detector, low temperature monitoring and siren.

B. Include a monthly monitoring service at a rate not to exceed $50/month.

C. Contracts for monitoring must be month to month, not an extended period.

D. Monitoring shall begin upon completion of construction and be paid by Owner.

1.02 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.

PART 2 PRODUCTS

2.01 ALARM CONTROL PANEL

A. Control Panel: Modular construction with surface wall-mounted enclosure.

B. Power supply: Adequate to serve control panel modules, remote detectors, and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for 24 hours.

2.02 INITIATING DEVICES

A. Magnetic Switches:

B. Motion Detectors:

2.03 SIGNAL DEVICES

A. Alarm Bells: NFPA 72, electric single stroke, 8 inch (200 mm) bell with operating mechanism behind dome. Sound Rating: 81 dB at 10 feet (3 M).

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use 18 AWG minimum size conductors for detection and signal circuit conductors. Install wiring in cable.

C. As soon as System is installed contact HRA Project Manager Insert HRA PM's Name by email at Insert HRA PMs email to inform him/her to apply for a security permit.

3.02 CLOSEOUT ACTIVITIES

A. Demonstrate normal and abnormal modes of operation, and required responses to each.

END OF SECTION

SECTION 31 2200

GRADING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide minimum 1/2" per foot slope away from building and garage.

B. Provide swale at east sideyard to direct water toward rear yard as shown on landscape plan.

C. Regrade rear yard at former garage location to coordinate with grade at neighboring property. Prepare rear yard for new concrete apron at garage as shown on landscape plan.

D. Provide fill at removed exterior bulkhead stair.

E. Provide fill at all removed vegetation and tree roots.

F. Grade and prepare rain gardens as shown on landscape plan.

1.02 SECTION INCLUDES

A. Rough grading the site for site structures and new garage.

B. Finish grading .

C. Fill.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Materials

1. General

a. Provide soil materials free from organic matter and deleterious substances, containing no rocks ro lumps over 2" in the greatest dimension and with no more than 15% of the rocks or lumps larger than 1" in their greatest dimensions, predominately granular, non-expansive soil. Fill material is subject to the approval of the construction manager and is that material removed from excavations or imported from off-site borrow areas.

b. Provide 6" minimum thickness of Class 5 base course under slabs-on-grade.

2. Under All Paved Areas

a. Under Class 5 base course: Non-frost suscepible sand having less than 5% of the particles by weight passing the #200 sieve and less than 40% by weight passing the #40 sieve.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

3.03 ROUGH GRADING

A. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

B. Do not remove wet subsoil , unless it is subsequently processed to obtain optimum moisture content.

C. When excavating through roots, perform work by hand and cut roots with sharp axe.

D. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 FINISH GRADING

A. Before Finish Grading:

1. Verify building and trench backfilling have been inspected.

2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size. Remove soil contaminated with petroleum products.

C. Build up ground slope at foundation wall using clean fill.

D. New fill shall have an apporoximate slope of 1/12 and extend away from the foundation wall approximately five feet.

E. Adjust window wells for new slope.

F. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches (75 mm).

G. Remove roots, weeds, rocks, and foreign material while spreading.

H. Vigorously tamp or roll new fill to achieve settled depth.

I. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Coordinate with 03 3000 Cast-in-place Concrete.

1.02 REFERENCE STANDARDS

A. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.

B. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Concrete Sidewalks and Median Barrier: 3,000 psi (20.7 MPa) 28 day concrete, 4 inches (100 mm) thick, buff color Portland cement, exposed aggregate finish.

2.02 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

PART 3 EXECUTION

3.01 SUBBASE

3.02 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

3.03 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F (4 degrees C), or surface is wet or frozen.

3.04 JOINTS

3.05 FINISHING

A. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch (6 mm) radius.

B. Curbs and Gutters: Light broom, texture parallel to pavement direction.

END OF SECTION

SECTION 32 3129

WOOD FENCES AND GATES

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide a 4' high wood privacy fence and gates as shown on landscape plan.

1.02 SECTION INCLUDES

A. Wood fence, gates and hardware.

PART 2 PRODUCTS

2.01 MATERIALS

A. Lumber Standards: Comply with PS 'American Softwood Lumber Standard" for lumber and with applicable gradeing rules of inspection agencies.

B. Wood Moisture Content: Comply with requirements of referenced quality standard and manufacturer's recommendations for mositure content of finish carpentry.

C. Fence Materials: Provide the Following:
   1. Species and Grade: Western Red Cedar, heartwood. No cracks, splits or warps.
   2. Posts: 4x4 (3 1/2 x 3 1/2 actual)
   3. Rails: 2x4 (1 1/2 x 1/2 actual), 3 per fence section (top, bottom and middle)
   4. Pickets: 1x4 (3/4 x 3 1/2 actual), square edges and corners.

D. Fasteners: Stainless Steel.

E. Gates:
   1. 3' wide gates consisting of 2x4 frame and diagonal bracing with 1x4 pickets. Three heavy duty hinges and heavy duty latch per gate.

F. Cast -in- place Concrete: See Section 03 3000

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Locate utilities before installation. Locate fence and gates according to site plan. Install all components true and level

C. Set 12" sonotubes at post locations to allow for concrete footings minimun 42" below grade plus 6" gravel. Install posts per site plan, maximum of 6'-0" o.c.. Set post level on top of gravel before pouring footing.

D. Slope top of footing to drain away from posts, top of footing at grade level. Allow for concrete footings to cure before installing rails and pickets.

E. Install rails 2" below finished top of pickets, 2" above bottom, and at midpoint, with outside face of rails flush with outside face of post. Install pickets on exterior side (facing away from house) of rails and post, with 1/4"gap between pickets.

F. Install pickets with consistent top height across entire fence and minimum 2" maximum 5" between bottom of pickets and grade (consistent height each section between posts).

END OF SECTION

SECTION 32 3223
SEGMENTAL RETAINING WALLS

PART 1 GENERAL

1.01 LOCATIONS

A. Provide retaining wall as indicated on landscape plan.

1.02 SECTION INCLUDES

A. Segmental retaining walls made of modular concrete units without soil reinforcement.

B. Engineering design.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Segmental Concrete Units:
   1. Anchor Wall Systems, Inc: www.anchorwall.com.
   2. Keystone Retaining Wall Systems, Inc: www.keystonewalls.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 RETAINING WALLS

A. Contractor is responsible for design of the retaining walls.

B. Design Standard: Design retaining walls to be capable of withstanding the effects of gravity loads due to soil pressures resulting from grades indicated, determined in accordance with NCMA TR 127 Design Manual for Segmental Retaining Walls; perform all stability analyses specified in this standard.
   1. In addition, comply with applicable local, state, and federal codes and regulations.
   2. This design method considers potential failure modes categorized by external, internal, local, compound, and global stability.
   3. Provide engineering services as required for analysis for all modes of stability.
   4. Use of design software for calculations is permitted.

C. Setback: 1/8 inch (3 mm) back from face per course.

D. Shear Resistance: Design the wall not to exceed the capacity of materials and soils to resist shear:
   1. Shear Resistance Between Units: Determine in accordance with NCMA SRWU-2.

E. Drainage: Design to prevent water accumulation in retained soil; use drainage fill and drainage pipe as required; provide outlets at 50 foot (15 m) intervals along length of wall, minimum.

2.03 MATERIALS

A. Retaining Wall Units: Machine-formed concrete blocks of shapes and sizes suitable for the retaining wall configuration required and complying with ASTM C1372 and the following:
   1. Face Color: Natural cement gray .
   2. Texture: Smooth, on all exposed surfaces.
   3. Face Shape: Straight (flat) .

B. Cap Units: Portland cement concrete machine-formed solid blocks, matching segmental concrete units, complying with ASTM C1372, with abutting edges saw cut or formed to provide tight fitting, flush end-to-end joints.
   1. Width: Same as wall units.
   2. Depth: To fully cover wall units.
   3. Masonry Adhesive: To secure cap units as top course of wall.
      a. Expected Life Span: 30 years.
      b. Provide adhesive conforming to ASTM C920, Type S, Grade NS, Class 25, and as approved by unit manufacturer.

C. Shear Connectors: Connection method to withstand design stresses and prevent movement of segmental units, and to hold soil reinforcement in proper design position during grid pre-tensioning and backfilling.
   1. Maintain strength over design temperature range of minus 10 degrees F (23 degrees C) to plus 100 degrees F (38 degrees C).

D. Drainage Filter: Geosynthetic textile.
   1. Permittivity: 0.5 per second, minimum, when tested in accordance with ASTM D4491.
   2. Durability: Comply with minimum requirements of AASHTO M 288 Class 1; minimum mass of 8 oz/sq yard (270 g/sq m).

E. Aggregate for Leveling Pad: Compacted sand, gravel, or crushed rock complying with one of the following:
   1. Meeting requirements of ASTM D1241, Gradation C.
   2. Do not use pea gravel.

F. Drainage Fill: Clean, freely draining aggregate placed within, between, or immediately behind segmental units; do not use pea gravel; use one of the following:
   1. Aggregate as approved by Construction Manager.
   2. Aggregate meeting requirements of ASTM D448, Size No. 57.
   3. Crushed stone or coarse gravel, 3/8 to (3/4 mm); no more than 5 percent passing No. 200 sieve.
   4. Crushed stone or coarse gravel, meeting requirements of ASTM D422.

PART 3 EXECUTION

3.01 PREPARATION

A. Excavation:
   1. Excavate to lines and grades shown on drawings.
   2. Do not disturb embankment or foundation beyond lines. Minimize over-excavation; fill over-excavated areas with compacted reinforced backfill or leveling pad material at Contractor's expense.
   3. After excavation, and prior to placement of leveling materials, Geotechnical Engineer will examine bearing soil surface to verify strength meets or exceeds design requirements and assumptions.
   4. Replace unsuitable bearing soil as directed by Geotechnical Engineer.

B. Leveling Pad:
   1. Depth: 6 inches (150 mm), minimum.
   2. Width: 6 inches (152 mm) minimum extension beyond front and back faces of units.
   3. Location: Top of pad at 1 inch (25 mm) below grade for each 8 inches (200 mm) that wall extends above grade.
   4. Compact aggregate to lines and grades on drawings, in lifts 6 inches (152 mm) thick, maximum.
   5. Use only hand-operated compaction equipment within 36 inches (1 m) of back of wall.

C. Verify level grade before proceeding.

D. Install drainage collection pipe with a continuous fall in the direction of flow. Cap open ends as necessary to prevent soil and debris from entering.

3.02 INSTALLATION

A. Install in accordance with manufacturer instructions, and applicable codes and regulations.

B. Segmental Concrete Units:
   1. Place first course of units on leveling pad; check alignment and level. Check for full contact with base and for stability.
   2. Place units side by side for full length of wall, aligning back face of straight walls using string line or offset from base line and back face of curved walls using flexible pipe or other method recommended by manufacturer
   3. Do not leave gaps between units.

4. Lay out corners and curves in accordance with manufacturer's instructions. Do not leave gaps to produce wall batter or curvature.
5. Cut blocks with saw; do not split units.
6. Sweep excess material from tops of units before laying succeeding courses.
7. Place succeeding courses. Check for proper alignment and batter.
8. Where top of wall changes elevation, step units to match grade or turn top course into embankment.
9. Where bottom of wall changes elevation, step base leveling pad and extend lowest course a minimum of two units into slope.

C. Drainage Fill: Place drainage fill in, between, and behind units.
1. Compact to lines and grades on drawings, in lifts 6 inches (152 mm) thick, maximum; decrease lift thickness where necessary to achieve required density.
2. Extend drainage fill 6 inches (150 mm) beyond back face of units.

D. Backfill: Place, spread, and compact backfill from behind drainage fill to undisturbed soil.
1. Use only lightweight hand-operated compaction equipment within 3 ft (900 mm) from back wall face, or one half of wall height, whichever is greater.
2. Place backfill in lifts of maximum 6 inches (150 mm) to 8 inches (200 mm) loose thickness where hand compaction is used and 8 inches (200 mm) to 10 inches (250 mm)
3. Compact backfill to 95 percent of maximum density, standard Proctor, as determined in accordance with ASTM D698, or as recommended by Geotechnical Engineer.
4. Moisture content of backfill prior to and during compaction to be within plus 1 or minus 3 percentage points dry of optimum and uniform throughout each layer.
5. Do not operate tracked construction equipment directly upon soil reinforcement.
6. At end of each day, slope top of backfill away from wall to direct runoff away from wall face. Prevent runoff from adjacent areas from entering wall site.
7. At completion, if other work adjacent to wall is not to be done immediately (paving, landscaping, etc), grade top of backfill and provide temporary drainage to prevent water runoff toward the wall.

E. Cap Units: Install and top two courses of units with masonry adhesive.
1. Clear cap units and top course of segmental concrete units of debris and standing water before applying adhesive.
2. Apply masonry adhesive to top surface of top unit and place cap into position over projecting pins. Protect wall face from masonry adhesive.

3.03 PROTECTION

A. Prevent damage to wall and earthwork by subsequent construction and uncontrolled runoff until substantial completion; repair damage due to failure to protect wall or earthwork.

B. Do not operate heavy paving or grading equipment within 36 inches (1 m) from the back of the wall face.

C. Do not operate equipment with wheel loads in excess of 150 psf (1000 kPa) live load within 10 feet (3 m) from the wall face.

D. Do not place temporary soil or fill stockpiles adjacent to wall.

E. Replace damaged units prior to substantial completion.

END OF SECTION

SECTION 32 9223
SODDING

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide sodding at areas indicated on landscape plan. No bare soil is permitted.

B. Additional work as needed. No bare soil is permitted anywhere on site at project closeout.

1.02 REFERENCE STANDARDS

A. TPI (SPEC) - Guideline Specifications to Turfgrass Sodding; Turfgrass Producers International; 2006.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sod: TPI, Certified Turfgrass Sod quality; cultivated grass sod; type indicated in plant schedule on Drawings; with strong fibrous root system, free of stones, burned or bare spots; containing no more than 5 weeds per 1000 sq ft (100 sq m). Minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.

PART 3 EXECUTION

3.01 LAYING SOD

A. Moisten prepared surface immediately prior to laying sod.

B. Lay sod immediately after delivery to site to prevent deterioration.

C. Lay sod smooth and tight with no open joints visible, and no overlapping; stagger end joints 12 inches (300 mm) minimum. Do not stretch or overlap sod pieces.

D. Water sodded areas immediately after installation. Saturate sod to 4 inches (100 mm) of soil.

3.02 MAINTENANCE

A. General Contractor is responsible for the maintanance of sod until project closeout.

3.03 LOCATION

A. See Landscape Plan

B. Site Work, as needed. (no bare soil permitted)

END OF SECTION

SECTION 32 9300

PLANTS

PART 1 GENERAL **$_____**

1.01 LOCATIONS

A. Provide planting as indicated on landscape plan.

1.02 PRICE AND PAYMENT PROCEDURES

A. Allowances: See Section 01 2100 - Allowance of $1500 for plants, mulch and other material included in Landscape Plan.

B. This allowance does not cover sod or materials for a retaining wall.

PART 2 PRODUCTS

2.01 PLANTS

A. Plants: Species, size and quanity identified in Landscape Plan, grown in climatic conditions similar to those in locality of the work.

2.02 MULCH MATERIALS

A. Mulching Material: Hardwood species wood shavings, free of growth or germination inhibiting ingredients.

PART 3 EXECUTION

3.01 RAINGARDEN INSTALLATION

A. Remove 18 inches of soil leaving compacted 1 to 1 side slopes rising to finished grade.

B. Deeply till and break apart basin floor beyond compaction.

C. Add 2 inches of leaf compost and till into soil.

D. Finish Raingarden by hand grading a flat, level basin and 2 to 1 side slope, as indicated on Landscape Plan.

E. Add 2-inches of shredded hard wood mulch, as with slopes

F. Install edging as indicated on Landscape Plan.

G. Ensure that downspout runoff enters the raingarden.

3.02 PLANTING

A. Set plants vertical according to the Landscape Plan.

B. Remove non-biodegradable root containers.

C. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches (150 mm) under each plant. Remove burlap, ropes, and wires, from the root ball.

D. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch (150 mm) layers. Maintain plant life in vertical position.

E. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

3.03 MAINTENANCE

A. Provide maintenance at no extra cost to Owner; Owner will pay for water.

B. Irrigate sufficiently to saturate root system and prevent soil from drying out.

C. Remove dead or broken branches and treat pruned areas or other wounds.

D. Neatly trim plants where necessary.

E. Immediately remove clippings after trimming.

F. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions.

G. Control insect damage and disease. Apply pesticides in accordance with manufacturers instructions.

H. Remedy damage from use of herbicides and pesticides.

I. Replace mulch when deteriorated.

J. Maintain wrappings, guys, turnbuckles, and stakes. Adjust turnbuckles to keep guy wires tight. Repair or replace accessories when required.

3.04 LOCATION

A. As indicated by the Landscape Plan

END OF SECTION