

2.2 EPDM MEMBRANE

- A. General: Ethylene propylene diene monomers formed into uniform, non-reinforced flexible sheets, laminated to 0.055" thick non woven polyester fleece backing, complying with ASTM D 4637, Type III.
1. Thickness: 45 mils, nominal.
 2. Exposed Face Color: Manufacturer's standard.
- B. Fully Adhered EPDM Membrane: Manufacturer's standard installation.
- C. Products: Subject to compliance with requirements, provide one of the following:
1. FleeceBACK 100 Adhered Roofing System; Carlisle Syntec Systems.

2.3 AUXILIARY MATERIALS

- A. Sheet Seaming System: Manufacturer's standard materials for sealing lapped joints, including edge sealer to cover exposed spliced edges as recommended by membrane manufacturer.
- B. Cant Strips, Tapered Edge Strips, and Flashing Accessories: Types recommended by membrane manufacturer, including adhesive tapes, flashing cements, and sealants.
- C. Flashing Material: Manufacturer's standard system compatible with flexible sheet membrane.
- D. Walkway Protection: Prefabricated EPDM pads designed specifically for protection of exposed FSR membrane.
- E. Mechanical Fasteners: Metal plates, caps, battens, accessory components, fastening devices, and adhesives to suit substrate and as recommended by membrane manufacturer.
- F. Membrane Adhesive: As recommended by membrane manufacturer for particular substrate and project conditions, formulated to withstand min. 55 mph wind speed.

2.4 INSULATING MATERIALS

- A. General: Provide insulating materials to comply with requirements indicated for materials and compliance with referenced standards in sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.
- B. Polysocyanurate Board Roof Insulation: Rigid, cellular thermal insulation with polyisocyanurate closed-cell foam core and manufacturer's standard facing laminated to both sides, complying with FS HH-1-1972/2, Class 1, in thicknesses as indicated.

2.5 AUXILIARY INSULATION MATERIALS

- A. Adhesive for Bonding Insulation: Type recommended by insulation manufacturer and complying with fire resistance requirements.
1. Provide system tested and approved for I-60 wind uplift rating.

- C. Cut out and repair membrane defects at end of each day's work.
- D. Walkway Protection: Install protection pads at locations shown and where required for access to roof-mounted equipment. Place protection pads carefully to avoid damage to membrane, laying over an additional layer of roof membrane material, loosely applied, for additional protection.

3.4 PROTECTION OF ROOFING

- A. Upon completion of roofing (including associated work), institute appropriate procedures for surveillance and protection of roofing during remainder of construction period. At end of construction period, or at a time when remaining construction will in no way affect or endanger roofing, make a final inspection of roofing with a representative of membrane manufacturer and prepare a written report to Owner, describing nature and extent of deterioration or damage found.
- B. Repair or replace (as required) deteriorated or defective work found at time of final inspection to a condition free of damage and deterioration at time of Substantial Completion and acceptable to membrane manufacturer in accordance with requirements of specified warranty. Conduct a re-inspection of roofing with a representative of membrane manufacturer when all repair work has been done to verify acceptability.

..END OF SECTION 07530

SECTION 07900

JOINT SEALERS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Sealants and joint backing.

1.3 SUBMITTALS

- A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color availability.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

2 PART 2 PRODUCTS

2.1 SEALANTS

- A. Type A - General Purpose Exterior Sealant: Polyurethane ; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single or multi- component

- 1. Color as selected.
- 2. Applications: Use for:

- a. Joints between concrete and other materials.
- b. Joints between metal frames and other materials.
- c. Joints between siding and other materials.
- d. Other exterior joints for which no other sealant is indicated.

- B. Type B - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, non-drying, non-skinning, non-curing.

- 1. Applications: Use for:

- a. Concealed sealant bead in sheet metal work.
- b. Bedding for door thresholds.

- C. Type C - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, single component, paintable.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.
- C. Remove loose materials and foreign matter which might impair adhesion of sealant.
- D. Clean and prime joints in accordance with manufacturer's instructions.
- E. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

3.2 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- E. Install bond breaker where joint backing is not used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- H. Tool joints concave.

....END OF SECTION

Part II

Division 8

Doors and Windows

SECTION 08110

STEEL DOORS AND FRAMES

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Steel doors panels and frames: non-rated and fire rated

1.3 SUBMITTALS

- A. Shop Drawings: Indicate door and frame elevations, internal reinforcement, cut-outs for glazing, and finishes.
- B. Product Data: Indicate door and frame configurations, location of cut-outs for hardware reinforcement.

1.4 QUALITY ASSURANCE

- A. Conform to the following:
 - 1. SDI-100 - Standard Steel Doors and Frames.
 - 2. DHI - Door Hardware Institute - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
 - 3. Fire Rated Door Panel and Frame Construction: ASTM E152. NFPA 252. UL 10B. NFPA 80.
 - 4. Handicapped: ANSI A117.1, ADA.

2 PART 2 PRODUCTS

2.1 DOORS AND FRAMES

- A. Manufacturers:
 - 1. Brockway Smith Co.; BROSCO Perma-Door Royal.
 - 2. General Products Co. Inc.; Benchmark
 - 3. Lake Shore Industries Inc.; Thema-Tru
 - 4. Peachtree Doors Inc.; Avanti.
 - 5. Pease Doors Inc.; Ever-Strait
 - 6. Stanley Works.
- B. Exterior Frames: Clear solid pine with integral flat pine casings and threshold.
- C. Interior Frames: Adjustable 18 gage steel frames with wood casings..
- D. Door Faces: 24 gage hot dipped galvanized steel.

Island View Apartments

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3.2 TOLERANCES

- A. Maximum Diagonal Distortion: 1/8 inch measured with straight edge, corner to corner.

...END OF SECTION

SECTION 08210

WOOD DOORS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Wood doors and frames, non-rated.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate door elevations.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with the following:
 - 1. NWWDA I.S.1.

1.5 WARRANTY

- A. Section 01001 - Basic Requirements: Provide a five year warranty to include coverage:
 - 1. Interior Doors: Five (5) years.
- B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, telegraphing core construction.

2 PART 2 PRODUCTS

2.1 DOOR TYPES

- A. Manufacturers:
 - 1. Blount Lumber Co.
 - 2. Brockway Smith Co.
 - 3. Jeld-Wen Inc.
 - 4. Mohawk Flush Doors Inc.

- B. Interior Doors: 1-3/8 inches thick; hollow core construction; as indicated.

2.2 DOOR CONSTRUCTION

- A. Core (Hollow): NWWDA, mesh or cellular core including lock blocks, vertical edge bands, and top and bottom rails.

SECTION 08555

BUILDERS SELECT VINYL CLAD WOOD DOUBLE-HUNG WINDOWS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vinyl clad wood double-hung windows.
2. With optional transom windows.
3. With optional picture windows.
4. Glazing.
5. Accessories.

B. Related Sections:

1. Section 06100 - Rough Carpentry: Framed openings.
2. Section 06200 - Finish Carpentry: Interior wood casing.
3. Section 07210 - Building Insulation: Batt insulation at window perimeter.
4. Section 07460 - Siding.
5. Section 07600 – Flashing and Sheetmetal.
6. Section 07900 - Joint Sealers: Perimeter joint sealant and backer rod.
7. Section 09900 - Painting: Finishing interior wood, including grilles.

1.2 REFERENCES

A. American National Standards Institute (ANSI).

1. ANSI Z97.1 – Safety Performance Specification and Methods of Test for Safety Glazing Material Used In Buildings.

B. American Society for Testing and Materials (ASTM):

1. ASTM A 36, Specification for Structural Steel.
2. ASTM C 1036, Specification for Flat Glass.
3. ASTM C 1048, Specification for Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.

2. Water Penetration: No water penetration beyond the interior face of window unit when tested in accordance with ASTM E 547 at a static pressure of 6.00 psf.
3. Structural Performance: No glass breakage, damage to hardware, or permanent deformation (set) which would cause any malfunction or impair the operation of the unit, or residual deflection greater than 0.4% of span when tested in accordance with ASTM E 330 at a test pressure of 60 psf.
4. Design Criteria: Design and size window components to withstand loads imposed by wind to a pressure as approved by local authorities when measured in accordance with ASTM E 330. Limit deflection to L/175.
5. Thermal Performance - Fenestration U-factor: Fenestration Products shall be rated, certified and labeled in accordance with NFRC 100. U-factors shall be as follows:
 - a. NARROLINE®
 1. Residential size (36" x 60"): U=0.46
 2. Non-residential size (48" x 72"): U=0.46
6. Sound Transmission Rating: Windows to provide a sound transmission class (STC) of 25 when tested in accordance with ASTM E 90 and ASTM E 413.
7. Windows Required to meet Egress: : Windows indicated on the Drawings as needing to comply with egress requirements to provide a minimum clear opening width as required by Building Inspector State Fire Marshal.
8. Forced Entry Resistance: Window units to comply with requirements for Performance Level 10 when tested in accordance with ASTM F 588.

1.4 SUBMITTALS

- A. Product Data, Installation Instructions, Detail Drawings and Samples: Submit the following under provisions of Section 01300 - Submittals:
 1. Product Data: Submit manufacturer's product literature for all products and accessories furnished.
 2. Installation Instructions: Submit manufacturer's installation instruction sheets for all products and accessories furnished.
 3. Detail Drawings: Submit elevations indicating location and type of glazing material, typical jamb, head and sill details, and special mullion reinforcement details.
 4. Color Samples:
 - a. Vinyl Cladding: Submit color samples of vinyl cladding.
 - b. Hardware: Submit samples indicating typical finish on window hardware.
- B. Quality Control Submittals: Submit the following under provisions of Section 01400 - Quality Control:
 1. Reference List: Submit reference lists as specified under Quality Assurance article.

- A. Field Measurements: Verify actual measurements for openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.
- B. Install windows in strict accordance with safety and weather conditions specified by manufacturer's product literature.
- C. Extra caution shall be exercised when temperature drops below 32 degrees F., and extreme care when temperature is below 0 degrees F.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Andersen Builder's Select Narroline[®] Double-Hung units as manufactured by Andersen Corporation, Bayport, Minnesota.

- 1. Color: White.

2.2 MATERIALS

- A. Frame and Sash Members: Fabricated from a wood species approved in WDMA Industry Standard I.S. 2.
- B. Vinyl Cladding (Outer Frame Members and Sill)
 - 1. Rigid vinyl (PVC) complying with the requirements of ASTM D4216, class 144434331111.
- C. Weatherstripping:

- 1. Double-Hung Unit Horizontal Weatherstripping: Gasket type vinyl covered foam in top and bottom rails. Check rail weatherstripping to be santoprene bulb covered with low friction plastic coating secured to filled polypropylene base and with end felt pads around parting stops.

- 2. Double-Hung Unit Vertical Weatherstripping: Polypropylene channels in contact with ribs in jamb liners.

2.3 GLAZING

- A. General: Insulating glass units certified through the Insulating Glass Certification Council as conforming to the requirements of IGCC Class CBA when tested in accordance with ASTM E 773 and E 774. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Metal spacers to have bent corners.
 - 1. Performance Characteristics for the center of glass: The following performance characteristics are based on NFRC validated spectral data files for the respective glazing. The values are for center of glass only. (See section 1.03 for whole fenestration performance values.)
 - a. U-factor: 0.48.
 - b. Solar Heat Gain Coefficient (SHGC): 0.58.

2. Insect Screen Cloth: 18 x 16 aluminum mesh, gun metal finish.
3. Frame Finish: white.
- B. Sill Stop: Prefinished wood pieces machined from clear material DP50.
- C. Sill Stool: Prefinished wood pieces machined from clear material.
- D. High Profile Stop: Unfinished wood pieces machined from clear material.
- E. Picture Unit Accessory Stop: Finished or unfinished wood pieces machined from clear material.

2.7 FABRICATION

- A. Preservative Treatment: Treat wood sash and frame members after machining with a water repellent preservative in accordance with WDMA I.S. 4.
- B. Frame Units: Treated wood core of outer frame member encased in a 0.031" thick seamless vinyl extrusion. Sill to consist of a treated wood core encased in a seamless vinyl extrusion.
- C. Jamb and Head Liners:
 1. Double-Hung: Units: 0.030" thick, rigid vinyl extrusions secured to wood members by barbed legs or screws.
- D. Sash: Treat sash members with a preservative, water repellent, conductive solution in accordance with WDMA I.S. 4.
 1. Double-Hung and Transom Sash:
 - a. Stabilizer Coating: Apply minimum 1.5 mil dry thickness polyurea stabilizer to all surfaces to be topcoated.
 - b. Finish Coating: Apply minimum 1.5 mil dry thickness flexacron finish coat over stabilized exterior and interior surfaces.
 - E. Glazing: Factory glaze with high performance glazing sealant and snap-in rigid vinyl glazing bead.
 - F. Side Jamb Clips: 1-1/2" or 3" galvanized pre-punched sheet metal clip.
 - G. Factory apply weatherstripping.

PART 3 EXECUTION

3.1 INSPECTION

- A. Inspect opening before installation is commenced.
 1. Verify concrete surfaces are dry and free of excess mortar, rocks, sand and other construction debris.

D. Application of Pemi-Shield Casing and Vinyl Laminated Board and Rigid Channels:

1. Install according to window manufacturer's instructions.

3.6 INTERIOR FINISHING

A. Builder's Select windows are prefinished. Refer to Section 09900 if additional painting is required.

3.7 ACCESSORIES

A. Insect Screens: Install according to window manufacturer's instructions.

B. Grilles: Install grilles according to window manufacturer's instructions.

C. Extension Jamb: Install according to window manufacturer's instructions.

3.8 CLEANING

A. Clean vinyl surfaces to remove dirt. Use cleaning materials specifically recommended by window manufacturer.

B. Protect glass and hardware from brick cleaning solutions. Contact with masonry cleaning solutions may etch the glass and cause seal failure of the insulating glass unit.

C. Remove debris from work site.

D. Leave window units in closed and locked position.

E. Protect interior and exterior of window units until structure is sealed from the weather. Seal unfinished wood surfaces.

... END OF SECTION

SECTION 08705
DOOR HARDWARE

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SUMMARY

- A. Hardware for wood, hollow steel, doors.
- B. Thresholds, weatherstripping, seals, and door gaskets.

1.3 SUBMITTALS

- A. Hardware Schedule: Indicate hardware components in sets correlated to door schedule.
- B. Product Data: Submit data for hardware components illustrating style, operating features, color, and finish.
- C. Operating and Maintenance Instructions: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.4 QUALITY ASSURANCE

- A. Hardware Supplier: Company specializing in supplying commercial door hardware with 5 years documented experience approved by manufacturer.

1.5 COORDINATION

- A. Coordinate work of this section with other directly affected sections requiring any integral reinforcement for door hardware.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually. Label and identify package with door opening code to match schedule.
- B. Deliver keys to Owner.

1.7 MAINTENANCE

- A. Provide manufacturer's maintenance services on door closers and locksets for one year from Date of Substantial Completion.
- B. Provide special wrenches and tools applicable to each different or special hardware component

- C. Key Cabinet: Sheet steel construction, enamelled finish, hinged door with key lock, internal hooks for 25 keys, identification labeling.

2.3 MATERIALS AND FABRICATION

- A. Provide products complying with ANSI A 156.1 standards.
- B. Name Plates: Do not provide products with manufacturers name or trade name displayed in a visible location except in conjunction with required UL labels.
- C. Provide hardware manufactured to conform to templates with machine screw installation. Do not provide hardware prepared for self-tapping screws.
- D. Fasteners: Provide Phillips flat head screws except as otherwise indicated. Finish screws to match adjacent hardware finish.
- E. Lever Handles: Provide lever handles at all doors required to be accessible to the handicapped.

2.4 FINISHES

- A. Finishes are identified in Schedule at end of this section.

3 PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Verify that doors and frames are ready to receive work and dimensions are as instructed by the manufacturer.
- B. Verify that electric power is available to power operated devices and is of the correct characteristics.

3.2 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions.
- B. Install hardware at fire rated doors in accordance with NFPA 80.
- C. Use templates provided by hardware item manufacturer.
- D. Adjust hardware and door control devices to comply with ADA requirements.

...END OF SECTION

December 20, 2000

Island View Apartments											
Door Schedule		Door types based on BROSCO designations unless noted otherwise.									
Notes:		1. All interior doors (both sides) and inside of exterior doors shall be trimmed at head and jambs w/ Brosco 8710 casing. 2. Trim outside of exterior doors as indicated on exterior elevations/details. 3. Provide concave wall mounted door stops at all doors opening against an adjacent wall or door. lves No. 406 1/2 or equal. 4. Provide a door mounted roller bumper at all doors opening against an opposite hand door (1 per pair). lves No. 471 or equal.									
No.	Location	W	H	T	Door Material	Door Type	Frame Type	Lock Function	Hardware	Label	Notes
Building Exterior Doors											
11	Exterior Entry	36	80	1 3/4	Insulated Metal	BE89	WD	Lockset 1	Threshold 2, Closer, Kickplate		
Unit Exterior Doors											
21	Unit Entry	36	80	1 3/4	SC Hinged 6 Panel		WD	Lockset 2	Spring Hinges	20 min	
22	Exterior Porch	(2)36	80	1 3/4	Vinyl		Vinyl	Sliding Door Lock	Threshold 1		
Stair Enclosure Interior Doors											
31	Stair Enclosure	36	80	1 3/4	Flush Metal		Metal	Passage 1	Closer / Smoke Seals	90 min	450 deg Temp Rise Rating
32	not used										
33	Storage	36	80	1 3/4	SC Hinged 6 Panel		WD	Storeroom Lock	Closer/Kickplate	20 min	
Public Utility Area Doors											
41	Laundry Room	36	80	1 3/4	Flush Metal		Metal	Storeroom Lock 1	Closer/Kickplate	45 min	Keyed alike to Unit Entry 11
42	Exercise Room	36	80	1 3/4	SC Hinged 6 Panel		WD	Classroom Lock 1	Closer	20 min	Keyed to Master
43	Tenant Storage Room 1	36	80	1 3/4	SC Hinged 6 Panel		WD	Passage 2	Closer/Kickplate	20 min	Keyed to Master
44	Tenant Storage Room 2	36	80	1 3/4	SC Hinged 6 Panel		WD	Passage 2	Closer/Kickplate	20 min	Keyed to Master
45	Tenant Storage Room 3	36	80	1 3/4	SC Hinged 6 Panel		WD	Passage 2	Closer/Kickplate	20 min	Keyed to Master
Electrical / Mechanical Area Doors											
51	Mechanical Room	36	80	1 3/4	Flush Metal		Metal	Privacy 2	Closer/Kickplate	45 min	Knurled Knob
52	Elevator Mech. Room	36	80	1 3/4	Flush Metal		Metal	Privacy 2	Closer/Kickplate	45 min	Knurled Knob
53	Janitor Room	36	80	1 3/4	Flush Metal		Metal	Privacy 2	Closer/Kickplate	45 min	Knurled Knob
54	Electrical Room	36	80	1 3/4	Flush Metal		Metal	Privacy 2	Closer/Kickplate	45 min	Knurled Knob
Common Area Doors											
61	Office 01	36	80	1 3/4	SC Hinged 6 Panel		WD	Lockset 1	Closer	20 min	
62	Office 01 Closet	36	80	1 3/4	SC Hinged 6 Panel		WD	Storeroom Lock 1			
63	Office 02	36	80	1 3/4	SC Hinged 6 Panel		WD	Lockset 1	Closer	20 min	
64	Office 02 Closet	(2)24	80	1 3/4	SC Hinged 6 Panel		WD		Sliding Door Set		Drywall head and jambs
65	Public Toilet	36	80	1 3/4	SC Hinged 6 Panel		WD	Privacy 1	Closer	20 min	
66	Mall Room	36	80	1 3/4	SC Hinged 6 Panel		WD	Storeroom Lock 1	Closer/Kickplate	20 min	
Unit Type A Doors											
A1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
A2	Bedroom Closet	72	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
A3	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			

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Island View Apartments											
Door Schedule		Door types based on BROSCO designations unless noted otherwise.									
Notes:		1. All interior doors (both sides) and inside of exterior doors shall be trimmed at head and jambs w/ Brosco 8710 casing. 2. Trim outside of exterior doors as indicated on exterior elevations/details. 3. Provide concave wall mounted door stops at all doors opening against an adjacent wall or door. Ives No. 406 1/2 or equal. 4. Provide a door mounted roller bumper at all doors opening against an opposite hand door (1 per pair). Ives No. 471 or equal.									
No.	Location	W	H	T	Door Material	Door Type	Frame Type	Lock Function	Hardware	Label	Notes
A4	Linen Closet	24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type B Doors											
B1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
B2	Bedroom Closet	72	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
B3	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
B4	Linen Closet	24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type C Doors											
C1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
C2	Bedroom Closet	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
C3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
C4	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
C5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
C6	Linen Closet	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
C7	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type D Doors											
D1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
D2	Bedroom Closet	72	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
D3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
D4	Bedroom Closet	60	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
D5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
D6	Linen Closet	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
D7	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type E Doors											
E1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
E2	Bedroom Closet	72	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
E3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
E4	Bedroom Closet	60	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
E5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
E6	Linen Closet	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
E7	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type F Doors											

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Island View Apartments											
Door Schedule		Door types based on BROSCO designations unless noted otherwise.									
Notes:		1. All Interior doors (both sides) and inside of exterior doors shall be trimmed at head and jambs w/ BroSCO 8710 casing. 2. Trim outside of exterior doors as indicated on exterior elevations/details. 3. Provide concave wall mounted door stops at all doors opening against an adjacent wall or door. Ives No. 406 1/2 or equal. 4. Provide a door mounted roller bumper at all doors opening against an opposite hand door (1 per pair). Ives No. 471 or equal.									
No.	Location	W	H	T	Door Material	Door Type	Frame Type	Lock Function	Hardware	Label	Notes
F1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
F2	Bedroom Closet	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
F3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
F4	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
F5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
F6	Linen Closet	(2) 24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
F7	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type G Doors											
G1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
G2	Bedroom Closet	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
G3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
G4	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
G5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
G6	Linen Closet	(2) 24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
G7	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type H Doors											
H1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
H2	Bedroom Closet	48	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
H3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
H4	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
H5	Bedroom Closet	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
H6	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
H7	Linen Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
H8	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type J Doors											
J1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550		Privacy 2			
J2	Bedroom Closet	72	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
J3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550		Privacy 2			
J4	Bedroom Closet	60	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
J5	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
J6	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			Drywall head and jambs
J7	Linen Closet	24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
J8	Linen Closet	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			

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Island View Apartments											
Door Schedule		Door types based on BROSCO designations unless noted otherwise.									
Notes:		1. All interior doors (both sides) and inside of exterior doors shall be trimmed at head and jambs w/ Brosco 8710 casing. 2. Trim outside of exterior doors as indicated on exterior elevations/details. 3. Provide concave wall mounted door stops at all doors opening against an adjacent wall or door. Ives No. 406 1/2 or equal. 4. Provide a door mounted roller bumper at all doors opening against an opposite hand door (1 per pair). Ives No. 471 or equal.									
No.	Location	W	H	T	Door Material	Door Type	Frame Type	Lock Function	Hardware	Label	Notes
J9	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type K Doors											
K1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
K2	Bedroom Closet	72	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
K3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
K4	Bedroom Closet	60	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
K5	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
K6	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
K7	Linen Closet	24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
K8	Linen Closet	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
K9	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type L Doors											
L1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
L2	Bedroom Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
L3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
L4	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
L5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
L6	Linen	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
L7	Linen	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
L8	Linen	24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
L9	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type M Doors											
M1	Master Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
M2	Bedroom Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
M3	Bedroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
M4	Bedroom Closet	48	80	1 3/8	HC Sliding 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
M5	Bathroom	36	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
M6	Linen	16	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
M7	Linen	(2)24	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
M8	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
Unit Type N Doors											
N1	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			

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Island View Apartments											
Door Schedule											
Door types based on BROSCO designations unless noted otherwise.											
Notes:											
1. All interior doors (both sides) and inside of exterior doors shall be trimmed at head and jambs w/ Brosco 8710 casing.											
2. Trim outside of exterior doors as indicated on exterior elevations/details.											
3. Provide concave wall mounted door stops at all doors opening against an adjacent wall or door. Ives No. 406 1/2 or equal.											
4. Provide a door mounted roller bumper at all doors opening against an opposite hand door (1 per pair). Ives No. 471 or equal.											
No.	Location	W	H	T	Door Material	Door Type	Frame Type	Lock Function	Hardware	Label	Notes
N2	Bath Room	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
N3	Linen	18	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
N4	Closet	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Passage 2			
N5	Bedroom 3	32	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
N6	Bedroom 3 Closet	(2)30	80	1 3/8	HC Hinged 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
N7	Bedroom 2	32	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
N8	Bedroom 2 Closet	(2)30	80	1 3/8	HC Hinged 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
N9	Master Bedroom	32	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			
N10	MB Closet	(2)24	80	1 3/8	HC Hinged 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
N11	MB Closet	(2)24	80	1 3/8	HC Hinged 6 Panel	550	WD	Sliding Pulls	Sliding Door Set		Drywall head and jambs
N12	Bath Room	30	80	1 3/8	HC Hinged 6 Panel	550	WD	Privacy 2			

Island View Apartments											
Portland, Maine											
Window Schedule											
New No.	Window Manufacturer	Unit Type	Quantity (8)	Unit Width	Unit Height	Required Egress	Low "E" Insul-Glass (5)	Insect Screen	Pre-finished Grills Inside Glass	Pntd. GWB Return Jamb+Head	Pntd. Wood Sill+Apron (6)
Building A											
A		Single Hung Pair	68	(2) 3'-0"	4'-6"		Yes	Yes	Top 6/1	Yes	Yes
B		Single Hung	156	3'-0"	4'-6"		Yes	Yes	Top 6/1	Yes	Yes
C		Fixed	6	2'-4"	3'-6"		Yes		6	Yes	Yes
D		Fixed	4	(4) 2'-0" qtr-round			Yes		4	Yes	
C'		Fixed	1	3'-0"	3'-0"						
Building B											
E		Single Hung Pair	72	(2) 3'-0"	4'-9"	Yes	Yes	Yes	Top 6/1	Yes	Yes
F		Single Hung	76	2'-4"	3'-6"		Yes	Yes	Top 6/1	Yes	Yes
G		Single Hung	12	2'-0"	3'-6"		Yes	Yes	Top 4/1	Yes	Yes
H		Single Hung	4	3'-0"	4'-9"	Yes	Yes	Yes	Top 8/1	Yes	Yes
K		Single Hung	4	3'-0"	3'-6"		Yes	Yes	Top 8/1	Yes	Yes
L		Single Hung	4	2'-4"	5'-0"		Yes		Top 6/1	Yes	
M		Fixed	4	2'-4" half-round			Yes		4	Yes	
N		Fixed	4	2'-4"	3'-6"		Yes		8	Yes	Yes
1. Alternate Manufacturers: By architect approval only.											
2. Verify Rough Openings Prior to Framing											
3. Insulate Between Window and Rough Opening w/ expandable polystyrene insulation.											
4. Provide Safety Glazing as Required by CPSC Regulations.											
5. Provide Insulated Glazing throughout.											
6. Brosco 8710 Apron w/ 5/4x Sill.											
7. Provide blinds at all windows except in common areas.											
8. Contractor shall verify all quantities.											
9. All window units shall meet or exceed the design pressure requirements to BOCA 1999, Section 1609 Wind Loads.											
Note: Sliding patio door specs on door schedule.											

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Island View Apartments				
Hardware Schedule				
Item/function	Manufacturer	Model No.	Finish	Remarks
Lockset 1	Schlage	D50PD RHO	626	Public
Lockset 2	Schlage	S51PD SAT	626	Residence
Privacy 1	Schlage	D40S RHO	626	Public
Privacy 2	Schlage	F40N FLA	626	Residence
Passage 1	Schlage	D10S RHO	626	Public
Passage 2	Schlage	F10N FLA	626	Residence
Classroom Lock 1	Schlage	D70PD	626	Public
Storeroom Lock 1	Schlage	D80PD	626	Public
Sliding Door Locks				Manufacturers Standard Keyless Locking System
Sliding Door Set	Stanley	8900 Series		Sized appropriately to door weight
Closer	Dorma	7600	626	ADA compliant
Threshold 1	Mfgs. Standard			
Threshold 2	National Guard	425	Alum	ADA compliant - maximum 1/2" height
Hinges	Hager	Full mortise	626	Provide ball bearing hinges at doors with closers.
Floor Stop	Ives	436	Alum	
Wall Stop	Ives	406 1/2	Alum	
Roller Bumber	Ives	471	Alum	
Kickplate	Ives	8400	St Steel	On push side of Door
Spring Hinges	Stanley	2060R	626	Full Mortise - Sized appropriately to door weight
Notes				
Provide masterkey system, with construction keying system. Consult with Owner for instructions on keying.				
Products of one or more manufacturers are listed to establish quality and performance characteristics. Products of other manufacturers may be accepted subject to review by Architect.				
Acceptable Manufacturers				
Locksets:	Sargent, Schlage, Corbin, Yale			
Closers:	Sargent, Dorma, LCN, Norton, Rixson, Yale			
Hinges:	Hager, Stanley			
Thresholds:	National Guard Products, Pemko, Reese, Zero			

Part II

Division 9

Finishes

SECTION 09260

GYPSUM BOARD SYSTEMS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SUMMARY

- A. Gypsum board with joint treatment
- B. Metal channel wall and ceiling framing.
- C. Acoustic insulation.

1.3 SYSTEM DESCRIPTION

- A. Conform to applicable code for fire rated assemblies and as follows:
 - 1. Fire Rated Partitions: Listed assembly by UL.

1.4 SUBMITTALS

- A. Product Data: Submit data on gypsum board products and accessories.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C840, GA-201 - Gypsum Board for Walls and Ceilings, GA-214 - Recommended Specification: Levels of Gypsum Board Finish, GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board, GA-600 - Fire Resistance Design Manual.

2 PART 2 PRODUCTS

2.1 GYPSUM BOARD SYSTEM

- A. Manufacturers:
 - 1. Domtar Gypsum Co.
 - 2. Georgia Pacific Corp.
 - 3. Gold Bond Building Products /Div. National Gypsum Co.
 - 4. United States Gypsum Co.
- B. Furring, Framing, and Accessories: ASTM C645, GA-216, and GA-600.
- C. Gypsum Board Types: 5/8 inch thick, maximum available length in place; ends square cut, tapered edges; unless noted otherwise as follows:

09260 - 1 - Gypsum Board Systems

- B. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.
- C. Sanding and final coat of fill is not required at concealed surfaces above ceilings and in inaccessible spaces.

3.4 TOLERANCES

- A. Maximum Variation from True Flatness: 1/8 inch in 10 feet in any direction.

...END OF SECTION

SECTION 09650
RESILIENT FLOORING

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Resilient sheet, tile flooring and base.

1.3 SYSTEM DESCRIPTION

- A. Resilient Flooring: Conform to applicable code for flame/smoke rating requirements of 75/450 in accordance with ASTM E84 and critical radiant flux (CRF) of 0.45 per ASTM E648.

1.4 EXTRA MATERIAL

- A. Provide 5% of resilient flooring of each type, color and pattern.

2 PART 2 PRODUCTS

2.1 SHEET MATERIALS

- A. Homogeneous Vinyl Sheet: Meet performance requirements of FS L-F-475A(3) Type II Grade A, ASTM F1303, Type II, Grade 1, Class A, color and pattern through total thickness:
 - 1. Total Thickness: 0.080 inch nominal.
 - 2. Sheet Width: 72 inch minimum.
 - 3. Heat welded seams.
 - 4. Manufacturers:
 - a. Armstrong World Industries Inc.
 - b. Congoleum Corp.
 - c. Mannington Mills Inc.
 - d. Tarkett Inc.

2.2 TILE MATERIALS

- A. Vinyl Composition Tile: ASTM F1066 FS SS-T-312B, Type IV
 - 1. Size: 12 x 12 inch.
 - 2. Thickness: 0.125 inch.
 - 3. Pattern: Marbleized
 - 4. Manufacturers:
 - a. Armstrong World Industries Inc.

- E. Scribe flooring to produce tight joints at items that penetrate flooring.
- F. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.

- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated secure resilient strips by adhesive.

3.3 INSTALLATION - BASE MATERIAL

- A. Adhere base tight to wall and floor surfaces.
- B. Fit joints tightly and make vertical. Miter internal corners. At external corners, V cut back of base strip to 2/3 of its thickness and fold.

3.4 CLEANING

- A. Remove excess adhesive from surfaces without damage.
- B. Clean, seal, and wax surfaces in accordance with manufacturer's instructions.

... END OF SECTION

SECTION 09680

CARPET

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Carpet stretched-in with cushion underlay and direct-glued.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate seaming plan, method of joining seams, direction of carpet pile and pattern, and location of edge moldings and edge bindings.
- B. Samples: Submit samples of each carpet type for selection of color and pattern.

1.4 EXTRA MATERIALS

- A. Provide 5% of carpeting of each type, color, and pattern specified.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Products of one or more manufacturers are specified to establish appearance, construction and performance characteristics. Products of other manufacturers may be accepted subject to compliance with specifications and review by Architect

1. J & J Commercial
2. Armstrong World Industries Inc.
3. Lees Carpets
4. Patcraft Inc.
5. Shaw Contract Group

2.2 MATERIALS

- A. Carpet Type A: Cut pile, 30 oz. 100% beck dyed nylon, "Assurance" manufactured by J & J Commercial.

1. Yarn: 100% Spun Nylon T-6,6, Two Ply, Heatset
2. Dye Method: Beck
3. Surface Texture: Dense Pile
4. Patterning Technique: N/A
5. Pattern Repeat: N/A
6. Gauge: 1/10 (3.94 rows/cm)

- D. Moldings and Edge Strips: Vinyl color as selected by architect.
- E. Adhesives: Compatible with materials being adhered.

3 PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that floor surfaces are smooth and flat within tolerances specified in Section 03001 and are ready to receive work.
- B. Verify that concrete floors for glue-down installation are ready for carpet installation by testing for moisture emission rate and alkalinity in accordance with manufacturer's instructions. Obtain instructions if test results are not within specified limits.

3.2 PREPARATION

- A. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- C. Clean substrate.

3.3 INSTALLATION

- A. Install carpet and cushion in accordance with manufacturer's instructions and Carpet and Rug Institute CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials.
- B. Verify carpet match before cutting to ensure minimal variation between dye lots.
- C. Lay out carpet and locate seams in accordance with shop drawings:
 - 1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
 - 2. Do not locate seams perpendicular through door openings.
 - 3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
 - 4. Locate change of color or pattern between rooms under door centerline.
 - 5. Provide monolithic color, pattern, and texture match within any one area.
- D. Install carpet at apartments over cushion, stretched-in. Join seams using hot adhesive tape Form seams straight, not overlapped or peaked, and free of gaps.
- E. Install carpet at common areas by direct glue-down method.
- F. Complete installation of edge strips, concealing exposed edges.

3.4 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.

SECTION 09900

PAINTING

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Surface preparation and field application of paints and coatings.

1.3 SYSTEM DESCRIPTION

- A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

1.4 SUBMITTALS

- A. Product Data: Provide data on all finishing products.
- B. Samples: Submit coating samples for selection, illustrating range of colors and textures available for each surface finishing product scheduled.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Store and apply materials in environmental conditions required by manufacturer's instructions.

1.6 EXTRA MATERIALS

- A. Provide minimum of two (2) gallons of each type and color of coating specified.

2 PART 2 PRODUCTS

2.1 MATERIALS

- A. Manufacturers: Products of one or more manufacturers are listed in Finish Schedules to establish appearance, performance and quality characteristics. Products of other manufacturers may be accepted subject to review by Architect.
 - 1. ICI Paint Stores
 - 2. Benjamin Moore and Co.
 - 3. PPG Industries: Pittsburgh Paints
 - 4. Pratt and Lambert
- B. Coatings: Ready mixed except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags.

3.2 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Sand transparent finishes lightly between coats to achieve required finish.
- C. Where clear finishes are required, tint fillers to match wood.
- D. Back prime interior and exterior woodwork scheduled to receive paint finish with primer paint
- E. Back prime interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.
- F. Minimum Coating Thickness: As recommended by manufacturer.
- G. Prime Coats: Prime material as recommended by manufacturer. Recoat primed surfaces as required to cover suction spots or unsealed areas.
- H. Pigmented Surfaces: Completely cover to achieve an opaque, smooth surface of uniform finish, color and appearance. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other imperfections will not be accepted.
- I. Transparent Finishes: Provide smooth surface of uniform luster, free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes or other imperfections.

3.3 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Refer to Division 15 and Division 16 sections for schedule of color coding, identification banding of equipment, ductwork, piping, and conduit.
- B. Color code items in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
- C. Paint shop primed equipment
- D. Remove unfinished louvers, grilles, covers, and access panels and paint separately. Paint dampers exposed behind louvers, grilles, convector and baseboard cabinets to match face panels.
- E. Prime and paint insulated and exposed pipes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.
- F. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line.
- G. Paint exposed conduit and electrical equipment occurring in finished areas except prefinished surfaces.
- H. Paint both sides and edges of plywood backboards.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

Island View Apartments						December 20, 2000	
Notes:	1) Unless otherwise indicated, provide the same finishes for accessory spaces such as closets as is specified for the adjoining room.						
	2) Provide three unit schemes with Carpet A, with two alternate Colors A and B between bedrooms and living & dining rooms for each unit as directed by owner.						
	3) Unit configurations vary slightly from scheduled spaces. Refer to unit plans for floor finish limits and transitions.						
Room Finish Schedule	Room	Floor	Base	Walls	Ceiling	Trim	Remarks
Bldg. A Living Units							
Living Rooms	Carpet A, Color A	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Kitchens	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Dining Areas	Carpet A, Color A	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bath Rooms	Sheet Vinyl	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Corridors	Carpet A, Color A	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bedrooms	Carpet A, Color B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Closets	Match Floor, Wall and Ceiling Finishes of Adjoining Rooms						
Dens	Carpet A, Color B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Garage	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Laundry Room	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Mech. Closet	Sheet Vinyl	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bldg. A Basement Common Spaces							
Stairs 1, 2, 3 and 4	VCT Landings	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		Rubber Treads & Risers
Corridors	Carpet B	6" Carpet A	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		6" Carpet A Borders
Tenant Storage Room 1	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Janitor Closet	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Electrical Room	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Elevator Machine Room	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Exercise Room	Carpet B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Laundry Room	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Mechanical Room	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Tenant Storage Room 2	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Tenant Storage Room 3	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Store Room A	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bldg. A First Floor Common Spaces							
Stairs 1, 2, 3 and 4	VCT Landings	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		Rubber Treads & Risers
Corridors	Carpet B	6" Carpet A	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		6" Carpet A Borders
Lobby	Carpet B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Office 1	Carpet B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Office 2	Carpet B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Toilet Room	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Kitchen	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Main Room	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bldg. A Second Floor Common Spaces							
Stairs 1, 2, 3 and 4	VCT Landings	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		Rubber Treads & Risers
Corridors	Carpet B	6" Carpet A	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		6" Carpet A Borders
Store Room B	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bldg. A Third Floor Common Spaces							
Stairs 1, 2, 3 and 4	VCT Landings	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		Rubber Treads & Risers
Corridors	Carpet B	6" Carpet A	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		6" Carpet A Borders
Store Room C	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bldg. B Living Units							
Living Rooms	Carpet A, Color A	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Kitchens	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Dining Areas	Carpet A, Color A	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bath Rooms	Sheet Vinyl	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Corridors	Carpet A, Color A	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Bedrooms	Carpet A, Color B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Closets	Match Floor, Wall and Ceiling Finishes of Adjoining Rooms						
Dens	Carpet A, Color B	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Garage	Conc. Sealer	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Laundry Room	VCT	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		
Mech. Closet	Sheet Vinyl	Vinyl Cove	Eggshell Paint	Eggshell or textured	Semi-Gloss Paint		

Part II
Division 10
Specialties

SECTION 10005

MISCELLANEOUS SPECIALTIES

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Postal specialties
- D. Closet Shelving

1.3 SUBMITTALS

- A. Product Data: Provide data on Product, and accessories.
- B. Operating and Maintenance Instructions: Include relevant instructions. Include maintenance information.

1.4 QUALITY ASSURANCE

- A. Fire Extinguishers: Conform to NFPA 10.
- B. Postal Specialties: Comply with USPS requirements.

2 PART 2 PRODUCTS

2.1 FIRE EXTINGUISHERS

- A. Manufacturers:
 - 1. Allenco.
 - 2. Amerex.
 - 3. Ansul Fire Protection
 - 4. Bobrick Washroom Equipment
 - 5. JL Industries.
 - 6. Larsen's Manufacturing Co.
 - 7. Potter-Roemer/Div. Smith Industries Inc.
 - 8. Walter Kidde/Div. Kidde Inc.
- B. Multi-Purpose Dry Chemical Type: Enameled steel tank, with pressure gage, 2A:10BC rating..
- C. Cabinets: Semi-recessed type, steel cabinet, full glass door with baked enamel finish.

10005 - 1 - Miscellaneous Specialties

B. Install units level and plumb.

... END OF SECTION

SECTION 10800
TOILET AND BATH ACCESSORIES

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Toilet and bath, shower, washroom accessories.
B. Grab bars.

1.3 SYSTEM DESCRIPTION

- A. Conform to applicable code for installing work in conformance with ANSI A117.1 and ADA.

1.4 SUBMITTALS

- A. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
B. Supply 2 keys for each accessory to Owner. Key all accessories alike.

2 PART 2 PRODUCTS

2.1 MATERIALS

- A. Manufacturers: Products of one or more manufacturers are listed in Schedules to establish quality, appearance and performance characteristics. Products of other manufacturers may be accepted subject to review by Architect.

1. American Specialties Inc.
2. Basco.
3. Bobrick Washroom Equipment Inc.
4. Bradley Corp.
5. Franklin Brass.
6. Nutone.
7. McKinney/Parker Products Co.
8. Miami-Carey.

- B. Sheet Steel: ASTM A366.

- C. Stainless Steel Sheet ASTM A167 Type 304.

- D. Tubing: ASTM A269 stainless steel.

Toilet Tissue Dispenser	NuTone	HM 670
" at common toilet	Bobrick	B-2740
Towel Bar	NuTone	HM 694 24"
Tumbler/Brush Holder	NuTone	HM 630

... END OF SECTION

Part II

Division 11

Equipment

SECTION 11450
RESIDENTIAL EQUIPMENT

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Refrigerator, range, washer, dryer, exhaust hood.

1.3 QUALITY ASSURANCE

- A. Equipment: Conform to applicable code for UL approval.

1.4 SUBMITTALS

- A. Product Data: Provide data on equipment, and accessories.
- B. Operating and Maintenance Instructions: Include relevant instructions.
- C. Include maintenance information on regular servicing.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Products of one or more manufacturers are listed to establish quality, appearance and performance characteristics. Products of other manufacturers may be accepted subject to review by Architect.

1. Broan
2. Frigidaire.
3. General Electric.
4. Hotpoint
5. KitchenAid.
6. Maytag.
7. NuTone.
8. Whirlpool.
9. White-Westinghouse.
10. In-Sink-Erator

2.2 WASHER AND DRYER

- A. Washer: Maytag MAT12PS, Top loading, coin-operated, free standing type, extra large capacity, variable water level control, 5 wash cycles, 2 wash/spin speeds, self cleaning filter, white color.

- E. Connect to utilities and make units operational.
- F. Provide wall switch for all range hoods.

...END OF SECTION

Part II

Division 12

Furnishings

SECTION 12370
RESIDENTIAL CASEWORK

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Shop fabricated cabinet units and counter tops.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate casework locations, scale plans, elevations, clearances required.
- B. Product Data: Provide data on component profiles, sizes, assembly methods, and schedule of finishes.
- C. Samples: Submit samples of plastic laminate for selection of color and finish.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with KCMA (Kitchen Cabinet Manufacturers Association) - Certification Program.

2 PART 2 PRODUCTS

2.1 CASEWORK

- A. Manufacturers: Products of one or more manufacturers are listed to establish quality, appearance and performance characteristics. Products of other manufacturers may be accepted subject to review by Architect.
 - 1. IXL Cabinets/Div. Triangle Pacific.
 - 2. Kemper.
 - 3. Kitchen Kompact Inc.
 - 4. Merriat Industries Inc.
 - 5. UltraCraft.
- B. Manufacturers of Cabinets:
 - 1. Formica Corp.
 - 2. Nevamar.
 - 3. Pioneer Plastics.
 - 4. WilsonArt.
- C. Manufacturers of Plastic Laminate:
 - 1. Formica Corp.
 - 2. Nevamar.
 - 3. Pioneer Plastics.
 - 4. WilsonArt.

- C. Use fixture attachments at concealed locations for wall mounted components.
- D. Use concealed joint fasteners to align and secure adjoining cabinet units and countertops.
- E. Carefully scribe casework which is against other building materials, leaving gaps of 1/32 inch maximum. Use filler strips, not additional overlay trim for this purpose.
- F. Secure cabinet and counter bases to floor using appropriate anchorage.
- G. Adjust moving or operating parts to function smoothly and correctly.

... END OF SECTION

SECTION 12511
WINDOW TREATMENT

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Curtain rods.
- B. Roll-up shades.

1.3 SUBMITTALS

- A. Product Data: Provide data indicating physical and dimensional characteristics and operating features.
- B. Samples: Submit samples for selection of color and finish of shades.

2 PART 2 PRODUCTS

2.1 CURTAIN RODS

- A. Manufacturers:
 - 1. Bali-Grabber Contract.
 - 2. Kirsch.
- B. Curtain Rods: Steel C shaped track system with nylon carriers, ball bearing pulleys and polyester cord traverse operation.
- C. Accessory Hardware: Type recommended by manufacturer.

2.2 ROLL-UP SHADES

- A. Blinds: Vertical roll-up fabric window blind, with manual control to raise or lower by cord attached to stiffened lower blind edge.
 - 1. Fabric Sheeting: Vinyl treated cloth.
 - 2. Pull Cord: Braided nylon.
 - 3. Color: As selected
- B. Roller: Wood.
- C. Roller Mechanism: Internally fitted with hardware for blind operation.
- D. Attachment Hardware: Type recommended by blind manufacturer.

Part II

Division 13

Special Construction

SECTION 15100

MECHANICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Work Included

1. Furnish all labor, materials, equipment, transportation and perform all operations required to install a complete hot water heating system in the building; together with renovating domestic hot water system in accordance with these specifications and applicable drawings.
2. Work to be performed shall include, but is not limited to the following:
 - a. Provide and install forced hot water heating and domestic hot water systems in building areas indicated on drawings
 - b. Pipe, valve and fittings
 - c. Hot water specialties
 - d. Circulating pumps
 - e. Baseboard radiation and wall heaters
 - f. Unit ventilator
 - g. Insulation
 - h. Fans and sheetmetal
 - i. Natural gas and piping system
 - j. Temperature control, tests and balance
 - k. Plumbing systems and equipment
3. Specifications and accompanying drawings do not indicate every detail of pipe, valves, fittings, hangers, duct work and equipment necessary for complete installation; but are provided to show general arrangement and extent of work to be performed.

B. Work not by Division 15:

1. Excavation and back fill
2. Cutting, coring, drilling and patching
3. Electrical conduit and wiring
4. Setting of sleeves
5. Carpenter work such as chases and soffits together with finish painting.
6. All painting

1.2 PERMITS

Installer shall apply for, obtain pay for all permits and inspections required by law and notify proper authorities in ample time for such inspections to be made.

1.3 QUALITY ASSURANCE

Work performed shall conform with all Local and State Rules and Regulations, National Fire Protection Association and propane and Natural Gas Board.

1.4 MATERIALS

All materials and equipment shall be new and of the latest design of respective manufacturers. All materials and equipment of the same classification shall be same manufacturer.

1.5 SHOP DRAWINGS

- A. Before any material or equipment is purchased, Installer shall submit to the Engineer five (5) copies of shop drawings for approval.
- B. Review must be obtained on the following items:

1. Heating Equipment

- Registers, diffusers, and grilles
- Duct access doors
- Volume control dampers (manual and automatic)
- Duct sealant
- Fire dampers and sleeves
- Turning vanes
- Louvers: provide color selector chart
- Fan and accessories
- Wall heaters
- Pumps
- Pipe, valves, unions and flanges for water, gas and drain
- Balancing valves with read-out gauge and pressure tapplings
- Air vents (automatic and manual)
- Air separator
- Relief valves
- Expansion tank and accessories
- Pipe hangers
- Backflow preventer
- Pressure gauges and thermometers
- Triple duty valves

PART 2-EXECUTION

2.1 SURFACE CONDITIONS

A. Inspection

1. Prior to all work of this Section, carefully inspect installed work of all other trades and verify that all work is complete to the point where this installation may properly commence.
2. Verify that heating and plumbing systems may be installed in strict accordance with all pertinent codes and regulations and the approved shop drawings.

B. Discrepancies

1. In the event of discrepancy, notify Engineer immediately.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

2.2 INSTALLATION OF PIPING AND EQUIPMENT

A. General

1. Install all piping promptly, capping or plugging all open ends and making pipe generally level and plumb, free from traps, and in a manner to conserve space for other work.
2. Inspect each piece of pipe, tubing, fittings, and equipment for defects and obstructions; promptly remove all defective materials from the job site.
3. Install pipes to clear all beams and obstructions; do not cut into or reduce the size of load carrying members without the approval of the Engineer.
4. All risers and off-sets shall be substantially supported.
5. Make all changes in pipe size with reducing fittings. All low points in water piping shall be provided with an accessible plug tee or drain valve.

D. It shall be demonstrated that all parts of heating system have a free and noiseless circulation of hot water and that all parts are tight. It shall also be demonstrated that all units are functioning properly and that control system operates correctly.

E. Should any defects in operation develop during the test periods, Installer will proceed to correct defects immediately. Additional tests will be conducted after correction.

2.5 CLEANING

Prior to acceptance of work, clean all exposed casings of the heating and plumbing installation, removing all labels and all traces of foreign substance.

2.6 EQUIPMENT IDENTIFICATION

A. Each fan, boiler, circulating pump and switch shall be identified with plastic identification tags. Tags to be engraved plastic equal to Setonply by Seton Name Plate Corp.

B. Identify hot and cold water piping for both plumbing and heating systems with Seton mark pipe markers by Seton Name Plate Corporation. Marker shall snap completely around pipe and be visible from all directions. Marker shall include both identification and direction of flow. Use yellow background with black letters for heating hot water supply and return, green with white letters for domestic cold and hot water supply return and drain piping.

C. Tag all valves (if not tagged by valve manufacturer) with 1-1/2" round brass tags and #6 bead chains. Tag shall be consecutively numbered. Provide valve charts identifying valve number, valve identification and service. Mount charts in 8 1/2" x 10" / 8 1/2" x 11" self-closing aluminum frame with plastic windows and locate as directed by Owner. Identify ducts and fire dampers with Ventmark HVAC markers.

END OF SECTION 15100

SECTION 15250

MECHANICAL INSULATION AND CONDENSATE PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and supplementary conditions and Division-1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

A General

Insulate piping, ducts, equipment and elsewhere as specified in this Section or indicated on the drawings.

1.3 QUALITY OF COMPLIANCE

A Fire and Smoke Ratings for all insulation systems:

Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame spread index of 25 or less, smoke developed index of 50 or less as tested by ASTM E 84 (NFPA 255) method.

Exception: Insulation installed on services located outdoors may have flame spread index of 75 and smoke developed index of 150.

B Submittals

Submit manufacturer's technical product data, installation data, maintenance data, and certifications for each type of required insulation per Section 15000, Mechanical General Requirements.

E. Manufacturers

One of the following: Certainteed, Owens-Corning or Knauf.

2.2 INTERIOR DOMESTIC HOT AND COLD WATER PIPING

Provide same as specified for hot and cold water piping in Paragraph 2.1.

2.3 DUCTWORK

Fiber glass duct wrap with factory supplied, non-combustible, vapor barrier facing. Thermal conductivity shall not be greater than 0.28 BTU/hour - square feet - F/Inch. Duct wrap shall have UL label. All laps to be sealed and held in place with adhesive and flare staples. All lap joints to be folded under before stapling so no raw insulation will be showing. On bottom of ducts 24" or wider, mechanical fasteners shall be provided approximately 12" on centers.

2.4 MISCELLANEOUS MATERIALS

A. Staples, Bands, Wires and Cement

As recommended by insulation manufacturer for applications indicated.

B. Adhesives, Sealers, and Protective Finishes

As recommended by insulation manufacturer for applications indicated.

2.5 CHIMNEY CONNECTORS

Chimney connectors shall be double wall metal as specified in Section 1584.1, Ductwork and Accessories.

- A. Insulate the following heating piping in thickness, in accordance with Table II following:
Heating hot water supply & return piping

TABLE II
Minimum Pipe Insulation
Heating Thickness for Pipe Sizes*

HEATING SYSTEM	TEMPERATURE RANGE					
	F	Inch	Inch	Inch	Inch	Inch
Low Pressure/Temp	201-250	1.0	1.5	1.5	2.0	2.0
Low Temperature	120-200	0.5	1.0	1.0	1.5	1.5

*Pipe sizes are nominal dimensions. For piping exposed to ambient temperatures, increase thickness by 0.5 in.

**Runouts to Individual Terminal Units (not exceeding 12 ft. in length)

3.3 HVAC DUCT SYSTEMS INSULATION

- A. Insulate the following ducts with 1-1/2" thick duct wrap:
1. Ducts outside of building insulation and horizontal duct connections between riser and motor operated damper.
 2. All supply and outside air ducts.

3.4 INSTALLATION

- A. Examine areas and conditions under which mechanical insulation will be installed. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Install insulation products in accordance with manufacturer's written instructions and in accordance with recognized industry practices to ensure that insulation serves intended purpose.
- C. Install insulation on mechanical systems subsequent to testing and acceptance of tests.

Island View Apartments
Portland, Maine

Mechanical Insulation
15250/5

SECTION 15300

NFPA-13R SPRINKLER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

General Provisions of Contract, including General and Supplementary conditions and General Requirements (if any) apply to work specified in this Section.

1.2 SCOPE

- A. It is the intent of this specification to provide automatic wet type sprinkler fire protection of Building A, 3 story Garden Apartments (Note: Building B Townhouse Apartments will not be sprinkled) including all areas required to conform to NFPA -13R. Provide freeze protected systems for all areas exposed to ambient air temperatures below 40F.
 - B. Contractor shall prepare hydraulic calculations of the fire protection systems in compliance with NFPA and I.S.O.
- 1.3 RELATED WORK SPECIFIED ELSEWHERE
- A. Painting: Section 09900 - Painting.
 - B. Electrical wiring: Division 16 sections.
 - C. Sleeves and fire-sound sealants: Section 15400- Plumbing.

1.4 CODE COMPLIANCE

- A. NFPA Compliance: Install fire protection systems in accordance with NFPA -13R: "Standard for the Installation of Sprinkler Systems, 1999 Edition", NFPA 14: "Installation of Standpipe and Hose Systems, 1993 Edition", NFPA-13R: "Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height, 1999 Edition" and NFPA 20: "Installation of Stationary Fire Pumps for Fire Protection, 1999 Edition".

1.6 QUALITY ASSURANCE

- A. The entire fire protection automatic sprinkler system shall be designed, fabricated, installed and tested by a Contractor regularly engaged, a minimum of 5 years, in sprinkler installations of similar size and qualified to install sprinkler systems. Sprinkler Contractor shall submit evidence of qualifications to the Architect under sprinkler firm's letterhead and signed by senior official of the corporation.
- B. In addition to complying with code compliance specified in Paragraph 1.3, conform to requirements of insurance underwriter, the 2000 International Fire Code and authority having local jurisdiction- City of Portland Fire Department, State Fire Marshall or both.
- C. Provide and coordinate location of access panels for sprinkler heads installed in areas with concealed heads.
- D. Provide protective cages or sprinkler heads in Exercise Room.
- E. Provide adjustable, semi-recessed or two piece pipe escutcheons so that sprinkler head can be removed or repaired without damaging ceiling or ceiling tiles. Center sprinkler head in ceiling tile wherever possible.
- F. All sprinkler piping shall be run concealed except in rooms with ceilings at roof deck.

1.7 WATER SUPPLY

- A. Water supply shall be from municipal water system. Sprinkler Contractor shall test for available fire flow and pressure and report results in writing to Architect. Coordinate tests with Portland Water District subsequent to PWD upgrade of water mains in street.
- B. Extend fire service water supply from a point 5 feet underground outside of the building up through floor into Building A Mechanical Room.

2.3 PIPES AND PIPE FITTINGS

Provide pipes, and pipe fittings in accordance with the following listing:

- A. Black Steel Pipe - Schedule 40 for less than 8"; Schedule 30 for 8" and larger; Class 125, cast-iron threaded fittings and threaded joints, or mechanical grooved pipe couplings and fittings; cut-groove type.
- B. Black Steel Pipe - Schedule 10 for 5" and smaller; 0.134" wall thickness for 6"; and 0.188" walls thickness for 8" and 10"; wrought-steel; buttwelding fittings and welded joints, or mechanical grooved pipe couplings and fittings; roll-groove or mechanical locking type.
- C. Comply with requirements of NFPA -13R for installation of fire protection piping materials. Install piping products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that piping systems comply with requirements and serve its intended purposes.
- D. Coordinate with other work, including plumbing piping, as necessary to interface components of fire protection piping properly with other work.
- E. Install drain piping at low points of piping systems. Provide dry drum drips where required.
- C. Install fire department connection valves in piping where required.
- D. Install paddle water flow indicators.
- E. Install manual shutoff at each audible alarm station.
- F. Install Inspector's test connection at most remote point from riser.

2.4 PIPING SPECIALTIES

Provide piping specialties in accordance with the following:

- Pipe escutcheons
- Dielectric unions
- Drip pans
- Pipe sleeves
- Sleeve seals
- Fire Barrier Penetration Seals equal to SpecSeal Series 100 Sealant or equal by Hilti or 3-M

Island View Apartments
Portland, Maine

Sprinkler
15300/5

2.8 FIRE PROTECTION SPECIALTIES

Provide fire protection specialties, UL-listed, in accordance with the following listing. Provide sizes and types which mate and match piping and equipment connections.

- A. Water-Motor Gongs - Provide weatherproof, red enameled finish, water-motor gongs.
- B. Low Air Pressure Horn - Provide low air pressure horn as indicated.
- C. Air-Pressure Maintenance Device, Dry-Pipe System - Provide air-pressure maintenance device for dry-pipe standpipe piping as recommended by the manufacturer.
- D. Supervisory Switches - Provide products recommended by manufacturer for use in service indicated.
- E. Fire Protection Specialties Manufacturers - Allen (W.D.); Croker-Standard; Elkhart Brass; Grinnell Fire Protection Systems; Grunau Sprinkler; Guardian Fire Equipment; Potter Roemer; or Western Fire Equipment.
- F. Tamper switches for control valves.
- G. Install fire protection specialties as indicated and in accordance with NFPA- 13R.
Furnish wiring requirements to electrical installer for electrical wiring of supervisory switches.

2.9 AUTOMATIC SPRINKLERS

Provide automatic sprinklers in accordance with UL and FM listing. Provide fusible links for 165F (74C) unless indicated otherwise.

- Upright
- Pendent
- Vertical sidewall and Horizontal sidewall
- Semi-recessed pendant
- Flush dry-type pendant
- Standard dry-type pendant and Standard dry-type upright

- B. Manufacturer's Factory Tests: Pump shall be hydrostatically tested and run tested prior to shipment. Pump shall be hydrostatically tested at a pressure of not less than 1 1/2 times the no flow (shut off) head of the pump's maximum diameter impeller plus the maximum allowable suction head but in no case less than 250 PSIG.
- C. Field Acceptance Test: Field acceptance performance test shall be conducted upon completion of pump installation. Test shall be made by flowing water through calibrated nozzles, approved flow meters or other such accurate devices as may be selected by the authority having jurisdiction. Test shall be conducted as recommended in NFPA 20 by pump manufacturer's representative in presence of authority having jurisdiction and with that authority's final approval and acceptance. Failure to submit documentation of factory and field tests will be cause for equipment rejection.
- D. Pump shall be double suction horizontal split case design with Class 30 cast iron casing, bronze casing wearing rings, bronze impeller and steel shaft.
- E. Electric Motor: Pump driver shall be ODD type with 1.15 service factor for operation on 208/60/3 volt service. Motor locked rotor current shall not exceed values stated in NFPA 20. Motor shall be mounted on steel base common to the pump and shall be connected to pump with flexible coupling protected by suitable guard. Fire pump manufacturer shall accurately align pump and motor shafts prior to shipment. After field installation but prior to grouting the base, a millwright or similarly qualified person shall check and verify or correct shaft alignment.
- F. Electric Motor Controllers: Automatic electric motor controller shall be UL listed and FM approved specifically for fire pump service. Controller shall be designed for across the line type starting. Controller shall be rated for horsepower required for fire pump. Controller shall be capable of interrupting short circuit current at least equal to available short circuit in controller supply circuit.
- Fire pump controller installation requires an interrupting capacity rating of not less than 25K symmetrical at an operating voltage or 208 volts. Controller shall be floor or wall mounted for electrical connection to the motor by the equipment installer.

3.2 SPRINKLER PIPING FLUSHING

Prior to connecting sprinkler risers for flushing, flush water feed mains, lead-in connections and control portions of sprinkler piping. After fire sprinkler piping installation has been completed and before piping is placed in service, flush entire sprinkler system, as required to remove foreign substances, under pressure as specified in NFPA -13R. Continue flushing until water is clear, and check to ensure that debris has not clogged sprinklers.

3.3 HYDROSTATIC TESTING

After flushing system, test fire sprinkler piping hydrostatically, for period of 2 hours, at not less than 200 PSI or at 50 PSI in excess of maximum static pressure when maximum static pressure is in excess of 150 PSI. Check system for leakage of joints. Measure hydrostatic pressure at low point of each system or zone being tested.

- A. Dry-Pipe Testing - Test dry-pipe hydrostatically except, in freezing conditions, test with air at pressures not less than 50 PSI, for a period of 2 hours. Check system for leakage. Leave differential dry-valve clappers open during test, to prevent damage.
- B. Repair or replace piping system as required to eliminate leakage in accordance with NFPA standards for "little or no leakage" and retest as specified to demonstrate compliance.

3.4 EXTRA EQUIPMENT

- A. Extra Heads - For each style and temperature range required, furnish additional sprinkler heads, amounting to one unit for every 100 installed units, but not less than 5 units of each.
- B. Extra Wrenches - Furnish 2 spanner wrenches for each type and size of valve connection and fire hose coupling.
- C. Cabinet - Emergency cabinet shall be a 12 capacity standard metal cabinet with head wrench and required spare heads.

SECTION 15400

PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, as well as 15100, "Mechanical General Requirements," apply to work of this section.

1.2 DESCRIPTION

A. Work Included:

All labor, materials, equipment and transportation shall be provided as required to completely install plumbing and water systems with all connections, as shown on drawings and described in these specifications, or as required by the State of Maine Plumbing Code. Accompanying drawings do not show every detail of pipe, valves, fittings, hangers, equipment and fixtures, which are necessary for complete installation, but are provided to show general arrangement and extent of work to be performed.

Plumbing System required for this work includes, but is not limited to:

- Water service entrance inside boiler room
- Building sewer piping connections to 5 feet outside building wall
- Hot and cold water piping within building
- Soil, waste, and vent systems
- Floor drains, valves and backflow preventer
- Domestic Water Heaters
- Plumbing fixtures and trim
- Pipe insulation
- Connections to fixtures furnished by Others
- Pipe hangers and supports
- Piping and equipment identification
- Tests

PART 2 - PRODUCTS

2.1 PIPE

A. Soil, Waste, Vent and Condensate.

1. Except for fixture connections, all buried pipe and fittings shall be standard weight cast iron coated bell and spigot or Schedule 40 PVC.
2. All cast iron pipe and fittings shall conform to Commercial Standards CS188-66.
3. Joints shall be firmly packed with oakum and filled with molten lead not less than 1" deep. Lead shall be run in one pouring and shall be caulked tight.

Contractor may elect to substitute neoprene rubber gasket in place of oakum and lead.

4. All piping and fittings not buried shall be Tyler cast iron, no hub, Cisp Standard 301-72 bitumastic coated, or Schedule 40 PVC.
5. All 2" waste piping from sink trap to under floor cast iron and all waste piping, 1-1/2" size and smaller, not buried shall be type "L" hard drawn copper tubing with drainage fittings made up with 50-50 solder. All exposed piping or tubing in finished areas shall be chrome plated. All chrome trim with wrench marks shall be removed and new trim installed.
6. Buried vent piping shall be as specified for Soil and Waste above.
7. Vent piping not buried shall be Schedule 40 PVC pipe and fittings with solvent joints or galvanized steel.

B. Domestic Water Piping

1. All hot and cold water piping above finish floor (not buried) shall be hard-drawn type "L" copper tube for mains.

6. Valves shall comply with Manufacturer's Standards Society (MSS) specifications and be so listed.

B. Quality

All valves shall be by one manufacturer. The following list is provided as a means of identifying quality and type required.

1. Gate valves 2-1/2" in size and larger shall be iron body, bronze trimmed, OS&Y, solid wedge, bolted bonnet, flanged ends and rated for 125# WSP, 200# WOG.
2. Gate valves 2" in size and smaller shall have bronze bodies, rising stem, solid wedge, union bonnet and rated for 150# WSP, 300# WOG.
3. Globe valves 2-1/2" in size and larger shall have iron bodies, bronze trim, OS&Y, solid disc, bolted bonnet, gland packed, flanged ends and rated for 125# WSP, 200# WOG.
4. Globe valves 2" and smaller shall have bronze bodies, union bonnet, renewable composition disc for the service intended, and rated for 150# WSP, 300# WOG.
5. Check valves 2-1/2" and larger shall be horizontal swing type with iron body, bronze trim, flanged ends and rated for 125# WSP, 200# WOG
6. Check valves 2" and smaller shall be horizontal swing type with bronze body, Teflon disc and rated for 125# WSP, 200# WOG4G.
7. Drain valves shall be Ball valves as described above, except to have standard hose threads on one end with hose cap and chain.
8. Butterfly valves 2" and smaller shall be bronze body, stainless steel stem and disc with Viton seal, calibrated memory stop.
9. Ball valves 2" and smaller shall have bronze bodies, Type 316 stainless steel stems and balls, reinforced Teflon seats and seals, blow-out proof stems and adjustable stem gland and shall be equipped with suitable packing for the service intended. Valves shall be rated for 600# WOG.

4. Hangers shall be heavy duty steel adjustable clevis type, plain for steel, cast iron and plastic pipe and copper plated for copper tubing equal to Carpenter & Paterson Inc., Fig. 100 (Fig. 100CT copper plated).
5. Hangers shall go outside of insulation for all piping.
6. Exposed vertical risers 3/4 inch and smaller shall be supported at 6 foot intervals between floor and ceiling with split ring type hangers; copper plated for copper tubing equal to Carpenter & Paterson Inc., Fig.81 (Fig. 81CT copper plated).
7. Piping suspended from walls and partitions shall be supported by steel support bracket with adjustable clips equal to Carpenter & Paterson Inc., Fig. 69. All attachments to bar joists shall be from top chord.

B. Hanger Rods & Attachments

1. Hanger rods shall be cadmium plated all thread rod. Rod size shall be 3/8 inch for piping 2 inch and under, 1/2 inch for 2 1/2" to 6", 5/8 inch over 6".
2. Provide lag points with rod couplings for fastening to wood, toggle bolts in concrete blocks and compound anchor shields and bolts in poured concrete.
3. Provide toggle bolts with rod couplings for fastening in pre-cast concrete plank decks.
4. Provide and install angle iron supports for pipe hangers in locations as required. Angle iron supports shall be adequate size for span and piping or equipment.
5. Hot and cold water piping at each fixture shall be securely fastened in wall with split ring type hanger fastened to studs within wall.

3. Flashing

Flash each second floor clean out with 4 lb. sheet lead extending 24" beyond perimeter of clean out and lock into clamping collar.

C. Floor Drains

All floor drains shall be complete and provided with flashing flange and flange device.

Cast iron body flashing collar, sediment bucket, nickel bronze top, 7" diameter, Type B adjustable strainer head, inside caulk: Zurn Z-415 or equal by Josam, Smith or Wade.

2.6 TRAP PRIMERS

Furnish and install self adjusting automatic trap primers equal to Sioux City or as manufactured by Precision Plumbing Products Inc. Provide distribution unit for outlets required.

2.7 SHOCK ABSORBERS

All piping shall be protected from water hammer or shock by approved shock absorbing devices. Shock protection shall be provided where required. Units to be as manufactured by Smith, Sioux Chief, Josam or Zurn, P.D.I. approved equal.

2.8 SOUND INSULATION

Wrap waste lines over living space ceilings with building insulation.

2.9 THERMOMETERS

Units to be equivalent to Trelice No. BX9 series, adjustable angle with 30° to 180° range except 30° to 200° at dishwasher.

2.10 PRESSURE GAUGES

Furnish and install pressure gauges with gauge cocks on piping where shown on drawings. The dial range shall be such that the normal pressure shall be approximately mid-way of dial. Gauges shall be Trelice No. 600 or equivalent by Weiss or Nurnburg, 4-1/2" dial size, cast aluminum case, with brass "T" handle cocks and No. 872 bronze pressure snubbers on water units.

- B. All fixtures to be white vitreous china where not specified otherwise.
- C. All exposed stops, risers to faucets, traps, piping and fittings under lavatories and sinks shall be chrome-plated. All concealed items may be brass or copper. Provide acid resisting where required. Provide drilling of lavatories and sinks to match actual faucets and accessories provided.
NOTE: ALL PIPING DROPS TO FIXTURES SHALL BE ANCHORED SOLID TO WALL WITH A STEEL SUPPORT BRACKET WITH ADJUSTABLE CLIP, ESPECIALLY PIPING TO FLUSH VALVES.
- D. Rough-in and mount all fixtures at dimensions shown on Architectural Drawings not as shown on Plumbing Drawings.

FIXTURES:

- 1. **Water Closet**

Sterling by Kohler- Model- 402215, elongated bowl, tank type, 1.6 gallon per flush toilet, floor mounted, white vitreous china. Kohler Windham Model 402315 meets ADA requirements to be installed where indicated on drawings.
- 2. **Lavatory**

Sterling by Kohler- Model- 442004, Sanibel 4" drop in vitreous china lavatory. Faucet shall be Chateau by Moen- L64621, single handle. ADA compliant where specified on Architectural Drawings.
- 3. **Tub/Shower**

Aqua Glass- Model- 326032A-RL, white, 60" x 31 ¾" tub/shower unit. ADA compliant where specified on Architectural Drawings. H/C unit shall be Aqua Glass- Model- SC6083 R/L, white, which will include 4 grab bars and optional fold down seat. Moen handheld single function spray shower Model- 3817.

Chateau Posi-Temp by Moen- Model- TL1843, single handle tub/shower trim kit.
- 3b. **Shower**

Aqua Glass- Model- 313637AC, white, 35 ½" x 37" unit. Chateau by Moen Model TL182, single handle shower trim kit.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection

- 1 Prior to all work of this section, carefully inspect installed work of all other trades and verify that all such work is complete to the point where this installation may commence.
- 2 Verify that plumbing may be installed in strict accordance with all pertinent codes and regulations and approved Shop Drawings.

B. Discrepancies

1. In event of discrepancy, notify Architect.
2. Do not proceed with installation in areas of discrepancy until such discrepancies have been resolved.

3.2 INSTALLATION OF PIPING AND EQUIPMENT

A. General

1. Install all piping promptly, capping or plugging all open ends and making pipe generally level and plumb, free from traps, and in a manner to conserve space for other work.
2. Provide uniform pitch of at least 1/8 or 1/4 inch per foot for all horizontal waste and soil piping within the building; pitch all vents for proper drainage; install vent piping with each bend 45 degrees minimum from the horizontal, wherever structural conditions will permit.
3. Inspect each piece of pipe, tubing, fittings, and equipment for defects and obstructions; promptly remove all defective material from the jobsite.
4. Install pipes to clear all beams and obstructions. Do not cut into or reduce the size of load carrying members without the approval of the Architect. Do not hang or support piping from other piping or from electrical conduit.

5. Make all joints in copper gas tube with Silvabrite 100 lead-free applied in strict accordance with the manufacturer's recommendations.

3.3 CLOSING IN UNINSPECTED WORK

A. General

Do not cover up or enclose work until it has been properly and completely inspected and approved.

B. Noncompliance

Should any work be covered up or enclosed prior to all required inspections and approvals, uncover the work as required and after it has been completely inspected and approved, make all repairs and replacements with such materials as necessary to the approval of Architect and at no additional cost to Owner.

3.4 TESTING

Tests shall be applied to plumbing installation as required by codes and where as directed by Architect, and in all cases before work is covered by earth fill or pipe covering.

A. Piping

1. Sanitary systems shall be securely stopped, except at highest point above roof, and the entire system filled with water to point of overflow. All leaks shall be repaired. Cracked pipes and fitting shall be removed and replaced. No doping of soil pipe or fittings will be allowed.
2. New hot water, cold water, and gas piping shall be subjected to a hydrostatic pressure test of 150 psi and shall be repaired and repeated until work is tight.

SECTION 15488

NATURAL GAS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2

Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with NFPA 54 where applicable. Base pressure rating on natural gas system maximum design pressures. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in natural gas systems. Where more than one type of materials or products are indicated, selection is Installer's option.

1.3 QUALITY COMPLIANCE

ANSI Compliance: Comply with applicable provisions of ANSI B31.2.

NFPA Compliance: Comply with applicable provisions of NFPA 54.

Utility Compliance: Comply with requirements of Northern Utilities, Inc.

State of Maine Compliance: Propane and Natural Gas Board Laws and Rules!

Submittal: Submit manufacturer's technical product data, assembly type shop drawings, ladder type wiring diagrams differentiating between portions of wiring that are factory installed and portions to be field installed, and maintenance data.

Trenching and Backfill: Not work of this section.

B. Gas Cocks:

1. Gas service valves 2-1/2" and larger shall be lubricated plug type with iron bodies, lubricated iron plug, flanged ends and wrench operated and rated for 175# WOG.

(Provide one (1) valve wrench for each size valve and turn over wrenches to Owner's Representative)

2. Gas service valves 2" and smaller shall be butterfly type with bronze body, stainless steel stem and disc with Viton seal, AGA approved and UL Listed. Supply with "T" or lever handle as approved by local gas supplier.
- C. Install at connection to gas train for each gas-fired equipment item; on branches and risers as indicated.

PART 3 - EXECUTION

3.1 GENERAL

- A. No person other than an authorized employee of Northern Utilities, Inc., shall repair, alter, or make connections to a gas pipe upstream of the meter or restore gas service to the premises.
- B. Gas meters should be installed within five feet (5') of the service entrance to a building and at least three feet (3') distance from any electrical, switching gear, transformers or outlets.
- C. The installer is responsible for his own work, including proper sizing, proper materials, supports and testing.
- D. Piping Certificate, Form 1-79 PAL, available from Northern Utilities, Inc., must be submitted to Northern Utilities, inc., before gas service will be activated to any location where:
1. a new piping system is installed
 2. addition or repairs to an existing piping system are made
 3. a piping system has been exposed to fire
 4. new appliance is installed

5. Plug each gas outlet, including valves with threaded plug or cap immediately after installation and retain until continuing piping or equipment connections are completed.
6. Ground gas piping electrically and continuously within project, and bond tightly to grounding connection.
7. Install drip-legs in gas piping at each riser at point where it is joined to horizontal run of pipe and where required by code or regulation.
8. Install "Tee" fitting with bottom outlet plugged or capped at bottom of pipe risers.
9. Use dielectric unions where dissimilar metals are joined together.
10. Install piping with 1/64" per foot (1/8%) downward slope in direction of flow.
11. Install piping parallel to other piping, but maintain minimum of 12" clearance between gas piping and steam or hot water piping above 180°F. (93°C); between any gas piping and any other hot surface such as breaching.
12. No supply run to be smaller than 3/4" ID.
13. All material to be new and unused when piping is to be concealed.
14. Metallic pipe and fitting threads shall be taper threads and shall comply with the standard for pipe threads. General purpose (inch) ANSI/ASME B 1.20.1.
15. When installing gas piping which is to be concealed, the following shall not be used: Unions, tubing, fittings, threads, right and left couplings, bushings and swing joints made by combinations of fittings. Only elbows, tees and screw couplings are approved for use in concealed piping.
16. Piping passing through concrete, brick, concrete block, walls or floor is to be sleeved or protected from corrosion.
17. Piping in floors is to be protected from corrosion.
18. Piping underground, beneath buildings is prohibited.

3.7 TESTING

- A. Every new or enlarged system of gas piping must be tested and the proper completed form submitted to Northern Utilities, Inc., (Piping Certificate 1-79 PAL) before gas will be turned on.
- B. Testing for Tightness: (NFPA 54, Page 33 - 4.1.2 (A.) OXYGEN SHALL NOT BE USED AS A TESTING MEDIUM. Note: A proper test cannot be made with appliances connected. This could also result in expensive damage to the controls on the appliance. Gas meter must also be isolated from section being tested, as pressure back against meter will cause extensive internal damage.
- C. Test Pressure: Minimum test pressure for low pressure delivery in concealed gas piping systems (below 1/4 psi) shall be no less than 25 psig for a time period of one hour. Minimum test pressure for high pressure delivery systems (above 1/4 psi) shall be no less than 65 psig for one hour for piping under 2". 100 psi for piping above 2" or where pipe is welded. During pressure test, all joints shall be tested with a soap and water solution. Any leaks found will be repaired and system again tested.
- D. After successful pressure test, piping shall be connected to meter and the appliance connected to piping system.
- E. All outlets including those with shutoff valve, shall be closed gas-tight with plug or cap if threaded. Any pipe left temporarily shall be plugged or capped gas-tight. If flanged, a blind flange and proper gasket shall be installed.

3.8 NOTICE

Northern Utilities, Inc., responsibility for gas piping in any installation is limited to pipe and fittings which comprise service entering installation up to and including outlet connections of the meter or meter bar. All meters shall be installed within five feet of service entrance. Where special requirements prohibit installation of meters within five feet (5') of service entrance, Northern Utilities, Inc., shall be contacted to obtain authorization to proceed with an alternate meter piping configuration under requirements specified by the Company.

END OF SECTION 15488

SECTION 15510

HOT WATER PIPING SYSTEM AND SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Furnish and install piping, fittings, valves, hangers anchors and water specialties required by this section or as indicated on drawings.

1.2 QUALITY OF COMPLIANCE

A. Piping

1. Welding: Quality welding procedures, welders and operators in accordance with ASME B31.1, or ASME B31.9, as applicable, for shop and project site welding of piping work.
2. Brazing: Certify brazing procedures, brazers, and operators in accordance with ASME Boiler and Pressure Vessel code, Section IX, for shop and job-site brazing of piping work.

B. Valves

1. Valve Types: Provide valves of same type by same manufacturer.
2. Valve Identification: Provide valves with manufacturer's name (or trademark) and pressure rating clearly marked on valve body. See also Section 15100, "Mechanical General Requirements".
3. Codes and Standards: ANSI Compliance: For face-to-face and end-to-end dimensions of flanged-end or welded-end valve bodies, comply with ANSI B16.10 "Face-to-Face and End-to-End Dimensions of Ferrous Valves".

C. Delivery, Storage and Handling

1. Provide factory-applied plastic end-caps on each length of pipe and tube. Maintain end-caps through shipping, storage and handling as required to prevent pipe-end damage and eliminate dirt and moisture from inside of pipe and tube.

2.2 VALVES

A. General

1. Valves shall be provided as shown and as required to make the installation and its apparatus complete in operation. Locate to permit easy operation, replacement and repair. All pressures specified are steam working pressure.
2. All valves shall be constructed to permit repacking under pressure while open.
3. Globe valves shall be installed in all lines where regulation is required.
4. Check valves shall be installed in all lines where flow may reverse from intended direction.
5. Except for globe and check valves specified above, gate or ball valves shall be installed in all supply and return lines and on all drain lines. See Paragraph 2.6(B) for radiator valves.
6. All valves to comply with Manufacturers Standards Society (MSS) and be so listed.
7. All valves 2-1/2" and larger shall be O.S. & Y. type.
8. Valves shall have name and/or trademark of manufacturer, as well as working pressure stamped or cast on valve body.

B. Type and Manufacturers

All valves shall be of one manufacturer and by one of the manufacturers listed. The following list is provided as a means of identifying the quality and type required:

1. Gate valves 2-1/2" in size and larger shall have iron body, bronze trim, OS&Y, solid wedge, bolted bonnet and flanged ends. Rated for 125# WSP, 200# WOG.
2. Gate valves 2" in size and smaller shall have bronze bodies, rising stem, solid wedge, union bonnet rated for 150# WSP, 300# WOG.
3. Globe valves 2-1/2" in size and larger shall have iron bodies, bronze trim, OS&Y, solid disc, bolted bonnet, gland packed, flanged ends. Rated for 125# WSP, 200# WOG.

2.3 HANGERS AND SUPPORTS

A. General

1. All hangers and supports shall be specially manufactured for that purpose and shall be pattern, design and capacity required for location of use.
2. Piping specified shall not be supported from piping of other trades.
3. Hangers shall be steel adjustable clevis type; plain for steel pipe and copper plated for copper tubing equal to Carpenter & Paterson, Inc., Fig. 100 (Fig. 100 CT copper plated).
4. Exposed vertical risers 3/4 inch and smaller shall be supported at mid-point between floor and ceiling with split ring type hangers; copper plated for copper tubing equal to Carpenter & Paterson, Inc., Fig. 81 (Fig. 81 CT copper plated).
5. Piping suspended from walls, trench walls and partitions shall be supported by steel support bracket, equal to Carpenter & Paterson, Inc., Fig. 69.
6. All steel hangers shall be factory painted.

B. Hanger Rods

1. Hanger rods shall be cadmium plated all thread rod. Rod size shall be as follows:

<u>Pipe Size</u>	<u>Rod Size</u>
1/2" to 2"	3/8"
2-1/2" to 3-1/2"	1/2"
4" & 5"	5/8"
6"	3/4"
8" To 12"	7/8"

2. Provide toggle bolts for fastening to concrete blocks and compound anchor shields for bolts for fastening to poured concrete.
3. Provide lag points with rod couplings or side beam connectors with drive screws for fastening to wood.
4. All nuts for hanger rod to be stainless steel.

- C. Fabricate expansion loops in locations indicated and elsewhere, as determined by Heating installer to provide for adequate expansion of installed piping system. Subject loop to cold spring which will absorb 50% of total expansion between hot and cold conditions. Provide pipe anchors and pipe alignment guides as indicated, and elsewhere as determined by installer to properly anchor piping in relationship to expansion loops.
- D. Provide pipe alignment guides on both sides of expansion joints, and elsewhere as indicated. Construct with 4-finger spider traveling inside guiding sleeve, with provision for anchoring to building substrate.

2.6 HOT WATER SPECIALTIES

A. Circuit Setters

1. Provide circuit setters valves in piping where indicated. Valves shall have readout ports to facilitate connecting of differential pressure meter. Each readout valve shall be fitted with an integral EPT check valve designed to minimize system fluid loss during monitoring process. Each balancing valve shall have indexing pointer and calibrated nameplate to indicate the degree of closure of precision machine orifice. Each circuit setter shall be constructed with interval O-ring seals to prevent leakage around rotating element, and sized to read flow rate at minimum 1.5 psig water pressure.
2. Provide with submittal drawings, a complete schedule listing circuit setters to be provided, location, GPM flow through each valve, size and pressure drop.
3. Circuit setters shall be TACO or equal from Bell & Gossett with working pressure of 125 psig and maximum operating temperature of 250°F.

B. Radiator Valves

All radiation shall be provided with ball valves as specified under VALVES.

C. Flow Control Valves

1. General: Install automatic pressure compensating balancing flow control valves where indicated on drawings. Valves shall have capacities and pressure differential characteristics as indicated and conform to the following specifications.

E. Air Vents

1. Air vents shall be installed in the piping and at equipment as indicated on plans or as may be required.
2. Automatic air vents shall be Armstrong air vent traps No. 1-AV 1/2" with stainless steel trim or equal to Anderson or Sarco. Gate valves shall be installed with each unit and drains from vents shall be run as indicated on the plans. An air chamber shall be installed at each air vent. Vent shall be line sized for all piping up to 2" pipe size; 2" vent for larger piping.
3. Manual air vents shall consist of air chamber with Dole No. 14 Key Valve with copper tube extension. Install valve in accessible location.
4. By-pass type vents shall be installed where shown and as detailed on drawings. By-pass valves shall be plug-type globe as specified under VALVES.

F. Expansion Tank

1. Tank

Furnish and install pressurized diaphragm type hot water expansion tank pre-charged to 12 psi as shown on drawings. Tank shall be constructed of steel for 125 psi working pressure in accordance with ASME Code, and have tapings for water connections and charging valve. Tank shall be furnished with ASME stamp.

- a. Tank shall be installed with manual shut-off valve between the tank and the system.
- b. Tank shall be TACO or equal from Bell & Gossett or Armstrong with capacity as shown on drawings.

G. Backflow Preventer

Furnish and install where shown, a check valve type backflow preventer equal to Watts No. 9D. Unit shall include shut-off valves before and after the device, as well as a strainer.

L. Pressure Gauges

Furnish and install pressure gauges with gauge cocks on piping, where shown on drawings. The dial range shall be such that the normal pressure shall be approximately midway of the dial. Gauges shall be Terrice No. 600 or approved equal by Weiss or Numburg, 4-1/2" dial size, cast aluminum case with brass "T" handle cocks and No. 872 bronze pressure snubbers.

M. Thermometers

Furnish and install where indicated on the drawings, red reading mercury, adjustable angle thermometers with 9" case, stainless steel frame, front double strength glass window, brass separable socket, No. BX914 Series, as manufactured by H.O. Terrice Co., approved equal by Weiss or Numburg.

Temperature Range: Domestic hot water 30°F. - 180°F.

Heating System 30°F. - 240°F.

2.7 PUMPS

A. General

Furnish and install hot water circulating pumps of type, size and capacity shown on drawings.

B. In-Line Pumps

1. Pumps shall be Close Coupled In-Line type, cast-iron and of bronze fitted construction. Pump internals shall be capable of being serviced without disturbing piping connections or motor.
2. Impeller shall be enclosed type, dynamically balanced, keyed to shaft and secured with suitable locknut.
3. Pump seal shall be standard single mechanical seal with carbon seal ring and ceramic (or tungsten carbide) seat. Replaceable shaft sleeve shall be furnished to cover wetted area of shaft under sea or packing.
4. Bearing frame assembly of pump shall be fitted with re-greasable ball bearings equivalent to electric motor bearing standards for quiet operation.

D. Acceptable Manufacturers: One of the following:

1. Taco
2. Bell & Gossett
3. Armstrong

PART 3-EXECUTION

3.1 PIPING

A. General

1. Provide and erect in accordance with best practice of trade all hot water supply and return, drain and vent piping shown on plans, and as required to complete intended installation. Installer shall make off-sets as shown or required to place all piping in proper position to avoid other work, and to allow application of insulation and finish painting.
2. All piping shall be installed within building insulation.
3. Size and general arrangements, as well as methods of connecting all piping, valves, and equipment shall be as indicated, or to meet requirements for complete installation.
4. All piping shall be erected to provide for easy and noiseless passage of hot water under all working conditions. Inverted eccentric reducing fittings shall be used whenever hot water pipes reduce in size.
5. All hot water mains shall be run level or pitch slightly upward so that no air pockets are formed in piping. Mains shall be set at elevations so runouts feeding heating equipment shall have no pockets where air can collect or vents shall be provided.
6. Provide drains at all low points in piping system.
7. In erection of hot water piping, care must be taken to make allowance for expansion and contraction. Piping shall be anchored as necessary to control expansion.
8. Runouts to hot water radiation shall be size indicated on plans. Runouts shall come off the main downward or off the side with minimum of three 90 degree elbows provided on runout from main to drop or rise to radiation.

3.3 WATER SPECIALTIES

A. Thermometers

1. Install thermometers in vertical upright position, and tilted so as to be easily read by observer standing on floor.
2. Install thermometers in the following inlet and outlet locations, and elsewhere as indicated: Each hydronic boiler
3. Thermometer Wells: Install in piping tee where indicated in a vertical upright position. Fill well with oil or graphite; secure cap.

B. Pressure Gauges

1. Install pressure gauges in piping tee with pressure gauge cock located on pipe at most readable position.
2. Locations: Install in the following locations and elsewhere indicated.
 - a. At suction and discharge of each pump.
 - b. At discharge of each pressure reducing valve.
3. Pressure Gage Cocks: Install in piping tee with snubber. Install syphon for steam pressure gauges.
4. Pressure Gauge Connector Plugs: Install in piping tee where indicated. Locate on pipe at most readable position; Secure cap.

3.4 PUMPS

- A. Install pump as recommended by manufacturer and as shown in details on drawings.
- B. Connect electrical service to pump terminal block as shown by manufacturer and required by codes. If automatic control of circulator is required, provide motor starter or contactor.
- C. Fill system and vent it of all air. Purge pump of air as recommended by manufacturer, check for proper rotation.
- D. Place pump in service and check power draw, voltage and proper system operation.

SECTION 15620

BOILERS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Extent of boiler work required by this section is indicated on drawings and schedules and by requirements of this section.
- B. Related work not included in this section, and specified elsewhere:
 - 1. Piping and Specialties: Section 15510, "Hot Water Piping System and Specialties".
 - 2. Electrical: Section 15100, "Mechanical General Requirements" and Division 16 Sections.
 - 3. Insulation: Section 15250, "Mechanical Insulation and Condensate Protection".

1.2 QUALITY OF COMPLIANCE

- A. I=B=R Compliance: Boiler shall be tested and rated in accordance with Institute of Boiler and Radiator Manufacturers (I=B=R) "Testing and Rating Standard for Cast-Iron and Steel Heating Boilers", and bear I=B=R emblem on nameplate affixed to boiler.
- B. ASME Compliance: Construct boilers in accordance with American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section IV.
- C. UL Labels: Provide boiler electrical components that have been listed and labeled by Underwriters Laboratories (UL).
- D. Installation of boilers shall conform to State of Maine Propane and Natural Gas Board: "Laws and Rules".

SECTION 15750

HEATING TERMINAL UNITS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. General

Furnish and install heating terminal units required by this section and as indicated on drawings.

B. Related work not included in this section, and specified elsewhere:

1. Ductwork: Section 15841, "Low and Medium Pressure Ductwork and Accessories."
2. Piping and Specialties: Section 15510, "Hot Water Piping System and Specialties."
3. Electrical: Section 15100, "Mechanical General Requirements" and Division 16.

1.2 QUALITY OF COMPLIANCE

- A. Baseboard Radiation and Wall Heaters: Equipment shall be IBR rated.
- B. Wall Heaters: Motors shall be UL Listed for use.

PART 2 - PRODUCTS

2.1 BASEBOARD RADIATION

- A. Baseboard radiation shall consist of 3/4" O.D. copper tube rated at 630 BTUH minimum at 1 GPM, 190F average water temperature and 65F entering air temperature. Radiators shall be supported by approved slide cradle hangers and brackets spaced a maximum of 48" O.C. Provide return line hangers where required.
- B. Baseboard covers shall be and constructed of steel. End covers, inside and outside corners, trim strips, wall sleeve and wall sleeve supports shall be provided.
- C. All baseboard radiation shall be equal to Petite 7.

Island View Apartments
Portland, Maine

HVAC Units
15750/1

serve intended purposes.

3.2 BASEBOARD RADIATION

Seal all cracks or openings between hanger strip, (or back plate and radiation enclosure) and wall or partition prior to painting.

END OF SECTION 15750

SECTION 15841

DUCTWORK AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Extent of low pressure ductwork is indicated on drawings and in schedules, and by requirements of this section. Low pressure ductwork is defined as ductwork subjected to velocities of 2500 FPM or less, and operating pressure of 2" w.g. or less, positive or negative.

1.2 QUALITY COMPLIANCE

- A. SMACNA Standards: All duct including prefabricated dual-wall duct shall comply with SMACNA "HVAC Duct Construction Standards Metal and Flexible", 2nd Edition 1995.
- B. ASHRAE Standards: Comply with ASHRAE Handbook 2000 HVAC Systems and Equipment, Chapter 16 "Duct Construction", for fabrication and installation of ductwork.
- C. BOCA: Comply with the International Mechanical Code/1998.
- D. NFPA Compliance: NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems", 1999 Edition.
- E. Sheetmetal Work
 - 1. Ducts from Bathroom and Kitchen Exhaust fans to wall or soffit caps.
 - 2. Chimney Connector and Goosenecks.
 - 3. Supply, outside air, return and exhaust ducts.
 - 4. Direct vents at Townhouse boilers.
 - 5. Combustion Air Duct between wall and fan.
 - 6. Furnish all wall and eave caps.

F. Motor Operated Dampers

Motor operated control dampers duct shall be provided and installed by sheetmetal contractor.

G. Fire Dampers

Furnish 2-hour rated Type B fire dampers by LLOYD or equal.

H. Chimney Connector. Double wall by ICC or equal.

I. Diffusers, Registers and Grilles by Titus or equal.

J. Wall and eave caps.

1. Wall caps: Vinyl type in color to match siding. Provide backdraft damper.
2. Eave caps: Equal to Nutone 836-AL with backdraft damper. Provide duct offsets to connect vent.
3. Roof Caps: Equal to Nutone 841-AL with backdraft damper.

PART 3 - EXECUTION

3.1 GENERAL

Assemble and install ductwork in accordance with recognized industry practices to achieve air tight (5% leakage) and noiseless (no objectional noise) systems, and capable of performing each indicated service. Install each run with minimum of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling.

3.2 SEALING DUCT

After installation to seal class recommended in SMACNA "HVAC Duct Standards - 1st Edition 1985". Use sealant described in Paragraph 2.1 (G) of this section. All joints in sheetmetal ducts shall be made airtight, and all branches and turns shall be made with long radius elbows and fittings. If long radius elbows are not used, elbows shall be provided with fixed double wall turning vanes designed to reduce resistance of the elbow to equivalent of a long radius elbow with throat radius not less than duct width.

3.5 BALANCING

Not work of this section. Refer to Section 15880, "Testing and Adjusting (T&A) Work" for air distribution balancing of low pressure ductwork. Seal any leaks in ductwork that become apparent in balancing process.

END OF SECTION 15841

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Ductwork
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SECTION 15860

FANS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

General Provisions of Contract, including General and Supplementary Conditions and General Requirements (if any) apply to work specified in this section.

1.2 DESCRIPTION OF WORK

A. Work Included

Furnish and install fans required for work of this section. Provide products of sizes, ratings and characteristics indicated in this section and on drawings.

B. Related work not included in this section and specified elsewhere:

1. Ductwork and Louvers: Section 15841, "Ductwork and Accessories".
2. Electrical: Section 15100, "Mechanical General Requirements" and Division 16.

1.3 QUALITY OF COMPLIANCE

A. Codes and Standards

1. AMCA Compliance: Provide fans bearing AMCA Certified Ratings Seal. Sound rate fans in accordance with AMCA 300 "Test Code for Sound Rating Air Moving Devices".
2. ASHRAE Compliance: Test and rate fans in accordance with ASHRAE 51 (AMCA 210) "Laboratory Methods of Testing Fans for Rating".
3. UL Compliance: Provide fan electrical components which have been listed and labeled by UL.

SECTION 15880

TESTING AND BALANCING

PART 1 - GENERAL

1.1 GENERAL

- A. All reference to Contractor in this Section refers to Testing and Adjusting Contractor unless otherwise indicated.
- B. All Contractors shall be current members in good standing of AABC, NEBB or SMACNA, employing a minimum of one (1) certified T&A supervisor.
- C. Contractor shall keep dust, dirt and debris to absolute minimum and reinstall all removed ceiling tiles to original positions at end of each day, unless Owner has given permission to do otherwise.

1.2 T&A PRELIMINARY REQUIREMENTS

- A. Complete set of approved mechanical-equipment shop drawings shall be obtained from Mechanical Contractor.
- B. Complete set of as-built mechanical drawings shall be provided by Mechanical Contractor.

1.3 SUPERVISION

Certified T&A supervisor shall give personal supervision to all work performed by field technicians, one of whom shall serve as foreman and personal representative to the supervisor.

1.4 T&A INSTRUMENTATION

- A. Contractor shall provide all necessary instrumentation, tools, and ladders to complete work.
- B. Instrumentation shall be in accordance with AABC, NEBB or SMACNA requirements and shall be calibrated to accuracy standard demanded by these organizations. Copies of current calibration certificates shall be available to Engineer on request.
- C. Flow-measuring hoods (manufactured, not fabricated) will be acceptable for measurement of ceiling diffuser performance only.

1.9 DRIVE ASSEMBLIES

In event that drive assemblies require change in belts and pulleys, or require increase in motor horsepower, Contractor shall:

1. Determine size of replacement equipment
2. Advise Mechanical Contractor of total installation cost
3. Request formal approval for increase in T&A Contract
4. Obtain and install replacement equipment, upon formal authorization from Engineer.

1.10 MANUAL VOLUME DAMPERS

- A. If additional manual volume dampers are required to achieve required system adjustments, Contractor shall notify Mechanical Installer and Engineer of sizes required and location of each. Costs shall be extra to contract
- B. In all cases, air volumes shall be adjusted by means of manual dampers in ductwork, not by integral dampers in terminal outlets or inlets.
- C. Duct damper positions shall be marked with permanent-ink markers or black spay paint after final setting has been made.

1.11 HYDRONIC ADJUSTMENTS

- A. Contractor shall obtain specified gpm requirement through circulating pumps, unit ventilator, wall heaters and radiation by adjustment to specified pressure drop shown on equipment schedules.
- B. Measurement of inlet and outlet pressures shall be made with a needle-stem pressure gauge inserted in test plugs on each piece of equipment.

1.12 T&A DATA FORMS

- A. All field data pertaining to air and hydronic adjustments must be tabulated and submitted on standard forms of AABC, NEBB or SMACNA.
- B. T&A foreman shall sign and date each form in space provided and Supervisor's proof of certification shall accompany final report.

1.13 GUARANTEE

Contractor guarantees that all work was performed under supervision of a supervisor certified in accordance with AABC, NEGG or SMACNA standards and procedures.

SECTION 15991

AUTOMATIC TEMPERATURE CONTROLS (ELECTRIC)

PART 1-GENERAL

1.1 DESCRIPTION OF WORK

General

1. Furnish and install electric/ electronic temperature controls.
2. Control system shall consist of all valves, damper, damper operators, relays, labor and other accessory equipment together with electrical control wiring to fulfill intent of ATC specification. Control shall be provided for, but not limited to the following:
 - a. Circulating Pumps with differential pressure control
 - b. Reset water valve and controller for control of heating water temperature
 - c. Interlock gas burners with combustion air damper
 - d. Self-Contained thermostatic control of Radiation and Wall Heaters
 - e. Automatic lead-lag control of boilers including domestic hot water heating (DHW)
 - f. DHW recirculating pump control
 - g. Wall heaters and Unit Ventilator
 - h. Baseboard Radiation

1.2 QUALITY COMPLIANCE

- A. Control system shall be manufactured by Barber Colman, Honeywell, Johnson Control, Siemens.
- B. Control systems shall be installed by trained control mechanics regularly employed in installation and calibration of ATC equipment.
- C. Submittal Brochure

The following shall be submitted for approval:

- a. Control drawings with detailed wiring diagrams, including bill of material and description of operation for all systems.
- b. Panel layouts and name plate lists for all local and central panels.

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1.4 WIRING

- A. All 24 Volt wiring for installation of temperature controls shall be by Temperature Control Contractor. Power wiring for 120 Volts or greater equipment shall be by Electrical Contractor.
- B. All wiring shall comply with requirements of Division 16 of the Specification.

PART 2 - PRODUCTS

2.1 THERMOSTATS

- A. Electronic Air Stream Thermostats: Insertion thermostats shall be similar in design to space type thermostats, except temperature sensing element shall be averaging type as required and located in the air stream.
- B. Self-Contained Thermostatic Radiator Valves: Valve bodies shall be horizontal or vertical pattern of nickel plated brass. Valve shall be designed to open or close automatically according to room temperature with controller mounted with valve. Valve shall have all working parts in a cartridge consisting of "O" Rings, seat disc and stainless steel spring. Provide cartridge and removal tool so it can be replaced while under full system pressure. Valve shall conform to ASHRAE Standard 102-1989, "Methods of Testing Nonelectric, Nonpneumatic Thermostatic Radiator Valves".
 - A. Thermostatic control shall have remote temperature sensor assembly consisting of wall mounted controller with set point dial with range of 43F to 79F, capillary tube, tube wall clips and remote sensing bulb. Mount controller 5'-0" above floor.
 - B. Self Contained Thermostatic valves and controls shall be by Honeywell-Braukmann or equal from Danfoss.
 - C. Low Temperature Safety Thermostat (Freezestat): Electric low temperature warning thermostat shall have low point sensitive elements (not averaging type) installed to cover entire duct area. Thermostat shall be two position type with manual reset. Freezestat shall stop unit ventilator fan and close outside air damper if freezing condition is detected.

2.6 DESCRIPTION OF OPERATION

A. The system shall be hot water supplied from boiler two boilers.

B. Hot Water Control

TEKMAR or HW OA sensor to control system to reset water. Two (2) sensors: one supply and one return.
Above 65 degrees outdoor air temperature the pumps shall be off; below 65 degrees the selected pump shall be on. On a failure of the selected pump, the standby pump shall be started.

C. Boiler Control

Boilers shall be sequenced through Lead-Lag Control Panel specified under Section 15620, Hot Water Boilers.

D. Circulating Pumps

1. Provide pump selector switch and electric relay and locate in area of pumps. Pump selected shall run continuously from flow switch installed in primary pipe main. Magnetic starters with 110 volt control circuit and H-O-A switches shall be provided by the Electrical Contractor.

2. A differential pressure control shall be pass water from supply to turn to maintain pressure setting in piping system.

E. Baseboard Radiation

Baseboard shall be controlled from wall thermostat by opening and closing 2-way control valve.

F. Wall Heaters

Self contained thermostatic valve shall cycle fan ON or OFF to satisfy temperature setting.

G. Unit Ventilator

Occupied

1. When space temperature is below set point of room thermostat, fresh air damper shall be closed and return air damper open fully. As space temperature rises to within throttling range of room thermostat, fresh air damper shall modulate open to minimum outdoor air required for

Part II

Division 16

Electrical

Island View Apartments

Electrical Specification Section 16000

will be

on the Drawings

SECTION 14245

HYDRAULIC ELEVATORS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

- A. Passenger elevator systems.
- B. Motor and pump, controllers, equipment and fittings.

1.3 SYSTEM DESCRIPTION

- A. Hydraulic Elevator Systems: One unit, buried cylinder and casing, with motor and pump adjacent approximately 8 feet distant from the hoistway.

- B. Characteristics of each elevator are as follows:

1. Rated Net Capacity: 2500 lbs.
2. Rated Speed: 150 ft/min.
3. Nominal Platform Size: 84x62 inches.
4. Clear Net Platform Size: 80x52 inches.
5. Cab Ceiling Height: 90 inches.
6. Hoistway and Cab Entrance Frame Opening Sizes: 42x84 inches.
7. Door Type: Single leaf.
8. Door Operation: Side opening.
9. Number of Stops: 4
10. Number of Openings: 4

- C. Controls System: Conform to the following criteria:

1. Single Car Automatic Collective Operation elevator control system.

- D. Special Operational Features:

1. Key operated Fire Department Service
2. Interconnect with building fire and smoke alarm system, with automatic recall to first floor.
3. Door Edge Protective Device: Infrared multi-beam door reversal device.
4. Emergency Telephone: Single push button operation with automatic dialer.
5. Seismic Design: In accordance with applicable BOCA code.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate the following minimum information on shop drawings:

1. Motor and hydraulic pump, valves, and other component locations.
2. Car, supporting beams, guide rails, and other components in hoistway.
3. Loads on hoisting beams.

- E. Stainless Steel: ASTM A167 Type 304 #4 finish.
 - F. Aluminum: ASTM B221 ASTM B221M, extruded.
 - G. Plastic Laminate: General Purpose type, fire retardant finish, matte surface finish, color/pattern as selected.
 - H. Motors, Pumps, Valves, Regulators, Fluid Tank, Hydraulic Fluid, Controller, Controls, Buttons, Wiring and Devices, Indicators: UL approved.
 - I. Spring Buffers, Attachment Brackets and Anchors: Purpose designed, sized according to code with safety factors.
 - J. Guides: T-shaped steel cab guide rails with 4" roller guides.
 - K. Pump Housing: Sheet steel, acoustically insulated, removable.
- 2.2 ELECTRICAL CHARACTERISTICS AND COMPONENTS
- A. Electrical Characteristics:
 - 1. 208 volts, three phase, 60 Hz.
 - 2. Starter Characteristics: Reduced voltage.
 - B. Motor: NEMA MG1.
 - C. Disconnect Switch: Factory mount disconnect switch in control panel.
 - D. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.
- 2.3 CAB FABRICATION
- A. Flooring: Carpet, of type specified in Section 09680
 - B. Walls: Plastic laminate on plywood
 - C. Front Return Panel: Stainless steel.
 - D. Base: Resilient vinyl cove , of type specified in Section 09650
 - E. Ceiling: Plastic eggcrate diffuser
 - F. Light Fixtures: Fluorescent,
 - G. Ventilation: Fan , grille above ceiling;
 - H. Control Panel and Face Plate: Stainless steel with illuminating call buttons.
 - I. Indicator Panel: above control panel with illuminating position indicators.
 - J. Hand Rail: Stainless steel flat bar stock, spaced from wall; placed at rear wall and side walls.

3.2 EXCAVATION AND BACKFILLING FOR CASING

- A. Excavation and Backfilling: Refer to Section 02200
 - B. Place plunger casing full depth of shaft. Align within 1/4 inch from plumb. Cut top of casing at hoistway pit slab elevation.
 - C. Backfill around plunger and hydraulic lines between plunger and remote machine room casing with structural type fill; placed in 24 inch lifts compacted to 95%
- 3.3 INSTALLATION
- A. Install in accordance with ASME A17.1.
 - B. Install system components and connect to building utilities.
 - C. Accommodate equipment in space indicated.
 - D. Install elevator hydraulic equipment on vibration isolation pads.
 - E. Coordinate installation of hoistway wall construction.
 - F. Grout sills in place. Set entrances in vertical alignment with car openings and aligned with plumb hoistway lines.
 - G. Adjust for smooth acceleration and deceleration of car so not to cause passenger discomfort.
 - H. Adjust automatic floor leveling feature at each floor to achieve 1/4 inch from flush.

3.4 TESTS BY REGULATORY AGENCIES

- A. Obtain required permits to perform tests. Perform tests required by regulatory agencies.
- B. Schedule tests with agencies and Architect/Engineer, Owner, and Contractor present.

END OF SECTION