

Development Services

From Concept to Construction

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APPEAL SUMMARY

Status: Decision Rendered

Appeal ID: 21963	Project Address: 515 NE Holladay St
Hearing Date: 10/9/19	Appellant Name: Michael Stanner
Case No.: B-001	Appellant Phone: 503.265.1555
Appeal Type: Building	Plans Examiner/Inspector: Natalie Didion
Project Type: commercial	Stories: 12 Occupancy: R-2, M Construction Type: I-A
Building/Business Name: Grand Avenue Apartments	Fire Sprinklers: Yes - entire building
Appeal Involves: Erection of a new structure	LUR or Permit Application No.: 17-204627-CO
Plan Submitted Option: pdf [File 1] [File 2]	Proposed use: Multifamily Apartment

APPEAL INFORMATION SHEET

Appeal item 1

Code Section Section 909.21.1 of the 2014 Edition of the OSSC

Requires 909.21.1 Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096mm) from any air exhaust system or outlet.

Proposed Design In lieu of providing enclosed elevator lobbies, hoistway pressurization is permitted. Elevator hoistways are pressurized to keep smoke from entering shafts and spreading throughout a building. Requiring a minimum positive pressure of 0.10 inches of water ensures that stack effect is overcome and the elevator shafts can be protected from smoke. The upper limits of positive pressure are required to allow the doors to close.

The request is use the provisions of Section 909.21.1 of the 2019 Edition of the OSSC in lieu of section 909.21.1 of the 2014 OSSC.

Reason for alternative Section 909.21.1 of the 2014 Edition of the OSSC requires that the pressure differential be measured at all elevator hoistway doors simultaneously. The 2019 Edition of the OSSC is anticipated to be adopted by the end of 2019 and adds four exceptions to Section 909.21.1. The section and new exceptions read as follows:

Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to

adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The pressure differentials shall be measured between the hoistway and the adjacent elevator landing. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096mm) from any air exhaust system or outlet.

Exceptions:

On floors containing only Group R occupancies, the pressure differential is permitted to be measured between the hoistway and dwelling unit or sleeping unit.

Where an elevator opens into a lobby enclosed in accordance with Section 3007.6 or 3008.6, the pressure differential is permitted to be measured between the hoistway and the space immediately outside the door(s) from the floor to the enclosed lobby.

The pressure differential is permitted to be measured relative to the outdoor atmosphere on floors other than the following:

- 3.1. The fire floor.
- 3.2. The two floors immediately below the fire floor.
- 3.3. The floor immediately above the fire floor.

The minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of 0.25 inch of water (67 Pa) with respect to occupied floors are not required at the floor of recall with the doors open.

The building's smoke control model will utilize Exceptions 3 and 4 to achieve code compliance.

This request provides a level of protection and safety that is at least equivalent to that prescribed by the technical code requirements for the Grand Avenue Apartments.

APPEAL DECISION

Use of hoistway pressurization in lieu of enclosed elevator lobbies per 2019 OSSC: Granted as proposed.

The Administrative Appeal Board finds that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

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Request for Alternate Methods and Materials (RFAM)

GRAND AVENUE APARTMENTS

Section 909.21.1 Pressurization Requirements

Introduction:	The Grand Avenue Apartments is a mixed-use high-rise building with housing over first floor mercantile space. The building is provided with sprinkler protection. The building was designed under the 2014 Edition of the Oregon Structural Specialty Code (OSSC). The building contains two elevator shafts and two stairways that are required to be pressurized.
Code Reference:	Section 909.21.1 of the 2014 Edition of the OSSC
Code Requirement:	Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoist-way doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.
Code Intent:	In lieu of providing enclosed elevator lobbies, hoistway pressurization is permitted. Elevator hoistways are pressurized to keep smoke from entering shafts and spreading throughout a building. Requiring a minimum positive pressure of 0.10 inches of water ensures that stack effect is overcome and the elevator shafts can be protected from smoke. The upper limits of positive pressure are required to allow the doors to close
Request:	To use the provisions of Section 909.21.1 of the 2019 Edition of the OSSC in lieu of section 909.21.1 of the 2014 OSSC
Justification:	Section 909.21.1 of the 2014 Edition of the OSSC requires that the pressure differential be measured at all elevator hoistway doors simultaneously. The 2019 Edition of the OSSC is anticipated to be adopted by the end of 2019 and adds four exceptions to Section 909.21.1. The section and new exceptions read as follows:

Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of 0.25 inch of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The pressure differentials shall be measured between the hoistway and the adjacent elevator landing. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

Exceptions:

1. On floors containing only Group R occupancies, the pressure differential is permitted to be measured between the hoistway and a dwelling unit or sleeping unit.
2. Where an elevator opens into a lobby enclosed in accordance with Section 3007.6 or 3008.6, the pressure differential is permitted to be measured between the hoistway and the space immediately outside the door(s) from the floor to the enclosed lobby.
3. The pressure differential is permitted to be measured relative to the outdoor atmosphere on floors other than the following:
 - 3.1. The fire floor.
 - 3.2. The two floors immediately below the fire floor.
 - 3.3. The floor immediately above the fire floor.
4. The minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of 0.25 inch of water (67 Pa) with respect to occupied floors are not required at the floor of recall with the doors open.

The building's smoke control model will utilize Exceptions 3 and 4 to achieve code compliance.

Summary:

This request provides a level of protection and safety that is at least equivalent to that prescribed by the technical code requirements for the Grand Avenue Apartments. We respectfully request your approval.

Prepared by:

JENSEN HUGHES, INC.

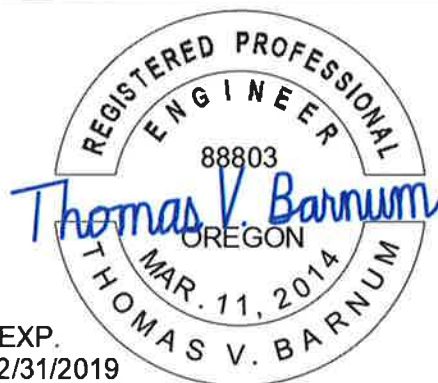
David A. Valdez

David A. Valdez
Associate

August 13, 2019

Date

Reviewed by:



Thomas V. Barnum, P.E.
Senior Fire Protection Engineer

August 13, 2019

Date

Reviewed by:

August 13, 2019

Authority Having Jurisdiction

Date

DAV/TVB:dv/ba
1MWA00038/RFAM & Amendments/2019-08-13-RFAM OSSC Section 909

MECHANICAL LEGEND AND SYMBOLS		
SA		SUPPLY AIR DUCT
RA		RETURN AIR DUCT
RA		EXHAUST AIR DUCT
OSA		OUTSIDE AIR DUCT
CD		CEILING DIFFUSER, 2 WAY
CD		CEILING DIFFUSER, 4 WAY
CR		CEILING RETURN AIR GRILLE
CE		CEILING EXHAUST AIR GRILLE
SWS		SIDE WALL SUPPLY REGISTER
SWR		SIDE WALL RETURN GRILLE
CD		CONDENSATE DRAIN
		ROOM THERMOSTAT
		EQUIPMENT IDENTIFICATION

SINGLE LINE	DOUBLE LINE	DESCRIPTION
		VOLUME DAMPER
		FIRE DAMPER
		FIRE/SMOKE DAMPER
		SMOKE DAMPER
		MOTORIZED DAMPER
		MITERED ELBOW WITH TURNING VANES
		RADIUSED ELBOW
		RECTANGULAR MAIN W/ ROUND BRANCH
		RECTANGULAR MAIN WITH RECTANGULAR BRANCH
		CONCENTRIC SQUARE TO ROUND
		ECCENTRIC TRANSITION, RECTANGULAR OR ROUND
		NON-SYMMETRICAL WYE
		SYMMETRICAL WYE
		RECTANGULAR DUCT RISER
		ROUND DUCT RISER
		RECTANGULAR DUCT DROP
		ROUND DUCT DROP
		RECTANGULAR OFFSET LESS THAN 15°
		RECTANGULAR OFFSET MORE THAN 15°
		ROUND WYE
		EXTRACTOR
		BELLMOUTH
		ROUND DUCT WITH ROUND BRANCH
		CONCENTRIC TRANSITION, RECTANGULAR OR ROUND
		LINED DUCT (SIZES SHOWN ARE NET INSIDE)
		FLEXIBLE CONNECTION

OMSC 2014 TABLE 403.3 - MIN. VENTILATION RATES						
Area Served	OCCUPANT DENSITY 1000/SF	AREA SQ/FT	OCCUPANTS	OSA CFM/SF	OSA CFM/PERSON	CODE REQ'D OSA (SF)
Community Building						
Corridor/Lobby 101	10	1,050	11	0.06	5.0	63
Office 102	5	170	1	0.06	5.0	10
Office 103	5	175	1	0.06	5.0	11
Parcel/Storage 104	5	135	1	0.06	5.0	8
Mailroom 105	5	270	1	0.06	5.0	16
Meeting 106	50	300	15	0.06	5.0	18
FCC 107	5	200	1	0.06	5.0	12
Elev Vestibule 072	0	575	0	0.06	0.0	35
Bike Room 003	0	1,000	0	0.06	0.0	60
Corridor 200 - 1200	0	1,450	0	0.06	0.0	87
		5,325	30			320
						151
						377

HVAC GENERAL NOTES:		
1. DUCTS SHALL BE SUPPORTED WITH APPROVED HANGERS AT INTERVALS NOT EXCEEDING 10 FEET OR BY OTHER APPROVED DUCT SUPPORT SYSTEMS DESIGNED IN ACCORDANCE WITH THE BUILDING CODE. FLEXIBLE AND OTHER FACTORY-MADE DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.		
2. THIS CONTRACTOR SHALL PAY FOR ALL PERMITS AND FEES.		
3. CONTROL LOW VOLTAGE WIRING BY MECHANICAL CONTRACTOR AND CONDUIT BY ELECTRICAL CONTRACTOR. WIRING, CABLE, AND RACEWAYS SHALL BE LISTED AND LABELED AS PLENUM-RATED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE ELECTRICAL CODE, 2013 CMG. NEW CONDUITS SHALL BE INSTALLED IN THE NEW SHAFTS.		
4. CONDENSATE DRAIN PIPING AND FINAL CONNECTION TO UNIT BY MECHANICAL CONTRACTOR.		
5. DUCT PENETRATION, CUTTING AND PATCHING BY GENERAL CONTRACTOR, UNLESS OTHERWISE NOTED ON PLAN.		
6. 7-DAY PROGRAMABLE THERMOSTAT SHALL BE 24 VOLT, COOLING WITH MATCHING SUBBASE AND TAMPER PROOF COVER.		
7. PROVIDE FILTER FOR AIR CONDITIONING AND/OR AIR SIDE UNITS AS REQUIRED PER ASHRAE AND CODE.		
8. THIS CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR SIZE AND LOCATION OF DUCTWORK WALL OPENINGS AND WITH ELECTRICAL CONTRACTOR FOR ELECTRICAL REQUIREMENTS OF ALL MECHANICAL EQUIPMENT AND ARCHITECTURAL DRAWINGS FOR AIR DISTRIBUTION LOCATION.		
9. THE CONTRACTOR SHALL SUBMIT BID BASED ON THE DRAWINGS AND ALTERNATE FOR COST SAVING. THESE DRAWINGS ARE FOR BIDDING PURPOSES.		
10. COORDINATE THE LOCATION OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL LIGHTING LAYOUT AND ARCHITECTURAL ROOM ELEVATIONS.		
11. DUCTS SHALL BE SUPPORTED WITH 1" WIDE 16-GAUGE HANGER STRAPS AND SHALL BE SPACED AT NO MORE THAN 7'-0" ON CENTERS AND SHALL BE SECURED TO STRUCTURAL MEMBER. EXPOSED DUCTWORK ON ROOF SHALL BE SUPPORTED BY GALVANIZED STEEL ANGLE & SHALL BE PER LOCAL CODE.		
12. ROUND AND RECTANGULAR DUCTWORK ARE INTERCHANGEABLE IF CROSS SECTION AREAS ARE EQUIVALENT. CONTRACTOR IS TO VERIFY THE EXIST CEILING SPACE AND INTERCHANGE THE DUCT SIZE TO FIT THE CEILING SPACE WITHOUT ADDITIONAL FEE CHARGE.		
13. INSTALL VOLUME CONTROL DAMPERS AT EACH SUPPLY DIFFUSER TO AFFORD COMPLETE CONTROL OF THE AIR FLOW IN THE VARIOUS DUCT SYSTEMS.		
14. COORDINATE ENTIRE INSTALLATION OF THE H.V.A.C. SYSTEM WITH THE WORK OF ALL OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. PROVIDE ALL FITTINGS, OFFSETS, AND TRANSITIONS AS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.		
15. PROVIDE BACK-DRAFT DAMPERS FOR ALL EXHAUST AIR DUCTS UNLESS OTHERWISE NOTED PER CODE.		
16. CONTRACTOR SHALL SUBMIT A COMPLETE BALANCE REPORT FOR APPROVAL. THE REPORT SHALL INCLUDE THE FOLLOWING: A) AIR QUANTITIES AT EACH REGISTER; B) STATIC PRESSURE READINGS AT INLET AND DISCHARGE OF EACH AIR HANDLING SYSTEM AND INLET OF EACH EXHAUST AIR SYSTEM. C) COOLING AND HEATING SUPPLY AND RETURN AIR TEMPERATURES AT EACH AIR CONDITIONING UNIT.		
17. ALL LINED DUCT DIMENSIONS ARE NET CLEAR DIMENSION AFTER LINING HAS BEEN INSTALLED.		
18. ANY MATERIAL, ARTICLE OR PIECE OF EQUIPMENT OTHER THAN THAT INDICATED SHALL NOT BE USED UNLESS APPROVED IN WRITING BY THE ENGINEER AND ANY CHANGES IN MECHANICAL EQUIPMENT, ELEVATIONS OR OTHER SYSTEMS REQUIRED DUE TO SUCH SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR; AND AT NO ADDITIONAL COST TO THE OWNER.		
19. EXHAUST TERMINATION SHALL BE MINIMUM 10'-0" AWAY OR 3'-0" ABOVE FROM ANY FRESH AIR INTAKE, OPENABLE WINDOWS, DOORS AND 10'-0" MINIMUM ABOVE GRADE.		
20. THE CONTRACTOR SHALL FURNISH AND INSTALL ACCESS DOORS AND/OR ACCESS PANELS AT LOCATIONS AS NECESSARY TO SERVICE FIRE DAMPERS AND PROVIDE MAINTENANCE FOR EQUIPMENT. ALL ACCESS DOORS AND PANEL LOCATIONS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.		
21. ACCURATE AS-BUILT DRAWINGS SHALL BE MADE DURING CONSTRUCTION AND SUBMITTED FOR APPROVAL UPON COMPLETION OF INSTALLATION. SHALL BE CREATED BY THE INSTALLING CONTRACTOR DURING COSTRUCUTION.		
22. THE CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING TO VERIFY LOCATIONS AND SIZES OF ALL EXISTING EQUIPMENT AND INFORM THE ARCHITECT OF ANY DISCREPANCIES.		
23. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT, TRANSPORTATION AND SERVICES NECESSARY FOR COMPLETION OF THE WORK. ALL MATERIALS AND WORK SHALL COMPLY WITH APPLICABLE CODES AND GOVERNING REGULATIONS AND MEET THE APPROVAL OF THE LOCAL JURISDICTION.		
24. TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS BEFORE, DURING AND AFTER INSTALLATION. IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.		
25. THESE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL OTHER TRADES. THIS INCLUDES COORDINATING THE LOCATION AND SIZE OF ALL OPENINGS, LOCATIONS OF EQUIPMENT, PIPES AND CHANGES OF ELEVATIONS OF DUCTWORK, PIPING AND OTHER EQUIPMENT.		
26. PROVIDE ALL FRESH AIR INTAKES AND EXHAUST OUTLETS WITH HOOD, 1/2" GALVANIZED MESH SCREENS AND OUTSIDE AIR BACKDRAFT DAMPERS.		
27. DUCTWORK SHALL BE INSULATED OR LINED AS NOTED ON DRAWINGS. ALL DUCTWORK EXPOSED ON ROOF SHALL BE INTERNALLY LINED UNLESS OTHERWISE INDICATED OR SPECIFIED. ALL DUCT SIZES ARE SHEET METAL SIZES. ALL DUCT JOINTS SHALL BE SEALED PER SPECIFICATIONS.		
28. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.		

GENERAL SPECIFICATIONS:		
1. EVERY DUCT AND PLENUM WHICH IS A PORTION OF THE COMFORT HEATING AND/OR COOLING SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF 2014 OREGON MECHANICAL CODE AND/OR ASHRAE. THIS CONSTRUCTION INSULATION AND SUPPORT OF EVERY DUCT AND PLENUM SHALL COMPLY WITH LOCAL CODE.		
2. CONCEALED SPACES, CIRCULATION AIR		
NO COMBUSTIBLE MATERIAL (SUCH AS EXPOSED COMMUNICATION CABLES, INSULATED WIRES, PLASTIC TUBING OR PIPING, PIPE INSULATION, CONDENSATE PAN INSULATION, WOOD, PVC, ABS AND OTHER PLASTICS) TO BE IN CONCEALED SPACES USED TO CONVEY CIRCULATING AIR SUPPLY. WHEN COMBUSTIBLE MATERIAL IS TO BE LOCATED IN THE ABOVE SPACES, IT SHALL BE APPROVED FOR SUCH INSULATION.		
3. INSULATION OF DUCTS		
EVERY CONDITIONED AIR SUPPLY AND PLENUM SHALL BE INSULATED WITH NO LESS THAN THE AMOUNT OF INSULATION INDICATED BELOW (EXCEPT FOR DUCTS AND PLENUMS DIRECTLY EXPOSED TO THE CONDITIONED SPACES.) ONLY APPROVED MATERIALS SHALL BE USED WITHIN DUCTS OR PLENUMS FOR INSULATING, SOUND DEADENING OR OTHER PURPOSES.		
DUCT LOCATION	INSULATION TYPE	
ROOF OR EXPOSED TO OSA	COOLING ONLY HEATING ONLY C & W	A A
ATTICS BETWEEN AND UNDER FLOOR CRAWL SPACES AND BASEMENTS		A A
INSULATION TYPES		
A 1", 0.60 LB./CU. FT. MINERAL FIBER BLANKET 1/2 INC., 1.5 LB./CU. FT. MINERAL FIBER BLANKET (DUCT LINER) 1/2 INC., 3 LB./CU. FT. MINERAL FIBER BOARD MATERIAL WITH A CONDUCTANCE OF 0.48 OR LESS		
C 3", 0.80 LB./CU. FT. MINERAL FIBER BLANKET 1-1/2", 1.5 LB./CU. FT. MINERAL FIBER BLANKET (DUCT LINER) 1-1/2", 3 LB./CU. FT. MINERAL FIBER BOARD MATERIAL WITH A CONDUCTANCE OF 0.18 OR LESS MIN. R-8 ON ALL SUPPLY/RETURN DUCTS EXPOSED TO ATMOSPHERE.		
W WEATHERPROOF BARRIER		
WHERE DUCTS ARE USED FOR BOTH HEATING AND COOLING, THE MINIMUM INSULATION TO BE AS REQUIRED FOR THE MOST RESTRICTIVE CONDITION.		
INSULATION MAY BE OMITTED ON THAT PORTION OF A DUCT WHICH IS LOCATED WITHIN A WALL OR A FLOOR-CEILING SPACE WHERE BOTH SIDES AND THIS SPACE ARE EXPOSED TO CONDITIONED AIR AND WHERE THIS SPACE IS NOT VENTILATED OR OTHERWISE EXPOSED TO UNCONDITIONED AIR.		
4. SEALING		
TRANSVERSE SUPPLY DUCTS, TAPED OR SEALED WITH MASTIC EXCEPT FOR DUCTS EXPOSED TO CONDITIONED SPACE, WHERE DUCT STATIC PRESSURE EXCEEDS 3/4" WATER, LONGITUDINAL JOINTS, TAPED OR SEALED WITH MASTIC.		
5. INSPECTION		
INSPECTION TO BE MADE AND DUCTWORK APPROVED BEFORE COVERING WITH INSULATION.		
6. TEMPERATURE CONTROLS		
EACH HVAC SYSTEM SHALL BE PROVIDED WITH AT LEAST ONE AUTOMATIC TEMPERATURE CONTROL DEVICE FOR THE REGULATION OF TEMPERATURE. THESE AUTOMATIC TEMPERATURE CONTROL DEVICES SHALL BE CAPABLE OF BEING SET TO MAINTAIN SPACE TEMPERATURE SET POINTS FROM 55 DEGREES F TO 85 DEGREES F. SHALL BE CAPABLE OF OPERATING THE SYSTEM HEATING AND/OR COOLING IN SEQUENCE.		
EXCEPT AS ALLOWED, THESE CONTROLS SHALL BE ADJUSTABLE TO PROVIDE A DEAD BAND OF 5 DEGREES F BETWEEN FULL HEATING AND FULL COOLING. CONTROLS SHALL HAVE THE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NO MORE THAN 70 DEGREES F AND OF TERMINATING ALL COOLING AT A TEMPERATURE NOT LESS THAN 78 DEGREES F.		
7. AN AUTOMATIC TIME SWITCH CONTROL DEVICE WITH AN ACCESSIBLE FOUR (4) HOUR MANUAL OVERRIDE SHALL BE PROVIDED.		
8. A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED TO THE OWNER PER STANDARDS.		
9. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL. ALL DUCTWORK SHALL BE CONSTRUCTED TO 2" PRESSURE STANDARDS AS DEFINED BY THE SMACNA "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE". CONSTRUCTION OF FITTINGS, ELBOWS AND JOINTS SHALL BE IN ACCORDANCE WITH CURRENT SMACNA, ASHRAE AND LOCAL SEISMIC STANDARDS.		
10. DUCT MATERIALS:		
A. GALVANIZED STEEL DUCTS: ASTM A525 AND ASTM A527 GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING ZINC COATING OF IN CONFORMANCE WITH ASTM A90.		
B. STEEL DUCTS: ASTM A366.		
C. ALUMINUM DUCTS: ASTM B209; ALUMINUM SHEET, ALLOY 3003-H14. ALUMINUM CONNECTORS AND BAR STOCK: ALLOY 6061- T6 OR OF EQUIVALENT STRENGTH.		
11. WEIGHT OF METAL DUCT:		
A. RECTANGULAR DUCTS	GAUGE	
UP TO 12 INCHES	26	
13 INCHES TO 30 INCHES	24	
31 INCHES TO 60 INCHES	22	
61 INCHES TO 90 INCHES	20	
91 INCHES & OVER	18	
B. ROUND DUCT		
SPIRAL PIPE GAUGE	FITTING	GUAGE
3 TO 14 INCHES	26	24
15 TO 26 INCHES	24	22
27 TO 36 INCHES	22	20
37 TO 50 INCHES	20	20

DIFFUSERS, REGISTERS AND RETURN AIR GRILLES						
SYMBOL	MODEL NO.	TYPE	FACE	MODULE SIZE	FRAME	REMARKS
CD-1	TITUS PSS	CEILING SUPPLY	PERFORATED	12x12	SURFACE	1,2
SWS-1	TITUS 301RL	SIDEWALL SUPPLY	LOUVERED	SEE DRAWING	SURFACE	1,4
SWR-1	TITUS 350RL	SIDEWALL RETURN	LOUVERED	SEE DRAWING	SURFACE	1,4
NOTES: 1. SEE DRAWINGS FOR NECK SIZES. 2. WHITE POWDER COAT FINISH. 3. PROVIDE WITH POLISHED ALUMINUM FINISH. 4. PROVIDE WITH SILVER METALLIC FINISH.						
DRAWING LIST						
DRAWING	TITLE		DRAWING	TITLE		
M001	HVAC SCHEDULES AND LEGEND		M207	HVAC SEVENTH FLOOR PLAN		
M002	HVAC SCHEDULES		M208	HVAC EIGHTH FLOOR PLAN		
			M209	HVAC NINTH FLOOR PLAN		
M200	HVAC BASEMENT PLAN		M210	HVAC TENTH FLOOR PLAN		
M201	HVAC FIRST FLOOR PLAN		M211	HVAC ELEVENTH FLOOR PLAN		
M202	HVAC SECOND FLOOR PLAN		M212	HVAC TWELFTH FLOOR PLAN		
M203	HVAC THIRD FLOOR PLAN		M301	HVAC ROOF PLAN		
M204	HVAC FOURTH FLOOR PLAN					
M205	HVAC FIFTH FLOOR PLAN		M601	HVAC DETAILS		
M206	HVAC SIXTH FLOOR PLAN		M602	HVAC DETAILS		
			M900	HVAC FIRE CONTROL PANEL DIAGRAMS		

VRF SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE															
MARK	MANUFACTURER & MODEL NUMBER	UNIT FAN			COOLING		HEATING		UNIT WEIGHT	POWER UTILIZATION					NOTES
		CFM H/L	ESP IN WG.	MTR. WATTS	BTUH	IEER/SEER	COP/HSPF	BTUH		VOLT	PH	Hz	MCA	MOCp	
	DAIKIN RYQ168TJU	—	—	—	168,000	19.5	3.3	188,000	780	208	3	60	61.9	70	1,3
	DAIKIN FXZQ12MUAU9	335/265	0.25	—	12,000	—	—	14,000	42	208	1	60	0.80	15	1,2,4
	DAIKIN FXZQ12MUAU9	290/180	0.25	—	12,000	—	—	13,500	50	208	1	60	0.40	15	1,2,4
	DAIKIN FXM303PBUJU	1095/812	0.50	—	30,000	—	—	34,000	105	208	1	60	2.80	15	1,2
	DAIKIN FXS241TAUJU	745/510	0.25	—	24,000	—	—	27,000	85	208	1	60	1.80	15	1,2
	DAIKIN FXZQ12MUAU9	335/265	0.25	—	12,000	—	—	14,000	42	208	1	60	0.80	15	1,2,4
	DAIKIN FXAQ18PBUJU	290/180	0.25	—	18,000	—	—	20,000	31	208	1	60	0.50	15	1,2
	DAIKIN FXZQ15MUAU9	388/282	0.25	—	15,000	—	—	17,500	50	208	1	60	0.80	15	1,2
	DAIKIN RMX548LJU	—	—	—	48,000	18.8	11.3	54,000	290	208	3	60	27	30	1,3,5
	DAIKIN FTXS18LJU	500/400	0.25	—	18,000	—	—	20,000	31	208	1	60	0.40	15	1,2,5
	DAIKIN FTXS12LJU	290/180	0.25	—	12,000	—	—	13,500	26	208	1	60	0.40	15	1,2,5
	DAIKIN RYQ68TJU	—	—	—	96,000	29.3	4.3	108,000	700	208	3	60	38	45	1,3,5
	DAIKIN FXFQ48TJU	500/400	0.25	—	48,000	—	—	54,000	60	208	1	60	1.80	15	1,2,5
	DAIKIN RMX12MUAU	—	—	—	12,000	15.0	8.2	12,000	60	208	1	60	10.1	15	1,3,5
	DAIKIN FTXS18LJU	424/141	0.25	—	—	—	—	—	18	208	1	60	—	—	1,2,5,6
NOTES: 1. PROVIDE DISCONNECT 2. T'STAT PROVIDED BY MECHANICAL, INSTALLED BY MECHANICAL 3. PROVIDE BRANCH SELECTOR/CHANGEOVER BOX 4. PROVIDE OUTSIDE AIR KIT. 5. UNIT TO BE ON STAND-BY POWER. 6. INDOOR UNIT POWERED BY OUTDOOR UNIT.															
SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE															
MARK	MANUFACTURER & MODEL NUMBER	UNIT FAN			COOLING		HEATING		UNIT WEIGHT	POWER UTILIZATION					NOTES
		CFM H/L	ESP IN WG.	MTR. WATTS	BTUH	SEER	HSPF	BTUH		VOLT	PH	Hz	MCA	MOCp	
	DAIKIN FQZ24PVAU	—	—	—	24,000	17.3	9.4	27,600	175	208	1	60	16.50	20	1
	DAIKIN FQZ24PVAU8	635/470	0.25	—	—	—	—	—	50	208	1	60	0.60	—	2,3
NOTES: 1. PROVIDE DISCONNECT 2. T'STAT PROVIDED BY MECHANICAL, INSTALLED BY MECHANICAL 3. POWERED BY OUTDOOR UNIT.															
ELECTRIC HEATER SCHEDULE															
MARK	MANUFACTURER & MODEL NUMBER	BTU/HR	WATTS	AMPS	POWER SUPPLY			NOTES							
					VOLT	PH	Hz								
	CADET: CM1208T	6,825	2,000W	9.6	120V	1#	60	2,3							
	CADET: APEX72 – HW051	1710	500W	4.2	120V	1#	60	2,3							
	ELECTROMODE – EUH10B34CT	34,120	10KW	—	208V	1#	60	2,3							
	Q-MARK/MARLEY: CDF 546/CDFSENW	6,825	2,000W	9.6	208V	1#	60	1,2							
NOTES: 1. CEILING SURFACE MOUNTED ELECTRIC HEATER. PROVIDE T-STAT. 2. PROVIDE AND INSTALLED BY MECHANICAL, WIRING BY ELECTRICAL. 3. TEMP. HEATER FOR FREEZE PROTECTION OF SHELL SPACE.															
FAN SCHEDULE															
MARK	MAKE/MODEL	LOCATION	SERVES	CFM	TOTAL SP IN. WG.	DRIVE	HP or WATTS	RPM	WEIGHT LBS.	POWER SUPPLY			NOTES		
										VOLT	PH	Hz			
	PANASONIC FV-05-11VKS/L1	BATHROOM CEILING	RESTROOMS	30/80	.25	DIRECT	31W	1112	24	115	1	60	1,5,7		
	GREENHECK AP-A200	BATHROOM CEILING	RESTROOMS	170	.35	DIRECT	51.3W	900	24	115	1	60	1,5		
	GREENHECK SFB-25-100	ROOF	ELEVATOR/STAIR	11,000	2.0	BELT	10HP	1725	675	460	3	60	1,2,3,4,6,10,11		
	GREENHECK SFB-25-100	ROOF	ELEVATOR/STAIR	11,000	2.0	BELT	10HP	1725	675	460	3	60	1,2,3,4,6,10,11		
	GREENHECK GB-180-7	ROOF	RESTROOM/RANGE DRYERS	2,000	1.0	BELT	0.75HP	967	100	460	3	60	1,2,3,4,6,10		
	GREENHECK GB-141-5	ROOF	RESTROOM/RANGE	1,000	1.0	BELT	0.50HP	1725	65	460	3	60	1,2,3,4,6,10		
	GREENHECK GB-091-4	ROOF	RESTROOM	500	0.5	BELT	0.25HP	1,369	50	460	3	60	1,2,3,4,6,10		
	GREENHECK GB-121-5	ROOF	TRASH ROOM	825	1.0	BELT	0.33HP	1725	65	460	3	60	1,2,3,4,10		
	GREENHECK GB-141-7	ROOF	RANGE HOODS	1,650	1.0	BELT	0.75HP	1,374	75	460	3	60	1,2,3,4,6,10		
	GREENHECK G-080-VG	ROOF	JAN. CLOSET	200	0.5	BELT	1/10HP	1,436	25	115	1	60	1,2,3,4,10		
	GREENHECK SP-080-VG	CEILING	JAN. CLOSET	75	0.35	DIRECT	6.1W	935	15	115	3	60	1,4,5,8		
	GREENHECK SP-A510	CEILING	TRASH ROOM	400	0.35	DIRECT	224W	1,070	31	115	1	60	1,4,5,8		
	GREENHECK USF-100-SI	ROOF	SMOKE REMOVAL	1,000	1.75	BELT	1HP	1,070	125	460	3	60	1,2,3,4,6,10,11		
	COOK 165QMDX11	2ND FL	PRESSURE RELIEF	4,000	.504	DIRECT	.599HP	1,725	57	220	3	60	3,4,10		
NOTES: 1. PROVIDE BACK DRAFT DAMPER. 2. FURNISH ROOF CURB. 3. VFD COMPATIBLE MOTOR. 4. FURNISH INTEGRAL DISCONNECT SWITCH. 5. CEILING HUNG. PROVIDE ISOLATION KIT. 6. PROVIDE VFD. FAN CONTROLLED BY PRESSURE SENSOR 7. PRE-SET LOW SPEED W/ TIME DELAY. TO RUN CONTINUOUS (50 CFM), TO MAX LEVEL (80 CFM) WHEN WALL SWITCH IS TURNED ON. 8. FAN TO RUN CONTINUOUSLY. 9. FAN CONTROLLED BY T-STAT. 10. FAN ON STANDBY POWER 11. FAN TO HAVE MULTIPLE BELTS															
MAKE-UP AIR UNIT SCHEDULE															
MARK	MANUF. & MODEL NO.	SUPPLY FAN			COOLING BTUH TOTAL	EER	HEATING		AFUE %	WEIGHT LBS.	POWER UTILIZATION			NOTES	
		CFM	ESP IN WG.	MTR. HP			INPUT MBH	OUTPUT MBH			VOLT/PH	FLA	MCA		MOCp
	GREENHECK: DGX-115-H32	4,000	1.5	3.0	120,900	11.6	295.8	272.2	92	3,150	460/3	—	14.2	20	1,2,3,4,5,6
NOTES: 1. PROVIDE INTEGRAL FUSED DISCONNECT. 2. PROVIDE FACTORY INSTALLED MOTOR STARTERS 3. PROVIDE FACTORY 14" CURB'S. 4. PROVIDE 4" MERV 11 FILTERS 5. 100% OA VERTICAL SUPPLY. 6. FAN ON STANDBY POWER															

OMSC 2014 SECTION 402 - NATURAL VENTILATION						
Space (Room Name)	Room(s) Area (sqft)	OMSC Table 403.3 (persons per unit)	CFM/person (Table 403.3)	Required Ventilation CFM	Window Area (sqft)	Opening Area / Floor Area
UNIT 1/1-E (1-Bed)	130	2	15	30	12	9%
UNIT 1/1-H (1-Bed)	130	2	15	30	12	9%
UNIT 1/1-I (1-Bed)	145	2	15	30	12	8%
UNIT 1/1-J (1-Bed)	130	2	15	30	12	9%
UNIT 1/1-K (1-Bed)	130	2	15	30	12	9%
UNIT 1/1-F (1-Bed)	115	2	15	30	12	10%
UNIT 1/1-G (1-Bed)	115	2	15	30	12	10%
UNIT 2/1-A (2-Bed)	210	3	15	45	20	10%
UNIT 2/1-B (2-Bed)	210	3	15	45	20	10%
UNIT 2/1-C (2-Bed)	260	3	15	45	20	8%
UNIT 2/1-D (2-Bed)	260	3	15	45	20	8%

GENERAL NOTES

- ALL DUCTS AND VENTS PENETRATING EXTERIOR WALLS SHALL BE 26 GAUGE MINIMUM.
- ALL DRYER DUCT MATERIAL SHALL HAVE A SMOOTH INTERIOR FINISH AND 0.016 INCH THICK. NO RIVETS OR SCREWS SHALL PENETRATE THE DUCT WALL. DRYER DUCT SHALL BE SUPPORT EVERY 4 FOOT INTERVALS.

KEYED NOTES

- 36x16 GREASE DUCT WITH 3" FIRE WRAP INSTALLED WITH CURRENT PROJECT. CONNECTION OF THE DUCTS AT LEVEL 1 AND THE ROOF WILL BE "FUTURE" CONNECTIONS.
- INTERMITTENT RANGE HOOD @ >300 CFM.
- 6" RANGE HOOD EXHAUST SUB-DUCT IN SHAFT, TERMINATE 22" UP IN SHAFT.
- 4" BATHROOM EXHAUST SUB-DUCT IN SHAFT, TERMINATE 22" UP IN SHAFT.
- 24x14 GREASE DUCT WITH 3" FIRE WRAP INSTALLED WITH CURRENT PROJECT. CONNECTION OF THE DUCTS AT LEVEL 1 AND THE ROOF WILL BE "FUTURE" CONNECTIONS.
- CONNECT DRYER DUCT TO DRYER DUCT MANFOLD PER MANUFACTURERS REQUIREMENTS. (TYPICAL 20)
- RELIEF LOUVER. PROVIDE COUNTER WEIGHTED BACKDRAFT DAMPER AT 0.05" DIFFERENTIAL PRESSURE.



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GRAND AVENUE APARTMENTS

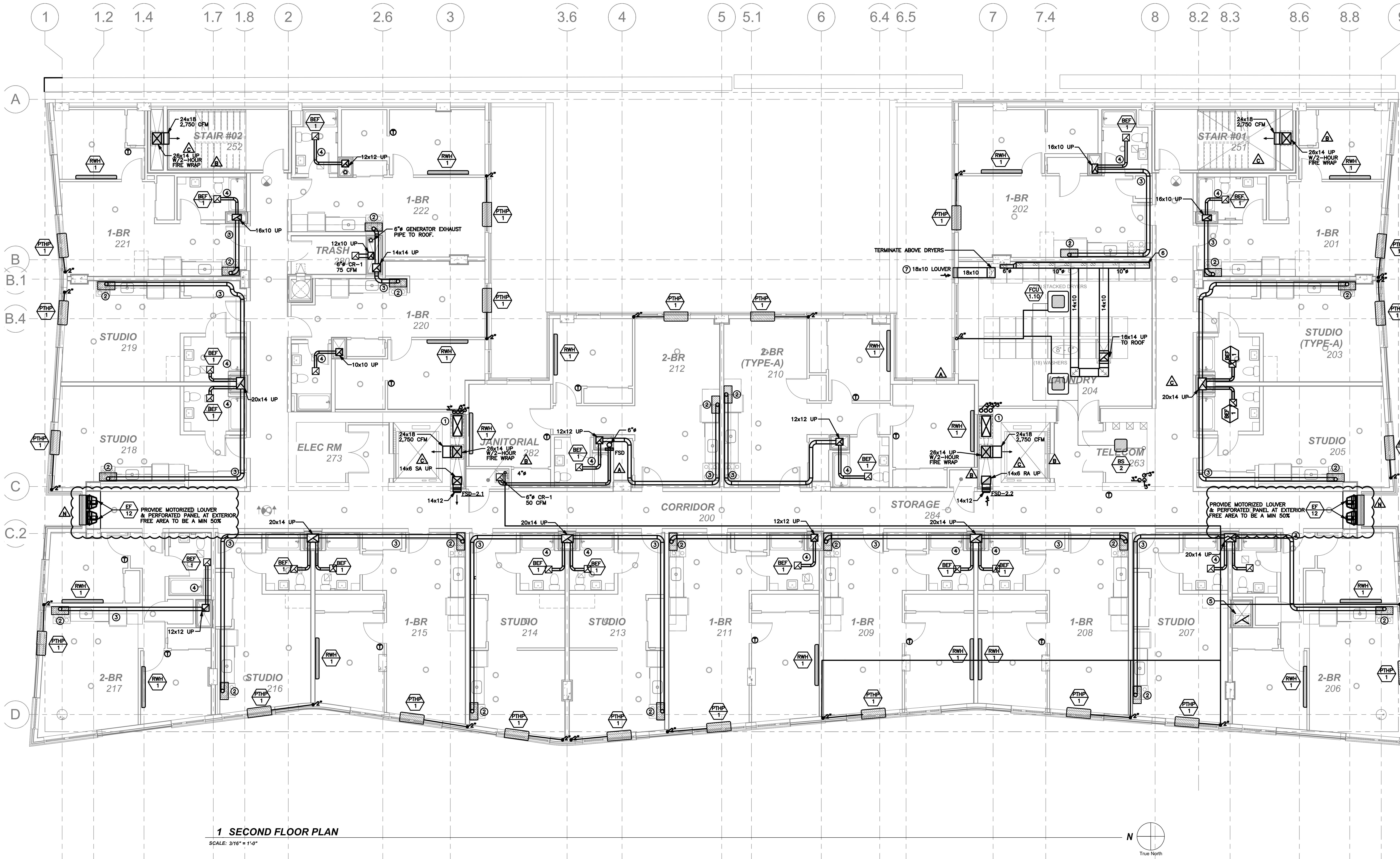
1010 NE GRAND AVE. PORTLAND, OR 97232

SHEET TITLE:
SECOND FLOOR PLAN

KEY PLAN:

- DRAWN BY: DRK
DATE CREATED: 07/14/17
REVISIONS:
- Plan Check Review - 09.01.2017
 - Plan Check Review - 11.07.2017
 - Plan Check Review - 01.26.2018
 - Plan Check Review - 03.20.2018
 - Plan Check Review - 04.17.2018
 - Owner Revisions - 05.09.2018
 - Owner Revisions - 05.24.2018
 - Plan Check Review - 06.17.2018
 - Plan Check Review - 10.12.2018
 - Revisions - 11.16.2018
 - Revisions - 01.04.2019
 - Revisions - 02.04.2019
 - Plan Check Review - 02.28.2019
 - Revisions - 06.21.2019
- SHEET:

M202
CONSTRUCTION SET
08-17-2018



1 SECOND FLOOR PLAN
SCALE: 3/16" = 1'-0"

