

PROJECT MANUAL

JENIFER PLACE

**1526 JENIFER STREET, 433 CANTWELL COURT AND
434 SOUTH THORNTON AVENUE
MADISON, WISCONSIN**

**RESIDENTIAL REMODELING
12 UNITS**

**COMMON WEALTH DEVELOPMENT, INC.
OWNERS AND GENERAL CONTRACTORS**

December 20, 2011

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<p style="text-align: center;">JENIFER PLACE 1526 JENIFER STREET, 433 CANTWELL COURT AND 434 SOUTH THORNTON AVENUE MADISON, WISCONSIN</p>

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SECTION 01010 ° SUMMARY OF THE WORK

VERBAL SUMMARY

Without force or effect on the requirements of the contract documents, the description of the work of the contract can be summarized as:

Remodeling of three existing wood frame four-unit buildings, including site work and related work, at 1526 Jenifer Street, 433 Cantwell Court and 434 South Thornton Avenue, Madison, Wisconsin. The three buildings are adjacent to each other.

DESCRIPTION OF DRAWINGS AND SPECIFICATIONS

The drawings and specifications contain information for all portions of the work of this contract.

CONTRACT DOCUMENTS

The requirements of the work are contained in the contract documents and may include cross-referenced material not necessarily bound in the contract documents.

EXISTING CONDITIONS

Contractors are responsible for observing existing conditions that are relevant to the work. Failure to account for existing conditions which are observable or reasonably inferred from observation will not be accepted as a reason to change contract amounts. Notify the Architect immediately if, during bidding or construction, existing conditions prove to be incompatible with the contract documents.

CONTRACTOR USE OF THE PREMISES

During the entire construction period until substantial completion, the Contractor will have use of the site along with other subcontractors performing other portions of work, and others performing work that is separate from this contract. Coordinate as required for smooth performance of all work.

CLEANUP

During the entire construction period, Contractors are responsible for keeping a clean and orderly worksite as it applies to their own work, cleaning up each day they are on site.

PRECEDENCE OF DOCUMENTS

Where there is conflict between drawings, larger scale drawings take precedence over smaller scale drawings, i.e. 3/4"=1'-0" over 1/4"=1'-0"; written information takes precedence over drawn information, i.e. specifications over drawings.

END OF SECTION 01010

SECTION 01045

CUTTING AND PATCHING

GENERAL

DEFINITION

A. Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and patching and finishing required to restore surfaces to their original condition.

B. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

STRUCTURAL WORK

Do not cut and patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

OPERATIONAL AND SAFETY LIMITATIONS

Do not cut and patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life or increased maintenance.

VISUAL/QUALITY LIMITATIONS

Do not cut and patch work exposed to view, either exterior or interior, in a manner resulting in a noticeable reduction of aesthetic and/or similar qualities, as judged by Architect.

MATERIALS

GENERAL

Use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Only use materials for cutting and patching that will result in equal or better performance characteristics.

EXECUTION

INSPECTION, SUPPORT, PROTECTION

A. Before cutting, examine surfaces to be cut and patched and conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

B. To prevent failure provide temporary support of work to be cut.

C. Protect other work during cutting and patching to prevent damage. Repair any damage in a timely manner so as not to delay other parts of the work. Provide protection from adverse weather conditions. Avoid interference with the use of adjoining areas or interruption of free passage to adjoining areas. Take care not to cut existing pipe/conduit/ducts serving the building.

CUTTING

Cut the work using methods that are least likely to damage work to be retained or adjoining work. Cut holes and slots neatly to size with minimum disturbance of adjacent work. Temporarily cover openings when not in use.

PATCHING

Patch with seams which are durable and as invisible as possible. Restore exposed finishes of patched areas and, where necessary, extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and restoration.

END OF SECTION 01045

SECTION 01300 ° SUBMITTALS

GENERAL

Required submittals include, but are not necessarily limited to the following list:

BUILDING PERMITS

Submit copies of all building permits to the Owner immediately after securing the permits and prior to beginning work authorized by each permit. Contractor is responsible for obtaining and paying for all required permits for their portion of the Work.

MATERIAL/COLOR SELECTIONS BY OWNER AND/OR ARCHITECT

Within two weeks after Award of Contract, submit a list of critical dates by which various selections need to be made in order to avoid delays in the performance of the Work.

LIST OF SUBCONTRACTORS

Immediately after award of the Contract for Construction, submit a complete list of suppliers supplying labor, materials or equipment to the Project. Revise and resubmit the list when changes, additions or subtractions occur.

SCHEDULE OF VALUES

Prepare a Schedule of Values using the AIA G702/703 format to show the breakdown of the Contract Sum corresponding with payment request breakdown. Show dollar value and percent of total for each unit of work scheduled. Submit not less than 7 days prior to the first request for payment. Revise each time the schedule is affected by change order or other revision.

PAYMENT REQUESTS

Submit payment requests as provided by the Owner-Contractor Agreement.

SHOP DRAWINGS

- A. Submit shop drawings as required by the Contract Documents and as requested by the Architect.
- B. Initial Submittal(s): Submit 2 opaque blue/black line copies. One will be returned.
- C. Final Submittal: After approval submit 3 prints plus as many as will be required for job use and distribution. The Architect will retain 2 copies and return the remainder.

PRODUCT DATA

- A. Submit product data as required by the Contract Documents and as requested by the Architect.
- B. Mark each copy to indicate the actual product to be provided; show selection from among the options in the manufacturer's printed data. Submit 3 copies to the Architect; this is for information and record purposes only. Do not proceed with the installation of products until a copy of the related product data is in the installer's possession at the project site.

WARRANTIES

Submit 3 executed copies of each required, or offered by the manufacturer, to the Owner.

EXECUTION

ARCHITECT'S ACTION

When required, the Architect will mark each submittal to be returned with a self-explanatory action message appropriately marked, to indicate the status of the submittal.

END OF SECTION 01300

GENERAL**DESCRIPTION**

Provide and install temporary facilities as specified below.

QUALITY ASSURANCES

Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including but not limited to building code requirements, health and safety regulations, utility company regulations, fire department, and environmental protection regulations.

Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety and Requirements for Construction and Demolition" and NECA Electrical Design Library "Temporary Electrical Facilities".

PROJECT CONDITIONS

Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

TEMPORARY PROJECT SIGN

4' by 8' sign identifying development name and project participants, as specified by Owner. This will be furnished and installed by Owner.

EXECUTION**INSTALLATION**

Locate temporary facilities and utilities where they will serve the project adequately and result in minimum interference with performance of the work. Maintain throughout construction and do not remove until they are no longer needed.

TEMPORARY UTILITY INSTALLATION

Engage the appropriate utility company to install temporary services or connect to existing service. Where the Company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with the company's recommendations.

Arrange a time when service can be interrupted, where necessary, to make connections for temporary service. Provide adequate capacity at each stage of construction. Cost or use charges for temporary utilities are not chargeable to the Owner as an "extra".

TEMPORARY ELECTRIC POWER SERVICE

Contractors may use power available on site. If available power is not adequate, provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground fault interrupts, and main distribution switch.

TEMPORARY HEAT

Provide temporary heat required by construction activities for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy. When temporary heat is necessary, provide vented self-contained LP gas, fuel oil, or electric heaters with prior written permission of the Owner. Cost of temporary heat is to be paid by Owner. Contractor shall take reasonable measures to conserve heat at all times.

SANITARY FACILITIES

Owner will provide temporary portable toilets, wash facilities, and drinking water facilities within construction zone.

CLEANUP

During the entire construction period, Contractors are responsible for keeping a clean and orderly worksite as it applies to their own work, cleaning up each day they are on site.

TEMPORARY ENCLOSURE

Provide temporary enclosure for protection of construction in progress and completed, from exposure to foul weather, or other construction operations and similar activities. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosures with ventilating and materials drying or curing requirements to avoid dangerous conditions and effects.

Protect all on-site construction materials per manufacturers' recommendations; store absorbent materials in a weather-protected area.

BARRICADES, WARNING SIGNS, AND LIGHTS

Comply with standards and code requirements for erection of barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of hazards. Where appropriate, and needed, provide lighting, including flashing red or amber lights.

SECURITY ENCLOSURE AND LOCKUP

Install appropriate temporary enclosures of partially completed areas of construction with lockable entries to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

ENVIRONMENTAL PRECAUTION

Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid the use of tools and equipment which produce harmful noise.

TERMINATION AND REMOVAL

Remove each temporary facility when the need has ended, or when replaced by the authorized use of a permanent facility, and no later than Substantial Completion. Restore existing conditions that may have been damaged from the use of temporary facilities.

END OF SECTION 01500

GENERAL**DESCRIPTION**

Owner is interested in keeping the waste generated by work of this Contract to the minimum possible. To achieve that goal, reuse, salvage and recycle as much of the waste material as possible. This includes items listed below and any other items as required by local codes and requirements.

MATERIALS

Materials that must be recycled are as follows:

- Cardboard
- Beverage containers
- Gypsum Board
- Clean dimensional wood
- Metals

EXECUTION**RECYCLING REPORTING**

Report to Owner with a brief written list indicating recycling efforts made, on a monthly basis at on-site meetings.

END OF SECTION 01505

PRODUCT SELECTION

Comply with the following for selection of products, materials and equipment: (EXCEPTIONS: No substitutions may be made where noted in other Sections of these Specifications due to Owner's requirements.)

A. Single Product Named: Provide only that product named, or equal as determined by the method detailed below under Substitutions, unless the product is determined to be unavailable, non-compatible with the work, or non-complying with requirements or governing regulations.

B. Two or More Products Named: Selection from named products is Contractor's option, provided selection complies with requirements.

C. Compliance With Standards and Requirements: Where no product is named, selection of product which complies with applicable standards, requirements and governing regulations is Contractor's option.

SUBSTITUTIONS

Substitutions for specified materials and/or procedures and details are possible only if approved by Architect prior to purchase and installation. Requests for substitutions by Contractor will be considered when reasonable, timely, and documented with appropriate technical information under one or more of the following circumstances only:

A. Timeliness: The required product cannot be supplied in time for compliance with contract time requirements, provided the Contractor has attempted to secure the product immediately following the signing of the contract.

B. Non-Compatibility: The required product is not acceptable to governing authorities, or is determined by the Contractor to be non-compatible with other aspects of the work, or has another recognized disadvantage.

C. Substantial Advantage: A substantial advantage is offered to the Owner after deducting offsetting disadvantages.

D. Or Equal Clause: In the case of a single product named, a substitution will be allowed, regardless of the applicability of the above three requirements if the substitution is determined by the Architect to be equal to the named product in quality, appearance, performance, durability and maintainability, and if it meets all applicable standards and requirements.

SUBMITTALS

Submit full documentation for substitutions as required by the Architect, including product data, samples where appropriate, detailed performance comparisons and evaluations, testing laboratory reports where applicable, coordination information for effect on other work and time schedule, cost information for proposed change order, Contractor's certification of recommended substitution, and similar information relevant to the particular substitution.

APPROVAL OF SUBSTITUTIONS

Approval of substitutions, if involving a change in the contract sum or contract time, is only possible through the Change Order procedure as detailed in the General Conditions.

PRODUCT HANDLING

Receive, store and handle products, materials and equipment in a manner which will prevent loss, deterioration and damage. Schedule deliveries to minimize storage time at the project site.

PRODUCT WARRANTIES (GUARANTEES)

A. Restore or remove and replace warranted work to its originally specified condition, at such time during warranty as it does not comply with or fulfill terms of warranty. Restore or remove and replace other

work which has been damaged by failure of warranted work, or which must be removed and replaced to gain access to warranted work.

B. Upon restoration or removal and replacement of warranted work which has failed, reinstate the warranty by issuing a newly executed form, for at least the remaining period of the original warranty, but for not less than half the original warranty period.

END OF SECTION 01605

GENERAL REQUIREMENTS

Require each installer of systems requiring continued operation and maintenance by Owner to provide on-location instruction to Owner or his/her representative, sufficient to ensure safe, secure, efficient and non-failing use and operation of systems. Provide written instructions and maintenance and operation manuals where required.

Final Cleaning will be done by Owner. Note that daily cleanup is to be done by Contractor; see other Sections of these Specifications.

RECORD DRAWINGS

A. Maintain a clean, undamaged set of full-sized prints of Contract Drawings and Shop Drawings. Mark the set using red erasable pencil to show the actual installation where it varies substantially from the work as originally shown. Mark whichever drawing is most appropriate to show conditions fully and accurately. Cross-reference to shop drawings. Make particular note of concealed elements that would be difficult to measure and record at a future date. Mark significant new information that is important to Owner but was not originally shown. Note related change order numbers where applicable. Bind and label final set. Submit to Owner upon project completion.

RECORD PROJECT MANUAL

Maintain a complete copy of the Project Manual, including addenda, construction bulletins, Change Orders and printed modifications to construction. Mark these documents to show significant variations in actual work performed. Submit to Owner upon project completion.

RECORD PRODUCT DATA

Maintain one copy of each product data submittal. Mark these documents to show significant variations in actual work in comparison to information submitted. Submit to Owner upon project completion.

PROCEDURES AT SUBSTANTIAL COMPLETION

A. Comply with the General Conditions and complete the following before requesting Architect's inspection of the work for substantial completion:

1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates and similar required documentation for specific units of work, enabling Owner's unrestricted occupancy and use.

2. Submit record documentation, maintenance manuals, tools, spare parts, keys and similar items.

3. Complete instruction of Owners, and start-up of systems.

4. Complete final cleaning and remove temporary facilities and tools.

B. Upon receipt of Contractor's request, Architect will either proceed with inspection or advise Contractor of prerequisites not fulfilled.

PROCEDURES AT FINAL ACCEPTANCE

A. Comply with the general conditions and complete the following before requesting Architect's reinspection of the work for final acceptance:

1. Submit final payment request with final releases, lien waivers, and supporting documentation not previously submitted and accepted. Submit consent of surety.

2. The Owner may choose, exclusively at the option of the Owner and the Owner's insurance and legal counsel, to waive certain requirements.

B. Upon receipt of Contractor's notice that the work has been completed, Architect will reinspect the work. Architect will either recommend final acceptance and final payment, or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. Architect will repeat procedure as necessary.

END OF SECTION 01705

SECTION 02060

DEMOLITION

GENERAL

DESCRIPTION

Demolition includes the removal of any materials required for proper completion of the work of this contract, and the removal and proper and lawful off-site disposal of these materials. Each Contractor is to conduct demolition operations required to complete their work.

CONDITION OF STRUCTURES

The Owner assumes no responsibility for the actual condition of the existing structures nor for those portions to be demolished.

PRODUCTS

SALVAGEABLE ITEMS

If approved by the Owner, items of salvageable value to the Contractor may be removed from the site as work progresses. Transport salvaged items from the site as they are removed. Do not permit storage or sale of removed items on site.

EXECUTION

DEMOLITION BY THE CONTRACTOR

1. Conduct demolition and disposal operations to prevent injury to passersby and the Owner's and adjacent buildings, grounds and other facilities. Promptly repair damages caused to Owner's and adjacent property by demolition operations at no cost to the Owner. Document existing conditions that may be mistakenly considered to be damage during demolition and submit to Owner prior to start of work. Erect and maintain secure protection of the building at all times.

2. Disconnect, seal and otherwise protect existing utilities against damage during demolition operations. Note, however, that utilities and services shall not be interrupted without authorization in writing from the Owner and authorities having jurisdiction.

3. Do not obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

4. Provide temporary barriers and other forms of protection required to protect Owner's personnel, building occupants and the general public from dust, dirt, and injury. Comply with governing regulations regarding environmental protection.

DISPOSAL

Remove from the site, or store in a secure closed container, on a daily basis all debris, rubbish and other materials resulting from demolition operations. Burning of any materials on project site is not permitted.

CLEANING

If deemed necessary by the governing authorities or the Owner, clean adjacent structures and other improvements of dust, dirt and debris caused by the demolition operations. Return adjacent areas to the condition existing prior to the start of work at no cost to the Owner.

END OF SECTION 02060

SECTION 02200 EARTHWORK

GENERAL

DESCRIPTION

Extent of earthwork is as required for completion of the work and/or as shown on Drawings.

UTILITIES

Locate existing utilities by hand excavation and provide proper support, maintenance and protection from damage. Cooperate with Owner and utility companies for maintaining services. Do not break utility connections without notifying Architect, Owner and utility company a minimum of 48 hours in advance and providing acceptable temporary services. Repair any damages to existing utilities as directed by utility company.

EXPLOSIVES

Use of explosives is not permitted.

PROTECTIONS

Protect structures, utilities, sidewalks, pavements and other facilities in areas of work. Barricade open excavations and provide warning lights as needed. Comply with regulations of authorities having jurisdiction.

BRACING AND SHORING

Provide bracing and shoring as required in excavations to maintain sides and to protect adjacent structures from settlement, complying with local codes and all other regulations, including those of OSHA. Maintain until excavations are backfilled.

SUBMITTALS

A. Submit to the Architect, if requested, dated trucking record slips showing time-of-day, amounts and material type for all soil material delivered and removed from the site.

MATERIALS

COMPACTED GRANULAR FILL

A. Imported well-graded sand or sand and gravel. Use 2" maximum size with not more than 5% passing #200 sieve.

B. Satisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups GW, GP, GM, SM, SW, and SP.

C. Unsatisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH and PT.

SUBBASE MATERIAL

Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, or crushed slag free of vegetation, debris and other objectionable material. Meet following table:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1 1/2"	100
3/8"	40-75
#4	25-60
#16	15-40
#200	0-10

Pit run sand meeting acceptable characteristics to serve intended usage when compacted will also be allowed.

BACKFILL MATERIAL

Satisfactory soil materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, water, frozen materials, vegetable and other deleterious matter.

EXECUTION

EXTENT OF WORK

Work includes excavation and removal of existing topsoil and other soils as required to achieve final grading that directs water away from buildings and off of paved areas, as well as removal of any unsuitable soils.

EXCAVATION

A. Remove and dispose of non-reusable material encountered to obtain required subgrade elevations.

B. Stockpile excavated materials, if acceptable for reuse, on building site until required for compacted granular fill and backfill.

C. Place backfill materials in layers not more than 8" in loose depth, compacting each layer to required maximum density as noted below. Do not place materials on surfaces that are muddy, frozen, or contain ice or frost.

COMPACTION

A. Compact each layer of compacted granular fill and backfill soil materials and the top 12" of subgrade for structures, slabs, steps and pavements to 90% maximum density for cohesive soils and 95% relative density for cohesionless soil. At lawns or unpaved areas, compact to 85% maximum density for cohesive soils and 90% relative density for cohesionless soils. Comply with ASTM Test Designation D1557.

B. Sprinkle water on surface of subgrade or layers of soil material where soil is too dry to permit compaction to required density. Remove and replace, or scarify and air dry soil material that is too wet to permit compaction to required density.

C. Place single layer for course 8-12" thick or less and equal layers for courses more than 8" thick. Compact each lift.

D. Place and compact pavement subbase course material in layers of indicated thickness, over subgrade surface to support walks and pavement.

SITE GRADING

Contractor is responsible for checking to verify that all regrading work creates the best possible drainage conditions. Grade areas, including adjacent transition areas, with uniform slopes or levels between finish elevations. Contact Architect if areas are encountered where work may not be completed to meet all requirements. NOTE that work of this contract includes 8" of topsoil and final grading.

MAINTENANCE

Repair and re-establish grades to specified tolerance in settled, eroded, rutted or otherwise damaged areas. In damaged compacted areas, scarify surface, re-shape, and compact to required density and grade tolerance prior to further construction.

SETTLEMENT AND SHIFTING AFTER COMPLETION OF CONSTRUCTION

Contractor shall make every effort to perform all work so as to minimize settlement and shifting.

DISPOSAL

Remove excess excavated material, trash, debris and waste material from site.

JOB SITE SAFETY

Follow safety precautions such as those required by OSHA.

END OF SECTION 02200

SECTION 02480 LANDSCAPE WORK

GENERAL

DESCRIPTION

Extent of landscape work is to include seeding of new lawn areas, and provision and installation of plant materials as shown on Drawings.

PROTECTION OF AFFECTED AREAS

Erect signs and sturdy barriers as required to ensure maximum protection of affected areas.

WARRANTY FOR PLANT MATERIALS

Provide the Owner with a written full replacement warranty for plant materials for one year following the date of Substantial Completion, or the date of the installation of the materials, whichever is greater, against defects including death and unsatisfactory growth, except for defects resulting from neglect by the Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond the control of the landscape installer. This warranty shall extend to one replacement only.

WARRANTY FOR SEEDED AREAS

Areas failing to show a healthy and successful stand of grass after the maintenance period shall be repaired or replaced per the original specifications and maintained by the contractor until accepted by the Owner.

PRODUCTS

RETAINING WALLS

Provide and install as shown on site plan.

TOPSOIL

A. Provide sufficient topsoil to supplement any salvaged for reuse by construction or grading operations as indicated or required.

B. New topsoil to be black, clean, fertile, friable, natural loam obtained from a local, well-drained source. It shall be high in organic content and suited to support plant life. It shall be mildly acid.

SEEDED AREAS

All areas not planted or otherwise receiving other materials as indicated on Drawings.

MULCH

At trees and shrubs: Ground or shredded bark free of toxic or deleterious materials.

PLANT MATERIALS

Provide healthy trees, shrubs and other plants with well-balanced form, of sizes and species per Drawings, balled and burlapped or container-grown.

FERTILIZER

A. For trees and shrubs: not less than 18% total nitrogen, 9% available phosphoric acid, and 9% soluble potash, in slow-release packets. Install per mfg. directions.

B. For lawns, seeded: 16% nitrogen, not less than 6% phosphoric acid and 6% potassium. Provide nitrogen in a form that will be available to the lawn during the initial period of growth; at least 50% of the nitrogen in organic form. Apply at the rate of 7 lbs. per 1,000 sq. ft.

MULCH

At seeded areas: Clean straw free of toxic or deleterious materials

ACCESSORIES

Provide stakes, guys and flexible hose chafing guards (3 per tree), heavy crinkled crepe tree-wrapping from ground to first limb and other accessories as required for a complete installation.

EXECUTION

CULTIVATION

Loosen subgrade to a depth of 4", spread 2" depth of topsoil, till to mix topsoil with subsoil, spread additional 4" depth of topsoil, add specified soil amendments and mix thoroughly into top 2" of topsoil, and till surface to level, fine texture.

SEEDING

A. Examine finish surfaces, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.

B. Loosen topsoil of lawn areas to a minimum depth of 4". Remove stones over 1" diameter and roots or other extraneous material.

C. Grade lawn areas to a smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges and fill depressions as required to drain.

D. Seed immediately after bed preparation. Seed when soil is dry and when winds do not exceed 5 miles per hour.

E. Method of application may be either of the following:

1. Hand seeder

2. Sown by means of a stream or spray of water under pressure operated from an approved machine designed for that purpose.

F. After seeding, rake/drag surface lightly to blend seed into top 1/8" of topsoil. Roll with light lawn roller.

G. Place hay mulch within 24 hours after seeding, at the rate of 100 pounds per 1000 square feet, crimping into soil as required for lasting positioning.

H. Fertilize at the rate of 3 pounds per 1000 square feet and water thoroughly to a 3" depth. Use rotary or drop type distributor.

I. Maintain lawns for a 30 day period, including watering supplementing natural moisture to equal 1" rain per week, spot weeding, mowing to a 2" height when grass reaches 3", and reseeding, resulting in a full and healthy stand of grass.

END OF SECTION 02480

SECTION 02620 FOUNDATION DRAINAGE

GENERAL

DESCRIPTION

Extent of foundation drainage system is shown on Drawings and/or described below and consist of complete system for each building. Existing system is to remain and the Thornton basement; systems in the Jenifer and Cantwell buildings are to be redone to meet these specifications. This is to be bid with the Concrete portion of the work.

PRODUCTS

BEDDING AND PERVIOUS BACKFILL

ASTM C-33 fine aggregate (concrete sand)

DRAINAGE PIPING

Perforated and non-perforated new corrugated, flexible type tubing for foundation drainage of sizes as required for system design.

PUMP AND CROCK

Sized per demand per code. Wayne CDU980E or equal pump.

EXECUTION

SYSTEM DESIGN

Provide foundation drainage system to be approved by Architect and Owner.

Provide drain lines on inside (and outside of the perimeter wall footings where excavation is taking place for waterproofing purposes), interconnect to trench drains if any, and install bleeders at 8' o.c.

Place graded bedding fill, minimum 6 inches deep, prior to laying foundation drainage piping. Entire length of pipe shall rest firmly on the bedding fill.

Lay pipe with a continuous fall in the direction of flow.

Open ends shall be temporarily closed and location marked with wooden stakes.

Lay perforated pipe with perforations facing down with cleanouts in locations as required.

Prior to placing pervious backfill material around pipe, test piping with water and a 2 inch diameter cork which shall flow freely within the pipe from test point to test point. Remove obstructions and continue testing until the cork flows freely. Test entire system again after all backfill is placed.

Wrap cross-section of pervious backfill at exterior side and across top with filter fabric placed continuously.

END OF SECTION 02620

SECTION 03310

CONCRETE

GENERAL

DESCRIPTION

Extent of concrete work is shown on Drawings. Note that concrete sawing and concrete block sawing is included at basement egress windows where required by new window sizes.

CODES AND STANDARDS

Comply with ACI 301 "Specifications for Structural Concrete Buildings"; ACI 318 "Building Code Requirements for Reinforced Concrete"; comply with applicable provisions except as otherwise indicated.

CERTIFICATES

Maintain on file and submit if requested certificates, signed by concrete producer and Contractor, certifying that material meets standards acceptable to the Architect.

MANUFACTURER'S DATA

Submit manufacturer's product data with installation instructions for proprietary materials including reinforcement and forming accessories, admixtures, joint materials, hardeners, curing materials, and others if requested by Architect.

PROTECTION OF ADJACENT WORK

Contractor shall make every effort to avoid staining or otherwise damaging adjacent materials and surfaces during concrete work. Any such damage shall be repaired or replaced to Owner's satisfaction at no cost to the Owner.

PRODUCTS

MIX PROPORTIONS AND DESIGN

Proportion mixes complying with mix design procedures specified in ACI 211.1, Standard Practice for Selecting Proportions.

A. Mix designs may be adjusted when material characteristics, job conditions, weather, test results or other circumstances warrant. Do not use revised concrete mixes until submitted to and accepted by Architect.

B. Use air-entraining admixture in all concrete, providing percentages shown in table below.

C. Mix concrete according to the following:

	Slabs, Walks, Steps, Paving	Footings & Foundations
water-cement ratio	6 gal/sack	7 gal/sack
cement content	6 bags/yd.	5 bags/yd.
maximum aggregate size	1"	1 1/2"
slump	2" - 4"	4"-6"
air entrainment	6%	4.5 to 6%
min. 28-day compressive strength	3200 PSI	3000 PSI

CONCRETE MATERIALS

A. Portland Cement: ASTM C-150

B. Aggregates: ASTM C 33, except local aggregates of proven durability may be used when acceptable to Architect.

C. Water: Clean, free from oil, acid, organic matter or other deleterious substances.

D. Air-Entraining Admixture: ASTM C-260.

E. Water-Reducing Admixture: ASTM C-494, type as required to suit project conditions. Only use admixtures which have been tested and accepted in mix designs, unless otherwise acceptable.

F. Calcium Chloride is not permitted as an additive nor in admixtures.

RELATED MATERIALS

A. Moisture Barrier: Clear polyethylene sheet at least 6 mils thick.

B. Membrane-Forming Curing Compound: ASTM C 309, Type I.

C. Joint Fillers: As required to suit project conditions.

EXPANSION JOINT MATERIALS:

Pre-formed asphalt-based expansion joint material; bituminous, 1/2" and 3/4" thicknesses, conforming to ASTM D-994

FORM MATERIALS

Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection. For exposed concrete surfaces, provide form materials suitable to project conditions.

REINFORCING MATERIALS

A. Deformed Reinforcing Bars: ASTM A 615, Grade 60.

B. Welded Wire Fabric (WWF): ASTM A 185.

EXECUTION

ROOT CUTTING

Contractor shall take precautions during construction operations not to disfigure, scar or impair the health of any tree on public or private property. Where absolutely necessary, remove from existing live trees any roots, to an elevation of five inches (5") below the bottom of the concrete sidewalk or slab. Cutting shall not be closer than four inches from the trunk of the tree.

SURFACE PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

FORMING AND PLACING CONCRETE

A. For job site mixing, use drum type batch machine mixer, mixing not less the 1-1/2 minutes for one cu. yd. or smaller capacity. Increase mixing time at least 15 seconds for each additional cu. yd. or fraction thereof.

B. For ready-mix concrete, comply with ASTM C 94.

C. Formwork:

1. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.

2. Provide openings in formwork to accommodate work of other trades. Accurately place and securely support items built into forms.

3. Clean and adjust forms prior to concrete placement. Apply form release agents or wet forms, as required to eliminate mortar leaks.

4. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

D.Slope of walks: Regrade site as needed and/or as shown on Drawings. Provide sideslope on walks of 1% minimum, 2.5% maximum in direction of drainage unless otherwise indicated on Drawings.

E. Reinforcement:

1. Position, support and secure reinforcement against displacement. Locate and support with metal chairs, runners, bolsters, spacers and hangers as required. Set wire ties so ends are directed into concrete, not toward exposed surfaces.

2. Install welded wire fabric in as long lengths as practicable, lapping at least one mesh. Use flat sheets with 6" minimum overlap.

3. All reinforcement shall be free of rust.

4. Provide minimum of 2" cover for all reinforcing bar and mesh.

F. Joints:

1. Provide construction, isolation and control joints as indicated or required. Place isolation and control joints in slabs-on-ground as indicated or as required to stabilize differential settlement and random cracking. Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks, and other fixed objects, unless otherwise indicated. At typical sidewalks, provide 3/4" deep control joints at 5' maximum intervals or as required to control cracking.

2. Extend joint fillers full-width and depth of joint; place top of joint filler flush with finished concrete surface.

3. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together.

G. No water shall be added when placing concrete unless approved by the Architect. If water is added without such approval, this shall be considered sufficient grounds for rejecting the concrete. Retempering of partially hardened mortar is not permitted.

H. No concrete shall be deposited in water or mud. Concrete shall not be deposited on frozen subbase or against ice or frost.

PROTECTIONS

Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.

A. In cold weather comply with ACI 306.

B. In hot weather comply with ACI 305.

CONCRETE FINISHING:

A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Adjust floating to compact surface and produce uniform texture.

B. After floating, test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

C. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/4" or 1/2" radius, unless otherwise indicated. Eliminate tool marks on concrete surface.

D. Tolerances are as follows:

1. Flatwork true to plane 1/4" in 10 feet.
2. Form displacement maximum 1/8".
3. Air pockets 3/8" diameter maximum.

CONCRETE FINISHES

Non-slip broom Finish: Following troweling to exterior walks and other paving, apply a non-slip broom finish with a fiber-bristle broom perpendicular to the direction of travel.

CURING

Begin initial curing as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours. Continue curing by use of membrane-forming curing compound (exterior only) or moisture-retaining cover. Cure formed surfaces by moist curing until forms are removed. Provide protections as required to prevent damage to exposed concrete surfaces.

END OF SECTION 03310

GENERAL**DESCRIPTION**

Extent of mortar work is shown on Drawings.

Deliver, store and handle materials so as to prevent inclusion of foreign material or damage to materials by water or breakage.

Store packaged materials in original containers until ready for use.

Reject damaged materials.

Cold Weather Provisions: No foreign materials or frozen materials (containing ice) shall be used. At temperatures below 40 degrees F., adequate equipment shall be provided for heating the mortar materials. Temperatures of the separate materials, including mixing water, when placed in the mixer, shall not exceed 140 degrees F. The mortar shall have a temperature between 50 and 90 degrees F. until used.

PRODUCTS**MORTAR MATERIALS**

Western Mason's Mix, as manufactured by The Western Lime and Cement Company, West Bend, WI. Use Type M for structural CMU, Type S for brick (unless IRA of brick is greater than or equal to 20, in which case Type N shall be used) and non-load bearing CMU.

Portland Cement: Shall conform to ASTM C-150 Type I.

Lime: Shall be pressure hydrated non-air-entrained and conform to ASTM C-207, Western Type S. Lime for use in exterior walls shall be soaked for at least 24 hours immediately prior to using and added as a putty to the mix. Use in proportions recommended by manufacturer for the application.

Masonry Sand: Shall be clean, sharp, free from loam, silt, vegetable matter, salts, and other injurious substances and shall conform to ASTM C-144, except that 100% shall pass a NO. 8 sieve.

Water: Suitable for drinking.

Plasticizer: Shall be Master Builder's Co.'s Omicron Type X Mortarproofing or approved non-air-entraining equal. Use where required shall be in accordance with manufacturer's printed instructions, except where superceded herein.

Other Admixtures: Shall not be used at any time and will not be knowingly approved. Use of special air-entraining admixtures, chlorides or nitrates, with or without approval, will be sufficient cause to require removal and replacement of all masonry work containing or treated with same.

Partial premixed mortar materials will be considered for approval when each requirement of the individual materials is compiled with and is so stated on the packag , along with proportions and quantities. The lime soaking requirements for exterior walls will be waived in the event of such use. Masonry cement mortar may not be used on exterior.

MORTARS

Measure materials for mortars by volume, In a manner whereby proportions can be controlled within 2%. Mix cementitious materials, powdered admixtures and masonry sand dry. Add lime putty, admixtures and water to bring to proper consistency for use. Mix materials in an approved type machine mixed for a minimum time of 5 minutes and until materials are evenly distributed throughout the batch and the mixture is uniform in color and consistency.

Use no mortar that has stood more than one hour after initial mixing. Mortar less than one hour old shall be retempered as necessary to maintain its workability. No anti-freeze ingredient or contaminant of any type will be tolerated.

Plasticizer specified above shall be used for exterior work. At his option, Contractor may use plasticizer in accordance with manufacturer's printed instructions for their masonry work but only with lime-cement mortar.

EXECUTION

See Unit Masonry, Section 04200

END OF SECTION 04100

SECTION 04200

UNIT MASONRY

GENERAL

DESCRIPTION

Work of this Section includes incidental masonry work including removal of masonry as noted on Drawings and infill of existing openings. This is to be bid with the Concrete portion of the work.

JOB CONDITIONS

Protect masonry from freezing when temperature of surrounding air is 40 degrees and falling. Protect finished work against freezing for a period not less than 48 hours.

PRODUCTS

MATERIALS

Concrete Masonry Units (CMU): Nominal face dimension to be 16" x 8". Concrete masonry units for reinforced masonry to be two core normal weight open end "A" shaped units or two core normal weight knock-out web units of aggregate conforming to ASTM C-33.

EXECUTION

GENERAL

Use equipment for mixing and transporting mortar and masonry units which is clean and free from hardened mortar, dirt, ice, or other foreign matter.

Tool joints when mortar is thumbprint hard.

CONCRETE MASONRY UNIT INSTALLATION

Lay CMU plumb, level, true to a line on exposed face with a full mortar bed on shell surface and at ends with all joints 3/8". Lay first course in full mortar bed. Cut units with power saw where cuts will be exposed in finished work. Select CMU for uniformity in size to obtain plumb, vertical and level horizontal joints. Fill space around built-in items solidly with mortar. Cover tops of walls left incomplete at conclusion of day's work. Tool joints slightly concave with an oversized round rod. Lay CMU in running bond.

CLEANING CONCRETE MASONRY UNITS

Clean CMU of all dirt, mortar, and foreign materials with a stiff fibre brush upon completion to provide a clean, neat, finished appearance.

END OF SECTION 04200

GENERAL**DESCRIPTION**

Rough carpentry will be handled by Owner. This section is for any minor rough carpentry modification work required by work of this contract.

SUBMITTALS

Submit product data for materials if different from specified materials.

MATERIALS**LUMBER****A. General:**

1. Manufacture lumber S4S and gradestamped to comply with PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.

2. Provide seasoned lumber with 19% moisture content at time of dressing and shipment for sizes 2" and less in thickness.

B. Dimension Lumber: Provide dimension of the following product classifications in the grade and species indicated:

1. Light Framing (2"-4" thick, 2"-4' wide):

Grade: Construction.

Species: Any.

2. Studs (2"-4" thick, 2"-6" wide, 10' and shorter):

Grade: "Stud" or No. 3 Structural Light Framing.

Species: Any species graded under WWPA, WCLIB, SPIB or NLGA rules.

3. Structural Light Framing, including stud columns (2"-4" thick, 2"-4" wide):

Grade: No. 2.

Species: Hem-Fir.

4. Structural Joists and Planks (2"-4" thick, 5" and wider):

Grade: No. 2.

Species: As indicated on Drawings.

5. Beams and Headers: Size and species as noted on Drawings.

C. Concealed Boards: Standard grade, any species graded under WWPA rules, or No. 3 Southern Yellow Pine graded under SPIB rules.

D. Lumber for Miscellaneous Uses: Provide Standard grade lumber for support of other work, including cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members unless otherwise noted.

LAMINATED VENEER LUMBER

Equal to MICROLAM by TrusJoist Corp., having BOCA or ICBO approval. Allowable design values are: Fb= 2600 psi; Fc(perpendicular)= 700 psi; Fv= 285 psi

PRESERVATIVE PRESSURE TREATED LUMBER

Provide preservative pressure treated lumber and plywood to comply with American Wood Preservers Bureau standard LP-2, Pressure Treatment with Water-Borne Preservatives, as indicated below:

Treated sills, sleepers, blocking, furring, stripping, and all other items in direct contact with masonry, concrete or steel.

Acceptable Products:
ACQ or equal

ROUGH HARDWARE

Nails, screws, bolts, hangers, and all other rough hardware are to be of sizes, types, material and finish as shown on drawings or as suited to the application shown, and shall comply with applicable standards of the National Forest Products Association's National Design Specifications. Provide metal hangers and framing anchors as indicated on Drawings or of size and type recommended for intended use by the manufacturer. Use hot-dipped galvanized fasteners and anchorages for work exposed to weather, in ground contact and in areas of high relative humidity to comply with ASTM A 153.

EXECUTION

GENERAL

A. Examine the supporting structure and the conditions as prepared for rough carpentry work to assure that they are satisfactory; notify Architect of any unsatisfactory conditions. Do not proceed with work until corrections have been made.

B. Install rough carpentry work to comply with the "Manual of House Framing" by the National Forest Products Association (NFPA) and with recommendations of the American Plywood Association (APA), unless otherwise indicated. For sheathing, underlayment and other products not covered by the above standards, comply with recommendations of manufacturer of product involved for use intended. Set carpentry work to required levels and lines, with members plumb and true and properly fitting.

C. Provide wood framing members of size and spacing indicated or required; do not splice structural members between supports. Firestop concealed spaces with wood blocking not less than 2" nominal thickness, if not blocked by other framing members. Provide blocking, furring and nailers as required for secure attachment of all finish materials and as required for work by other trades.

FASTENING

Securely attach carpentry work to substrates and supporting members using fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Pre-drill if needed to install fasteners without splitting wood.

END OF SECTION 06100

SECTION 06200 FINISH CARPENTRY

GENERAL

DESCRIPTION

A. Finish carpentry includes carpentry work which is exposed to view, is non-structural, and which is not specified elsewhere.

B. Extent of finish carpentry is shown on drawings and includes door casings, wood base, interior wood trim, and miscellaneous items as shown on drawings and as listed below.

PRODUCTS

HARDWOOD/SOFTWOOD LUMBER

A. Comply with AWI 'Quality Standard' for quality of materials and fabrication and requirements indicated. All shall be Clear Maple unless noted otherwise. All is to be clear varnished; See Section 09900 Painting. Milled profiles by Glen Oak Lumber and Milling or equal.

B. New Interior Standing and Running Trim: Glen Oak 252, flat, 5/8" x 2 1/2"

C. New Base: Glen Oak 322, 3/8" x 3 1/4"

D. Window Sills: Cultured Marble, with Glen Oak 424, 3/8" x 1 3/8" for apron

E. Interior Stair Handrails: Glen Oak 877, 1 5/8" x 1 3/4". Return to wall and run continuous per IBC requirements at common stairs.

F. Closet Shelving: ClosetMaid Vinyl coated wire, white. 40" max spacing between supports. Note that adjustable shelving is to be used at all linen closets even if not noted on Drawings; use ClosetMaid system, with ShelfTrack Standards, Brackets, ShelfTrack Hang Track, and other accessories as needed for a complete installation. At all first floor units, adjustable bedroom and coat closet shelving are also to be used throughout the unit, which includes closet rods, closet rod supports and end caps, as well as the standards, brackets and hang track as mentioned above.

G. Wall Caps (with Glen Oak 424 for apron) and Stair Leg Stringers: 1" nominal clear Birch, as shown on Drawings.

FASTENERS AND ANCHORAGES

Provide nails, screws and other anchoring devices of type, size, material and finish suitable for intended use and required to provide secure attachment, concealed where possible. Hot-dip galvanize fasteners for work exposed to exterior and to high humidity to comply with ASTM A 153. Use fasteners and anchors only as recommended by manufacturer, including treated wood products.

EXECUTION

GENERAL

Install finish carpentry work plumb, level, true and with no distortions. Shim as required using concealed shims. Scribe and cut finish carpentry items to fit adjoining work. Anchor finish carpentry work securely to supports and substrates, using concealed fasteners and blind nailing where possible. Use fine finishing nails for exposed nailing except as indicated, countersunk and filled flush with finished surface.

STANDING AND RUNNING TRIM

Install with minimum number of joints possible, using full length pieces from maximum length of lumber available. Cope at returns, miter at corners where appropriate to produce tight fitting joints. Use scarf joints for end-to-end joints.

END OF SECTION 06200

SECTION 07120

WATERPROOFING

GENERAL

DESCRIPTION

Extent of waterproofing is shown on Drawings. This is to be bid with the Concrete portion of the work.

PRODUCTS

Drain tile and sump crock system to be included. See also Section 02620.

Waterproofing System at excavated and below-ground infill areas shown on Drawings: Bituthene 3000 system by WR Grace.

EXECUTION

INSTALLATION

Install strictly according to manufacturer's instructions.

WARRANTY

Provide manufacturer's standard 20- year warranty.

END OF SECTION 07120

SECTION 07185 ABOVE-GRADE VAPOR AND AIR BARRIERS

GENERAL

DESCRIPTION

Vapor barrier (sheet) is to be installed at exterior surfaces, including walls and ceilings. Infiltration barrier is to be installed at exterior wood-framed walls. This is to be bid with the Insulation portion of the work.

PRODUCTS

VAPOR BARRIER AT WALLS AND CEILINGS

6 mil cross-laminated polyethylene film rated at 0.1 perms or less.

SEALANT

High quality acoustical sealant.

INFILTRATION BARRIER

Tyvek or equal, lapped and cut and taped so as to form a continuous barrier at all wall areas, installed per manufacturer's recommendations. Use Grace Vycor Plus tape around all wall openings, installed per manufacturer's recommendations.

EXECUTION

INSTALLATION: Ceiling and Walls

A. Take care to produce a tight continuous vapor barrier. Attention to detail is essential. Note special conditions where vapor barrier wraps around other materials for continuity. Lap (minimum 6 ") and seal all seams with acoustical sealant. Caulk and staple vapor barrier to windows and frames. Use minimum number of mechanical fasteners necessary. Repair holes and tears immediately prior to concealment with self-adhesive tape equal in perm rating to vapor barrier. Caulk all exterior electrical boxes, lighting housings, and exhaust fans completely or use self-sealing boxes where appropriate. Caulk all wiring and other penetrations and caulk at all plates.

B. Notify Architect for inspection of vapor barrier installation prior to concealment.

END OF SECTION 07185

SECTION 07190

UNDERSLAB VAPOR BARRIER

GENERAL

DESCRIPTION

Vapor barrier is to be installed under slabs. This is to be bid with the Concrete portion of the work.

PRODUCTS

VAPOR BARRIER UNDER SLAB

10 mil polyethylene vapor barrier.

SEAM TAPE

As recommended by vapor barrier manufacturer

EXECUTION

PREPARATION

Ensure that subsoil is fully compacted.

Level and tamp or roll aggregate, sand or tamped earth base.

INSTALLATION

Lap Vapor Barrier/Retarder over footings and run to foundation walls so it laps up 3" min. against wall.

Overlap joints 6 inches

Seal all penetrations

Repair damaged areas by cutting patches of Vapor Barrier/Retarder, overlapping damaged area 6 inches and taping all four sides with tape.

END OF SECTION 07190

SECTION 07200 INSULATION

GENERAL

DESCRIPTION

Extent of insulation work and types and thicknesses required are shown on the Drawings. See also Vapor Barrier Section. All products shall be formaldehyde-free.

PRODUCTS

EXTRUDED POLYSTYRENE BOARD INSULATION (Rigid Insulation)

Rigid closed-cell extruded expanded polystyrene complying with FS HH-I-524 Type IV, 20 psi compressive strength, aged k-value of 0.20, 1.1 perm-inch max. vapor rating, 0.3% max. water absorption. Styrofoam TG or equal. Tape for seams as recommended by the manufacturer.

WALL, RIM JOIST, SLOPED CEILING INSULATION (See also Drawings)

Polyurethane closed-cell foamed in place insulation (SPF), Johns Manville Corbond III.

LOOSE CELLULOSE INSULATION (Attic at Cantwell)

Weather Blanket Class 1 Cellulose insulation, as manufactured by Champion Insulation, Inc., Lomira, Wisconsin, or equal, meeting UL 723, ASTM C 739-86, for pneumatic or pouring application as required. Maximum flame spread = 20. Maximum smoke developed = 0.

SOUND INSULATION

Fiberglass batt, 3 1/2" R=11. Inorganic, nonasbestos, formaldehyde-free fibers formed with binders into resilient blankets or batts complying with HH-I-521, k-value of 0.27 minimum, semi-rigid type where required for self support. See locations on Drawings.

EXECUTION

GENERAL

Comply with insulation manufacturer's installation instructions.

INSTALLATION

A. Rigid Insulation: Install rigid insulation strictly according to manufacturer's recommendations, using adhesive or Tappit type mechanical fasteners with oversize nylon washers at head as required. Protect installed insulation from harmful weather exposures and possible physical abuses.

B. Batt/Blanket Insulation: Support units with adhesive anchorage or mechanical fasteners as required to ensure permanent placement. Fill all spaces fully with insulation. Pack insulation tightly into spaces not filled by full-width insulation, such as space between window frames and rough framing, etc. Split batts to fit around wiring and other obstructions.

C. Loose Insulation: Install uniform thickness required to achieve the thermal performance specified. Provide polystyrene or wood baffles at vent openings to prevent blockage of free airflow by insulation. Insulate cavities fully. Provide coverage charts, notify architect of delivery of materials for counting, and save used bags for architect's use in verifying density.

D. Foamed in place Insulation: Install uniform thickness required to achieve the thermal performance specified. Install per manufacturer's instructions and recommendations.

END OF SECTION 07200

SECTION 07600 FLASHING AND SHEETMETAL

GENERAL

DESCRIPTION

Extent of flashing and sheet metal work is shown on Drawings and as required, and includes flashings at penetrations. Each Contractor shall provide and install flashings and related items that apply to their work.

STANDARDS

Conform to profiles and sizes shown or required, and comply with "Architectural Sheet Metal Manual" by SMACNA and manufacturer's recommendations for each category of work required.

PRODUCTS

Flashings, boots, vent caps and similar items as required for various penetrations through the exterior envelope. All shall be as recommended by manufacturer for each type of penetration sealer.

EXECUTION

INSTALLATION

Anchor work in place with noncorrosive fasteners, adhesives, setting compounds, tapes and other materials and devices as recommended by manufacturer of each material or system. Provide for thermal expansion and building movements. Comply with recommendations of Architectural Sheet Metal Manual by SMACNA.

Seal moving joints in metal work with elastomeric sealants where required.

Set flanges of vents in solid bed of flashing cement.

PERFORMANCE

Water-tight/weatherproof performance of flashing and sheet metal work is required.

END OF SECTION 07600

SECTION 07900 JOINT SEALERS

GENERAL

LOCATIONS

Provide and install joint sealers as shown on drawings and in all other appropriate locations, including, but not limited to, at all service penetrations, , at control joints, and at interior locations as noted below.

COMPATIBILITY

Provide materials selected for compatibility with each other and with substrates in each system. Follow manufacturer's recommendations.

GENERAL CHARACTERISTICS

Provide type, grade, class, hardness and similar characteristics of material indicated or as required to comply with manufacturer's recommendations relative to exposures, traffic, weather conditions and other factors of the joint system for best possible overall performance. Except as otherwise indicated, joint sealers are required to maintain airtight and waterproof seals, without failures in joint movement accommodation, cohesion, adhesion, migration, staining, and other performance as specified.

PRODUCTS

SEALANT AT EXTERIORS

Provide manufacturer's standard one-part nonsag sealant "NP-1" by Sonneborn or "Dymonic" by Tremco.

FOAM BACKER ROD

Compressible preformed plastic, Sonofoam Closed Cell Backer-Rod or Sonofoam Soft Backer-Rod as manufactured by Sonneborn Building Products, or an approved equivalent.

SEALANT AT INTERIORS

Use sealant at all kitchen and bathroom sealant locations, including backsplash/ and sidesplash/wall joints, lav./counter joints, and other typical appropriate locations, using the following materials:

Within shower/tub area, for setting counters in bathrooms, and to seal sidesplashes to backsplashes (and other areas not adjacent to a painted surface):

Provide one-part non-acid curing silicone sealant, antifungicidal, as manufactured by GE, or an approved equal. Color to be white.

Other locations where sealant will meet painted surface:

Provide Acrylic Plus Silicone sealant as manufactured by DAP or approved equivalent. Color to be white.

EXECUTION

INSTALLATION

Install sealants strictly according to manufacturer's recommendations. Apply only to clean dry surfaces and only when temperatures are over 40 degrees F. Install in 'hour-glass' section with depth equal to 50% of normal joint width, but no more than 1/2" nor less than 1/4".

END OF SECTION 07900

SECTION 08210 DOORS

GENERAL

DESCRIPTION

Extent of work shall be to furnish and install all wood and fiberglass doors and wood or metal frames as shown on Drawings and Door Schedules. This is to be bid with the Finish Carpentry portion of the work.

STANDARDS

Comply with requirements of ANSI/NWMA I.S. 1 and Section 1300 of AWI "Architectural Woodwork Quality Standards" unless otherwise indicated. Provide metal doors and frames complying with Steel Door Institute "Recommended Specifications" for the type of doors specified herein.

SUBMITTALS

Submit shop drawings for fabrication and installation of steel doors and frames. Include details of each frame type, construction, anchorages, reinforcements and locations.

PRODUCTS

GENERAL

A. Same exposed surface material on both faces of each door unless noted.

B. Frames: Doors may be pre-hung or field installed at Contractor's option. Provide and install frames in appropriate sizes, with stops.

TYPE A: INSULATED FIBERGLASS SWING DOOR (single) Upper Lite

Therma-Tru, Smooth-Star Insulated Door S606, with Low-Profile ADA sill, standard jamb, aluminum clad frame, Low-E glass, clear.

TYPE B: INSULATED FIBERGLASS SWING DOOR (double) ¾ Lite

Therma-Tru, Smooth-Star Insulated Door S2200 French/Hinged Patio Door, Insulated, with Low-Profile ADA sill, standard jamb, aluminum clad frame, configuration as shown on Drawings. Screen doors, by Therma-Tru, Top Hung Wide Profile Screen. Colors to be selected by Owner from standard options..

TYPE C: INTERIOR SOLID CORE DOOR, PREFINISH, FLUSH

- A. Faces: Prefinished Clear Birch
- B. Construction: SSC
- C. Bottom edge of door to clear finish flooring but to retain fire rating
- D. Thickness: 1-3/4"
- E. Fire Rating: 20-minute door

TYPE D: INTERIOR HOLLOW CORE DOOR, PREFINISH, FLUSH (INTERIOR APARTMENT DOORS)

- A. Faces: Prefinished Clear Birch
- B. Construction: SHC (Standard Hollow Core)
- C. Trim bottom edge of door to clear finish flooring
- D. Thickness: 1-3/8"

TYPE E: INTERIOR SOLID CORE DOOR, PREFINISH, FLUSH

- A. Faces: Prefinished Clear Birch
- B. Construction: SSC
- C. Bottom edge of door to clear finish flooring but to retain fire rating
- D. Thickness: 1-3/4"

E. Fire Rating: 60-minute door

FABRICATION: WOOD DOORS

Prefit and premachine wood doors. Prehang at contractor's option. Coordinate with finish hardware and door frame requirements.

Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and mouldings from either cold-rolled or hot-rolled steel at fabricator's option.

Fabricate exterior doors, panels and frames from cold rolled sheet steel. Close top and bottom edges of all doors with filler channel.

Provide countersunk flat phillips heads for exposed screws and bolts.

Prepare doors and frames to receive surface applied hardware in accordance with final finish hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.

EXECUTION

INSTALLATION: WOOD DOORS

Fit doors to frames with uniform clearances and bevels to dimensions indicated in referenced standards. Machine doors for hardware indicated. Seal cut surfaces after fitting and machining and prepare surfaces for finishing. Install doors to comply with manufacturer's recommendations. All door assemblies must meet fire ratings listed; notify Architect if any discrepancies exist.

Check and re-adjust operating finish items, leaving doors and frames undamaged and in complete and proper operating condition.

INSTALLATION: STEEL/FIBERGLASS DOORS

Install standard steel doors, frames, hardware and accessories in accordance with final shop drawings.

Doors: Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.

Frames: In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels. Grout hollow metal frames full.

CLEANING AND ADJUSTMENT

Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply primer equivalent to factory applied prime coat.

Check and re-adjust operating finish items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 08210

SECTION 08710

FINISH HARDWARE

GENERAL

DESCRIPTION

Finish hardware is listed on Door Schedule, referenced to specifications listed below. Finish if not listed is to be satin chrome for all exposed hardware.

This is to be bid with the Finish Carpentry portion of the work.

PRODUCTS

DOOR HARDWARE

A. Locksets: by Schlage, or equal, unless indicated otherwise.

B. Finish: Satin chrome for all items unless otherwise noted; ordering time not an acceptable reason for substitution.

C. Trim: Lever, as noted below, unless otherwise noted.

BUILDING ENTRANCE

Latch: AL80PD, Saturn, springlatch with standard square corner faceplate

Hinges: by door manufacturer

Closer: Model 1461 Delayed Action Super Stock by LCN. Adjust closer delay to approximately 15 seconds.

Weatherstrip and threshold: integral head jamb and sill weatherstrip by door manufacturer; ADA low profile threshold

UNIT ENTRANCE 3

Latch: AL10S, Saturn, springlatch with standard square corner faceplate

Deadbolt: BC160

Hinges 1-1/2 pair, 4 1/2" x 4 1/2" Full Mortise, Stanley FBB191

Closer: Model 1461 Delayed Action Super Stock by LCN. Adjust closer delay to approximately 15 seconds.

Viewers (2): Ives U700 mounted at 45" height and 60" height

Threshold Weatherstrip: Drop-down type. Pemko 412BRL or equal

UNIT ENTRANCE 1

Latch: AL10S, Saturn, springlatch with standard square corner faceplate

Deadbolt: BC160

Hinges: 1-1/2 pair, pre-hung by door manufacturer

Weatherstrip and threshold: integral head jamb and sill weatherstrip by door manufacturer; ADA low profile threshold

UNIT ENTRANCE 2

Latch: AL10S, Saturn, springlatch with standard square corner faceplate

Deadbolt: BC160

Hinges: 1-1/2 pair, pre-hung by door manufacturer

Weatherstrip and threshold: integral head jamb and sill weatherstrip by door manufacturer; standard profile threshold

STORAGE

Latch: AL70PD, Saturn, springlatch with standard square corner faceplate

Hinges: 1-1/2 pair, 4 1/2" x 4 1/2" Full Mortise, Stanley FBB191

Closer: Model 1460

PASSAGE

Latch: F10N, Elan, lever, standard square corner faceplate,
Hinges:1-1/2 pair, loose pin

PRIVACY

Latch: F40N, Elan, lever, standard square corner faceplate,
Hinges:1 1/2 pair, loose pin

BIFOLD

Pulls: (1 at each pair doors): model 4484 with bases, Stanley; **mount on active leaf near center**
Track and trolley: Hager 9570

SLIDING

Track and trolley: Hager 9675, with stops
Pulls: Ives 227 recessed

DOOR STOPS @ DOORS WITHIN APARTMENTS:

Spring-type, mounted at base, wall, or other style as needed

DOOR STOPS @ COMMON AREA DOORS:

400 Series by Ives, style as needed at each condition

HANDRAIL BRACKETS

Ives 59, or equal.

CLOSET POLES AND SUPPORTS

Wire Shelves; see Finish Carpentry Section 06200

KICKPLATES

None

FIRE DEPARTMENT KEYBOX

As required by Code.

EXECUTION

INSTALLATION

Install each hardware item at height as indicated on the Drawings or at industry standard heights where not indicated. Comply with manufacturer's instructions.

HARDWARE ADJUSTMENT

Return to project three months after Substantial Completion and adjust hardware to proper operation and function. Instruct Owner's personnel in proper operation and adjustment.

KEYS

A. Key apartment entrance latches common with building entrance latch where needed (Thornton). Provide Owner with four keys for each unit.

B. Provide Owner with four Grand Master keys that will open all doors.

C. Provide Owner with four Maintenance Master keys that will open common areas only, not including apartment doors.

Review keying with Owner prior to executing the keying work.

END OF SECTION 08710

SECTION 09250

GYP SUM WALL BOARD

GENERAL

DESCRIPTION

Extent of gypsum drywall (GWB) work is shown on drawings and includes gypsum drywall on wall and ceiling surfaces.

STANDARDS

Comply with ASTM C 840.

SUBMITTALS

Submit sample of primer texture to Architect for approval prior to application.

PRODUCTS

GYP SUM WALL BOARDS

A. Comply with ASTM C 36.

B. Provide gypsum wall board in the following thicknesses, all with long edge standard taper:

5/8" Type X throughout , unless otherwise noted on Drawings.

1/2" Type X where noted as 1/2" gyp bd

Use moisture resistant board at all plumbing walls and around all tub/shower enclosures.

Use GP Dens-Glass Gold at locations that will be exposed to weather during construction.

ACCESSORIES

Trim: provide manufacturer's standard metal trim accessories including concealed J-type where GWB abuts wood or masonry finished surfaces, of the beaded type with face flanges for concealment in joint compound.

FASTENERS

Provide type and spacing as recommended by manufacturer. NOTE: use fasteners required by UL fire rated assemblies.

JOINT SYSTEM

Joint Tape: ASTM C 475 ready-mixed vinyl type for interior work.

EXECUTION

INSTALLATION

A. Screw gypsum wall board to wood supports and furring strips following manufacturer's recommendations.

B. Install gypsum boards in lengths and directions which will minimize the number of butt-end joints, and avoid end joints in central areas of ceilings and walls. Install walls and partitions with exposed gypsum boards vertical, with joints offset on opposite sides of partitions. Otherwise, install boards with edges perpendicular to supports, with end joints staggered over supports, except where otherwise recommended by manufacturer.

C. Form "floating" construction for gypsum boards at internal corners, except where special isolation or edge trim is indicated.

D. Isolate drywall work from abutting structural, finished wood and masonry work. Provide concealed edge trim and acoustical sealant as recommended by manufacturer.

E. Avoid damage to the vapor barrier. Repair damage immediately to restore barrier to performance prior to damage.

F. Seal off ductwork before drywall work begins to avoid dust and debris in duct /HVAC systems.

FINISHING

A. Except as otherwise indicated, apply joint tape and joint compound at joints (both directions) between gypsum boards. Apply compound at accessory flanges, penetrations, fastener heads and surface defects.

B. Install compound in three coats (plus prefill of cracks where recommended by manufacturer); sand after last 2 coats, to achieve a surface of flat and uniform appearance without defects, ready for primer application.

C. Apply primer according to the manufacturer's instructions to produce a uniform texture without starved spots or other evidence of thin application, free from application patterns. Texture is to be a light texture ("fine orange peel").

D. Remove any topping compound or droppings from all inappropriate surfaces. Leave work ready for application of paint.

E. See also Section 09900 Painting.

F. NOTE : 1-hour rated wall assemblies are to meet any appropriate UL 1-hour rated assembly.

END OF SECTION 09250

SECTION 09650 RESILIENT FLOORING and ACCESSORIES

GENERAL

DESCRIPTION

Extent of resilient flooring includes bathrooms and kitchens, entryways and other areas shown on Drawings. Include areas under cabinets and appliances in kitchens and baths.

PRODUCTS

RESILIENT FLOORING

Mannington "Jumpstart", color to be selected.

RUBBER WALL BASE

A. 4" height rubber, as manufactured by Johnsonite, with shoe and premolded outside corners. Do not use premolded inside covers. Color to be selected.

B. Install at bathrooms where there is resilient flooring, including at vanity cabinets.

WOOD BASE

Not part of this bid. Wood base is used at some locations; see Drawings.

ADHESIVE AND ACCESSORIES

Use adhesive and accessories as recommended by the manufacturer. Include aluminum "j" termination at tubs and showers.

EXECUTION

INSTALLATION

A. Comply with product manufacturer's recommendations for types of materials, project conditions and intended use.

B. Clean floors and apply leveling compound and substrate primer if required, in accordance with flooring manufacturer's instruction.

C. Lay sheet flooring to make as few seams as possible with economical use of materials. Follow manufacturer's recommendations for matching color shading and pattern at seams.

D. Clean all floors and accessories after installation and apply protective polish if recommended by manufacturer.

END OF SECTION 09650

SECTION 09680 CARPETING

GENERAL

DESCRIPTION

Extent of carpet is indicated on the Drawings. Carpet and carpet with pad are to be installed in locations indicated, including stairs, third floor halls, bedrooms and utility areas, and basement halls, bedrooms and utility areas.

PRODUCTS

CARPETING

Shaw "Fossil/Terra" level loop carpet, color to be selected from standard options.

PAD

3/8" Rebond, 7 lb. density

ACCESSORIES

A. Tackless Stripping: Water-resistant plywood of thickness matching cushion; narrow with 2 rows of pins, except wide with 3 rows where width of carpet exceeds 20'.

B. Edge Guard: Johnsonite CE-A series, vinyl, color to be selected by Owner. (Provide flattest possible shape for smoothest transition from other materials; meet ANSI A117 requirements).

C. Miscellaneous Materials: Adhesives, tapes, thread, nails, staples and similar products of type recommended by mill and Installer.

EXECUTION

PREPARATION

A. Clean surfaces to be carpeted; scrape up cementitious and resinous deposits; vacuum.

B. Pre-plan installation for uniform direction of pattern and lay of pile, and proper sequencing with other work. Locate seams properly, centered under doors and without seams in direction of traffic at doorways and similar traffic patterns. Extend carpet under removable obstructions and into closets and alcoves. Minimize seams.

INSTALLATION: CARPET WITH PAD

A. Provide stretch-in-tackless installation, using glued and/or nailed tackless stripping with edges of carpet concealed at wall bases. Tape and/or sew seams, after buttering trimmed edges with seaming cement.

1. Cement cushion to substrate, with taped seams running at 90° angle with carpet seams.

2. Stretch carpet both directions in accordance with mill's instructions; use power stretchers except where space is too small.

B. Install edge guards at exposed edges. Bind edges with cloth tape and thread where not concealable.

C. Return to the installation at a time convenient to the Owner approximately 6 months after occupancy and restretch the carpet to eliminate wrinkles as necessary. Repair faulty seams and other faults in the installation.

- D. Lay all carpet in same direction unless noted or approved otherwise.
- E. Make seams parallel to doors and doorways, with seam centered under door.
- F. Seams at corridor change of direction shall follow wall line parallel to corridor direction.
- G. Where carpet meets other floor materials, create as flush a transition as possible.

CLEANUP

- A. Save carpet scraps, defined as mill ends less than 9' long and pieces larger than 3 sq. ft. in area and wider than 8", and store in a closet as directed. Dispose of smaller pieces.
- B. Vacuum completed carpet installation with a beater-in-nozzle type commercial vacuum cleaner. Remove any protruding face yarn with a sharp scissors.
- C. Repair faulty seams and other faults in the installation.

END OF SECTION 09680

GENERAL**DESCRIPTION**

A. Work of this Section includes painting and finishing of interior and items and surfaces.

B. Colors to be selected by Owner from standard colors available for the coatings required. Submit samples on actual building materials for approval before applying finishes.

PRODUCTS**GENERAL**

All finishes listed are by Benjamin Moore Paint Co. except as noted. No substitutions are permitted for any product of this Section.

DRYWALL SURFACES EXCEPT BATHROOMS AND KITCHENS

A. Primer – Eco Spec WB Interior Latex Primer 372

B. Finish Coat (1 or as needed for full coverage) –Eco Spec WB Interior Latex Flat Finish

There will be one color in all units, China White

Light orange peel texture.

DRYWALL SURFACES AT BATHROOMS AND KITCHENS

A. Primer – Eco Spec WB Interior Latex Primer 372

B. Finish Coat (2) – Eco Spec WB Interior Latex Eggshell Finish 374

There will be one color in all units (same color as above).

Light orange peel texture.

INTERIOR METAL SURFACES

Primer: Moorcraft Super Spec DTM Alkyd Semi-Gloss Enamel

Finish Coat (1): Moorcraft Super Spec DTM Alkyd Semi-Gloss Enamel

INTERIOR FIBERGLASS SURFACES

Primer: Details Waterborne Interior Alkyd Primer B790

Finish Coat (1): Moorcraft Super Spec DTM Alkyd Semi-Gloss Enamel

INTERIOR WOOD TRIM

A. Sealer-Benwood Polyurethane Varnish Low Lustre 435

B. Stain- none

C. Finish Coats(2)- Benwood Polyurethane Varnish Low Lustre 435

CONCRETE FLOORS

Clear Sealer: Brock-White BW Crete Seal

OTHER SURFACES AND ITEMS

Apply appropriate finishes to miscellaneous surfaces not listed here.

EXECUTION**GENERAL**

A. Deliver materials to job site in new, original and unopened containers bearing manufacturer's name, trade name, and label analysis. Store per manufacturer's instructions.

B. Do not apply finishes in snow, rain, fog or mist or when relative humidity exceeds 85%. Do not apply paint to damp or wet surfaces. Do not apply finishes when temperature exceeds upper and lower limits specified by manufacturer.

C. Protect work of other trades. Correct any painting related damages by immediately cleaning, repairing, replacing or refinishing as directed by Architect.

D. Coordination: Provide finish coats which are compatible with prime coatings used. Provide barrier coats over incompatible primers where required. Notify Architect in writing of anticipated problems using specified coatings with substrates primed by others.

E. Seal off ductwork before painting work begins to avoid dust, overspray and debris in duct /HVAC systems.

SURFACE PREPARATION

A. Perform preparation and cleaning procedures in strict accordance with coating manufacturer's instructions. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to formation of a durable paint film.

B. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place and not to be finish painted or provide surface applied protection. Reinstall removed items and remove protective coverings at completion of work.

C. Seal wood required to be job finished. Seal tops, bottoms and cut-outs of wood doors with heavy coat of varnish or similar sealer immediately upon delivery to job site.

D. Touch-up shop-applied prime coats wherever damaged.

MATERIAL PREPARATION AND APPLICATION

A. Mix, prepare and store painting and finishing materials in accordance with manufacturer's directions.

B. Apply painting and finishing materials in strict accordance with manufacturer's directions. Use applicators and techniques best suited for materials and surfaces to which applied.

C. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.

D. Paint surfaces behind moveable equipment and furniture same as similar exposed surfaces. Paint surfaces behind fixed equipment with prime coat only, before equipment is installed.

E. Paint interior surfaces of ducts, where visible through registers or grilles, flat non-specular black.

F. Finish exterior doors on tops, bottoms and edges same as exterior faces, unless otherwise indicated.

G. Sand lightly between succeeding enamel or varnish coats.

H. Fill nailholes in surfaces to receive finish paint or varnish as appropriate to provide durable and unnoticeable finish product.

H. Provide for a total dry film thickness of not less than 2.5 mils for entire coating system of prime and finish coat for 2 coat work.

I. Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

END OF SECTION 09900

SECTION 12390 CABINETS

GENERAL

DESCRIPTION

Extent and configuration of cabinet work is shown on Drawings. This is to be bid with Finish Carpentry.

COORDINATION

Coordinate work of this section with work of other sections, including but not limited to electrical and plumbing.

PRODUCTS

KITCHEN AND BATHROOM VANITY CABINETS

A. Cabinets: Merillat Classic Spring Valley Oak Square, Double Trays Option, natural finish, in sizes and configurations shown.

Provide end and side panels as required at all openings and other conditions where standard cabinets do not provide a proper end and side closure.

COUNTERTOP

High-pressure plastic laminate by Wilsonart, on particleboard (3/4"), with built-up edges (1-1/2") and integral backsplash (4"); 0.042" thick general purpose plastic laminate, continuous sheet (post-formed) with waterfall-and-cove back-splash and bull-nose edge, low gloss finish. Include sidesplashes as shown or as appropriate, including all locations where countertops meet sidewalls, and end caps at all ends. To be selected by Owner/Architect from standard colors/patterns.

EXECUTION

CABINET INSTALLATION

A. Anchor cabinets securely in place with concealed (when doors and drawers are closed) fasteners, anchored into structural support members of wall construction. Comply with manufacturer's instructions and recommendations for support of units.

B. Install hardware if loose, and adjust doors and drawers for proper operation after installation of countertop.

COUNTERTOP INSTALLATION

Attach countertop securely to base units with screws to allow for future removal of cabinets, which may be required for barrier-free adaptations. Provide cut-outs as required and coat edges with waterproof coating. Install caps and accessories.

END OF SECTION 12390

SECTION 13930 FIRE SUPPRESSION SPRINKLERS

GENERAL

DESCRIPTION: Design and install sprinkler system for areas noted on Drawings. Hydraulically design sprinkler systems according to NFPA 13 R. Provide Alternate bid amount to extend NFPA 13 R system to cover all areas of all buildings, including any changes to water service this alternate requires.

SUBMITTALS: Product Data for valves, sprinklers, specialties, and alarms.

Submit sprinkler system drawings identified as "working plans" and calculations according to NFPA 13R.

Submit required number of sets to authorities having jurisdiction for review, comment, and approval. Include system hydraulic calculations where applicable. Pay required plan review and permit fees.

Submit test reports and certificates as described in NFPA 13.

Design and Installation Approval: Acceptable to authorities having jurisdiction. Contractor is responsible for all aspects of design; Architect will supply base plans in DWG format for Contractor's use.

PRODUCTS

PIPE AND FITTINGS

UL-listed and -labeled and FMG-approved pipe and fittings.
As required by codes.

SPRINKLERS

Automatic Sprinklers: As required by codes, semi-recessed.
Sprinkler Finishes: Powder coated white.

SPECIALTIES AND ALARMS

As required by codes.

EXECUTION

Comply with NFPA 13R and NFPA 70, and other codes as applicable.

All piping in finished spaces shall be concealed.

PIPE AND FITTING APPLICATION

As required by codes.

PIPING INSTALLATION

As required by codes.

SPECIALTIES AND ALARMS INSTALLATIONS

As required by codes.
Connect alarm devices to fire alarm system if required.

TESTING

Perform field acceptance tests of each fire-protection system.

Flush, test, and inspect sprinkler piping systems according to NFPA 13, Chapter "System Acceptance."

END OF SECTION 13930

GENERAL**DESCRIPTION**

Work consists of a complete water supply and waste plumbing system for the buildings. Location of fixtures is shown on Drawings. In addition to installation of fixtures, supply and waste piping within buildings, this project includes site plumbing, which includes lowering sanitary sewer laterals in the Jenifer and Cantwell buildings so a grinder pump is not necessary. Floor drains to serve the water heater/mechanical equipment and other code-required or indicated locations, are also to be provided.

SOFTENED WATER

All hot water is to be softened before entering water heaters. Water to all toilets is to be softened.

SITE CONDITIONS

The Contractor shall visit the site to become familiar with existing conditions as they relate to the work of this section. The Contractor will be responsible for the installation of the work as it relates to the existing conditions and shall notify the Architect if discrepancies or defects in the Drawings and Specifications are discovered related to this section.

SYSTEM DESIGN

A. Contractor is responsible for the detailed plumbing system design which meets state, federal, and local requirements.

B. In a timely manner so as not to delay the progress of the Work, prepare drawings showing all service, sanitary, DWV and supply pipe runs and sizes, all valves, meters, boxes and all other equipment and accessories necessary for a complete and functioning system.

C. Submit system drawings, supplementary specifications and additional information to the Architect for review and comment. Revise system design according to review comment and resubmit as required.

D. Provide Architect with three copies of the system drawings and supplementary specifications as approved by appropriate governing authorities.

E. The approved system drawings shall be incorporated into the Contract Documents by a signed Change Order as described in the General Conditions.

PERMITS

The Contractor shall be responsible for all drawings and other information not contained in the construction documents that are necessary to obtain required permits and approval of governing authorities. Contractor shall obtain and pay for all required permits.

PRODUCTS**FLOOR DRAINS**

Floor drains shall be adjustable type with polished nickel-brass strainer and built-in backwater protection. Install where needed for showers, furnace condensate drains, and at laundry. Smith 2010-A 6" round at finished floors. Also provide cleanouts as required. Furnace condensate pumps are NOT to be used.

VALVES

Provide shut-off valves at all fixtures and other valves as required, compatible with plumbing system and fixtures.

PIPING

A. Hot and cold water piping in building shall be PEX.

B. Water service piping from water main to meter shall be PEX with no joints under floor slab.

C. Waste and vent piping, interior and exterior, may be any material that complies with minimum material standards of Wisconsin State Plumbing Code (H62.19) and as required.

D. Size all piping to meet Code requirements and requirements of project.

PIPE INSULATION

Insulate main hot and cold pipes with R- 2 elastomeric pipe insulation (Armaflex, Rubatex or equal) within 10 feet of water heater. Contact adhesive approved by the pipe insulation manufacturer will be applied to both surfaces of longitudinal and butt joints before sealing. No insulation will be applied within six inches of any water heater draft diverter or metal flue surface. Wrap drain piping in walls and ceilings with fiberglass for sound attenuation

MISCELLANEOUS MATERIALS

Provide all other materials required for a complete and proper installation that meets all applicable codes and the requirements of the project.

WATER HEATERS

- A. Gas-fired, power-vented sealed combustion units, Rheem PowerVent 2, sized as required.
- B. One per building.

B. Provide all required accessories for a complete and properly operating installation.

WATER SOFTENERS

Fully automatic demand regeneration unit with Brass Valve; by Fox, Capitol, or equivalent. Size and locate according to system design provided by Contractor. Provide appropriate type and quantity of softener salt for startup of softeners; start up softeners after salt has been added. One per Building.

GAS PIPING

Use 2 psi gas piping if permitted by local codes.

PLUMBING FIXTURES

NOTE: See Drawings for locations and layout of all fixtures. Pay particular attention to tub/shower control locations.

A. KITCHEN

Sink: Model D-23321-4 (fourth hole for dishwasher vent) double-compartment by Dayton, stainless steel.

Faucet: Delta Collins 140-WE-DST single handle faucet, with Delta swivel-spray aerator and basket strainer. Polished chrome

Disposals: In-Sink-Erator Badger5xp

B. BATH

WC: Toto Drake Two Piece toilet with G-max flushing system, model number CST744SL comfort height, elongated bowl, with Bemis 500 series seat. Chrome finish from wall to shutoff.

Lavatory: Integral sink/countertop, 19" X 17" approximate basin size, ADA compliant bowl, cultured marble, sizes as shown on Drawings. Include sidesplashes against all sides that abut a side wall. Submit product information to Architect for approval prior to ordering or installation. Color to be selected by Architect from manufacturer's standard colors.

Lavatory Faucet: Delta 520M-MPU-DST with lever handle and pop-up drain, Polished chrome

Tub/Shower: Aquatic 2603-SMTE, fully reinforced for blocking, no installed bars, White.

Tub/Shower Faucet: Delta Classic Monitor 13 Series Shower, T13420-SHC, pressure balanced with adjustable temperature-limit stops, metal lever handle, diverter spout.

Standard Shower: Aquatic 1603-TSCB, fully reinforced for blocking, no installed bars, one-piece gelcoat fiberglass or equal.

Shower Faucet: Delta Classic Monitor 13 Series Shower, T13220-SHC, pressure balanced with adjustable temperature-limit stops, metal lever handle, diverter spout.

Include supply elbow, vacuum breaker and all other necessary hardware and accessories for a complete installation. Polished chrome.

C. NEW HOSE BIBBS:

Woodford Model 65 automatic draining freezeproof type with integral vacuum breaker, 6 total, evenly distributed around all 3 buildings.

EXECUTION

INSTALLATION

A. Install plumbing in accordance with the design drawings and supplementary specifications as submitted and approved, complete, operational, and in compliance with all applicable codes and regulations. Properly fireproof all penetrations to retain fire rating of the affected assembly.

B. Check operation of all elements of system and fully correct any defects.

END OF SECTION 15400

SECTION 15500 HEATING, VENTILATING & AIR CONDITIONING

GENERAL

DESCRIPTION

For each unit (12 units total) and for common areas at Thornton building (1 total), heating/air conditioning system is to consist of high-efficiency gas furnace and integrated high-efficiency air conditioning split system, one for each unit, plus all items necessary to provide complete and operating systems that meet all code requirements and requirements of use. Provide separate metering for each unit and one house unit..

Also included in this section are Fans and Fan/Lights and Kitchen Exhaust Hoods. Provide gas piping to all equipment as required.

No CFC-based refrigerants are permitted.

SYSTEM DESIGN

A. Contractor is responsible for the detailed heating, ventilating and air conditioning system design which meets state, federal, and local requirements.

B. In a timely manner so as not to delay the progress of the Work, prepare drawings showing a complete heating system layout showing all duct sizes and locations, and the sizes and locations of all registers and grilles, and all other equipment and accessories necessary for a complete and functioning system, for all buildings.

C. Submit system drawings, supplementary specifications, heat loss and other calculations and additional information to the Owner and the Architect for review and comment. Revise system design according to review comment and resubmit as required.

D. Provide Architect with three copies of the system drawings, heat loss and other calculations and supplementary specifications as approved.

E. The approved system drawings shall be incorporated into the Contract Documents by a signed Change Order as described in the General Conditions. They shall be included in Project Record Drawings; see also Section 01705.

PERMITS

Contractor is responsible for all drawings, calculations, and other information not contained in the construction documents that are required to obtain necessary permits and approvals of governing authorities. Contractor is to obtain and pay for all required permits.

PRODUCTS

FURNACE

Carrier Infinity Series sealed combustion, with all necessary venting and accessories. Provide one furnace for each unit.

ALTERNATE FURNACE 1

Carrier Performance Series sealed combustion, with all necessary venting and accessories. Provide one furnace for each unit.

ALTERNATE FURNACE 2

Carrier Comfort Series sealed combustion, with all necessary venting and accessories. Provide one furnace for each unit.

AIR CONDITIONER

Carrier Infinity Series. Provide one air conditioner package for each unit.

ALTERNATE AIR CONDITIONER 1 (bid together with Furnace Alternate 1)

Carrier Performance Series, SEER 13 or better. Provide one air conditioner package for each unit .

ALTERNATE AIR CONDITIONER 2 (bid together with Furnace Alternate 2)

Carrier Comfort Series, SEER 13 or better. Provide one air conditioner package for each unit .

FURNACE

SUPPLEMENTAL HEAT

Provide supplemental heating units as required.

AIR CONDITIONING

Provide one air conditioner package for each unit, ground mount, on precast concrete pad set level and at appropriate height. Review locations with Architect for approval if not shown on Drawings.

THERMOSTAT

Setback model, Honeywell RTH6350D programmable or equal.

KITCHEN EXHAUST HOOD

Range hood: Broan QT230WW, hard ducted, provided by Owner, installed by HVAC Contractor. Wiring is by Electrical Contractor.

DUCTS

Zinc-coated sheet steel minimum gauge to meet code and SMACNA standards. Rectangular sheet metal ducts shall be lined with Johns-Manville Linacoustic RC installed per SMACNA standards.

REGISTERS AND GRILLES

Primed and painted steel, of size and type required. All supply registers shall have manually operated shutoff dampers. Hart and Cooley or equal.

ACCESSORIES

Provide all accessories necessary for a complete and functioning system.

BATH FAN/LIGHT COMBINATION

Broan Model QTXE110FLT, hard ducted, provided and installed by HVAC Contractor. Wiring is by Electrical Contractor.

EXECUTION

INSTALLATION

Install furnaces, piping, ductwork, thermostat and accessories according to the system drawings and supplementary specifications as approved. Minimize duct and pipe runs. Install no supply or return ducts in exterior wall cavities. If ducts run in unconditioned space they shall be insulated to match attic insulation level. Furnish and install all items necessary for a complete and operating system, installed in a neat and orderly manner. Provide dampers for all duct runs. NOTE: condensate pumps not permitted; drain to a proper floor drain. Also, floor registers are not permitted in bathrooms and kitchens.

COORDINATION

Coordinate heating system installation with installation of other work, including work to be connected to heating system.

TESTING

Test and balance system for proper operation. Instruct Owner in proper operation and maintenance of system.

GUARANTEE

Provide manufacturer's standard 20 year limited guarantee for furnace, and one year guarantee for all other work.

END OF SECTION 15500

SECTION 16000 ELECTRICAL SYSTEM AND FIXTURES

GENERAL

DESCRIPTION

Electrical Work includes new fully grounded electrical system, including:

- A. new electric services, complete, to the point of connection with the utility company's transformers, with new meter service panels, including one per unit and one common (public) panel in Thornton Building for site lighting and miscellaneous items (include timer off, photocell on for site lighting).
- C. panels, subpanels, new wiring and accessories to serve switches, outlets, motors, appliances, controls, heaters, fans, fixtures and other electrical devices as shown on the Drawings and in other Sections of the Specifications (each unit shall have 100 amp breaker system);
- D. trenching and backfilling for underground electrical installation;
- E. telephone wiring and cable television wiring including wall receptacles as indicated on Drawings;
- F. installation and connection of lighting fixtures and fans and all other equipment.
- G. fire alarm system and smoke and carbon monoxide alarm systems.

SYSTEM DESIGN

- A. Contractor is responsible for the detailed electrical system design which meets state, federal, and local requirements. Included is smoke alarm and fire alarm system design.
- B. In a timely manner so as not to delay the progress of the Work, prepare drawings showing all service, calculations and design, all meters and locations, panels and all other equipment and accessories necessary for a complete, functioning and code-approved system.
- C. Submit system drawings, supplementary specifications and additional information to the Architect for review and comment. Revise system design according to review comment and resubmit as required.
- D. Provide Architect with three copies of the system drawings and supplementary specifications as approved.
- E. The approved system drawings shall be incorporated into the Contract Documents by a signed Change Order as described in the General Conditions. They shall be included in Project Record Drawings; see also Section 01705.

PERMITS

Contractor is responsible for paying for and securing all permits and for supplying all necessary information required to secure such permits.

CODES

Work is to be done to meet all applicable codes, and is to be properly functioning in every way upon completion. Comply with National Electrical Code, latest edition, and local utility company regulations.

PRODUCT HANDLING

Use all means necessary to protect the materials of this Section and of all other trades throughout the project duration. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

PRODUCTS

GENERAL

- A. Wire: UL approved copper wire throughout, with ground, minimum size #14 AWG.
- B. Switches and Receptacles: Leviton or equal, almond toggle switches with smooth almond cover plates.
- C. Porcelain Sockets: Paulding or equal, 100W maximum.
- D. Lamps: Warm white energy-saving fluorescent fixtures.
- E. Smoke Alarms: BRK or equal Direct wired 120V with battery backup in locations shown on Drawings or as required by applicable codes. Verify locations with local Fire Inspectors and provide and install as needed. Provide audio/visual alarms per code requirements.
- F. Telephone system: Provide Category 6 100 meg wiring from interface to each jack location as shown on Drawings. Include dual (voice/data) modular jack and cover plate.
- G. Cable Television: Coordinate prewiring of units with local cable company. Provide plaster box nailed to a stud, all wiring, less jacks, located as shown on Drawings.
- H. Meter Centers: Square D 'EZ Meter-Pak or equal.
- I. Carbon Monoxide Alarms: BRK or equal Direct wired 120V with battery backup in locations as required by codes or minimum of one at each floor of each unit. Note that combination smoke and CO alarms are acceptable.
- J. Kitchen Exhaust Hood and Bath Fan / Light combo: See HVAC Section. Fans are to be wired by Electrical Contractor (HVAC Contractor to install fans and ductwork less wiring)

LIGHTING FIXTURES

All new interior lighting fixtures are provided by Owner and installed by Contractor.

EXECUTION

INSTALLATION

- A. Install all work in accordance with the system drawings and supplementary specifications as approved. Coordinate Work covered under this Section with that of other Sections.
- B. Fully conceal all wiring. Clearly label all circuits in the electrical panels. Check all parts of the system for proper operation and make any necessary adjustments or corrections.
- C. Install all items and fixtures in such a way that the weight of the item is supported by a sound and safe structural member. Use the proper type and an adequate number of fasteners for each application to ensure a safe installation.
- D. Install actual GFCI receptacle in each bathroom. Do not tie in with kitchen GFCI circuits.

ACCESSIBILITY FEATURES

Observe closely the details in the Drawings and in the Specifications regarding the installation locations and other requirements. Follow Mounting Height Schedule.

END OF SECTION 16000